

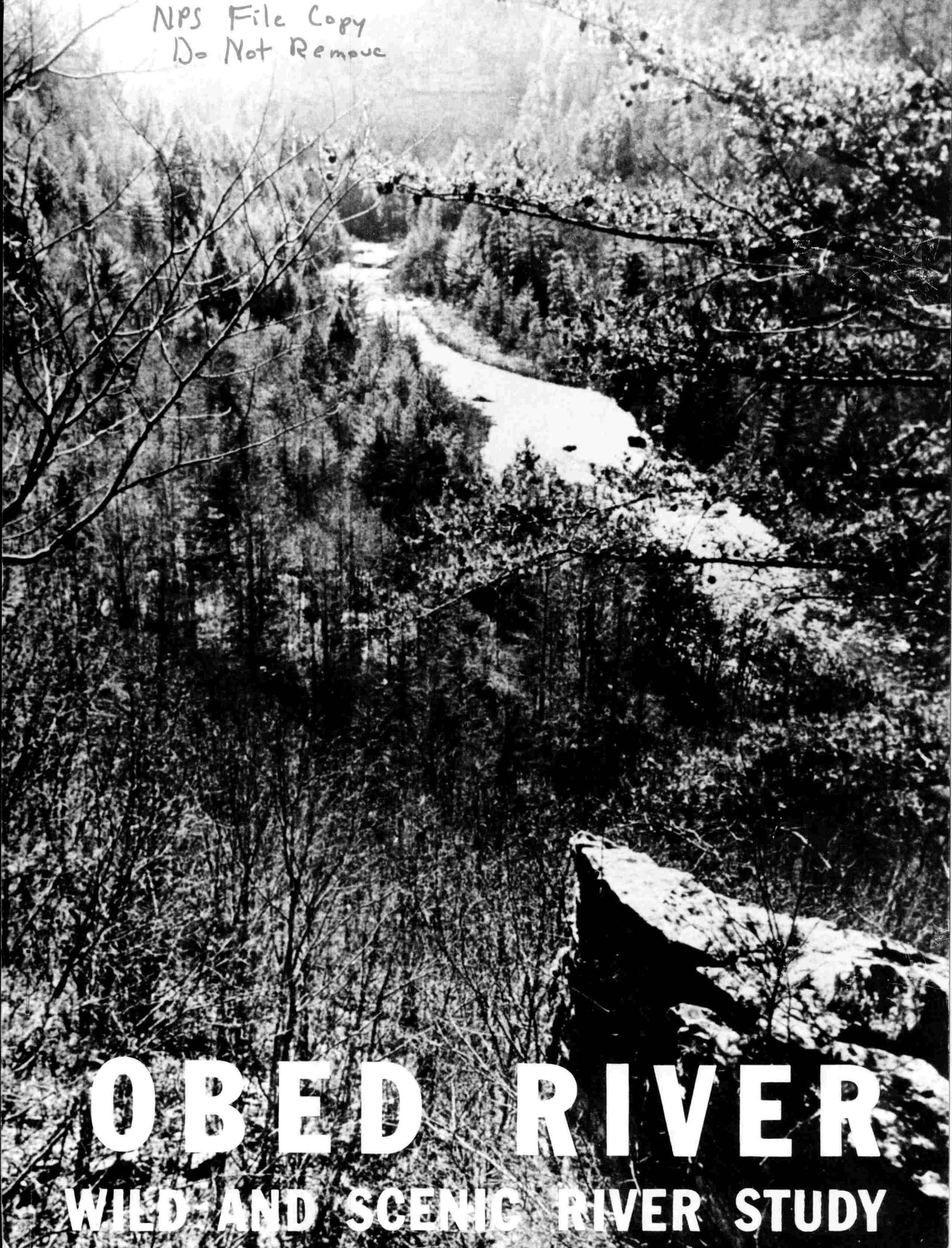
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OBED RIVER TENNESSEE

WILD AND SCENIC RIVER STUDY

JUNE 1976

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OBED RIVER

WILD AND SCENIC RIVER STUDY

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.



DEPARTMENT OF THE INTERIOR
Thomas S. Kleppe, Secretary
Bureau of Outdoor Recreation
John Crutcher, Director

ADDENDUM

The Obed Wild and Scenic River study report was prepared in June 1976. Study findings reported that the Obed River and its tributaries, Clear and Daddys Creeks and a two mile segment of the Emory River, were eligible as a national wild and scenic river. Totalling 100 miles, the inclusion of the Obed and its tributaries in the National Wild and Scenic Rivers System would require legislation by Congress upon review of the report. Before the final report was forwarded to Congress for its approval, however, Public Law 94-485 (October 1976), was passed designating 45.2 miles of the 100-mile long Obed study area as a component of the national system. No action was taken by Congress at that time on the remaining 54.8 miles.

The designated 45.2 mile segment includes the main stem beginning at the western boundary of the Catoosa Wildlife Management Area (see map on page 67) flowing northeasterly to its junction with the Emory River. This segment includes Clear Creek from the Fentress-Morgan County line to its confluence with the Obed and includes Daddys Creek from the Cumberland-Morgan County line flowing northerly to the Obed. Congress directed the Secretary of the Interior through the National Park Service to administer the Obed with participation by the State of Tennessee. In reading the report it should be noted that the National Park Service rather than the Tennessee Valley Authority is the administrator for the Obed Wild and Scenic River. Therefore, "National Park Service" should be substituted for "Tennessee Valley Authority" in Recommendations 4 and 5 on page 1; Administrative Proposal on page 62; and Acquisition Proposal on page 66.

Subsequent to designation of the 45.2 mile river segment costs of including the remaining 54.8 miles of the study area were reevaluated. This was considered necessary in light of increased mineral exploration and activity in the vicinity. As a result of this reevaluation, the following should be substituted for the report section Cost of Proposal on page 74.

Cost of Proposal

Total land acquisition costs for the remaining Obed proposal are estimated to range from \$12 to \$16 million based on land cost estimates of September 1980.

Preliminary Cost Estimates

<u>LANDS</u>	<u>ACRES</u>	<u>ESTIMATED COST RANGE</u>
Total Land Value*	9,458.0	\$ 9.8 - \$13.2
<u>Improvements</u>		
Year-round Residences	(7)	0.2 - 0.3
<u>Total Land and Improvements</u>		<u>\$ 10.0 - 13.5</u>
<u>Total Administrative, Technical, Contract and Relocation Costs</u>		\$ 2.0 - 2.5
<u>Total Estimated Land Acquisition Cost</u>		<u>\$ 12.0 - 16.0</u>

TYPES OF OWNERSHIP/ACREAGE

	<u>Fee</u>	<u>Easement</u>	<u>Total</u>
Federal			
State	33		33
County			
Township/Town			
City/Village			
Organization			
Private	3,981	5,444	9,425
Total	<u>4,014</u>	<u>5,444</u>	<u>9,458</u>

The study report reflects the desirability and feasibility of the total 100-mile river area for system inclusion. Although 45.2 miles have been included in the national system, the resource values of the remaining 54.8 miles warrant designation. We continue to favor the potential use of the entire river area as a worthy addition to the national system.

*Includes Mineral Interest Cost Estimate

December 1981



Obed River

OBED RIVER TENNESSEE

WILD AND SCENIC RIVER STUDY

JUNE 1976

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CREDITS

Cover photograph courtesy of Mr. Don Todd.

Sketch, frontispiece, courtesy of Dr. Claude E. Terry.

Photographs, pages 33, 72, and 83, courtesy of Dr. William Russell.
Page 70, courtesy of Mr. Don Todd. Page 65, bottom, TVA.

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I. SUMMARY OF FINDINGS, RECOMMENDATIONS, AND COSTS

Findings

The Obed River Task Force found that 34 miles of the Obed River, 29.5 miles of Clear Creek, 34.5 miles of Daddys Creek, and 2 miles of the Emory River--a total of 100 miles--possess outstandingly remarkable scenic, recreational, geological, and fish and wildlife values and qualify for inclusion in the National Wild and Scenic Rivers System.

Recommendations

1. That 100 miles of the Obed River, Emory River, Clear Creek, and Daddys Creek be included in the National Wild and Scenic Rivers System as defined in Public Law 90-542, the Wild and Scenic Rivers Act.
2. That the proposed river areas be classified as follows: Obed River from Interstate 40 to junction with the Emory River, 34 miles, wild. Clear Creek from U.S. 127 to junction with the Obed, 29.5 miles, wild. Daddys Creek from the millsite at river mile 34.5 to river mile 18, 16.5 miles, scenic. Daddys Creek from river mile 18 to junction with the Obed, 18 miles, wild. Emory River from junction of the Obed to Nemo bridge, 2 miles, scenic.
3. That the National Wild and Scenic River boundary contain approximately 15,644 acres, of which 9,233 would be acquired in fee title, 2,440 would be controlled through acquisition of easements, and 3,971 would be managed under intergovernmental agreement as this amount is already in public ownership in the State's Catoosa Wildlife Management Area.
4. That implementation of the project be a joint effort by the Tennessee Valley Authority and the State of Tennessee, with the Tennessee Valley Authority assuming primary responsibility for acquisition and the State assuming primary responsibility for planning, development, and administration.
5. That a master plan for acquisition, development, and management be prepared by the State jointly with the Tennessee Valley Authority and in consultation with local agencies and the Secretary of the Interior within 1 year from the time Congress authorizes the project. The master plan shall also include conditions precedent to the transfer of full responsibility for management of the river to the State of Tennessee.
6. That recreational development of the river be minimal with facilities designed to protect the natural values of the area while providing for public use consistent with these values.

Costs

Acquisition	\$4,197,000
Development	808,000
Annual Operation and Maintenance, 1 Year	53,000

NATIONAL WILD AND SCENIC RIVERS SYSTEM
As Authorized by P.L. 90-542
As Amended



U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Outdoor Recreation
 April 1976

II. INTRODUCTION

The Wild and Scenic Rivers Act, Public Law 90-542, was approved on October 2, 1968. In the Act, the Congress declared it

. . . to be the policy of the United States that certain selected rivers of the Nation, which with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

The Act in establishing a National Wild and Scenic Rivers System designated eight rivers as initial components of the National System and prescribed methods and standards for the addition of other rivers to the system.

The Wild and Scenic Rivers Act also designated 27 rivers for study (map, page 2) by the Secretary of the Interior and/or Secretary of Agriculture as potential additions to the system. The Obed in Tennessee and its tributaries--Clear Creek and Daddys Creek--were among those designated for study.

Subsequent legislation, germane to protection of outstanding rivers and their immediate environs, included the National Environmental Policy Act of 1969, Public Law 91-190, approved January 1, 1970. On March 5, 1970, Executive Order 11514, signed by the President, furthered the purpose and policy of the National Environmental Policy Act of 1969 by defining the roles of Federal agencies and the Council on Environmental Quality established by the Act:

The Federal Government shall provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life. Federal agencies shall initiate measures needed to direct their policies, plans, and programs so as to meet national environmental goals. The Council on Environmental Quality, through the chairman, shall advise and assist the President in leading this national effort.

Wild and Scenic River Studies

The Wild and Scenic Rivers Act specifies that a study report shall accompany each proposal submitted by the President to the Congress for the addition of a river to the National Wild and Scenic Rivers System. Reports must set forth:

1. The area included within the proposal;
2. The characteristics which make the river a worthy addition to the system;
3. The current status of landownership and use;
4. The reasonably foreseeable potential uses of land and water which would be enhanced, foreclosed, or curtailed if the area were included in the National System;
5. The Federal agency proposed to administer the area;
6. The extent to which administration, including costs, would be shared by State and local agencies; and,
7. The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area as a component of the system.

The Act directed the Secretary of the Interior, in close cooperation with the affected States and their political subdivisions, to complete a study to determine whether the Obed River and its tributaries-- Clear Creek and Daddys Creek--should be included in the National Wild and Scenic Rivers System. The Bureau of Outdoor Recreation was designated as lead agency in the study by the Secretary of the Interior.

In accordance with Section 5(c) of the Wild and Scenic Rivers Act, the State of Tennessee, a pioneer in State scenic rivers legislation, requested a joint study. The Tennessee Department of Conservation undertook coleadership responsibilities with the Bureau of Outdoor Recreation.

The Southeast Regional Office of the Bureau and the Tennessee Department of Conservation, in keeping with the provisions of the Act, brought together a joint Federal-State study task force. A list of task force members in the field study is included in the Appendix on page A-113. The purpose of the task force was to prepare a field report and proposal for the Obed River and its tributaries. This report and proposal are the result of that joint study effort.

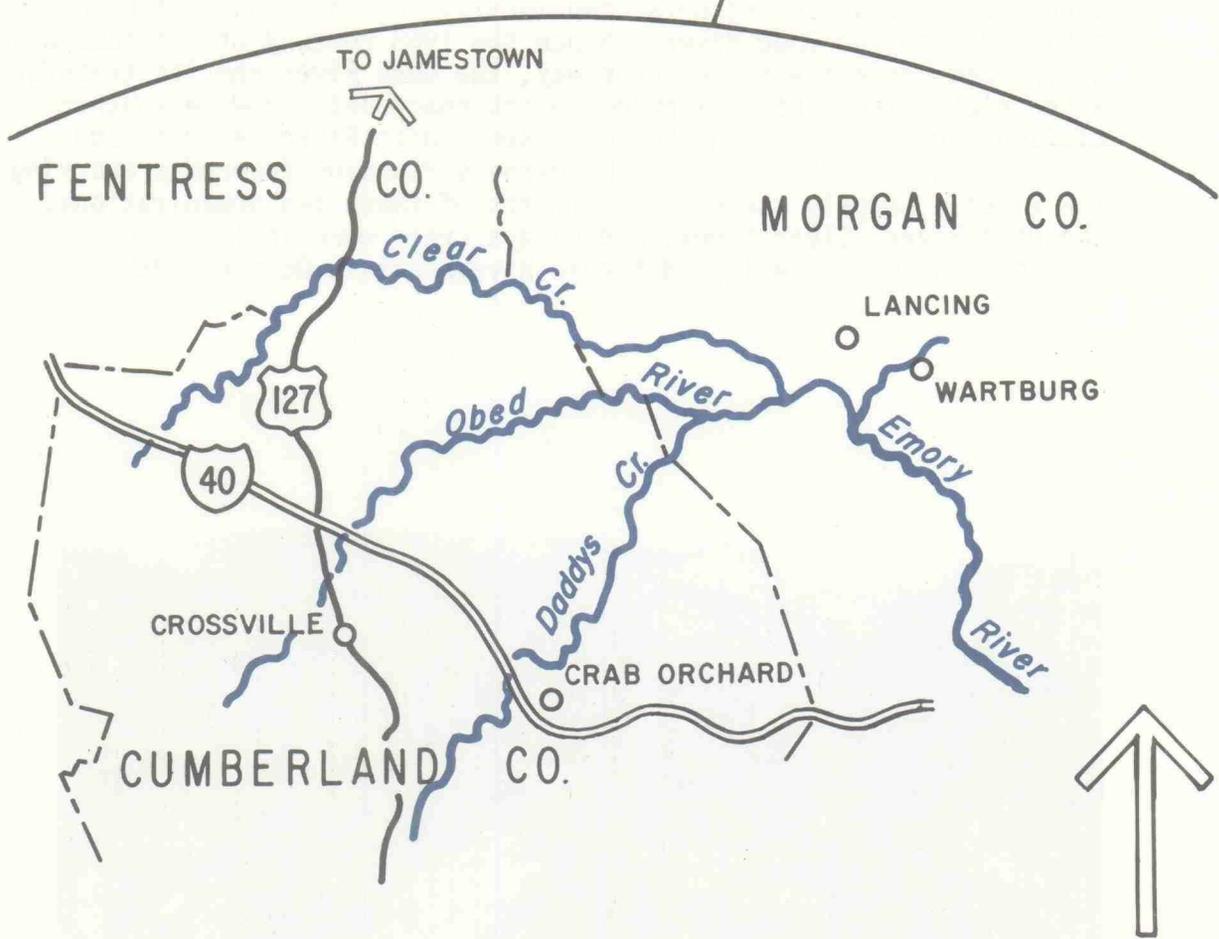
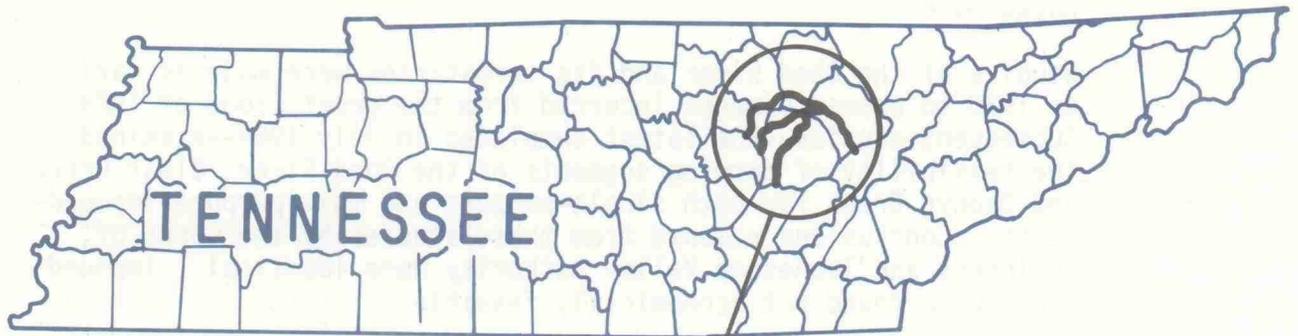
Background

Studies of the Obed River and its tributaries were made as early as 1930 to assess damages incurred from the great flood of 1929. Subsequent studies--the latest completed in July 1968--examined the feasibility of damming segments of the Obed River, Clear Creek, and Daddys Creek for both single-purpose and multipurpose impoundments. Conclusions reached from these studies by the Corps of Engineers and Tennessee Valley Authority were identical. Impoundments were found not economically feasible.

In February 1968, the Obed River and its tributaries were included in a bill which became the Tennessee Scenic Rivers Act. However, strong organized support persisted locally for the construction of a high dam on the Obed River. Since the 1968 restudy of the feasibility of the dam project was then underway, the Obed River and its tributaries were deleted from the bill prior to its enactment. However, other citizens groups including the Tennessee Scenic Rivers Association and the Tennessee Citizens for Wilderness Planning favored preserving the river. Largely through the efforts of these two organizations, the Obed River, Clear Creek, and Daddys Creek were included in Section 5(a) of the Wild and Scenic Rivers Act in October 1968.



Preservation of the primitive character of the Obed system has long been a goal of conservation groups.



LOCATION MAP

OBED RIVER

USDI - BOR, DECEMBER 1973

III. THE RIVER AND ITS SETTING

Location

The watershed of the Obed River is in the Cumberland Plateau of east Tennessee. It is characterized by forested mountains, scenic river gorges, and small communities, and contains some of the most rugged scenery in the Southeast. Elevations range from 900 to 2,900 feet above mean sea level. (See topographical map on page 8.)

The Obed River, Clear Creek, and Daddys Creek are located in Cumberland, Fentress, and Morgan Counties (map, page 6). Principal towns in the area include Crossville and Wartburg, Tennessee.

Transportation

Interstate 40, the major east-west highway between Knoxville and Nashville, Tennessee, crosses the upper reaches of the Obed River and Daddys Creek. The interstate and related major highways provide easy access from cities in Tennessee, Georgia, Alabama, Kentucky, and the Carolinas. The total population within 50-mile zones up to 200 miles away is shown in the diagram on page 42.



Obed River Near I-40 (River Mile 34)

Watershed

The Obed River, Clear Creek, and Daddys Creek drain an area of 520 square miles and comprise a total of 144 miles of mountain streams flowing northeast then east into the southbound Emory River which joins the Tennessee River system. Portions of all three streams flow through the Catoosa Wildlife Management Area administered by the Tennessee Wildlife Resources Agency.

Obed River

The river rises near the mountain town of Crossville, Tennessee, and flows northeast approximately 45 miles to its junction with the Emory River southwest of Wartburg. From its headwaters at river mile 45 to Interstate 40 (a distance of about 10 miles), the Obed River is a small stream flowing through a relatively shallow, wooded valley predominantly bordered by farmland. Below the Interstate 40 bridge, the river begins its journey through a highly scenic and sparsely inhabited area. Four miles below the interstate, at river mile 31, 250-foot canyon walls face each other across the narrow gorge known as the Gould Bend corridor. The stream corridor has escaped the impact of civilization. Rocks fallen from the canyon walls pinch the stream into a tumbling succession of small waterfalls fed by several tributaries cascading over massive boulders.



Cascading tributary near Obed-Emory confluence



Gould Bend area of Obed River (River Mile 31)

Towering eastern hemlock mingle with upland hardwood species and a lush understory of laurel, wild flowers, and ferns. Fallen chestnut trees, relics of a forest giant almost extinct from the American landscape, are found throughout the Gould Bend corridor.

From Gould Bend to Adams Bridge at river mile 25, a distance of about 6 miles, the valley widens and becomes deeper. Boulders along the streamside are seemingly transformed into cliffs extending over the surface of the water. These overhangs are of outstanding aesthetic value.

One-half mile below Adams Bridge, the Obed becomes a quiet stream and enters the State-owned 80,000-acre Catoosa Wildlife Management Area. Trees overhanging the stream at this location provide natural diving boards over the clear, deep pools.

Three miles below Adams Bridge, the river again flows between canyon walls exceeding 300 feet in height. These walls recede at Potters Ford where a grassy cove with an artesian well is a significant visitor attraction. Downstream of a low concrete bridge at Potters Ford, the Obed is bordered by bluffs varying in height from 200 to 500 feet.



Obed River (River Mile 22)



The section of the Obed between river mile 16 and its confluence with the Emory River is one of the most scenic areas in the Southeast, offering a diversity of quality recreation opportunity. Multicolored canyon walls are enhanced by shallow caves. Gray lichens and dark mosses cover boulders of all imaginable sizes and shapes. The white water is challenging. A variety of wildlife and fish ranging from white-tailed deer and ruffed grouse to smallmouth bass and muskellunge exists within the corridor. Clear Creek and Daddys Creek enter the Obed at river miles 5 and 9, increasing its size and rate of flow and contributing to the scenic value of the Obed canyon.



Boulder on the Obed River

Clear Creek

Clear Creek rises on the Tennessee Valley Divide a few hundred feet upstream of Interstate 40 and flows eastward for 48 miles before entering the Obed at river mile 4.4. From its source to U.S. Highway 127, the crystal clear stream averages about 12 feet in width and meanders over a rocky course through rolling farm country. Shortly after the U.S. Highway 127 crossing, 29 miles upstream from its confluence with the Obed, the stream becomes deeper and wider, entering narrow valleys bordered by stretches of sheer rock wall. There is no improved road access for 20 miles below U.S. Highway 127. This remote, scenic, uninhabited area provides an excellent small-scale wilderness opportunity for fishermen, floaters, hikers, canoeists, naturalists, and other outdoor recreation users. Rapids alternate with deep, long pools amidst huge boulders. Numerous small tributaries, forming cascades, progressively increase the size of the stream as it flows eastward. One such tributary at river mile 15 boasts an 85-foot waterfall.



Clear Creek (River Mile 8.5)



White water on Clear Creek (River Mile 2)



Clear Creek canyons (River Mile 2.4)

The lower 2-mile stretch from Lilly Bridge to Clear Creek's confluence with the Obed is among the most dramatic in the entire Obed River system. About one-fourth mile below Lilly Bridge is a wide, peaceful, smooth-bottomed pool ideally suited for swimming, wading, rock hopping, and tubing. At the lower edge of the pool is Jacks Rock, a huge boulder named for the muskellunge caught by fishermen casting from the rock. An underwater section of Jacks Rock creates an 8-foot drop with an "S" swirl at its base which challenges the most skilled canoeist.

Daddys Creek

From its headwaters, 49 miles above its confluence with the Obed to the Alvin York Highway crossing at river mile 34, Daddys Creek is a narrow stream flowing through gently rolling pastoral countryside. Upon rounding a bend about 100 yards above the highway crossing, the current of the briskly flowing stream is momentarily decreased by an abandoned gristmill dam. The site has a 4-foot-high concrete spillway and rustic mill building. Reflecting a facet of America's early technology and culture, the old mill provides interesting sightseeing.



Daddys Creek at old millsite (River Mile 34)



Devils Breakfast Table On Daddys Creek (River Mile 2.5)

From the mill to the Center Bridge crossing, a distance of 17 miles, Daddys Creek winds through a diverse topography. Banks rise about 100 feet above the stream along this segment and land is used both for farms and forests. This section of Daddys Creek is ideally suited for streambank fishing and passive floating.

From Center Bridge to the Hebbertsburg Bridge at river mile 9, Daddys Creek flows through a steep sided valley. There are occasional flat bottoms. The surrounding landscape, characteristic of the nearby rugged Crab Orchard Mountains, is colorful in the spring with a variety of wild flowers, dogwood, and redbud trees.



Daddys Creek near Hebbertsburg Bridge (River Mile 9)

Downstream, the valley becomes deepened, narrow, abruptly opening into a scenic cove at Yellow Creek, a cold, small mountain tributary. Immediately below the cove, the steep sided canyon pinches in on the creek again. From this point to the Devils Breakfast Table, a pinnacle of rocks balancing a flat slab of sandstone, are found the most rugged and scenic sections of the stream. Huge cliffs extend vertically almost from the water's edge. Gigantic boulders create difficult white water. The canyon is outstandingly scenic and almost uniformly dramatic from the Devils Breakfast Table to its junction with the Obed River.



Daddys Creek from the river and from the bluff (River Mile 2.5)



Physiography

The Obed River gorge and those of its tributaries are cut into the Cumberland Plateau, which averages about 2,000 feet in elevation. The highest elevation within or adjacent to the drainage of the Obed is Brady Mountain, just under 3,000 feet. The elevation of the Obed at its confluence with the Emory is 860 feet, there being a total relief of over 2,000 feet. Elevations along the lands bordering the proposed stream segments vary from 900 to 1,500 feet above mean sea level. The gorges are impressive, with a depth of up to 400 feet, being almost vertical in many places. They are also very narrow (as little as 800 feet wide at the top even in the downstream segment).

The Obed, Clear Creek, and Daddys Creek have generally moderate gradients in the upstream portions, but a much higher gradient downstream. Within the study area, the Obed drops an average of 21 feet per mile, Clear Creek drops 20 feet per mile, and Daddys Creek drops 19 feet per mile.

These streams have a distinct meander pattern, but are obviously youthful with their high gradients and narrow gorges, indicating they are presently in a cycle of rejuvenation. The meanders were developed on a higher surface when the streams had reached a temporary base level (perhaps on the resistant Rockcastle Conglomerate). These features are present on most streams throughout the northern plateau.

Geology

Interesting structural features are present in the Obed region. The Sequatchie Anticline, a ridge and valley structure which trends northeast-southwest, has been breached by erosion resulting in exposure to weathering and erosion of the weaker limestones in the Sequatchie Valley, Grassy Cove, and Crab Orchard Cove. These are among the most beautiful valleys in the Southeast. The anticline continues to the northeast where it forms the Crab Orchard Mountains.

Another important structure is the Cumberland Plateau overthrust, a western extension of the fractures produced by mountain building forces toward the end of the Paleozoic Era. This complex zone extends up the Emory River as a tear fault and then breaks through as a series of thrust faults along the south side of the Obed River across Daddys Creek and roughly parallel to the Obed. The Obed River flows parallel to the fault system throughout its course. The fault complex is well exposed in Yellow Creek Gorge of Daddys Creek, on the lower Obed, and also along Interstate 40 east of Crossville.

The diversity of rock sizes, types, and shapes existing in the Obed River region attracts the geologist and adds immensely to the scenic quality of the area. Rocks exposed in the Obed drainage are of the



(Daddys Creek and Obed Junction)
Sections of rimrock have fallen into the stream

Pennsylvanian (50 million years ago) and Mississippian (30 million years ago) periods. The Mississippian rocks exposed along the upper reaches of Daddys Creek consist of red and green shales, dark red and olive gray siltstones, and minor amounts of limestone. The Pennsylvanian formations form the broad, flat to rolling areas of the northwest Cumberland Plateau and the vertical cliffs of the Obed River and its tributaries. The Pennsylvanian strata consist primarily of sandstone, siltstone, and shale.

It is primarily the interbedded shale and sandstone which has created the spectacular multicolored bluffs of the Obed River and its tributaries. Sections of sandstone, once a part of the rimrock, have gradually moved downslope becoming deposited in the stream corridors. These boulders not only enhance the experience of white water canoeing and sightseeing, but also provide areas for picnicking, sunbathing, and rock hopping during periods of low to moderate flow.

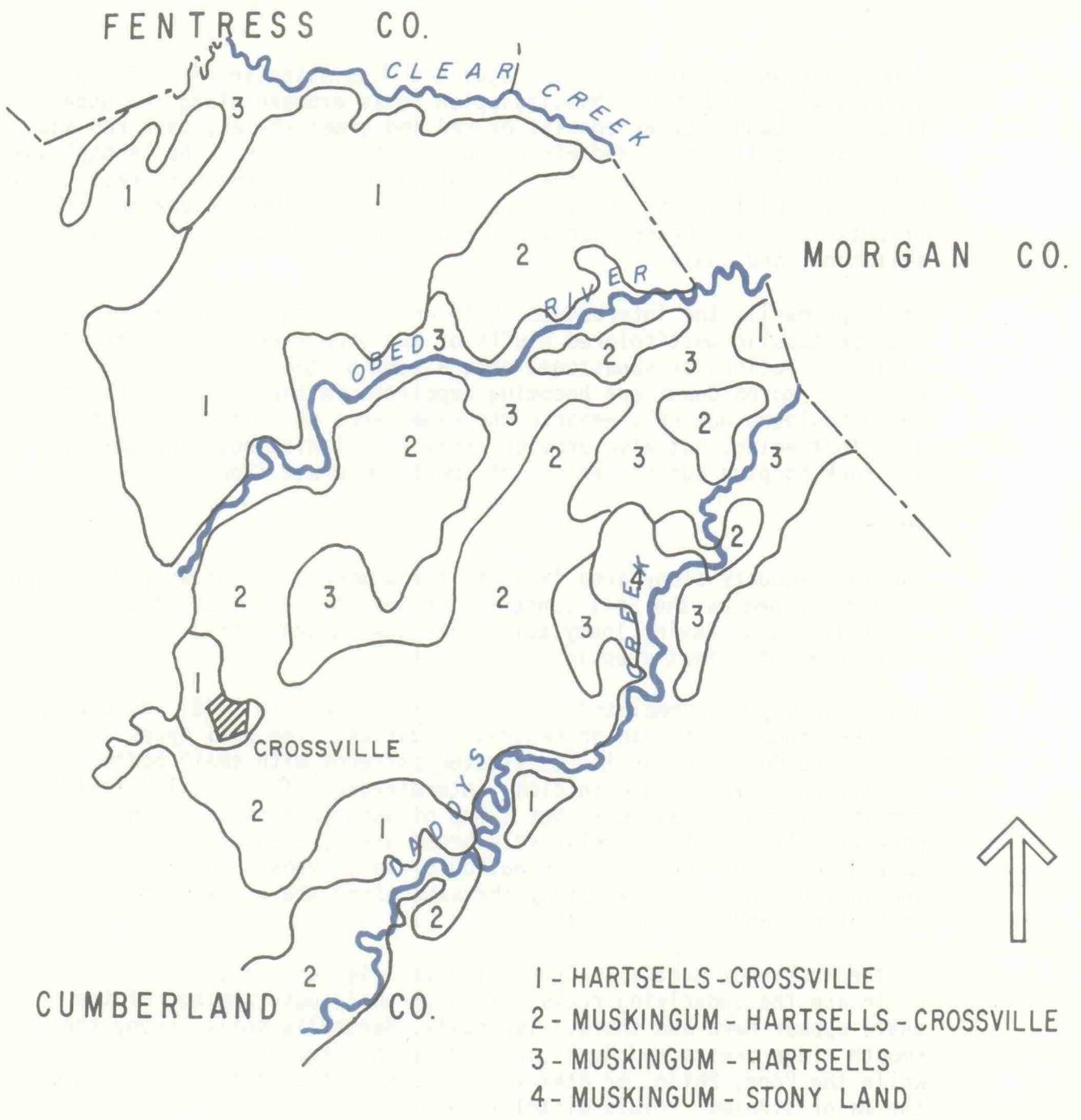
Soils

The three-county study area falls in the Cumberland Plateau physiographic area described by the Soil Conservation Service, U.S. Department of Agriculture, as having loamy soils with low natural fertility which average about 2 feet deep to sandstone rock.

A soil survey was completed for Cumberland County in 1938. No survey has been done for Morgan or Fentress Counties. The soil types of Cumberland County occur in complicated patterns with small bodies of different types found in close intermixture. The detailed soil map is not reproduced here, but a map of associations is shown on page 22. It identifies relatively broad areas, each of which is made up of about the same combination of soil types. Associations are thought to be approximately the same along the study streams in Fentress and Morgan Counties.

In the Muskingum-Hartsells-Crossville association, sandstone and shale are the underlying rocks, although small outcroppings of the shale appear here and there. Typically, Hartsells soils occupy the smooth ridge crests and Muskingum occupy the strong or steep slopes, while the Pope, Philo, or Atkins soils are in the bottom lands along the major streams. (This distribution is also true for the other associations having these soil types.)

The Muskingum soils are poorly suited to crops and pasture. They are moderate to low in production of timber, depending on aspect and stoniness. Forest and wildlife are probably their most feasible uses. The Hartsells and Crossville are physically suited to crops but naturally very low in fertility, requiring liberal fertilization even on newly cleared land. The inextensive Pope and Philo are well suited to agriculture.



(SCHEMATIC MAP ONLY)

SOIL ASSOCIATIONS OF OBED SYSTEM IN CUMBERLAND COUNTY

USDI - BOR, DECEMBER 1973

OBED RIVER

The Muskingum-Hartsells association differs from the one just described chiefly in having a much larger proportion of Muskingum soils, a smaller proportion of Hartsells, and very little Crossville. In general, soils are very stony and some are shallow over bedrock. This association offers little opportunity for agricultural development as much of it occurs in small bodies surrounded by soil not suitable for crops, and very little of the land has been cleared.

The Muskingum-stony land association, as the name suggests, is composed of Muskingum soils and stony land with only a very small acreage of Hartsells and Crossville on ridge crests and Pope, Philo, and Atkins in bottom lands. The association is probably best suited to wildlife and forestry recreation.

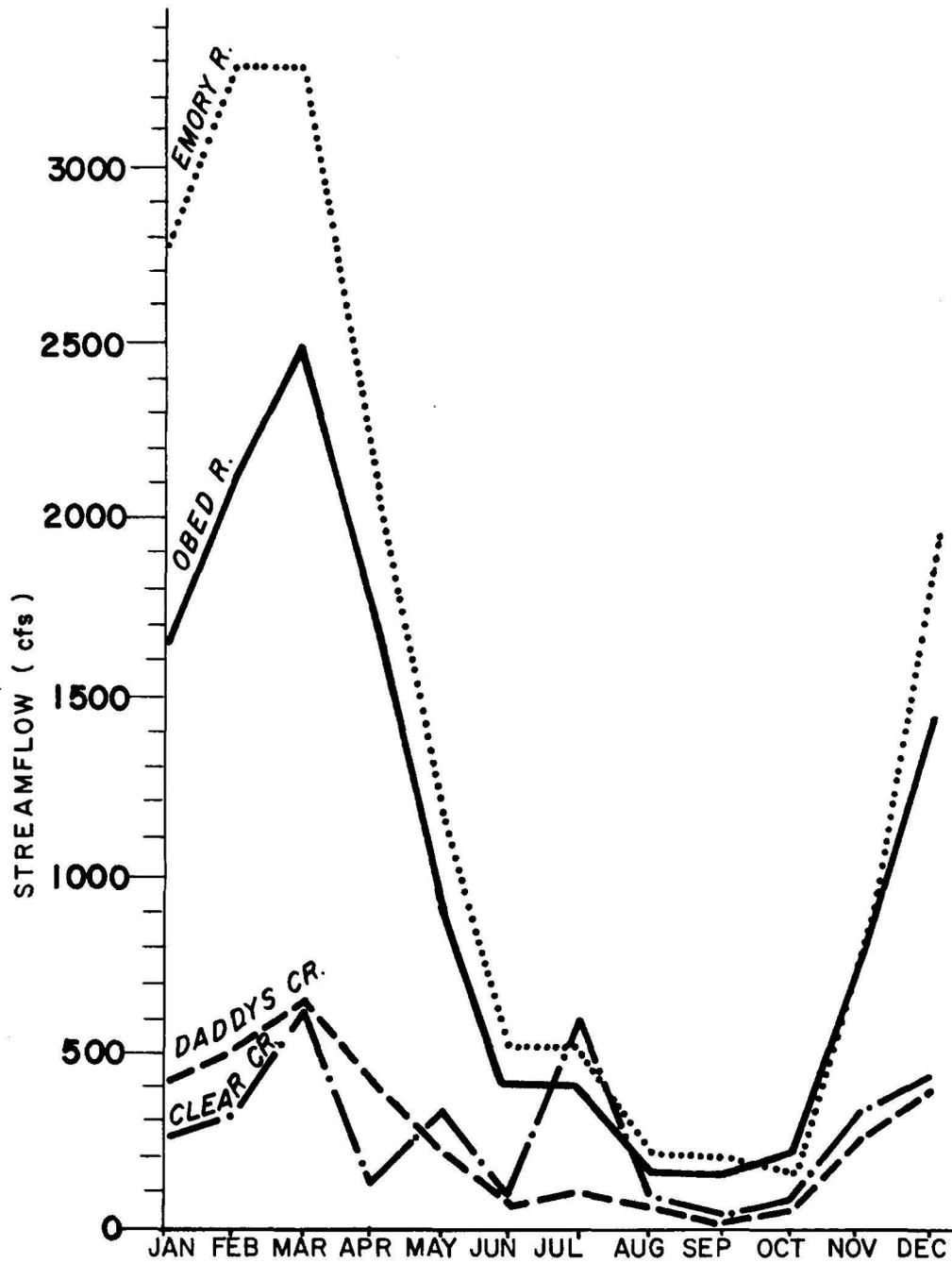
Streamflow

The uneven flow of the Obed River, Clear Creek, and Daddys Creek varies directly with rainfall. The Obed streamflow graph on page 24 reflects the flow variations which can be expected. Observed extremes range from over 140,000 c.f.s. to less than 1 c.f.s. There has not been sufficient sampling to allow the computation of mean monthly or annual flows for the three study streams. From the graph, an analysis of the Emory River watershed, and other U.S. Geological Survey data, the conclusion was drawn that the flow rates on the Emory River at Oakdale were generally proportional to those of the study streams. White water difficulty classifications and minimum, optimum, and dangerous periods for floating have been established by the East Tennessee White Water Club, the Tennessee Scenic Rivers Association, and the Tennessee Valley Authority based on streamflow rates at Oakdale, Tennessee (chart, page 26).

The large fluctuations in streamflow contribute to the diversity of recreation opportunities available. During periods of extremely high flows, the roaring streams thundering against canyon walls and boulders create a spectacular scene. Normal winter and spring flows provide excellent white water canoeing. As flows decrease from June through September, visitors can rock hop nearly dry rapids and explore the streambeds. At low flow, natural sandy beaches by large placid pools provide the setting for swimming, sunbathing, and tubing.

Climate

Average annual rainfall for the Obed region is 53 inches (page 28). March is the wettest month with more than twice as much rain as October--the driest. Snowfalls, although numerous, account for only about 2 percent of the annual precipitation. Average monthly air temperatures correspond closely to the water temperatures of the free flowing streams (page 29).



SOURCE: USGS Records

STREAMFLOW OBED RIVER

USDI - BOR, DECEMBER 1973



Running the white water of the Obed River system



**WHITE WATER CANOEING CLASSIFICATION
FOR OBED RIVER SYSTEM**

Stream Section	Water Level For Canoeing			Trip Distance (Miles)	White Water Difficulty
	Low	Fair	Good		
<u>Obed River</u>					
I-40 to Adams Bridge	May-Nov	Dec	Jan-Apr	10	VI
Adams Bridge-Potters Ford	May-Nov	Dec	Jan-Apr	4	II
Potters Ford to Obed Junction	Jun-Nov	May	Dec-Apr	11	III
Obed Jct. to Nemo Bridge	Jul-Oct	Jun, Nov	Dec-May	9	IV
<u>Clear Creek</u>					
U.S. Hwy. 127 to Hegler Ford	May-Nov	Dec	Jan-Apr	19	III
Hegler Ford to Jett Bridge	Jun-Nov	May	Dec-Apr	5	II
Jett Bridge to Lilly Bridge	Jun-Nov	---	Dec-May	5	III
<u>Daddys Creek</u>					
Hwy. 68 to Center Bridge	May-Nov	Dec	Jan-Apr	10	I
Center Bridge to Hebbertsburg Bridge	Jun-Nov	May	Dec-Apr	8	II
Hebbertsburg Bridge-Devils Breakfast Table	Jun-Nov	---	Dec-May	6	V

White Water Difficulty	I - Easy (beginner)	IV - Very Difficult (advanced)
Key:	II - Medium (novice)	V - Exceedingly Difficult (expert)
	III - Difficult (intermediate)	VI - Serious Risk of Loss of Life

Water Quality

In the past, discharge of waste water from the Crossville sewage treatment plant and industrial waste from a vegetable processing plant near river mile 39 have chemically and bacteriologically degraded about 4 miles of the Obed River.

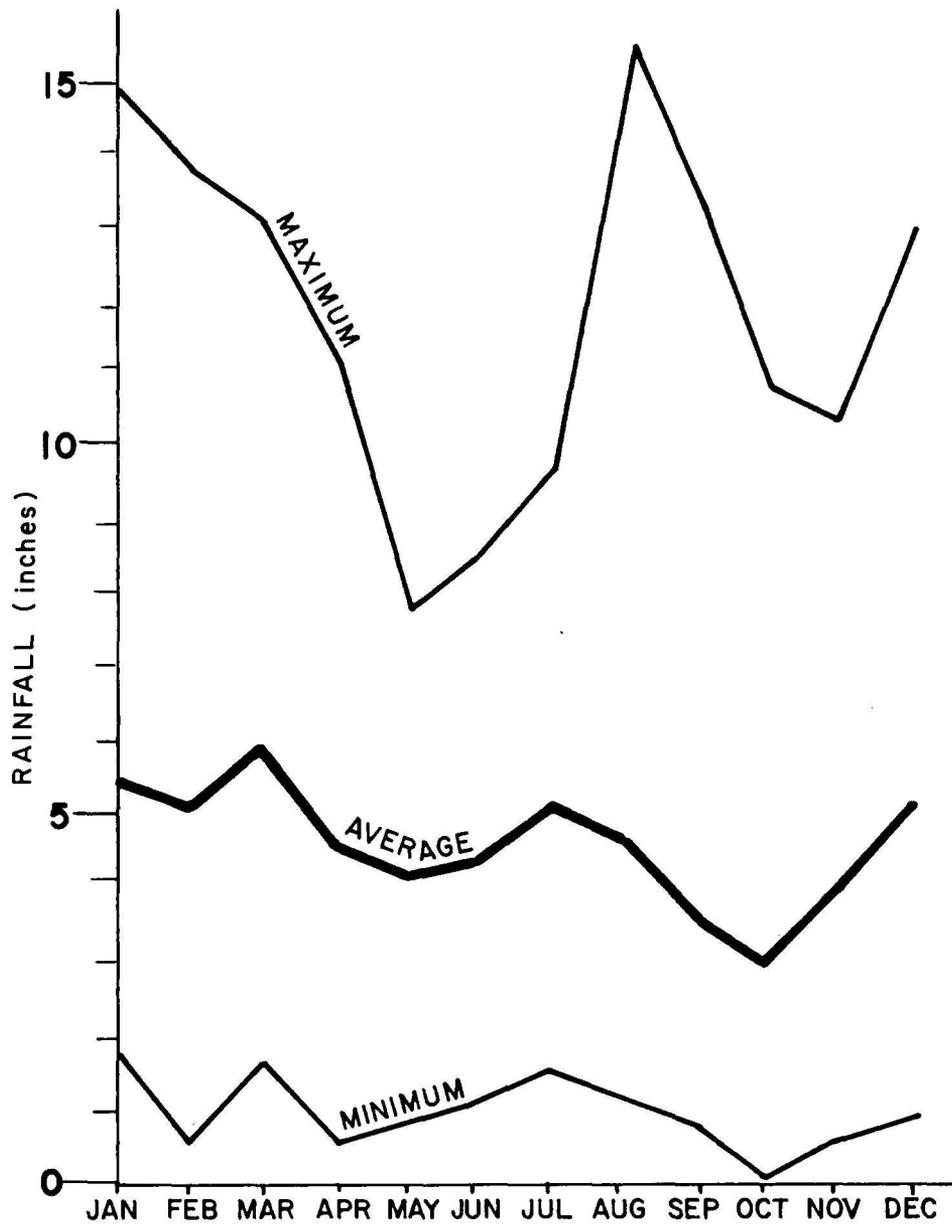
Crossville placed its renovated sewage treatment plant in operation in early 1971. This plant is designed to handle all municipal and industrial wastes from the Crossville area. Although secondary treatment and disinfection are provided, water quality is marginal below the waste water discharge point during periods of low flow in the upper river. Water quality, however, recovers sufficiently to meet standards in the reach under consideration for inclusion in the National Wild and Scenic Rivers System.

Based on sampling to date, the portions of the Obed River, Clear Creek, and Daddys Creek proposed for inclusion in the National Wild and Scenic Rivers System meet the Federal-State water quality standards adopted for these streams and are suitable for recreation, fish and aquatic life, wildlife, domestic and industrial water supply, irrigation and livestock watering.

<u>Stream</u>	<u>Fecal Coliforms</u>	<u>Temperature (°F.)</u>	<u>Dissolved Oxygen (mg./l.)</u>	<u>pH</u>
Obed River, RM 25	10- 80	48.2 - 67.2	7.1 - 8.1	6.1 - 7.7
Clear Creek, RM 29	20-410	49.8 - 67.2	8.3 - 8.7	6.1 - 7.9
Clear Creek, RM 4	10-220	55.2 - 72.8	8.5 - 9.6	6.4 - 8.0
Daddys Creek, RM 27	10- 50	49.8 - 61.6	7.3 - 8.1	6.4 - 7.2
Federal-State Criteria	1,000 max.	85.4 ^o max.	Min. 5.0	6.5 - 8.5

Source: Water samples collected by Tennessee Valley Authority from July through November 1971.

Water quality in the future will have to meet new standards consistent with the objectives of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). These objectives are designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under that law, an NPDES (National Pollutant Discharge Elimination System) permit is required for "point source" discharges into navigable waters. Such discharges by permittees

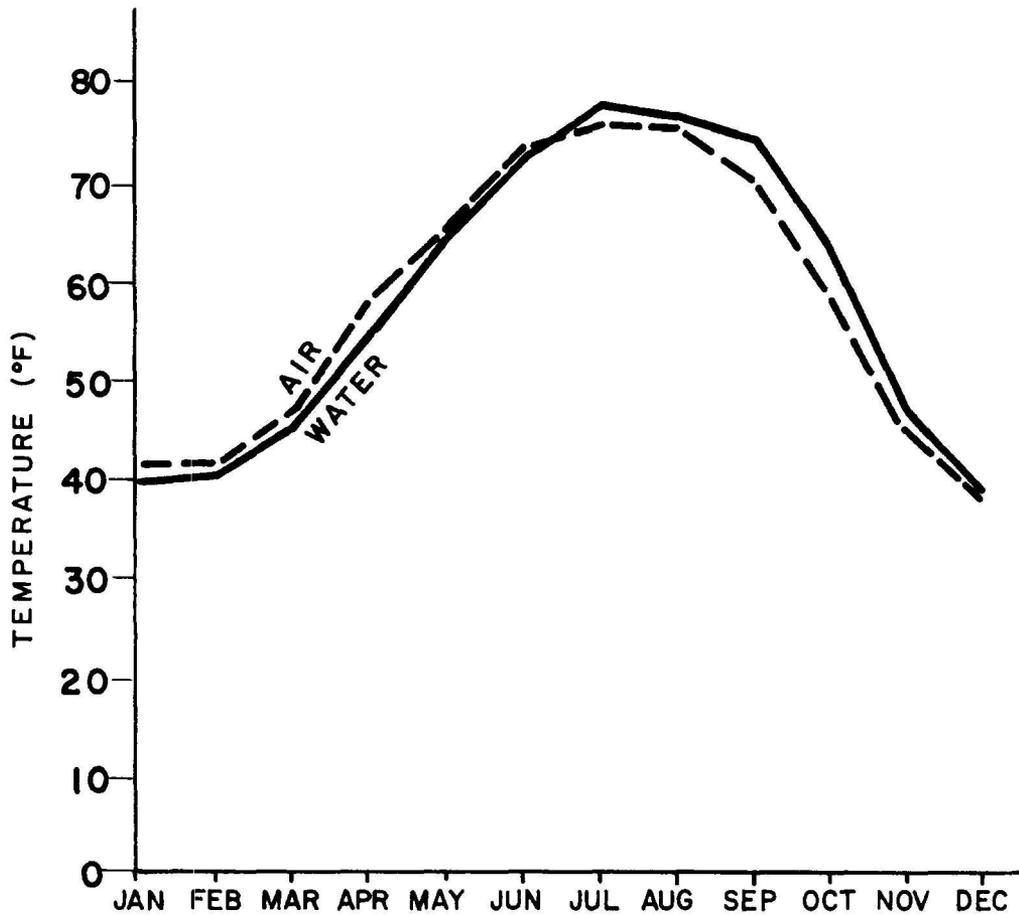


SOURCE: U.S. WEATHER BUREAU STATION AT CROSSVILLE, TENN.

RAINFALL DISTRIBUTION

USDI - BOR, DECEMBER 1973

OBED RIVER



WATER TEMPERATURES BASED ON USGS READINGS ON THE EMORY RIVER AT OAKDALE, TENN.

AIR TEMPERATURES FROM US WEATHER BUREAU STATION AT OAK RIDGE, TENN.

AVERAGE TEMPERATURES

USDI - BOR, DECEMBER 1973

OBED RIVER

will be governed by guidelines called "Effluent Limitations Guidelines and New Source Performance Standards" being prepared by the Environmental Protection Agency (EPA).

The water quality standards adopted for the river will also be based on "Criteria for Water Quality," currently being prepared by EPA, in accordance with Public Law 92-500. These criteria will set standards of water quality believed adequate for the protection and propagation of fish, shellfish, and wildlife, and for recreation in the Nation's waters. According to the law, whichever of the above two sets of standards is the more restrictive shall apply.

The application of pesticides within or affecting the river corridor, including applications on forest, pasture, and cropland adjacent to the corridor, should comply with the Federal Environmental Pesticide Control Act of 1972 (Public Law 92-516). Consideration should be given to banning, in the above-named areas, the use of all pesticides classified as "restricted" under the Act. Aerial spraying of any pesticide should be minimized, restricted to allow adequate buffer zones, or prohibited.

Vegetation

The most striking characteristic of the vegetation in the Obed River study area is its diversity. In the gorges of the Cumberland Plateau, as in the Appalachian highland, the mixed forests of 1 million years ago survived the Pleistocene glaciation to become the source of the present deciduous forest of the Eastern United States. The rich botany of the Obed region results from the variety of sites within the gorges ranging from extremely dry to moist. Within the valleys are found not only typical flora, but also plants usually restricted to other geographical locations. Streambank corridors are 90 percent forested with upland hardwoods intermixed with pine and hemlock.

Because some of the ravines have been inaccessible to logging, an occasional relic of virgin forest is found towering over a scattered stand of second growth trees. Most striking of the evergreens are the huge hemlocks and white pines. Among the deciduous trees are many species of oaks, beeches, gums, maples, and magnolias. The abundance of the fringe-tree (Chionanthus Virginicus L.), listed as "uncommon to rare" in Stupka's Wildflowers in Color, is notable. Flowers in blossom throughout a long season include several species of azalea, rhododendron, and mountain laurel. Sweet blueberries can be picked in June. Royal fern lines the banks of the streams and yucca grows on the talus slopes. Sweetshrub is abundant in the rich woods where the ground is covered by partridge berry, ferns, and an ever changing array of wild flowers.



Mosses and lichens soften streamside rocks

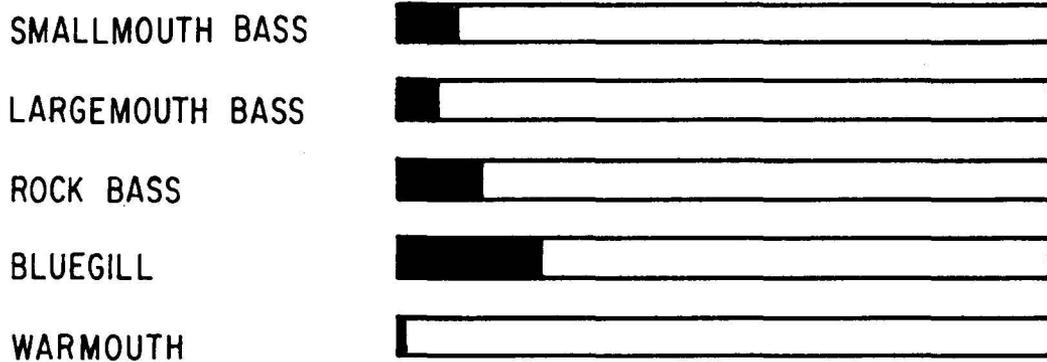
In 1970, Dr. Edward C. Clebsch, University of Tennessee ecologist, reviewed existing literature and found that no ecological studies of vegetation in the Obed River area had been made. Subsequently, in January of 1971 naturalists of the Tennessee Department of Conservation sampled points along the Obed River, Clear Creek, and Daddys Creek for a base list of the stream corridor flora. Their findings are listed in the appendix (page A-121). Many species in addition to those on the base list probably exist in the unsampled canyons and hollows of the Obed region.

Fish and Wildlife

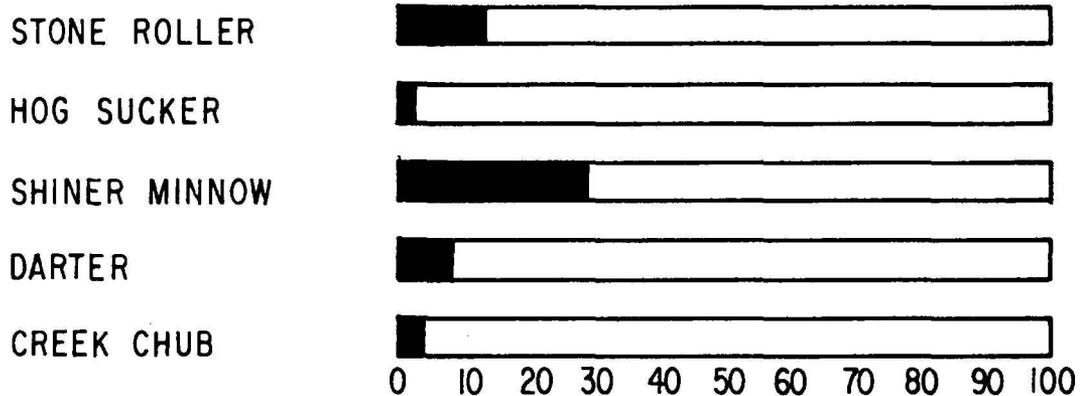
The fish and wildlife habitat of the Obed River area is among the best in the State. The streams contain smallmouth, rock, and largemouth bass, longear sunfish, flathead catfish, shorthead buffalo, carp, and golden redhorse. The Obed and Daddys Creek also offer the southernmost native muskellunge fishing in the United States. A fish population study of the Obed River by the Tennessee Wildlife Resources Agency in 1970 indicated a high percentage of game fish in that stream. (See the following graph.)

PERCENTAGE COMPOSITION OF FISH POPULATION

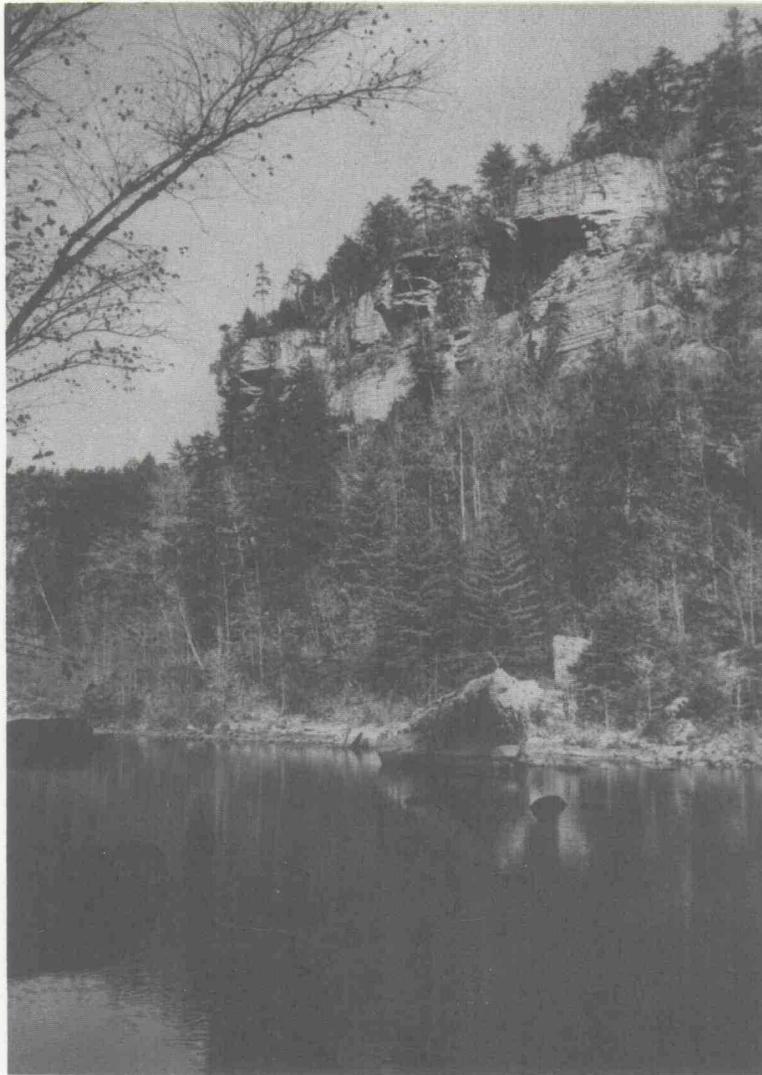
GAME FISH:



NON - GAME FISH:



Wildlife hunted or trapped in the Obed area include an abundant population of Virginia white-tail deer and raccoon, rabbit, squirrel, opossum, mink, muskrat, quail, wild turkey, dove, ruffed grouse, and various species of ducks, including bluewing teal, wood duck and mallard. Wild Russian boar has also been introduced into the Catoosa Wildlife Management Area. The desirability of this animal on the area is being evaluated. A list of fauna in the watershed is given in the appendix on page A-122.



Steep, inaccessible canyons harbor rare plants and animals

The area is inhabited by the American peregrine falcon and the red-cockaded woodpecker, both of which are on the "Official List of Endangered Flora and Fauna," published by the Secretary of the Interior in accordance with provisions of the Endangered Species Act of 1973, (Public Law 93-205). The area is also inhabited by the golden eagle and six species of fish, clams, and crayfish which are considered candidates for this list (see appendix, page 124, for details).

The excellent, diversified wildlife populations of the Obed River watershed, and especially the Catoosa Wildlife Management Area, provide an environment suitable for an onsite wildlife conservation education program.

Water Resource Development

In February 1971, the Tennessee Valley Authority's Water Control Planning Division stated they had no plans for future studies of water control projects on the Obed River, Clear Creek, or Daddys Creek.

Projects involving both single and multipurpose dams on the three streams were studied from 1932 to 1968 by the Tennessee Valley Authority and the Corps of Engineers. The last study in 1968 of a dam on each of the study streams included three multipurpose alternative plans. None proved economically feasible.

On October 1, 1971, the Federal Power Commission stated that they possessed no hydroelectric project applications for the Obed River basin. In conjunction with their regional inventory of potential hydroelectric sites, the Federal Power Commission has determined that sites near river miles 2 and 23 on the Obed River have potential as pump-storage projects (with 600,000 and 435,000 kw. capacity) and that a site at river mile 3 possesses potential as a conventional hydroelectric project (80,000 kw.). There are no plans, however, for present or future development at any of the sites.

History and Archeology

The Archeological Appraisal Section of the National Park Service has described the area as "unknown country." An intensive field examination to inventory the archeological aspects of the stream corridors is needed and is proposed as part of the master planning effort. No data on archaic sites are available, but it is believed that the first Europeans to visit the area--the "Long Hunters"--intermittently occupied the numerous rock shelters along the Obed River and tributaries.

During the 1700's, the Burke Road or Great Stage Road routed by the Obed River was completed connecting Nashville to Knoxville, Tennessee. This road later linked Nashville to Washington, D.C., and was frequently traveled by such historic figures as Andrew Jackson, Davey Crockett, and Mark Twain. The following description of the Great Stage Road is found in Cumberland County's First Hundred Years:

"Where were all these settlers going who filled the roads so that on the Great Stage Road, at least, you could never stand beside it without seeing wagons or stages moving westward? In the fall of the year, tradition says, the lines of wagons moved in unbroken formation across Cumberland County. At first they went to the settlements

in Middle Tennessee but this was also the period of settlement for all the southern and western States. It began after 1803 in the Louisiana Purchase States, in 1845 Texas was opened up, in 1846 Oregon, and in 1848 California and so on . . ."

The Alvin York Highway, named for a famous United States soldier of World War I, traverses the upper basins of all three study streams.

The distance of the Obed region from major settlements and railroad lines, coupled with its infertile soils, caused the area to be of little significance during the Civil War. Following the Civil War, the Cumberland Plateau gradually evolved a marginal agrarian economy that has largely remained to date.

Consultation with the State Historic Preservation Officer, the "National Register of Historic Places" and "Tennessee's Plan for Historic Preservation" reveal no existing or potential historic properties that would be affected by the proposal; however, a thorough survey will be part of the master planning effort, and any sites identified that meet the criteria will be nominated to the "National Register of Historic Places."

Economy

The three counties in the Obed study area have made some economic progress during the past 5 years, but most economic indicators show that the area still lags behind the rest of the State. Commercial agriculture is severely hampered by the steep topography of most of the study area. Beyond the immediate stream corridors, however, the relatively level land of the Cumberland Plateau, particularly in the western portions of Cumberland and Morgan Counties, is suited for agriculture.

Income from the sale of agricultural products for Cumberland, Fentress, and Morgan counties totaled \$14.1 million in 1969 compared to \$8.8 million in 1964, an increase of about 60 percent. Overall agricultural sales in the State for the same period increased by 18 percent. Agricultural sales in 1969 for the three counties represented 2.3 percent of the State's total. Since 1949, the total number of farms in the counties decreased while the average farm size increased to its present average of approximately 130 acres. The average value per acre of farm real-estate in Tennessee was \$199 in 1969. Realized gross and net income per farm for 1969 was \$6,773 and \$2,305. Livestock sales account for over half of the total farm income. Poultry, beef, and dairy production are the principal sources of farm income. Chief crops in the region include sorghum, corn, snapbeans, tobacco, pimentos, peppers, hay, and small grains.

The major forest type in the three-county area is upland hardwood. White pine, eastern hemlock, shortleaf pine, and Virginia pine also are of commercial value.

In 1970, the sale of all forest products from Cumberland, Fentress, and Morgan Counties provided \$14.5 million or 2 percent of the State total. There were 533 persons employed at 38 primary and secondary processing mills in these counties in 1970.

Manufacturing and the retail trade industries are increasing in importance. During 1960, 22 percent of the Cumberland County work force and 26 percent of the Morgan County work force were involved in manufacturing.

The most important mineral commodity of the Obed area is bituminous coal (see mineral resources map on page 37). Coal production of 947,000 tons in Cumberland, Morgan, and Fentress Counties during 1972 represented 8 percent of Tennessee's total production. Total recoverable coal reserves 28 inches or more in thickness and less than 1,000 feet in depth in the three counties is shown below.

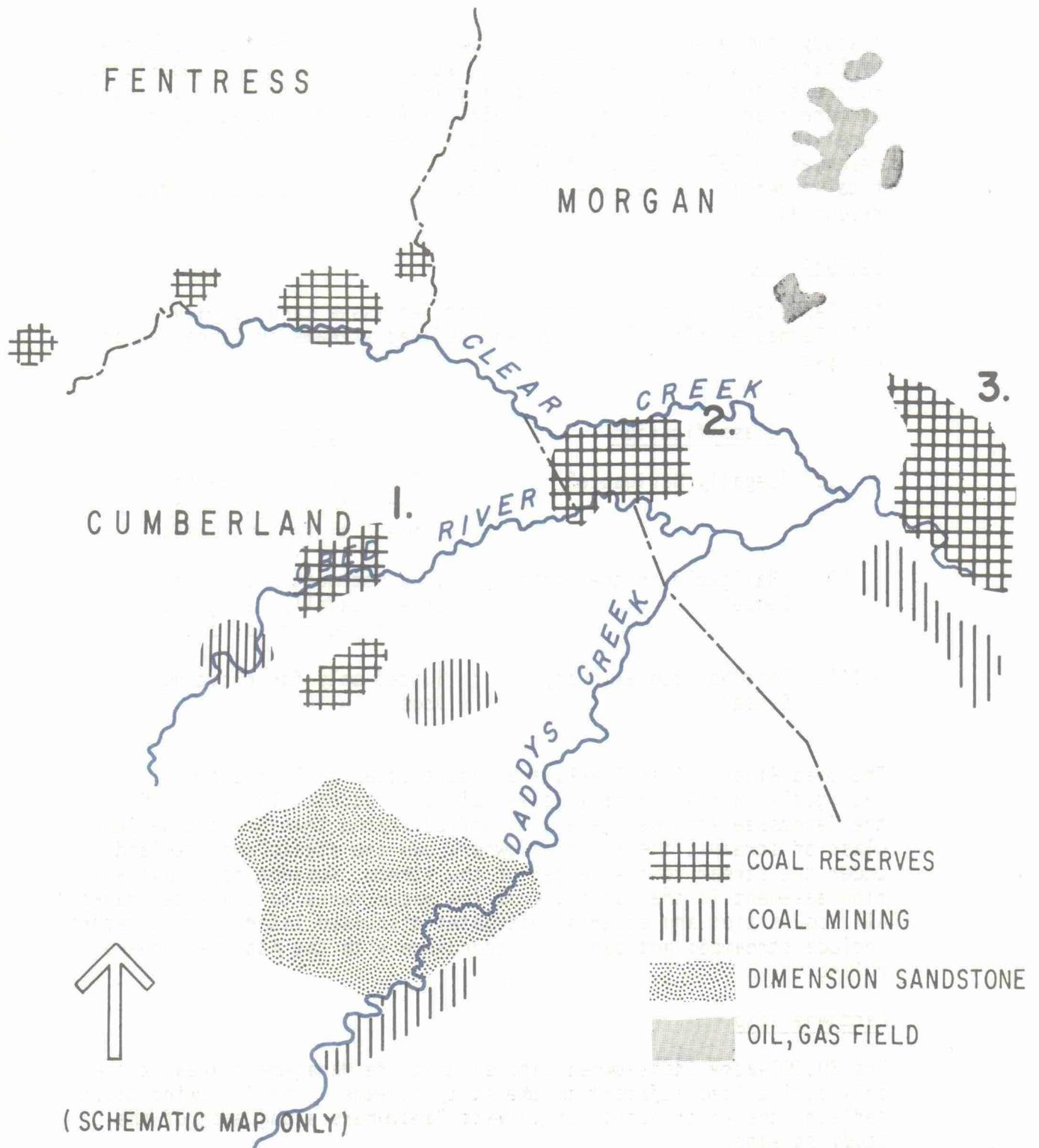
<u>County</u>	<u>Million Tons</u>
Cumberland	29.7
Fentress	50.5
Morgan	88.9

The total amount of recoverable coal within the stream corridors is estimated at 1,550,000 tons, not counting three new reserves shown by numbers 1-3 on the map on page 37.

Because of the steady demand for coal used by the steamplants of the Tennessee Valley Authority, the Tennessee coal market has remained relatively stable. Fifty-five percent of the coal mined in Tennessee during 1971 was purchased by the Tennessee Valley Authority. While the increase of nuclear-fueled steamplants and air pollution abatement programs may decrease the demand for certain types of coal, the current and near term predicted energy shortages will increase our reliance on coal and could well increase the need of its recovery in the general area.

Limited deposits of gravel, barite, clay, shale, limestone, sandstone, and sand are present in the Obed River region. However, only sandstone exists in economically recoverable quantities in the river corridor under consideration. There is a deposit of Crossville Sandstone on upper Daddys Creek (see map on page 37). The economic potential of the sandstone within the river corridor is very limited due to intense weathering, presence of talus slopes, and steep topography.

Increased utilization of the recreation potential of the Cumberland Plateau is indicated by the number of new recreation developments that have been built recently or are presently under construction. Catoosa Canyons, a private recreation and summer residence development, is under construction near river mile 35 on the edge of the Obed River corridor. Another commercial recreation area is planned at Nemo Bridge on the Emory.



MINERAL RESOURCES

OBED RIVER

USDI - BOR, DECEMBER 1973

A study completed in 1971 by the University of Tennessee, Department of Statistics, estimated total tourist dollars spent in Cumberland, Fentress, and Morgan Counties during 1970 at \$3.7 million, an increase of more than 125 percent since 1958. However, the three counties received only one-half of 1 percent of the total State tourist revenues in 1970 (see graph on page 80). A very minor part of these total expenditures resulted from tourist use of the study stream resources.

Navigability

The Tennessee Supreme Court in a West Tennessee Land Company case (127 Tennessee 575) classified and defined streams in Tennessee as follows:

<u>Classification</u>	<u>Criteria</u>
I. "Legally Navigable"	Sufficient width, depth, and volume for navigation by commercial freight boats.
II. "Navigable in the Ordinary Sense"	Does not meet the criteria under "Legally Navigable" but can be rafted, etc.
III. "Not Navigable in any Sense"	Suited only for floating logs.

The Obed River, Clear Creek, and Daddys Creek fall into the "Navigable in the Ordinary Sense" classification. In July 1970, the Tennessee Attorney General's office stated that "In the second class of streams, the riparian owners own the stream and the land under the stream to the center of the stream, subject to a navigation easement in the public, from low water marks to low water marks." All acquisition and easement estimates discussed later in this report include streambed and banks in accordance with the Attorney General's ruling.

Landownership

The 80,000-acre State-owned Catoosa Wildlife Management Area is the only public land adjacent to the study streams. The following table reflects the distribution of private landowners along each of the study streams.

Private Landowner Distribution

Number of Streamside Owners as of June 1971

<u>Acreage</u>	<u>Obed River</u>	<u>Clear Creek</u>	<u>Daddys Creek</u>
1-25	21	2	30
26-50	7	13	17
51-100	13	8	11
101-200	11	7	14
201-300	2	2	3
301-500	8	3	3
501-999	2	-	3
1,000+	2	3	5
	<u>66</u>	<u>*38</u>	<u>86</u>

*Does not include the section from Catoosa Wildlife Area to State Highway 28 in Fentress County as information was not available.

Private streambank owners include insurance, land, and timber companies as well as individuals. Six of the 10 streamside tracts exceeding 1,000 acres are individually owned. There is an average of four landowners per stream mile on the Obed River, two per mile on Clear Creek, and three per mile on Daddys Creek. Riverbank ownership in miles by county is shown in the diagram on page 40.

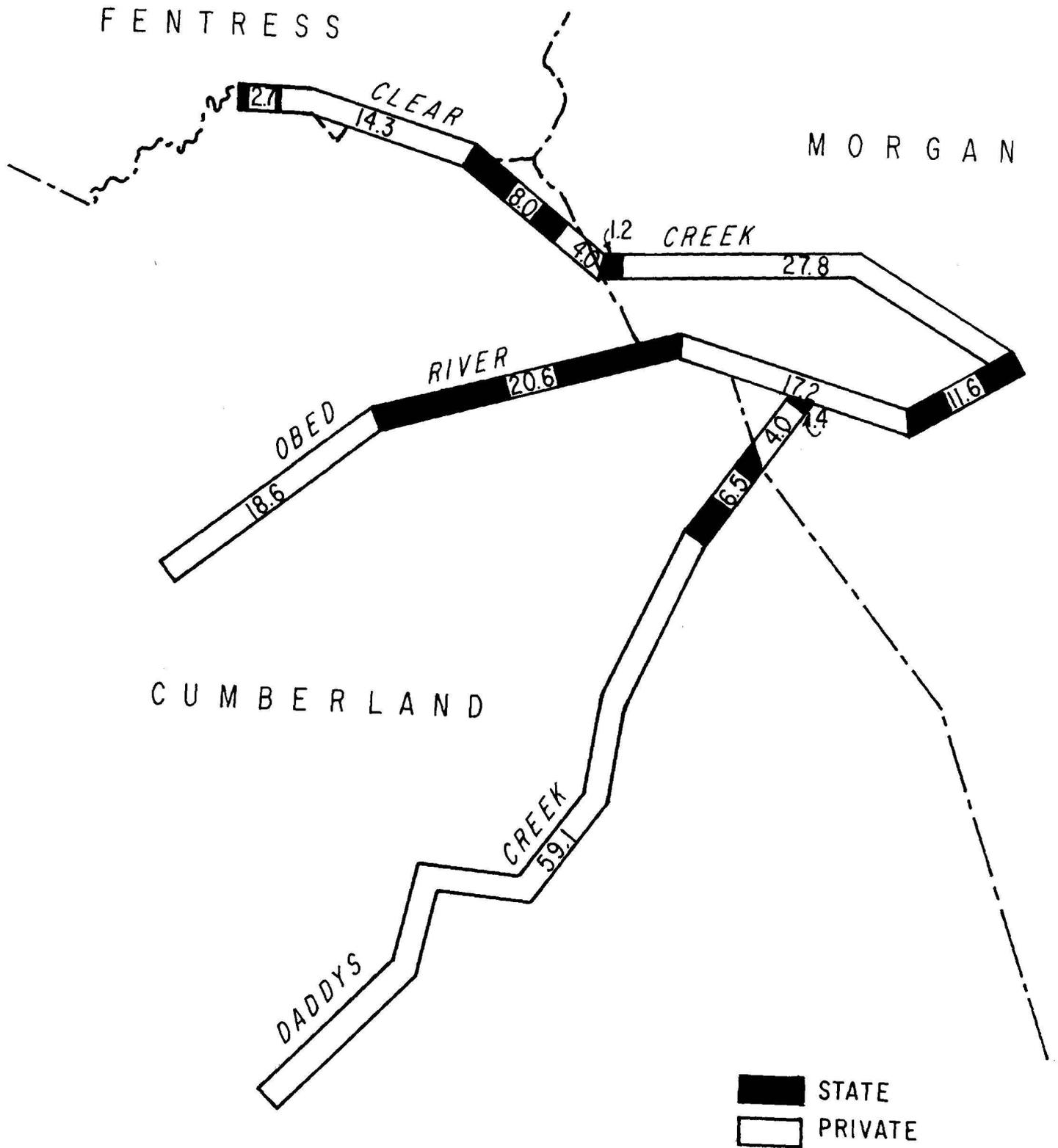
Population

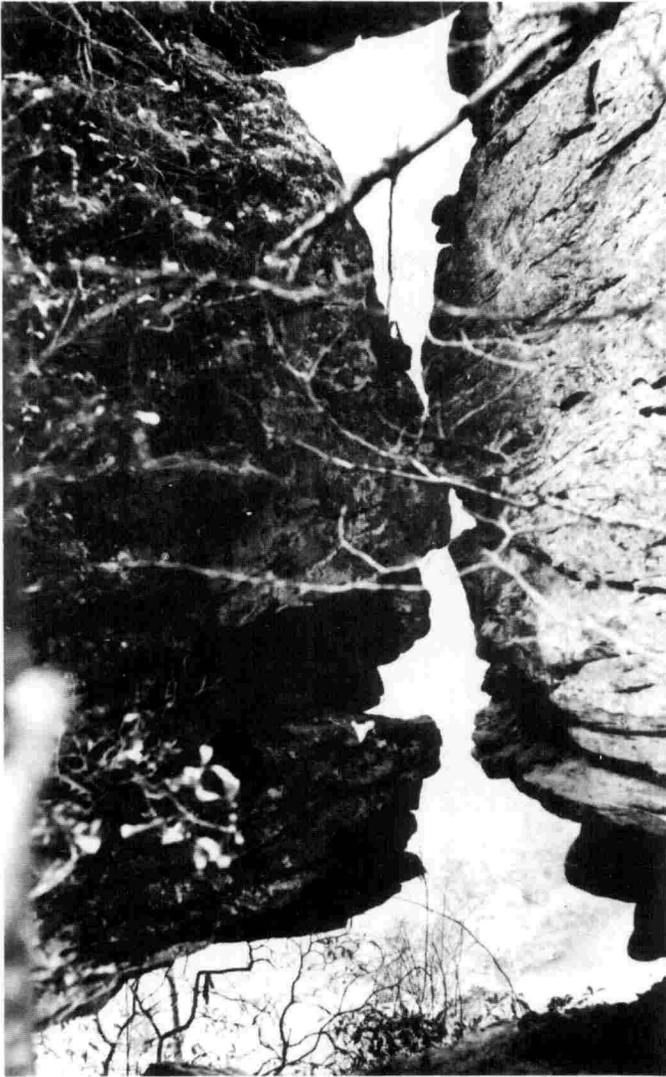
The total 1970 population of the three counties of the Obed region was 46,946. Fentress and Morgan Counties have experienced a significant loss in population over the last 10 years while Cumberland County's percentage growth parallels the statewide increase of 10 percent. The combined 1970 population of the three principal towns within the Obed study area was 7,821.

Populations of Principal Towns

<u>City</u>	<u>1960</u>	<u>1970</u>	<u>Percent Change 1960-1970</u>
Crossville	4,668	5,381	+15.2
Jamestown	1,727	1,899	+10.0
Wartburg	540	541	0.0
Total	<u>6,935</u>	<u>7,821</u>	<u>+12.8</u>

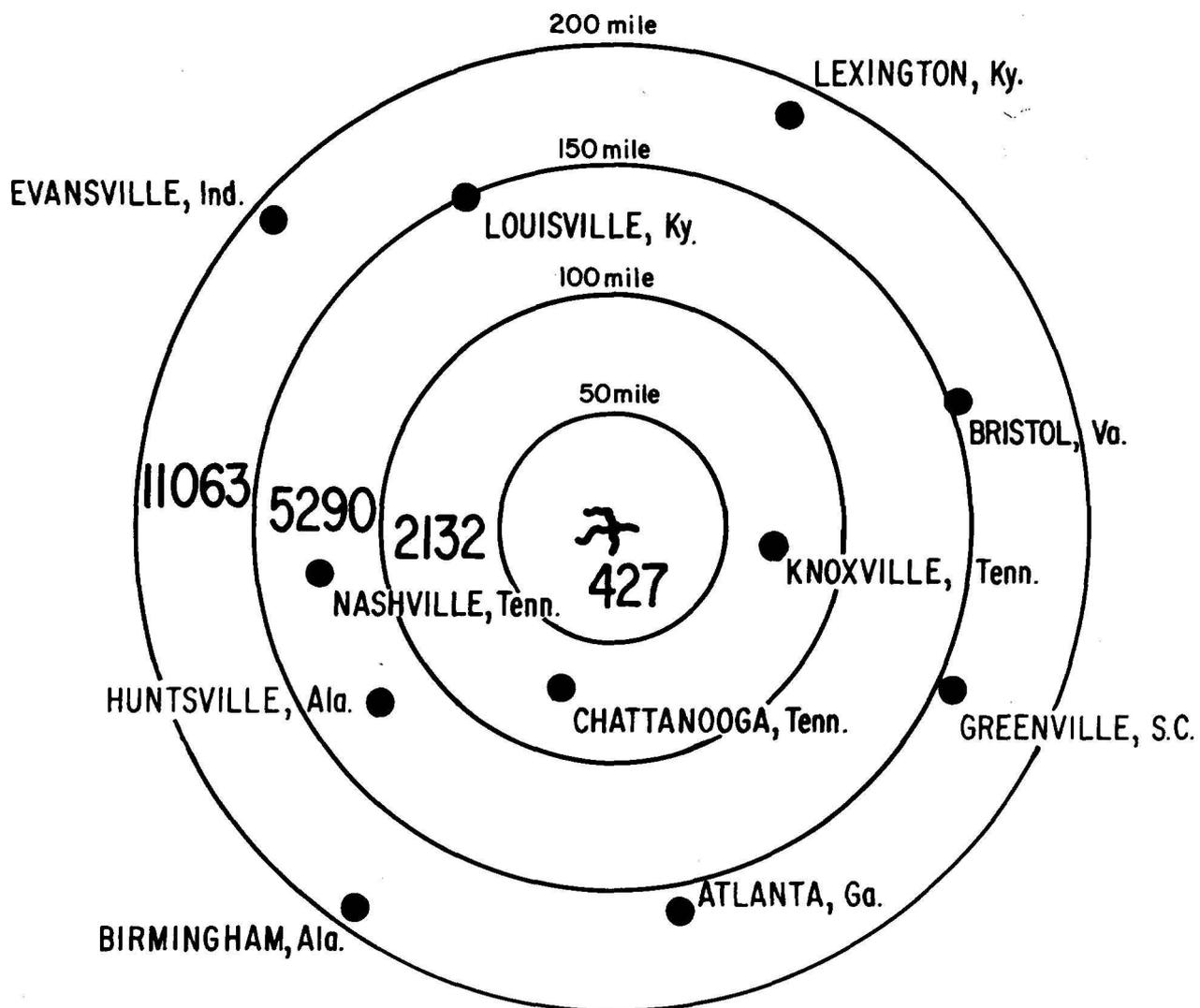
RIVERBANK OWNERSHIP IN MILES BY COUNTY





Several of the scenic overlooks in the Obed system are privately owned.





ABOVE POPULATIONS (expressed in thousands) ARE CUMULATIVE AND BASED ON 1970 BUREAU OF CENSUS FIGURES.

OBED RIVER REGION POPULATION

USDI - BOR, DECEMBER 1973

OBED RIVER

Population Data For Obed River Study Area Counties

<u>County</u>	<u>Cumberland</u>	<u>Fentress</u>	<u>Morgan</u>
1960 Population	19,135	13,288	14,304
1970 Population	20,733	12,593	13,619
Percent Change (1960-1970)	+8.4	-5.2	-4.8
Projected 1980 Population*	22,800	12,100	14,100

*Population by County: Historic and Projected, Region IV (OBERS), published by Environmental Protection Agency, Atlanta, Georgia, July 1972.

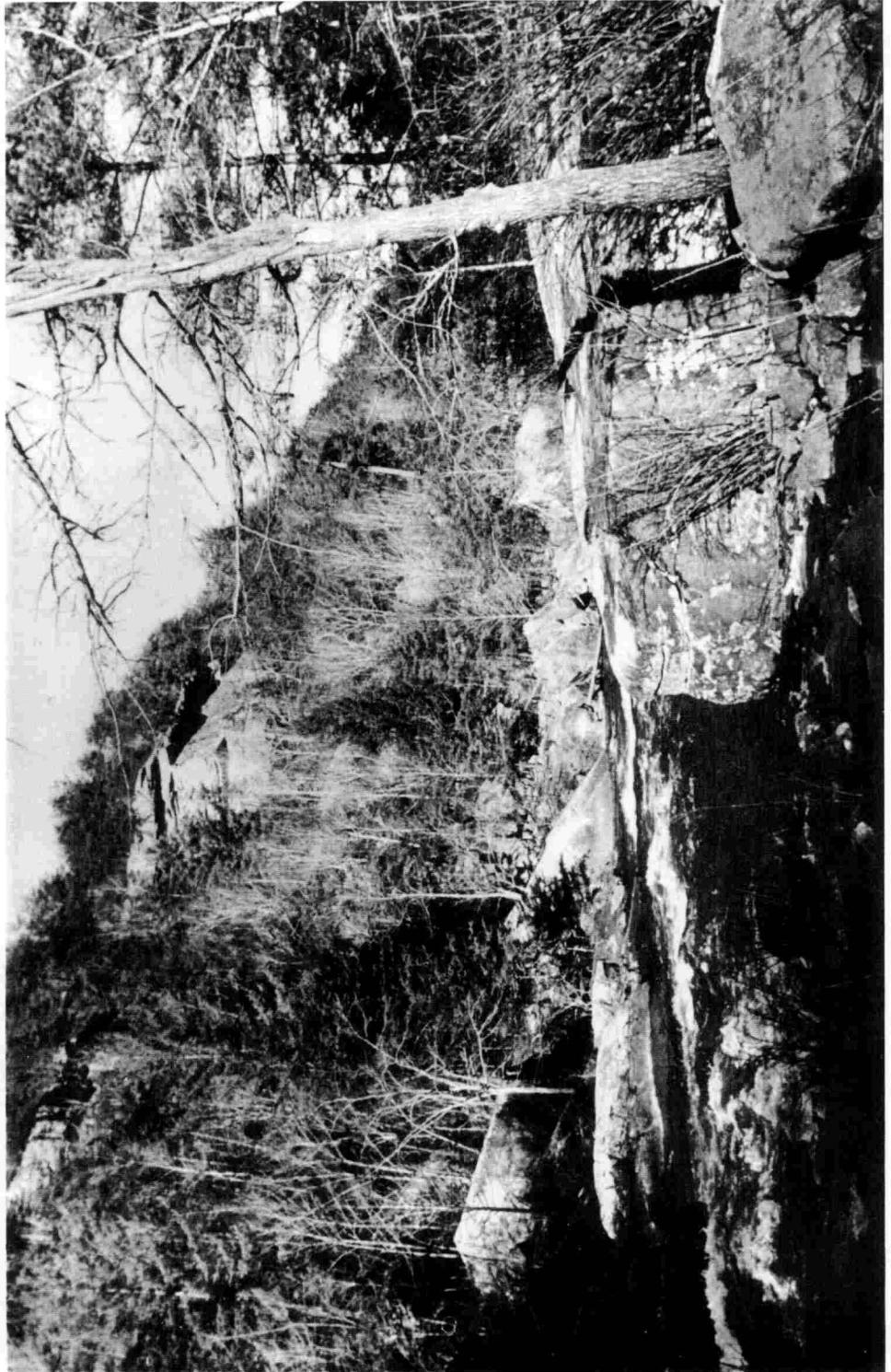
Land Use and Environmental Intrusions

The rugged terrain of the Obed River study area has discouraged agriculture and similar land uses. As a result, the area is relatively uninhabited and unchanged by man. Some pastures and croplands exist near the upper reaches of all three streams, but these are almost entirely buffered by narrow streamside belts of trees.



Agricultural use at Clear Creek and Panther Creek is screened by streamside trees.

The rugged terrain has discouraged agriculture and the area is relatively unchanged by man



A major portion of the land is still in forest cover as shown in the following table.

Land Use in the Three-County Obed River Region

<u>County</u>	<u>Cropland</u>	<u>Pasture</u>	<u>Forest</u>	<u>Other</u>	<u>Total Acres</u>
Cumberland	10%	7%	82%	1%	433,920
Morgan	3%	5%	91%	1%	344,960
Fentress	11%	8%	79%	2%	318,720
Total					<u>1,097,600</u>

The following table categorizes stream front land use by acres in 1/4 mile width corridors measured from the center of the streams. Thus the table reflects use of a 40,000-acre area rather than the 14,425 acres proposed for the National Wild and Scenic Rivers System.

Land Use Along Obed River Study Streams

OBED RIVER					
<u>Location</u>	(CP)	(F)	(M)	(C)	(O)
To mile 9	39	2,829	12	--	--
Near mile 28	55	5,619	3	*400	3
To mile 36	425	2,123	--	--	12
To mile 39.5	391	716	--	--	13
Acres	<u>910</u>	<u>11,287**</u>	<u>15</u>	<u>400</u>	<u>28</u>
DADDYS CREEK					
<u>Location</u>	(CP)	(F)	(M)	(C)	(O)
To mile 21.5	540	6,276	64	--	--
To mile 34	600	3,360	40	--	--
To mile 48	658	3,800	22	--	--
Acres	<u>1,798</u>	<u>13,436</u>	<u>126</u>	<u>0</u>	<u>0</u>
CLEAR CREEK					
<u>Location</u>	(CP)	(F)	(M)	(C)	(O)
To mile 4	78	1,202	--	--	--
To mile 29	270	7,697	33	--	--
To mile 52	330	7,020	10	--	--
Acres	<u>678</u>	<u>15,919</u>	<u>43</u>	<u>0</u>	<u>0</u>
Total Acres	3,386	40,642	184	400	28

CP = Cultivated or pastureland
 F = Forested land
 M = Mining lands
 C = Commercial
 O = Other

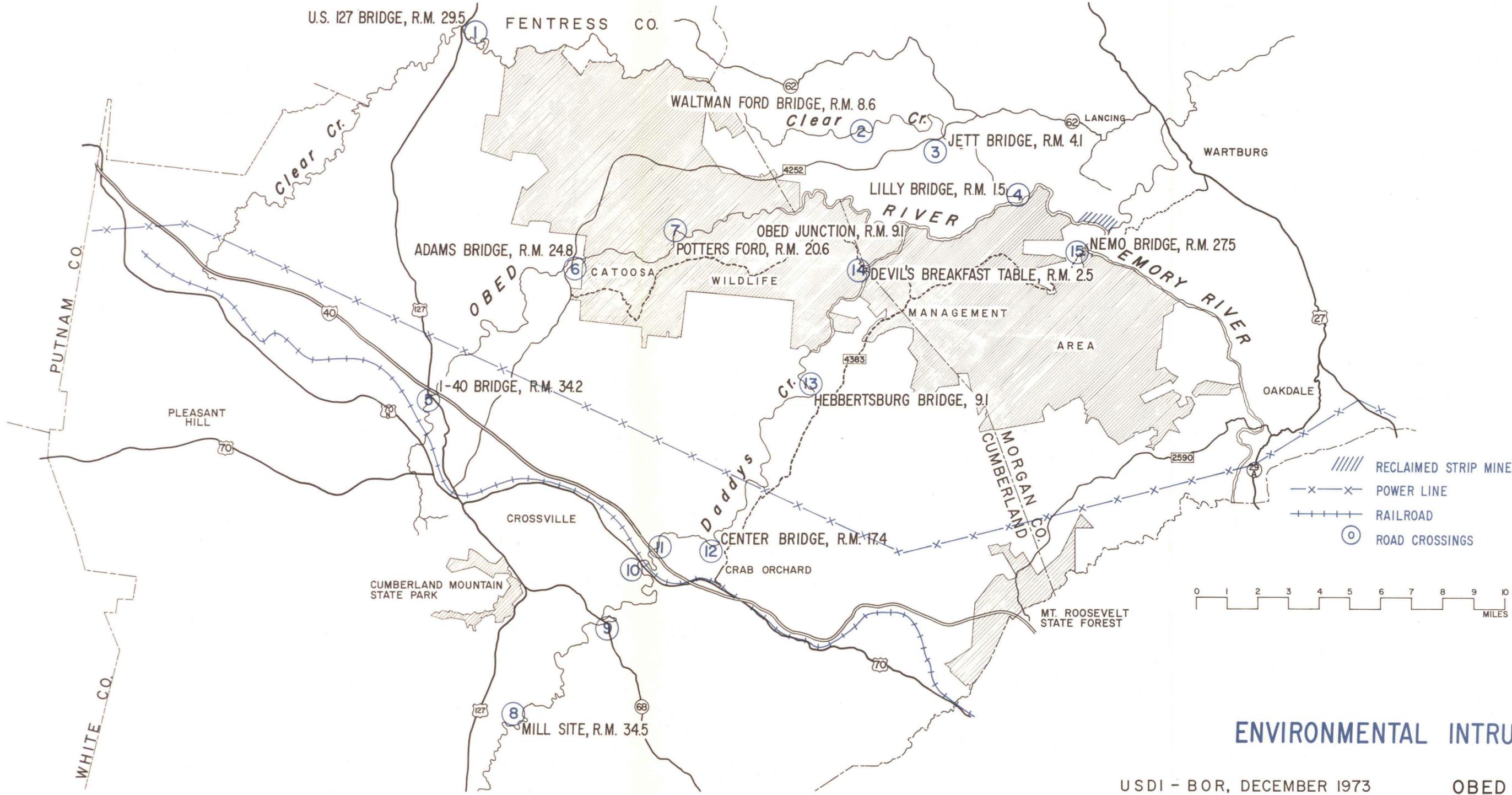
*Forested area being developed for commercial purposes (Catoosa Canyons).
 **Includes portions of Catoosa Wildlife Management Area.



Strip-mined area near Obed-Emory confluence before reclamation

Surface coal mining in the summer of 1963 and re-mining in 1970 near the confluence of the Obed with the Emory River resulted in an unsightly scar along the river bluff (see map on page 47). Reclamation efforts including extensive grading, tree and shrub planting, and hydroseeding of grasses resulted in improved aesthetic and wildlife values. The Tennessee Department of Conservation, Division of Surface Mining, has imposed a moratorium on the issuance of coal mining permits in the watershed of the study rivers until the Obed Wild and Scenic River study is completed. The Tennessee Valley Authority, the major coal consumer in the region, has adopted the following policy:

The Tennessee Valley Authority accepts no offers of coal mined from locations in or near areas officially designated by State or Federal agencies, or identified by TVA, as wild or scenic river areas; wild, wilderness, natural, scenic, or public recreation areas; or areas under study pursuant to legislative authority for any such official designation, except where special circumstances exist. No such offers will be accepted from locations in or near areas for the above uses unless, after coordination with the appropriate agencies, TVA determines that the coal can be mined without substantially adversely



ENVIRONMENTAL INTRUSIONS

USDI - BOR, DECEMBER 1973

OBED RIVER

affecting the areas' potential for such use. In such cases, and also in cases involving offerings of coal from mines in or near other visually important areas such as major highways or population centers, special provisions designed to protect aesthetic values are incorporated in the purchase contracts. No coal will be accepted from areas in which in TVA's judgment mining would adversely affect a public water supply and such adverse effect cannot be avoided by proper reclamation.

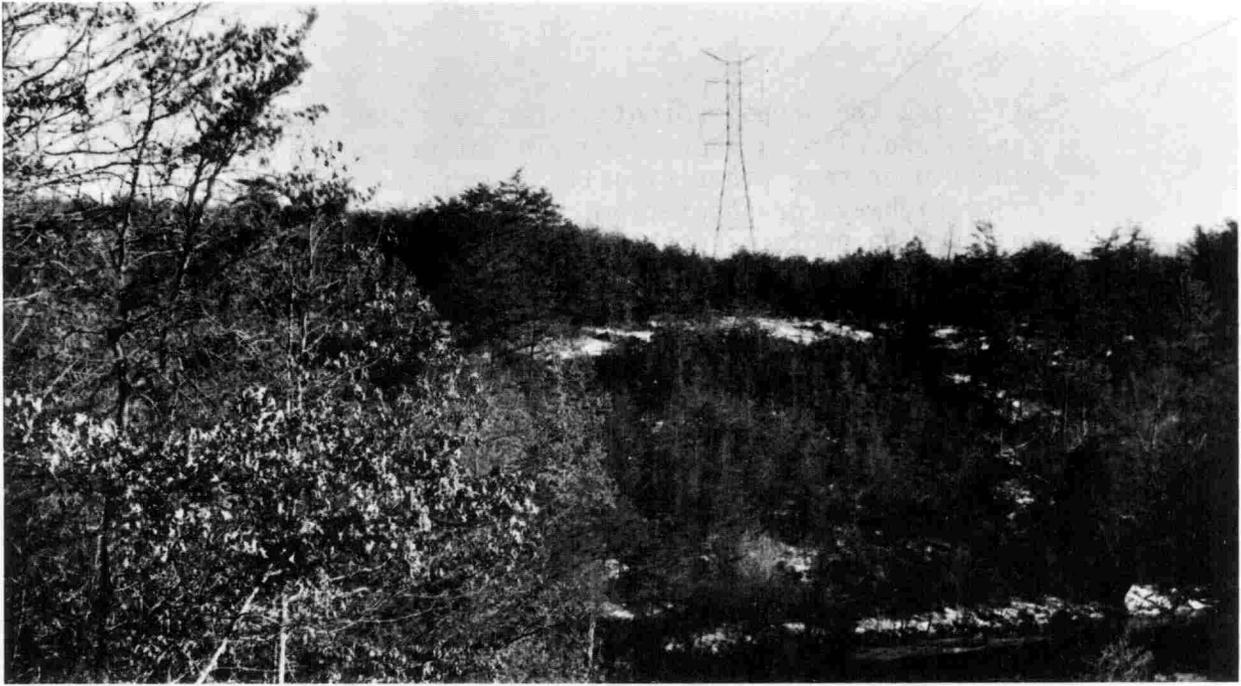
Twenty-three mining permits in Morgan County and eight permits in Fentress County remain active. No permits are active in Cumberland County.

New private recreation developments as well as expanded public recreation development are attracting more visitors and developers to the Obed River region. Private development, if allowed to continue unregulated, will reduce the effectiveness of efforts to protect the wild character of the three streams.

Catoosa Canyons, a private recreation and summer home development, is under construction near river mile 35 on the edge of the Obed River corridor. Coordination between the developer's plan and the scenic river plan will be essential to preserve the aesthetic and physical qualities of the river unchanged.



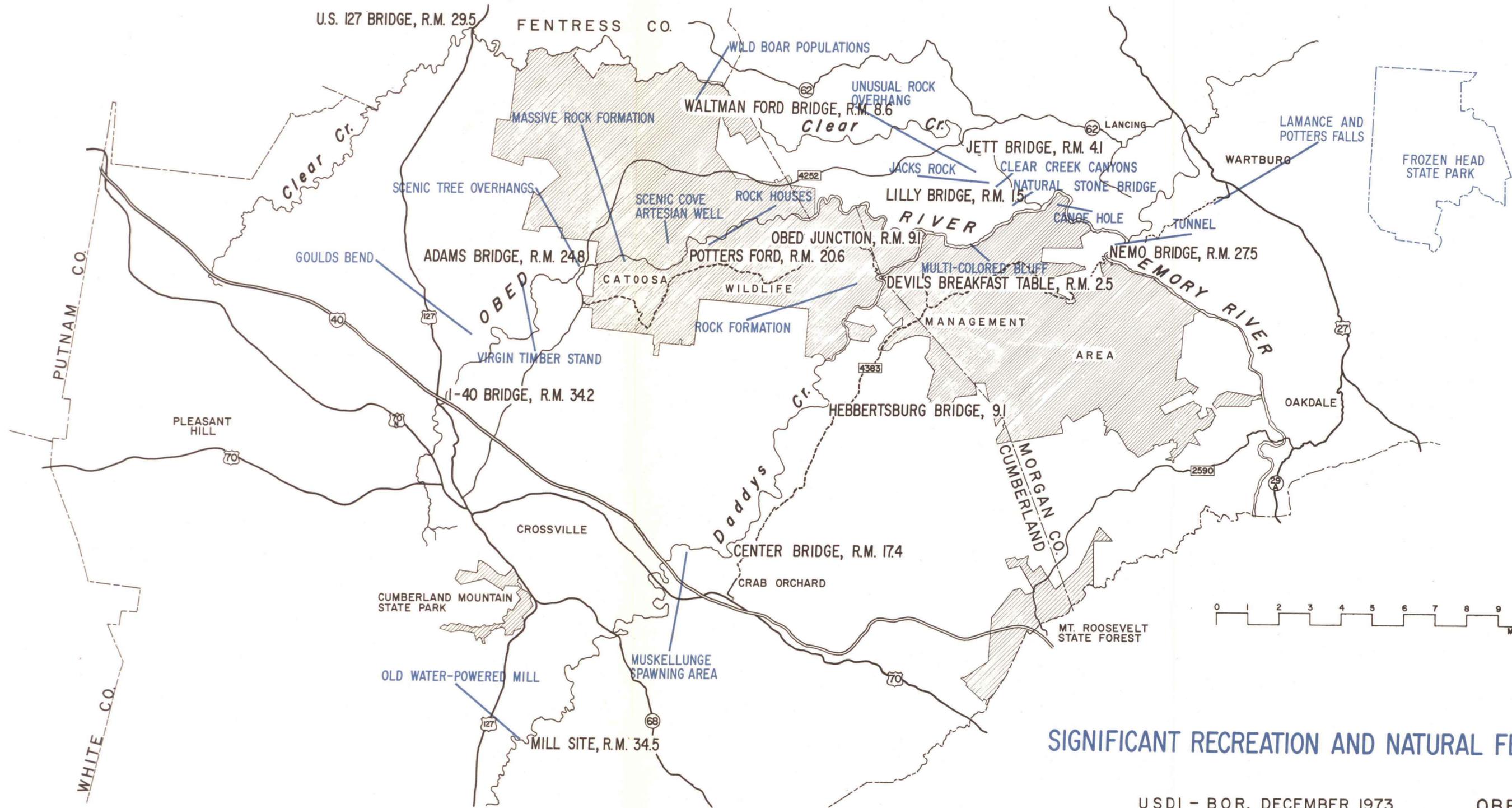
Rock formation at Catoosa Canyons development



The Tennessee Valley Authority's Bull Run-Wilson 500 kv. power transmission line crosses the headwaters of the Obed River, and Clear Creek and Daddys Creek near the middle of its length (see map on page 47). It parallels a 161 kv. line. The high line towers were placed back from the streambanks and the lines strung by helicopter in order to retain the vegetative cover. Additional lines could be needed in the future.

Although there are 15 road crossings and one rail crossing of the Obed River, Clear Creek, and Daddys Creek, none parallel the streams (see map on page 47). Access to the streams from road crossings is very limited because of steep banks. There may be a need to improve or replace some of the older bridges in the future.





SIGNIFICANT RECREATION AND NATURAL FEATURES

USDI - BOR, DECEMBER 1973

OBED RIVER

Nearby Recreation Opportunities

Numerous recreation opportunities near the study area are provided by State parks and State forests. In addition to the diversity of active outdoor recreation opportunity available in the Obed River, Clear Creek, and Daddys Creek stream corridors, there are numerous natural, historical, geological, archeological and paleontological sites which are of great interest and enjoyment to visitors. The map on page 51 displays the most important features identified to date.

The 1,425-acre Cumberland Mountain State Park located 4 miles south of Crossville is managed both as a natural area and for intensive recreation use. The terrain of the park is typical of the interesting tableland of this portion of the Cumberland Plateau.

Frozen Head State Park, containing 11,500 acres, is located 5 miles east of Wartburg and, although not presently developed for recreation use, provides opportunity for hunting, picnicking, and hiking. Similar recreation opportunities are provided by the Bledsoe State Forest located near the southwest corner of Cumberland County. The 80,000-acre Catoosa Wildlife Management Area provides a variety of big and small game hunting, fishing, and general outdoor recreation opportunity.

Private recreation facilities include the Cumberland County Playhouse. This rustic structure is located on a 12-acre site overlooking Lake Holiday near Crossville, Tennessee. An air-conditioned building seats 500 people and hosts "Tennessee, U.S.A." a musical comedy based on Tennessee history. During the first two seasons, the production attracted 35,000 people from every State in the Union and 14 foreign countries.

Several resort facilities are concentrated around Crossville. Recreation provided by these resorts includes boating, fishing, golfing, swimming, trap and skeet shooting, flying, camping, tennis, and picnicking. An additional resort under construction plans a 10,000-acre ski and hunting facility.

Lamance Falls and Potters Falls are located on Crooked Fork Creek 2 miles southwest of Wartburg, Tennessee, and provide a variety of quality outdoor recreation opportunity. Cascading water falls from natural steps of boulders into emerald colored pools. Potters Falls is privately owned, but neither maintained nor developed. Lamance Falls, privately owned and maintained, has 10 picnic tables and a play area. Both areas are open to the public free of charge.

Regional Recreation Opportunity

For the purpose of assessing outdoor recreation opportunity, the region is defined as that area within a 100-mile radius of the intersection of the Obed River and Interstate Highway 40. (See recreation resources map on page 55.)

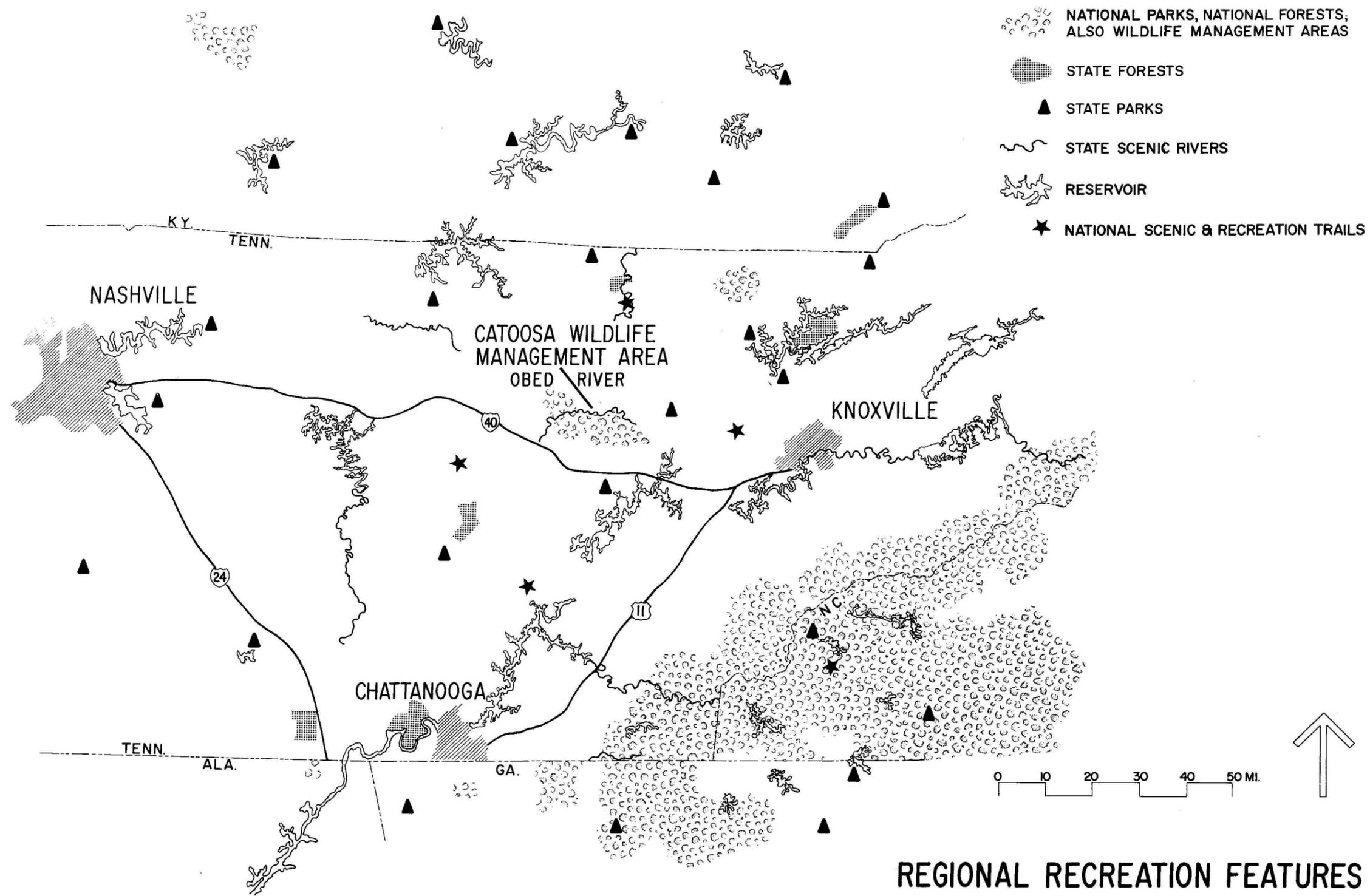
To the northeast, 50 and 90 miles respectively, are the Daniel Boone National Forest and the Cumberland Gap National Historic Park. Southeast from the Obed are the Great Smoky Mountains National Park, 75 miles; Cherokee National Forest, 60 miles; Nantahala National Forest, 75 miles; and Chattahoochee National Forest, 90 miles. Famed Lookout Mountain at Chattanooga, Tennessee, located 70 miles southwest, is well known for its spectacular scenic views. Also to the southwest approximately 75 and 80 miles respectively are Chickamauga and Chattanooga National Military Park and Russell Cave National Monument.

Sixteen impoundments over 5,000 acres provide water-oriented recreation opportunity. Reservoirs in the Tennessee River basin, south and east of the Obed River, are part of the Tennessee Valley Authority system. Those to the north and west, in the Cumberland River drainage, are part of the Corps of Engineers system. Numerous smaller reservoirs are scattered through the region.

Twenty-five State parks, seven State forests, three State wildlife management areas, and three national scenic or recreational trails provide a great diversity of outdoor recreation opportunity.

There are presently no National Wild and Scenic Rivers in Tennessee, although there is one in the region and two others have been studied or have studies in progress. The Chattooga River in North Carolina, South Carolina, and Georgia was included in the system in May 1974 by Public Law 93-279. The Suwannee in Georgia and Florida has been studied and recommended for State action, and the Buffalo in Tennessee is being studied by the Bureau of Outdoor Recreation. The Big South Fork of the Cumberland River in Tennessee and Kentucky was authorized as a national river and recreation area in March 1974 by Public Law 93-251.

State scenic rivers within the area include the Roaring Fork-Spring Creek-Blackburn Fork system, 35 miles to the northwest; the Collins, 50 miles to the southwest; and the Hiwassee and Conasauga, 65 and 75 miles to the south. Acquisition has been accomplished only on the Hiwassee, however. Until land acquisition programs for State streams have been implemented, they are vulnerable to deletion from the State system. This fact has been demonstrated by the legislative removal of major portions of the Buffalo and Harpeth Rivers from the Act.



IV. THE RIVER PROPOSAL AND ALTERNATIVES

Introduction

This chapter outlines the proposal for preserving portions of the Obed River, Clear Creek, and Daddys Creek as a part of our national heritage for the enjoyment of present and future generations. Also outlined is the overall concept from which the proposal was derived and alternatives considered during the formulation stage. (The Emory River segment of the proposal is discussed in section VI.)

Authority

Prior to developing a proposal for a potential wild and scenic river area, it is essential to examine applicable laws and guidelines.

In order to qualify for inclusion in the national wild and scenic rivers system, a stream segment must fit one of the following categories as outlined in Public Law 90-542.

1. Wild river--Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
2. Scenic river--Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
3. Recreational river--Those rivers or sections of rivers that are readily accessible by road or railroad that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

Based on the Wild and Scenic Rivers Act, the Departments of Agriculture and the Interior have adopted the following guidelines for streams classified as "wild."

"The administration of a wild river area shall give primary emphasis to protecting the values which make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a primitive setting."

The guidelines further state that management objectives for a "scenic" river area should parallel those of "wild" areas. However, an increased degree of development, type of land use and accessibility is permitted under the scenic classification.

Findings and Classification

The Obed River task force found that 34 miles of the Obed River, 29.5 miles of Clear Creek, and 34.5 miles of Daddys Creek--a total of 98 miles--possess truly outstanding and remarkable scenic, recreational, geological, and fish and wildlife values and qualify for inclusion in the National Wild and Scenic Rivers System under criteria set forth in Public Law 90-542 and the "Guidelines for Evaluating Wild, Scenic, and Recreation River Areas." Sixteen and one-half miles are suitable for "scenic" classification and 81.5 miles for "wild" classification. Classifications and locations are shown on the stream classification map on page 59.

Conceptual Plan

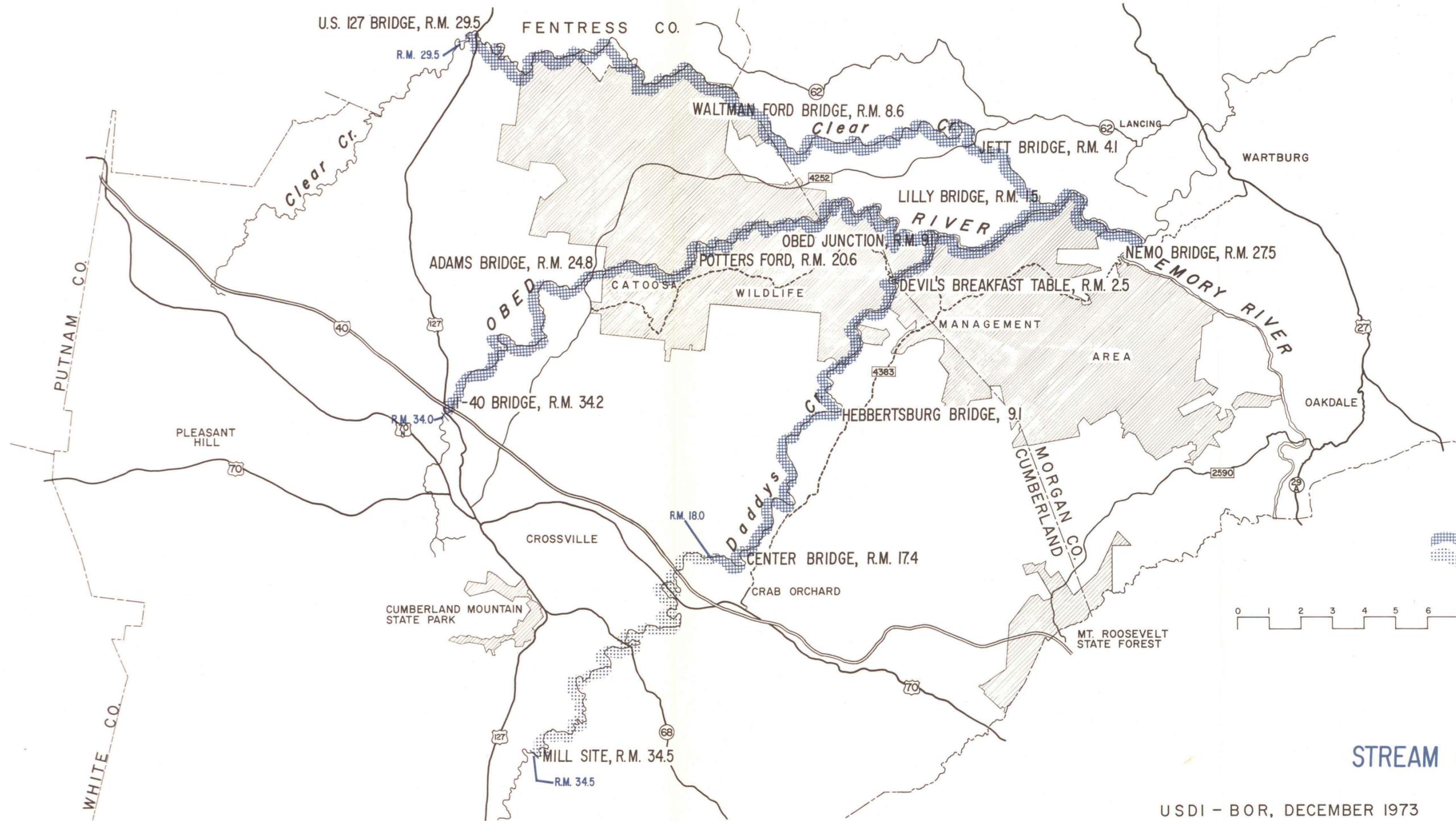
The Obed National Wild and Scenic River framework plan must maintain the integrity of the natural river resource while providing quality public outdoor recreation opportunity for a variety of activities. To achieve this objective, it is necessary to determine the extent of acquisition and development needed and to formulate an administrative proposal.

Administration Alternatives

There are three principal alternatives for administering the proposed Obed Wild and Scenic River: State administration, Federal administration, and combined State-Federal administration. Local governments could also participate in administering the proposed area through agreements under any of the administrative alternatives. Such participation should be encouraged.

Total State administration--Tennessee could provide protection for the Obed by acquiring, developing, and including it in the State Scenic Rivers System and requesting the Secretary of the Interior to designate the river as a part of the National System. Section 2(a)(ii) of the Wild and Scenic Rivers Act provides that State rivers which are designated as wild, scenic, or recreational river areas by or pursuant to an Act of the State legislature and which are permanently administered as such by an agency or political subdivision of the State at no cost to the United States and which meet the criteria in the Act and the guidelines may, upon application by the Governor, be included as State administered components in the National System by the Secretary of the Interior.

However, it appears doubtful at this time if any additional streams will be added to the State System prior to implementation of preservation programs on the streams already designated as State scenic rivers. The State is presently heavily committed to acquisition on designated State rivers. It is therefore unlikely that the State will be able to move rapidly enough to protect the major river resource values without substantial Federal participation in acquisition.



STREAM CLASSIFICATION

USDI - BOR, DECEMBER 1973

OBED RIVER

Total Federal administration--The area could be administered as a Federal component of the National System by any of the following agencies: the National Park Service, the Tennessee Valley Authority, the Corps of Engineers, or the Forest Service.

An Act of Congress would be required to include the Obed River in the National System under Federal administration. Congressional designation of the Obed and tributaries as components of the National Wild and Scenic Rivers System is the most expedient means of protecting the resource. However, because of the large amount of streamside land owned and administered by the Tennessee Wildlife Resources Agency and Tennessee's leadership, interest, and experience in scenic rivers, benefits resulting from total Federal administration of the proposed area appear marginal.

Combined State-Federal administration--This administration concept would share responsibility between Federal and State government for the management and administrative decisions for the proposed area. Local government and private entities could also play a cooperative role in determining how well the outstanding physical and aesthetic qualities of the Obed River system are preserved and enhanced. A coordinated approach by all these interests to plan implementation is essential.

It would be possible for management of the entire river corridor to be a joint project or for the State to continue to administer the riverbank lands contained in the Catoosa Wildlife Management Area and for the designated Federal agency to administer all or part of the additional lands acquired outside the boundaries of the management area.

Formal agreements between the Tennessee Wildlife Resources Agency, the administering body for the Catoosa Wildlife Management Area, and other possible State or Federal administrative participants would be essential for coordinated and efficient management, as roads leading into the Catoosa Wildlife Management Area essential for access to the proposed area are periodically closed. The Tennessee Wildlife Resources Agency takes this action during nonhunting seasons to minimize internal road damage. Public use is controlled during the big game hunting season by permits for certain wildlife management units. A public information program supplementing coordinated regulations between the State Wildlife Resources Agency and the Federal administrative agency of the proposed Obed River would be needed.

Administration Proposal

It is recommended that the State of Tennessee and the Tennessee Valley Authority jointly administer the proposed Obed Wild and Scenic River and share total project costs approximately equally, with the Federal agency assuming primary responsibility for acquisition and the State for development and operation and maintenance.

It is further recommended that the State of Tennessee and the Tennessee Valley Authority, in consultation with the Secretary of the Interior and affected local agencies, prepare a master plan for the area within 1 year of congressional designation of the area. Among other subjects, the master plan would establish detailed boundaries for the proposal and set forth the specific plans for the acquisition, development, and administration of the area, including cooperative agreements between the State and the Tennessee Valley Authority outlining their respective responsibilities for acquisition, development, and management of the river, including conditions precedent to the transfer of full responsibility for management of the river to the State of Tennessee.

The lands involved in the Obed National Wild and Scenic River would thus be subject to the provisions of the Wild and Scenic Rivers Act, Public Law 90-542, and the Acts under which the Tennessee Valley Authority is administered. In case of conflict between the provisions of these Acts, the more restrictive provisions should apply. The master plan should be drawn up according to the management objectives for wild and scenic rivers provided in "Guidelines for Evaluating Wild, Scenic, and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System Under Section 2, Public Law 90-542."

Land Control Alternatives

Methods available for controlling and protecting the Obed River are fee simple acquisition, easements, intergovernmental agreements, and zoning. The Act specifies that up to an average of 100 acres per river mile (including both sides of the river) within the boundary of a component of the National System under Federal administration may be acquired in fee simple.

There are many ways in which the boundaries of a wild river can be defined, from the maximum protection of acquiring, as nearly as possible, the entire watershed, which is usually prohibitively expensive, to the minimum of acquiring only the streambed and banks, which limits the protection of the scenic values of the river and the opportunity to provide associated benefits such as hiking trails and overlooks. The Act limits the total area within the boundaries to no more than an average of 320 acres per mile, including land on both sides of the river.

The sight line or visual corridor concept was used to estimate the quantity of land necessary to preserve the outstanding values of the river. This concept consisted of defining that land which must be protected from adverse use if the natural qualities and scenic values of the river corridor are to be retained. In some areas, boundaries may need to be drawn beyond the actual sight line in order to protect an outstanding natural feature.

Where the riverbanks are low, a strip of land 200 to 500 feet deep on each side will be adequate to protect the view from the river, accommodate a trail, and allow boat launching or portage. Where bluffs front the river on one or both sides, the boundaries could be drawn just beyond the ridge line to insure protection of the slopes and prevent incompatible development on the rim (see diagram on page A-118).

Fee simple--Acquisition of the full bundle of rights, including mineral rights; i.e., fee simple title, allows all land use to be controlled, simplifying management. It guarantees the right of public access and use and provides maximum assurance against land uses which are not compatible with stream classification. This type of acquisition is normally used for stream corridors where construction of any improvements or land uses such as cropping, grazing, and timber or mineral exploitation are incompatible with the objective of preserving the outstandingly remarkable qualities of the river. Fee simple acquisition also allows full compensation to the landowner for the value of his property. The Act authorizes the Secretary to condemn land, with certain exceptions, for fee simple acquisition or easements if the land is needed for project purposes.

Easements--Easements can provide effective resource protection along stream sections where less stringent controls are necessary. Many types of easements could be negotiated which would protect the aesthetic values of the streams. A scenic easement might permit compatible agricultural uses and control noncompatible uses such as commercial or high density residential development. An easement for public use could also be arranged; but, in general, where rather intensive public use is necessary for boat launching, camping, hiking, and trail riding, etc., purchase of the full title is desirable. Preservation easements could keep the land in its present state without further increase in development. However, in cases where the degree of control exercised causes the cost of an easement to approximate the full value of the property, fee simple acquisition is preferable. A list of recommendations for scenic easements is included in the appendix (page A-120).

Fee easement combination--This concept, incorporating advantages of both fee acquisition and scenic easements, would allow existing

compatible land uses such as agriculture along relatively level stream bottom lands to continue while assuring public recreation opportunity along the streambanks for floating, hiking, and fishing. A diagram illustrating this concept is included in the appendix (page A-119).

Intergovernmental agreements--Written agreements between governmental agencies with resource management and control responsibilities at Federal, State, and local levels can provide an effective and economical means of protecting land and water resources. Such agreements are highly suitable and desirable for the Obed National Wild and Scenic River proposal because of the large amount of State-owned property adjacent to the study streams.

Zoning--The State of Tennessee, along with the counties involved in the Obed River area, is empowered to formulate and enact zoning regulations. Zoning ordinances, if properly formulated and implemented, can be used efficiently and economically in certain situations to protect resources and reduce the need for fee acquisition and easements. Highly restrictive, low density zoning, however, often becomes the victim of pressures to permit more profitable development. Because of its inherent weaknesses, zoning as a means to protect the resource is not recommended within the proposed Obed National Wild and Scenic River boundary. It is recommended that Morgan, Cumberland, and Fentress Counties, in addition to the Tennessee legislature, consider zoning to protect the watershed outside the proposed wild and scenic river boundary.

No acquisition--This alternative would allow the present trends of land use and development to continue. The rugged terrain typical of the Obed River study area has until now discouraged intensive land uses. Also, most of the local landowners have protected their land and kept it in a natural or pastoral condition.

However, development pressures in the area are mounting, and many of the currently forested and pastured lands in the Obed area will be utilized in the future for other purposes, including recreation development, homesites, and associated goods and services. Uncontrolled development of cabins, vacation homes, and recreation structures in the vicinity are the greatest immediate threat to the present character of the stream corridors.

Zoning regulations for building codes have not been adopted by the Obed River counties. Selection of development sites and building standards has been left to individual owners and builders. It is questionable whether without Federal or State action, effective standards and controls can be established by local government soon enough to prevent deterioration of the river's wild and scenic qualities.

In the past, abandonment of surface coal mining sites without reclamation has exposed the Obed River system to potential dangers from



Surface coal mining remains a potential threat to the visual and water quality of the Obed; however, new reclamation techniques and stronger laws demonstrate that areas like that above, on the Emory River, can be reclaimed, below.



acid-mine drainage and siltation. In addition, the aesthetic qualities of the stream corridor bluffs are affected. As the price of coal increases, small scale operations mine previously uneconomical seams. Local or State controls and effective reclamation programs, combined with the enforcement of existing water pollution control laws, are now a necessity to prevent damage from such mining operations.

Correction of these existing trends toward deterioration would be necessary to perpetuate the qualities which make the Obed a potential National Wild and Scenic River.

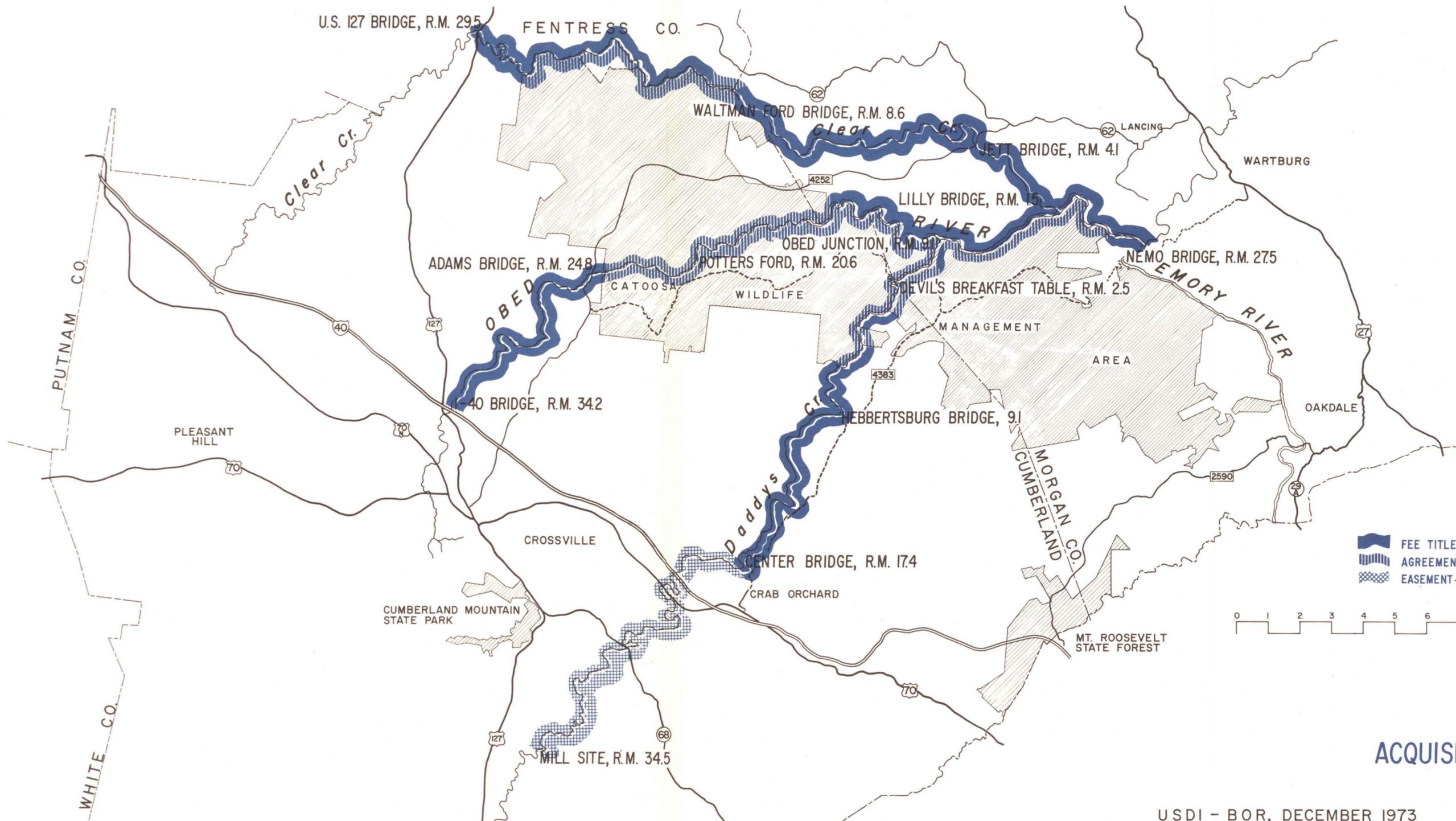
Acquisition Proposal

The recommended proposal for protecting the recreation values of the Obed River system involves the acquisition of fee or less-than-fee interest in 15,425 acres of land. This averages 156 acres per mile for the 98 miles of river proposed for inclusion in the National System. Fee acquisition is proposed for an average of 93 acres per mile with easements and intergovernmental agreements proposed to protect the remaining lands.

Twenty-eight percent (3,971 acres) of the land involved lie within the State-owned Catoosa Wildlife Management Area administered by the Tennessee Game and Fish Commission. Seventy-two percent (11,454 acres) are privately owned.

Easements will be acquired wherever feasible and compatible with project purposes. It is estimated that scenic easements can be used to protect 2,343 acres with fee title being acquired to the remaining 9,111 acres.

It is proposed that the Tennessee Valley Authority acquire the necessary interests in the private lands within the proposal as its share of the total project costs.



NOTE: CORRIDOR SHOWN EXAGGERATED FOR ILLUSTRATION PURPOSES

 FEE TITLE
 AGREEMENT
 EASEMENT-FEE COMBINATION



ACQUISITION PROPOSAL

USDI - BOR, DECEMBER 1973

OBED RIVER

*Proposed Location of Acquisition
Easement, Agreement in Acres 1/*

<u>County</u>	<u>Fee Title</u>	<u>Scenic Easement</u>	<u>Intergovernmental Agreement*</u>	<u>Total</u>
Cumberland	4,465	2,343	2,533	9,361
Morgan	3,849	0	1,222	5,071
Fentress	797	0	196	993
Total	9,111	2,343	3,971	15,425

**Existing State Lands in proposed boundary.*

1/ Exclusive of land requirements for the Emory River Segment, page 89.

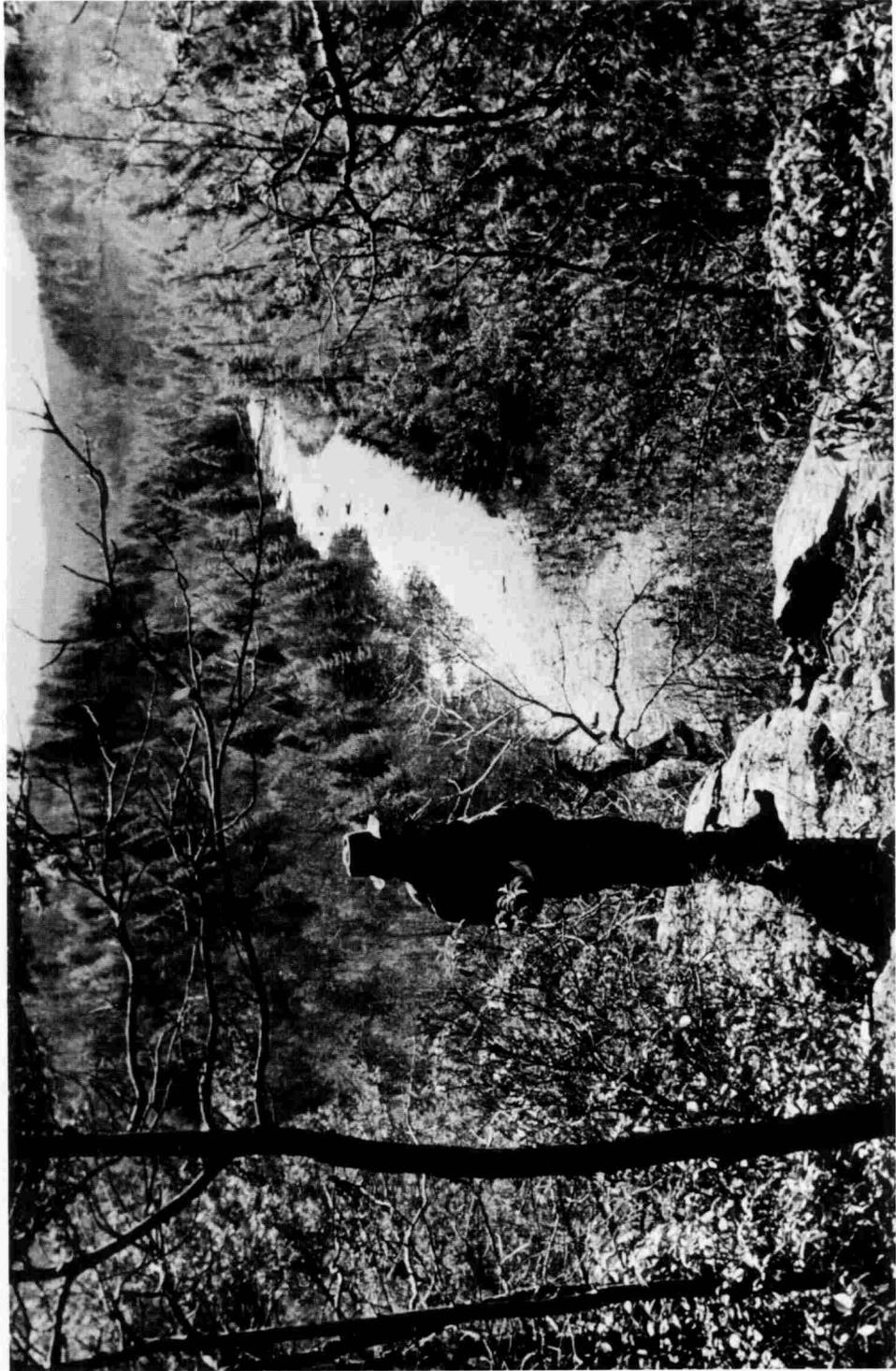
Development Alternatives

Appropriate activities--Prior to proposing development of a resource for recreation use, it is essential to identify the activities compatible with the resource. The portions of the Obed River, Clear Creek, and Daddys Creek proposed for inclusion in the National System will provide high quality opportunity for white water canoeing, floating, hiking, wading, picnicking, sightseeing, fishing, hunting, conservation education and nature study.

Methodology--Two methods are employed in planning the recreation development of a river. The first entails an inventory of the resource to determine that level of use which can be permitted without adversely impacting on the resource. The second method involves projecting anticipated visitor demand on the resource over a given period of time to determine the degree of development needed to meet the estimated carrying capacity and demand.

The first approach is deemed more suitable for the Obed River study area because of the almost exclusively "wild" classification recommended for the river and the rugged topography which severely limits recreation development potentials. If development were based on demand, it is probable that future uncontrolled visitor use of the Obed would exceed the capacity of the resource to sustain it, resulting in loss and degradation of its outstanding qualities. Preservation of the "wild" and "scenic" resources of the Obed River will probably necessitate establishment and subsequent enforcement

Hiking is a year-round activity on the Obed



of use limitations. On-the-ground evaluation by the administering agency over a period of years will be required to establish the final carrying capacity of the resource.

The following factors were considered in planning recreation facilities for the stream corridors.

1. Recreation activities compatible with the river resource.
2. Accessible land suitable for recreation use.
3. Stream corridor classification.
4. Interrelationships between recreation activities.
5. Public opinion as to the desired type of recreation experience.
6. Time of year anticipated activities take place.
7. Surface cover and topographical variations.

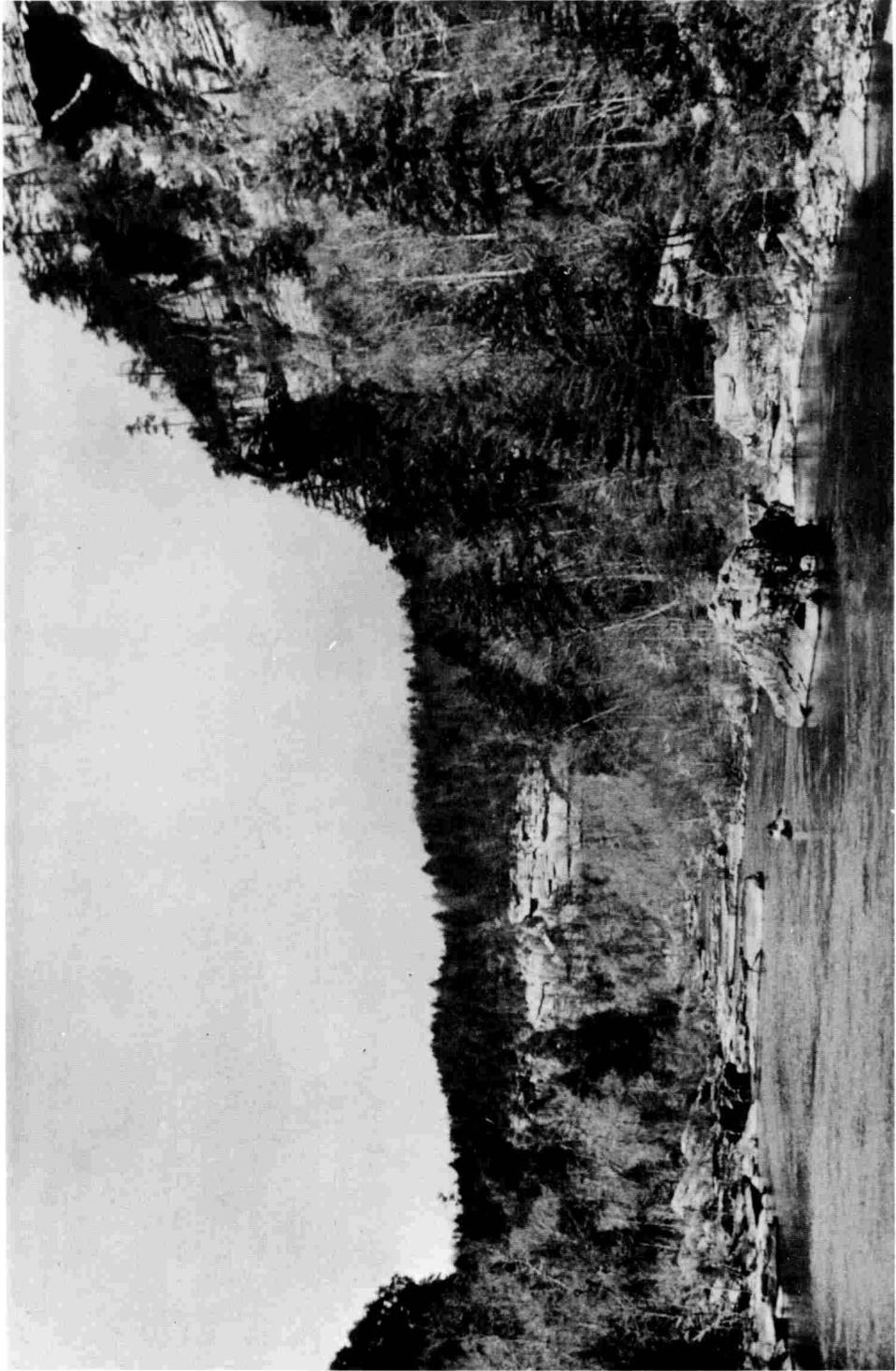
Location, type, and design of a recreation facility greatly influences the amount and quality of use that can be provided and the extent of impact on the resource.

Development Proposal

Stream corridors are currently without recreation facilities. Small, undeveloped, scalped-out areas at road crossings presently serve as focal points for recreation use. The majority of future recreation facility development is proposed near these areas to minimize impact and avoid construction of new access roads. All facilities, where possible, would be screened from view from the river. A tentative development plan is mapped on page 75.

Floating--Nine access points are proposed at existing road crossings to facilitate canoeing, kayaking, rafting, and tubing activity. Support facilities for floating have been located on the basis of existing roads, soils and vegetation, stream suitability, stream difficulty classifications, float distance, and currently popular float stretches. Development should consist of a setback parking area and turnaround connected by trail to a launching site for nonpowered boats. Powered boats should be prohibited from the wild classified sections. The construction of additional roads or the widening of roads beyond two-lane standards is not recommended.

Sandstone bluffs and boulders dwarf canoeists on the Obed River



Picnicking--Picnic units are proposed, in the "scenic" classified sections, at four access sites. Topographic and vegetative characteristics are of a nature to permit picnic users a view of the stream without exposing developed areas to view from the stream. Development of these sites would provide picnicking opportunities to accompany all types of recreation activity and would be served by nearby parking facilities.

Scenic overlooks--Four overlooks are proposed to afford the visitor outstanding views of the truly spectacular scenery of the white water and gorges of the Obed River. Overlooks would provide visitors with a view of the area with little impact on the natural resources and the quality of recreation experience within the gorge itself. Trails would lead to the overlooks. Vehicle access should be terminated a minimum of 300 feet from the vista to reduce intrusion and environmental impact.

Visitor information centers--Two visitor information centers, one near Crossville and one near Wartburg, are proposed to serve as the public focal points for the Obed National Wild and Scenic River. A facility on Interstate 40 provides a view of the Obed River and accommodates rapid visitor turnover. The center would allow large numbers of visitors a brief view of the headwaters of the Obed River and provide them information concerning the outstanding qualities of the resource and the public outdoor recreation opportunity provided. Another information center could be established in conjunction with the Frozen Head State Park at Wartburg, Tennessee.

Interpretive facilities--Interpretation of significant natural features including flora and fauna will be an important part of the public appreciation of the Obed River area. An interpretive program should be planned as a facet of the overall development concept.

Access roads--The construction of additional roads or the widening of roads beyond two-lane standards is not recommended.

Fishing--A fishery management program for existing species should be considered under the guidance of the Tennessee Wildlife Resources Agency for the proposed stream segments.

Camping--Primitive camping units to serve canoeists and hikers are proposed for the Potters Ford area at river mile 21 on the Obed and Nemo Bridge at river mile 27.5 on the Emory River. Development consisting of sanitation facilities and a potable

water source would be located on the perimeter of the river corridor to minimize streambank degradation and vegetative losses normally associated with streambank camping.

Private recreation development in the local and State forests and parks outside the boundary of the proposed area would continue to provide most of the camping opportunity in the region. One-hundred and twelve camping units are located within a 15-minute drive of the three study streams, and additional development providing camping, picnicking, and other recreation opportunities will soon be completed within a 5-minute drive of Adams Bridge on the Obed River.

Hiking--Nine trails, totaling about 18 miles in length, should be constructed in conjunction with overlooks and access points to facilitate recreation activities including photography, sightseeing, nature study, hunting, and fishing in addition to hiking. Very little hunting activity is anticipated in the stream corridors, however, because of rugged topography. Motorized vehicles, including trail bikes, would be prohibited. Access points currently enabling vehicular use of trails should be blocked. Numerous undesignated existing trails within the Catoosa Wildlife Management Area resulting from past logging operations can provide additional trail opportunity.

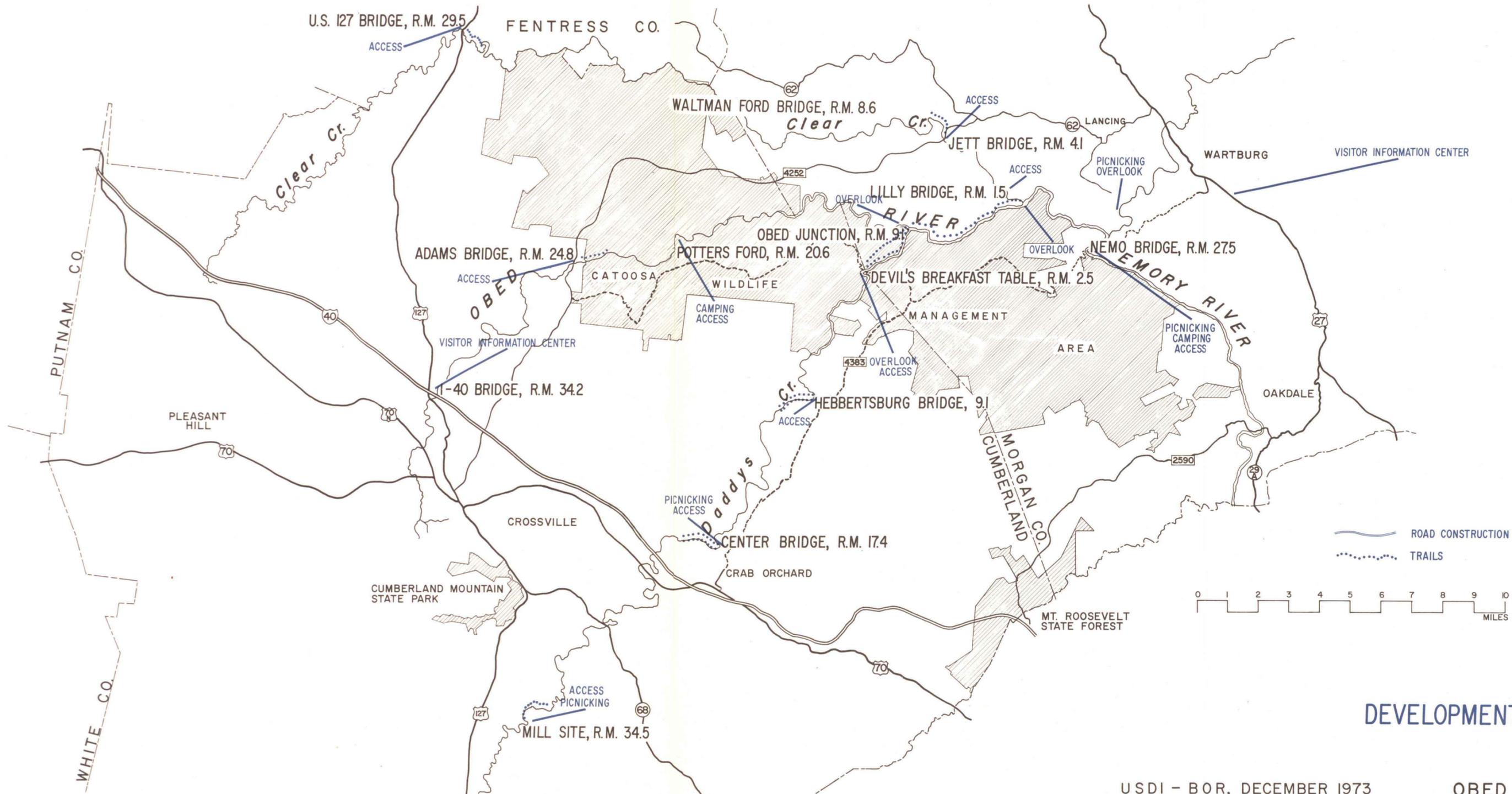
Cost of Proposal

Total land acquisition costs for the Obed proposal are estimated at \$4,163,000, based on an estimated value in 1971 of \$400 per acre for streamside lands. The annual operation and maintenance estimate is based on a visitation estimate of 50,000 persons in the first year.

Preliminary Cost Estimates

Land Acquisition

	<u>Acres</u>	<u>Total Cost (\$000)</u>
Fee	9,111	\$3,694
Easement	2,343	469
Agreement	<u>3,971</u>	<u>00</u>
Total	15,425	\$4,163
Development		<u>\$ 768</u>
TOTAL		\$4,931
Annual operation and Maintenance, 1 year		\$ 50



DEVELOPMENT PLAN

USDI - BOR, DECEMBER 1973

OBED RIVER

V. ECONOMIC IMPACT OF PROPOSAL

Recreation, timber production, coal mining, and real property are considered in assessing the impact of the proposal on the economy of the region.

Recreation Use

Existing recreation use--Although more than 8,000 vehicles cross the study streams daily on Interstate 40, only a small fraction now utilize the recreation resources considered in this proposal. Three factors are probably responsible for the limited use of the stream corridors: Lack of publicity and general knowledge of the quality of the resource, inadequate access, and lack of recreation facilities.

Estimated current recreation use of the resources included within the proposed boundary is 12,900 visitor days, although the absence of recreation development within the stream corridors and the lack of visitor use data make it difficult to estimate the present recreation use. Existing use in the Obed River, Clear Creek, and Daddys Creek corridors is widely dispersed and virtually independent of developed facilities. Floating, fishing, hunting, picnicking, and sightseeing are the major activities. Local residents, conservation groups, and visitors to the Catoosa Wildlife Management Area constitute the majority of existing use.

The figures for the Catoosa Wildlife Management Area provided by the State Game and Fish Commission indicate the extent and quantity of existing public use in the region. (See table following.)

<u>Activity</u>	<u>Average Annual Recreation Use</u> <u>1966 - 1973 (Visitor Days)</u>		
Hunting	17,700	to	23,100
Sightseeing	4,000	to	10,000
Picnicking	500	to	1,800
Fishing	500	to	1,200
Camping	300	to	800
Other (swimming, hiking floating)	200	to	900
TOTALS	23,200	to	37,800



Areas currently used by the public have no facilities and are little more than clearings by the river.



The Catoosa Wildlife Management Area is one of the most popular hunting areas in Tennessee. During the fall and spring of 1971, 9,816 big-game hunters and 363 turkey hunters visited the area. The deer harvest on the area from 1966 through 1971 totaled 2,965 compared to a total harvest of 685 for the remainder of Cumberland and Morgan Counties. Thousands of small-game hunters also use the area each year.

Potential recreation use--Implementation of proposals set forth in this report would modify existing use constraints. Inclusion of the Obed and its principal tributaries in the National Wild and Scenic Rivers System will focus widespread attention on the recreation opportunity which the area can provide.

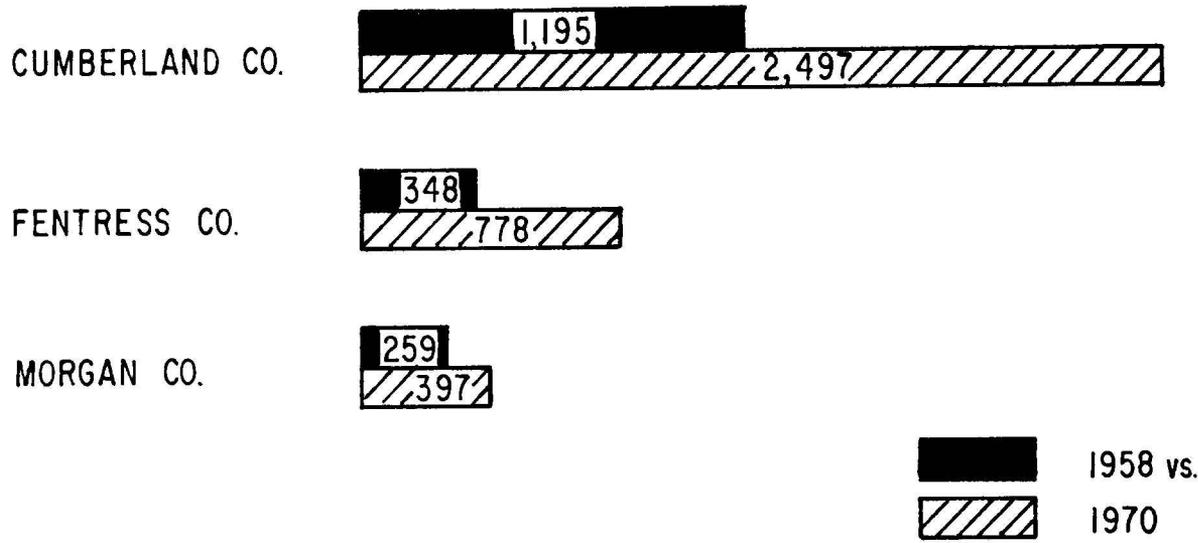
Annual public use of the proposal area could be expected to increase, as would annual visitor expenditures, of minor economic significance at present. Since facilities in the river corridor will be minimal and designed primarily for day use and stream access, the nearby towns of Crossville, Wartburg, and other small communities could be expected to provide tourist-oriented services and goods.

Following establishment of the river as a component of the National Wild and Scenic Rivers System, nonlocal visitor use is projected to far exceed the current predominant local use. During the first 10 years resident use, while increasing in number of visitor days, will decline as a percent of total use from 60 to 22 percent. The rate of growth of recreation use will increase progressively in the years immediately following establishment.

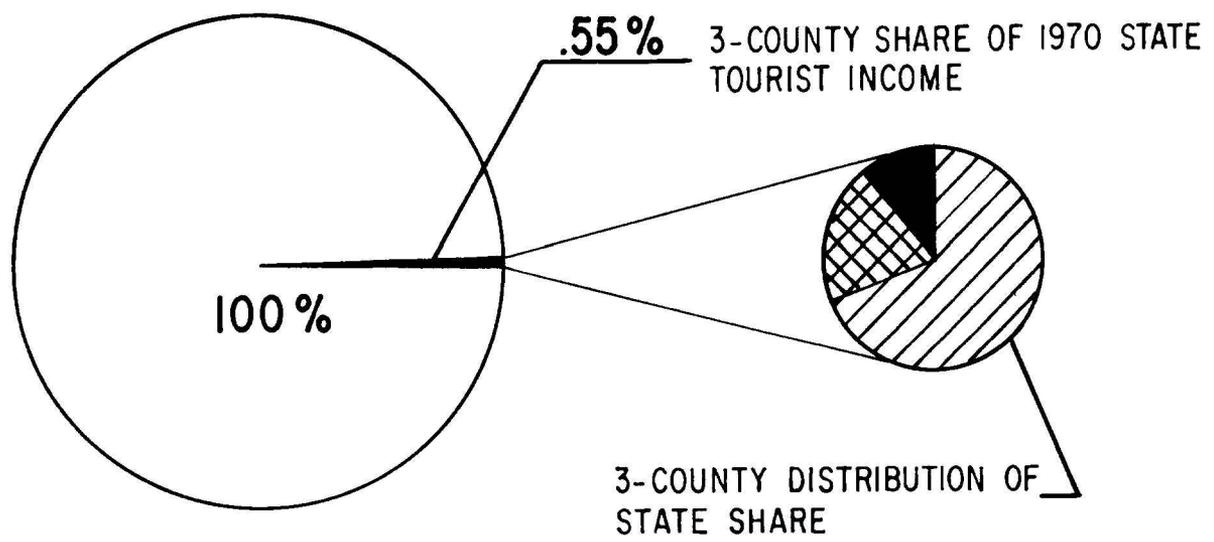
Economic impact from recreation use--The majority of existing recreation use is local day use. Average daily local user expenditure is substantially lower than average daily tourist expenditure for an extended vacation. The graphs on page 80 show the amount of tourist expenditures in the counties most directly related to the Obed River area.

Because of the character of recreation use of a wild and scenic river, it is impracticable to identify the economic effect of the proposal on individual counties. Likewise, the economic impact on a locale from a particular segment of a stream included in the proposal would have limited validity. A general indication of the estimated total volume of recreation expenditures resulting from implementation of the proposal must suffice. The

EXPENDITURES BY ALL TOURISTS IN 1,000's OF DOLLARS



LOCAL SHARE OF TOTAL STATE TOURIST EXPENDITURES



following table shows estimated total volume of visitor expenditure both local and tourist in relation to initial recreation use following implementation of the proposal.

Year Established	Total Annual Visits (Visitor Days)	Local Visits (Visitor Days)	Local Visits as Percent of Total	Total User Expenditures (\$000)
+1	50,000	30,000	60%	\$330

Note: The average daily expenditure for a local visitor was estimated at \$3 and for a tourist \$12. A visitor day is defined as a visit by one person to the area for 1 day regardless of the portion of that day spent in the area or the number of activities pursued.

Studies by Dr. L. C. Copeland of the University of Tennessee (1971) determined that tourists spend an average of \$13 per day while in Tennessee. An earlier study (1969) by Professor Ernest W. Swanson of North Carolina State University computed daily expenditures of National Park Service visitors at \$15.12. The conservative estimate of \$12 used for the Obed proposal was derived from these studies, taking into account the specialized characteristics of recreation activities associated with wild and scenic rivers.

Local visitors include those persons residing in the general region as well as those who reside close to the Obed. The later are termed resident visitors.

Information on the expenditure of resident visitors for the Obed is not available. The Tennessee Valley Authority, however, has estimated that the out-of-pocket figure would probably not exceed \$1 since most resident day users spend very little locally and customarily bring their own food from home. With food and transportation costs, the average daily per person expenditure by local visitors including the resident group probably approaches \$5, but \$3 is used as a conservative estimate.

The initial direct dollar input value to the economy diminishes each time it is expended to a point where its effective identity is lost. Expression of this process in terms of dollar impact is termed the multiplier effect. An estimated multiplier of 2 was selected for the Obed study based on a rate of spending where 50 percent of the initial dollar is returned to the local economy. This multiplier was used in the following table to estimate the initial economic impact from tourist expenditures:

<u>Year Established</u>	<u>Total Visitor Use (+000)</u>	<u>Total Expenditure (+000)</u>	<u>Impact of Total Expenditure (+000)</u>
1	50	\$330	\$660

Forestry

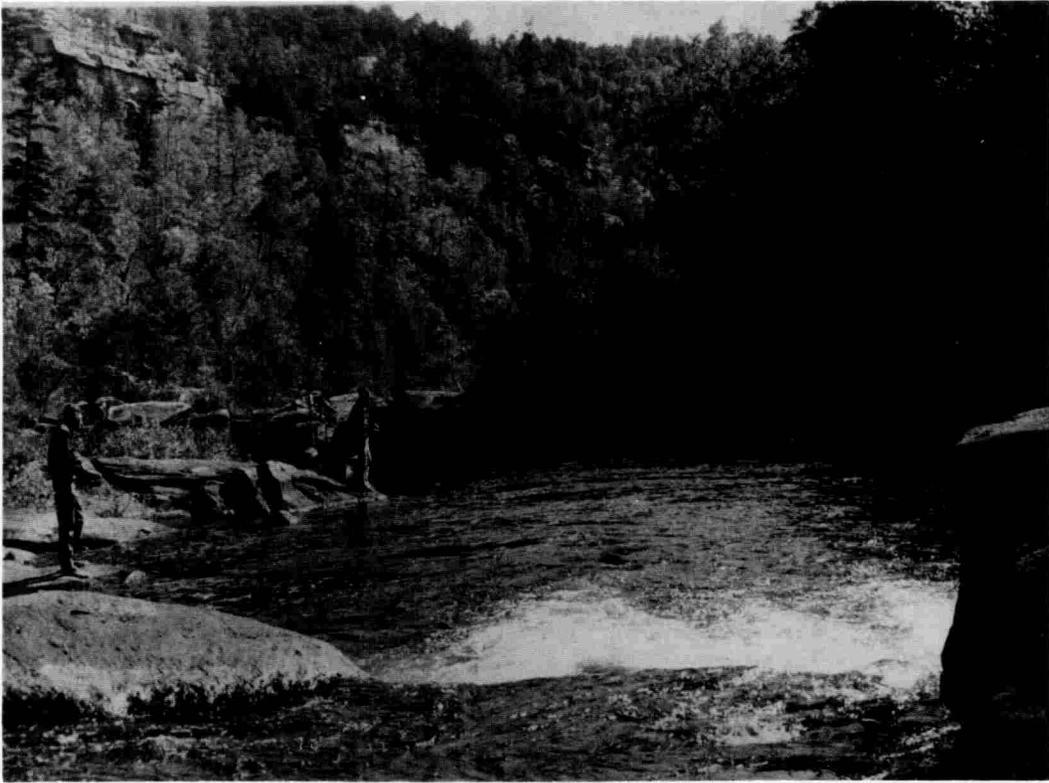
Although the area included in the Obed National Wild and Scenic River proposal is 90 percent forested, there is very little sale of forest products from this area. "High grading" and other cutting practices have already removed most of the higher quality species such as black cherry, black walnut, and yellow poplar from the corridors. Many of the remaining scattered stands of upland hardwoods intermingled with pine and hemlock are economically noncommercial because of topography, stand densities, and poor accessibility. Only 30 miles of stream corridor in the proposal are estimated to possess economically recoverable timber reserves.

In estimating that part of total economic benefits foregone from curtailment of timber harvesting, the negligible value of timber on the immediate streambank and in the sheer bluff areas was discounted. Streambank trees are predominantly noncommercial in species, size, and quality.

Applying the average corridor width of 1,500 feet along the 30 miles of corridor, an estimated 4,364 acres of timber would be withdrawn from harvest. Using 1970 dollars, the value that would be foregone by not harvesting the timber is \$218 per acre. Using U.S. Forest Service growth predictions and a 5 percent interest rate, the average annual value of timber growth in the proposed corridor is \$6 per acre. Below is a table showing the economic values foregone by not harvesting the commercial timber in the stream corridors.

Timber Values Foregone

	<u>Total for 4,364 Acres</u>
Value of annual growth foregone by not harvesting timber	\$ 26,184
Value of timber at year 2000 - value foregone by not harvesting	\$1,091,000



Muskellunge fishing on Clear Creek



Serenity at an Obed River pool

Coal Mining

Mining should not be permitted within the boundary of the proposed Obed National Wild and Scenic River. Although modern reclamation techniques and stronger State and pending Federal status greatly improve the reclamation picture, mineral extraction would not be compatible with the management "Guidelines" established by the Secretaries of the Interior and Agriculture for the "wild" and "scenic" river classifications. In addition to lowering the aesthetic value of the resource, surface mining, and especially strip mining, can cause unstable soil conditions, a lowering of land productivity, and poor water quality. Acid-mine drainage, created by water passing over mined coal materials, can become a continuing danger to fish and other aquatic life.

"The Tennessee Surface Mining Law" enacted in 1972 regulates surface mining and provides for the reclamation of lands affected by such operations. The 1972 law prohibits the issuing of permits for strip mining of coal on slopes exceeding 28 degrees where overburden would be deposited downslope from the mined seam. The law also requires reshaping and revegetation of the mined site within 1 year of the initial soil disturbance. Failure to reclaim a mined site results in forfeiture of a \$600 per acre permit bond. Deep coal mining operations and the surface mining of dimension sandstone, marble, and limestone are exempt from the 1972 strip-mine legislation.

Tennessee's Division of Surface Mining should continue to carefully review applications for the mining of coal in the Obed River watershed to assure that future operations will not have an adverse effect on water quality. Federal assistance in reviewing permit applications for the watershed should be provided the State through the Environmental Protection Agency and other appropriate agencies. The rendering of such assistance would have to comply with the 20-day period allowed by law for the Division of Surface Mining to review permit applications.

In January 1972 the Tennessee Department of Conservation, Division of Geology, estimated that 557 acres within the proposed wild and scenic river boundary were underlain with recoverable coal deposits. Of this area, 374 acres could be strip mined under current prices and technology while the remaining 182 acres would require deep mine operations. The total amount of recoverable coal within the stream corridors is estimated at 1,550,000 short tons not counting three new reserves shown by numbers 1-3 on the map on page 37. There are no known recoverable deposits within the stream corridor of Clear Creek. Approximately 40 percent of the coal deposits in the Obed River corridor are located in the State-owned Catoosa Wildlife Management Area where mining is prohibited.

In 1971, the average selling price of mined coal in Tennessee was \$5.24 per ton while the royalty received by the landowner varied from 15 cents to \$1.25 per ton. Tennessee's Division of Geology has placed an average in-the-ground value of 50 cents per ton on coal in the Obed River region. Subtracting the tonnage of coal (600,000 tons) in the corridors of the Catoosa Wildlife Management Area which cannot be mined, the following values were derived.

Value of Coal in the Stream Corridors

<u>Estimated Recoverable Reserves (Short Tons)</u>	<u>50 Cents Per Ton</u>	<u>Market Value \$5.24 Per Ton</u>
950,000	\$475,000	\$4,978,000

In order to compare the mining benefits foregone with those of timber and recreation, it was assumed that the coal reserves of the corridors would be extracted at a uniform rate over a 30-year period with a yearly selling price increase of 5 percent. The total value of the extracted coal over the 30-year period is shown in the following table.

Value of Coal Over the Extraction Period

<u>Average Annual Extraction Rate in Tons</u>	<u>Total Value for 30-Year Period</u>	<u>Value of Yearly Extractions</u>
31,667	\$10,331,042	\$344,368

Other Materials

Aside from coal, dimension sandstone and limestone are the only minerals of economic importance known to exist in the Obed River region. No outcrops of limestone are present within the study stream corridors. Specific desirable characteristics of sandstone vary considerably from place to place, precluding any possibility of reserve calculations. Most quarrying is restricted to the Crossville sandstone, outcrops of which are located in the Crab Orchard area. According to Tennessee's Geology Division, the economic potential of quarrying sandstone in the study stream corridors is insignificant. Unlike coal mining, the quarrying of sandstone does not create acid drainage.

Real Property

Real property along the streambank corridors will be subject to use restrictions by scenic easements. The value, to the private owner, of lands subject to scenic easement may remain essentially unchanged or may even increase.

The 9,111 acres proposed for fee acquisition in Morgan, Fentress, and Cumberland Counties would be removed from the local tax digest upon implementation of the Obed proposal. The estimated tax loss to the three counties is approximately \$25,000 per year. The effect on land values caused by designation of the streams, is uncertain. Private lands immediately outside the corridors covered by easements or acquired in fee simple may have enhanced value for commercial and residential purposes. Designation of the proposed area will assure owners of adjacent lands that aesthetic and recreation values will be retained in perpetuity.

Agriculture

Approximately 1,700 acres of the area included in the Obed proposal are utilized at present for row crops and pasture. Of this amount, approximately 1,300 acres are on the portion of Daddys Creek proposed for scenic easement, thus existing use could continue.

Using a net annual return of \$60 per acre from bottom cropland and \$15 per acre from pastured slopes to commute the annual values foregone, the significance of the removal of 400 acres of agricultural land is shown. Accumulated annual values lost were then compounded at 5 percent for 30 years to show the values foregone over that period. These data are arranged in the table below.

Cropland and Pastureland Values Foregone
Via In-Fee Purchases

	<u>Daddys Creek (400 acres)</u>
Value of annual production foregone by in-fee purchases	\$ 15,000
Values foregone by year 2000	\$990,000

Other Uses

No other commercial activities are known to exist in the proposed area. Potential uses of the resource other than those discussed are not foreseen. The trend for recreation use of the area appears well established and certain to continue.

VI. THE EMORY RIVER SEGMENT

Introduction

During study of the Obed River, Clear Creek, and Daddys Creek, it became evident that inclusion in the proposal of a 2-mile segment of the Emory River downstream from the Obed confluence would enhance and contribute to the functioning of the recreation plan. Because study of the Emory River was not authorized by the Wild and Scenic Rivers Act, the resulting proposal and recommendations are treated separately from those for the Obed River and its tributaries. No lesser significance, however, has been attached to this recommended addition to the proposal.

General Description

The Emory River rises on the northern edge of the Frozen Head State Park in Morgan County and flows southwest and southeast for 46 miles before entering Watts Bar Lake near Harriman, Tennessee. The 2-mile section from just above its confluence with the Obed River (river mile 29) to just below Nemo Bridge (river mile 27) is recommended for inclusion in the Obed Wild and Scenic River proposal. This section of the Emory River will buffer the dramatic physiographic features at the mouth of the Obed River, provide significant recreation use and an essential floating takeout point at Nemo Bridge. The 2-mile section of stream averages 100 feet in width and is bordered by steep mountains. The river corridor is predominantly forested.

The State of Tennessee presently has an option to purchase approximately 2 miles of streamside lands along the west side of the Emory River from Nemo Bridge to the confluence of the Obed and Emory Rivers. This property is presently an inholding which will be added to the Catoosa Wildlife Management Area. Streamside lands along the other side of the Emory River are owned primarily by the Southern Railway Company whose tracks parallel part of the stream.

Recreation Use and Potential Developments

The recreation potential of the Emory River segment is similar to that of the Obed River. The proposed Emory segment has sufficient volume for floating almost year-round. It is suited for a large segment of the boating population, for while rapids are present, there is not the white water challenge that the boater finds on the Obed, Clear Creek, and Daddys Creek. Water quality of the Emory River is suited for all types of contact recreation use.



Emory River above Nemo Bridge

Nemo Bridge is the only suitable takeout for floaters coming down the Obed from Potters Ford, Lilly Bridge, and the Devils Breakfast Table. Development of a parking lot, boat launching site, and comfort station is recommended near the bridge. This facility would accommodate those fishing and using the river for other recreation activities. It would also provide an access point for floating down the Emory to Oakdale, Tennessee.

Classification

Scenic classification is recommended. The 2-mile stretch is free of impoundments, and the only developments visible from the stream are the Nemo Bridge and Southern Railway tunnel.

Acquisition

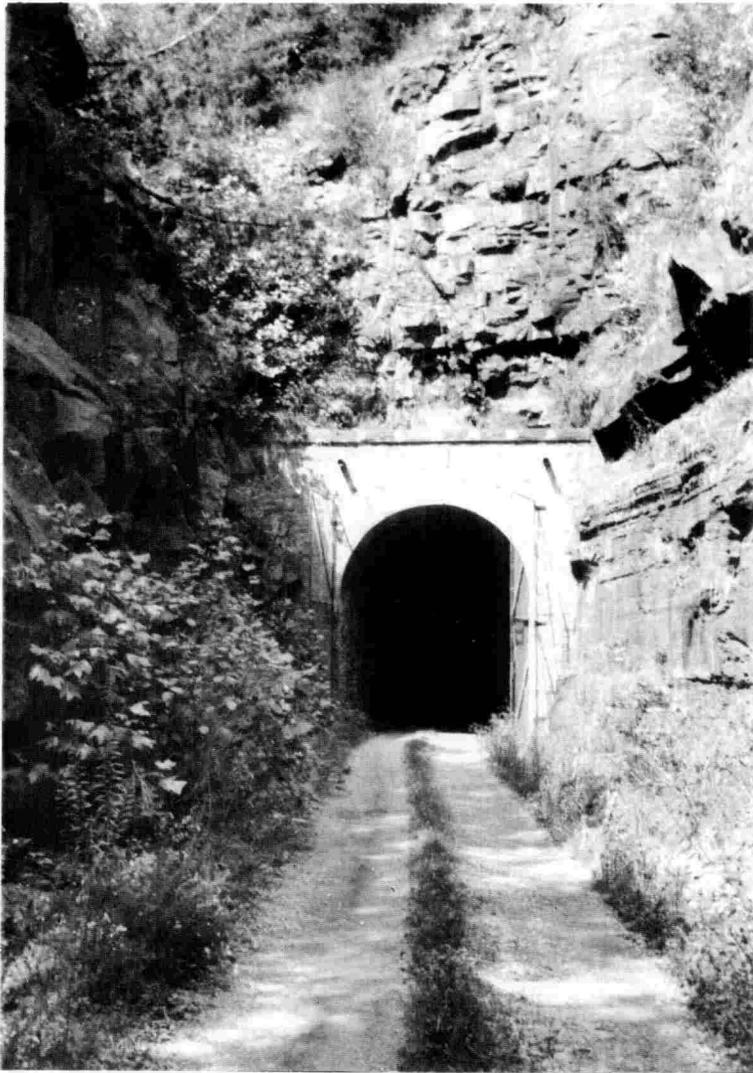
A 400-foot-wide corridor extending from midstream on both sides of the river is recommended. This 800-foot-wide corridor would total about 194 acres. In addition, a 25-acre site is proposed for acquisition in fee north of Nemo Bridge and east of the Emory River to accommodate the proposed development of a parking area, launching site, sanitary facilities, picnicking, and possibly camping.

Costs

Total acquisition costs for fee and easement areas are estimated at \$34,000. Estimated costs of proposal implementation are shown in the following table.

Preliminary Cost Estimates

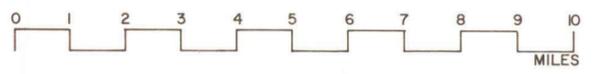
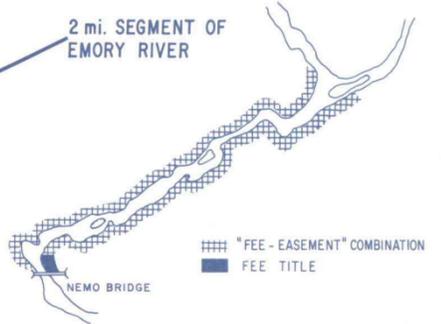
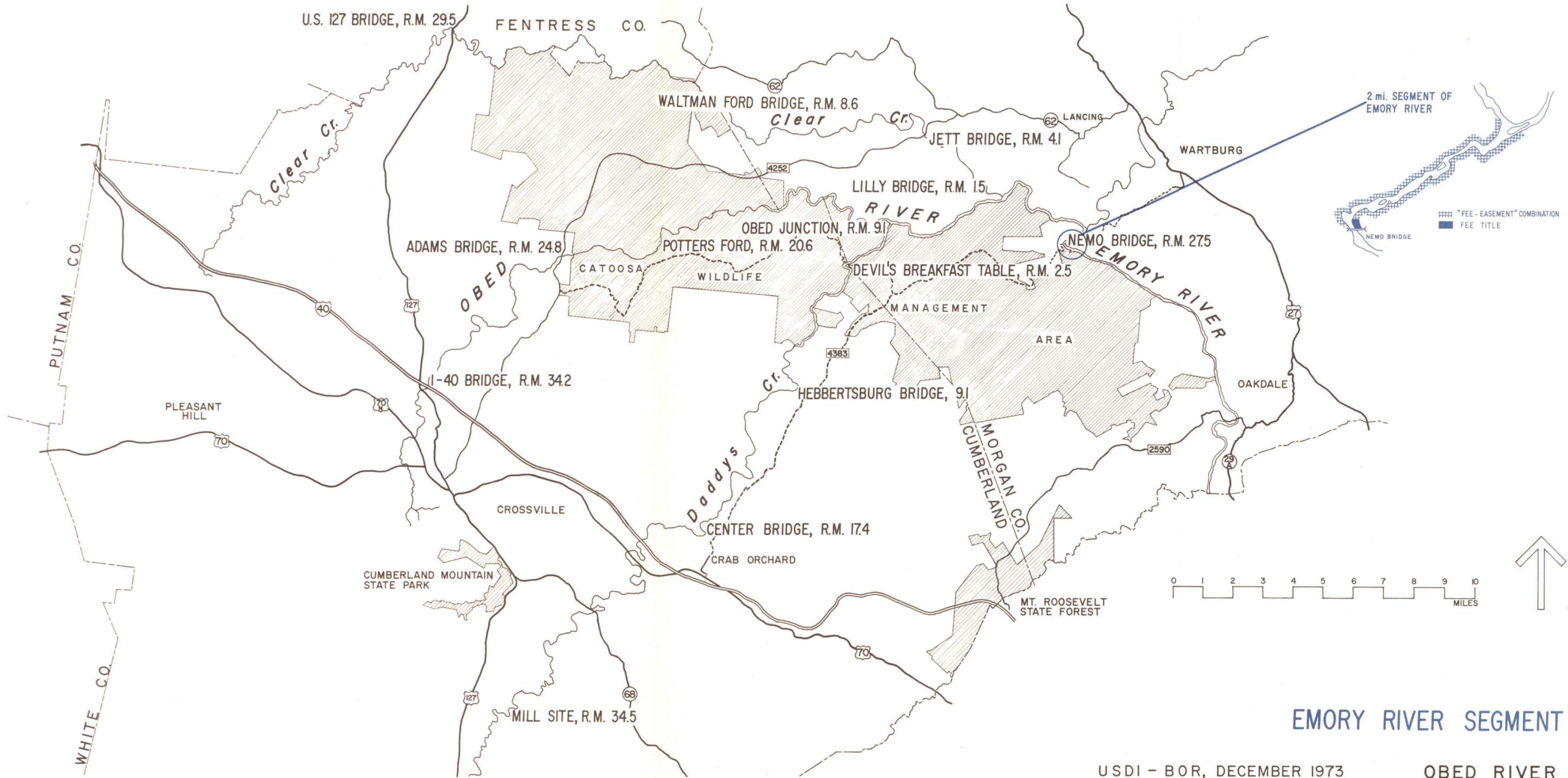
	<u>Acres</u>	<u>Cost</u>
<u>Land Acquisition</u>		
Fee	122	\$24,500
Easement	97	9,500
Total	<u>219</u>	<u>\$34,000</u>
<u>Development</u>		<u>\$40,000</u>
TOTAL		\$74,000
Annual Operation and Maintenance, year 1		\$ 3,000



Abandoned railroad
tunnel provides
access to the Emory
River

Confluence of the
Obed with Emory
River





EMORY RIVER SEGMENT

USDI - BOR, DECEMBER 1973

OBED RIVER

VII. APPENDIX

FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

IN REPLY REFER TO:

MAY 30 1974

Honorable Rogers C. B. Morton
Secretary of the Interior
Washington, D.C. 20240

Reference: D4219-Obed River

Dear Mr. Secretary:

This is in reply to Deputy Assistant Secretary Wheeler's letter of February 20, 1974, transmitting for the Commission's comments, pursuant to provisions of the Wild and Scenic Rivers Act, the proposed report of your Department on the Obed River, Tennessee.

The proposed report recommends that segments totaling 100 miles on the Obed and Emory Rivers and tributaries be designated as wild or scenic rivers. The proposed wild and scenic river boundaries would contain approximately 15,644 acres.

The Federal Power Commission staff has reviewed the report of your Department to determine the effects of the wild and scenic river proposal on matters affecting the Commission's responsibilities. Such responsibilities relate to the development of hydroelectric power and assurance of the reliability and adequacy of electric service under the Federal Power Act, and the construction and operation of natural gas pipelines under the Natural Gas Act.

The Commission staff review shows that there are no existing hydroelectric power projects within the river segments proposed for wild and scenic river designations. However, there are three known potential hydroelectric power developments on the Obed River within the proposed

wild and scenic river areas. At Obed River mile 3.2, the potential Nemo development could provide 80,000 kilowatts of conventional hydroelectric capacity. It is understood that this site was dropped from the Tennessee Valley Authority's basin plan for potential development in 1968. Reconnaissance-type studies by the Commission staff indicate that pumped storage hydroelectric power could be developed at two sites on the Obed River. One site, at Obed River mile 2.6, would utilize an upper reservoir on Rock Creek to develop 540 feet of head and could provide 600,000 kilowatts of capacity. The other site, at Obed River mile 22.1, would utilize an upper reservoir on Fox Creek to develop 380 feet of head and could provide about 435,000 kilowatts of capacity. Currently, there are no known plans to develop any of these sites.

The staff review shows that one 500-kilovolt and two 161-kilovolt transmission lines cross the proposed wild and scenic river segments. As indicated in your Department's report, considerable care was exercised in designing the transmission lines so that adverse environmental effects would be minimal. These transmission lines are necessary parts of the integrated bulk power system of the Tennessee Valley Authority. Although there are no known plans for additional transmission line crossings at this time, there may be a need for such crossings in the future.

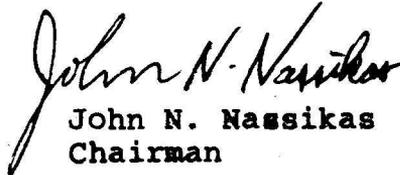
There are no natural gas pipeline crossings of the river segments proposed for wild or scenic designation. There is a possibility of the potential for oil and natural gas reserves in the area because of the proximity to the Hurricane Creek and Douglas Branch Fields. However, any oil or natural gas resources discovered below the proposed wild or scenic river areas presumably could be recovered by slant or directional drilling from outside the areas.

Based on its consideration of the proposed report of your Department and the review by its own staff, the Commission concludes that there are sites for possible hydroelectric power development, principally pumped storage capacity, in the segments of the Obed River system proposed for inclusion in the national wild and scenic river system. It notes that the proposed wild and scenic river segments

Honorable Rogers C. B. Morton -3-

are crossed by several power transmission lines and that additional facilities of this type may be required in the future. Therefore, the Commission recommends that plans for administering the river segments recognize such requirements.

Sincerely,


John N. Nassikas
Chairman



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

June 12 1974

Honorable Rogers C. B. Morton
Secretary of the Interior

Dear Mr. Secretary:

This is in response to Deputy Assistant Secretary Wheeler's February 20 letter requesting our views on your Department's proposed report on the Obed River.

Information in the report indicates that the reaches of stream studied fully meet the criteria for inclusion in the National Wild and Scenic Rivers System. Agencies in this Department reviewed the report, and the comments, which were primarily technical in nature, were sent directly to the Bureau of Outdoor Recreation for consideration.

We feel that some minor additions to the report would aid the reader's understanding of the current situation, and the magnitude of the proposal especially as related to program costs. For example, the section discussing the area economy should include information on the average value of land per acre, and average farm income. A high-low range may be a suitable way to display the agriculture economy. Also, in the cost section, operation costs are shown for only the first year. These first year costs are based on an estimated 50,000 visitor-days of use. Since the projected use rises to 175,000 visitor-days in the tenth year, operation costs would also increase. These additional costs should be displayed and related to the dollar input values to the economy estimated to accrue from a wild and scenic rivers program for the Obed River.

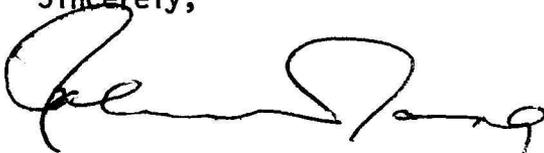
The proposed joint Federal-State administrative arrangement for the river area is commendable. We view this arrangement as an opportunity to exhibit a cooperative effort to protect and manage a high quality natural resource.

Honorable Rogers C. B. Morton

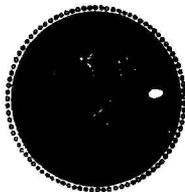
2

There is no apparent conflict between the proposed designation and plan for the river, and programs or projects of this Department. We have no objections to the proposal, and appreciate the opportunity to review the report.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert W. Long', written over a horizontal line.

Robert W. Long
Assistant Secretary for Conservation,
Research and Education



Winfield Dunn
Governor

State of Tennessee

October 4, 1974

The Honorable Rogers C. B. Morton, Secretary
United States Department of Interior
Interior Building
C Street between 18th and 19th Streets
Room 6151
Washington, D. C. 20240

Dear Secretary Morton:

I have conveyed to Chairman Wagner of TVA the State's intent to participate jointly with them in the development of the Obed River as a National Wild and Scenic River. Although the final terms of our agreement have not yet been reached, this should, however, enable the Bureau of Outdoor Recreation, Department of Interior, to pursue the Wild and Scenic River designation for the Obed.

I think the development of this river by the Tennessee Valley Authority and the State of Tennessee will be a significant event in the Wild and Scenic Rivers Program. I wish to assure you that the State is committed to do a good job, and I am confident that we will be successful. I consider us to be fortunate in having TVA as a partner in this matter. I think the State and TVA both understand the importance and the magnitude of this venture.

Sincerely,

Winfield Dunn
Winfield Dunn

WD:ja

cc: Mr. Aubrey J. Wagner

A-101

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE
37902



OFFICE OF THE BOARD OF DIRECTORS

October 17, 1974

Mr. Nathaniel P. Reed
Assistant Secretary
Department of the Interior
Washington, DC 20240

Dear Mr. Reed:

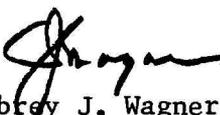
D4219-OBED RIVER

Thank you for your letter of October 2 regarding the respective roles of the State of Tennessee and TVA relative to the Obed River.

Your letter correctly summarizes the agreements reached with the State concerning our joint management of the Obed River as a potential component of the National Wild and Scenic Rivers System. We have had subsequent meetings with the State to further clarify the mechanics of implementing these points of agreement. As a result of such meetings, Governor Dunn wrote to me on October 4 expressing the intent of the State to share equally with TVA in this project. This intent was also expressed in a letter of the same date to Secretary Morton.

We believe we have a sound basis to proceed with this approach to properly protect and develop this important river as an element of the national system.

Sincerely yours,


Aubrey J. Wagner
Chairman



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAY 13 1974

Mr. Douglas P. Wheeler
Deputy Assistant Secretary of the Interior
United States Department of the Interior
Washington, D. C. 20240

Dear Mr. Wheeler:

The Administrator, Mr. Russell E. Train, has asked me to respond to your recent letter requesting our comments and views on the Department's proposed report on the Obed River Wild and Scenic River Study.

The study report presents an excellent review of the study area and clearly supports the findings that the outstanding intrinsic and extrinsic values of the area merit inclusion of the Obed River System, under the following classification, as part of the National Wild and Scenic River System.

Wild River	-- Obed River from Interstate 40 to junction with Emory River	34 miles
	-- Clear Creek from U.S. 127 to junction with Obed	29.5 miles
	-- Daddys Creek from river mile 18 to junction with Obed	18 miles

	TOTAL	81.5 miles
Scenic River	-- Daddys Creek from the millsite at river mile 34.5 to river mile 18	16.5 miles
	-- Emory River from junction of Obed to Nemo bridge	2 miles

	TOTAL	18.5 miles

We support the above recommendations for establishing segments of the Obed River System as wild and scenic.

We are concerned, however, that the recommendations for administration and management of the river system and the estimated recreational visitation may not be compatible with the above classifications. Under the "Guidelines for Evaluating Wild, Scenic and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542," the management objectives state that..."administration of a wild river area shall give primary emphasis to protecting the values which make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a primitive setting'...and ...'a scenic river area should be managed so as to maintain and provide outdoor recreation opportunities in a near natural setting." We do not believe that the estimated maximum annual carrying capacity for the total proposed area (580,000 visitor days) or the estimated 10th year visitation (175,000 visitor days) are compatible with the proposed classifications. This is particularly relevant since over 80 percent of the river system is recommended for classification as "wild."

We strongly advocate that the Department of the Interior designate the National Park Service, which has considerable experience in managing areas with high natural and scenic values, as the Federal agency to participate in the acquisition, development, and management of this project in cooperation with the State of Tennessee. Choice of the Tennessee Valley Authority to manage the area would not appear appropriate in view of its multiple interests, some of which conflict with or infringe upon the Wild and Scenic area management objectives.

In the past EPA has had the opportunity to comment on the proposed study report and the draft environmental impact statement. This procedure has facilitated EPA's coordination and compliance with the National Environmental Policy Act of 1969. It is our understanding that the Obed River draft Environmental Impact Statement is still undergoing intra-agency review. Thus, we must reserve the right to alter the above comments after we have had an opportunity to review the Environmental Impact Statement.

We appreciate the opportunity to comment on this report and look forward to reviewing and commenting upon the draft Environmental Impact Statement.

Sincerely yours,



Lillian D. Regelson
Deputy Assistant Administrator for
Water Planning and Standards (AW-451)
Office of Water and Hazardous Materials



DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
WASHINGTON, D.C. 20310

3 APR 1974

Mr. A. Heaton Underhill
Assistant Director for
State Programs and Studies
Bureau of Outdoor Recreation
Department of Interior
Washington, D. C. 20240

Dear Mr. Underhill:

This is in response to a recent letter (D4219-Obed River) from Deputy Assistant Secretary Wheeler forwarding your proposed report recommending that 100 miles of the Obed River and its Clear and Daddys Creek Tributaries plus two miles of the Emory River, Tennessee, be included in the National Wild and Scenic Rivers System. Comments of the Department of the Army were solicited pursuant to Section 4 of the Wild and Scenic Rivers Act, 82 Stat. 906.

These streams lie within the drainage basin of the Tennessee River; responsibility for and interest in water resource planning and development is vested in the Tennessee Valley Authority. Consequently, the Department of the Army has no comments to offer on this proposal as it would not affect existing, authorized or proposed water resource programs under our jurisdiction.

Sincerely,

A handwritten signature in cursive script that reads "Charles R. Ford".

Charles R. Ford
Chief
Office of Civil Functions



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
PERSHING POINT PLAZA, 1371 PEACHTREE STREET, N.E.
ATLANTA, GEORGIA 30309

April 8, 1974

REGION IV

IN REPLY REFER TO:

4ME

Honorable Rogers C. B. Morton
Secretary of the Department of the Interior
Office of the Secretary
Washington, D. C. 20240

Dear Mr. Secretary:

The Department of the Interior's proposed report on the Obed River, Tennessee, has been reviewed in response to a request from the Office of the Secretary, Department of Housing and Urban Development.

Our principal concern is with developments that affect urban areas. The inclusion of Obed River and its tributaries--Clear Creek and Daddy's Creek--in the national wild and scenic rivers system should have no direct effect on any urban area. We therefore have no comment to make.

The Department is pleased to have been offered the opportunity to comment on the report.

Sincerely,

E. Lamar Seals
Regional Administrator

A-111

Coordination and Public Information

As provided by Public Law 90-542, the Wild and Scenic Rivers Act, Tennessee assumed coleadership responsibilities with the Department of the Interior's Bureau of Outdoor Recreation in conducting the study and developing the Obed River proposal. The Tennessee Department of Conservation assumed responsibility for coordinating input for the study report and environmental statement between its political units and the Bureau of Outdoor Recreation.

Creation of the Obed River task force enabled onsite studies to be conducted efficiently. Task force members are listed below.

ENVIRONMENTAL PROTECTION AGENCY

TENNESSEE DEPARTMENT OF CONSERVATION

TENNESSEE VALLEY AUTHORITY

TENNESSEE WILDLIFE RESOURCES AGENCY

U.S. DEPARTMENT OF AGRICULTURE

U.S. Forest Service

Soil Conservation Service

U.S. DEPARTMENT OF THE INTERIOR

Bureau of Outdoor Recreation

U.S. Fish and Wildlife Service

National Park Service

U.S. Geological Survey

The following agencies provided consultation and review:

FEDERAL POWER COMMISSION

U.S. DEPARTMENT OF THE ARMY

U.S. Army Corps of Engineers

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Environmental Health Service

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

U.S. DEPARTMENT OF THE INTERIOR

Bureau of Mines

Key city and county officials along with conservation group leaders were contacted by the State of Tennessee, Bureau of Outdoor Recreation, and other task force members for the purpose of obtaining their views on possible river proposals and their environmental effects.

Formal task force meetings were held in 1970 and 1972 to expedite formulation of the draft task force report, which, with a preliminary draft impact statement, was circulated for review and correction among task force members. A final report was produced and its findings presented in 1973.

Public information meetings were held in Crossville and Wartburg, Tennessee, on May 24 and 25 and September 20 and 21, 1973, to present the task force findings and to obtain public comments and suggestions about the study and alternate courses of action proposed. Statements were received for the record for 30 days. The record of these meetings is available for inspection at the Southeast Regional Office of the Bureau of Outdoor Recreation, 148 Cain Street, Atlanta, Georgia.

Approximately 1,300 copies of a brochure summarizing the findings of the study were distributed 30 days in advance of the meetings. The brochures were available in Crossville and Wartburg. Copies were mailed directly to task force members, local and State senators and representatives, members of the local and statewide press, and over 100 individuals and groups who requested them.

Approximately 75 persons attended at Crossville and 150 at Wartburg. Local residents comprised about 60 percent and 75 percent of the attendees, respectively.

Public opinion favored a protective management policy with a minimum of facility development and limited use to prevent resource degradation. The National Park Service was frequently recommended as the Federal administrative agency.

Many of the statements suggested enlarging the corridor to protect more of the watershed and to provide a buffer zone between the wild river and areas where future development might occur. Tributaries specifically suggested for inclusion in the proposal were White's Creek, Yellow Creek, and Otter Creek.

Opposition to the wild and scenic rivers concept came mainly from local landowners. Many felt that their way of life would be adversely affected, even though they would not be displaced by the proposed action. Many cited existing problems with trespassers who litter their property. Several supported the concept of preservation of the existing wild and scenic values of the Obed system, but believed that present property owners could do the job.

A draft of this report was produced and circulated for review by task force members and other concerned State and Federal agencies in early 1974. Their comments and corrections have been incorporated in this final study report.

The draft environmental statement was made available to CEQ and the public August 22, 1974. Copies were sent to the following agencies and organizations:

- Advisory Council on Historic Preservation
 - Office of Architecture and Environmental Preservation
- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Housing and Urban Development
- Department of the Interior
 - U.S. Fish and Wildlife Service
 - Bureau of Mines
 - National Park Service
 - Geological Survey
- Department of Transportation
- Environmental Protection Agency
- Federal Power Commission
- Tennessee Valley Authority
- Water Resources Council
- Tennessee State Clearinghouse
- East Tennessee Development District
- Emory River Watershed Development Association
- Upper Cumberland Development District
- American Conservation Association, Incorporated
- American Forestry Association
- American Rivers Conservation Council
- East Tennessee Whitewater Club
- Izaak Walton League of America
- Sierra Club, Tennessee Chapter
- Tennessee Conservation League
- Tennessee Citizens for Wilderness Planning
- Tennessee Scenic Rivers Association
- Tennessee Valley Canoe Club
- The Wilderness Society

Selected References

An Appraisal of Coal Strip Mining, Tennessee Valley Authority, Knoxville, Tennessee, February 1963.

A Canoeists' Guide to the Obed-Emory River System, Waller, George David III, Tennessee Scenic Rivers Association, Nashville, Tennessee, 1971.

Chattooga Wild and Scenic River Study Report, U.S. Department of Agriculture, Forest Service Southern Region, January 1971.

Cumberland County's First Hundred Years, Bullard, Helen; Krechniak, Joseph M., Centennial Committee, Crossville, Tennessee, 1956.

Emory River Valley, Summary of Resources, Tennessee Valley Authority, Knoxville, Tennessee, January 1968.

Identification of Owners of Forest Land, the Areas Owned, and the Purposes for Which Land is Held in the Emory River Watershed, Emory River Watershed Development Association, December 1968.

Mineral Resources of the Tennessee Valley Region, Tennessee Valley Authority, Knoxville, Tennessee, 1970.

Obed-Emory Canoe Trails, East Tennessee White Water Club, Tennessee Scenic Rivers Association, Tennessee Valley Authority.

Principles and Guide to Practices in the Control of Acid-Mine Drainage, Coal Industry Advisory Committee of the Ohio Valley Water Sanitation Commission, March 1964.

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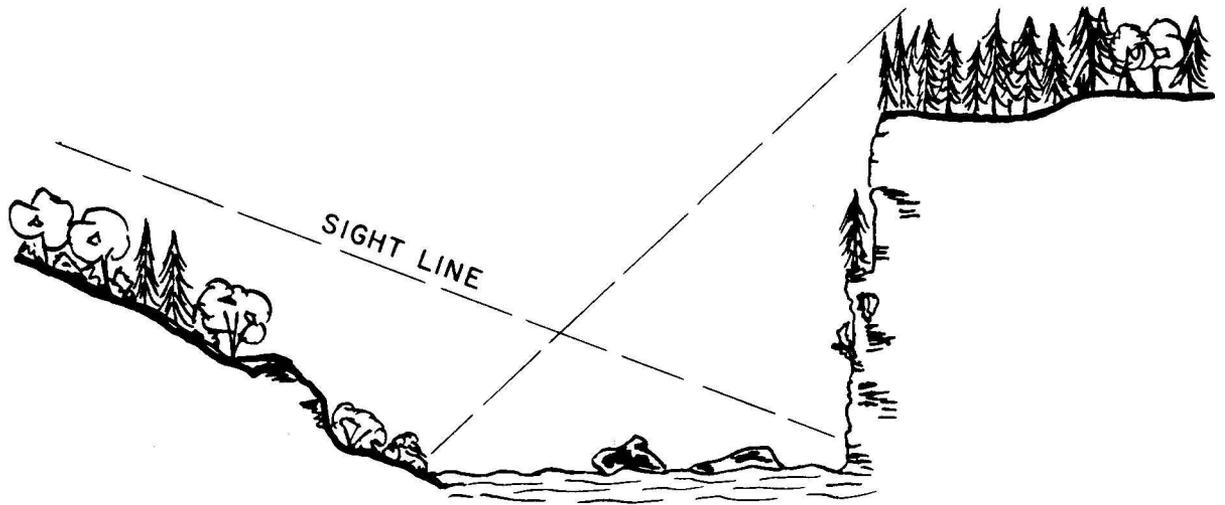
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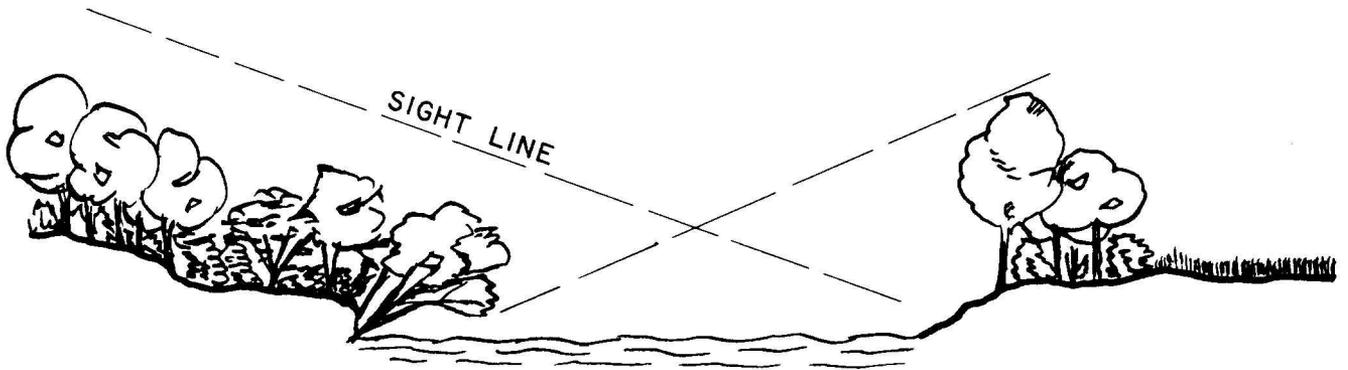
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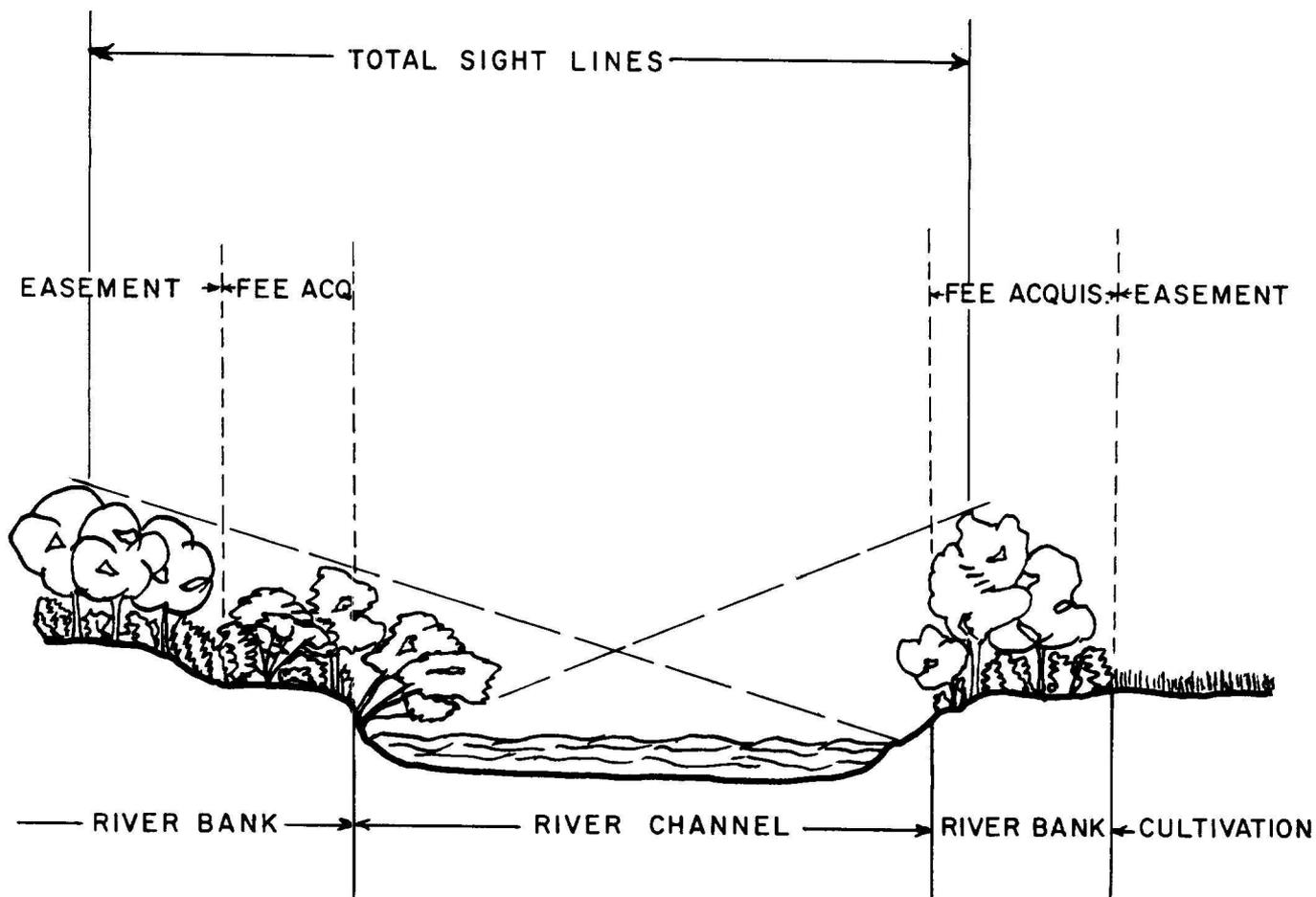
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TYPICAL VALLEY CROSS SECTIONS



CRITICAL SIGHT LINES



FEE - EASEMENT ACQUISITION CONCEPT

USDI - BOR, DECEMBER 1973

OBED RIVER

Criteria for Scenic Easements

1. Existing land uses that are compatible with the Wild and Scenic Rivers concept should be allowed to continue.
2. Streamside slopes visible from the stream should be maintained in a natural condition.
3. Clear-cutting of timber should not be allowed in easement areas.
4. Existing buildings, if compatible with overall objectives, should be allowed to remain.
5. No new buildings or other improvements should be allowed within the boundary without written permission of the administering agency or agencies.
6. Existing farm use access roads to the stream should be allowed to remain but not upgraded.
7. Livestock watering should be allowed to continue as long as it does not result in lowering the quality of water below the standards for contact recreation.
8. Public use on easement lands should be prohibited unless granted by the owner or specifically provided for in the easement agreement.

FLORA

American Beech
American Elm
American Holly
American Sweetgum
Asters
Blackberry
Black Cherry
Black Gum
Black Locust
Black Oak
Blue Beech
Blueberry
Carolina Rose
Chestnut Oak
Club Moss
Common Cinquefoil
Common Witch Hazel
Downy Rattlesnake-Plantain
Eastern Cottonwood
Eastern Hemlock
Eastern Hophornbeam
Eastern Red Cedar
Eastern White Pine
Ferns
Fescue
Flowering Dogwood
Goldenrods
Grapevine
Green Ash
Japanese Huckleberry
Lichens
Mountain-Laurel
Naked-Flowered Tick-Trefoil
Northern Red Oak
Pansy Violet
Pawpaw
Partridge Berry
Pignut Hickory
Poison Ivy
Poison Sumac
Purple Joe-Pye-Weed
Puttyroot Orchid
Red Maple
Rhododendron
River Birch
Round Leaved Wintergreen
Sassafras
Shortleaf Pine
Showy Orchid
Silkgrass
Smilax
Southern Crab Apple
Spice Bush
Strawberry Bush
Sugar Maple
Sweet Birch
Sycamore
Teaberry
Trailing Arbutus
Tulip Poplar
Umbrella Magnolia
Virginia Pine
White Ash
White Oak
Wild Carrot
Wild Ginger
Wild Hydrangea
Wild Strawberry

FAUNA

Endangered Species

Southern Bald Eagle
Indiana Bat
Red-cockaded Woodpecker
American Peregrine Falcon

Threatened Species

Golden Eagle

Game Mammals

White-tailed deer
Raccoon
Opossum
Eastern gray squirrel
Eastern fox squirrel
Cottontail rabbit
Gray fox
Red fox
Groundhog

Furbearers

Mink
Muskrat
Bobcat
Longtail weasel
Striped skunk

Nongame Mammals

Southern Flying squirrel
Eastern chipmunk
Hispid cotton rat
Deer mouse
Meadow jumping mouse
Eastern mole
Pine vole
Rice rat
Eastern woodrat
Golden mouse
Cotton mouse
Whitefooted mouse
Eastern harvest
Southeastern shrew
Least shrew
Short-tailed shrew
Bats
 Little brown myotis
 Keen myotis
 Gray myotis
 Indiana myotis
 Small-footed myotis
 Silver-haired bat

Eastern pipistrel
Red bat
Hoary bat
Evening bat
Eastern big-eared bat

Game Birds

Mallard
Wood duck
Bobwhite quail
American woodcock
Mourning dove
Common crow
Ruffed grouse
Wild turkey

Nongame Birds

Great blue heron
Green heron
Turkey vulture
Black vulture
Hawks
 Sharp-shinned
 Cooper's
 Red-tailed
 Red-shouldered
 Broad-winged
 American kestrel

Osprey
Killdeer
Yellow-billed cuckoo
Owls
 Barn
 Screech
 Great horned
 Barred
Whip-poor-will
Common nighthawk
Chimney swift
Ruby-throated hummingbird
Belted kingfisher
Woodpecker
 Common flicker
 Pileated
 Red-bellied
 Red-headed
 Hairy
 Downy
 Yellow-bellied sapsucker
Flycatcher
 Crested

FAUNA (cont'd.)

Acadian	Magnolia	
Olive-sided	Cape May	
Eastern kingbird	Black-throated blue	
Eastern phoebe	Yellow-rumped	
Eastern wood pewee	Black-throated green	
Swallow	Cerulean	
Bank	Blackburnian	
Barn	Common yellow-throat	
Cliff	Chestnut-sided	
Purple Martin	Bay-breasted	
Blue jay	Blackpoll	
Carolina chickadee	Pine	
Tufted titmouse	Prairie	
Nuthatch	Palm	
White-breasted	Kentucky	
Red-breasted	Connecticut	
Brown creeper	Mourning	
Wren	Hooded	
House	Wilson's	
Winter	Canada	
Bewick's	Ovenbird	
Carolina	Northern waterthrush	
Mockingbird	Louisiana waterthrush	
Catbird	Common yellow-throat	
Brown thrasher	Yellow-breasted chat	
Thrush	American redstart	
American robin	House sparrow	
Wood	Eastern meadowlark	
Hermit	Orchard oriole	
Gray-cheeked	Northern oriole	
Veery	Blackbird	
Eastern bluebird	Red-winged	
Blue-gray gnatcatcher	Rusty	
Golden-crowned kinglet	Brewer's	
Ruby-crowned kinglet	Common grackle	
Cedar waxwing	Brown-headed cowbird	
Loggerhead shrike	Scarlet tanager	
Starling	Summer tanager	
Verec	Cardinal	
White-eyed	Rose-breasted grosbeak	
Red-eyed	Evening grosbeak	
Warbler	Indigo bunting	
Black and white	Dickcissel	
Prothonotary	Purple finch	
Worm-eating	Pine siskin	
Golden-winged	American goldfinch	
Blue-winged	Red crossbill	
Tennessee	Rufous-sided towhee	
Orange-crowned	Sparrow	
Nashville	Chipping	Fox
Northern parula	Field	Swamp
Yellow	White-crowned	Song
	White-throated	Dark-eyed junco

POTENTIALLY ENDANGERED OR THREATENED FAUNA

The Emory River crayfish, Cambarus sp., is known only from two localities in the Emory River in Morgan County, Tennessee. These are the Emory River at the bridge upstream from Island Creek southwest of Wartburg and in Rock Creek at U.S. Highway 27. Both sites are outside the study area, including the Emory River segment recommended for inclusion in the National System. This species is considered a highly important candidate for the official list of endangered species.

Bouchard's crayfish, Cambarus crinipes, is known to occur only in the headwaters of the East Fork of the Obed River system, and in Clear Creek, the Obed River tributary. It is considered a candidate for the official list of threatened species. Some of the localities where this species is found occur in the river area recommended for inclusion in the National System and some do not.

The Alabama lamp pearly mussel, Lampsilis virescens, is considered a candidate for the official list of endangered species and is found only in the Little Emory River, Tennessee, and in the Paint Rock River, Alabama. In the Paint Rock River, its range has been considerably reduced by channelization and is in further jeopardy from channelization in Hurricane Creek, Estil Fork, and the Paint Rock River proper. The species is also endangered in the Paint Rock River by pollution and by quarry operations. In the Little Emory River, Lampsilis virescens has been specifically located in 1974 in Roane County, Tennessee, 0.2 mile south of the Morgan County line (i.e., 5 miles northeast of Harriman and 1/2 mile south of the mouth of Bitter Creek). The Little Emory River, a tributary of the Emory River, is part of the Obed River system but is outside the study area and was not recommended in the Obed River report for inclusion in the National System.

The fine-rayed purple pearly mussel, Vilosa perpurpurea, is known to occur only in the Clinch River in Virginia, the Copper Creek tributary of the Clinch River in Virginia, and the Obed River at Potter Ford. This segment of the Obed has been recommended for inclusion in the National System. The species is nearly extinct because its survival is jeopardized by municipal waste, channelization, and acid mine waste and flyash waste. It is considered a candidate for the official list of endangered species.

The spotfin chub, Hybopsis monacha, is being considered as a candidate for the list of endangered species. This species was once widespread in the Tennessee River drainage but is presently found only in two streams. The largest population is present in the main channel of the Emory River. The longhead darter, Percina macrocephala, a candidate for the threatened list, is also present in the Emory River drainage. It was collected in Rock Creek at U.S. Highway 27, Morgan County, Tennessee. Both fishes are located mostly outside the study area.

Obed River Supplemental Analysis

1. Purpose

This supplement analysis provides a brief summary of a recommended plan for including portions of the Obed River and its tributaries in the National Wild and Scenic River System. A display is provided which identifies impacts which would result from plan implementation upon various plan components. Impacts also are summarized for projected future conditions without plan implementation and the net effect of the plan is derived. The quantitative and qualitative expressions of plan impacts are arrayed into four accounts, viz National Economic Development (NED), Environmental Quality (EQ), Social Well Being (SWB) and Regional Development (RD).

2. National Economic Development Objective Plan

Proposals for water resources utilization which would significantly and, for all practical purposes, irreversibly alter the potential uses of water and related land resources of an area, must consider alternatives which range from developing those resources for optimum national economic return to preserving and enhancing the natural environmental conditions. Similarly, the Principles and Standards planning procedures would be applied to proposals for wild, scenic and recreational rivers and national recreation areas when establishment of such areas would foreclose water resource development opportunity emphasizing national economic development.

Proposals to establish wild, scenic and recreational rivers and national recreation areas may not involve an irreversible commitment of resources over the long term or significant conflicts in the preferences of society for the utilization of water and related land resources of the area. Conflicts will be identified early in the planning process as a result of public involvement, review of previous studies of the area, and participation by other agencies on the planning team. In the absence of conflicts, planning would be for preservation of the natural values and enhancement of recreation opportunities. The range of alternative plans would relate only to the environmental quality objective. When plans would preclude potential future development of economic activities such as timber harvesting, mining, private recreation, or production of other goods and services, the values which would be enhanced, foreclosed, or curtailed by plan implementation will be identified in the appropriate accounts of alternative plans under the environmental quality objective.

The review of previous water planning efforts and the coordination with water development agencies did not identify any conflicting use or plans for water development which met all of the tests of acceptability, effectiveness, efficiency and completeness. Coordination with the Federal Power Commission identified three sites with known hydroelectric development potential. One site could provide 80,000 kilowatts of conventional hydroelectric capacity and two other sites

could provide 600,000 and 435,000 kilowatts of pumped storage hydroelectric capacity. There are no known plans to develop any of these sites.

In February, 1971 the Tennessee Valley Authority indicated that they have no plans for water control projects or future studies on the Obed River, Clear Creek or Daddy's Creek. Potential projects have been studied on these streams between 1932 and 1968, however, none have been found to be economically feasible.

As a result of the review and coordination it has been determined that there is no conflicting demand for the water or plans for development. Consequently, there is no NED objective plan alternative which would meet the four tests.

3. Environmental Quality Objective Plan

The recommended plan would designate 100 miles of the Obed River, Clear Creek, Daddy's Creek and Emory River as components of the National Wild and Scenic River System. Three river reaches totaling 81.5 miles would be preserved as wild segments and two river reaches totaling 18.5 miles would be preserved as scenic segments. A corridor averaging 1300 feet in width totaling 15,644 acres would be controlled through fee ownership, easements and intergovernmental agreements. Initial acquisition, development and administrative costs would be shared by the Tennessee Valley Authority and the State of Tennessee. Ultimately, the State of Tennessee would assume full management authority.

COMPONENT	NED ACCOUNT			EQ ACCOUNT			SWB ACCOUNT			RD ACCOUNT		
	Without	With	Net	Without	With	Net	Without	With	Net	Without	With	Net
(1) Preserve free-flowing river	Three sites have been identified that have hydroelectric development potential but are not economically feasible at this time. One of these sites could provide 80,000 kw of conventional hydroelectric power. Two of the sites could provide 1,035,000 kw of pumped storage hydroelectric power.	Future hydroelectric development of three sites would be precluded even if economic conditions changed to make the sites economically feasible.	Eliminate 3 potential hydroelectric sites from further development consideration.	Tennessee probably will not add the Obed and tributaries to the state scenic river system since it is heavily committed to other rivers in the state system for acquisition and development.	Three river reaches totaling 81.5 miles would be preserved as "wild". Two river reaches totaling 18.5 miles would be preserved as "scenic".	100 miles of river protected and preserved in a free flowing condition. Muskellunge fishery is maintained	Future availability of this high quality river experience is not assured.	High quality river experience is assured for future generations. Continuation of the Obed as a wild resource will provide opportunities for nature study and other scientific and educational activities.	Future availability of high quality free flowing river experience is assured.			
(2) Maintain Water Quality				Anticipated timber harvest and second home subdivision development in river corridor contribute increased sediment load to river thereby decreasing water quality. State controls of water discharge from mining operations keep all but accidental discharge of acid drainage from entering River.	Water quality is not degrading by timber harvest or second home subdivision development in river corridor. The possibility of accidental discharge of acid drainage from mine operations is reduced.	Present excellent water quality is maintained. Reduced possibility of accidental acid mine drainage discharge.						

COMPONENT	NED ACCOUNT			EQ ACCOUNT			SWB ACCOUNT			RD ACCOUNT		
	Without	With	Net	Without	With	Net	Without	With	Net	Without	With	Net
(3) Control land use in the river corridor by acquisition of 9136 acres fee simple, 2537 acres scenic easement and 3,971 acres by cooperative agreement	\$0 \$0	Fee simple cost: \$3,718,500 Scenic easement cost: \$478,500	- \$3,718,500 - \$ 478,500				Property value of riverfront land will increase	Protects property value by assuring adjacent owners of land that aesthetic values will be retained in perpetuity.	Value of property along the river are transferred, in part, to lands adjacent to river corridor boundary.	Property value of riverfront land increases. Taxes estimated at \$25,000 continue to be collected on 9,136 acres.	9,136 acres removed from local tax roles. Riverfront land value is transferred, in part, to lands adjacent to the river corridor due to the desirability of being located next to a national wild river.	9,136 acres removed from local tax roles reducing local tax base by \$25,000. An unknown amount of this loss will be made up by increases in value of adjacent property.
a) Mining operations	950,000 tons of coal worth \$475,000 in-the-ground are available to be mined in the river corridor. A limited amount of sandstone may be mined. Value is limited due to steep terrain and talus slopes.	Minerals located in Wild segments cannot be mined. Minerals located in Scenic segments may be mined subject to controls. These controls will add to production costs and may therefore effectively preclude or defer mining in scenic segments until future conditions make it possible to mine competitively even with added production costs	- \$475,000 ^{1/} - unknown but limited value of sandstone	Strip mining in corridor will adversely effect the visual aesthetics.	Visual aesthetics are maintained in Wild segments by prohibition of mining in river corridor. Visual aesthetics are maintained in scenic segments by controls on mining including vegetative screening of mine areas and surface reclamation.	Visual aesthetics preserved along 100 miles of river.	Maximum exploitation of fossil fuel resources help to minimize a future energy crisis.	Less than 1 percent of known reserves of coal in three county area are locked up. Remainder is available for exploitation	Net impact of fossil fuel no longer available for exploitation, will be minimal in alleviating a future energy crisis.	950,000 tons of coal worth \$475,000 in-the-ground are available to be mined in the river corridor. This is less than one percent of proven reserves in the three county area. A limited amount of sandstone may be mined. Value is limited due to terrain and talus slope.	Minerals located on Wild segments cannot be mined. Minerals in Scenic segments may be mined subject to controls. These controls will add to production costs and may therefore effectively preclude or deter mining in scenic segments until future conditions make it economically possible to mine competitively, even with added production cost resulting from controls.	Maximum possible benefit foregone for coal extraction assuming cost of controls for, mining in scenic segments effectively precludes any operations in \$475,000 Unknown but limited value of sandstone production will be foregone.
b) Timber harvest	4,364 acres of timber are available for harvest every 30 years. Growth value over the 30 year period is estimated at \$1,091,000	Timber operations would be precluded	- \$1,091,000 ^{1/} over a thirty year period	4,364 acres of upland hardwood forest are altered over 30 year period. Regrowth occurs, however visual aesthetics are degraded during harvest operations and for substantial periods following harvest.	Visual corridor is maintained.	Visual corridor and wild river adventure experience are preserved.				4364 acres of timber available for harvest every 30 years. Growth value over the 30 year period is estimated at \$1,091,000	Timber operations precluded in river corridor. Other areas in U.S. can be relied on to fill any resulting timber shortfalls.	4364 acres removed from potential for timber harvest valued at \$1,091,000 over 30 year period. Other areas can fill any resulting shortfall

	NED ACCOUNT			EQ ACCOUNT			SWB ACCOUNT			RD ACCOUNT		
	Without	With	Net	Without	With	Net	Without	With	Net	Without	With	Net
c) Agricultural production	400 acres of crop and pasture land continue to produce an annual value of \$15,000	400 acres of agricultural land removed from production	- \$15,000 annually ^{1/}							400 acres of crop and pastureland continue to produce an annual value of \$15,000	400 acres of crop and pastureland removed from production. Other areas can fill any shortfall.	400 acres of agricultural land producing annual benefit of \$15,000 is removed from production. Other areas can fill any resulting shortfall.
d) Homesite and second home subdivision development	Past trends indicate that this development will continue. Data is not available to project the economic benefit.	National recognition of Obed River value will encourage more second home subdivision in the region, but located outside of the river corridor.	Accelerated development of second homes in the region. Data is not available to project benefits, but they are expected to be greater than without. ^{1/} While the net effect of these components are shown as costs (indicated by a minus sign), these costs are, to a great extent capitalized in the value of the land (the purchase of which is also shown as a cost). Thus, in displaying the benefits foregone we have actually overstated the costs. In addition, it is noted that the plan does not eliminate these assets, it transfers them to the government. If future conditions changed drastically, the Congress could legislate the development of these assets.	Continued degradation of visual corridor viewed from the river.	100 miles of river visual corridor unchanged by new housing construction.	Visual aesthetics in river corridor are preserved. Visual aesthetics outside of corridor may be degrading as national recognition encourages more second home development in the region.	Land use decisions remain with private landowners in the river corridor.	Land use decisions in the river corridor are made by government. Condemnation may be necessary to acquire land or easements. Depending upon final boundary determination, up to 2 households may be displaced.	Decreased private owner control over land use decisions. Stress may result from condemnation actions. Up to 2 families displaced and relocated.	Past trends indicate that this development will continue. Data not available to project the economic benefits.	National recognition of Obed River values will encourage more second home subdivision in the region, but located outside of the river corridor.	Accelerated development of second homes in the region but located outside the river corridor. Data is not available to project benefits, but they are expected to be greater with the plan than without.

COMPONENT	NED ACCOUNT			EQ ACCOUNT			SWB ACCOUNT			RD ACCOUNT				
	Without	With	Net	Without	With	Net	Without	With	Net	Without	With	Net		
(4) Provide increased opportunities and maintain the high quality of recreation experience	\$0	\$768,000 for development of facilities.	- \$768,000	Private entrepreneur plans for recreation development cannot be projected. Therefore the effects cannot be measured.	Modify 150 acres of natural vegetation to provide recreation facilities.	Net effect of public recreation facility development cannot be measured.	No other plans exists for provision of public recreation facilities in the river corridor.	Recreation use and diversity are increased through development of: - Ten access points - Four scenic overlooks - Two visitor centers - Two primitive camps - Nine trails totaling eighteen miles - Two mile scenic drive	Providing better access to the river provides increased diversity. Recreation use increases by 162,000 visitor days providing for orderly growth of recreation use. Local users will perceive change in character of the area. The recreation experience for these users will be slightly degraded from previous experiences.	Visitor expenditures remain at current level of \$90,000	Visitor expenditures exceed \$1,785,000 by year 10 after designation.	Visitor expenditures remain at current level of \$90,000		
	\$0	Operation and maintenance cost: year 1: \$50,000 year 10: \$175,000	- year 1: \$50,000 - year 10: \$175,000		Vandalism and littering may increase with increased use.	Wildlife management problems will increase at Catoosa Wildlife Management Area.	Access to the river will continue to be difficult, however private facilities may be developed to accommodate small increases in local recreationists.	Orderly growth of use in concert with land use control, will insure maintenance of high quality recreation experience.			Road maintenance costs in Catoosa Wildlife Management Area remain at current levels.	Increased visitor use necessitates increased road maintenance in Catoosa Wildlife Management Area of \$200,000 per year.		
		Visitor expenditures remain at current level of \$90,000.	Visitor expenditures exceed \$1,785,000 by year 10 after designation.	+ \$1,695,000	Increased use of banks and trails will have adverse effect on sensitive plants such as lichens, mosses, wild flowers.	Increased use of Catoosa Wildlife Management Area access points make wildlife management more difficult.		Given the lack of access, publicity and facilities, recreation use probably will not increase much above the current level of 13,000 visitor day per year.				Road maintenance costs in Catoosa Wildlife Management Area remain at current levels.	Increased high-way use of collector roads add \$9,287,400 in road and bridge improvement and maintenance costs over 20 year period following designation.	
												Road maintenance costs in Catoosa Wildlife Management Area remain at current levels.	Collector roads improvement and maintenance costs increased by \$9,287,400 over 20 year period following designation.	
(5) Preserve historical, archaeological or cultured sites of national or regional significance.							There has been little archaeological exploration in the area. Future activities in the area may or may not affect these resources.	An intensive field examination will be conducted as part of the master planning effort to find and protect any previously unidentified archaeological resources of the stream corridor.	A field exam will be made for previously unidentified resources. If found, they will be protected.					

Increase \$1,695,000 in visitor expenditures by year 10

Increase in road maintenance and improvement costs:
-\$200,000/year
Catoosa Wildlife Management Area
-\$9,287,400/20 years for 60 miles of collector roads and 15 bridges.

\$200,000 increase in annual road maintenance costs in Catoosa Wildlife Management area resulting from increased visitor use.

\$9,287,400 increase in costs over a 20 year period for improvement and maintenance of 15 bridges and 60 miles of collector roads.