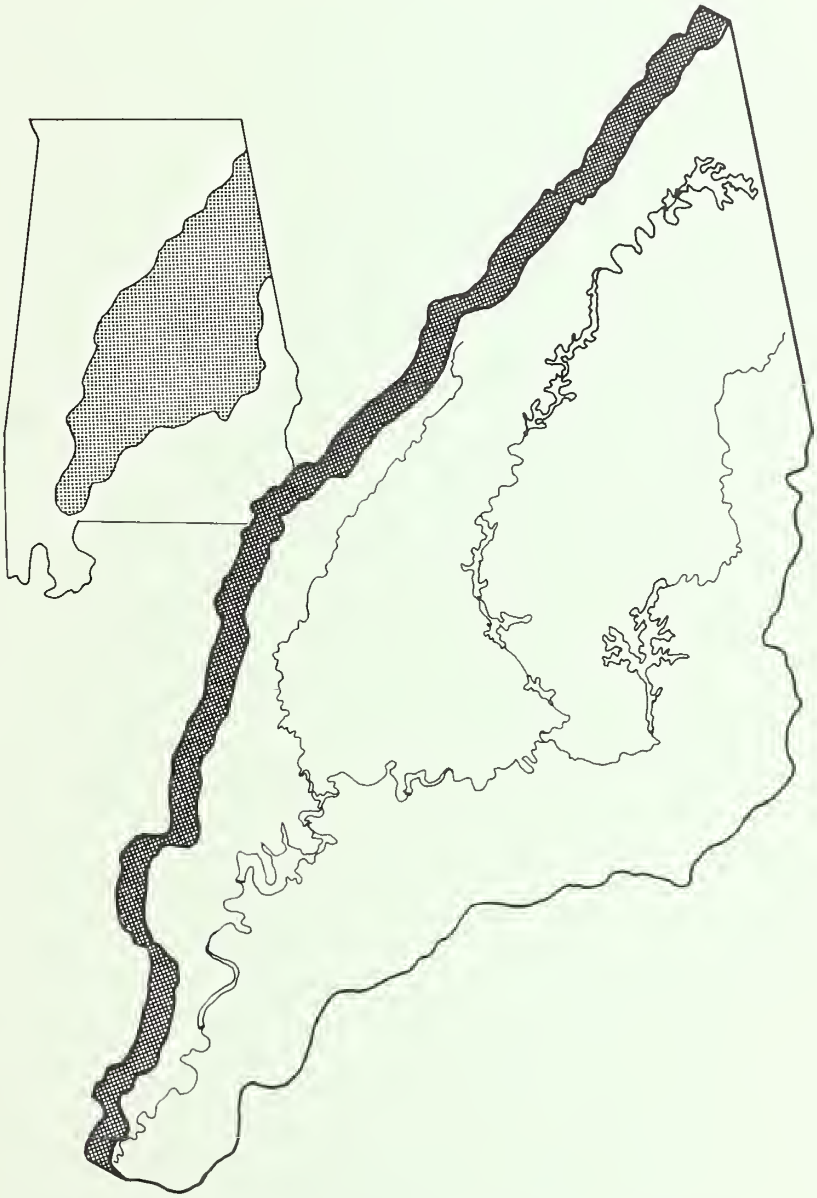
ALABAMA RIVER BASIN
INVENTORY OF RESOURCES AND NEEDS
A PROGRESS REPORT



UNITED STATES DEPARTMENT OF AGRICULTURE
Prepared by
SOIL CONSERVATION SERVICE
ECONOMIC RESEARCH SERVICE
FOREST SERVICE
MARCH 1973

4-32888 3-73
USDA-SCS-FORT WORTH, TEX. 1973

FOREWORD

The purpose of this cooperative progress report is to provide information pertaining to water and related land resources in the Alabama portion of the Alabama River Basin. The progress report is an informal document to guide the final phases of the study. The participating USDA agencies agreed that the report would include an inventory of land and water resources in the basin, a study of the area's past and projected economic and agricultural development, a discussion of resource problems and needs, and identification of resource problems for further study and analysis.

With this report the Alabama Development Office, State Planning Commissions, and other interested parties will be better informed on the type of resource data being assembled for use in planning and conserving our natural resource base. This report shows the need for developing certain resources and possible conflicting demands on some resources.

A high degree of participation and coordination between federal, state, and local agencies and the citizens of Alabama is essential in developing and implementing resource use plans. The information in this progress report provides factual data which may be used as an additional basis for defining specific objectives for continuing studies. Specific objectives of all interests concerned with land and water resource use will be sought in additional planning phases. This will assure maximum participation by all Alabama citizens. Factual information in this report will be supplemented as necessary. This progress report should result in stimulative and definitive courses of action by federal and non-federal planners, which can be used to establish priorities for more detailed investigations.

The final report will include an updated version of this progress report and an evaluation of alternative plans for land and water resources utilization. Impacts of alternative plans will be analyzed and displayed preparatory to cooperative development of a recommended plan for use and development of land and water resources to meet current and foreseeable needs. Authorities for implementing features of the basin recommended plan, which need to be installed in the near future, will be identified. The needs for additional implementation authorities will be explored. Benefits and costs will be evaluated and displayed for basin plan projects that can be implemented under USDA porgrams.

4-32888 3-73

ALABAMA RIVER BASIN

INVENTORY OF RESOURCES AND NEEDS
A PROGRESS REPORT

Prepared By
THE UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Economic Research Service
Forest Service

Sponsored By
THE ALABAMA DEVELOPMENT OFFICE

TYPE 4 COOPERATIVE RIVER BASIN STUDY

Under Authority of Section VI, Public Law 83-566 as Amended

MARCH 1973

4-32888 3-73

ALABAMA RIVER BASIN
INVENTORY OF RESOURCES AND NEEDS
A PROGRESS REPORT

TABLE OF CONTENTS

TABLE OF CONTENTS

4-32888 3-73

TABLE OF CONTENTS

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

4-32888 3-73

LIST OF TABLES

APPENDIX TABLES

4-32888 3-73

LIST OF FIGURES

4-32888 3-73

LIST OF FIGURES

LIST OF FIGURES

4-32888 3-73

I. INTRODUCTION

Nature and Scope of the Study

The State of Alabama is intensely interested in the conservation, development, and utilization of all resources within the Alabama River Basin. In order to determine the water and land resource availabilities and the demands on these resources both present and future, the state requested the Secretary of Agriculture to cooperate in a study of the basin. This study began in November 1969.

The Progress Report contains the results of the initial reconnaissance of the basin. It provides a framework for application of multiple-objective planning guidelines during the detail phase of the study. It also establishes a basis for selection and evaluation of alternative plans for natural resource uses and developments. Some resource information included in the Progress Report will be used in the State Water Quality Management Plans and will become part of the Comprehensive State Water and Related Land Resources Plan. This Progress Report provides local people, the State of Alabama, and federal agencies with basic data on natural resources, identifies problems and needs, and establishes a basis for improving the economic and social opportunities for the people of Alabama.

The area of the basin encompassed by this study is approximately 17,211 square miles and extends across Alabama from the Alabama-Georgia state line to the confluence of the Tombigbee River with the Alabama River approximately 45 miles north of Mobile. The Coosa and Tallapoosa Rivers join upstream to form the Alabama River proper. The Cahaba River flows into the Alabama River approximately 16 river miles downstream from Selma. (See Figure I-1)

Thirty-five of the 67 counties in the state are completely or partially within the basin. The principal cities within the basin are Gadsden, Anniston, Montgomery, and Selma. The greater Birmingham area, the largest urban area within the state, with a population of approximately 900,000 is partially within the basin.

The study to date has been oriented toward an inventory of natural resources and an evaluation of problems and needs. Included in this report are: (1) objectives of the study; (2) an inventory of natural resources; (3) human and economic resources; (4) problems and needs related to our natural resources; (5) projected demands for agricultural products; and (6) a list and description of resource areas to be considered for further study.

Participation in the Type 4 Cooperative River Basin Study by the U. S. Department of Agriculture is under authority of Section VI, Public Law 83-566 as amended. The principal participants within the Department of Agriculture are the Economic esearch Service, Forest Service, and Soil Conservation Service. Studies made by these agencies are carried out under direction of the USDA Field Advisory Committee. This committee

4-32888 3-73

is chaired by the State Conservationist, Soil Conservation Service. The Field Advisory Committee is responsible for coordinating the Department's survey activities; arranging for field reviews of recommendations and draft reports; arranging for consultations, preparing schedules; and for maintaining overall relations with other cooperating federal and state agencies.

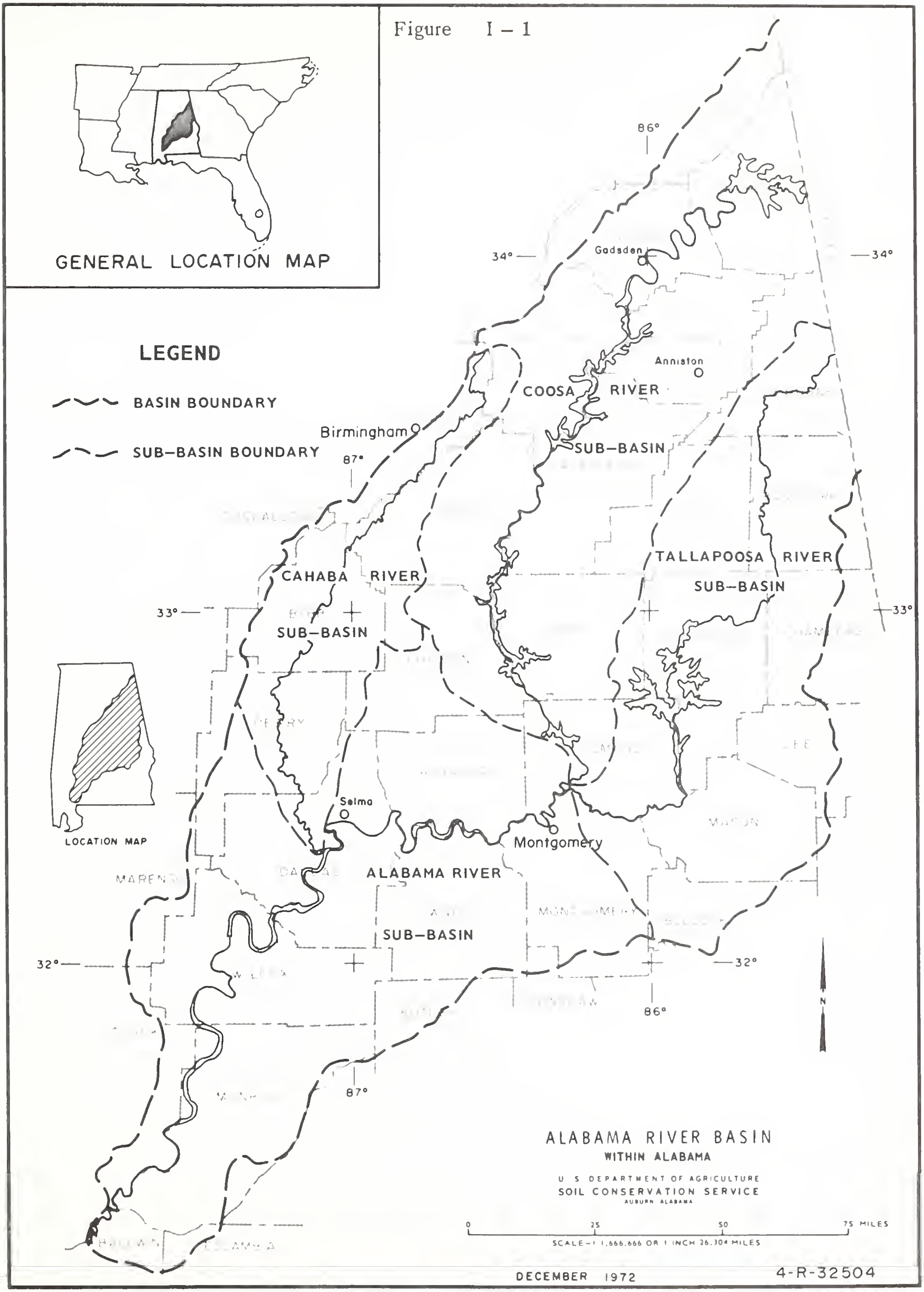
The Alabama Development Office is the sponsor and coordinating agency for the State of Alabama. State agencies, local governments, and other organizations are participating in this study. Several federal agencies are also contributing data and other assistance where their expertise is needed.

Purpose and Objectives of the Study

The broad purposes of this study are to inventory water and land resources, project future resource needs, provide basic data for planning and development, and identify problems for more detailed study. To achieve these purposes, the study will be conducted: (1) to develop basic information to be used by the State of Alabama in the development of a State Water Quality Management Plan for each subbasin in the Alabama River Basin by July 1975, and a comprehensive State Water and Land Resources Plan by 1975; (2) to provide appropriate alternatives to be considered in formulating a sound resource use plan for the basin that will result in the conservation and development of water and related land resources to meet current foreseeable needs, economic growth and development, and protection and enhancement of the natural environment; (3) to identify specific resource problems and needs that can be met through existing local, state, and federal programs; (4) to identify those problems and needs requiring action which cannot be implemented under existing programs and suggest methods and techniques for their solution.

The Alabama River Basin study is being conducted in accordance with the multiple-objective planning concepts proposed by the Water Resources Council. These planning concepts are intended to reflect society's preferences with regard to use of the basin's natural resources. To implement these concepts, planning efforts will be directed to components of the following objectives for land and water resource planning: (1) National Economic Development (NED): to enhance and increase the value of the Nation's output of goods and services and improve national economic efficiency; (2) Environmental Quality (EQ): to enhance the quality of the environment by the management, conservation, preservation, creation, restoration, or improvement of the quality of certain natural and cultural resources and ecological systems; (3) Regional Development (RD): to enhance regional development through increases in the region's income; increases in employment; distribution of population within and among regions; improvements of the region's economic base and educational, cultural, and recreational opportunities; and enhancement of its environment and other specified components of regional development; and (4) Social Well-Being (SW-B): to enhance the equitable distribution of real income, employment, and population, with special concern for the incidence of the consequences of a plan on affected persons or groups; by con-

Figure I – 1



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

tributing to the security of life, health, and property; by providing educational, cultural, and recreational opportunities; and by contributing to national security.

The Alabama Development Office has recently initiated the development of goals for all areas of state government. Interim goals have been developed for each of the ten functional areas of government. These interim goals, without regard to priority, are as follows:

> To ensure adequate transportation, utilities, and communications for the people of Alabama.
>
> To provide adequate housing for all Alabamians.
>
> To assure each Alabamian the opportunity for the type and amount of education he desires.
>
> To provide for the effective development, conservation, and use of the state's natural resources.
>
> To provide for the fulfillment of the recreational and cultural desires and interests of Alabamians.
>
> To ensure the overall security, safety, and consumer protection of all Alabamians.
>
> To provide for the physical, mental, and emotional needs and well-being of those who cannot provide for themselves.
>
> To provide for the increased economic well-being of all Alabamians.
>
> To provide the basic general government services to the people of Alabama.

It is expected that these goals will be well-defined by late 1973. Every effort will be made to direct this river basin study toward attainment of these goals. The specific objectives of the river basin study will be revised and refined as necessary during the next year to reflect these goals and in proposals for development of the Alabama River Basin.

A portion of the basic information needed by the Alabama Water Improvement Commission for use in preparing subbasin Water Quality Management Plans will be collected and evaluated during this study. Specific objectives in this regard are:

1. An overview of the total water and related land resources.
2. Classification of designated streams into reaches of free-flowing streams and impoundments.
3. Physical data (surface areas, depths, etc.) relative to large impoundments.

4-32888 3-73

4. Volume and duration of low flows at selected locations on designated streams.
5. An analysis of the effect of probable social and economic development (land use, population, industry, and agriculture) on the quality and quantity of water resources.
6. Identification of floodwater, sediment and erosion damages; and needed conservation management systems.
7. Identification of significant sediment contributing areas, possible sources of animal waste pollution, and quantities of pesticides and fertilizers used and projected to be used by location.
8. An analysis of the feasibility of improving water quality by augmenting at designated low-flow problem locations through surface storage.
9. Alternative proposals to contribute to the improvement of water quality in streams that presently do not meet the minimum water quality standards.

Work accomplished in meeting the above specific objectives will be related to appropriate components of the environmental quality and regional development objectives.

The Alabama Development Office, the State Planning and Development Commissions and the USDA agencies conducting the study are interested in the development of additional information to be used by an agency or group engaged in planning for the sound use of the basin's water and related land resources. Additional specific objectives are:

Specific Objective	Major Objective[1]	Components
1. Development of proposals that will provide water supply to meet projected municipal, industrial, and rural water system needs in 1990, 2000, and 2020 by taking advantage of potential for surface storage and utilizing ground water of suitable quality.	RD,NED,SW	Municipal and industrial water supply. Population dispersal.
	EQ, SW	Lakes, Ponds, and reservoirs. Enhanced recreation opportunities.
2. Identification of alternative agricultural land use proposals which will increase basin production and agricultural income, particularly in areas of current low income.	RD, SW	Increase regional income and reduce regional unemployment to acceptable levels. Enhance income distribution.

1/ NED-National Economic Development, RD-Regional Development, EQ-Environmental Quality, SW-Social Well-being.

Specific Objective	Major Objectives	Components
3. Development of forest management programs to:		
a. Expedite the development and use of forest management practices resulting in the conservation of forest ecosystems.	EQ,RD,NED,SW	Ecological features, wildlife management, recreation development, quality of land, green space.
b. Increase forest production on the existing land base and improve the forest products mix.	NED,RD,EQ,SW	Multiple use-sustained yield forest management systems and forest development programs. Improve economic stability.
c. Reduce forest resource losses and debilitation from insects, diseases, and wildfires to acceptable levels consistent with national and statewide watershed goals.	RD,EQ,NED	Fire, insect, and disease damage reduction; pollution abatement (air and water). Improve economic stability.
d. Develop quality environmental, educational, and recreational facilities on forested land and supply wood products.	RD,EQ,SW	Improve economic stability, housing, and enhance educational and recreational opportunities.
4. Analysis of land treatment needs and development of a program emphasizing treatment of critical areas and strip-mined areas through increased technical assistance to landowners and additional cost-sharing. Level of treatment to reduce overall erosion by 30 percent and critical area erosion by 80 percent by 1990.	RD, SW	Sediment and erosion, conservation management systems. Enhance cultural opportunities.
	EQ	Quality of land, streams, and river systems.
5. Analysis of flood problems in urban areas and development of recommendations that will provide flood protection to urbanizing areas through intensified land treatment, installation of structural measures, flood plain regulation, and other methods.	RD,NED,SW	Flood damage reduction. Improve security of life.
	EQ	Green open space.

4-32888 3-73

	Specific Objective	Major Objective	Components
6.	Development of proposals that will reduce flooding in selected rural areas to a level consistent with capability class and sound land use (will not result in a net increase in the basin's share of Nation's crop surplus).	RD, NED	Reduction of floodwater, sediment and erosion damages; conservation management systems.
		EQ, SW	Green open space. Enhance security of life and health.
7.	Development of proposals to meet projected water-based recreation needs as indicated in the revised State Recreation Plan.	RD,EQ,SW	Enhance recreational and cultural opportunities.
8.	Identification of natural areas having unusual aesthetic and scenic values with proposals to restrict development through legislation or local regulation.	EQ, SW	Green open space and recreational opportunities.
9.	Identification of rare and endangered species of flora and fauna in the basin with proposals to provide for their protection and to increase the public's awareness of their existence.	EQ, SW	Enhance biological features, educational and cultural opportunities.
10.	Development of proposals for one major waterfowl preserve in the Alabama Subbasin and other waterfowl areas throughout the basin that will be available for public use.	RD	Fish and wildlife
		EQ, SW	Ecological features and recreational opportunities.
11.	Analysis of action necessary to increase area available for public hunting and fishing; including the development of private, corporate, and public lands for this specific use.	RD	Fish and wildlife
		EQ, SW	Recreational Opportunities.
12.	Identification of areas of historical, cultural, and archaeological value with proposals for preservation or restoration.	EQ, SW	Enhance historical, archaeological, educational, and cultural features.

4-32888 3-73

Specific Objective	Major Objectives	Components
13. Analysis of regulations and planning needs in regard to the disposal of solid wastes.	EQ, SW	Improve quality of land and water. Enhance cultural opportunities.
14. Determine agricultural products with greatest market development potential; estimate costs of development and probable impacts.	NED,RD,SW	Improve income, employment distribution, and economic stability.

4-32888 3-73

SECTION

2

NATURAL RESOURCES

4-32888 3-73

II. NATURAL RESOURCES

Description of the Basin

The Alabama River Basin comprises approximately 22,750 square miles extending from East Tennessee and Northeast Georgia diagonally across Alabama in a southwesterly direction to the Gulf of Mexico at Mobile. The land and water resources in the upstream portion of the basin in Tennessee and Georgia have been developed extensively and this portion of the basin is not included in the study. However, the effects of runoff from this portion of the basin have been considered.

The basin is located primarily in the Southern Piedmont, Southern Coastal Plains, and the Alabama-Mississippi Blackland Prairies Land Resource Areas. The headwaters of the basin extend into the Southern Appalachian Ridges and Valleys and Sand Mountain Land Resource Areas. The 1966-1967 Conservation Needs Inventory lists approximately 72 percent of the land in the basin as being in woodland and approximately 26 percent distributed equally between cropland and pasture. Slightly more than 2 percent of the basin area is being used for non-agricultural purposes. The drainage area of the Alabama portion of the Alabama Subbasin is 5,919 square miles, the Coosa is 5,461 square miles, the Tallapoosa is 3,959 square miles and the Cahaba is 1,872 square miles, all within Alabama. The drainage area in East Tennessee and Northeast Georgia is 5,539 square miles.

Climate -- The climate in the basin is mild and humid. Summers are warm and long, while winters are usually short and mild. The climate is influenced by frontal systems moving from northwest to southeast and temperatures change rapidly from warm to cool due to inflow of northern air. The average annual temperature is 64^{o}F, ranging from 60^{o} in the north to 68^{o} in the sourthern portion of the basin (see Figure II-I). The average daily temperature varies from 80^{o}F in July to 47^{o}F in December. Summer temperatures usually reach 90^{o} or higher about 70 days per year but temperatures above 100^{o} are relatively rare. Freezing temperatures are common but are usually of short duration. During the winter, extremes of 32^{o} or less occur about 65 times. The frost-free season varies from 201 days in extreme north portion to about 261 days in the southern portion of the basin. Snowfall is rare, but some occurs in the upper mountainous regions.

Precipitation -- Average annual rainfall is about 54 inches and varies from 52 inches to 60 inches in the southern portion of the basin. The nearness of the Gulf of Mexico is a major reason for plentiful rainfall in the basin. Precipitation occurs as air masses move from the Gulf to the land. Climatic forces change with seasons but the direction and velocity of the winds do not vary greatly during the year. The more intense rains usually occur during the warmer months.

The normal rainfall is shown in Figure II-2. Some flooding occurs in most years. During the last 37 years, 80 percent of the flood-producing storms occurred during winter and spring months, and 25-30 percent of these storms occurred in March. March is generally the wettest month

4-32888 3-73

with an average rainfall of over 6 inches. Occasionally several wet years or dry years occur in series. Annual rainfall records indicate no characteristic order or pattern. Even greater variability is evident if single months are studied. The greatest probability of drought is in May and October. Severe droughts are uncommon.

Wind -- Wind in the basin is normally less than ten miles per hour. During the passage of cyclonic disturbances over and to the north of the basin, there have been destructive local windstorms, some developing into tornadoes with winds of 100 mph or more. The southern portion of the basin occasionally experiences high winds when hurricanes move inland from the Gulf of Mexico. Wind records are available from the U. S. Weather Bureau first-order stations located at Atlanta, Birmingham, Chattanooga, Mobile, and Montgomery. These stations are widely separated but report similar conditions that are adequate for this study. They are summarized in Table II-1.

Table II-1--Average annual and maximum recorded wind velocities representative of the Alabama River Basin.

Station	Years of Record	Average annual m.p.h.	Prevailing direction	Maximum		
				Velocity m.p.h.	Direction	Date
Atlanta, Ga.	36	9.6	NW	70	NE	Jan. 53
Birmingham, Ala.	57	7.9	S	65	SW	Mar. 55
Chattanooga, Tenn.	82	6.3	S	82	W	Mar. 47
Montgomery, Ala.	49	6.8	S	60	SW	Mar. 52
Mobile, Ala.	39	9.2	N	98	E	Jul. 16

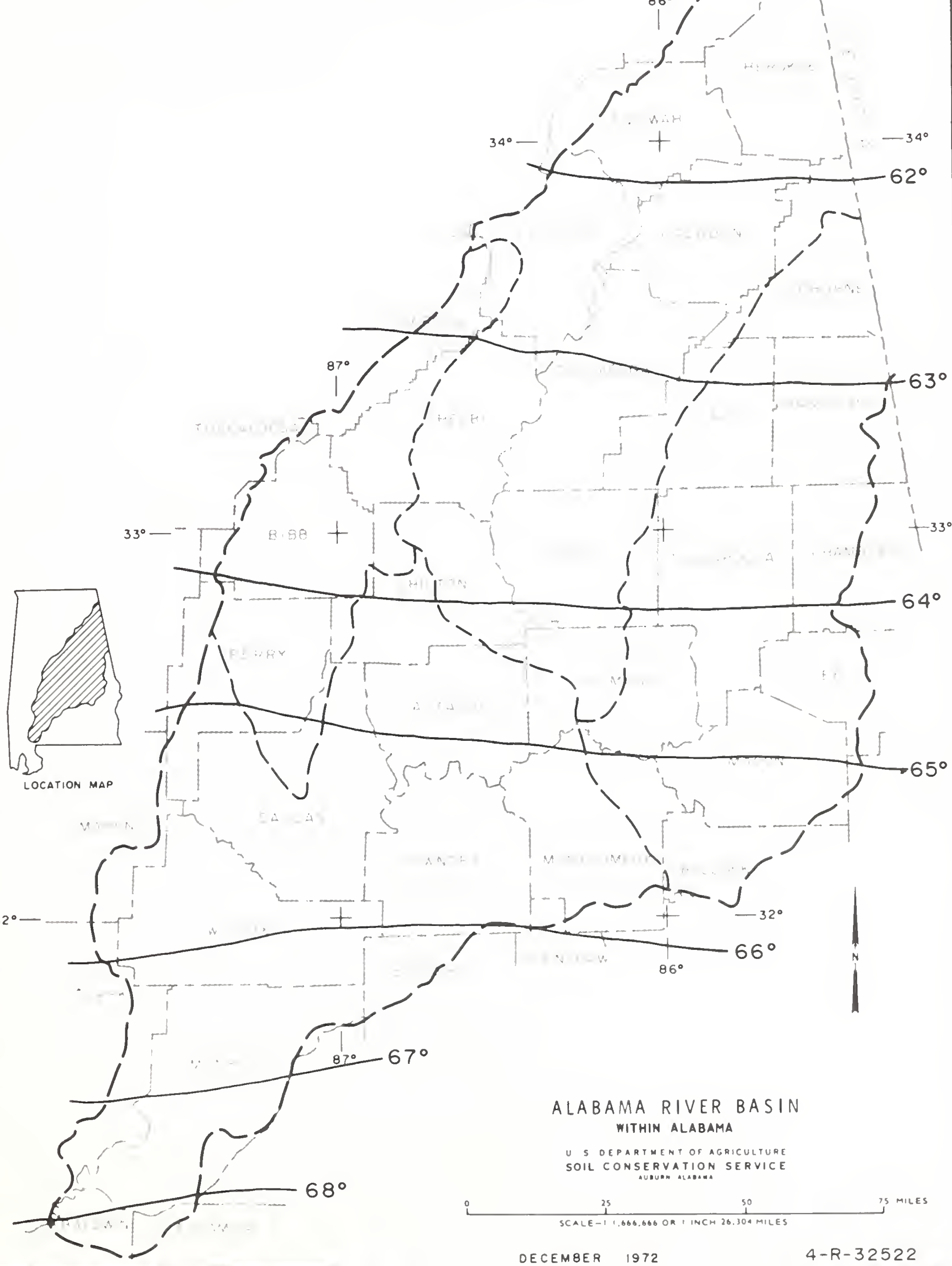
Storm Characteristics -- Flood-producing storms over the Alabama River Basin are usually of the frontal type. They usually occur in the winter and spring and last from 2 to 4 days. These frontal movements often cover a large portion of the basin and produce the most serious flooding. Summer storms are usually thunderstorms with intense precipitation over small areas sometimes resulting in serious local floods. Occasionally a hurricane, such as that of July 1916, will cause major floods over the entire basin. Normally 5 to 6 inches of intense or general rainfall produce widespread flooding, but on many smaller streams, 3 to 4 inches of rainfall are sufficient to produce local floods.

4-32888 3-73

Figure II – 1

AVERAGE ANNUAL TEMPERATURE 1931-1960

SOURCE: NATIONAL WEATHER SERVICE



USDA-SCS-FORT WORTH, TEX 1973

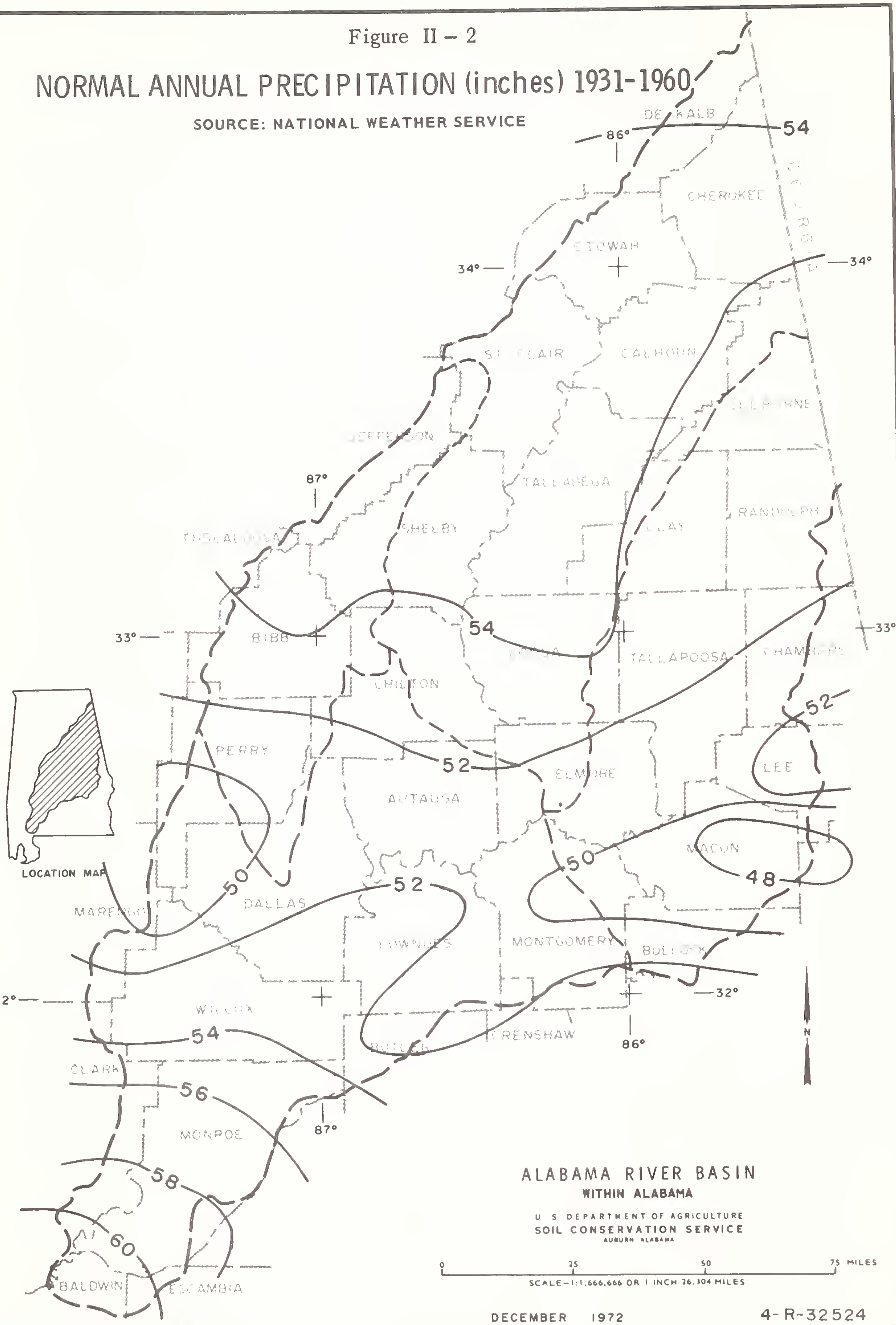
NOVEMBER 1972

4-R-32344-A

Figure II – 2

NORMAL ANNUAL PRECIPITATION (inches) 1931-1960

SOURCE: NATIONAL WEATHER SERVICE



ALABAMA RIVER BASIN
WITHIN ALABAMA

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN ALABAMA

DECEMBER 1972 4-R-32524

USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Geology and Topography -- The Alabama River Basin is an area of strong topographical contrasts. There are five major land resource areas within the basin. Each of these areas is characterized by similar topography, soils, land use, and climate (Figure II-3). These characteristics are interrelated with the geology and weather patterns of the area and have produced a distinct, recognizable land form with advantages and disadvantages as well as corridors for and barriers to development.

Sand Mountain Land Resource Area is a series of plateaus underlain by rocks of Pottsville (Pennsylvanian) Age. These rocks are a thick sequence of shales and sandstones; mostly flat lying and undeformed with a strong sandstone near the base of the sequence. The basal sandstone forms prominent cliffs overlooking the valleys so that the plateau margins stand out sharply to the observer. The Sequatchie and Wills Creek anticlines form valleys that divide the area into three main parts, Lookout Mountain, Sand Mountain, and the plateau west and south of Sand Mountain. The long straight Wills Creek and Sequatchie Valleys are developed on limestones that are folded and broken by thrust faulting similar to the valleys in the adjacent Ridge and Valley area; and stand in strong contrast to the main portions of the plateaus with their massive sandstone rims.

The Southern Appalachian Ridges and Valleys Land Resource Area is also called the Coosa Valley or the Limestone Valleys. The area is a series of wide, gently rolling valleys and steep, rough ridges all trending northeast-southwest. Long, straight valleys and ridges influence transportation, agriculture, streams, and roads. Elevation in the valleys range from 500 to 700 feet, and elevations on the higher ridges from 1,500 to 2,000 feet above sea level.

The Ridge and Valley area is known geologically as the Folded Appalachians. The northeast-southwest trend is caused by the parallel folding and faulting of the underlying rocks. In the humid climate of the region, limestone is generally weathered most rapidly, with shale being a little more resistant and sandstone being the most resistant. Selective weathering has formed sandstone and shale ridges and limestone and shale valleys parallel to the structure of the underlying rocks.

The Southern Piedmont Land Resource Area comprises about 25 to 30 percent of the basin. The area is mostly a moderately rolling upland developed on deeply weathered, crystalline, metamorphic rocks. Elevations in the Piedmont area of Alabama generally range from 700 to 1,000 feet above sea level. The state's highest elevation, Cheaha Mountain at 2,407 feet, is located in this area. The Piedmont area was once general farm land used primarily for cotton production. During the past 30 years, because of erosion and economic factors, the area has become a land of pine timber, mixed farming and manufacturing.

The Piedmont is geologically very complex. The rocks are metamorphosed sedimentary and igneous rock masses. Metamorphic, crystalline rocks such as schists and gneisses predominate with quartzites, slates and phyllites forming lesser areas.

4-32888 3-73

The Southern Coastal Plains Land Resource Area comprises most of the southern half of the basin and is divided in two portions by the Black Belt. The northern portion of the Coastal Plain is mostly rough, rolling land, generally called the Upper Coastal Plain. South of the Black Belt the countryside varies from rough and rolling to smooth and gently rolling. Topography and soils of the Coastal Plains favor the development of timber and general agriculture. Elevations in the Upper Coastal Plain vary from 300 to 600 feet and in the Lower Coastal Plain from 300 to 500 feet above sea level.

The upper Coastal Plain is developed on sands, clays, and gravels of the Tuscaloosa group and the Eutaw formation of Upper Cretaceous Age. The lower Coastal Plain is underlain by sands, clays, shales, and limestone of Cretaceous through Recent Age. The area is belted with topographic belts trending east and west in the basin. This belting is caused by weathering of formations of differing resistance. The geologic structure is monoclinal and the formations all slope very gently southward at 10 to 45 feet per mile.

The Alabama and Mississippi Blackland Prairies Land Resource Area is more commonly called the Black Belt. In the basin, the Black Belt trends east and west and is generally an area of gently undulating topography developed on soft, limy, sedimentary rocks. The name, Black Belt, is derived from the fertile, black soils. The area was originally grassland with hardwood timber and brush. The topography and soils led first to development of a cotton plantation culture; later a cattle industry developed, and now the area is diversifying with mixed agriculture, cattle and crops. Elevations generally range from 100 to 300 feet above sea level.

The Black Belt geologically belongs within the Coastal Plains but is such a distinct belt and covers such a large area that it is set out as a Major Land Resource Area. The same structure that is present in the Coastal Plain prevails with the same gentle southerly slope of the formations.

4-32888 3-73

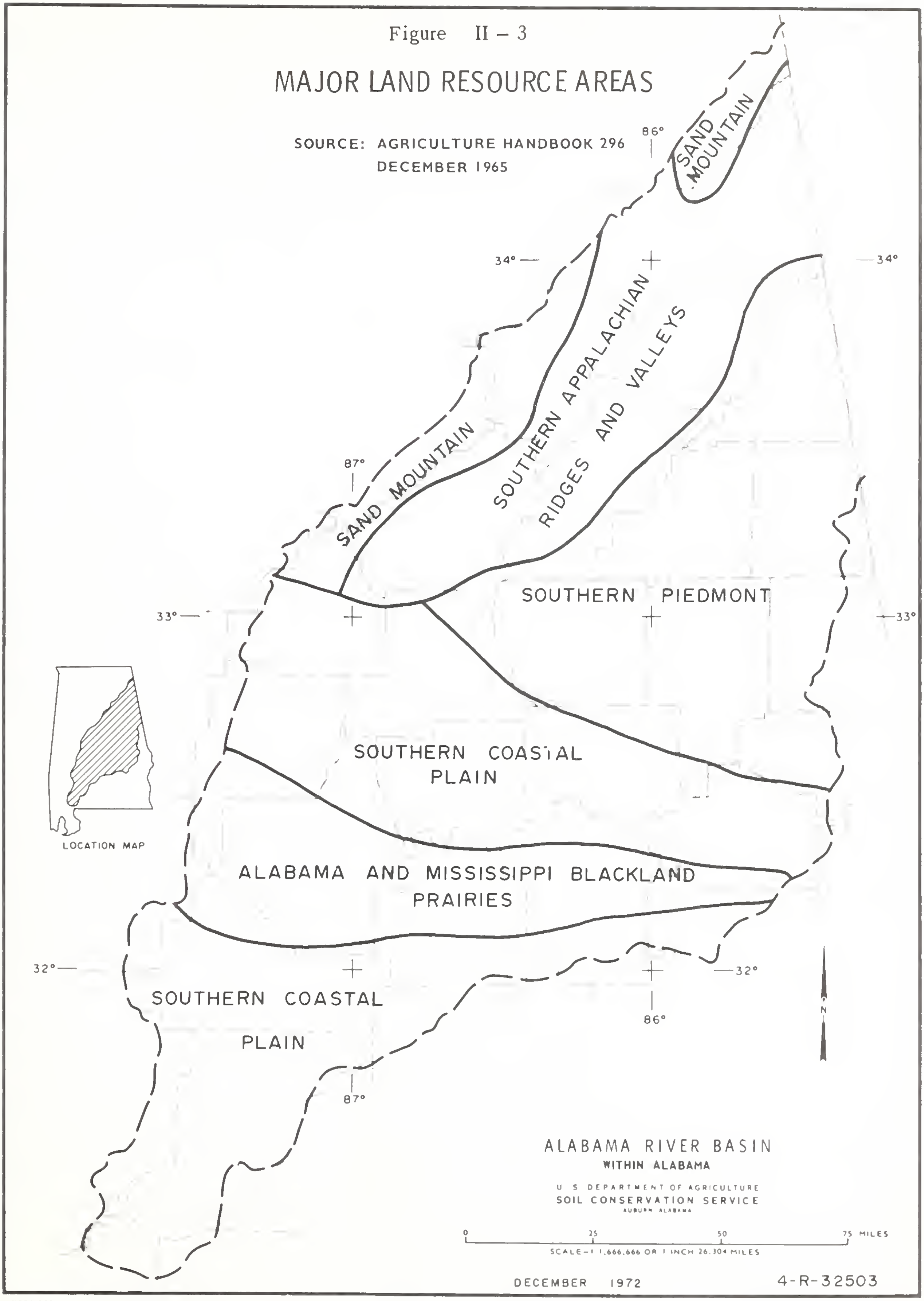


Figure II – 3

MAJOR LAND RESOURCE AREAS

USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-B

Inventories of Resources

Inventory data has been developed from numerous published sources such as the 1967 Conservation Needs Inventory, the 1969 Agricultural Census, and the 1970 U. S. Census. Information from many technical publications has also been used.

In addition to data from secondary sources, the river basin staff conducted an extensive field examination of the entire basin area. Data was collected and organized within groups of designated Conservation Needs Inventory watersheds. This field examination was oriented toward the location of resources with development potential and the identification of existing and projected problems and needs. Attention was directed toward the problems and needs identified in the Work Outline and the areas of interest expressed by the Alabama Development Office. District Conservationists of the Soil Conservation Service participated in this field examination and furnished valuable information concerning problems and needs within their district. The need for displaying combinations of resource inventory data and identifying conflicting uses of resources was recognized early in the inventory process. For these reasons, much of the resource data collected has been prepared for storage in a map oriented computer data storage system known as MIADS (Map Information Assembly and Display System). This system is used to store, combine, and display any resource data that can be mapped.

Currently, the following data is stored in the system: river basin and subbasin boundaries, county boundaries, land resource areas, land use. land ownership, minerals, soil associations, and forest types. Plans include storing in this system additional information such as wildlife habitat evaluations.

The basin area was gridded with 1/10 inch by 1/12 inch cells on a 1:500,000 scale map. This grid was then superimposed on maps at other scales. The information recorded represents the unit occupying the majority of a 332.13-acre cell. The data stored can be combined and printed out on a 1:250,000 scale map. This resource data is available to other planners; other inventory data not stored in MIADS is maintained in the files of participating USDA agencies and is available to interested persons.

4-32888 3-73

Water

Generally, the basin has a plentiful supply of good quality water for municipal, industrial, domestic and livestock purposes. In most areas of the basin an adequate supply of surface water exists, or could be impounded for irrigation.

Water supplies of the basin are generally adequate at the present time except in local areas during extreme dry periods. In the future, additional supplies will be needed in all areas of the basin. A large part of the future needs can be supplied from surface reservoir storage of water.

Surface Water

Only two county studies of surface water resources in the river basin have been published by the U. S. Geological Survey/Geological Survey of Alabama. 1/ 2/ Rainfall (54-inch average) in the basin amounts to about 49.5 million acre-feet per year. Most of this rainfall is returned to the hydrologic cycle by evaporation and transpiration, a small amount infiltrates to ground water reservoirs, and the remainder becomes streamflow. The geographic distribution of surface runoff is illustrated by Table II-2 which shows average, maximum and minimum rates at selected gaging stations in the four subbasins. Average annual runoff represents the normal surface water resource or the normal recoverable surface water supply. This totals about 23.7 million acre-feet per year or approximately 21.2 billion gallons per day. The streamflow is equivalent to an average runoff of 19.59 inches from the entire basin area including the area outside Alabama (see Figure II-4).

Information presented in Figure II-4 makes it possible to estimate the approximate average flow of a tributary stream. Since larger streams drain many runoff areas and some originate out of the state, it is not possible to compute their runoff from the data.

1/ Surface Water Resources of Calhoun County, Alabama; Circular 33, Geological Survey of Alabama; University Alabama, 1965, by J. R. Harkins.

2/ Mineral, Water and Energy Resources of Wilcox County, Alabama; Information Series 40, Geological Survey of Alabama; University Alabama, 1969.

4-32888 3-73

Figure II – 4

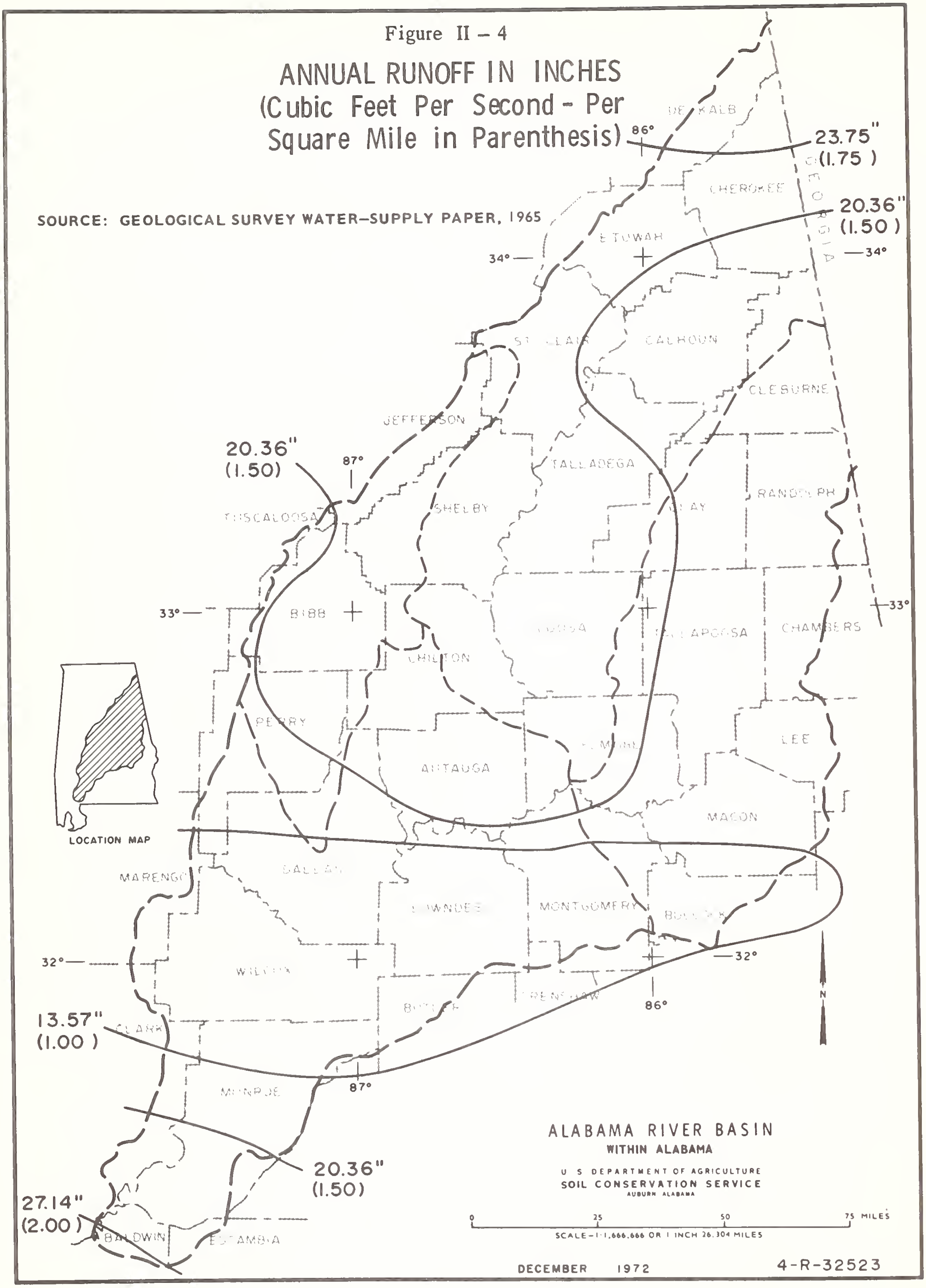

ANNUAL RUNOFF IN INCHES
(Cubic Feet Per Second - Per Square Mile in Parenthesis)
SOURCE: GEOLOGICAL SURVEY WATER-SUPPLY PAPER, 1965
23.75"
(1.75)
20.36"
(1.50)
20.36"
(1.50)
13.57"
(1.00)
20.36"
(1.50)
27.14"
(2.00)
86°
87°
34°
33°
32°
GEORGIA
DE KALB
CHEROKEE
ETOWAH
CALHOUN
CLEBURNE
JEFFERSON
TALLADEGA
RANDOLPH
SHELBY
TUSCALOOSA
BIBB
CHILTON
CHAMBERS
PERRY
AUTAUGA
LEE
MACON
MARENGO
DALLAS
LOWNDES
MONTGOMERY
WILCOX
BUTLER
CLARK
MONROE
BALDWIN
ESCAMBIA
LOCATION MAP
N
ALABAMA RIVER BASIN
WITHIN ALABAMA
U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN ALABAMA
0 25 50 75 MILES
SCALE–1:1,666,666 OR 1 INCH 26.304 MILES
DECEMBER 1972
4-R-32523
USDA-SCS-FORT WORTH, TEX. 1973
NOVEMBER 1972
4-R-32344-A

Table II-2--Maximum, minimum and average runoff rates at selected gaging stations, Alabama River Basin.

Gaging Station	Period of Record	Drainage Area Sq. Mi.	Watershed Average In./Yr.	Watershed Average c.f.s.	Watershed Maximum c.f.s.	Watershed Minimum c.f.s.	Square Mile Average c.f.s.	Square Mile Maximum c.f.s.	Square Mile Minimum c.f.s.
Alabama River Subbasin									
02429500 Claiborne, Ala.	40 years 1930-70	22,000	19.47	31,540	267,000	4,450	1.4	12.1	0.202
02423000 Selma, Ala.	55 years 1900-13 1928-70	17,100	20.78	26,170	284,000	2,660	1.5	16.6	0.156
02420000 Montgomery, Ala.	43 years 1899-1903 1927-70	15,100	20.86	23,190	283,000	2,180	1.5	18.7	0.144
02425500 Cedar Creek Minter, Ala.	18 years 1952-70	217	13.77	220	45,600	0.1	1.0	210.1	0.000
02421000 Catoma Creek Montgomery, Ala.	18 years 1952-70	298	15.27	335	48,600	0	1.1	163.1	0.000
Cahaba River Subbasin									
02425000 Marion Jct., Ala.	18 years 1938-54 1968-70	1,768	20.29	2,642	83,400 1/	224	1.5	47.2	0.127
02424000 Centreville, Ala.	42 years 1901-08 1929-32 1935-70	1,029	20.47	1,551	83,600	90	1.5	81.2	0.087
02423630 Shades Creek Greenwood, Ala.	5 years 1964-70	72.4	23.82	127	7,220	11	1.7	99.7	0.152
02423800 Little Cahaba Brierfield, Ala.	13 years 1957-70	148	17.89	195	10,000	36	1.3	67.6	0.243

Table II-2--Cont'd.

Gaging Station	Period of Record	Drainage Area Sq. Mi.	Watershed				Square Mile		
			Average In./Yr.	Average c.f.s.	Maximum c.f.s.	Minimum c.f.s.	Average c.f.s.	Maximum c.f.s.	Minimum c.f.s.
Coosa River Subbasin									
02411000 Wetumpka, Ala.	46 years 1912-14 1926-70	10,200	21.28	15,980	298,000	54	1.6	29.2	0.005
02407000 Childersburg, Ala.	57 years 1913-70	8,390	22.03	13,610	146,000	440	1.6	17.4	0.052
02400500 Gadsden, Ala.	44 years 1926-70	5,800	21.66	9,253	76,900	100	1.6	13.3	0.017
02408500 Hatchett Creek Rockford, Ala.	26 years 1944-70	244	20.09	361	22,800	7	1.5	93.4	0.029
02405800 Talladega Creek Talladega, Ala.	11 years 1959-70	67.3	21.39	106	6,550	8.5	1.6	97.3	0.126
02404000 Choccolocco Creek Jenifer, Ala.	41 years 1903-08 1929-32 1935-70	281	19.53	404	22,500	30	1.4	80.1	0.107
02401000 Big Wills Creek Crudup, Ala.	27 years 1943-70	185	22.32	304	14,800	21	1.6	80.0	0.114
Tallapoosa River Subbasin									
02418500 Tallassee, Ala.	41 years 1928-70	3,320	19.18	4,688	128,000 2/	10	1.4	38.6	0.003
02414500 Wadley, Ala.	47 years 1923-70	1,660	19.84	2,426	52,800	45	1.5	31.8	0.027
02412000 Heflin, Ala.	18 years 1952-70	444	19.37	633	19,300	13	1.4	43.5	0.029

4-32888 3-73

Table II-2--Cont'd.

Gaging Station	Period of Record	Drainage Area Sq. Mi.	Watershed				Square Mile		
			Average In./Yr.	Average c.f.s.	Maximum c.f.s.	Minimum c.f.s.	Average c.f.s.	Maximum c.f.s.	Minimum c.f.s.
02415000 Hillabee Creek Hackneyville, Ala.	18 years 1952-70	196	20.86	301	15,600	8	1.5	79.6	0.041
02419000 Uphapee Creek Tuskegee, Ala.	31 years 1939-70	330	17.58	427	32,200	0.8	1.3	97.6	0.002

1/ Flood of February 24, 1961 reached a stage 43.80 feet present datum, from flood marks (discharge not determined). Maximum discharge August 16, 1939 (gage height 42.95 feet).

2/ Flood of March 15, 1929 maximum gage height, 51.35 feet (discharge not determined). Maximum discharge February 25, 1961 (gage height, 50.4 feet).

Source: Water Resources Data for Alabama, 1970, Part 1, Surface Water Records; United States Department of the Interior, Geological Survey.

Impoundments -- The impoundments of the basin range in surface area from a fraction of an acre up to 40,000 acres. There are about 14,736 impoundments, including natural impoundments, containing a combined surface area of 244,980 acres. Included in natural impoundments are beaver ponds, river oxbows, wet borrow pits and Grady ponds (natural, swampy, rounded ponds or "bays" in the Coastal Plains Area).

There are 93 impoundments with a surface area larger than 40 acres and whose combined surface areas are 177,630 acres. This represents only 0.6 percent of the impoundments but 72.5 percent of the surface area. Martin Lake is the largest impoundment in the basin and has a surface of 40,000 acres and a storage capacity of 1,630,000 acre-feet at normal operating level.

The U. S. Corps of Engineers and Alabama Power Company impoundments statistics are shown in Table II-3 and locations in Figure IV-1 (page IV-3). Statistics for single purpose and multiple-purpose structures installed under authority of PL-566 and the RC&D Programs are shown in Table II-4.

Impoundments larger than 40 acres, other than those mentioned above, are listed in Table II-5. Also shown in this table are the total number and surface acres of impoundments between 5 and 40 acres and less than five acres. Total number and surface acres of natural impoundments are also shown in this table. Data in Tables II-4 and II-5 are listed by subbasins and counties.

4-32888 3-73

Table II-3--Statistics of impoundments, located on major streams, Alabama River Basin, 1972.

Subbasin and Impoundments	Location Above Mouth (Miles)	Drainage Area (Sq. Miles)	Purpose[1]	Power Pool Elev.[2]	Surface Area (Acres)	Storage (1,000) (Ac. Ft.)	Shore Line (Miles)	Depth at Dam (Feet)
Corps of Engineers								
Alabama River								
Claiborne	81.1	21,520	N-R-F&W	35	5,800	100.0	160	33
William F. Dannelly	142.3	20,700	N-P-R-F&W	80	17,200	331.8	516	56
Jones Bluff	245.4	16,300	N-P-R-F&W	125	12,300	247.0	368	61
Alabama Power Company								
Coosa River								
Bouldin[3]	4/	3/	P-R-F&W	252.0	3/	3/	3/	52
Jordan[3]	18.8	10,165	P-R-F&W	252.0	6,800	233.5	118	110
Mitchell	37.3	9,827	P-R-F&W	311.9	5,850	177.0	147	90
Lay	51.3	9,087	P-R-F&W	396.0	12,000	241.5	289	88
Logan-Martin	98.4	7,700	FC-P-R-F&W	465.0	15,263	518.6	275	69
H. Neely Henry	148.0	6,600	P-R-F&W	508.0	11,200	121.9	339	53
Weiss	225.7	5,273	FC-P-R-F&W	564.0	30,200[5]	703.4	447	62
Tallapoosa River								
Crooked Creek[6]	138.0	1,453	FC-P-R-F&W	793.0	10,660	431.0	7/	118
Martin	60.6	3,000	P-R-F&W	490.0	40,000	1630.0	700	155
Yates	52.7	3,250	P-R-F&W	344.0	2,000	54.0	40	46.5
Thurlow	49.7	3,300	P-R-F&W	288.8	574	18.4	6	54

1/ Purposes - FC-Flood Control, P-Power, N-Navigation, R-General Recreation, F&W-Fish & Wildlife.
2/ Normal operating pool level or summer pool level.
3/ Jordan and Bouldin share the same reservoir.
4/ Bouldin about 15 miles off stream from Jordan Dam.
5/ Small acreage in Georgia.
6/ Crooked Creek Reservoir as currently proposed.
7/ Not available.

Table II-4--Statistics of impoundments, P.L. 566 and RC&D floodwater retarding structures, single- and multiple-purpose, Alabama River Basin, 1972.

Location	Site No.	Purpose 1/	Drainage Area (sq.mi.)	Normal Pool Elevation (msl)	Normal Pool Area (ac.)	100 yr. Sediment Volume (ac.ft.)	Multiple Purpose Volume (ac.ft.)	Detention Volume (ac.ft.)	Maximum 2/ Area Flooded (ac.)	Height of Dam (ft.)
Coosa River Subbasin										
Blue Eye Creek W/S										
Talladega & Calhoun Co.	1	FP	5.29	555.5	15	42 3/		588	95	42
	2	FP	3.23	545.0	10.5	46 3/		748	80	34
Cheaha Creek W/S										
Talladega & Clay Co.	2	FP	3.57	599.0	25	65 3/		815	790	22
	3	FP	2.40	685.0	7.7	33 3/		628	599	41
	4	FP	5.82	699.2	10	56 3/		2,109	72	68
	5	FP	11.56	590.5	19	111 3/		3,940	1,675	76
	6	FP	27.22	587.1	38	190 3/		9,520	353	83
Choccolocco Creek W/S										
Calhoun, Cleburne,										
Talladega & Clay Co.	2	FP	21.35	772.0	31	324		4,987	249	72
	3	FP	2.76	765.3	6	62		818	38	47
	7	FP-R	13.98	1027.1	58	224	326	6,060	234	72
	9	FP	1.50	729.3	7.6	42		376	28	37
	11	FP-WS	16.00	647.0	182	303	2,887	4,693	317	72
	14	FP	1.09	664.5	4.8	31		259	25	32
	15	FP	1.95	666.3	7.1	49		525	49	40
	17	FP	1.87	629.0	3.5	48		473	34	57
	24	FP	12.87	870.9	17.7	227		6,926	286	86
Tallaseehatchie Creek W/S										
Talladega & Clay Co.	7	FP	2.05	600.5	11	85		657	42	52

Table II-4--cont'd

Location	Site No.	Purpose 1/	Drainage Area (sq.mi.)	Normal Pool Elevation (msl)	Normal Pool Area (ac.)	100 yr. Sediment Volume (ac.ft.)	Multiple Purpose Volume (ac.ft.)	Detention Volume (ac.ft.)	Maximum[2/] Area Flooded (ac.)	Height of Dam (ft.)
Terrapin Creek W/S Cherokee, Cleburne & Calhoun Co.	6	FP	4.50	654.8	16.6	79		1,035	105	32
	8	FP	20.80	645.5	77.3	390[3/]		4,940	393	33
	9	FP	2.30	700.8	9.8	64		603	45	41
	14	FP	3.00	811.0	9	40[3/]		710	56	39
	15	FP	2.70	858.5	7.2	37[3/]		891	47	47
	17	FP	5.10	846.2	23	72[3/]		862	120	25
	21	FP	17.50	932.3	28	225[3/]		3,900	325	55
	22	FP	21.60	901.5	25	264[3/]		4,808	154	100
	31	FP	29.01	747.1	49	290[3/]		7,790	345	72
	33	FP	15.90	814.5	38	226[3/]		3,052	213	51
Tallapoosa River Subbasin										
Cahulga Creek W/S Cleburne Co.	1	FP-WS	6.54	887.7	84.2	111	526	3,036	177	41
Crooked Creek W/S Clay, Randolph & Cleburne Co.	2	FP-WS	3.34	1030.2	82.5	66	1,250	2,106	101	47
	3	FP-WS	3.82	1041.9	53	85	750	1,808	100	51
	16	FP	8.51	779.8	16	123		2,097	93	53
Fox Creek W/S Clay & Randolph Co.	2	FP	1.35	1034.8	6.3	27[3/]		259	26	30
High Pine Creek W/S Randolph & Chambers Co.	1	FP	2.60	860.0	9.8	73[3/]		554	25	52
	2	FP	6.95	741.5	54	186[3/]		1,808	150	39
	3	FP	3.28	783.9	15	102[3/]		700	67	32
	4	FP	2.70	928.4	13	87[3/]		575	53	37
	5	FP	1.80	939.5	11	63[3/]		384	35	36
	6	FP-WS	3.18	848.7	48.3	99[3/]	500	813	84	56
	10	FP	2.70	755.7	18.5	87[3/]		575	102	30
	11	FP	2.90	719.3	35	123[3/]		775	102	24
	12	FP	1.32	771.7	12.4	47[3/]		282	53	22

4-32888 3-73

Table II-4--cont'd

Location	Site No.	Purpose 1/	Drainage Area (sq.mi.)	Normal Pool Elevation (msl)	Normal Pool Area (ac.)	100 yr. Sediment Volume (ac.ft.)	Multiple Purpose Volume (ac.ft.)	Detention Volume (ac.ft.)	Maximum 2/ Area Flooded (ac.)	Height of Dam (ft.)
Ketchepedrakee Creek W/S										
Clay & Randolph Co.	1	FP	2.26	970.5	9	19 3/		630	69	26
	9	FP	3.09	996.8	14	61 3/		899	78	31
	10	FP	1.92	1017.7	5	24		455	50	30
	11	FP	1.12	1008.4	2	9		190	14	41
Little Hillabee Creek W/S										
Clay & Tallapoosa Co.	1	FP	3.22	906.0	6.5	70		752	51	55
	2	FP	2.85	921.0	11	64		508	34	37
	3	FP	1.99	870.7	11.5	43		292	30	22
	4	FP	3.09	838.0	14.1	69		499	51	26
	6	FP	1.42	826.0	5.2	14		223	27	25
Lost Creek W/S										
Cleburne Co.	1	FP	8.52	584.3	30	170		1,630	130	38
	2	FP	1.96	600.0	14	121		351	34	38
	3	FP	1.66	571.0	12	78		337	32	31
	4	FP	1.48	551.7	13	81		261	30	28
Old Town Creek W/S										
Bullock & Macon Co.	24	FP	5.50	372.7	73	500		1,044	218	27
	25	FP	4.18	387.7	62	346		1,269	178	26
	26	FP	5.50	384.7	95	494		1,702	208	29
	31	FP	3.06	295.3	83	217		1,182	229	18
	32	FP	5.65 4/	334.1	91	971		3,080	285	29
	37	FP	2.91	342.4	61	217		1,073	184	19

1/ FP - flood prevention, R - recreation, WS - water supply.
2/ Area flooded at depth of flow in emergency spillway for designed storm.
3/ 50-year sediment volume.
4/ Equivalent drainage area (5.65 sq. mi.) 100 percent of 2.46 sq. mi. plus 24 percent of 15.43 sq. mi.

4-32888 3-73

Table II-5--Statistics of impoundments on tributaries, by subbasins and by counties, Alabama River Basin, 1972.

County	Large Impoundments[1] Name	Location	Use[5]	Surface Acres	Height of Dam (feet)	Medium Impoundments[2] No.	Surface Acres	Small Impoundments[3] No.	Surface Acres	Natural Impoundments[4] No.	Surface Acres
			Alabama Subbasin								
Autauga	Bridge Cr. Fishing Club	6 mi. N--Prattville	F	50	12	30	500	230	560	104	2,921
Baldwin						2	14	7	11	2	22
Butler						20	200	130	500	18	428
Chilton						3	45	180	225	30	744
Clarke						2	16	20	40	41	422
Crenshaw						-	-	4	12	-	-
Dallas	Dallas Co. Public Lake	11 mi. S--Selma	F	100	20	60	700	200	750	163	2,310
	Valley Creek Park	15 mi. N--Selma	F,R	60	15						
Elmore						4	32	15	45	8	394
Escambia	Little River State Lake	Off Hwy 21, State Park	F,R	75	-			2	3	14	59
Lowndes	Bell Lake	3 mi. SW--Burkeville	F,L	43	15	71	650	840	2,854	90	2,510
	Lake Berry	1 mi. S--Burkeville	I,F,L	40	21						
Marengo	Spencer Lake	Near Gallion	R	50	-	5	29	73	129	-	-
Monroe	Monroe Co. Public Lake	3 mi. W--Beatrice	R	94	21	13	124	215	470	131	1,229
Montgomery	Suggs Lake	2 mi. SW--Hope Hull	R,L	80	12	130	1,050	2,225	2,955	155	2,040
	Davis Lake	2 mi. N--Fleta	R	50	15						
	Davis Lake	2 mi. N-Fleta	R	50	15						
	Davis Lake	1½ mi. N--Robinsons Crossroads	R,L	60	16						
	Davis Lake	1½ mi. N--Robinsons Crossroads	R,L	40	16						
Perry						32	432	42	129	20	288
Wilcox	Bain Henderson Lake	1½ mi. W--Millers Ferry	R,L	52	20	15	122	391	787	119	1,723
Subtotal	14			794		387	3,914	4,574	9,470	895	15,090
			Cahaba Subbasin								
Bibb	Chase Lake	8 mi. SW--Blocton	F	50	25	14	190	100	250	188	3,549
	Shady Grove Lake	6 mi. N--Centreville	F	50	30						
Chilton						5	83	50	60	70	556
Dallas						8	100	50	150	19	248
Jefferson	Emerald Valley Lake	2 mi. E--Palmerdale		170	-	46	457	178	271	184	301
	Lake Purdy	6 mi. SW--Leeds	F,R,M	653	65						
	Norman Fountain	S--Interstate 59--Bucksville Exit	F	47	23						
	Reese Murray	NE corner of Co. off Co. Hwy 30	F	50	35						
	Zamora Lake	2 mi. E--Palmerdale		43	-						
Perry						8	84	48	144	71	987

Table II-5--cont'd

County	Large Impoundments[1/] Name	Location	Use[5/]	Surface Acres	Height of Dam (feet)	Medium Impoundments[2/] No.	Surface Acres	Small Impoundments[3/] No.	Surface Acres	Natural Impoundments[4/] No.	Surface Acres
Shelby	Lake Purdy	On Little Cahaba River	F,R	400	60	24	325	175	350	183	392
	Oak Mountain Public Lake	Oak Mtn.State Park	F,R	84	40						
	Oak Mountain Public Lake	Oak Mtn.State Park	F,R	85	30						
St. Clair	Frank Trucks Lake	3½ mi. S--Springville	F,R	42	15	3	69	60	130	25	75
	Margaret Lake	Just N--Margaret	F	50	15						
	Sportsman Lake	2 mi. N--Odenville	F,R	60	30						
Tuscaloosa						2	16	21	47	14	81
Subtotal	13			1,784		110	1,324	682	1,402	754	6,189
			Coosa Subbasin								
Autauga						-	-	15	30	15	279
Calhoun	Harold Fink	5 mi. N--Anniston	F,R	78	13	125	1,000	400	500	41	109
	Lee Bros. Lake	4 mi. NW--Reads Mill	F,R	48	25						
	Nesbitt Lake	3 mi. NW--Jacksonville	F	40	20						
Cherokee	Coley Bros.	5 mi. S--Centre	L,R	100	26	4	6	146	450	27	83
Chilton						11	130	190	200	50	1,240
Clay						13	101	3	10	13	49
Cleburne						10	241	2	7	9	28
Coosa	Ann Jordan	2.3 mi.SW--Kellyton	Private	135	20	38	288	270	680	41	148
DeKalb	Camp Corner Lake	2½ mi.S--Valley Head	R	75	20	9	111	70	140	23	68
	Fort Payne City Lake	NE side--Ft. Payne	M	90	50						
Elmore	Speigner Lake	Draper Prison Farm	F,I	500	32	6	52	352	722	45	1,249
Etowah	Meadow Lake	Eastern Etowah Co.	R	45	12	20	200	475	1,000	22	72
Shelby	Smyer's Lake #1	3 mi. SW--Dunavant	F,R	80	-	32	359	225	450	20	99
	Smyer's Lake #2	3 mi. SW--Dunavant	F,R	100	30						
	Lake Wehapa	1 mi. SW--Dunavant	F,R	200	25						
	Woodmere Lake	6 mi. W--Columbiana Ala. 70	F,R	67	40						
	Yielding Lake	2 mi. W-Vandiver	F,R	40	20						
St. Clair	Chandler Mtn. Lake	Atop Chandler Mtn.	F,I	145	27	32	282	150	300	45	171
	Lake Joyce	4 mi. NE--Moody	F	46	12						
	Pinedale Shores	3 mi. W--Ashville	F,R	125	16						
	Springville Lakes Est.	3½ mi.NW--Springville	F,R	40	25						
	Sumatanga	2 mi. S--Gallant	F	60	25						
Talladega	Caudle Lake	1½ mi. N--Fayetteville	F,R	65	22	21	278	105	210	45	185
	Lake Elliott	2 mi. E--Talladega	F,R	40	23						
	Lake Howard	4 mi. NE--Sylacauga	M	200	75						
	Mump Creek Reservoir	1 mi. E--Waldo	M	42	40						
	Lake Socapatoy	½ mi. S--Waldo	F,R	40	25						
Subtotal	24			2,401		321	3,048	2,403	4,699	396	3,780

Table II-5--cont'd

County	Large Impoundments1/ Name	Location	Use5/	Surface Acres	Height of Dam (feet)	Medium Impoundments2/ No.	Surface Acres	Small Impoundments3/ No.	Surface Acres	Natural Impoundments4/ No.	Surface Acres
			Tallapoosa Subbasin								
Bullock						23	160	289	435	38	1,066
Chambers	J.W. Grady Lake	.5 mi. SW--Stroud	F	40	20	15	126	133	225	48	167
	LaFayette Reservoir	3 mi. W.--LaFayette	M	80	30						
Clay	Lake Gerald	½ mi. E--Delta	R	120	30	1	10	10	35	15	59
	State Lakes (3)	½ mi. W--Delta	R	103	-						
Cleburne	Lake Edmond	1½ mi. W--Chulafinnee	R	165	35	37	444	181	579	21	65
	Cleburne Co.Boy Scout Lake	2 mi. W--Hollis Cross Roads	R	63	40						
Coosa						2	12	5	10	6	21
Elmore	Seller Pond	S. of Wetumpka	R	40	10	8	190	380	1,085	50	1,388
Lee	C.E. Lee Lake	4 mi. S--Opelika				100	1,150	364	1,110	36	1,004
		Hwy. 37	F	60	20	100					
	Ogletree #1--Auburn City Lake	3 mi. SE--Auburn	F,M	200	50						
	Opelika City Lake	3 mi. N--Opelika	F,M	560	40						
	Willow Run Lake	Beauregard	F	60	15						
Macon	Tuskegee Public Lake	Adjacent-Tuskegee	R	100	30	50	600	640	580	98	2,896
Montgomery						70	350	500	1,100	32	790
Randolph						20	200	415	600	36	139
Tallapoosa	Russell Lake	4 mi. S--Alexander City	F	60	-	10	70	400	1,000	43	162
Subtotal	13			1,651		336	3,312	3,317	6,759	423	7,757
GRAND TOTAL	64			6,630		1,154	11,598	10,976	22,330	2,468	32,816

Note: The classification of impoundments has no relation to any other size grouping in this report.
1/ Surface area of normal pool is greater than 40 acres.
2/ Surface area of normal pool is between 5 and 40 acres.
3/ Surface area of normal pool is less than 5 acres.
4/ This includes such impoundments as old river oxbows, beaver ponds, Grady ponds, inundated borrow pits, etc.
5/ F-fishing, R-water-base recreation, L-livestock watering, I-irrigation, M-municipal water storage.

Surface Water Quality -- The surface waters of the Alabama Basin are generally of good chemical quality. With few exceptions, streams of the basin are suitable for most industrial or domestic uses. Specific individual qualities may be of great importance when the water is to be used in some manufacturing processes. If water of the specific qualifications needed is not available, the available supply can usually be tailored to fit industrial needs by chemical treatment. Chemical constituents commonly found in natural water with their sources and effects, are given in Appendix Table 1. Results of samples analyzed by U. S. Geological Survey are given in Appendix Table 3.

The chemical quality of water in streams varies with the stage and at low flow is closely related to the lithology of the surficial geologic units through which the stream flows. The Alabama River and its tributaries are higher in calcium and magnesium content than in sodium and potassium at both high and low stage. As flow decreases the bicarbonate content increases and the sulfate content decreases.

Stream temperatures vary from 36°-48°F in January and February to 63°-86°F in July and August. Major streams furnish an abundant year long supply of water at temperatures suitable for most industrial purposes.

The Alabama River Basin streams and lakes have many uses which are necessary in the public interest. These uses include water supply for livestock, irrigation, domestic, municipal and industrial purposes, fish and wildlife, recreation, disposal of municipal sewage and industrial waste, and the aesthetic enjoyment by man. Appendix Table 2 summarizes common water use limitations. The rigid application of strict and uniform water quality standards may not be desirable or reasonable because of the varying uses of such waters and the economic costs of pollution controls to achieve specific water quality conditions in all streams. Standards and improvement goals are set by law and as a result of public hearings for each of the basin's streams and tributaries. Water use standards are based on volume of flow, depth of channel, rate of flow, temperature, natural characteristics, geographic location and the nature of the stream and its major uses. Use classification of streams in the Alabama River Basin are presented in Appendix Table 7.

The following is a description of water quality conditions and treatment facilities that exist in the Alabama River Basin. Plant managers employing water treatment facilities (large water using industries) were asked if the treatment process constituted a problem in their water resource use.1/ Only 3 percent of the plant managers reported that the necessity for treatment was a serious problem. Thirty-nine percent of the plants reported that the necessity of treating water posed a moderate problem to their industrial water use, while 58 percent reported that treatment was no problem at all. The Alabama Water Improvement Commission has established quality criteria for waters and streams of Alabama. As compliance with the State's standards is achieved many of the qualitative water-conflict situations may be resolved.

1/ Industrial Use and Community Supplies of Water in Alabama, School of Business Research Series 1, Auburn University.

4-32888 3-73

The U. S. Geological Survey is currently concentrating on improving the scope of its water-quality network. In determining the precautionary measures to be taken to reduce the effect of wastes upon water quality, it is necessary to study the nature of the natural waters and how they are affected by wastes discharges. The affects of organic loadings are most evident during the warm summer months when high stream temperatures and low flow coincide. Available data are not of sufficient detail to accurately define the nutrient content of streams in the Alabama River Basin. Studies to determine the extent and effect of nutrient pollution should be implemented. Water quality parameters measured in Alabama are listed by agencies in Appendix Table 4.

Private industry and municipalities have invested large sums in recent years for treatment facilities in all subbasins. Residents and industry in the Alabama River Basin generate 847,928 population equivalents of waste which receive varying degrees of treatment. Municipalities are listed in Appendix Table 5 with type of waste disposal facility. There are still untreated wastes being discharged into the streams of the basin. Fourteen towns with a total population of 68,000 or more have inadequate facilities, however, one of these has new facilities presently under construction while six others have corrective plans in the advanced stage. (Information furnished by Alabama Water Improvement Commission). Ten industrial treatment facilities are listed as inadequate with plans scheduled to meet required standards. Appendix Table 6 lists waste water treatment by industries in the study area.

Population served by sanitary sewage facilities are listed by subbasins:

Alabama Subbasin	187,685
Coosa Subbasin	188,543
Tallapoosa Subbasin	92,249
Cahaba Subbasin	379,451

Stream pollution in the subbasins is one of the more serious potential water resource problems. Careful planning to restore or maintain the water quality of streams is a responsibility of all levels of government and the private sector.

Improvement in sewer collection and treatment systems for cities in the basin are needed. The cooperation of the general public and enforcement of state and federal laws is necessary to control dumping of garbage and waste materials and to regulate the use of insecticides, herbicides, and other poisons.

Most of the water withdrawn for use is returned to the environment in such a manner and condition that it can be used again. Withdrawal use of water generally causes a gradual degradation in quality; and it is only clean, useable water that constitutes a resource. If the depreciation in water quality is sufficient to render the source unfit for further use, that source is depleted almost as drastically as if it had been entirely consumed. Thus, the quality rather than the quantity of Alabama River Basin's water supply would appear to be the principal concern of the future.

4-32888 3-73

Stream Classification -- The Alabama Water Improvement Commission adopted water use classifications in 1967. The establishment and maintenance of stream classification standards is primarily a state function, but a federal influence is exerted through the Environmental Protection Agency (EPA). The classification of water uses in streams in the Alabama River Basin was completed in 1972, the Cahaba River Subbasin being the last. These classifications are:

1. Public Water Supply
2. Swimming and Other Whole Body Water Contact Sports
3. Fish and Wildlife
4. Agricultural and Industrial Water Supply
5. Navigation
6. Treated Waste Transportation

The use classification of streams in the Alabama River Basin are presented in Appendix Table 7 provided by the Alabama Water Improvement Commission.

Stream mileage information is being compiled and used by many agencies and individuals. The Corps of Engineers maintains accurate and current mileage tables on the main streams. The U. S. Geological Survey is presently preparing information related to stream miles and drainage area. The Corps of Engineers, Forest Service, Agricultural Research Service and the Soil Conservation Service prepared the 1969 National Assessment of Streambank Erosion. The miles of streambank erosion and the lengths of streams with drainage areas greater than one square mile were tabulated. This information will continue to be useful as a source of information and it will be necessary to identify the future erosion and pollution problems.

The capability of natural streams to assimilate pollutants is dependent on length of travel, rate, volume, and pattern of flow. Water quality management planning is based on knowledge of the location and type of pollution sources and the effects of wastes on water quality from point to point.

The State of Alabama is developing a Water Quality Management Plan for each of the 14 river basins within the state. The Regional Planning and Development Commissions are working on seven Metropolitan/Regional Water Quality Management Plans. Stream mileage data is being compiled by free-flowing and impounded stream miles. Most of the Alabama and Coosa River main streams are impounded. With installation of the proposed Crooked Creek impoundment on the Tallapoosa River, about 50 percent of this stream will be impounded. The Cahaba River has very few miles of impounded streams. In 1968 the office of the Governor suggested the inclusion of the Cahaba River as a wild and scenic stream. The 1963-1964 annual report of the Alabama Water Improvement Commission indicated there are about 978 river miles in the study area; approximately 500 miles are impounded.

An estimate of stream mileage in Alabama indicates that there are 13,596 miles of streams in the Alabama River Basin with drainage areas one square mile or larger. (See Table II-6) These estimates were determined by measuring the thread of the stream on a selected group of 7½ minute quadrangle maps to determine the ratio of stream mileage to drainage area.

Quadrangle maps were chosen to represent the dominant topography in a land resource area. The ratio of stream mileage to drainage area (densities) range from 0.539 to 1.006 and the weighted average for the basin is 0.790 miles per square mile.

Stream mileage classification is needed by type of flow, perennial or intermittent, for use in water resource inventory and development and management. This classification will be made in the Alabama River Basin during the detailed phase of the river basin study. The flow classification study will be developed by land resource areas, topography, and river subbasins. Stream classification by the above factors will provide the water resource planner with valuable information for evaluating the quality of streams.

Table II-6--Mileage of streams having drainage areas exceeding one square mile.

River Subbasins	Drainage Area Square Miles 1/	Miles of Streams 2/
Alabama	5,919	4,840
Coosa	5,461	4,235
Cahaba	1,872	1,410
Tallapoosa	3,959	3,111
TOTAL	17,211	13,596

1/ Alabama Conservation Needs Inventory, 1967.

2/ Expanded from 7½ minute quadrangle sample.

4-32888 3-73

Site Availability -- The major rivers of the basin are largely committed to navigation and hydroelectric power and therefore, additional development of the rivers beyond that already existing or planned is limited. Consequently, the discussion of available impoundments will be focused on tributaries and minor streams.

The topography of the Sand Mountain, Southern Appalachian Ridges and Valleys, and Southern Piedmont land resource areas is well suited for impoundments. However, these sites may be limited by factors such as roads, railroads, pipelines, transmission lines, houses, other fixed improvements, or geologic conditions. These items have a more immediate effect on the selection of large impoundments. Small private pond sites for recreation, irrigation, fire control, fish production, and other purposes are relatively unlimited throughout the area.

The soil and foundation characteristics are favorable for constructing earthfill structures for both large and small reservoirs. Borrow material is readily available within close proximity of the structure. Some locations may have a limited supply of impermeable soil for use as core material. Seepage through the abutments and foundations may be a problem with the greater water storage depths within the Sand Mountain area and the Appalachian areas.

Due to the stage versus storage relationship, large reservoir storages such as municipal, industrial, fish and wildlife, recreation or low-flow augmentation will require high dams. It is not difficult to locate embankments in areas with flood plains ranging from 50 to 400 feet in width. This results in rather short dams compared to their height.

Because this area has a high concentration of water resource developments, the extent of site availability is limited in the Talladega Mountain area from Sylacauga to the Alabama-Georgia state line. There are presently 54 floodwater retarding structures with drainage areas ranging from 1.1 to 27.2 square miles located in this area. Storage volumes range up to 9,520 acre-feet. Six of these are multiple-purpose structures. Approximately 21 sites are planned but not constructed; some are multiple-purpose sites.

The lower reaches of the Piedmont, upper Coastal Plain and Blackland Prairies areas are not as well suited for impoundments as is the area discussed above. Low, rolling topography characterizes these areas with broad valleys and gently sloping hill lands. These conditions cause inundation of large land areas with relatively shallow depths. This characteristic is suitable for recreational purposes but less desirable from a storage volume respect and land rights cost. The topography lends itself to low embankments up to 3,500 feet in length. Suitable borrow material is readily available within close proximity of the structure. Critical sediment source areas above these sites may require treatment to control the accumulation of sediment in the reservoirs.

The lower Coastal Plain is not well suited for impoundments. The topography is too level and the sandy soils provide limited amounts of impermeable material.

Few large sites on large creeks such as Big Wills, Talladega, Choccolocco, and Mulberry exist that have not been preempted by other interests. This renders their use as reservoirs prohibitively expensive.

In general, a site is available within reasonable distance for any need. However, man-made improvements will increase with time resulting in an increase in land rights cost; therefore, dedication of potential sites for beneficial water storage should be made as soon as possible.

A study of the basin was made to locate available reservoir sites which would meet existing needs such as low-flow augmentation, recreation, and municipal storage. The study was oriented primarily around low-flow augmentation needs furnished by the Alabama Development Office (see Table IV-21) and water-based recreation needs in the Cahaba Subbasin. Statistics of available sites which will meet identified needs, in whole or in part, are given in Table II-7.

The type of sites located are for on-stream, impoundment reservoirs, with dams and ungated emergency spillways. Reservoir sites were located upstream from such identified needs as low-flow augmentation and municipal water supply. These sites were studied primarily as single-purpose sites, however, water could be stored for multiple use. Some sites could include water storage for flood control, fire protection, irrigation and other uses as well as surface area for water-based recreation.

Topographic quadrangle maps were used to locate potential reservoir sites. Data to be used in sizing the reservoirs were obtained from the topographic maps.

Complete coverage of the study area is available in topographic maps of the Army Map Service (AMS) at a scale of 1:250,000 (50-ft. and 100-ft. contour intervals). In addition partial coverage is available in topographic maps of the U. S. Geological Survey (USGS), either in the $7\frac{1}{2}$ minute quadrangle series (1:24,000 scale, 10-ft. or 20-ft. contour interval) or the earlier 15 minute quadrangle series (1:62,500 scale, 10-ft. or 20-ft. contour interval).

The upper third of the Cahaba Subbasin is covered by $7\frac{1}{2}$ minute quadrangles. The center and lower quarters of the subbasin are covered by 15 minute quedrangles. The lower portion of Bibb County and the upper portion of Perry County have no coverage other than the AMS series.

The upper two-thirds of the Coosa Subbasin has the best coverage in the river basin. This area has solid coverage of $7\frac{1}{2}$ minute and 15 minute quadrangles. The lowermost point in the subbasin is covered by 15 minute quadrangles. A strip through Chilton and Coosa Counties is covered only by the AMS series.

The uppermost portion of the Tallapoosa Subbasin is covered with $7\frac{1}{2}$ minute quadrangles. A portion through the middle of the subbasin is presently being mapped by USGS and $7\frac{1}{2}$ minute advance sheets are available for this area. The remainder is covered only by the AMS series.

About one-third of the Alabama Subbasin in the Chilton, Dallas, Autauga, and Montgomery County area is covered by 15 minute quadrangles. A few $7\frac{1}{2}$ minute quadrangles are available in the Selma and Montgomery areas. The remainder of the subbasin is covered only by the AMS series.

Scattered areas in the river basin are covered with 30 minute quadrangles. These are mostly repetitious of $7\frac{1}{2}$ minute and 15 minute quadrangle coverage and are of early edition.

The reliability of the reservoir data depends upon the scale and contour interval of the maps used. In spite of this weakness, information derived from these maps is not without value. As more detailed maps become available the reservoir data developed from the existing maps can be revised.

The dependable yield of the drainage area and reservoir was considered in sizing and locating of the reservoirs. As a general guide, those sites capable of developing a dependable yield equivalent to 50 percent of the average annual runoff are considered the most economical and generally desirable. Average annual runoff was obtained from Water Resources Data for Alabama published by the U. S. Geological Survey. No allowance for evaporation and seepage losses were made in estimating dependable yield. Runoff from the uncontrolled area and losses in transmission were not considered in calculations of storage needed. The land use of reservoir areas was considered in site selection along with topographic feasibility.

It is to be recognized that this study does not give consideration to some of the cardinal elements of a comprehensive feasibility study. Such elements include the economic analysis of cost, benefits, justification, and financing; the engineering design of the dam, spillway, outlet works, and appurtenances; and an assessment of the environmental impact of the proposed reservoir.

Table II- 7--Statistics of potential reservoir sites for water storage needs, by subbasins, Alabama River Basin, 1972.

Site Location	Primary Need 1/	D.A. (sq.mi.)	Dam Height (feet)	Pool Surface area (acres)	Water Depth (feet)	Pool Elevation (msl)	Total Storage Volume Avail. (ac.-ft)	Type of Map Used 3/	Map Contour Interval (feet)	Dependable Yield 4/ (cfs)
Alabama Subbasin										
Catoma Cr., 15 mi.SW of Montgomery; R19E;T14N;Sect.26	LF	58.38	20	700 2/	14	256.0	15,000	AMS	50	37.95
Pursley Crk. Trib., 4 mi.SW of Camden; R8E;T12N;Sect. 35	LF	7.94	30	190	22	187.0	2,000	AMS	50	3.97
Pursley Cr. Trib., 8 mi.SW of Camden; R9E;T11N;Sect. 17 & 20	LF	7.47	22	370	15	245.0	2,750	AMS	50	3.74
Cahaba Subbasin										
Big Black Cr., 8 mi.NE of Trussville; R1E;T15S;Sect. 36	LF	10.47	55	255	45	655.0	4,780	7½'	20	7.85
Cahaba R., 2½ mi.N of Trussville; R1W;T16S;Sect. 12	LF	12.68	60	140	50	795.0	2,825	7½'	20	9.51
Hogpen Branch, 4 mi.SE of Irondale; R1W;T17S;Sect. 34	LF	4.08	50	98	43	540.0	1,650	7½'	20	3.06
Little Black Cr., 6 mi.E of Trussville; R1E;T16S;Sect. 24	LF	11.36	55	304	45	640.0	6,765	7½'	20	8.52
Big Cr., 3½ mi.W of Maylene; R4W;T21S;Sect. 23	R	7.59	85	200	75	446.0	8,000	15'	50	6.07
Mayberry Cr., 4½ mi.W of Montevallo; R4W;T24N;Sect. 2	R	7.98	95	240	85	445.0	8,500	15'	50	6.38
Oakmulgee Cr., 15 mi.N of Selma--Talladega NF; R10E;T19N;Sect. 26	R	39.17	50	1,333	40	240.0	24,412	15'	20	27.42
Shades Cr., 9 mi.SW of Bessemer; R5W;T21S;Sect. 2	R	123.30	83	1,000	68	440.0	30,353	15'	20	98.64
Coosa Subbasin										
Baker Cr., 1 mi.SE of Goodwater; R20E;T24N;Sect. 23	LF	2.92	48	143	40	800.0	2,180	15'	20	2.19
Cave Cr. on Ft. McClellan; R8E;T15S;Sect. 11	LF	1.69	36	40	33	828.0	705	7½'	20	1.18
Tallaseehatchie Cr., 5 mi.E of Sylacauga; R5E;T21S; Sect.18 5/	LF	23.09	108	140 6/	62 6/	604.5 6/	12,800 7/	1:4800	10	17,32
Tallaseehatchie Cr., 5 mi.E. of Sylacauga; R4E;T21S;Sect.23 8/	LF	5.62	92	141 9/	69 9/	627.0 9/	6,425 10/	1:4800	10	4.22
Waxahatchee Cr., 2½ mi.W of Columbiana R1W;T21S;Sect. 21	LF	12.75	30	374	20	500.0	3,740	15'	50	10.20

4-32888 3-73

Table II- 7--cont'd

Site Location	Primary Need 1/	D.A. (sq.mi.)	Dam Height (feet)	Pool Surface area (acres)	Water Depth (feet)	Pool Elevation (msl)	Total Storage Volume Avail. (ac.-ft)	Type of Map Used 3/	Map Contour Interval (feet)	Dependable Yield4/ (cfs)
Tallapoosa Subbasin										
Calebee Cr., 1 mi.S of Tuskegee; R23E;T16N;Sect. 1	LF	1.75	40	104	32	340.0	1,300	7½'	10	1.05
Horsetrough Cr., 1 mi.NE of Ashland; R22E;T20S;Sect.16 8/	LF	1.98	38	58 11/	24 11/	1046.0 11/	1,008 12/	1:2400	5	1.29
Sougahatchee Cr.,4 mi.NW of Auburn; R26E;T19N;Sect. 2	LF	5.36	40	178	35	680.0	2,375	7½'	10	3.22
Sougahatchee Cr.,Opelika City Lake; R26E;T19N;Sect.4 13/	-	19.13	55	646	46	680.0	3,620 13/	7½'	10	-
Wedowee Cr.,3 mi.E. of Wedowee; R12E;T20S;Sect. 3	LF	14.28	45	188	35	1015.0	3,575	30'	50	9.26

1/ LF - low-flow augmentation, R - water-base recreation.
2/ This site has a poor depth verse surface area relationship.
3/ 7½', 15', and 30' denotes U. S. Geological Survey quadrangle series. AMS denotes Army Map Service, scale 1:250,000.
4/ Estimated as being 50 percent of the average annual runoff.
5/ Presently planned as a multiple-purpose structure in an authorized Public Law 566 Watershed Work Plan.
6/ Set at 2,938 acre-feet.
7/ Sediment--695 acre-feet; low-flow storage--2,243 acre-feet; municipal-water--1,000 acre-feet; floodwater detention--8,862 acre-feet.
8/ Presently planned as a single-purpose structure in an authorized Public Law 566 Watershed Work Plan.
9/ Set at 4,200 acre-feet.
10/ Sediment--200 acre-feet; low-flow storage--4,000 acre-feet; floodwater detention--2,225 acre-feet.
11/ Set at 576 acre-feet.
12/ Sediment--76 acre-feet; low-flow storage--500 acre-feet; floodwater detention--432 acre-feet.
13/ Opelika City Lake could be increased to add 3,620 acre-feet to its present storage volume. However, this potential storage may have priority for municipal water.

Ground Water

Ground water studies have been completed by U. S. Geological Survey and Geological Survey of Alabama in most of the counties, although all are not published. The Alabama River Basin is located partially in the three major physiographic divisions of Alabama based on the topography type and age of rocks: the Piedmont, the Plateau and the Coastal Plain. The similarity of rock types within each area implies a similarity of occurrence of ground water within each area.

The rocks in the Piedmont are the oldest in Alabama. They contain some cracks, crevices and joints, but the openings usually extend downward 200 to 300 feet. The average drilled-well yield in the Piedmont is only about 30 gallons per minute although wells occasionally provide higher yields. In general, dug wells have low yields and many go dry during droughts. The yield is limited by the very low rate of water flow through the fine tightly-packed material in the weathered zone. Springs in the Piedmont are numerous but generally have small yields. Water obtained from wells and springs in the Piedmont is relatively free from mineral content.

The Plateau can be subdivided as follows: limestone valley, coal measures, valley and ridge. Ground water exists in cracks, crevices, solution channels, and in the mantle overlying the rock. Here both dug wells and drilled wells are used; their yield varies from a few gallons to more than 300 gallons per minute. Topography is an important factor in locating a successful well. It is sometimes necessary to drill one or more test wells to find openings in the bedrock capable of supplying the desired quantity of water. Wells intersecting faults or larger fracture zones can furnish substantial quantities of water. In the limestone area, ground water is developed from wells intersecting solution channels and cavities and from large springs issuing from limestone. Water in the rocks of the Plateau is generally of suitable quality, though water obtained from sandstone and shale sometimes contains objectionable quantities of iron.

The consistent occurrence of good water-bearing sand and gravel beds through large areas of the Coastal Plain make the development of large-capacity wells relatively easy. Shallow wells, usually less than 100 feet in depth can be developed in sand and gravel beds. Drilled wells, ranging in diameter from 4 to 18 inches and in depth from a few feet to as much as 1,500 feet are the most efficient and practical means of developing ground water from the better water-bearing sands and gravels in the Coastal Plain. These wells range from small domestic and farm wells pumping 5 to 10 gallons per minute to large municipal or industrial wells producing as much as 1,000 gallons per minute. Ground water quality is generally good in the Coastal Plain.

The water use study1/ reveals that all public supplies in the Alabama River Subbasin are from ground water except some water for Montgomery that comes from the Tallapoosa River and Pine Hill from the Alabama River.

1/ Use of Water in Alabama, 1970, Geological Survey of Alabama, Information Series 42.

Land

Land Use

Approximately 72 percent of the land within the Alabama River Basin is in forest use. Cropland and pasture each comprise 13 percent of the basin. The remaining 2 percent is used for other purposes. This land use distribution varies only slightly except in the Cahaba subbasin where 83 percent of the area is in forest, 7 percent in cropland, 8 percent pasture, and 2 percent in other uses. The Alabama subbasin has about 65 percent in forest use which is slightly less than the basin average, and 15 percent and 18 percent cropland and pasture respectively which is slightly grea er than the basin average. More detailed information on land use by soil capability class and subclass is presented in Table II-8.

The land use map (Figure II-5) is the result of a 1972 reconnaissance survey by field personnel of the Soil Conservation Service. Land use was mapped on county road maps and the data compiled and tabulated by MIADS (Map Information and Display System). The survey is intended to show the pattern of land use and is not intended for operational planning. Land use was categorized in large blocks by the predominant characteristic of the block. Minor inclusions of one or more non-mapped land use may make up nearly half of any mapped unit. Land use categories and percentages of the basin are:

Water	2 percent
Woodland	62 percent
Strip mines and quarries	Trace
Urban or built up areas	3 percent
Orchards	Trace
Mixed--pasture and cultivated cropland (more than one-third of each)	8 percent
Cropland (more than two-thirds cultivated cropland)	7 percent
Grassland (more than two-thirds pasture)	18 percent

These percentages differ from the 1967 CNI land use shown in Table II-8 because the CNI accounts for the total acreage of each land use regardless of size of the area. The land use map (Figure II-5) shows proportion of the basin by dominant land use without attempting to account for every acre of each land use.

Land Capability Classification -- Capability classification is a grouping of soils to show, in a general way, their suitability for various uses. It is a practical classification based on the degree and kind of permanent soil limitations. The degree of limitation is designated by Roman Numerals I through VIII; the numerals indicating progressively greater limitations and narrower choices for practical use, defined as follows:

Class I lands have few limitations that restrict their use.

4-32888 3-73

Class II lands have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III lands have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV lands have very severe limitations that restrict the choice of of plants, require careful management, or both.

Class V lands have little or no erosion hazard but have other limitations that are impractical to remove that limit their use largely to pasture, forest land, or wildlife.

Class VI lands have severe limitations that make them unsuitable for cultivation and limit their use largely to pasture, woodland, or for wildlife food and cover.

Class VII lands have very severe limitations that make them unsuitable to cultivation and restruct their use largely to woodland or wildlife. Some can be used for grazing.

Class VIII lands have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

The kind of limitation is designated by a small letter, e, w, or s following the class numeral; e.g. IIe, IIw, IIs. The letter "e" indicates the main limitation is erosion, "w" indicates that the main limitation is excess water in or on the soil, and "s" indicates the limitation is due to soil properties such ad drouthiness or limited soils depth for root growth.

Table II-8 shows major land uses by land capability classes and subclasses for the total basin and for each subbasin. The major portion, or 74 percent, of the cropland is on land capability classes I, II, and III. Pastureland is about equally distributed on land capability classes II, III, and IV, and about 78 percent of all pastureland is on these three capability classes. Only about 19 percent of all forest is on class I, II, and III land, however 55 percent of all forest land is on capability classes VI and VII.

Land ideally suited to modern agriculture is a very limited resource. Fairly large acreages of land in capability classes I and II are used for woodland or pasture. This strongly indicates the need for protection from urban enroachment and to identify it for planning purposes. The use of land in capability classes I and II for forest and pasture is not an abuse of the land because land in these classes has few limitations that restrict its use. Lands in these capability classes lend themselves to easy planting, growing, and harvesting of all crops including pasture and timber. However, this land should be identified and if possible kept in a use that would not preclude its use for growing food crops. For example, in a food or fiber emergency it would be preferable to increase the acreage allocated to crop production on class I and II land and increase pasture and woodland acreage on classes III through VI.

It is not intended to advise the strict zoning of land for agriculture but to emphasize the danger of irreversible shifts in use of a nonexpandable resource. It should not be assumed that all land in classes I and II could or should be shifted to crop production. There are many small scattered acreages within areas of these classes of land not suited to cropping, and many areas owned by individuals or corporations whose operation is not adapted to cropping. All large blocks of class I and II land should be identified so that they remain in the agricultural base and their potential can be realized as economics or need dictates. This land could be economically placed in crop production if an unexpected situation develops, in preference to shifting less productive, more erodible land to crop production.

4-32888 4-73

Table II-8--Land use by capability class and subclass by subbasins, Alabama River Basin[1]

Alabama River Basin

Class and Subclass	Land Use				
	Cropland	Pasture	Forest	Other	Total
	Thousand Acres				
I	136	48	38	11	233
IIs	7	7	20	1	35
w	123	163	167	10	463
e	349	184	271	44	848
IIIs	29	10	40	3	82
w	55	88	259	12	414
e	241	238	601	33	1,113
IVs	46	34	151	11	242
w	38	127	441	8	614
e	136	182	663	29	1,010
Vw	13	52	575	2	642
VIs	18	13	126	5	162
e	57	120	893	16	1,086
VIIs	13	21	1,364	18	1,416
w	-	-	8	-	8
e	12	40	1,489	11	1,552
VIIIs	-	-	2	1	3
Total Basin	1,273	1,327	7,108	215	9,923
Percent of Total	13	13	72	2	100

		Thousand Acres
Total inventoried land		9,923
Non-inventoried land		
Urban and built up land	420	
Federally-owned land	408	
Water areas	245	
Total non-inventoried land		1,073
Unclassified		19
Total Basin Area		11,015

1/ Alabama Conservation Needs Inventory 1967.

4-32888 3-73

Table II-8--(Cont'd)

Alabama River Subbasin

Class and Subclass	Land Use				
	Cropland	Pasture	Forest	Other	Total
	----------------------Thousand Acres----------------------				
I	85	27	16	4	132
IIs	3	4	6	-	13
w	76	115	103	6	300
e	160	89	115	23	387
IIIs	28	9	38	3	78
w	14	33	55	7	109
e	84	111	208	10	413
IVs	17	15	47	4	83
w	20	89	307	5	421
e	19	66	127	4	216
Vw	8	25	338	1	372
VIs	5	3	41	1	50
e	15	51	287	5	358
VIIs	6	5	277	1	289
w	-	-	8	-	8
e	2	16	408	2	428
Subtotal	542	658	2,381	76	3,657
Percent of Total	15	18	65	2	100

4-32888 3-73

Table II-8--(Cont'd)

Cahaba River Subbasin

Class and Subclass	Land Use				
	Cropland	Pasture	Forest	Other	Total
	---Thousand Acres---				
I	6	5	4	-	15
IIw	11	8	22	1	42
e	27	15	27	3	72
IIIw	6	3	13	1	23
e	7	15	67	3	94
IVs	1	2	12	-	15
w	5	6	29	1	41
e	5	10	83	1	99
Vw	1	3	62	-	66
VIs	-	-	2	-	2
e	3	6	75	2	84
VIIs	-	2	108	4	115
e	-	3	314	1	317
VIIIs	-	-	1	-	1
Subtotal	72	78	819	17	986
Percent of Total	7	8	83	2	100

4-32888 3-73

Table II-8--(Cont'd)

Coosa River Subbasin

Class and Subclass	Land Use				
	Cropland	Pasture	Forest	Other	Total
	---------------------Thousand Acres-------------------------				
I	25	7	9	2	43
IIs	4	3	14	1	22
w	19	13	18	1	51
e	118	48	96	13	275
IIIs	-	1	1	-	2
w	26	34	131	3	194
e	88	51	198	13	350
IVs	17	9	85	6	117
w	8	10	46	-	64
e	53	39	207	14	313
Vw	-	5	27	1	33
VIs	4	6	55	3	68
e	14	18	242	6	280
VIIs	4	11	649	8	672
e	2	4	467	3	476
Subtotal	382	259	2,245	74	2,960
Percent of Total	13	9	76	2	100

4-32888 3-73

Table II-8--(Cont'd)

Class and Subclass	Land Use				
	Cropland	Pasture	Forest	Other	Total
	--------------------Thousand Acres------------------------				
I	20	9	9	5	43
IIw	17	27	24	2	70
e	44	32	33	5	114
IIIs	1	-	1	-	2
w	9	18	60	1	88
e	62	61	128	7	258
IVs	11	8	7	1	27
w	5	22	59	2	88
e	59	67	246	10	382
Vw	4	19	148	-	171
VIs	9	4	28	1	42
e	25	45	289	3	362
VIIs	3	3	330	5	341
e	8	17	300	5	330
VIIIs	-	-	1	1	2
Subtotal	277	332	1,663	48	2,320
Percent of Total	12	14	72	2	100

Tallapoosa River Subbasin

4-32888 3-73

Figure II-5

LAND USE MAP
of
ALABAMA RIVER BASIN
(ALABAMA PORTION)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN, ALABAMA

0 25 50 MILES

1:1000,000 OR 1 INCHES = 15.783 MILES

November 1972 4-R-32217
September 1972 4-R-28941-A

Land Ownership

The inventory of land ownership within the basin was based on information obtained from local sources within each county. Ownership was divided between private, federal, and state holdings. The results of this study shows that approximately 10,486,000 acres are held by private individuals. About 455,000 acres are held by the federal government and 74,000 acres are owned by the State of Alabama. Included in all categories of ownership are about 245,000 acres of water and 10,770,000 acres of land. The land ownership map (Figure II-7) shows the general location of holdings of private individuals and private corporations as well as a breakdown of lands owned by the state and federal government.

Forest industry ownership is small in the Alabama and Mississippi Blackland Prairie and Sand Mountain land resource areas, but substantial in other areas of the basin. Industrial ownership comprises approximately 21 percent of the entire basin (Figure II-6).

The U. S. Forest Service administers 310,201 acres of forest land in the basin, which is about 4 percent of the total commercial forest land. Table II-9 lists the distribution of National Forest acreage by subbasins, counties, and administrative units.

The National Forest location map (Figure II-8) shows the boundaries of purchase units. These areas include federal and private lands. The area of the Oakmulgee Division is 55 percent private land while the Talladega Division purchase area is 51 percent private land. The purchase area of the Tuskegee National Forest is 32 percent private land.

Forest Service lands east of the Cahaba River in the Oakmulgee Division (the large segment lying in eastern Bibb and in Chilton and Perry Counties) and all those of the Talladega Division were purchased under the Weeks Law during the depression years of the 1930's. These lands were given National Forest status in 1936.

Forest Service lands west of the Cahaba River in the Oakmulgee Division were purchased early in the 1930's, under the National Industrial Recovery Act (N.I.R.A.) and the Economic Recovery Act (E.R.A.). These lands were managed briefly by the Resettlement Administration and then transferred to the Forest Service and designated National Forest in 1940.

Forest Service lands of the Tuskegee National Forest were purcahsed from 1935 to 1938 under the Bankhead-Jones Farm Tenant Act. These lands were managed by various federal agencies before becoming a National Forest in 1959.

Figure II – 8

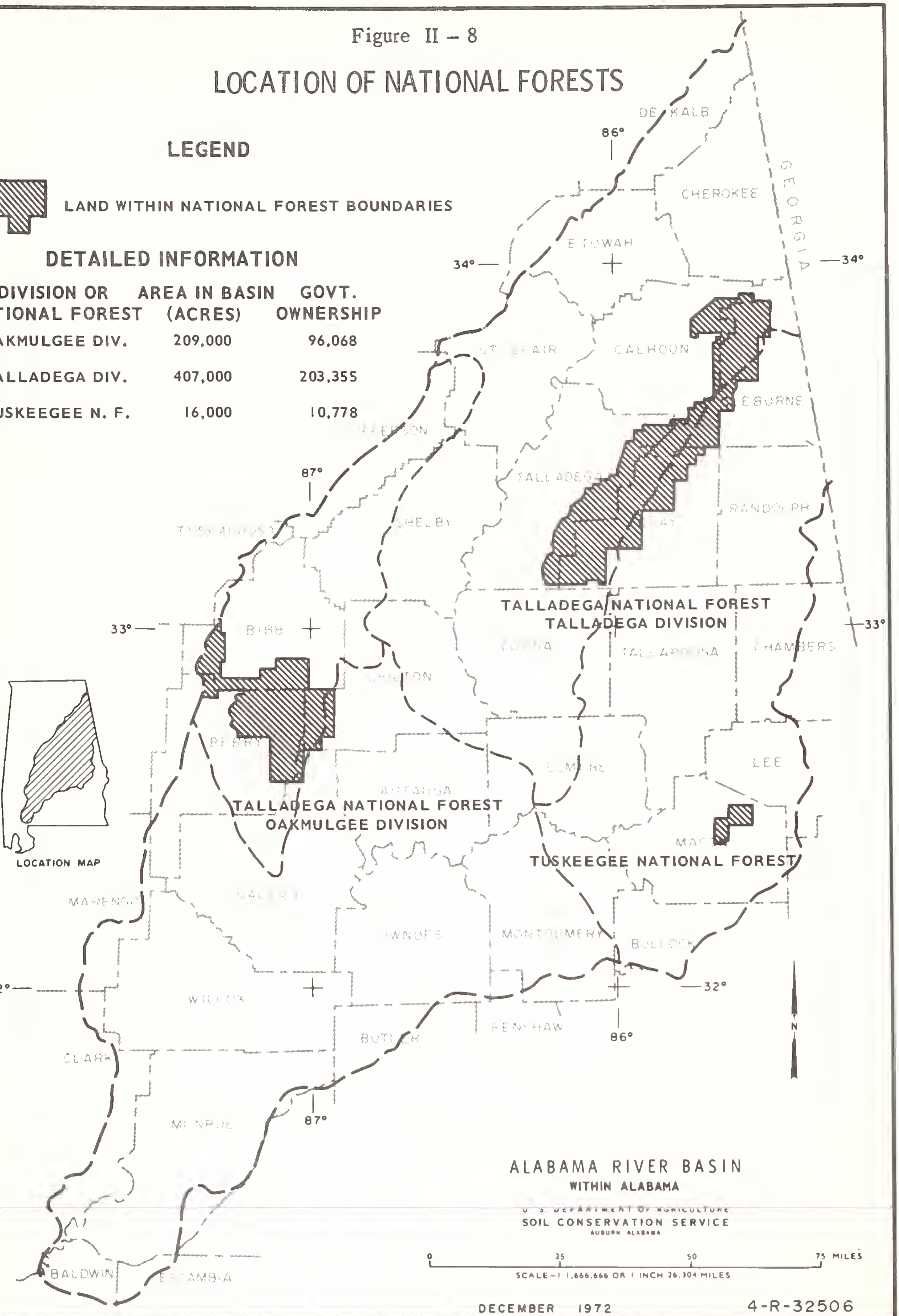
LOCATION OF NATIONAL FORESTS

LEGEND

LAND WITHIN NATIONAL FOREST BOUNDARIES

DETAILED INFORMATION

DIVISION OR NATIONAL FOREST	AREA IN BASIN (ACRES)	GOVT. OWNERSHIP
OAKMULGEE DIV.	209,000	96,068
TALLADEGA DIV.	407,000	203,355
TUSKEEGEE N. F.	16,000	10,778



ALABAMA RIVER BASIN

WITHIN ALABAMA

U. S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

AUBURN, ALABAMA

DECEMBER 1972 4-R-32506

USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

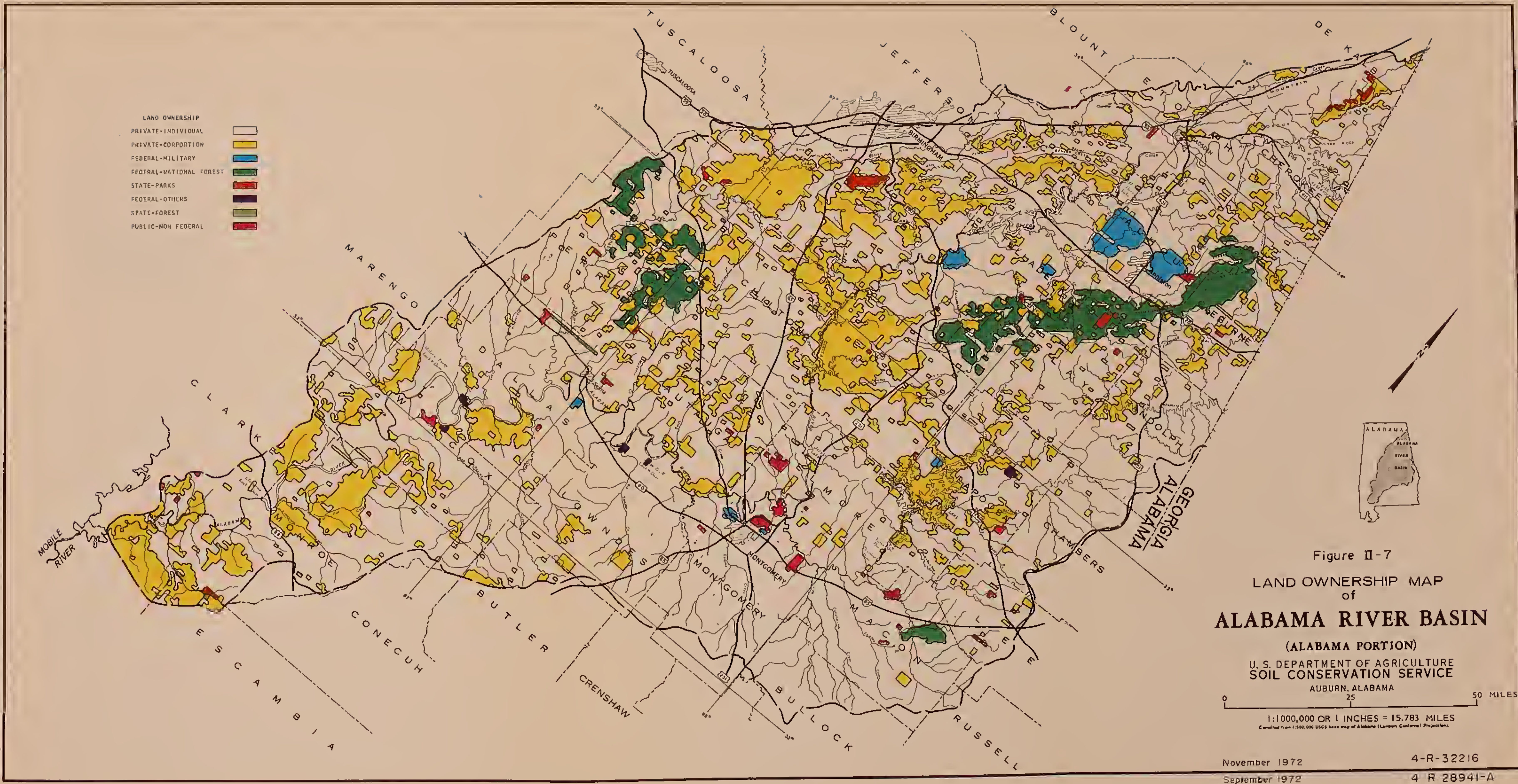


Figure II-7

LAND OWNERSHIP MAP of ALABAMA RIVER BASIN

(ALABAMA PORTION)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN, ALABAMA

November 1972 4-R-32216

September 1972 4 R 28941-A

Figure II-6--Ownership of commercial forest land, Alabama River Basin, 1962.

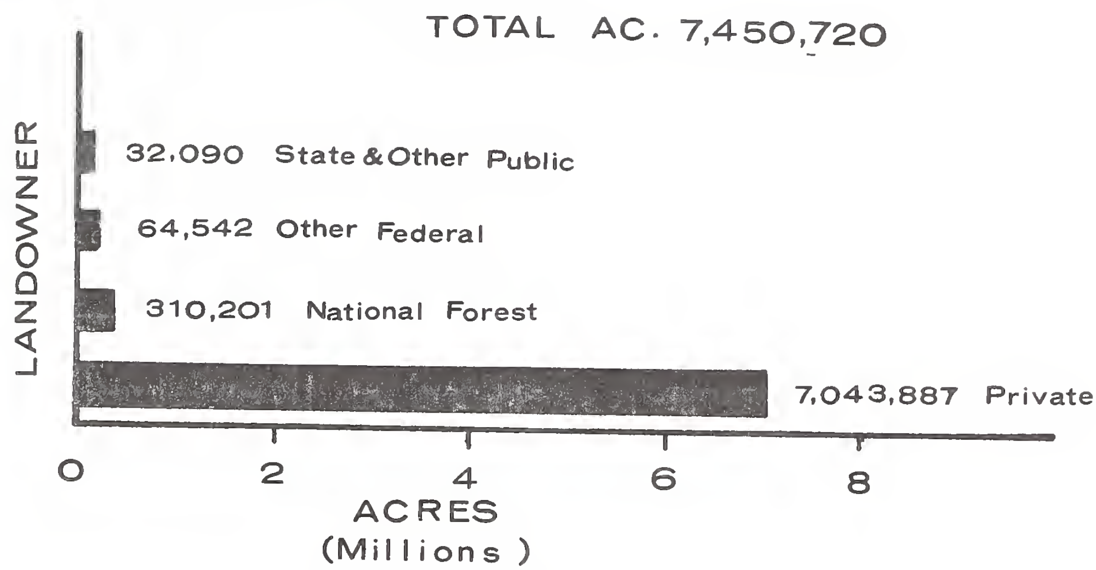


Table II-9--Distribution of National Forests in the Alabama River Basin, land by administrative units and subbasins, 1970.

NF Administrative Unit and County	Subbasins				
	Alabama	Cahaba	Coosa	Tallapoosa	Total
	Acres				
OAKMULGEE DIV.					
Bibb	125	40,302	-	-	40,427
Chilton	7,415	14,010	-	-	21,425
Dallas	64	4,920	-	-	4,984
Perry	-	29,132	-	-	29,132
Tuscaloosa	-	100	-	-	100
TOTAL	7,604	88,464	-	-	96,068
TALLADEGA DIV.					
Calhoun	-	-	15,234	-	15,234
Clay	-	-	56,377	9,895	66,272
Cleburne	-	-	59,548	20,015	79,563
Talladega	-	-	42,286	-	42,286
TOTAL	-	-	173,445	29,910	203,355
TUSKEGEE NF					
Macon	-	-	-	10,778	10,778
TOTAL	-	-	-	10,778	10,778
GRAND TOTAL	7,604	88,464	173,445	40,688	310,201

Soils

Preliminary Soil Association

The general soil map (Figure II-9-pocket) shows the distribution of soil associations. The name of each soil association is tentative and may be changed when more detailed information is available. Becasue of the small scale of the map does not provide information about individual farms or small tracts of land and is not designed for detailed or operational planning. Information on smaller areas or tracts for planning can be obtained from detailed soil maps at Soil Conservation Service offices.

Each soil association is a broad landscape that has a repeating pattern of soils and is named according to the one or more most extensive soil series. Each area also includes other soils which are less extensive and may or may not be like the dominant soils.

Number	Association Name	Description
2	Bodine-Minvale-Fullerton	Cherty, well drained, loamy and clayey soils in the limestone valleys. Depth to rock is 5 to 40 feet. Slopes range from 6 to 35 percent.
3	Boswell-Susquehanna-Luverne	Well drained to somewhat poorly drained, clayey soils on fairly broad ridgetops and moderately steep hillsides in the Coastal Plain uplands. Slopes range from 2 to 15 percent.
5	Cecil-Appling-Louisburg	Well drained, loamy and clayey soils on fairly broad ridgetops and steep hill-sides in the Piedmont. Depth to rock is 2 to 5 feet or more. Slopes range from 2 to 25 percent.
6	Cecil-Grover-Pacolet	Well drained, loamy and clayey soils on fairly broad ridgetops and steep hill-sides in the Piedmont. Depth to bed-rock is 5 to 10 feet. Slopes range from 2 to 40 percent.
7	Clymer-Allen-Rockland	Well drained, stony and gravelly, loamy soils on very steep hillsides. Rockland is very steep, sandstone or quartzite escarpment. Slopes range from 20 to 50 percent. Depth to bedrock is 20 to 40 inches for Clymer and more than 6 feet for Allen.

4-32888 3-73

Number	Association Name	Description
8	Colbert-Hollywood-Rockland	Moderately well drained to somewhat poorly drained, clayey soils in the limestone valley. Slopes range from 0 to 6 percent. Depth to rock is 20 to 40 inches for Colbert, 4 to 8 feet for Hollywood and in Rockland, limestone outcrops cover more than one-half the area.
9	Conasauga-Firestone-Talbott	Well drained and moderately well drained, clayey soils in the ridges and valleys. Slopes range from 0 to 6 percent. Depth to limestone or calcareous shale bedrock is 20 to 60 inches.
10	Davidson	Well drained, dark red, clayey soils on broad, smooth ridgetops in the Piedmont. Depth to rock is more than 6 feet. Slopes range from 0 to 10 percent.
11	Decatur-Dewey-Allen	Deep, well drained, loamy and clayey, dark red and associated browner soils in the limestone valley. Slopes range from 0 to 10 percent.
15	Dothan-Fuquay-Wagram	Deep well drained, loamy and sandy soils on gently sloping to strongly sloping uplands of the Coastal Plain. Slopes range from 2 to 7 percent.
18	Eustis-Troup-Lucy	Deep, somewhat excessively drained and well drained, sandy and loamy soils on nearly level and gently sloping uplands and stream terraces in the Coastal Plain. Slopes range from 0 to 6 percent.
19	Eutaw-Mayhew-Wilcox	Somewhat poorly and poorly drained. Nearly level and gently sloping clayey soils in the Blackbelt and Coastal Plain. Depth to shale or chalk is 30 to 80 inches or more. Slopes range from 0 to 5 percent. The shrink-swell potential is high.
22	Fullerton-Bodine-Minvale	Cherty, well drained, loamy and clayey soils in the limestone valleys. Depth to rock is 5 to 40 feet. Slopes range from 2 to 25 percent.

Number	Association Name	Description
23	Hartsells-Linker-Albertville	Well drained, loamy and clayey soils on narrow ridgetops on Sand Mountain. Slopes range from 2 to 15 percent. Depth to interbedded sandstone and shale bedrock is 20 to 72 inches.
24	Hartsells-Tilsit-Albertville	Well drained and moderately well drained, loamy and clayey soils on broad ridgetops on Sand Mountain. Tilsit soils have a fragipan. Depth to rock is 20 to 72 inches. Slopes range from 0 to 15 percent.
27	Hiwasee-Gwinnett-Cecil	Well drained, clayey, dark red soils on fairly broad ridgetops and steep hill-sides in the Piedmont. Depth to rock is more than 5 feet. Slopes range from 2 to 30 percent.
28	Holston-McQueen-Chewacla	Deep, well drained and somewhat poorly drained, loamy and clayey soils on first bottoms and stream terraces. Slopes range from 0 to 6 percent.
29	Iredell-Mecklenburg	Well drained to moderately well drained, clayey soils on broad, smooth landscapes in the Piedmont. Depth to rock is 40 to 72 inches. Slopes range from 2 to 10 percent.
30	Jones-Lucedale-Troup	Deep, well drained, sandy and loamy soils on narrow ridgetops and steep hillsides in the Coastal Plain. Slopes range from 5 to 30 percent.
32	Lucedale-Ruston	Deep, well drained, dark red and red, loamy soils on broad, nearly level up-lands in the Coastal Plain. Slopes range from 0 to 5 percent.
33	Lucedale-Ruston-Troup	Well drained, loamy and sandy, dark red and associated browner soils on fairly broad gently sloping and sloping uplands in the Coastal Plain. Slopes range from 2 to 10 percent.
34	Luverne-Boswell-Maben	Deep, well drained and moderately well drained clayey soils on highly dissected landscapes in association with the Tallahatta Burstone. Slopes range from 6 to 30 percent.

4-32888 3-73

Number	Association Name	Description
35	Luverne-Boswell-Ruston	Deep, well drained and moderately well drained, loamy and clayey soils on very narrow ridgetops and steep hillsides in the Coastal Plain. Slopes of 10 to 30 percent are predominate.
36	Madison-Tallapoosa	Well drained, loamy and clayey soils on fairly broad ridgetops and steep hillsides in the Piedmont. Slopes range from 2 to 25 percent. Depth to rock ranges from 10 to 48 inches.
38	Mashulaville-Stough-Savannah	Deep, moderately well to poorly drained, loamy soils with fragipans in the lower subsoil. They are on stream terraces and broad upland flats in the Coastal Plain. Slopes range from 0 to 6 percent.
39	Montevallo-Townley-Enders	Well drained, loamy and clayey soils on narrow ridgetops and steep hillsides. Depth to shale bedrock ranges from 10 to 60 inches or more. Slopes range from 6 to 40 percent.
40	Musella-Gwinnett-Hiwasee	Well drained, loamy and clayey, dark red soils on narrow ridgetops and steep hillsides in the Piedmont. Depth to rock is 3 to 8 feet or more. Slopes range from 6 to 40 percent.
41	Myatt-Chewacla-Wickham	Well to poorly drained, loamy soils on major stream flood plains and terraces. Slopes range from 0 to 5 percent. Subject to flooding.
44	Rains-Troup-Esto	Deep, well drained to poorly drained, sandy to clayey, nearly level and gently sloping soils in the "coastal flatwoods". Slopes range from 0 to 5 percent.
45	Red Bay-Orangeburg-Dothan	Deep, well drained, loamy dark red and associated browner soils on fairly broad gently sloping and sloping uplands in the Coastal Plain. Slopes range from 2 to 10 percent.
46	Red Bay-Orangeburg-Lucy	Deep, well drained, dark red and red, loamy soils on broad, nearly level uplands in the Coastal Plain. Slopes range from 0 to 5 percent.

4-32888 3-73

Number	Association Name	Description
48	Ruston-Ora-Savannah	Deep, well drained and moderately well drained, loamy soils on broad, smooth uplands in the Coastal Plain. Ora and Savannah soils have a fragipan. Slopes range from 0 to 6 percent.
51	Smithdale-Luverne	Deep, well drained, highly dissected, loamy and clayey soils on very narrow ridgetops and steep hillsides in the Coastal Plain. Slopes range from 6 to 35 percent.
52	Smithdale-Luverne-Faceville	Deep, well drained, loamy and clayey soils on fairly broad ridgetops and steep hillsides in the Coastal Plain. Slopes range from 2 to 25 percent.
54	Sumter-Demopolis-Oktibbeha	Well drained and moderately well to well drained, clayey and loamy soils in the Blackbelt. Slopes range from 3 to 17 percent. Depth to chalk ranges from 4 to 54 inches. The shrink-swell potential is high.
55	Sumter-Oktibbeha-Trinity	Well drained to somewhat poorly drained. Clayey, very sticky and plastic soils in the Blackbelt. Depth to chalk ranges from 20 to 72 inches or more. Slopes range from 0 to 12 percent. The shrink-swell potential is high.
56	Tallapoosa-Madison	Well drained, loamy and clayey soils on narrow ridgetops and steep hillsides in the Piedmont. Depth to rock ranges from 10 to 48 inches. Slopes range from 6 to 40 percent.
57	Tallapoosa-Tatum	Well drained, loamy and clayey soils on very narrow ridgetops and steep hillsides in the Talladega Hills. Depth to slate ranges from 10 to 60 inches. Slopes range from 6 to 50 percent.
59	Troup-Luverne-Lucedale	Well drained, sandy to clayey soils on narrow ridgetops and steep hillsides in the Coastal Plain. Slopes of 10 to 30 percent predominate.

4-32888 3-73

Number	Association Name	Description
60	Troup-Ruston-Esto	Deep, well drained or moderately well drained, sandy to clayey soils on highly dissected landscapes in the Coastal Plain. Slopes range from 2 to 25 percent.

Soil Association Interpretations -- The general soil map and the interpretations are useful for providing information about the soil resources of communities, parts of counties, whole counties, or the river basin. This information can be used for broad, general land use planning of large areas and can assist with the planning and development of major parts of all of the river basin.

Interpretations utilize information prepared by the Soil Conservation Service for all major land resource areas. Table II-10 gives some important soil properties and degrees of limitations for nine land uses. The terms slight, moderate, and severe appraise each association according to the characteristics of the dominant soils and their major limitations.

Soil limitations defined as slight are expected to impose only slight limitations on the particular use; difficulties or hazards in construction or maintenance, due to soil conditions can be readily and economically overcome. Moderate limitations are expected to impose moderate limitations on the particular use; difficulties or hazards in construction or maintenance, due to soil conditions, can be overcome, and it may be economical to do so. Severe limitations are expected to impose difficulties or hazards in construction or maintenance, due to soil conditions, that will be hard and costly to overcome, if at all.

Status of Publication of Soil Surveys in the Alabama River Basin -- Follwoing is a report on the status of county-wide published soil survey reports:

Basin counties with modern published soil survey and publication date.

Baldwin	1964	DeKalb	1958
Calhoun	1961	Montgomery	1960
Chambers	1959	Randolph	1967

Basin counties with field mapping completed and report scheduled for publication.

Autauga	1975	Escambia	1974
Chilton	1973	Talladega	1974
Clay	1974		

Basin counties with soil survey under way and date for completion of field surveys (unpublished maps are available for consultation in field offices of the Soil Conservation Service).

Blount	1973	Dallas	1977
Bullock	1975	Etowah	1976
Cherokee	1973	Jefferson	1976
Clarke	1979	Lee	1976
Cleburne	1974		

Counties with no modern soil survey (some counties have a published survey, not adequate by modern standards and out of print, but available for consultation in offices of the Department of Agriculture).

Bibb	Lowndes	Russell
Butler	Macon	Shelby
Coosa	Marengo	St. Clair
Crenshaw	Monroe	Tallapoosa
Elmore	Perry	Wilcox

Following is a list of basin communities and locations for which reports have been prepared concerning soil interpretations for town and country planning. These are unpublished reports available for inspection at Regional Planning Commission offices or at the state headquarters of the Soil Conservation Service in Auburn.

Alabaster	Centre	Selma Industrial Areas (3)
Anniston	Centre Landfill	Tallassee--Carrville
Ashland	Collinsville	Uniontown
Birmingham	Fort Payne	Valley Dale
Calera	Hobson City	Wadley
Camden	Lincoln	Wilton
Camden State Park	Lineville	
Cedar Bluff	Marion	

Table II-10--Characteristics of soil associations and interpretations for selected uses, Alabama River Basin, 1972.

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage[1]	Texture Subsoil	Reaction[2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
2	Bodine-Minvale-Fullerton																
	Bodine	45%	10 to 35	well or excessively	cherty silt loam	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Minvale	10%	6 to 35	well	cherty silty clay loam	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Fullerton	35%	6 to 20	well	cherty clay	very strongly acid	severe	mod.	mod.	severe	mod.	poor	fair	good	mod.	mod.	moderate
3	Boswell-Susquehanna-Luverne																
	Boswell	25%	2 to 15	mod.well	clay	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	mod.	mod.	slight
	Susquehanna	20%	2 to 15	somewhat poorly	clay	very strongly acid	severe	severe	severe	severe	severe	poor	fair	good	mod.	mod.	slight
	Luverne	20%	2 to 10	well	silty clay	very strongly acid	mod.	severe	severe	mod.	mod.	fair	good	good	mod.	slight	slight
5	Cecil-Appling-Louisburg																
	Cecil	35%	2 to 15	well	clay	strongly acid	mod.	mod.	mod.	mod.	mod.	fair	good	good	slight	slight	slight
	Appling	25%	2 to 15	well	sandy clay	strongly acid	mod.	mod.	mod.	severe	mod.	fair	good	good	slight	slight	slight
	Louisburg	15%	5 to 25	well	sandy loam	medium acid	severe	mod.	severe	severe	mod.	poor	poor	good	severe	severe	moderate
6	Cecil-Grover-Pacolet																
	Cecil	30%	2 to 15	well	clay	strongly acid	mod.	mod.	mod.	mod.	mod.	fair	good	good	slight	slight	slight
	Grover	25%	2 to 25	well	sandy clay loam	strongly acid	mod.	severe	severe	severe	mod.	fair	fair	good	mod.	mod.	slight
	Pacolet	20%	10 to 40	well	clay	very strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
7	Clymer-Allen-Rockland																
	Clymer	22%	20 to 50	well	loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Allen	15%	20 to 50	well	clay loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Rockland	40%	20 to 50	-	-	-	-	severe	severe	severe	severe	poor	poor	poor	severe	severe	severe

1/ Drainage refers to conditions of drainage in the soil before development.
2/ Reaction refers to the degree of acidity or alkalinity of a soil.

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage[1]	Texture Subsoil	Reaction[2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
8	Colbert-Hollywood-Rockland																
	Colbert	45%	0 to 6	mod.well	Clay	very strongly acid	mod.	severe	severe	severe	severe	fair	good	fair	severe	severe	slight
	Hollywood	20%	0 to 6	mod.well to somewhat poor	silty clay	mildly alkaline	mod.	severe	severe	severe	severe	fair	good	fair	severe	severe	moderate
	Rockland	15%	0 to 6	-	-	variable	-	severe	severe	severe	severe	poor	poor	poor	severe	severe	moderate
9	Conasauga-Firestone-Talbott																
	Conasauga	35%	0 to 6	mod.well	silty clay	strongly acid	mod.	severe	severe	severe	severe	fair	good	good	mod.	slight	slight
	Firestone	20%	2 to 6	well	clay	strongly acid	mod.	severe	severe	mod.	mod.	fair	good	good	mod.	slight	slight
	Talbott	20%	2 to 6	well	clay	strongly acid	mod.	severe	severe	mod.	mod.	fair	good	good	mod.	slight	slight
10	Davidson																
	Davidson	75%	0 to 10	well	clay	neutral to strongly acid	slight	mod.	mod.	mod.	moderate	good	good	good	slight	slight	slight
11	Decatur-Dewey-Allen																
	Decatur	25%	0 to 10	well	clay	very strongly acid	slight	mod.	mod.	mod.	mod.	good	good	good	slight	slight	slight
	Dewey	25%	0 to 10	well	clay	strongly acid	slight	mod.	slight	mod.	mod.	good	good	good	slight	slight	slight
	Allen	15%	0 to 10	well	clay loam	strongly acid	slight	mod.	slight	mod.	mod.	good	good	good	slight	slight	slight
15	Dothan-Fuqua-Wagram																
	Dothan	30%	2 to 10	well or mod.well	sandy clay loam	strongly acid	slight	mod.	severe	mod.	slight	good	good	good	slight	slight	slight
	Fuquay	25%	2 to 10	well	sandy clay loam	strongly acid	mod.	mod.	mod.	mod.	mod.	fair	good	good	mod.	mod.	severe
	Wagram	20%	6 to 17	well	sandy clay loam	strongly acid	severe	mod.	mod.	severe	mod.	poor	fair	good	mod.	mod.	moderate

4-32888 3-74

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage[1]	Texture Subsoil	Reaction[2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
18	Eustis-Troup-Lucy																
	Eustis	30%	0 to 6	somewhat excessively	loamy fine sand	strongly acid	mod.	slight	slight	slight	slight	fair	fair	good	mod.	severe	severe
	Troup	25%	0 to 6	well	sandy clay loam	strongly acid	mod.	slight	slight	slight	slight	fair	fair	good	mod.	severe	severe
	Lucy	25%	0 to 6	well	sandy clay loam	strongly acid	mod.	slight	slight	slight	slight	fair	good	good	slight	slight	slight
19	Eutaw-Mayhew-Wilcox																
	Eutaw	20%	0 to 3	poor	clay	extremely acid	slight	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Mayhew	30%	1 to 5	poor	silty clay	very strongly acid	slight	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Wilcox	30%	1 to 5	somewhat poor	silty clay	very strongly acid	slight	severe	severe	severe	severe	poor	fair	good	severe	mod.	moderate
22	Fullerton-Bodine-Minvale																
	Fullerton	40%	2 to 15	well	cherty clay	very strongly acid	mod.	mod.	mod.	severe	mod.	fair	good	good	mod.	mod.	moderate
	Bodine	25%	6 to 25	well or excessively	cherty silt loam	strongly acid	severe	severe	severe	severe	mod.	fair	good	good	mod.	mod.	moderate
	Minvale	15%	2 to 25	well	cherty silty clay loam	strongly acid	mod.	severe	mod.	severe	mod.	fair	good	good	mod.	mod.	moderate
23	Hartsells-Linker-Albertville																
	Hartsells	20%	2 to 15	well	sandy clay loam	very strongly acid	mod.	mod.	severe	mod.	mod.	fair	good	good	slight	slight	slight
	Linker	20%	2 to 15	well	sandy clay loam	very strongly acid	mod.	mod.	severe	moderate	moderate	fair	good	good	slight	slight	slight
	Albertville	35%	2 to 15	well	silty clay	strongly acid	mod.	severe	mod.	moderate	moderate	fair	good	good	mod.	slight	slight

4-32888 3-73

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage[1]	Texture Subsoil	Reaction[2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
24	Hartsells-Tilsit-Albertville																
	Hartsells	40%	0 to 15	well	sandy clay loam	very strongly acid	slight	mod.	severe	mod.	mod.	good	good	good	slight	slight	slight
	Tilsit	20%	0 to 6	mod.well	loam	strongly acid	slight	slight	severe	mod.	mod.	good	good	good	slight	slight	slight
	Albertville	15%	2 to 15	well	silty clay	strongly acid	mod.	severe	mod.	mod.	mod.	fair	good	good	mod.	mod.	slight
27	Hiwassee-Gwinnett-Cecil																
	Hiwassee	30%	4 to 10	well	clay	medium acid	mod.	mod.	mod.	mod.	mod.	good	good	good	slight	slight	slight
	Gwinnett	30%	6 to 30	well	clay	very strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Cecil	20%	2 to 15	well	clay	strongly acid	mod.	mod.	mod.	mod.	mod.	fair	good	good	slight	slight	slight
28	Holston-McQueen-Chewacla																
	Holston	30%	0 to 6	well	clay loam	very strongly acid	slight	slight	slight	slight	slight	good	good	good	slight	slight	slight
	McQueen	20%	0 to 6	well	silty clay	strongly acid	slight	mod.	severe	severe	severe	good	good	good	slight	slight	slight
	Chewacla	20%	0 to 2	somewhat poorly	loam	strongly acid	slight	severe	severe	severe	severe	fair	good	good	severe	severe	moderate
29	Iredell-Mecklenburg																
	Iredell	20%	2 to 10	mod.well to somewhat poorly	clay	neutral	mod.	severe	severe	severe	severe	fair	good	good	mod.	mod.	moderate
	Mecklenburg	15%	2 to 10	well	clay	slightly acid	mod.	severe	severe	severe	severe	fair	good	good	mod.	mod.	slight
30	Jones-Lucedale-Troup																
	Jones	25%	5 to 30	well	sandy loam	slightly acid	severe	severe	severe	severe	severe	poor	fair	good	mod.	mod.	slight
	Lucedale	25%	5 to 15	well	clay loam	strongly acid	mod.	mod.	mod.	moderate	moderate	fair	good	good	slight	mod.	slight
	Troup	25%	5 to 30	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	mod.	mod.	slight

4-32888 3-73

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage1/	Texture Subsoil	Reaction2/	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
32	Lucedale-Ruston																
	Lucedale	35%	0 to 5	well	clay loam	strongly acid	slight	slight	slight	mod.	slight	good	good	good	slight	slight	slight
	Ruston	25%	0 to 5	well	sandy clay loam	strongly acid	slight	mod.	slight	slight	slight	good	good	good	slight	slight	slight
34	Luverne-Boswell-Maben																
	Luverne	30%	6 to 30	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Boswell	30%	6 to 30	mod.well	clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Maben	20%	6 to 30	well	clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
35	Luverne-Boswell-Ruston																
	Luverne	30%	10 to 30	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Boswell	30%	10 to 30	mod.well	clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Ruston	20%	10 to 30	well	sanly clay loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
36	Madison-Tallapoosa																
	Madison	45%	2 to 20	well	clay	strongly acid	severe	severe	mod.	severe	moderate	fair	fair	good	mod.	mod.	slight
	Tallapoosa	35%	2 to 25	well	silty clay loam	very strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
38	Mashulaville-Stough-Savannah																
	Mashulaville	30%	0 to 2	poorly	loam	strongly acid	slight	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Stough	15%	0 to 2	somewhat poor	loam	strongly acid	slight	severe	severe	severe	severe	fair	good	good	severe	mod.	moderate
	Savannah	25%	0 to 6	mod.well	loam	very strongly acid	slight	mod.	severe	mod.	mod.	good	good	good	slight	slight	slight
39	Montevallo-Townley-Enders																
	Montevallo	45%	6 to 40	well	silt loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Townley	20%	6 to 40	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Enders	15%	6 to 15	well	silty clay	very strongly acid	mod.	severe	severe	severe	mod.	fair	fair	good	mod.	mod.	slight

4-32888 3-73

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties: Percent Slope	Drainage [1]	Texture Subsoil	Reaction [2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
40	Musella-Gwinnett-Hiwassee																
	Musella	60%	6 to 40	well to somewhat excessively	gravelly clay loam	med.acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Gwinnett	15%	6 to 40	well	clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Hiwassee	15%	4 to 10	well	clay	med.acid	mod.	mod.	mod.	mod.	mod.	fair	good	good	slight	slight	slight
41	Myatt-Chewacla-Wickham																
	Myatt	30%	0 to 3	poor	sandy clay loam	very strongly acid	slight	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Chewacla	20%	0 to 3	somewhat poorly	loam	strongly acid	slight	severe	severe	severe	severe	fair	fair	good	severe	mod.	moderate
	Wickham	20%	0 to 5	well	sandy clay loam	strongly acid	slight	severe	severe	severe	severe	good	good	good	mod.	mod.	slight
44	Rains-Troup-Esto																
	Rains	20%	0 to 2	poor	sandy clay loam	very strongly acid	slight	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Troup	35%	1 to 5	well	sandy clay loam	strongly acid	slight	slight	slight	slight	slight	fair	fair	good	mod.	severe	severe
	Esto	20%	2 to 5	well or mod.well	clay	very strongly acid	mod.	mod.	severe	mod.	mod.	fair	good	good	slight	slight	slight
45	Red Bay-Orangeburg-Dothan																
	Red Bay	35%	2 to 10	well	sandy clay loam	strongly acid	mod.	slight	slight	mod.	slight	fair	good	good	slight	mod.	slight
	Orangeburg	35%	2 to 10	well	sandy clay loam	very strongly acid	mod.	slight	slight	mod.	slight	fair	good	good	slight	mod.	slight
	Dothan	15%	2 to 10	mod.well	sandy clay loam	strongly acid	mod.	slight	severe	mod.	slight	fair	good	good	slight	mod.	slight

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soil Series		Dominant Soil Properties					Soil Limitations For				Soil Suitability for Agri.			Soil Limitations for Rec.		
			Percent Slope	Drainage 1/	Texture Subsoil	Reaction 2/	Erosion Hazard	Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Cropland	Pasture	Woodland	Camp Areas	Picnic Areas Playgrounds	Paths & Trails
46	Red Bay-Orangeburg-Lucy																
	Red Bay	35%	0 to 5	well	sandy clay loam	strongly acid	slight	slight	slight	moderate	slight	good	good	good	slight	slight	slight
	Orangeburg	25%	0 to 5	well	sandy clay loam	very strongly acid	slight	slight	slight	slight	slight	good	good	good	slight	slight	slight
	Lucy	10%	0 to 5	well	sandy clay loam	strongly acid	slight	slight	slight	slight	slight	fair	good	good	slight	slight	slight
48	Ruston-Ora-Savannah																
	Ruston	45%	0 to 6	well	sandy clay loam	strongly acid	slight	mod.	slight	slight	slight	good	good	good	slight	slight	slight
	Ora	25%	0 to 6	mod.well	clay loam	strongly acid	slight	mod.	severe	moderate	moderate	good	good	good	mod.	mod.	slight
	Savannah	15%	0 to 6	mod.well	loam	very strongly acid	slight	mod.	severe	moderate	moderate	good	good	good	mod.	slight	slight
51	Smithdale-Luverne																
	Smithdale	45%	6 to 35	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Luverne	30%	6 to 35	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
52	Smithdale-Luverne-Faceville																
	Smithdale	30%	6 to 25	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Luverne	45%	6 to 25	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	moderate
	Faceville	10%	2 to 15	well	sandy clay	strongly acid	mod.	mod.	mod.	severe	mod.	fair	good	good	slight	mod.	slight
54	Sumter-Demopolis-Oktibbeha																
	Sumter	30%	3 to 12	well	silty clay	mod. alkaline	severe	severe	severe	severe	severe	fair	good	fair	severe	severe	severe
	Demopolis	20%	3 to 17	well	silty clay loam	mod. alkaline	severe	severe	severe	severe	severe	poor	fair	fair	mod.	mod.	moderate
	Oktibbeha	35%	3 to 12	mod.well to well	clay	very strongly acid	severe	severe	severe	severe	severe	poor	good	good	severe	severe	severe

4-32080 3-73

Table II-10--cont'd

Map Symbol	Soil Association Name & Approximate Percentage of Dominant Soils Series		Dominant Soil Properties: Percent Slope	Drainage[1]	Texture Subsoil	Reaction[2]	Erosion Hazard	Soil Limitations For: Roads & Streets	Septic Tank Systems	Light Industry	Dwellings Without Basement	Soil Suitability for Agri.: Cropland	Pasture	Woodland	Soil Limitations for Rec.: Camp Areas	Picnic Areas Playgrounds	Paths & Trails
55	Sumter-Oktibbeha-Trinity																
	Sumter	30%	1 to 12	well	silty clay	mod. alkaline	severe	severe	severe	severe	severe	fair	good	fair	severe	severe	severe
	Oktibbeha	40%	1 to 8	mod.well to well	clay	very strongly acid	severe	severe	severe	severe	severe	fair	good	good	severe	severe	severe
	Trinity	25%	0 to 5	mod.well to some-what poor	clay	mod. alkaline	slight	severe	severe	severe	severe	good	good	fair	severe	severe	severe
56	Tallapoosa-Madison																
	Tallapoosa	55%	6 to 40	well	silty clay loam	very strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Madison	35%	6 to 40	well	clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
57	Tallapoosa-Tatum																
	Tallapoosa	65%	6 to 50	well	silty clay loam	very strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
	Tatum	15%	6 to 50	well	silty clay	very strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	severe
59	Troup-Luverne-Lucedale																
	Troup	35%	10 to 30	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Luverne	20%	10 to 30	well	silty clay	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	severe	severe	moderate
	Lucedale	10%	10 to 15	well	clay loam	strongly acid	severe	mod.	mod.	severe	mod.	poor	fair	good	mod.	moderate	slight
60	Troup-Ruston-Esto																
	Troup	35%	2 to 25	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	poor	good	mod.	mod.	slight
	Ruston	30%	2 to 25	well	sandy clay loam	strongly acid	severe	severe	severe	severe	severe	poor	fair	good	severe	severe	severe
	Esto	15%	2 to 8	well or mod.well	clay	very strongly acid	severe	mod.	severe	mod.	mod.	poor	fair	good	slight	slight	slight

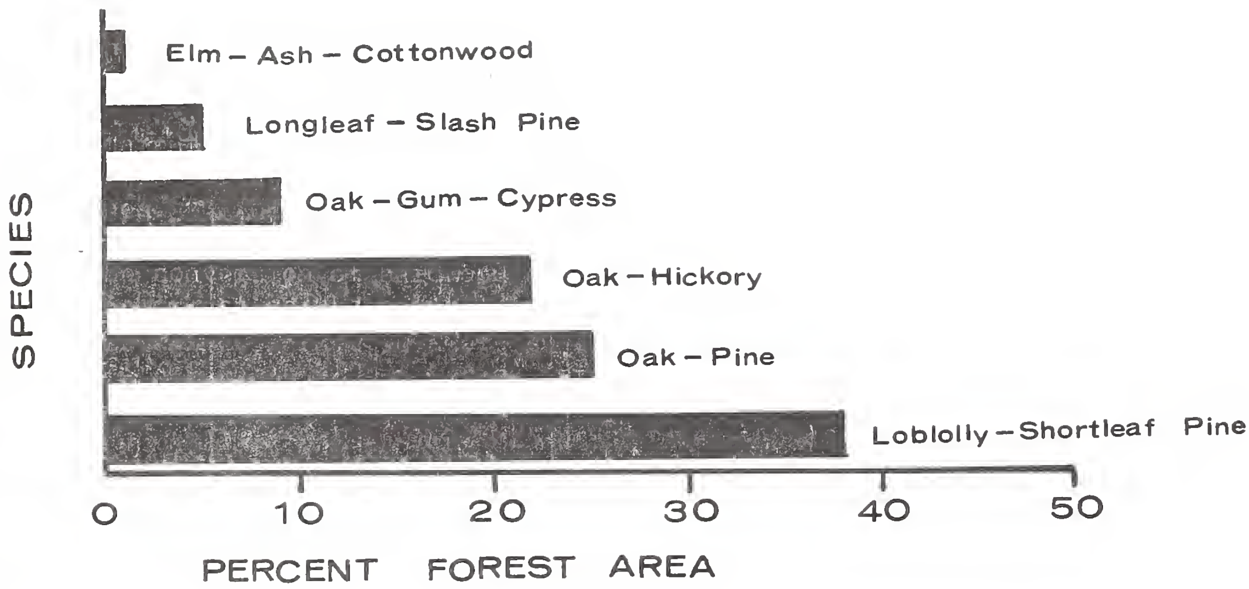
4-32888 3-73

Forests

Forest Resources

Seventy-two percent of the Alabama River Basin is in commercial forest land.

Figure II-10--Distribution of timber types in the Alabama River Basin, 1962.



The oak-gum-cypress and elm-ash-cottonwood types are bottomland hardwoods and usually grow on the most productive soils. These hardwoods provide essential habitat for wildlife and serve as natural flood corridors. Oak-hickory types listed grow mainly in upland areas.

Competition for use of bottomland areas has caused a slight reduction of this forest type between 1963 through 1970. The conversion of bottomlands from forests to other uses is estimated at approximately 2,400 acres, or 0.2 percent of the basin.

The upland areas are experiencing the opposite trend. Upland timberlands have increased by approximately 113,000 acres, or 1 percent of the basin during the same time period. The conversion of crops and pasture to forest is caused by the purchase of lands for forest industry. These lands are planted to rapid-growth pine by the corporations. Some marginal cropland and pastures are abandoned and regenerate naturally to upland pine stands.

State tree nurseries distribute over 22 million seedlings annually to landowners throughout the basin. Ninety-eight percent of these tree species are pines.

The conversion of hardwood areas to pine is gradual and not causing a dramatic impact on the natural environment. The vegetation conversion is

4-32888 3-73

slowly decreasing bottomland hardwood types while gradually increasing pine forest acreage. The total long-range effect could improve timber production of the forests since pine is grown on short rotations. The impact could potentially affect the distribution and populations of wildlife species in the basin through the forest type conversion.

Timber Types and Associated Species (See Figure II-11)

Longleaf-Slash Pine -- Forests with 50 percent or more of the stand in longleaf or slash pines, singly or in combination.

Common associated species on dry sites are turkey, bluejack, blackjack, post, southern red, and live oaks and persimmon in the overstory with yaupon, low bush acorns, and high bush huckleberry in the understory.

Common associated species on wet sites are water, willow, and laurel oaks; cabbage palmetto, redbay, holly, and blackgum in the overstory, with crabapple, gallberries and titi in the understory.

Wildlife Rating:

E - Excellent G - Good F - Fair P - Poor

Quail - G	Deer - F	Dove - F
Turkey - G	Squirrel - F to P	

Loblolly-Shortleaf Pine -- Forests with 50 percent or more of the stand in southern pines other than longleaf or slash, singly or in combination.

Common associated species are sand, pond, pitch, table mountain, and Virginia pines and eastern red cedar. Associated hardwoods include post, red, southern red, black, scarlet, scrub, laurel, water, willow, and white oaks along with persimmon and blackgum. Sixty years or older loblolly, shortleaf, or pitch pine stands carry a 20 percent component of associated oaks, hickories, and blackgum, occasionally supporting fair gray squirrel populations.

Wildlife Rating:

Deer - F	Quail - G	Doves - F (winter)
Turkey - G	Squirrel - P	Waterfowl - limited

Oak-Hickory -- Forests with 50 percent or more of the stand in upland oak and hickory, singly or in combination. Southern pines or red cedar makeup less than 25 percent of the stand. Most of the oak-hickory type lies in scattered patches in the loblolly shortleaf area shown on the map.

Common associated species are post, black, chestnut, white, northern red, southern red, southern scrub, live, bluejack, scarlet, and bear oaks; maple, elm, yellow poplar, and blackgum in the overstory and high bush and low bush huckleberries and dogwood with Japanese honeysuckle and yaupon locally in the understory.

4-32888 3-73

Wildlife Rating:

Gray Squirrel - F to G
Turkey - G
Deer - G

Oak-Pine -- Forests with 50 percent or more of the stand in hardwood usually upland oak, southern pines make up 25 to 49 percent of the stand. Includes eastern red cedar-hardwood, shortleaf pine-oak, Virginia pine-southern red oak, loblolly pine-hardwood, slash pine-hardwood, and pitch pine-oak.

Common associated species are oaks, hickories, blackgum, black cherry, maples, elm, beech, walnut, pecan, pines and such understory species as hawthorns, dogwood, grape, blueberries, hornbeam, hazelnut, persimmon and viburnums.

Wildlife Rating:

Gray Squirrel - F to G (stands between ages 30-60)
Turkey - G (stands of oak for winter food and pine for cover must be interspersed liberally within the turkey range)
Deer - F to G (depend on mast production)

Oak-Gum-Cypress -- Bottomland forests with 50 percent or more of the stand in tupelo, blackgum, sweetgum, oak, and southern cypress, singly or in combination. Southern pines makeup less than 25 percent of the stand.

Common associated species are cottonwood, willow, ash, elm, hackberry, maple, oaks, hickory, pecan, beech, sugarberry, magnolia, sweetbay, redbay, and boxelder. Various understory plants used for wildlife food include grape, mulberry, muscadine, hornbeam, hop hornbeam, silverbell, sourwood, fringetree, huckleberry, red haw, dogwood, holly, spice bush, switch cane, palmetto, and many others.

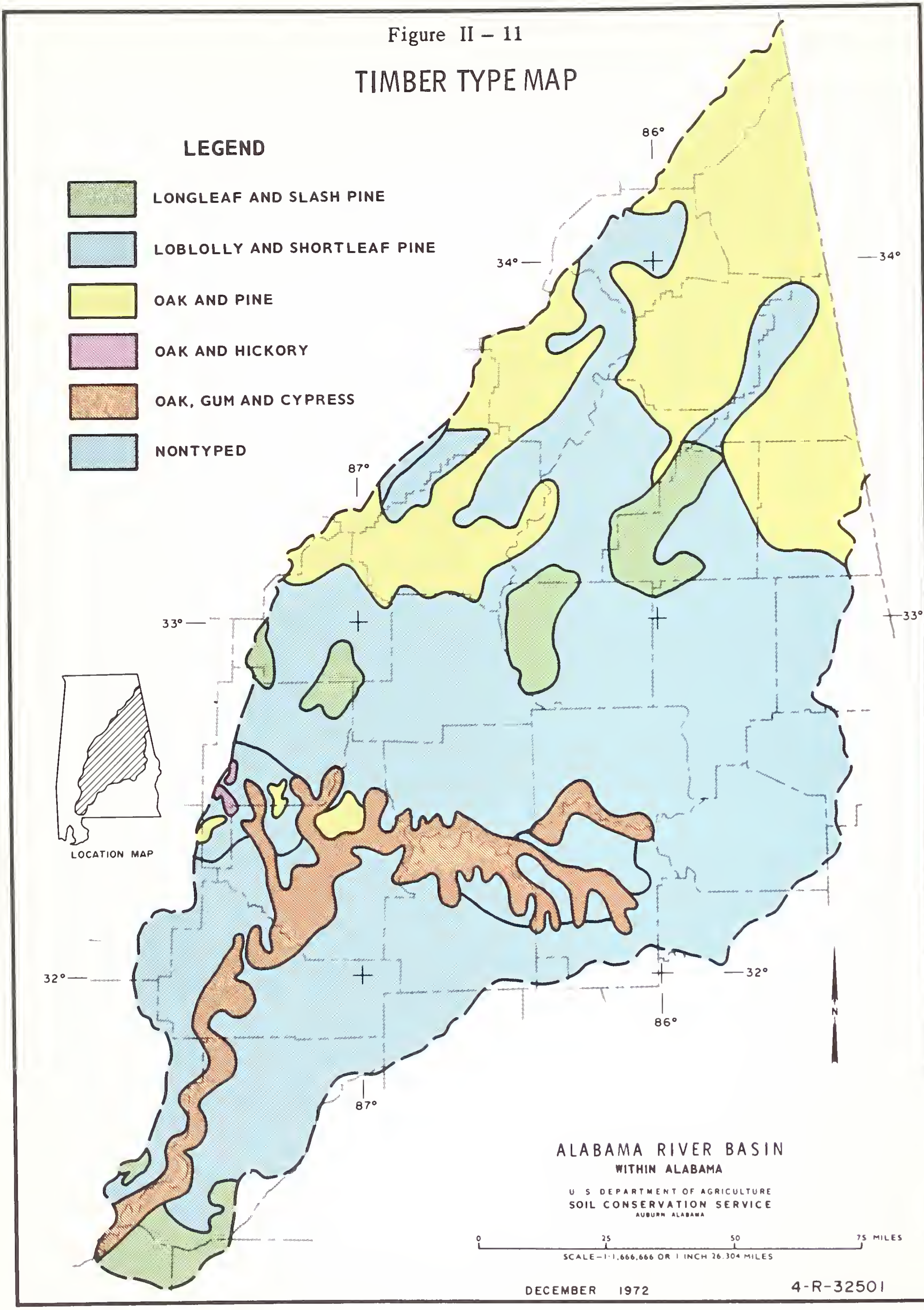
Wildlife Rating:

Waterfowl - E
Squirrel - E
Turkey - E
Deer - E

Non-typed -- Less than 10 percent forested.

Figure II – 11

TIMBER TYPE MAP

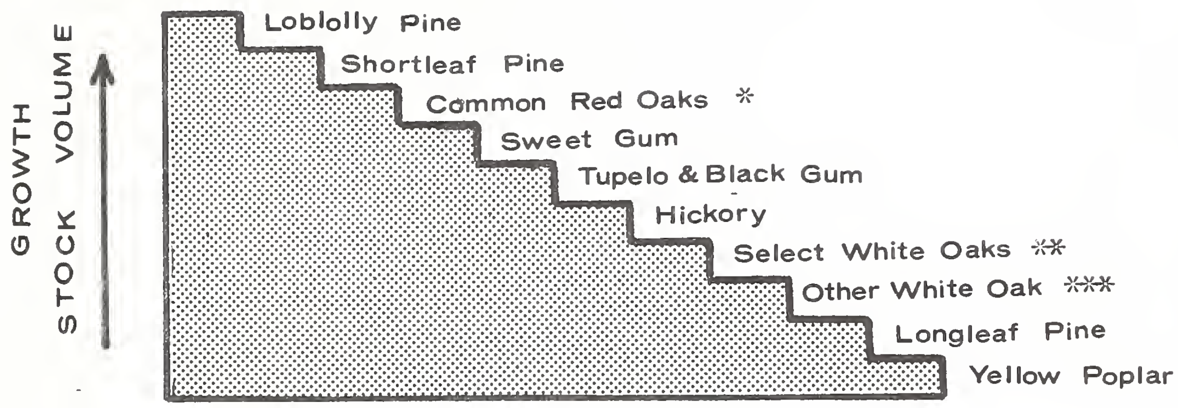


USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-B

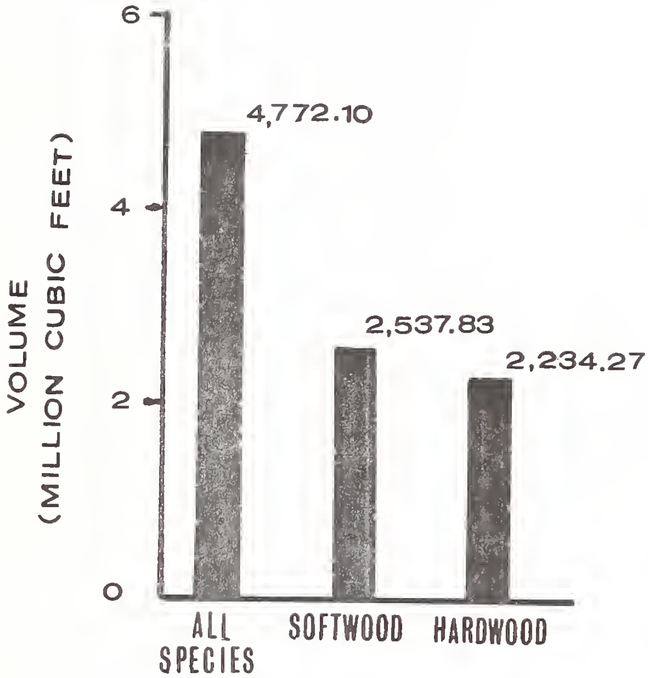
Figure II-12--Ten most prevalent species in the basin (order of growing stock volume), 1962.

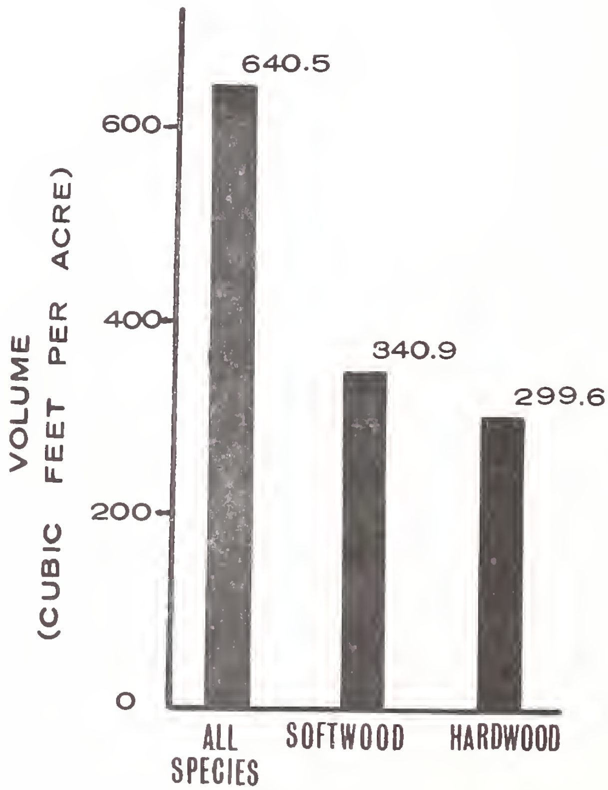


*Includes southern red, water, nuttals, scarlet, and black oaks.
**Includes white, swamp chestnut, swamp white, and chinquapin oaks.
***Includes chestnut, post, and overcup oaks.

The river basin contains an impressive volume of timber growing stock and emphasizes the existing use and potential for forest industry in the state (Figure II-13). This information was derived from the 1962 forest survey conducted by the Southern Experiment Station of the U. S. Forest Service. A new survey is scheduled for completion in early 1973 and will be incorporated in the final draft of the river basin study. The 1970 timber resource inventory figures on National Forest lands in the basin provide additional statistics on total inventory, net annual growth and harvest comparisons.

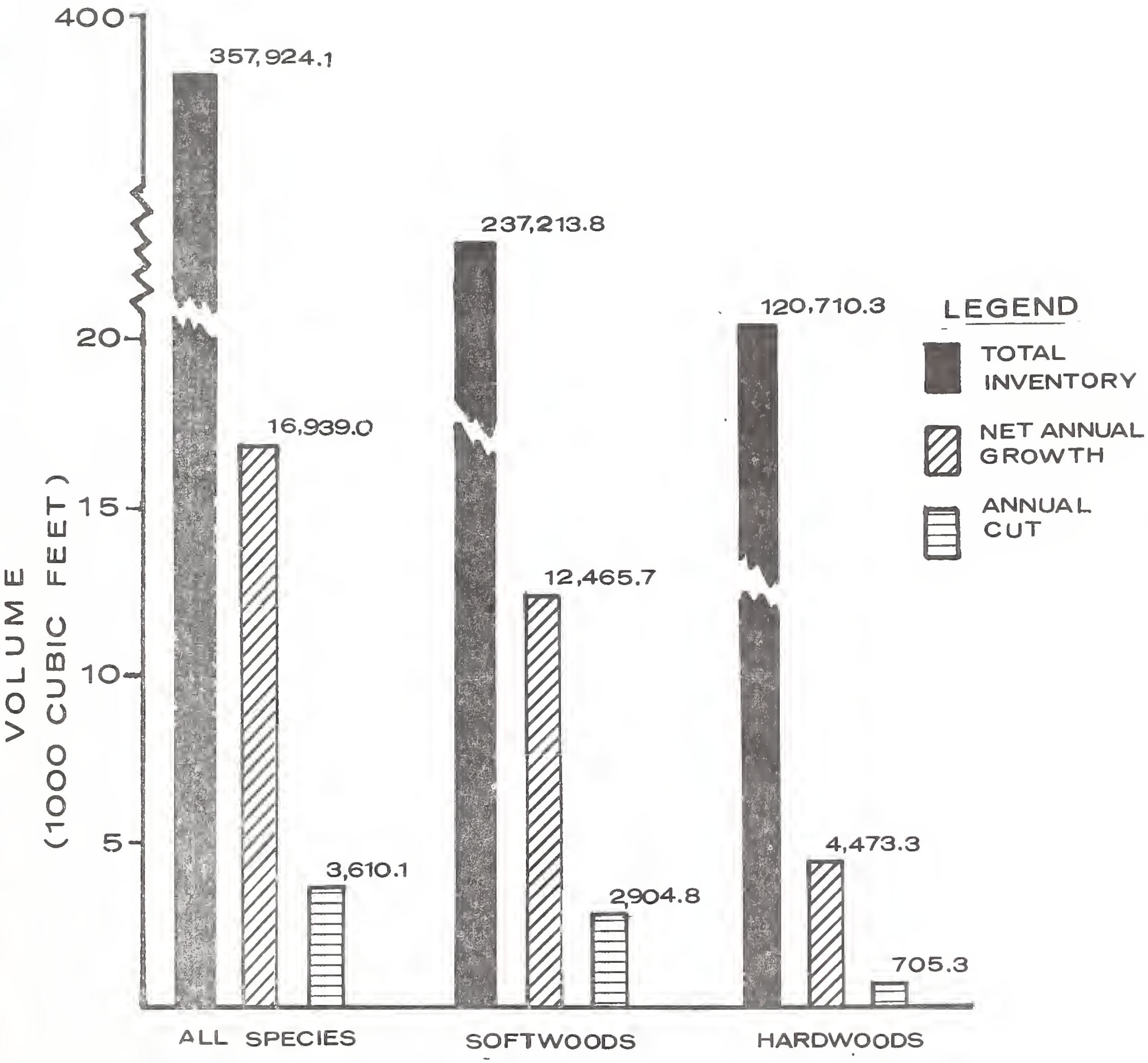
Figure II-13--Volume of growing stock on commercial forest land in the Alabama River Basin, 1962.





4-32888 3-73

Figure II-14--Total growing stock inventory on National Forest, Alabama River Basin, 1970.



4-32888 3-73

Figure II-15--Sawtimber growth inventory on National Forest within the Alabama River Basin, 1970.

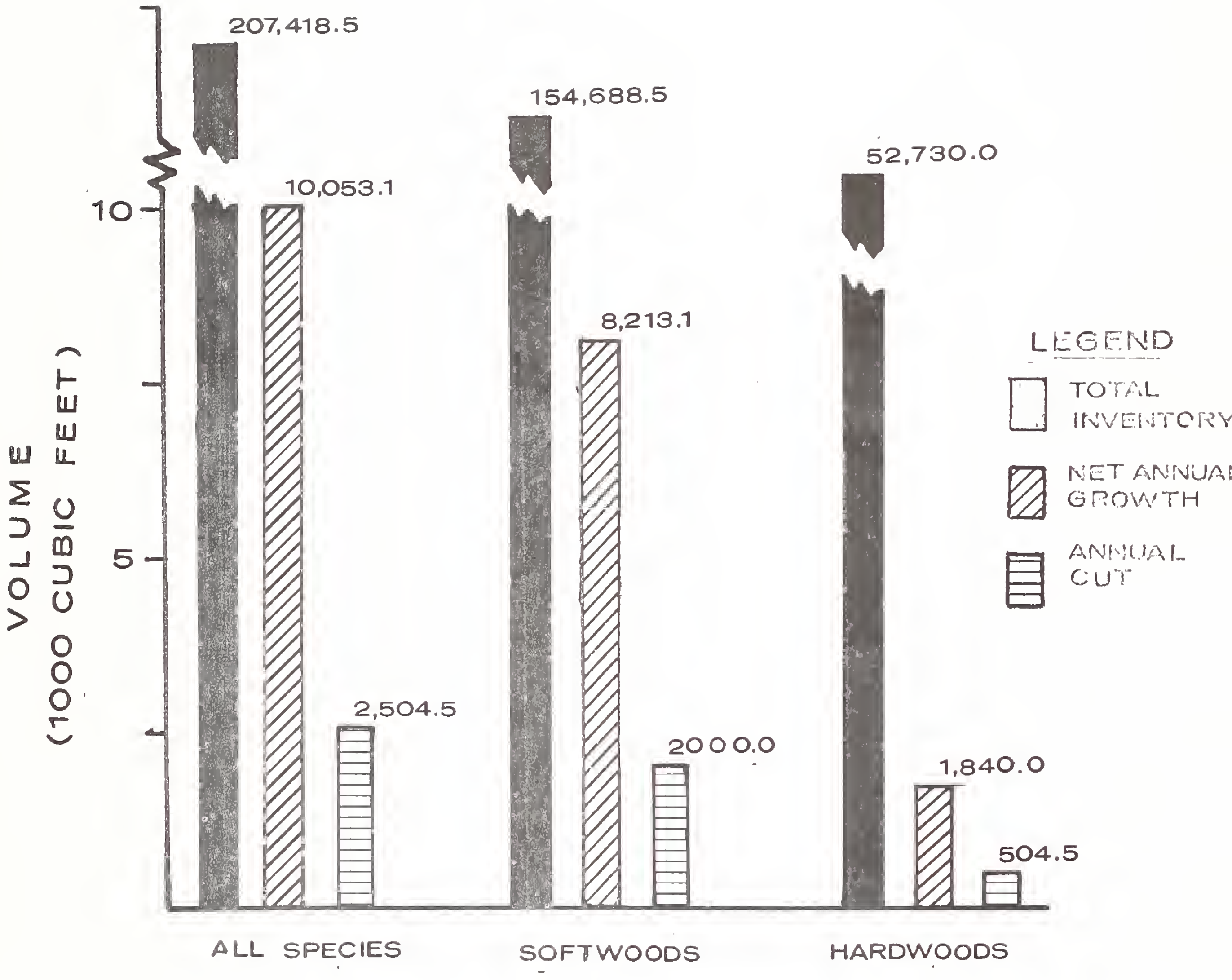
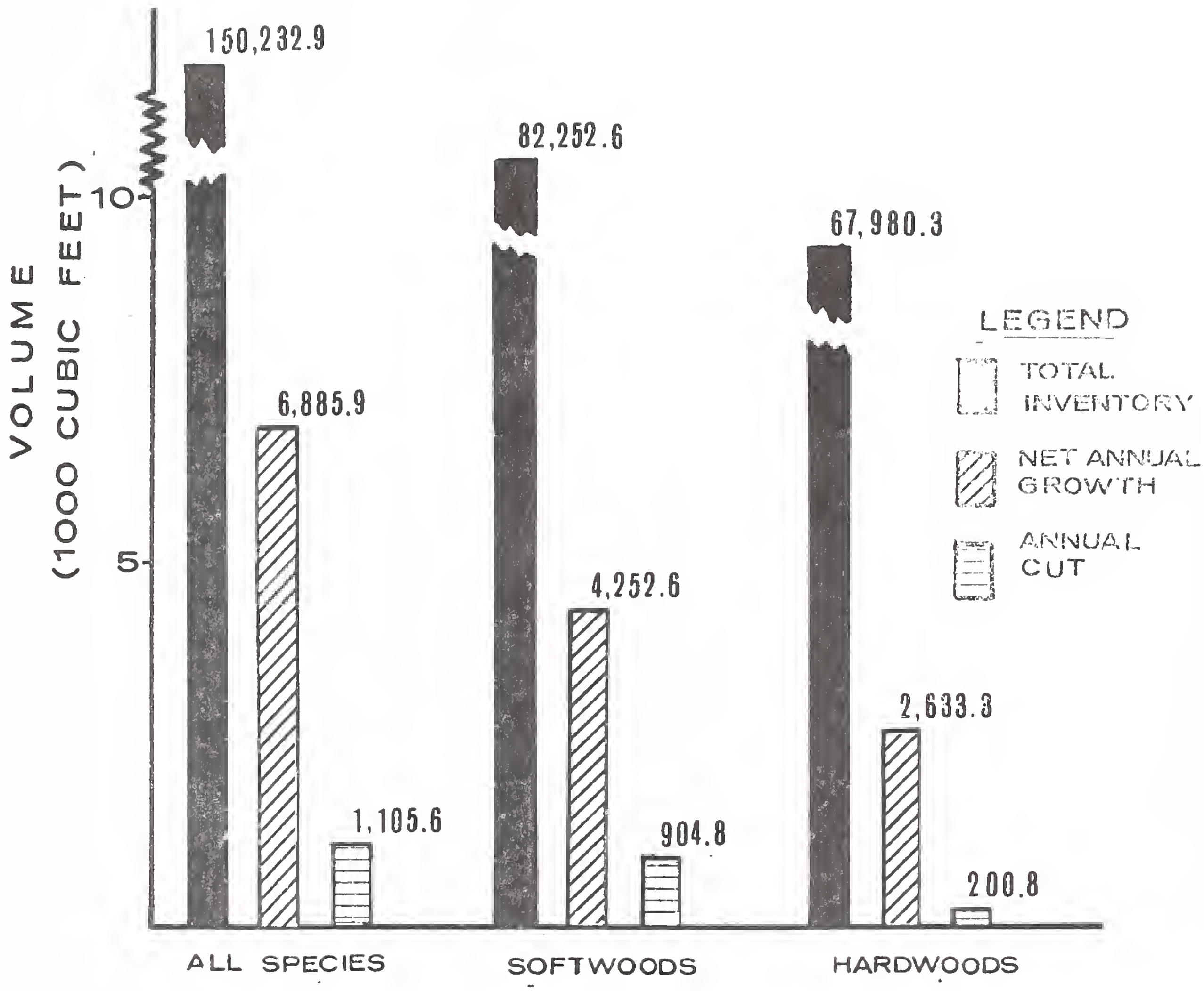
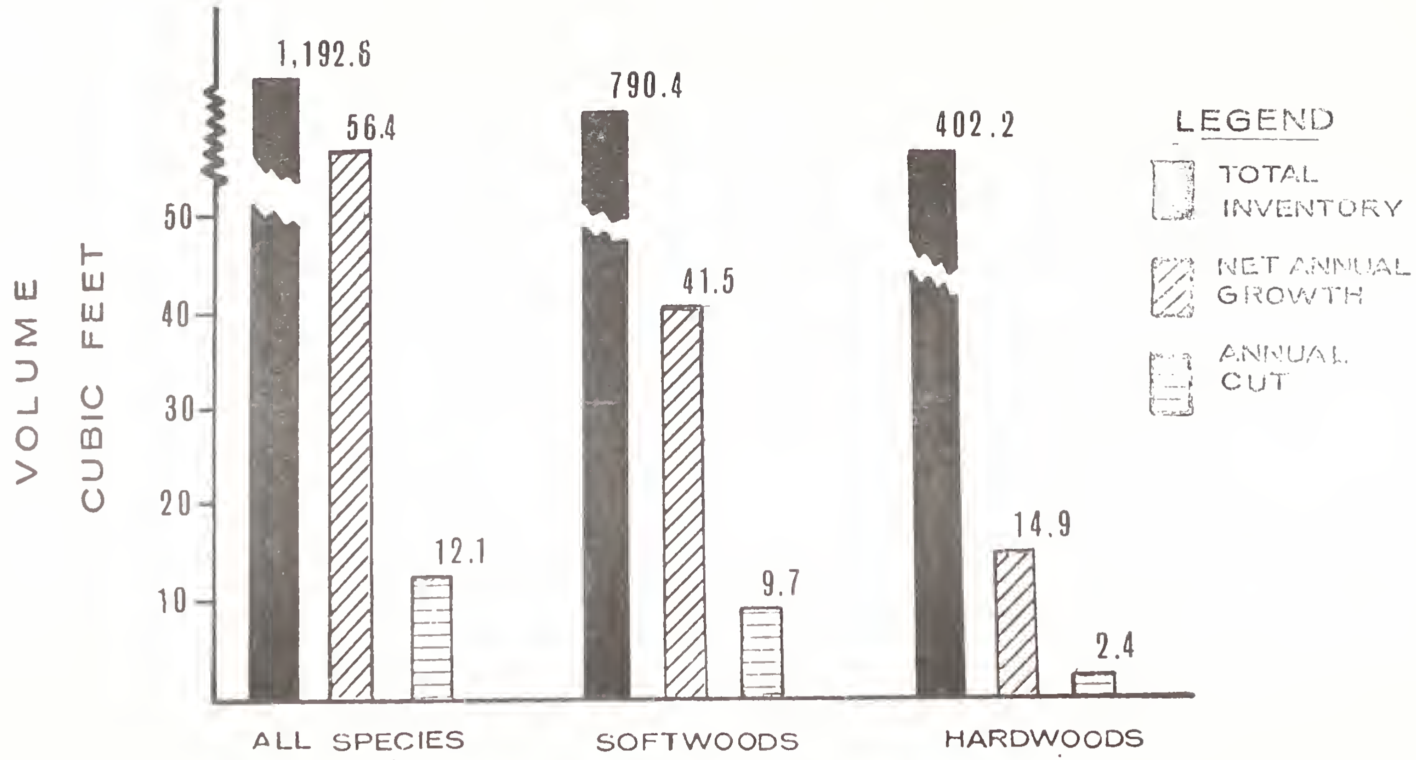


Figure II-16--Poletimber growing stock inventory on National Forests in the Alabama River Basin, 1970.



4-32888 3-73

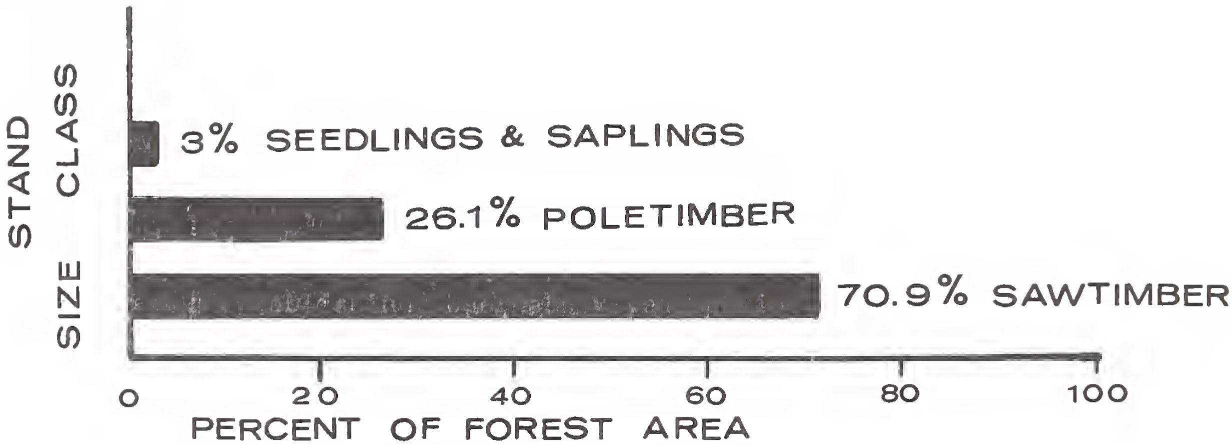
Figure II-17--Average per acre inventory, net annual growth, and cut on National Forest, Alabama River Basin. 1970.



4-32888 3-73

Volumes per acre on National Forest exceed the basin's average in both softwoods and hardwoods. This is probably due to more intensive forest management practices applied in these stands. Growth far exceeds cut on National Forest and indicates a definite sustained yield of wood products for the future.

Figure II-18--Stand size class on National Forest Lands, 1962.



Sawtimber dominates the size class range with poletimber and seedlings comprising approximately 29 percent of the forest. This relates a vigorous timber supply and favors a variety of game populations. Stand size classes are dispersed to provide a variety of habitat requirements for wildlife species.

The Alabama Forestry Commission has made a significant contribution to private timberland owners in the basin. During the past 10 years, the Commission answered 3,371 landowners' requests for forestry assistance and provided forest management expertise on 285,500 acres. This involved marking 18,450,000 board feet of sawtimber and over 13,000 cords of pulpwood which resulted in a $625,000 return to woodland owners. The Agricultural Stabilization and Conservation Service has provided funds on a cost-sharing basis for achieving improved forestry practices on privately owned lands. A summary of ASCS forest accomplishments for 1971 indicates that planting forest trees occurred on slightly more than 6,900 acres on 254 farms at a cost-sharing amount of about $152,900. During this same time, timber stand improvement was accomplished on 102 farms covering about 3,100 acres with cost-sharing amounting to approximately $44,500.

The state's forest management practices also increased the growth and productivity in managed stands as well as enhanced recreation and wildlife benefits.

In the basin, on lands belonging to Soil and Water Conservation District Cooperators, the Soil Conservation Service assisted landowners in planning and establishing, over a six-year period, 62,400 acres of tree

4-32888 3-73

planting. Also during this same period the District Cooperators selectively harvested timber from 348,800 acres and improved the timber stand on 65,300 acres. These practices will help bring the private woodland of the basin into a higher productive condition by fully stocking this woodland and by maintaining it in a good growing condition.

Minerals

The Alabama River Basin is rich in mineral resources and supports a valuable mineral industry. Inventories are incomplete, but statewide minerals exploration is in progress, and the value of the basin minerals production continues to increase as industry expands and exploration progresses. The accompanying tables show the approximate basin share of 1969 production (Tables II-11 thru II-14) of selected minerals by counties, and portions of counties within the basin. More detailed information is available from Bureau of Mines Minerals Yearbooks[1/] and the Geological Survey of Alabama, Tuscaloosa.

The maps included with this text[2/] are indicators of the approximate area of appreciable quantities of minerals. These maps cannot be used to determine tonnage reserves or to indicate commercial quality (Figure II-19 thru II-22). Production figures (1969) indicate that some minerals occur in the basin but are not being mined at present; however, apparent reserves of many minerals within the basin show that potential exists for establishment of additional minerals based industry. All, or almost all, of Alabama's reserves of mica, talc,asbestos, graphite, tin, gold, copper, barite, and marble is found within the basin. The approximate basin share of other important mineral reserves is: sand and gravel, one-third; lignite, one-third; coal, one-fourth; and iron, one-fourth.

1/ Bureau of Mines Minerals Yearbook, 1969, United States Department of the Interior; Chapter on The Mineral Industry of Alabama by H. L. Riley and W. Everett Smith.

2/ Unpublished map and text. Mineral Resource Map of Alabama, by Oscar E. Gilbert, Jr.; Geological Survey of Alabama.

4-32888 3-73

Table II-11--Value of mineral production in the Alabama River Basin, by counties.[1]

County	Whole County Value (Thousand)	Minerals produced in order of value	Percentage of County in the Basin
Autauga----------	$ 171	Sand and gravel.	100
Baldwin----------	W	Petroleum, sand and gravel, miscellaneous clay.	8
Bibb------------	4,404	Coal, limestone, dolomite, sand and gravel, miscellaneous clay.	94
Blount-----------	1,865	Coal, cement, iron ore, fire clay, sandstone	1
Bullock----------	-	None reported.	43
Butler-----------	-	None reported.	20
Calhoun----------	2,140	Fire clay, limestone, miscellaneous clay.	100
Chambers---------	-	None reported.	45
Cherokee---------	W	Sand and gravel.	100
Chilton----------	W	Sand and gravel.	100
Clarke-----------	W	Sand and gravel, petroleum.	28
Clay-------------	-	None reported.	100
Cleburne---------	-	None reported.	100
Coosa------------	-	None reported.	100
Crenshaw---------	W	Sand and gravel.	3
Dallas-----------	W	Sand and gravel.	100
DeKalb-----------	W	Limestone.	40
Elmore-----------	W	Sand and gravel, miscellaneous clay.	100
Escambia---------	W	Petroleum, sand and gravel, miscellaneous clay.	4
Etowah-----------	1,189	Limestone, coal, sand and gravel.	80
Jefferson--------	111,878	Coal, cement, iron ore, dolomite, limestone, miscellaneous clay, sandstone.	25
Lee--------------	W	Limestone.	46
Lowndes----------	W	Bentonite, sand and gravel.	97
Macon------------	1,126	Sand and gravel.	97
Marengo----------	W	Cement, limestone, sand and gravel.	14

4-32888 3-73

Table II-11--Cont'd

County	Whole County Value (Thousand)	Minerals produced in order of value	Percentage of County in the Basin
Monroe----------	$ 52	Sand and gravel.	90
Montgomery-------	1,999	Sand and gravel, miscellaneous clay.	88
Perry-----------	-	None reported.	84
Randolph---------	W	Mica.	88
Russell----------	W	Miscellaneous clay, sand and gravel.	3
Shelby-----------	31,804	Lime, cement, limestone, coal, dolomite, miscellaneous clay.	100
St. Clair--------	W	Cement, limestone, coal, miscellaneous clay.	100
Talladega--------	11,525	Marble, limestone, talc.	100
Tallapoosa-------	-	None reported.	100
Tuscaloosa-------	10,503	Coal, sand and gravel, iron ore.	2
Wilcox-----------	-	None reported.	100
Undistributed2/--	96,708		
Total3/--	275,364		

W Withheld to avoid disclosing individual company confidential data; included with "Undistributed."

1/ Adapted from Bureau of Mines Minerals Yearbook, 1969, The Mineral Industry of Alabama by H. L. Riley and W. Everett Smith - Table 2.

2/ Includes value of natural gas liquids and values indicated by symbol W (Values of "W" for entire state, others by counties within the basin).

3/ Data may not add to totals shown because of independent rounding.

4-32888 3-73

Table II-12--Coal (bituminous) production by counties, 1/ 2/ state production and Alabama River Basin share.

(Thousand short tons and thousand dollars)

County	State Production 1969		Alabama Basin Share (Approximate)	
	Quantity	Value	Quantity	Value
Bibb----------	W	W	W	W
Blount--------	204	W	2	W
Etowah--------	W	W	W	W
Jefferson-----	8,518	68,453	2,147	17,250
St. Clair-----	W	W	W	W
Shelby--------	W	W	W	W
Tuscaloosa----	1,868	W	35	W
Other Counties 3/	7,586	40,457	967	14,588
Total 4/	17,456	130,405	3,151	31,838

W Withheld to avoid disclosing individual company confidential data; included with "Other Counties".
1/ Adapted from Bureau of Mines Minerals Yearbook, 1969, The Mineral Industry of Alabama by H. L. Riley and W. Everett Smith - Table 5.
2/ Excludes mines producing less than 1000 short tons.
3/ Includes production and value indicated by symbol W and counties outside Alabama River Basin.
4/ Data may not add to totals shown because of independent rounding.

Table II-13--Sand and gravel sold or used by producers, by counties[1], state production and Alabama River Basin share.

(Thousand short tons and thousand dollars)

County	State Production 1969		Alabama Basin Share (Approximate)	
	Quantity	Value	Quantity	Value
Autauga	256	171	256	171
Crenshaw	W	W	W	W
Elmore	469	W	469	W
Escambia	465	570	17	21
Etowah	W	W	W	W
Macon	W	1,126	W	1,090
Monroe	W	52	W	47
Montgomery	2,210	W	1,927	W
Other Counties[2]	4,926	7,509	1,357	2,099
Totals[3]	8,323	9,427	4,026	3,428

W Withheld to avoid disclosing individual company confidential data; included with "Other Counties".

1/ Adapted from Bureau of Mines Minerals Yearbook, 1969, The Mineral Industry of Alabama by H. L. Riley and W. Everett Smith - Table 10.

2/ Includes Baldwin, Barbour, Bibb, Cherokee, Chilton, Clarke, Coffee, Covington, Dale, Dallas, Fayette, Franklin, Geneva, Hale, Houston, Lowndes, Marengo, Marshall, Mobile, Morgan, Russell, Sumter, Talladega, Tuscaloosa Counties, and counties indicated by symbol W.

3/ Data may not add to totals shown because of independent rounding.

4-32888 3-73

4-32888 3-73

Table II-14--Crushed limestone and dolomite sold or used by producers, by counties, state production and Alabama River Basin share.

(Thousand short tons and thousand dollars)1/

County	State Production 1967			Alabama Basin Share (Approximate)	
	Quarries	Quantity	Value	Quantity	Value
Jefferson-----	8	4,256	5,287	1,073	1,332
Shelby--------	9	4,952	7,024	4,952	7,024
Other Counties2/	28	8,544	10,058	4,487	5,462
Total3/	45	17,752	22,371	10,512	13,818

1/ Adapted from Bureau of Mines Minerals Yearbook, 1969, The Mineral Industry of Alabama by H. L. Riley and W. Everett Smith - Table 12.

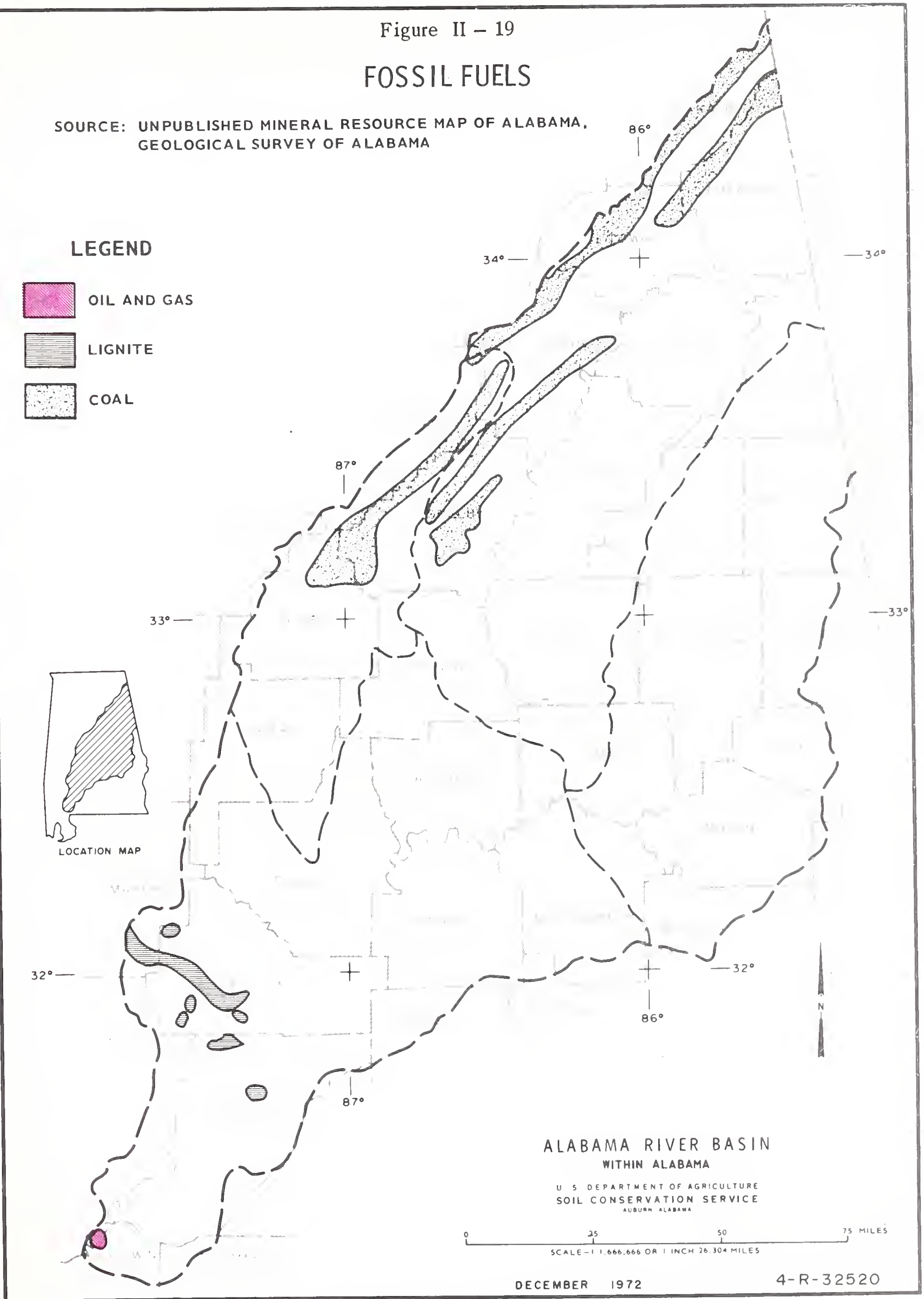
2/ Includes Bibb, Calhoun, Colbert, Covington, DeKalb, Etowah, Franklin, Jackson, Lee, Limestone, Madison, Marengo, Marshall, Morgan, St. Clair, Talladega, and Washington Counties.

3/ Data may not add to totals shown because of independent rounding.

Figure II – 19

FOSSIL FUELS

SOURCE: UNPUBLISHED MINERAL RESOURCE MAP OF ALABAMA, GEOLOGICAL SURVEY OF ALABAMA



USDA-SCS-FORT WORTH, TEX 1973

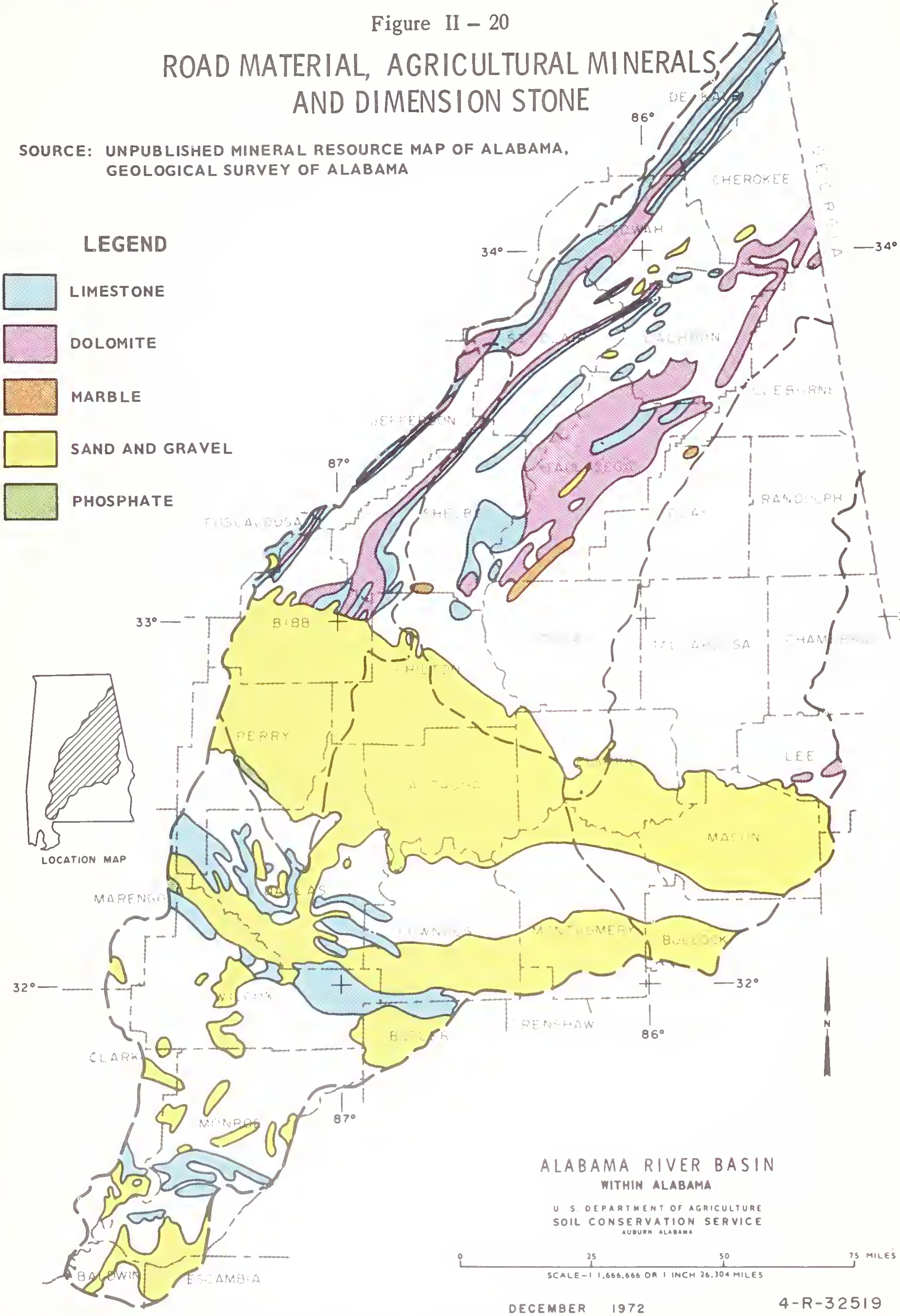
NOVEMBER 1972

4-R-32344-A

Figure II – 20

ROAD MATERIAL, AGRICULTURAL MINERALS, AND DIMENSION STONE

SOURCE: UNPUBLISHED MINERAL RESOURCE MAP OF ALABAMA, GEOLOGICAL SURVEY OF ALABAMA



ALABAMA RIVER BASIN
WITHIN ALABAMA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN ALABAMA

0 25 50 75 MILES
SCALE–1 1,666,666 OR 1 INCH 26.304 MILES

DECEMBER 1972 4-R-32519

USDA-SCS-FORT WORTH, TEX. 1973 NOVEMBER 1972 4-R-32344-A

Figure II – 21

SPECIAL PURPOSE MINERALS

SOURCE: UNPUBLISHED MINERAL RESOURCE MAP OF ALABAMA, GEOLOGICAL SURVEY OF ALABAMA

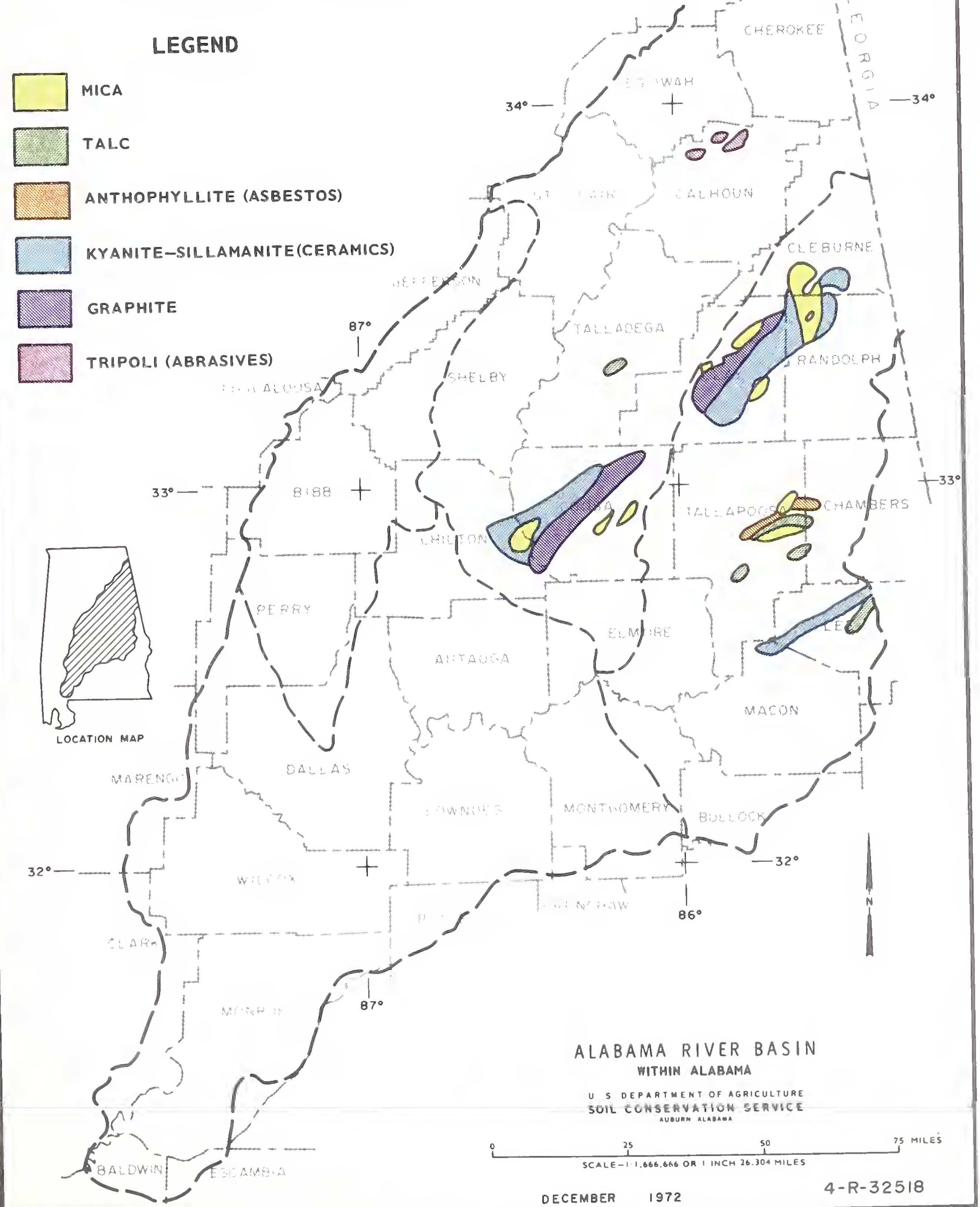
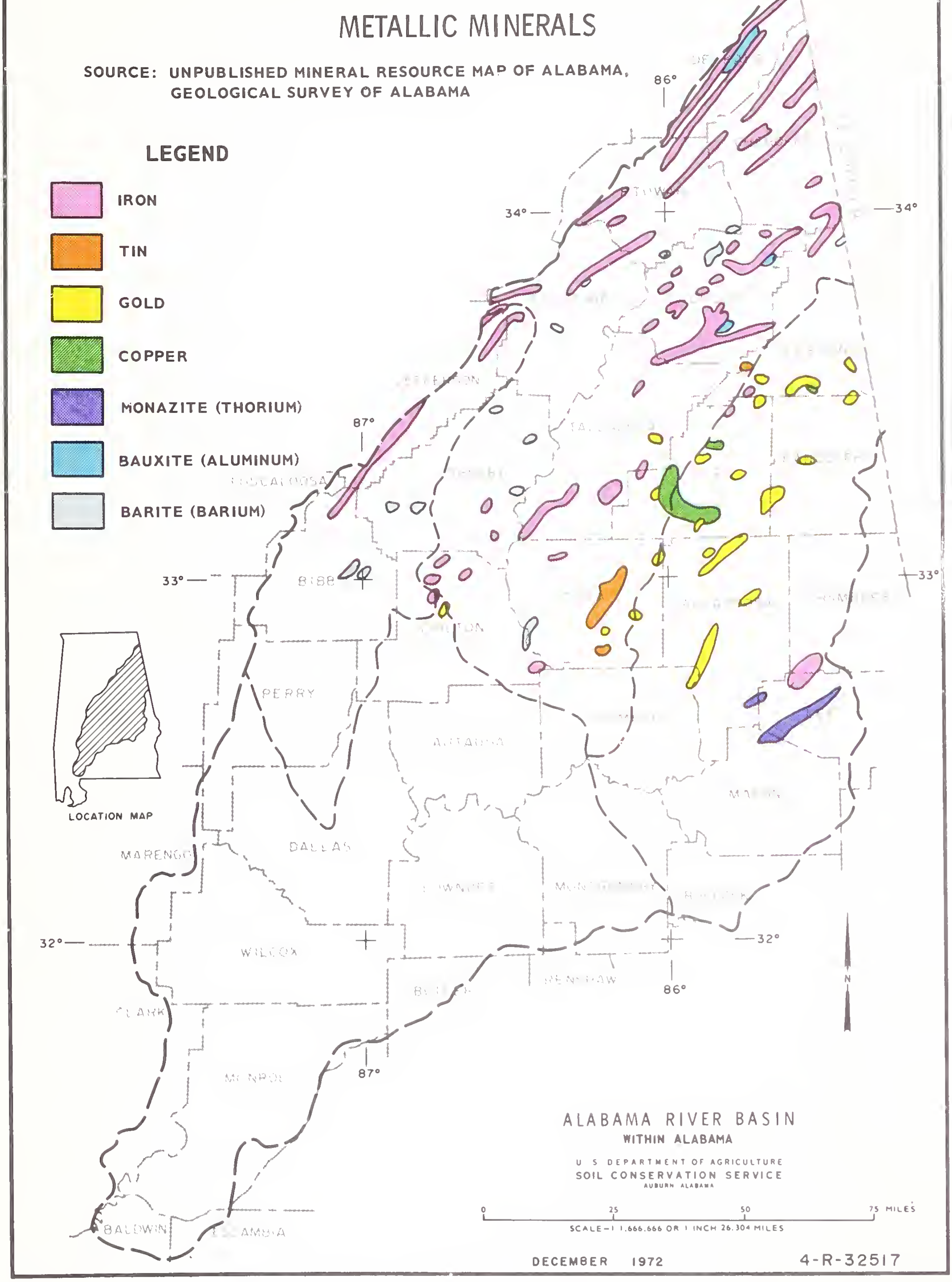


Figure II – 22

METALLIC MINERALS



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Fish and Wildlife

Methods of Inventory and Evaluation

An inventory and evaluation of the fish and wildlife resources in the Alabama River Basin were made by a multiple-agency work group composed of representatives from the Bureau of Sport Fisheries and Wildlife, Department of Conservation and Natural Resources, Auburn University, U. S. Forest Service, and the Soil Conservation Service. The Soil Conservation Service representative was designated as chairman of the work group.

This report presents basic information regarding opportunities for sport and commercial fishing, hunting, and such non-consumptive aspects of fish and wildlife as bird watching and nature photography in the Alabama River Basin.

Resource capacities are based on standards developed for the basin from research studies, recorded data, and by field observations conducted by one or more members of the work group.

The status of rare and endangered vertebrate species in the river basin included in this report focuses attention on this important aspect of the native fauna. Detailed location maps will be available for the final report.

The objective of the work group was to determine the problems, needs, and possible solutions in the management of fish and wildlife resources in the basin.

Fisheries Resource -- It was necessary to inventory areas of fresh-water habitat to establish a breakdown of the different types of fishing waters of varying capacities in the basin. Acres of fresh water were inventoried as follows: large impoundments (over 500 acres), small impoundments (both public and private), rivers, streams, and put, grow, and take ponds. The following agencies contributed to the water resource data; Department of Conservation and Natural Resources, U. S. Forest Service, Corps of Engineers, Alabama Power Company, Auburn University Agricultural Experiment Station, and the Soil Conservation Service.

Appraisal of the man-day fishing capacity in each type of fresh water habitat was based primarily on (1) the standing crop of sport fishes, (2) the ratio of the standing crop to the harvestable crop, and (3) the average catch in pounds per man-day.

The standing crop, measured in pounds of fish per surface acre of water, is used as the index for productivity of a given body of water. The standing crop varies because habitat quality, fishing success, management of waters, fish migrations, and many other factors vary from season to season and from year to year. It was agreed that the average harvestable crop of fish is one-half of the standing crop. It was agreed, also, that two pounds of fish is the standard harvest per man-day of fishing.

True fishing capacity is reached when increased fishing activity decreases fishing success to the extent that the number of new fishermen being attracted is balanced by those who stop fishing because of an unsatisfactory creel return. The minimum acceptable creel is understandably nebulous and varies by location, type of fishing, tolerance to crowding and disturbance, past fishing experience, availability of other fishing, and numerous other factors. An average catch of two pounds per man-day appears to be a realistic standard for this basin.

Outstanding wade and float fishing streams were selected by a consensus of field biologists and work group members. Size, productivity, water quality, and aesthetic values were considered in making the selections.

Wildlife Resource -- Wildlife resources within the basin were inventoried as a basis for establishing their potential capacities. Acreage of small game, big game, and waterfowl habitat available for public use was determined by a field survey in each county and from information supplied by the Department of Conservation and Natural Resources.

Capacity standards1/ developed by the Agricultural Experiment Station of Auburn University were used to convert acres of habitat to man-days of hunting. The following standards were used.

Table II-15--Conversion of acres of wildlife habitat to man-days of hunting.

Hunting Activity	Number of Hunters/Ac. of Habitat	Daily Rate of Turnover	Length of Hunting Season(Days)	Activity Occasions/Ac. of Habitat
Big Game	0.0055	1	90	0.50
Small Game	0.0167	1	120	2.00
Waterfowl	0.0167	1	60	1.00

The above calculations of hunting capacities are based on average sustained harvest figures. They assume accessibility to all areas and uniform distribution of hunting in keeping with wildlife populations.

A potential habitat suitability map for the major game species was compiled from data gathered on field surveys in each county. Relative ratings of well-suited, suited, and poorly suited are used to describe existing habitat conditions. As a guideline, description of the essential components in well-suited habitat for each species was prepared by the work group.

1/ Participation in Outdoor Recreation in Alabama, Agricultural Experiment Station, Auburn University, Agricultural Economics Series 20, October 1970.

4-32888 3-73

Basic data to determine habitat suitability were obtained by sampling the major soil associations in each county of the river basin. One or more representatives section(s) (640 acres) exhibiting typical land use of the soil association were located on aerial photographs and county road maps. This section(s) was then surveyed on the ground to determine its suitability for each major game species.

Wildlife habitat variations do not correspond to county boundary lines. Therefore, it is difficult to delineate. However, an assumption is made that a high correlation exists between soil associations, land use, and wildlife populations.

Wildlife population studies in the basin are rather limited, consequently, much of the information obtained represents the best estimate of professional biologists and other field personnel. Deer and turkey populations were estimated in each county by experienced persons with knowledge of check station data, field studies, hunter surveys, or other information.

Estimates of hunting activity for small game were derived from the 1970-1971 mail survey conducted by the Department of Conservation and Natural Resources. In the survey, questionnaires were mailed to 4,478 randomly chosen individuals who had purchased hunting licenses. Technical assistance was provided for the survey by Dr. Don Hayne of the School of Statistics of the University of North Carolina.

The land area of the river basin is approximately 33 percent of the total land area of the state; and the percentages of cropland, woodland, pastureland, and other land in both the state and basin are almost identical. Therefore, with the exception of waterfowl, it is assumed that 33 per percent of the total small game killed in Alabama is harvested in the Alabama River Basin.

The potential for developing hunting and fishing as recreational activities is summarized from recent county outdoor recreation potential studies. Information on non-consumptive activities related to fish and wildlife was gathered by a review of published literature and personal communications.

Rare and Endangered Vertebrates -- A symposium on rare and endangered vertebrates in Alabama was held November 4-6, 1971, in Birmingham, Alabama. This meeting was sponsored by the Alabama Department of Conservation and Natural Resources. During the meeting, a proposed list of rare and endangered vertebrate species in Alabama was compiled. This report includes that list.

For the final report, the list will be refined to include only those rare and endangered species suspected to be within the Alabama River Basin. Wherever possible, maps will be used to pinpoint known locations of rare and endangered vertebrates.

4-32888 3-73

Supply

Fisheries -- The most common species of sport fish in the freshwaters of Alabama are largemouth bass, smallmouth bass, striped bass and spotted bass, crappies, various catfish, bluegill, and redear sunfish.

The supply of freshwater fishing available for public use in the Alabama River Basin is presented in Table II-16. There is a total of approximately 189,000 acres of fishing waters currently available in the basin with an estimated capacity of 4,085,000 activity occasions. Almost 50 percent of the available fish habitat is located in the Coosa Subbasin. Construction of additional large impoundments on major river systems in the basin (Table II-17) will be somewhat restricted as the number of feasible sites has become limited.

Approximately 478 miles of free-flowing rivers remain in the basin, and many of these miles are polluted to the extent that utilization for fishing is very limited. Pollution has also decreased utilization of many small streams that were an important source of fishing during the 1930's and 1940's. However, many productive streams are not now receiving the normal fishing activity due to lack of accessibility and for other reasons. Ten important fishing streams in the basin are listed in Table II-18. These streams were selected on the basis of productivity, water quality, utilization, and aesthetic value.

The most productive fishery habitat in the basin is found in small impoundments. In small ponds and lakes, many factors affecting productivity can be controlled to varying degrees. There are approximately 44,000 acres in privately-owned, small impoundments, 475 acres in state-owned lakes, and 40 acres in lakes owned by the federal government (Table II-19). There is an additional 325 acres of public fishing in small watershed impoundments sponsored by city or county governing bodies. The state and federal hatcheries have provided the initial stocking for most of these ponds. (Table II-20)

Major facilities at the state-operated lakes, as of 1971, are shown in Figure II-23 and are listed below (letters refer to map):

A. Clay County Lakes - three lakes totaling 65 acres, on a 360 acre tract, 2 miles west of Delta and 30 miles south of Anniston: first lake opened in 1951; concession stand with restrooms, 16 picnic tables, and 13 boats for rent.

B. Oak Mountain State Park - this park is located in Shelby County approximately 16 miles south of Birmingham. Two 85-acre fishing lakes are located in the northeast end of the park, and there is an 18-acre lake near the middle of the park. Facilities presently available include swimming, rental boats, fishing, and boat access areas.

C. Dallas County Lake - 100-acre lake on 306-acre site, 15 miles south of Selma; restrooms, picnic tables, rental boats, and earthen launching ramp.

D. Monroe County Lake - 94-acre lake on 245-acre site; 1 mile from Beatrice; opened in 1969, concession stand, 31 boats for rent, and concrete launching ramp.

Under Alabama law, drum, buffalo, carp, channel catfish, and all other members of the catfish family, spoonbills, spotted sucker and all other members of the sucker family including red horse and black horse have been designated as commercial or non-game species. Legal commercial fishing gear includes hoop and fyke nets, gill nets, trammel nets, setlines, trotlines, snag lines, and certain types of fish traps. Local and state regulations prohibit the use of certain types of the above gear in certain counties and areas.

Each person who participates in commercial fishing activities must have a commercial fishing license. Such licenses can be obtained from the Commissioner of Licenses, the Judge of Probate, or from persons appointed by the Commissioner of Conservation and Natural Resources to issue licenses. During the Fiscal Year 70-71, a total of 702 commercial fishing licenses were issued in the counties of the Alabama River Basin. Table II-21 indicates the number issued in each county during that year.

Data on the amount and value of the commercial fishing catch in the basin are extremely limited. Catfish are the preferred catch and bring the best price on the market. However, there is a good market for buffalo. Blue catfish, channel catfish, flathead catfish, drum, buffalo, quillback, black sucker, golden red horse and black horse are commercial species that have been taken from the Alabama River.

4-32888 3-73

Table II-16--Freshwater fish habitat available for public use, and associated capacity, Alabama River Basin, 1971.

Subbasin	Existing Acreage	Annual[1] Harvestable Production/Ac.	Activity Occasions Per Acre[2]	Total Activity Occasions
Alabama				
Rivers	4,916	80 lbs.	40	196,640
Streams	1,362	12.8	6.4	8,717
Large impoundments[3]	35,650	67.4	33.7	1,201,405
Small impoundments[4]	3,085	100	50	154,250
Put, grow & take	279	800	400	111,600
Subtotal	45,292			1,672,612
Cahaba				
Rivers	1,440	20 lbs.	10	14,400
Streams	185	12.8	6.4	1,184
Large impoundments	1,000	17	8.5	8,500
Small impoundments[4]	541	86	43	23,146
Put, grow & take	83	800	400	33,200
Subtotal	3,249			80,430
Coosa				
Rivers	2,663	35 lbs.	17.5	46,600
Streams	2,073	21	10.5	21,766
Large impoundments	81,313	29.6	14.8	1,203,432
Small impoundments	2,958	88.8	44.4	131,335
Put. grow & take	430	800	400	172,000
Subtotal	89,437			1,575,133
Tallapoosa				
Rivers	3,091	30 lbs.	15	46,300
Streams	1,362	16.4	8.2	11,205
Large impoundments	43,125	19.4	9.7	418,312
Small impoundments[4]	2,513	80	40	100,520
Put, grow & take	452	800	400	180,800
Subtotal	50,543			757,137
Total	188,521			4,085,312

1/ Based on information from district fishery biologist, Department of Conservation and Natural Resources.

2/ Two pounds per acre used as standard.

3/ Impoundments larger than 500 acres.

4/ Availability for public use estimated by state and federal agencies in each county, includes all public fishing lakes.

4-32888 3-73

Table II-17--Large impoundments in the Alabama River Basin, 1971

Subbasin	Acreage
Alabama	
Jones Bluff Lake	12,300
Wm. F. Dannelly Lake	17,200
Claiborne Lake	5,800
Total	35,300
Coosa	
Weiss Lake	30,200
H. Neely Henry Lake	11,200
Logan-Martin Lake	15,263
Lay Lake	12,000
Mitchell Lake	5,850
Jordan Lake	6,800
Total	81,313
Cahaba	
Lake Purdy	1,053
Tallapoosa	
Martin Lake	40,000
Yates Lake	2,000
Thurlow Lake	574
Opelika City Lake	560
Total	43,187

4-32888 3-74

Table II-18--Ten important fishing tributaries in the Alabama River Basin.

Stream	Miles of Fishing	Acres of Fishing	Type[1] of Fishing	Subbasin
Choccolocco	48	301	B,W,F	Coosa
Cane (Calhoun)	20	44	B,W,F	Coosa
Canoe	29	105	B,W,F	Coosa
Hatchett	40	181	B,W,F	Coosa
Kelley (St. Clair)	14	34	B,W	Coosa
Ketchepedrakee	10	24	B,W	Tallapoosa
Talladega	40	117	B,W,F	Coosa
Uphapee	16	68	B,W,F	Tallapoosa
Weogufka	22	67	B,W	Coosa
Yellowleaf (Shelby)	33	176	B,W	Coosa

1/ B-Bank, W-Wade, F-Float.

Table II-19--Total acreage, use, and ownership of small impoundments in the Alabama River Basin, 1971.[1]

Subbasin	Total of all Impoundments	Public Ownership[2] (Acres)	Private Ownership		
			Total	Open to Public	Used For Commercial Production
Alabama	19,310	194	19,116	2,891	624
Cahaba	2,733	189	2,544	352	62
Coosa	11,725	281	11,444	2,677	216
Tallapoosa	11,163	176	10,987	2,337	85
Total	44,931	840	44,091	8,257	987

1/ Less than 500 acres, more than .25 acres.

2/ Include some P.L.-566 structures.

4-32888 3-73

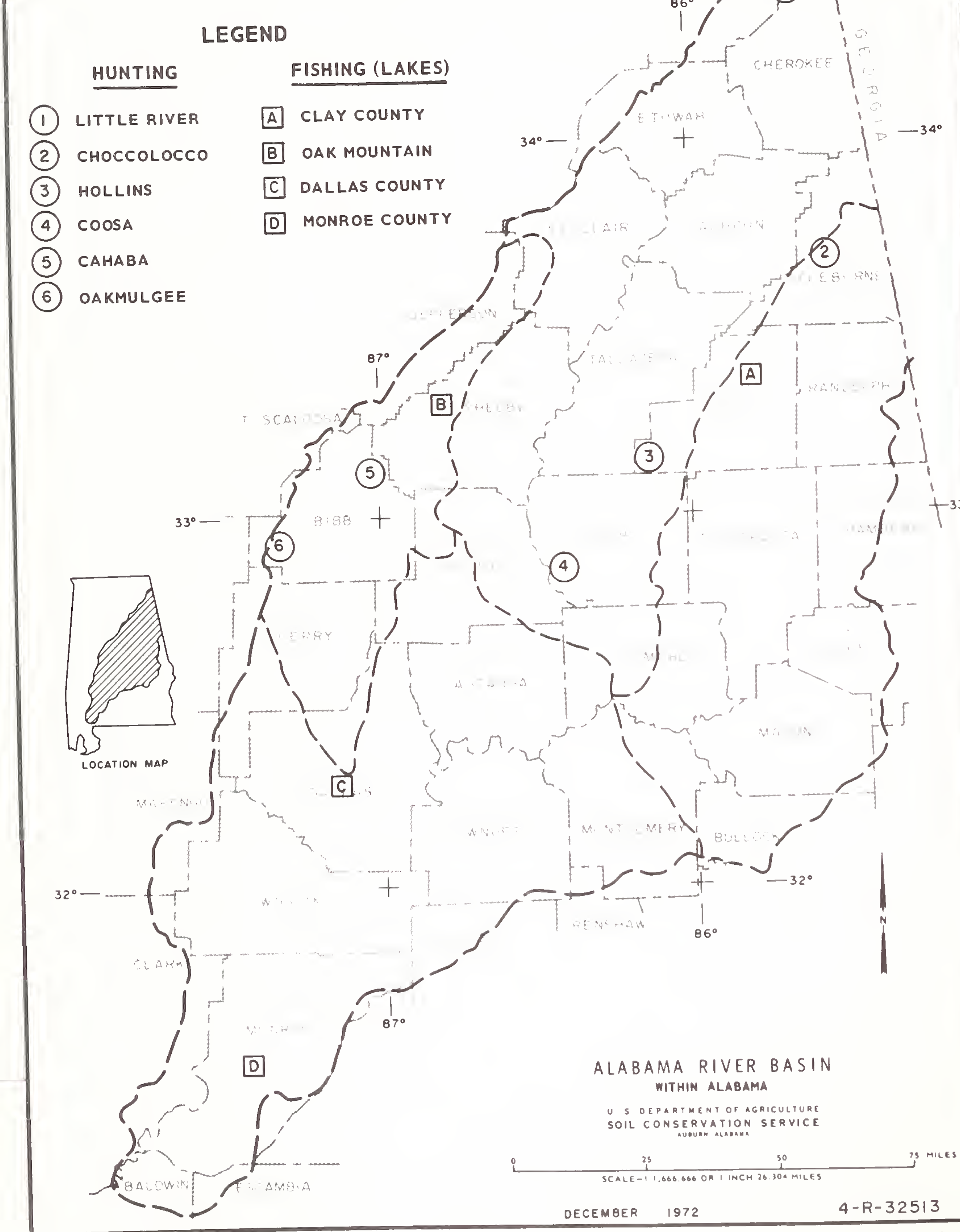
Table II-20--Numbers and acres of ponds stocked by State and Federal Hatcheries through September 30, 1970, by counties, Alabama River Basin.

County	Number	Acreage
Autauga	200	1,194
Baldwin	349	2 919
Bibb	112	547
Bullock	882	2,347
Butler	576	1,377
Calhoun	392	1,652
Chambers	280	1.274
Cherokee	92	271
Chilton	314	804
Clarke	198	485
Clay	260	973
Cleburne	229	1,112
Coosa	200	667
Dallas	356	1,839
DeKalb	1,217	1,911
Elmore	566	1,857
Etowah	371	1,223
Jefferson	401	2,760
Lee	697	3.406
Lowndes	971	4,674
Macon	464	2,029
Monroe	230	804
Montgomery	1,990	6.437
Perry	187	1,099
Randolph	243	877
Shelby	441	2,361
St. Clair	360	1,091
Talladega	225	1,490
Tallapoosa	357	934
Wilcox	277	751
Total	13,437	51,165

4-32888 3-73

Figure II – 23

STATE OPERATED PUBLIC HUNTING AND FISHING AREAS



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Table II-21--Total number of commercial fishing licenses issued by counties, Alabama River Basin.

County	Fiscal Years 1966-67	67-68	68-69	69-70	70-71
Autauga	4	6	6	3	2
Baldwin	51	55	82	83	59
Bibb	17	17	17	22	24
Bullock	0	0	0	2	0
Butler	0	0	2	1	2
Calhoun	62	47	62	56	47
Chambers	3	3	3	7	2
Cherokee	37	31	31	50	36
Chilton	4	5	5	5	1
Clarke	59	68	84	71	38
Clay	2	1	3	3	6
Cleburne	0	0	3	4	2
Conecuh	2	1	3	1	4
Coosa	5	6	6	6	5
Crenshaw	0	1	0	1	0
Dallas	29	30	27	24	37
DeKalb	2	4	4	3	6
Elmore	12	11	9	10	7
Escambia	25	30	24	16	18
Etowah	36	31	31	53	53
Jefferson	114	115	130	131	117
Lee	1	0	3	2	3
Lowndes	3	2	1	0	1
Macon	0	0	0	0	0
Marengo	23	29	27	38	34
Monroe	59	58	75	71	63
Montgomery	3	1	1	5	8
Perry	5	5	4	1	0
Randolph	0	7	8	4	7
Russell	4	9	12	13	13
Shelby	20	13	6	2	0
St. Clair	44	39	44	49	54
Talladega	49	54	23	33	26
Tallapoosa	24	16	10	13	6
Wilcox	29	26	29	23	21
Total	728	721	775	808	702

4-32888 3-73

Wildlife-Hunting -- The wildlife resource in Alabama is as varried and abundant as any state in the southeast. The most frequently hunted game animals in Alabama include the white-tailed deer, turkey, squirrels, quail, rabbits, and dove. The respective hunting seasons are long and bag limits are liberal. The primary responsibility for administering wildlife resources, except the federally protected migratory birds, is vested in the Department of Conservation and Natural Resources.

A detailed field survey revealed approximately 3,086,120 acres available for some form of public hunting in the basin. However, of this total, 631,800 acres of club leased lands and 7,620 acres of shooting preserves were not counted as being open to the general public because of restricted or limited memberships (Table II-22). Less than 15 percent of the public hunting acreage is managed by the state or federal government.

Table II-22--Available supply of public hunting acreage in the Alabama River Basin, 1971.1/

Subbasin	State Mgt. Areas	Company Owned Lands	Private Owned Lands	National Forest	Club Leased Lands	Shooting Preserves
Alabama	15,000	377,000	158,700	5,000	279,000	-
Cahaba	50,500	109,700	28,200	33,900	1,300	-
Coosa	102,700	571,000	369,500	107,000	174,000	6,620
Tallapoosa	30,000	217,000	223,700	47,800	177,500	1,000
Total	198,200	1,274,700	780,100	193,700	631,800	7,620

1/ Data obtained from selected state and federal agencies in each county. Duplication of recorded acreage was avoided.

Table II-23--Estimated hunting and harvest effort in the Alabama River Basin, 1970-1971.

Species	Estimated Fall Population	Estimated Harvest	Man-Days Per Kill	Total Man-Days
Deer	117,100 1/	11,710 4/	19.00	222,490
Turkey	69.255 1/	6,926 4/	13.00	90,038
Rabbit	-	296,767 2/	0.83	246,317
Squirrel	-	625,182 2/	0.61	381,361
Dove	-	1,107,826 2/	0.20	221,567
Quail	-	764,999 2/	0.35	267,749
Ducks	-	17,800 1/	0.69	12,282
Geese	-	440 1/	4.21	1,852
Others 3/	-	-	-	144,366 5/
Total				1,588,022

1/ Data obtained from conservation officers and field biologist.
2/ Data obtained from Alabama Mail Survey 1970-71 using 33% of state totals.
3/ Includes fox, bobcat, oppossum, raccoon, etc.
4/ Harvest estimated as 10% of fall population.
5/ Effort estimated as 10% of total effort of all other game species.

The estimated hunting effort in the basin during the 1970-1971 season was in excess of 1.5 million man-days (Table II-23). Estimated harvest data for selected species were taken from the Alabama Mail Survey or from field biologists and technicians.

The potential for the development of hunting was summarized from the individual county outdoor recreation studies and presented in Figure II-24. Generally, the basin rates high for both big game and small game and low for waterfowl.1/

The deer herd in Alabama is estimated to be approaching 500,000 animals. This may be more deer than roamed the state when Indians were the only hunters. Deer are present in every county of the state and all counties have an open hunting season.

The population of deer in the river basin was estimated to be in excess of 117,000 animals (Figure II-25). Every county in the basin had an open season on deer in 1972-1973. Figure II-26 shows the relative deer concentration in a heavily populated county may exceed, in animals per acre, an area of highest concentration in a sparsely populated county. With the exception of Cleburne County, the highest deer populations are located in the southwestern portion of the river basin.

The eastern wild turkey, perhaps the most magnificent of all game birds, is native to the southeast. Through a dedicated program of trapping, relocation and protection, Alabama has become one of the leading states in the production of wild turkeys. The state population is estimated to be in excess of 250,000 with approximately 70,000 in the Alabama River Basin.

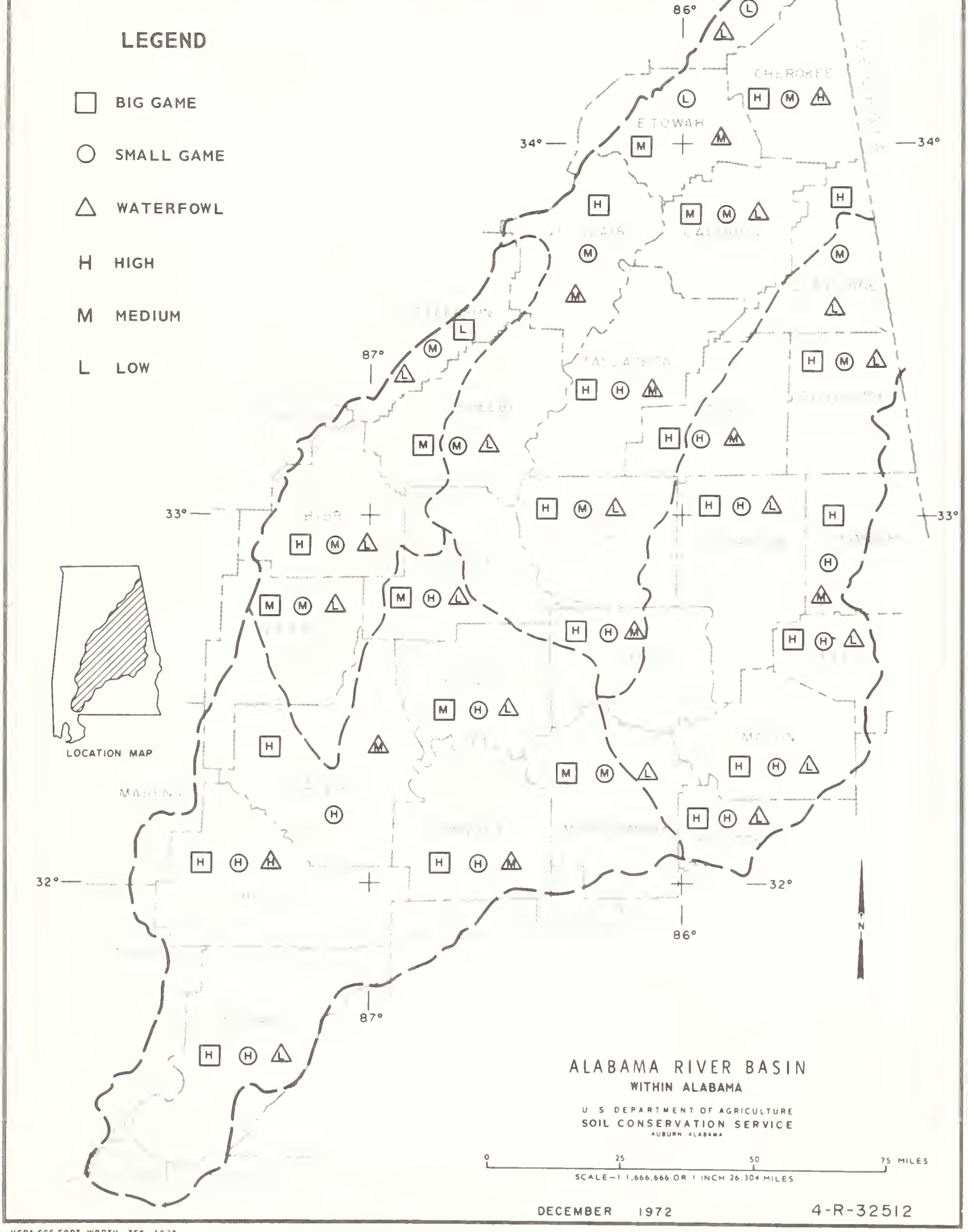
Turkeys are found throughout the basin with highest populations concentrated in the southwestern portion primarily in Dallas, Lowndes, Wilcox, Monroe, and Clark Counties (Figure II-27). There was an open season for turkey hunting during 1972-1973 in every county of the basin except DeKalb, Cherokee, and Etowah. Figure II-28 shows the relative concentration of turkeys within each county of the basin. Turkey populations normally fluctuate from year to year with changing environmental conditions. However, the encroachment of more intensive human activities where large tracts of diversified tree cover are cleared for monocultural practices will certainly have an overall adverse affect on wild turkey populations.

The mourning dove, squirrels, rabbits, and quail are the most popular small game animals in Alabama. According to a mail survey conducted by the Alabama Department of Conservation and Natural Resources, over seven million of these animals were harvested in Alabama during the 1970-1971 hunting season. About 2.8 million, 40 percent, small game animals were harvested within the basin. They provided 1.1 million man-days of hunting.

1/ Guide to Making Appraisals of Potentials For Outdoor Recreation Developments, USDA-SCS, 1966.

Figure II – 24

POTENTIAL FOR HUNTING
BY COUNTIES

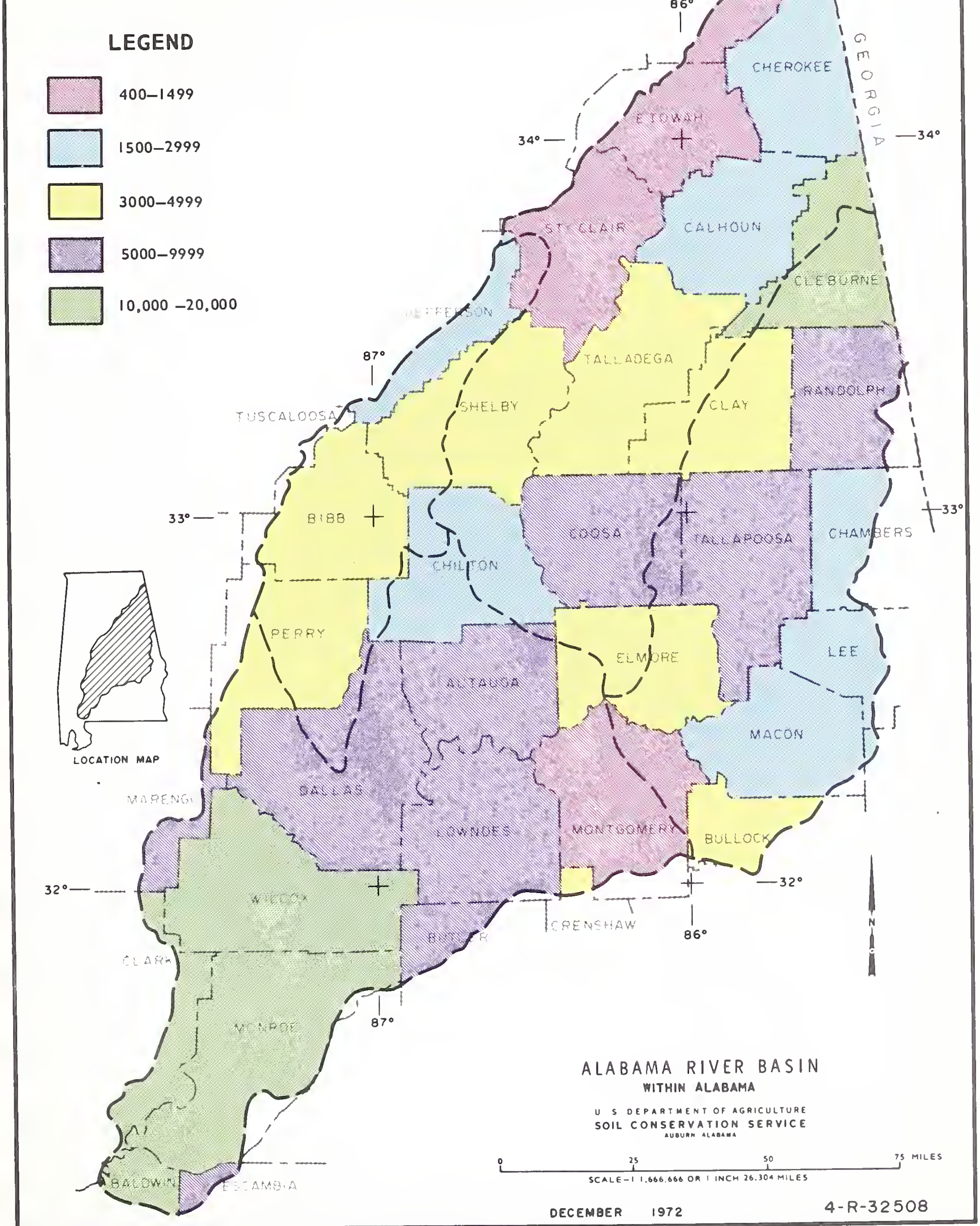


USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Figure II – 25

ESTIMATED DEER POPULATION, 1971
BY COUNTIES



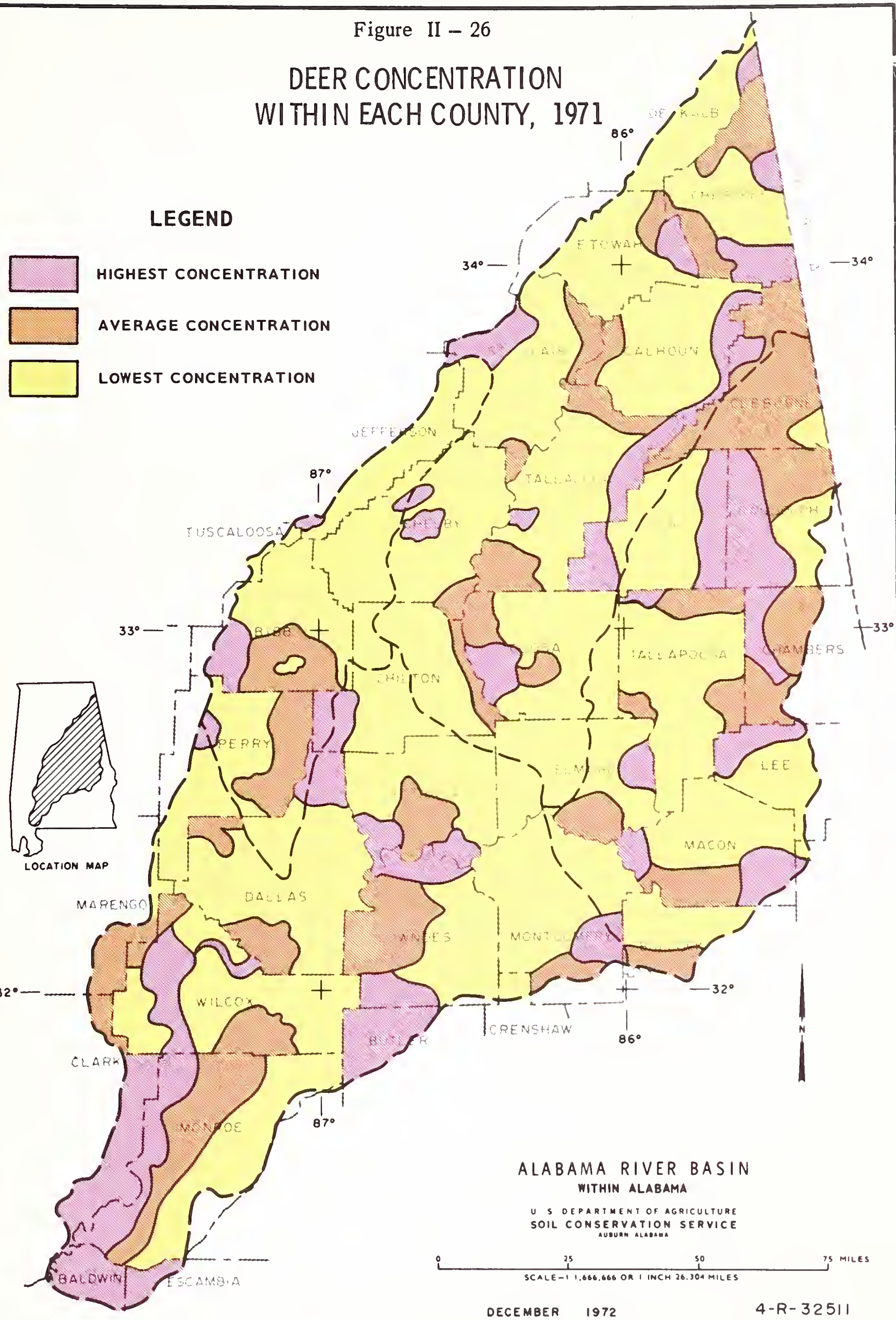
USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Figure II – 26

DEER CONCENTRATION WITHIN EACH COUNTY, 1971



ALABAMA RIVER BASIN
WITHIN ALABAMA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN, ALABAMA

0 25 50 75 MILES
SCALE–1:1,666,666 OR 1 INCH 26.304 MILES

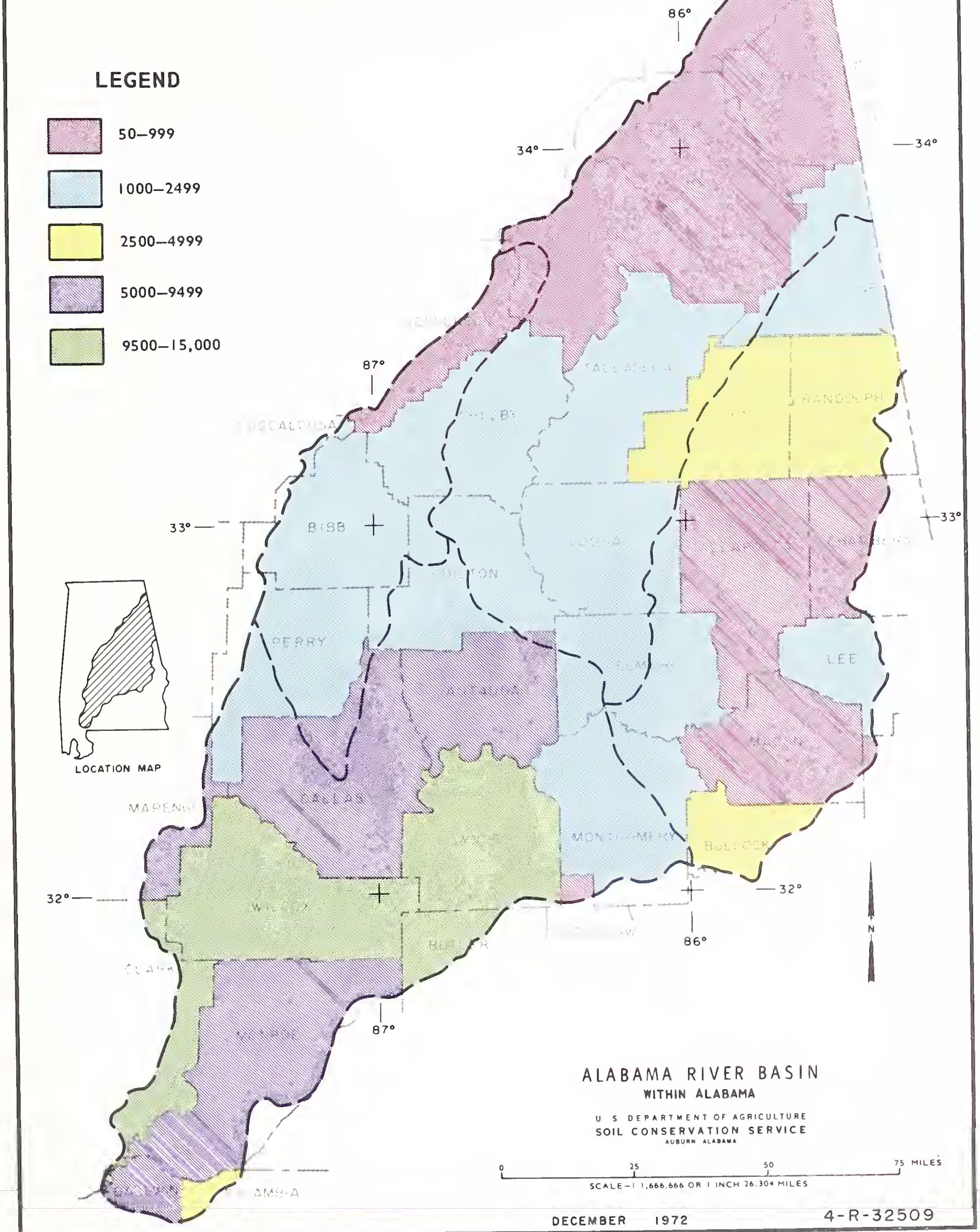
DECEMBER 1972 4-R-32511

USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Figure II – 27

ESTIMATED TURKEY POPULATION 1971
BY COUNTIES



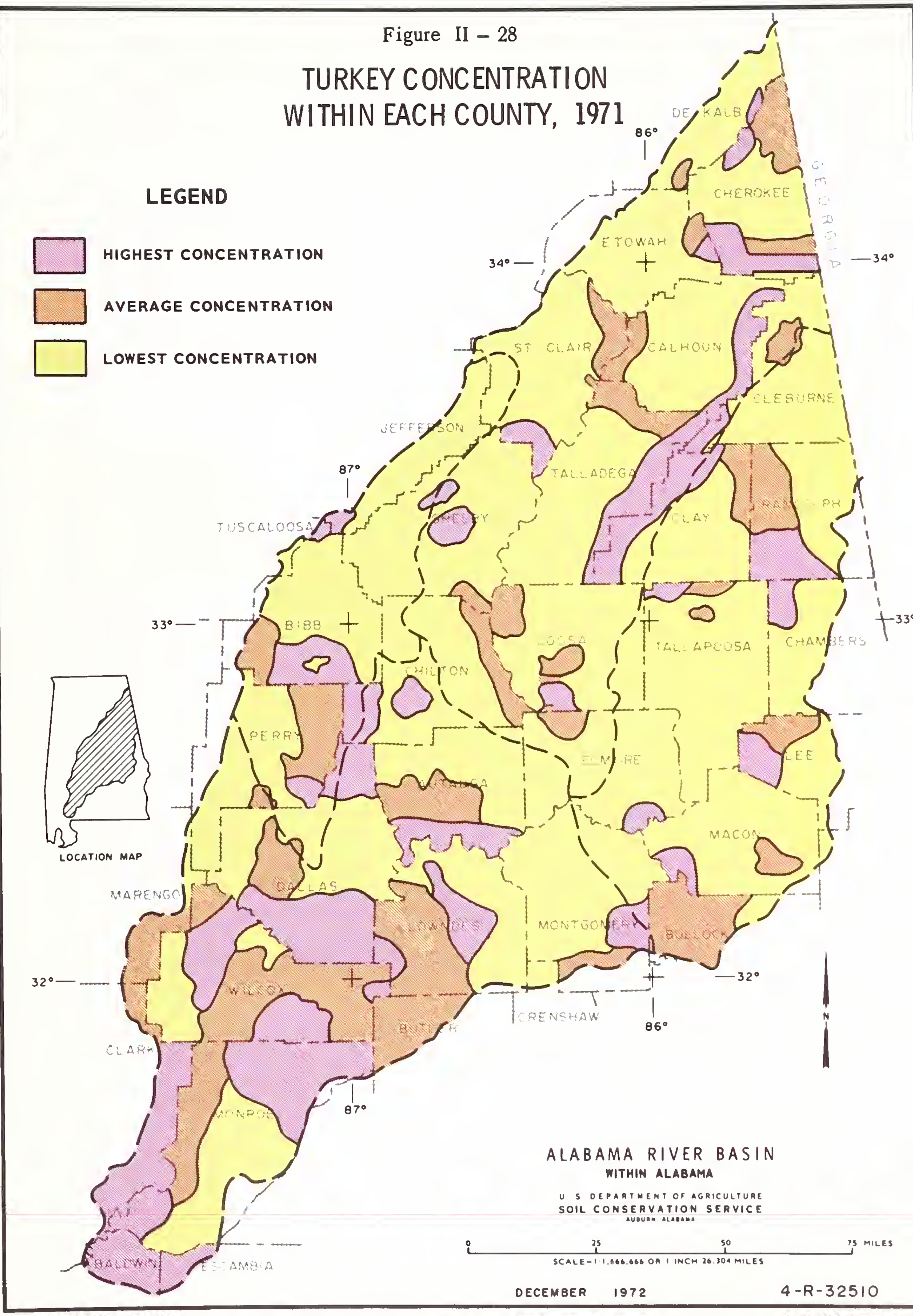
USDA-SCS FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Figure II – 28

TURKEY CONCENTRATION WITHIN EACH COUNTY, 1971



USDA-SCS FORT WORTH, TEX 1973

NOVEMBER 1972 4-R-32344-A

Twenty-six different species of wild ducks and four species of wild geese have been observed in Alabama and in coastal waters off the state. Only one of them--the wood duck--normally breeds in Alabama to any appreciable extent. To some extent, ducks utilize nearly all ponds, lakes, reservoirs and other water areas in Alabama. However, results of a recent wood duck production study in Alabama indicate that 80 to 90 percent of the young wood ducks are produced in beaver ponds and natural ponds.

During the 1970-1971 season, approximately 18,000 ducks and geese were harvested in the river basin. They afford 13,000 man-days of hunting.

Other game animals in the basin that provide some hunting opportunity include raccoon, opossum, fox, bobcat, snipe, and woodcock. Estimated hunting effort expended in pursuit of these species in the basin during 1970-1971 was 144,000 man-days. The total effort in the state exceeded 450,000 man-days and the harvest was approximately 387,000 animals.

Wildlife--Non-Harvest Values -- Wildlife values can be classified as either positive or negative. Positive values enhance the quality of human life; negative values, on the other hand, detract from it. This section discusses the positive values that can be realized from wildlife without actually harvesting the animals or removing them from their natural surroundings.

Every year more and more people are becoming interested in wildlife; yet the proportion of hunters in the total population is decreasing. For example, more people are visiting wildlife refuges than ever before; but the sale of duck stamps is below the levels reached two or three decades ago. People are becoming more and more interested in watching, hearing, seeing, photographing, and otherwise enjoying wildlife without harvesting it. This is somewhat of a departure from tradition, of course. It is an interest that must be reckoned with in managing wildlife not only for the present, but also for future generations.

How widespread is this non-harvest interest in wildlife? Over eight million people participated in bird watching in 1965 and over three million people age 12 and over took nature walks during that year. By comparison, the same study revealed that slightly less than 17 million people age 12 and over participated in hunting in 1965. The most striking aspect of these figures is the change from a similar study in 1960. About 1.5 million more people took nature walks in 1965 than in 1960, but 100,000 fewer people participated in hunting. Other published reports reveal the same general pattern--an increased interest in non-harvest aspects of wildlife.

In all probability, the demand for wildlife and wildlife-oriented recreational activities within the Alabama River Basin will continue at an accelerated pace. It appears, therefore, that a desirable wildlife management objective should be to provide the greatest satisfaction from wildlife for all the people. This would include effective habitat preservation and management for all wildlife not only for consumptive purposes but also for non-consumptive uses.

4-32888 3-73

Bird watching and wildlife photography are aspects of hunting, but they require no hunting and no game is killed. The number of watchers and/or photographers who can occupy the same tract of woods or clearing is limited only by their ability to keep quiet. Bird watching especially is most often a group activity with many members of a group or club wandering the same woods. An element of competition is present.

Rare and Endangered Vertebrates -- The following is an explanation of some of the terms used in this inventory.

Rare-1 - A rare species or subspecies is one that, although not presently threatened with extinction, is in such small numbers that it may be endangered if its environment worsens.

Rare-2 - A species or subspecies that may be quite abundant where it does occur but is known in only a few localities or in a restricted habitat within Alabama.

Endangered - Any species or subspecies occurring in Alabama threatened with extinction through:
The destruction, drastic modification, or severe curtailment, or the threatened destruction, drastic modification or severe curtailment, of its habitat, or
its over-utilization for commercial or sporting purposes, or
the effect on it of disease or predation, or other natural or man-made factors affecting its continued existence.

Status Undetermined - A species or subspecies that has been suggested as possibly rare or endangered, but about which there is not enough information to determine its status. More information is needed.

RARE-1 VERTEBRATES

Mammals

Southeastern Shrew	Sorex l. longirostris
Florida Yellow Bat	Lasiurus floridanus
Meadow Jumping Mouse	Zapus hudsonius americanus

Birds

Great White Heron	Ardea occidentalis

Amphibians and Reptiles

Dusky Gopher Frog	Rana areolata sevosa
Flatwoods Salamander	Ambystoma cingulatum
Black Pine Snake	Pituophis melanoleucus lodingii

Fishes

Blue Shiner	Notropis caeruleus
Bluestripe Shiner	Notropis callitaenia
Skygazer Shiner	Notropis uranoscopus
Lowland Banded Sculpin	Cottus carolinae infernatus
Tuscumbia Darter	Etheostoma tuscumbia
(Unnamed) Snubnose Darter	Etheostoma sp. (undescribed species)
Blenny Darter	Etheostoma blennius
Freckle Darter	Percina lenticula

RARE-2 VERTEBRATES

Mammals

Southeastern Myotis	Myotis a. austroriparius
Hoary Bat	Lasiurus cinearous cinearous
Common Black Bear	Ursus a. americana
Florida Black Bear	Ursus americana floridanus

Birds

Swallow-tailed Kite	Elanoides forficatus
Sharp-shinned Hawk	Accipiter straitus
Cooper's Hawk	Accipiter cooperii
Golden Eagle	Aquila chrysaetos
Sandhill Crane	Grus canadensis
American Oystercatcher	Haematopus palliatus
Bewick's Wren	Thryomanes bewickii

4-32888 3-73

RARE-2 VERTEBRATES (Cont'd)

Amphibians and Reptiles

Least Tree Frog	Hyla ocularis
River Frog	Rana hecksheri
Greater Siren	Siren lacertina
Red-backed Salamander	Plethodon cinereus ssp.
Midland Mud Salamander	Pseudotriton montanus diastictus
Barbour's Map Turtle	Graptemys barbouri
Florida Softshell Turtle	Trionyx ferox
Florida Green Water Snake	Natrix cyclopion floridana
Northern Florida Black Swamp Snake	Seminatrix p. pygaea
Pinewoods Snake	Rhadinaea flavilata
Red Milk Snake	Lampropeltis doliata syspila

Fishes

Atlantic Sturgeon	Acipenser oxyrhynchus
Streamline Chub	Hybopsis dissimilis
Popeye Shiner	Notropis ariommus
Bigeye Shiner	Notropis boops
Warpaint Shiner	Notropis coccogenis
Dusky Shiner	Notropis cummingsae
Sawfin Shiner	Notropis sp. (undescribed species)
Sand Shiner	Notropis stramineus
Suckermouth Minnow	Phenacobius mirabilis
Southern Redbelly Dace	Phoxinus erythrogaster
Spotted Bullhead	Ictalurus serracantbus
Stonecat	Noturus flavus
Brindled Madtom	Noturus miurus
Southern Cavefish	Typhlichthys subterraneus
Pygmy Killifish	Leptolucania ommata
Bluefish Killifish	Lucania goodei
Mottled Sculpin	Cottus bairdi
Apalachicola Redeye Bass	Micropterus coosae
Slenderhead Darter	Percina phoxocephala

ENDANGERED VERTEBRATES

Mammals

Indiana Myotis	Myotis socalis
White-Fronted Beach Mouse (no common name)	Peromyscus polionotus ammobates
Perdido Bay Beach Mouse (no common name)	Peromyscus polionotus trissyllepsis
Red Wolf	Canis niger niger
Cougar	Felis concolor croyi

ENDANGERED VERTEBRATES (Cont'd)

Birds

Brown Pelican	Pelecanus occidentalis
Mottled Duck	Anas fulvigula
Bald Eagle	Haliaeetus leucocephalus
Osprey	Pandion haliaetus
Peregrine Falcon	Falco peregrinus anatum
Ruffed Grouse	Bonasa umbellus
Snowy Plover	Charadrius alexandrinus
Red-cockaded Woodpecker	Dendrocopos borealis
Ivory-billed Woodpecker	Campephilus principalis
Bachman's Warbler	Vermivora bachmanii

Amphibians and Reptiles

Sipsey Waterdog	Necturus maculosus
Red Hills Salamander	Phaeognathus hubrichti
Seepage Salamander	Desmognathus aeneus
Tennessee Cave Salamander	Gyrinophilus palleucus ssp.
Mississippi Alligator	Aligator mississippiensis
Flattened Musk Turtle	Sternothaerus depressus
Florida Pine Snake	Pituophis melanoleucus mugitis
Eastern Indigo snake	Drymarchon carais couperi
Alabama Red-bellied Turtle	Pseudemys alabamensis

Fishes

Shovelnose Sturgeon	Scaphirhynchus platorynchus
Frecklebelly Madtom	Noturus minitus
(Unnamed) Cavefish	(undescribed genus and species)
Cahaba Shiner	Notropis sp. (undescribed species)
Pygmy Sculpin	Cottus pygmaeus
Crystal Darter	Ammocrypta asprella
Coldwater Darter	Etheostoma ditrema
Watercress Darter	Etheostoma nuchale
Slackwater Darter	Etheostoma sp. (undescribed species)
Goldline Darter	Percina aurolineata

STATUS UNDETERMINED

Mammals

Marsh Rabbit	Sylvilagus p. palustris
Bayou Gray Squirrel	Sciurus carolinensis fuliginosus
White-footed Mouse	Peromyscus leucopus
Prairie Vole	Microtus ochrogaster

Birds

Reddish Egret	Dichromanassa rufescens
Gray Kingbird	Tyrannus dominicensis

Amphibians and Reptiles

Three-toed Amphiuma	Amphiuma tridactylum
Gopher Tortoise	Gopherus polyphemus
Atlantic Loggerhead	Caretta c. caretta
Mississippi Diamondback Terrapin	Malaclenys terrapin pileara
Rainbow Snake	Abastor erythrogrammus
Hellbender	Cryptobranchus a. alleganiensis
Gulf Salt Marsh Water Snake	Natrix fasciata clarki

Fishes

American Brook Lamprey	Lampetra lamottei
Lake Sturgeon	Acipenser fulvescens
Alabama Shad	Alosa alabamae
Flame Chub	Hemitremia flammea
Blue Sucker	Cycleptus elongatus
Harelip Sucker	Lagochila lacera
Whiteline Topminnow	Fundulus albolineatus
Least Killifish	Heterandria formosa
Pygmy Sunfish	Elassoma sp.
Bluespotted Sunfish	Enneacanthus gloriosus
Ashy Darter	Etheostoma cinereum
Trispot Darter	Etheostoma trisella

4-32888 3-75

SECTION

3

HUMAN AND ECONOMIC RESOURCES

4-32888 3-73

III. HUMAN AND ECONOMIC RESOURCES

General

The following discussion presents only a cursory examination of economics. Detailed analyses and projections are available in a separate report, An Economic Base Study of the Alabama River Basin Area, June 1971, prepared by the Economic Research Service and Forest Service. Information herein is largely a summary of selected items in the more extensive base report.

Population and Urban Growth

Historically, basin population growth has been slower than that of the state. Over the past 30 years, population of the study area has increased by 13 percent, compared to Alabama's 27 percent. Total population was 998,000 in 1970, representing about 29 percent of the state's inhabitants, a share which has been slowly declining (Table III-1). Basin population grew by only 22,000 persons between 1960 and 1970 with 22 of the area's 35 counties losing inhabitants.

Population projections for the study area counties and the state are based on estimates for Water Resource Subregions in Alabama prepared by the U. S. Department of Commerce, Office of Business Economics for use in river basin planning. These projections assume Census of Population Series C growth rates which result in a doubling of U. S. population between 1968 and 2020. Alabama's population is projected to reach 5.8 million by 2020, with about 1.6 million residents in the Alabama River Basin. Autauga and Montgomery Counties should continue to be the fastest growing basin counties, followed closely by Lee, Shelby, St. Clair, and Calhoun Counties.

In the Alabama Basin, urbanization has occurred steadily and uniformly in all subbasins as shown in Table III-2. One-half of the basin population was listed as urban in 1950, two-thirds in 1970, and projections indicate about three-fourths of the population will be urban by 1990.

Income

Personal income growth in both the study area and Alabama kept pace with national growth during the 1959 to 1969 period when measured in terms of constant dollars. Table III-3 indicates income in each of the three areas increased by about 55 percent in the 10-year period with basin income exceeding $2.3 billion. In 1940, income was only $580 million, approximately one-fourth that amount.

In both 1959 and 1969, basin counties accounted for 28 percent of the state's total income. This share is projected to remain constant through 1990, reaching nearly $6 billion by that time. This is a 4.1 percent annual increase in total personal income within the study area. National income growth is expected to be only slightly higher, 4.2 percent.

4-32888 3-73

Table III-1--Population trends, Alabama River study area, Alabama, southeastern states and the United States selected years, 1940-1970, and projected 1990, 2000, and 2020.

Area	Unit	1940	1950	1960	1970	Projected 1/ 1990	Projected 1/ 2000	Projected 1/ 2020
United States	Thous.	131,669	151,323	179,323	204,766	269,759	306,782	399,013
Southeastern U. S. 2/	Thous.	17,218	19,551	23,326	27,413		Not Available	
Alabama	Thous.	2,833	3,062	3,267	3,444	4,210	4,670	5,800
Alabama Basin								
Study Area:	Thous.	887	949	967	998	1,203	1,324	1,624
Alabama Subbasin	Thous.	291	298	312	308	374	413	496
Cahaba Subbasin	Thous.	90	96	99	102	116	126	154
Coosa Subbasin	Thous.	322	366	381	393	486	534	678
Tallapoosa Subbasin	Thous.	182	189	184	195	227	251	296
Alabama								
U. S.	Pct.	2.2	2.0	1.8	1.7	1.6	1.5	1.5
Study Area								
Alabama	Pct.	31.3	30.9	29.9	29.0	28.6	28.4	28.0

1/ Economic Research Service, USDA population projection data; and U. S. Department of Commerce, Office of Business Economics data distributed by the Water Resources Council for river basin planning.

2/ Includes Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Tennessee.

U. S. Bureau of the Census, Census of Population (Selected Years)

Table III-2--Urban-rural composition of the population, 1950, 1970, and projected to 2020, Alabama River Basin and subbasins.

	1950	1970	Projected 1990	Projected 2000	Projected 2020
	Thous.	Thous.	Thous.	Thous.	Thous.
Alabama River Basin					
Total population	949	998	1,203	1,324	1,624
Urban	474	655	887	1,045	1,365
Rural	475	343	316	279	259
Farm 1/	319.4	88.3	67.7	63.0	56.0
Alabama Subbasin					
Total population	298	308	374	413	496
Urban	162	213	287	332	416
Rural	136	95	87	81	80
Farm 1/	105.8	36.0	27.3	25.5	23.0
Tallapoosa Subbasin					
Total population	189	195	227	251	296
Urban	72	113	159	186	237
Rural	117	82	68	65	59
Farm 1/	76.9	19.4	14.5	13.6	12.2
Coosa Subbasin					
Total population	365	393	486	534	678
Urban	196	255	342	415	570
Rural	169	138	144	119	108
Farm 1/	117.1	29.0	22.7	20.9	18.2
Cahaba Subbasin					
Total population	96	102	116	126	154
Urban	44	74	99	112	142
Rural	52	28	17	14	12
Farm 1/	19.6	3.9	3.2	3.0	2.6

1/ Alabama Social Science's Advisory Committee estimates of 1970 farm population and projections to 2020.

U. S. Bureau of the Census, Census of Population, 1950, and Economic Research Service, USDA, population projections.

4-32888 3-73

Table III-3--Total personal and per capita income, United States, Alabama, and the Alabama River Basin study area, 1959, 1969, and projected 1990, 2000, and 2020.

Income	Units[1]	1959	1969	Projected 1990	Projected 2000	Projected 2020
Total personal						
United States	Bil.Dols.	437.4	678.2	1,735	2,650	5,935
Alabama	Mil.Dols.	5,373	8,305	21,170	32,330	72,410
Basin	Mil.Dols.	1,514	2,340	5,960	8,670	18,630
Per capita						
United States	Dollars	2,474	3,359	6,432	8,644	14,874
Alabama	Dollars	1,685	2,424	5,029	6,927	12,483
Basin	Dollars	1,557	2,355	4,954	6,548	11,472

1/ 1967 dollars

U. S. Department of Commerce, Personal Income by States Since 1929 and Survey of Current Business. Projections developed from U. S. Department of Commerce estimates of U. S. economic growth to 2020.

A breakdown of basin earnings reveals that 95 percent of all earnings are from non-farm sources.

Only one basin county reported a 1969 per capita income above the United States average, Figure III-1. Most counties were well below the national mean; in fact, 17 reported per capita incomes below $1,800, less than one-half the United States figure.

Employment

Substantial employment gains were registered in the basin between 1960 and 1970. The most notable were in service and manufacturing employment, Table III-4. These data account for civilian employment only and represent a work force of persons 14 years old and over. Total employment increased 25 percent, while population was increasing by only 2 percent during this period. Most of the employment growth in the basin paralleled the national growth rate, rather than increasing as a result of attractive employment conditions in the area.

Agricultural employment is declining rapidly. In 1970, less than one job in 20 was agricultural. By 1990, agricultural employment is expected to represent about 2 percent of total employment.

Unemployment has decreased considerably since 1960. In that year, the basin unemployment rate reached a high of 6.8 percent. Since that time, the rate has steadily declined, dropping to 4.4 percent in 1970, slightly lower than the national average.

The employment projections shown in Table III-4 are OBERS baseline estimates which are consistent with a projected national framework. The

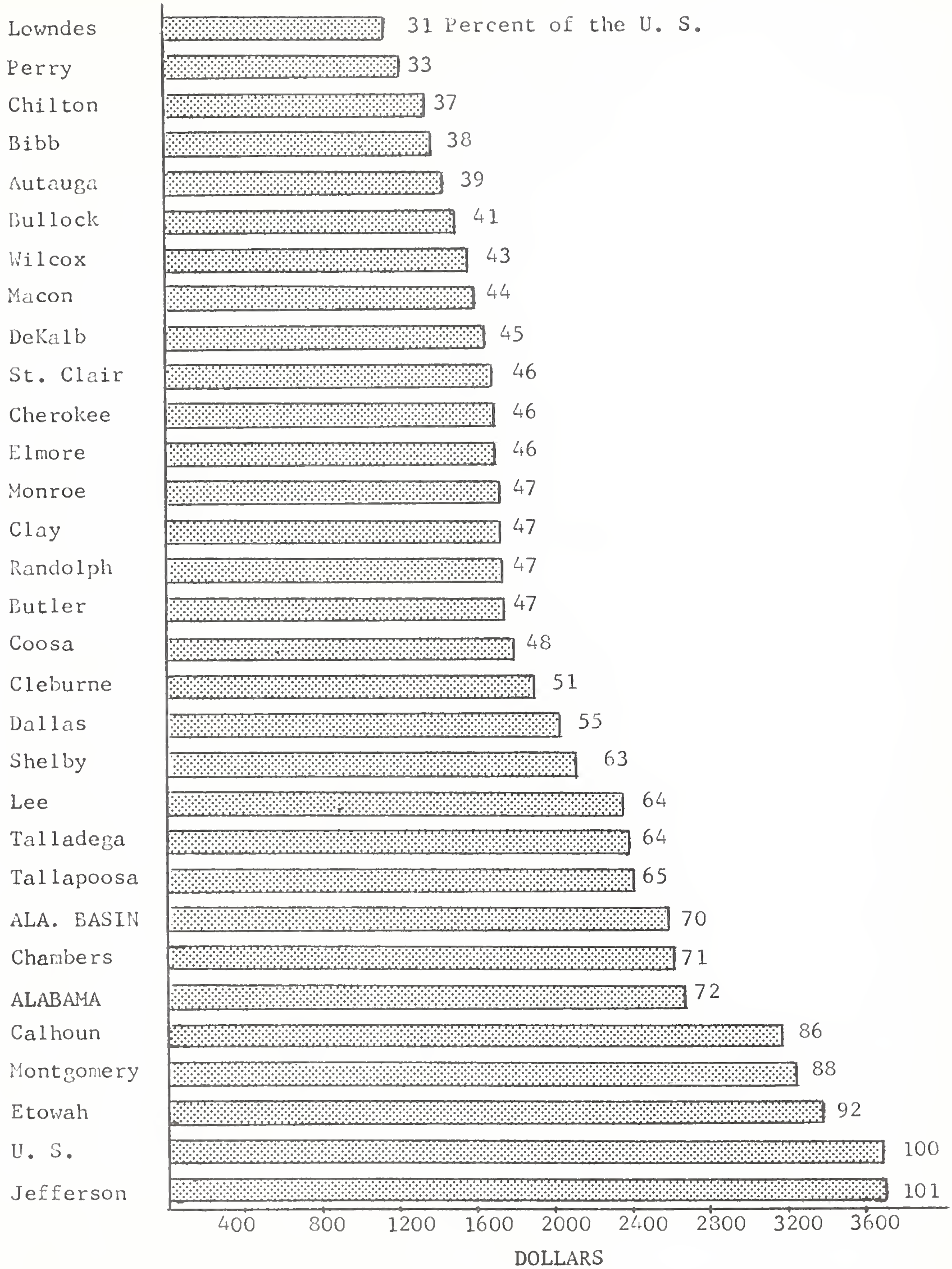


Figure III-1--Per capita income in Alabama River Basin counties compared to the United States, 1969.

4-32888 3-73

Table III-4--Employment by major categories, Alabama River Basin study area, 1940 to 1970, and projected 1990, 2000, and 2020.

Employment Categories	1940	1950	1960	1970	Projected 1990	Projected 2000	Projected 2020
	Number	Number	Number	Number	Number	Number	Number
Agricultural	121,037	77,373	32,276	19,360	9,040	7,618	7,162
Mining	5,664	3,439	1,881	1,200	*	*	*
Contract Construction	8,732	17,023	20,765	24,079	28,518	31,152	36,542
Manufacturing	54,817	80,910	87,274	111,748	129,483	140,658	164,123
Transportation, Comm., and Utilities	10,101	16,105	16,721	17,445	21,217	23,768	28,871
Wholesale & Ret. Trade	26,692	45,580	52,118	64,280	78,110	87,111	105,065
Finance, Ins., & Real Estate	3,557	6,397	9,099	10,948	14,404	16,485	20,916
Services	49,388	61,096	76,830	120,858	154,189	174,862	221,612
Government	10,163	19,968	31,867	43,044	52,219	57,486	68,419
Total	290,151	327,891	328,381	412,962	487,180	539,140	652,710

*Less than 500

U. S. Department of Commerce, Census of Population, 1940, 1950, 1960, and Department of Industrial Relations, State of Alabama, 1970.

national and regional OBERS projections were prepared jointly by the Office of Business Economics, U. S. Department of Commerce, and the Economic Research Service, U. S. Department of Agriculture, for use in river basin planning. Employment projections should not be considered to be an optimum or idealized level of activity. They are simply conditional forecasts of the future based on an extension of past relationships.

As indicated in Table III-4, total employment in the study area should reach 487,000 by 1990, an increase of 18 percent during the next 20 years. Most rapid gains are forecast in finance, insurance, and real estate, followed by services and trade employment.

Industrial Development

Alabama finished last among eight southern states in expanding industrial employment in the last half of the 1960's.

The problem is not going unnoticed. The Alabama Development Office is placing top priority on attracting industry. In 1970, a record 148 new industries located in the state, up substantially from the 128 reported in 1969.

Basin industrial development is compared to statewide growth in Table III-5. Overall, the study area has been attracting a proportionate share of the new plants coming to Alabama; however, average capital investment per new or expanding industry is far below the average investment for the remainder of the state. A total of $500 million was invested in Alabama plants in 1969, but only $52 million went for developments in the study area. Consequently, it is evident that the typical basin plant is a small labor extensive operation substituting unskilled labor for more expensive labor saving technology. During the 1967-1969 period, 68,237 new industrial jobs were created statewide, with 32 percent going to basin plants.

Urban Land Use

In 1967 there were 1,364,000 acres of urban and built-up acreage in the state (Table III-6). Urban and built-up areas are defined to include cities, villages, other built-up areas of more than ten acres, industrial sites, railroad yards, cemeteries, airports, golf courses, shooting ranges, institutional and public administrative sites, and similar types of areas. Non-farm rural residences are not included in urban.

Of the total, 420,000 acres were located in the Alabama River Basin. From 1958 to 1967, urban acreage in Alabama increased by 34 percent, meaning that about 38,600 acres shifted from rural to urban uses annually.

4-32888 3-73

Table III-5--Industrial Development, Alabama River Basin, 1967-1969.

Item	Units	1967	1968	1969
New Industries				
Plants	No.	31	33	31
Capital Inv.	$1,000	15,252	13,266	18,718
New Jobs Created	No.	2,201	3,762	3,075
Avg. Inv.	$1,000	492	402	604
Avg. No. Jobs	No.	71	114	99
Expanded Industries				
Plants	No.	50	75	60
Capital Inv.	$1,000	106,024	36,225	33,600
New Jobs Created	No.	3,250	6,900	2,340
Avg. Inv.	$1,000	212	483	560
Avg. No. Jobs	No.	65	92	39
Basin as a Percent of the State's				
New Industries:				
Plants	Percent	33	28	24
Capital Inv.	Percent	7	9	11
New Jobs	Percent	22	38	17
Expanded Industries:				
Plants	Percent	33	34	35
Capital Inv.	Percent	18	12	10
New Jobs	Percent	31	46	24

Alabama Development Office, Industrial Development Report, 1967, 1968, 1969.

4-32888 3-73

Table III-6--Urban land use, Alabama, Alabama River Basin, and selected subbasins, 1958 and 1967.

Area	1958	1967
	Thousand Acres	Thousand Acres
Alabama	1,016	1,364
Alabama Basin	300	420
Coosa	110	185
Alabama	63	93
Tallapoosa	71	88
Cahaba	46	54

Alabama Conservation Needs Inventory, 1958 and 1967.

<u>Agricultural Land Use</u>

There are 11.0 million acres of land in the study area. Of this, 7.4 million acres are in commercial forest land, largely in private holdings. Forty-one percent of the area or 4.5 million acres, was in farms in 1969 (Table III-7). This was a reduction of 2.7 million acres in 15 years, including the loss of over 700,000 acres in the five years between 1964 and 1969. This was about one-half of all farm land shifting to other uses in the state during the period. Obviously basin farm land is undergoing change much faster than in other parts of the state. Much of the transition has been in marginal cropland. Between 1954 and 1969, cropland losses averaged almost 50,000 acres annually.

Table III-7--Trend in agricultural land use, Alabama River Basin, 1954-1969.

Item	1954	1959	1964	1969
	Thousand Acres	Thousand Acres	Thousand Acres	Thousand Acres
Agricultural				
In farms	7,203	5,643	5,267	4,543
Cropland, total. . .	2,374	1,803	1,455	1,626
Harvested	1,304	969	784	678
Irrigated	5	8	3	2
Pastured	707	556	442	747
Idle	363	278	229	261
Woodland, total. . .	3,594	2,687	2,550	1,868
Pastured	1,777	1,272	1,146	N.A.
Not pastured	1,817	1,415	1,404	N.A.
Pasture.	1,045	996	1,106	N.A.
Other land	190	157	156	989*

Census of Agriculture, 1954, 1959, 1964, 1969.

*Includes pasture other than cropland or woodland pasture.

Less than one-half of the total cropland is harvested annually about 678,000 acres in 1969. Sharp cuts in corn and cotton acreage account for the recent drop in harvested acreage.

4-32888 3-73

Irrigated acreage in the basin was reported at 4,500 acres in 1971, down from 10,500 acres in 1970. There is no indication that irrigation will increase in importance in the future.

The 1967 Conservation Needs Inventory (CNI) inventoried a total of 9,923,000 acres in the study area (Table III-8). Federal lands and urban and built-up areas are not included in this figure. Together they comprise 1,004,000 acres.

Table III-8--Distribution of land use by subbasin, Alabama River Basin, 1967.

Land Use	Total Study Area	Subbasins			
		Alabama	Cahaba	Coosa	Tallapoosa
	Thousand Acres	Thousand Acres	Thousand Acres	Thousand Acres	Thousand Acres
Cropland.	1,273	542	72	382	277
Row crops	601	267	28	195	111
Close grown	95	39	9	26	21
Rot. hay and pasture	25	7	*	10	8
Hayland	101	56	9	19	17
Orchards, vineyards	23	12	*	5	6
Conservation use	206	90	9	41	66
Idle and other	222	71	17	86	48
Pasture.	1,327	658	78	259	332
Improved	531	263	31	104	133
Forest	7,108	2,381	819	2,245	1,663
Grazed	524	422	20	21	61
Other land . . .	215	76	17	74	48
Total land inventory	9,923	3,657	986	2,960	2,320

*Less than 500 acres

Alabama Conservation Needs Inventory, 1967.

According to the CNI, approximately 72 percent is forest, 13 percent is cropland, 13 percent is in pasture, and 2 percent is other land.

Agricultural Economy

During the decade of 1959-1969, farm numbers in the study area decreased by 40 percent, dropping from 35,120 farms to 20,795 (Table III-9). This rate of reduction was much greater than the national decline of around one-third of all farms during the same period. Farm land values in Alabama are increasing faster than anywhere in the Nation. Between 1970 and 1971, Alabama and Delaware led the U. S. with a 12 percent increase in average value of farmland. This has placed additional pressure on the small operator, making it difficult to obtain good agricultural land, while creating a lucrative opportunity for him to sell out and turn to other types of employment. Of the 20,795 farms, only 7,913 were classified as commercial, i.e. with sales of $50 or more. Almost two-thirds of the basin's farms were operated on a part-time or part-retirement basis.

4-32888 3-73

Table III-9--Farm characteristics, Alabama River Basin, and Alabama, 1954-1969.

Item	1954	1959	1964	1969
Number of farms				
Study Area	56,620	35,120	29,044	20,795
Alabama	176,956	115,788	92,530	72,491
Commercial				
Study Area	26,628	16,350	14,925	7,913
Alabama	95,101	57,840	51,912	29,639
Average Size, Acres				
Study Area	127	161	181	218
Alabama	118	143	164	188

U. S. Bureau of the Census, Census of Agriculture, Alabama, selected years.

Table III-10--Value of products sold by source, Alabama River Basin, 1959 and 1969.

Item	1959 1/	1969 1/	Share of State Sales 1969 1/
	Thousand Dollars	Thousand Dollars	Percent
Total receipts	145,177	204,048	28
Livestock receipts	101,177	161,298	30
Poultry	39,955	84,238	30
Cattle and calves	38,097	47,569	37
Dairy	16,213	18,599	38
Hogs	6,912	10,892	18
Crop receipts	44,000	42,750	21
Cotton	32,673	15,420	32
Soybeans	200	7,514	22
Vegetables & potatoes	1,962	7,022	26
All other crops	9,165	12,794	14

1/ Current dollars

U. S. Bureau of the Census, Census of Agriculture, Alabama, 1959, and Alabama Agricultural Statistics, 1971, Alabama Crop and Livestock Reporting Service.

The trend as reflected by Table III-10 shows that poultry is firmly established as the most important enterprise in the basin, accounting for two-thirds of the increase in agricultural sales during the 1959-69 period. Soybeans is emerging as a leading money crop and is expected to surpass cotton in value of sales statewide by 1990.

4-32888 3-73

Crop Production

Crops are no longer the major source of agricultural receipts. In 1969, only one of every five dollars received in farming was from crop sales.

The production of major basin crops is shown in Table III-11. Acreage declined steadily between 1964 and 1970, dropping 48,000 acres from 726,000 to 678,000 acres. Feed crops comprise slightly more than one-half of the harvested acreage, while oil and fiber crops account for 44 percent. Only 4 percent of the acreage is utilized for food crops.

Table III-11--Principal crops: acres harvested and production, Alabama River Basin, 1964 and 1970.

	Unit of Production	1964		1970	
		Acres	Production	Acres	Production
Feed crops					
Hay	Tons	195,700	294,000	207,500	316,000
Corn	Bushels	262,257	8,526,000	133,135	2,905,000
Oats	Bushels	13,210	538,000	9,415	357,700
Grain sorghum	Bushels	2,087	50,666	8,075	258,000
Oil and fiber					
Cotton	Bales	217,870	277,328	152,971	156,143
Soybeans	Bushels	14,704	407,400	140,962	3,177,000
Peanuts	Pounds	3,159	2,290,000	2,288	2,157,000
Food crops					
Wheat	Bushels	5,914	164,400	15,133	430,000
Vegetables	Cwt	10,134	608,000	7,100	669,000
Potatoes	Cwt	886	83,600	1,200	152,650
Total acres		725,921		677,779	

Census of Agriuclture, Alabama, 1964, and Alabama Crop and Livestock Reporting Service estimates for 1970.

In 1959, 576,000 acres of corn was harvested in the basin; this dropped to 262,000 acres in 1964. The 6-year period between 1964 and 1970 showed a similar reduction from 262,000 to 133,000 harvested areas. The 1970 season was marked by an outbreak of corn blight which reduced yields to the lowest level since 1954, 22 bushels per acre. This, coupled with other problems resulted in the lowest Alabama corn production on record, 12,535,000 bushels, of which 23 percent came from basin farms. Most specialists are doubtful that production will drop below 10 million bushels statewide. Oats and grain sorghum, the remaining feed crops, are of minor importance at present.

Trends in cotton production are very similar to those of corn. Acreage has declined, yields are erratic, and production is trending downward over the long run. Output in both the state and basin reached record lows in 1967, but has climbed steadily since that time. Production is still well below the 1964 level of 227,000 bales. Cotton acreage has shifted from south to north Alabama in particularly to the Tennessee Valley area.

4-32888 3-73

Future prospects for growth will depend largely on government programs and acceptance of synthetic fibers.

Soybean production is booming in all parts of the south and the study area is no exception. Production is up from 407,000 bushels in 1964 to a record 3,177,000 bushels in 1970. Acreage is almost ten times the 1964 level with an increased share of the state's soybeans being grown on basin farms. Basin farmers produce nearly one-fourth of Alabama's total crop, compared to 10 percent in 1964. Production is concentrated in the Alabama Subbasin.

Livestock and Livestock Products

Poultry is the single most important basin livestock enterprise with sales of $84 million in 1970. Broiler production alone contributed as much income as all crops combined, about $42 million.

Table III-12--Livestock and livestock products sold, Alabama River Basin, 1959, 1964, and 1970.

Livestock and Livestock Products	Units	Quantity Sold 1959	1964	1970*
Livestock				
Cattle and calves	Number	241,900	270,900	303,600
Hogs and pigs	Number	206,000	165,000	230,000
Broilers	Thousand	40,961	59,045	97,500
Turkeys	Number	74,360	273,050	8,900
Sheep and lambs	Number	5,862	2,053	935
Livestock products				
Whole milk	Thousand lbs.	230,800	292,500	304,400
Cream	Thousand lbs.	9,232	10,003	11,870
Chicken eggs	Million	315	632	843

*Estimated

Census of Agriculture, Alabama, 1959 and 1964, and Alabama Crop and Livestock Reporting Service estimates for 1970.

Egg sales produced $31 million in 1970 to rank third behind broilers and cattle in value of sales.

Cattle and calf sales have increased slowly since 1959, with the basin's share of state sales remaining approximately the same, at about 37 percent. Sale of 303,600 animals in 1970 yielded $47.6 million. Over half of the sales occur in the Alabama Subbasin, primarily in the Montgomery market area.

In 1970, 550 million pounds of beef and veal were produced in Alabama; 202 million pounds were from basin cattle.

Milk production in the study area has increased substantially while the number of dairy cows has actually declined. Average production per cow remains about two-thirds the national average. In 1970, there were 51,675 milk cows reported averaging 5,890 pounds for a total production of 304.4 million pounds of whole mile. By 1990, average yield is expected to reach 10,500 pounds.

4-32888 3-73

The number of hogs and pigs on farms has fluctuated widely over the past 20 years, ranging from a high of 260,000 in 1959 to a low of 141,000 in 1964. There were 165,000 on basin farms in 1970 with sales of 230,000 hogs and pigs during the year. Sales grossed $11 million.

Sheep and lambs are almost non-existent in the study area. Only 935 were marketed in 1970.

Forestry

The basin contains 7,400,759 acres of commercial forest land.1/ Ownership is as follows:

Table III-13--Ownership of commercial forest land, Alabama River Basin, 1970.

Owner	Area	Percent
National forest	313,385	4
Other federal	61,815	1
State forest & parks	26,059	(less than 1.0)
Private1/	6,999,500	95

1/ Includes small areas of miscellaneous public lands such as school board and university lands and state lands being developed for public recreation.

Classification of commercial forest land according to timber type is shown in Table III-14.

The oak-gum-cypress type is found mostly on flood plains. The other types are found essentially in the uplands.

The 1962 forest survey shown in Table III-15 shows the following values for the commercial forest area and total volume of growing stock for the state and basin.

Table III-14--Classification of commercial forest land by timber type, whole county area, Alabama River Basin, 1970

Type	Percent of Total Area
Lobolly-shortleaf pine	38
Oak-pine	24
Oak-hickory	18
Longleaf-slash pine	10
Oak-gum cypress	10

1/ Based on 1967 CNI data with preliminary estimates used for forest land distribution in partial counties.

4-32888 3-73

Table III-15--Commercial forest area and volume of growing stock, Alabama and Alabama River Basin, 1962.

	Area		Total Volume Growing Stock	
	1,000 Acres	Percent	Million Cu.Ft.	Percent
Alabama	32,678.4	100.0	14,477.9	100.0
River Basin	7,400.6	22.6	4,772.1	33.0

These figures indicate the current importance of the Alabama River Basin as an industrial wood supply area.

Forest Industry

Since the early 1960's increased capital investments in forest industry have resulted in some increased primary production, as well as an increase in values added by additional manufacture in the state. A summary of new investments is given in Table III-16.

Table III-16--Investment in Alabama forest industries, 1965-1971.

	Plants		
	New	Expanded	Capital Investment
Lumber and wood products	115	79	$113,350,713
Paper and allied products	15	45	561,714,100
Furniture and fixtures	31	27	16,789,260
Total	161	151	$691,854,073

Substantial portions of this new industry have been developed within the study area. Three paper mills have been constructed in the basin since 1964.

The map in Figure III-2 shows manufacturing plants of primary forest industry. These installations are the principal processors of roundwood from the Alabama River Basin and other state supply areas. There are numerous pulpwood yards and some wood concentration centers on, and near, the basin that are not shown. Almost all of the wood supplies shipped from these facilities are used by the industries shown in Figure III-2. Plants engaged in the manufacturing processes of secondary forest industry are not shown. These plants produce millwork, pre-fabricated housing, converted paper products, furniture, wood and veneer boxes and crates, and other products. The secondary manufacturing installations in the basin depend on primary forest industry of the basin and adjacent areas for almost all their bulk wood and paper supplies.

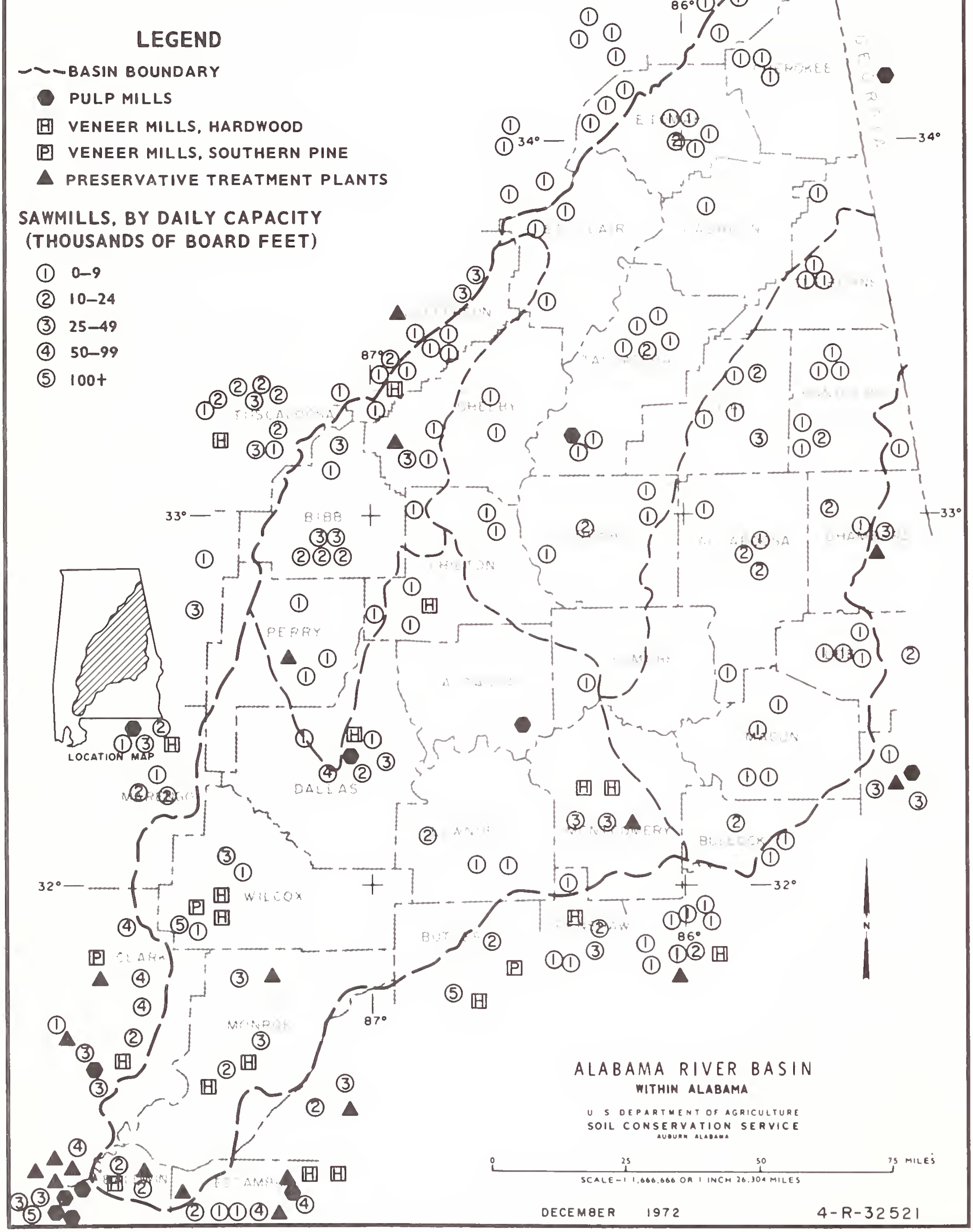
Employment

Average monthly employment and total annual wages for forest-related industries in 1970 are shown in Table III-17.

4-32888 3-73

Figure III – 2

PRIMARY FOREST INDUSTRIES OF THE ALABAMA RIVER BASIN AND ADJACENT COUNTIES



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Table III-17--Average monthly employment and total annual wages for forest-based industries, Alabama Basin, whole-county area, 1970.

Type of Activity	No. of Employees	Total Annual Wages
I. Management and harvesting[1]	1,291	$ 4,643,598
II. Mostly primary manufacturing (with integrated secondary manufacturing processes)		
Sawmills, veneer mills, preservation treatment plants, & misc.	4,819	22,210,670
Wood pulp mills	3,042	30,397,148
Gum & wood chemicals	13	99,033
III. Secondary manufacturing processes (only)		
Millwork; prefab. housing; structural members; wood, plywood, & veneer boxes & crates; wood furniture & fixtures; & others	1,874	9,177,525
Paper converting plants and some paper mills	547	2,574,296
IV. Associated industry & supported activity[2]		
Carpentering, wood floor laying; paper glazing	425	2,445,103
Total	12,011	71,547,373

1/ Much of the part-time employment in forestry services is not reported and is not shown here. Some part-time employment and on-farm labor in timber harvesting is likewise missing from these data. Forest management activity by the State of Alabama and the U. S. Government is not reported here.

2/ This list is not comprehensive and complete. Considerable employment in construction, transportation, and marketing is attributable to the wood raw materials involved. Employment in utilities supply, fuel supply, equipment supply and repair, food industry, medical services and other fields is supported by the manufacturing activity generated by wood raw materials from the forest area of the whole-county basin area.

4-32888 3-73

1970 Production

The 1970 Severance Tax Report for Alabama is the latest data on roundwood production in the state. Table III-18 gives estimates for (1) the entire state, and (2) the Alabama River Basin. Approximately 34.5 percent of the state's roundwood production comes from the basin.

Table III-18--Roundwood production in Alabama and the Alabama River Basin, 1970.

Item	Unit	Alabama	Alabama River Basin
Pine pulpwood	Million Cu.Ft.	240.4	108.7
Hardwood pulpwood	Million Cu.Ft.	157.4	44.2
Pine sawlogs & veneer logs	Million Cu.Ft.	160.3	43.6
Hardwood sawlogs & veneer logs	Million Cu.Ft.	55.5	17.0
Poles & piling (pine)	Million Cu.Ft.	13.4	2.9

Stumpage Values

Estimates made from the 1970 Severance Tax Report show the following returns in stumpage value for the products harvested in the Alabama River Basin. (Table III-19)

Table III-19--Stumpage values for products harvested in the Alabama River Basin, 1970.

Product	Stumpage Values for the Whole-county Area
Pine sawlogs & veneer logs	$ 9,216,608
Hardwood sawlogs & veneer logs	3,776,586
Pine pulpwood	9,655,799
Hardwood pulpwood	1,574,496
Poles (pine)	1,053,945
Piling (pine)	182,620
RR and mine ties (hardwood)	166,524
Coal mine props (hardwood)	5,125
Total	$25,691,731

Agribusiness Importance

The Alabama Resource Development Committee conducted an agribusiness survey of all Alabama counties in 1967 to determine the nature and importance of the agribusiness economy in the state. This survey identified 3,690 agribusiness firms with a volume of $1.8 billion in the 1966-67 business year.

Almost 1,600 of these firms are located within the basin study area (Table III-20). Of the 1,571 agribusiness firms, 63 percent were related to timber and wood products.

Over 40,000 persons were employed in agribusiness occupations in the study area, 90 percent full-time. This represents one of every ten persons employed.

Business volume totaled $529 million in 1967, for an average of $337,000 per firm. Capital investment in agribusiness was an estimated $374 million.

Table III-20--Agribusiness industry; type, employment, volume of sales, and capital, Alabama River Basin, 1966-1967.

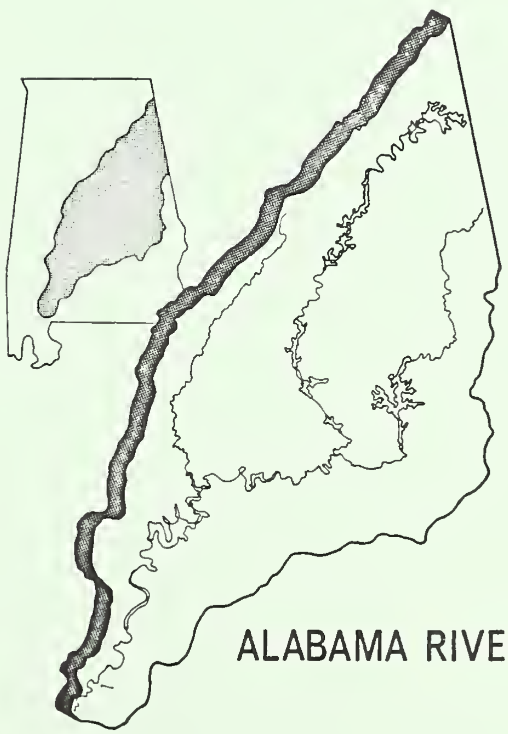
Item	Located in Alabama River Basin	Relative Distribution	Basin As a Portion of the State
	Number	Percent	Percent
Industry			
Feed & chemical mfg.	66	4	28
Food processing	101	6	31
Field crop firms	150	10	29
Machinery sales & mfg.	74	5	25
Agri-supply retailers	125	8	29
Livestock markets	19	1	21
Nursery crops	52	3	23
Forest products	984	63	63
Total	1,571	100	43
Employment			
Full	35,984	90	38
Part-time	4,561	10	36
Total	40,122	100	37
Business volume (1000s/$)	528,822	-	30
Total capital (1000s/$)	374,214	-	29

4-32888 3-73

SECTION

4

PROBLEMS AND NEEDS



ALABAMA RIVER BASIN

4-32888 3-73

IV. PROBLEMS AND NEEDS

Natural Resources

Flood Prevention

The size of the study area, its physiographic variations, and storm characteristics are such that major flood producing storms covering the entire area have rarely occurred. During the spring months, particularly March, high winds of cyclonic origin come into the area from the west and often produce intense local storms with heavy rainfall accompanied by tornadic winds. A pre-record flood of March-April 1886, the greatest known in the basin, resulted from a general storm which centered over the Coosa River at Centre, Alabama. This storm produced the highest known stages along most of the principal streams with the exception of the lower Alabama River. flooding was especially severe along the Coosa and Upper Alabama Rivers. It is estimated that the peak discharge for this flood was 322,000 c.f.s. at Montgomery on the Alabama River. The flood of April 1938 resulted in heavy damage because it occurred during the early part of the planting season. This flood produced the highest flow ever recorded in the basin, 298,000 c.f.s. at the Coosa River station just below Jordan Dam. This flood was also critical along the lower Alabama River where near-record stages occurred. Damaging overflows, however, were recorded at practically all stations in the basin.

Flood problems along the middle and lower reaches of the major streams are largely caused by comparatively infrequent storms covering large areas for prolonged periods of time. When such flood producing storms occur, they cause considerable urban and industrial damages as well as damages to agriculture. Flood plain acreage and land use along the major rivers of the basin is shown in Table IV-1. The total acres subject to flooding along these major rivers is estimated to be 398,180 acres. Average annual damage to agricultural crops, urban properties, and roads, and railroads is inclu included in Table IV-2. The total damage along the major rivers is estimated to be $1,316,000 annually.

Violent local storms, of both frontal and convective types, in the tributary areas create flash floods, the force of which is dissipated before the flood flows progress very far downstream. However, those floods often cause severe land damages to stream banks and channels and to adjoining bottom lands. Also, prolonged periods of rainfall in the Piedmont Plateau area cause overflow of longer duration on tributary streams. These tributary flows are often absorbed by the impoundments on the main streams without appreciable rises in stage.

Flood damages which may be alleviated by improved cover conditions, floodwater retarding structures, channel improvement, or a combination of these are predominantly those which occur on the flood plains of tributary streams and on the upper reaches of the Cahaba and Tallapoosa Rivers, principally above the fall line. On the tributaries, an average of about

4-32888 3-73

three to four floods occur annually. Damages due to inundation occur on all the Southern Appalachian and Piedmont tributaries and on many Coastal Plain tributaries.

Flood plain land use and flood damage estimates for the small watersheds (250,000 acres or less) listed on Table IV-3 were based on a reconnaisance study. The primary purpose for including this information is to indicate the general magnitude of the flood problem. Watershed investigation reports have not been prepared and more detailed information will be needed prior to preparation of such reports. The total area subject to flooding in these small watersheds is estimated to be more than 731,000 acres. Flood damage on this area amounts to about $2,029,000 annually.

In addition to the watersheds listed in Table IV-3, other small watersheds within the basin have been planned or developed for flood prevention and other purposes. The area which can be protected from flooding by these projects amounts to about 129,000 acres. Average annual damage on this area was estimated to be about $1,806,000 prior to project planning and development. More detailed information on these water resource developments is shown in Table IV-4 and Figure IV-1.

4-32888 3-73

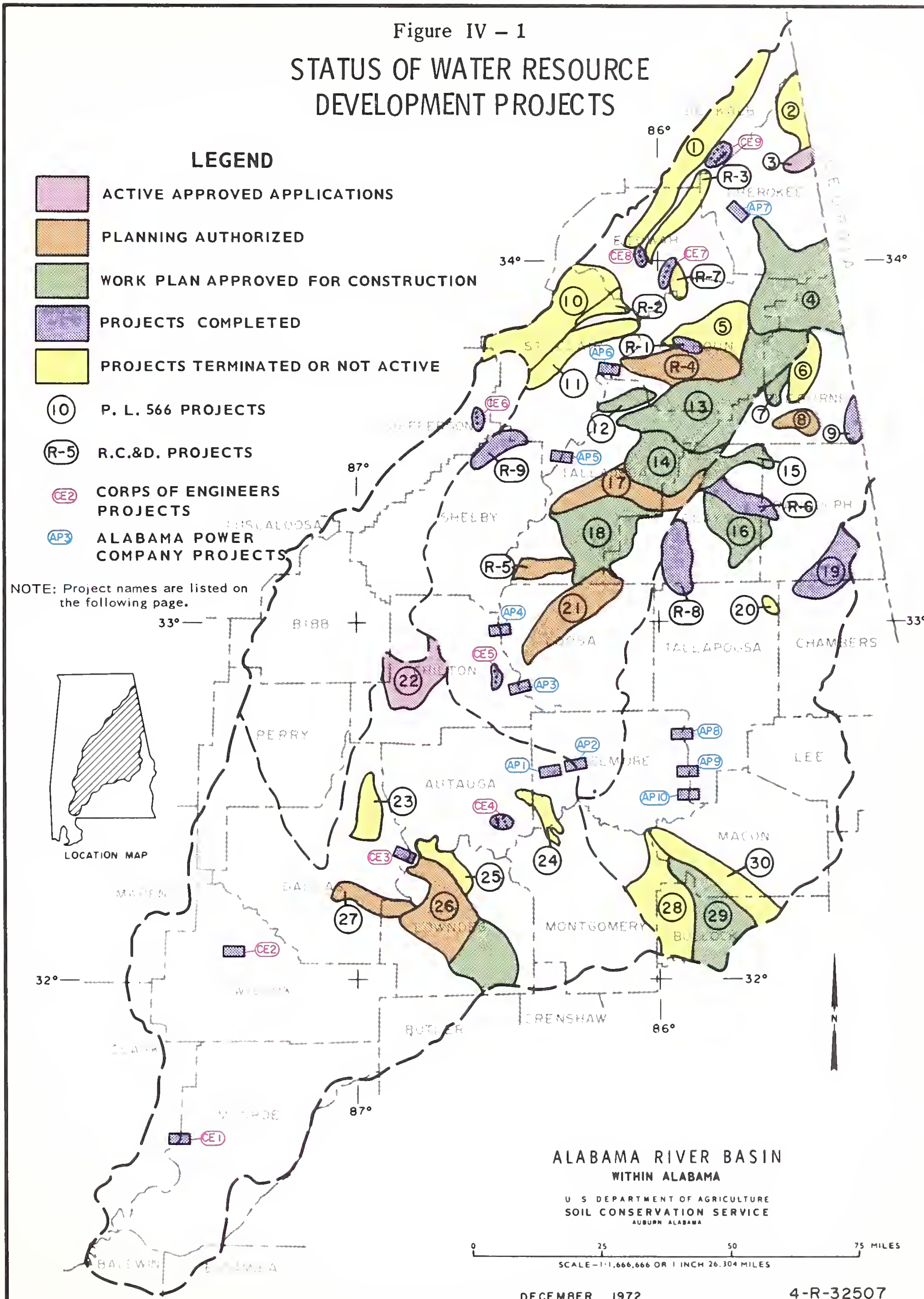


Figure IV – 1

STATUS OF WATER RESOURCE DEVELOPMENT PROJECTS

List of water resource development projects shown in Figure IV-1.

Coosa Valley RC&D Projects

R-1 - Alexandria
R-1 - Ashville
R-3 - Black Creek
R-4 - Cane Creek
R-5 - Cedar Creek
R-6 - Fox Creek
R-7 - Glencoe Creek
R-8 - Little Hillabee Creek
R-9 - Shoals Creek

P. L. 566 Projects

1 - Big Wills Creek
2 - Mills Creek
3 - Chattooga River
4 - Terrapin Creek
5 - Tallahatchee Creek
6 - Cane Creek Creek
7 - Cahulga Creek
8 - Dynne Creek
9 - Lost Creek
10 - Canoe Creek
11 - Beaver-Shoals Creek
12 - Blue Eye Creek
13 - Choccolocco Creek
14 - Cheaha Creek
15 - Ketchepedrakee Creek
16 - Crooked Creek
17 - Talladega Creek
18 - Tallaseehatchie Creek
19 - High Pine Creek
20 - Mill Creek
21 - Weogufka Creek
22 - Mulberry Creek
23 - Blue Girth-Beech Creek
24 - Mill Creek
25 - Lowndes-Cypress Creek
26 - Big Swamp Creek
27 - Mush Creek
28 - Line Creek
29 - Old Town Creek
30 - Cubahatchee Creek

Corps of Engineer Projects

1 - Claiborne Lock & Dam
2 - Miller Ferry Lock & Dam
3 - Jones Bluff Lock & Dam
4 - Prattville Levee & Clearing & Snagging
5 - Clanton Clearing & Snagging
6 - Trussville Clearing & Snagging
7 - Glencoe Clearing & Snagging
8 - Black Creek Clearing & Snagging
9 - Collinsville Levee & Clearing & Snagging

Alabama Power Company Projects

1 - Bouldin Dam
2 - Jordan Lake
3 - Mitchell Lake
4 - Lay Lake
5 - Logan-Martin Lake
6 - H. Neely Henry Lake
7 - Weiss Lake
8 - Martin Lake
9 - Yates Dam
10 - Thurlow Dam

4-32888 3-73

Table IV-1--Flood plain areas along the principal streams of the Alabama River Basin.1/

Stream	Stream mile2/		Flood plain area in acres				
			Rural				
	From	To	Cleared	Woods	Total	Urban	Total
Coosa River	569.6	540.1	100	100	200	----	200
Coosa River	540.1	520.7	5,000	3,600	8,600	----	8,600
Coosa River	520.7	493.4	6,800	6,700	13,500		13,500
Coosa River	493.4	462.4	5,100	5,100	10,200	1,000 3/	11,200
Coosa River	462.4	414.1	1,700	3,200	4,900	----	4.900
Coosa River	414.1	333.3	4,800	2,700	7,500	1,780 4/	9,280
Coosa River	333.3	314.4	3,500	4,100	7,600	350 5/	7,950
Subtotal for Coosa River	569.6	314.4	27,000	25,500	52,500	3,130	55,630
Alabama River	314.4	245.4	33,700	25,700	59,400	1,650 6/	61,050
Alabama River	245.4	203.9	21,400	13,800	35,200	6,000 7/	41,200
Alabama River	203.9	142.3	21,500	16,300	37,800	----	37,800
Alabama River	142.3	36.6	18,100	75,000	93,100	----	93,100
Alabama River	36.6	0.0	---	---	----	----	---
Subtotal for Alabama River	314.4	0.0	94,700	130,800	225,500	7,650	233,150
Tallapoosa River	137.7	123.6	1,000	1,000	2,000	---	2,000
Tallapoosa River	123.6	112.2	1,400	1,500	2,900	---	2,900
Tallapoosa River	112.2	92.0	2,500	2,900	5,400	---	5,400
Tallapoosa River	49.7	0.0	25,100	20,600	45,700	---	45,700
Subtotal for Tallapoosa River	137.7	0.0	30,000	26,000	56,000	---	56,000

4-32888 3-73

Table IV-1 (cont'd)

Stream	Stream mile 2/		Flood plain area in acres				
			Rural				
	From	To	Cleared	Woods	Total	Urban	Total
Cahaba River	88.8	64.8	4,900	5,700	10,600	---	10,600
Cahaba River	64.8	25.1	14,100	15,900	30,000	---	30,000
Cahaba River	25.1	8.2	8,800	4,000	12,800	---	12,800
Subtotal for Cahaba River	88.8	8.2	27,800	25,600	53,400	---	53,400
Total for Basin Within Alabama			179,500	207,900	387,400	10,780	398,180

1/ Adapted from Corps of Engineers Data, Mobile District; area based on approximately the 100 year storm.
2/ Miles shown are from the mouth of each respective river except that miles for Coosa River are from mouth of Alabama River.
3/ Gadsden, Alabama
4/ Childersburg, Alabama
5/ Wetumpka, Alabama
6/ Montgomery, Alabama
7/ Selma and Selmont, Alabama

4-32888 3-73

Table IV-2--Estimated average annual damage along the principal streams of the Alabama River Basin.1/

Stream	Stream Mile 2/		Agricultural Damage			Roads and Railroads	Urban	Total
	From	To	Crops	Other Than Crops	Subtotal			
Coosa River	569.6	540.1	$ 600	$ 1,400	$ 2,000	$ 2,000	$ -	$ 4,000
Coosa River	540.1	520.7	2,000	3,000	5,000	-	-	5,000
Coosa River	520.7	493.4	6,000	31,000	37,000	8,000	-	45,000
Coosa River	493.4	462.4	38,000	46,000	84,000	11,000	40,000 3/	135,000
Coosa River	462.4	414.1	12,900	8,100	21,000	4,000	-	25,000
Coosa River	414.1	333.3	3,800	5,200	9,000	-	5,000 4/	14,000
Coosa River	333.3	314.4	31,700	9,300	41,000	1,000	3,000 5/	45,000
Subtotal for Coosa River	569.6	314.4	95,000	104,000	199,000	26,000	48,000	273,000
Alabama River	314.4	245.4	71,000	17,000	88,000	4,000	178,000 6/	270,000
Alabama River	245.4	203.9	45,800	11,200	57,000	2,000	201,000 7/	260,000
Alabama River	203.9	142.3	40,800	10,200	51,000	-	-	51,000
Alabama River	142.3	36.6	112,700	27,300	140,000	14,000	-	154,000
Alabama River	36.6	0.0	-	-	-	-	-	-
Subtotal for Alabama River	314.4	0.0	270,300	65,700	336,000	20,000	379,000	735,000
Tallapoosa River	137.7	123.6	16,000	4,000	20,000	2,000	-	22,000
Tallapoosa River	123.6	112.2	31,800	8,200	40,000	3,000	-	43,000
Tallapoosa River	112.2	92.0	7,300	2,700	10,000	2,000	-	12,000
Tallapoosa River	49.7	0.0	88,700	24,300	113,000	1,000	-	114,000
Subtotal for Tallapoosa River	137.7	0.0	143,800	39,200	183,000	8,000	-	191,000

4-32888 3-73

Table IV-2 (cont'd)

Stream	Stream Mile 2/ From	Stream Mile 2/ To	Agricultural Damage: Crops	Agricultural Damage: Other Than Crops	Agricultural Damage: Subtotal	Roads and Railroads	Urban	Total
Cahaba River	88.8	64.8	$ 13,000	$ 8,000	$ 21,000	$ 2,000	$ -	$ 23,000
Cahaba River	64.8	25.1	23,500	13,500	37,000	3,000	-	40,000
Cahaba River	25.1	8.2	30,500	15,500	46,000	8,000	-	54,000
Subtotal for Cahaba River	88.8	8.2	67,000	37,000	104,000	13,000	-	117,000
Total for Basin Within Alabama			576,100	245,900	822,000	67,000	427,000	1,316,000

1/ Adapted from Corps of Engineers Data, Mobile District.
2/ Miles shown are from the mouth of each river; Coosa River mileage is from mouth of Alabama River.
3/ Gadsden, Alabama
4/ Childersburg, Alabama
5/ Wetumpka, Alabama
6/ Montgomery, Alabama
7/ Consists of $145,000 at Selma and $56,000 at Selmont, Alabama.

Table IV-3--Estimated flood plain land use and flood damage by watersheds and subbasins, in the Alabama River Basin, 1972.

Watershed	CNI No.[1]	Drainage Area	Flood Plain Land Use Distribution (Acres): Flood Plain	Cropland	Pasture	Forest	Misc.	Average Annual Flood Damage (Dollars): Crop And Pasture	Other And Indirect	Total
				Alabama River Subbasin (35a)						
Mulberry River	1,2,4,5	174,296	17,430	2,614	3,486	10,458	872	48,800	18,300	67,100
Valley Creek	3,12,15, 16	55,727	2,786		418	2,368		3,300	1,300	4,600
Little Mulberry Ck.	6,7	76,529	7,653	77	383	7,193		3,700	1,400	5,100
Swift Creek	8,9	97,820	7,782	98	489	9,195		4,700	1,800	6,500
Upper Alabama - West Tribs.	10,11,13, 14,19,20	210,300	21,030	210	631	20,189		6,700	2,50C	9,200
Blue Girth Beech Ck.	17	43,210	12,963	1,296	4,926	6,482	259	49,800	18,700	68,500
Upper Alabama Tribs.	18,32-36	164,589	32,918	2,633	5,267	24,689	329	63,200	23,700	86,900
Galbraith Mill Creek	21	33,595	11,785	5,892	1,179	2,946	1,768	56,600	21,200	77,800
Boguechitto Creek	23-27,29, 30	225,557	22,557	2,256	4,511	15,790		54,100	20,300	74,400
Middle Alabama Tribs.	28,31,44, 55	180,891	9,045		905	8,140		7,200	2,700	9,900
Wilcox Tribs.	42,43,53, 54,58,59, 63,64,67	428,201	25,692		3,854	21,838		30,800	11,600	42,400
Cypress (Lowndes) Ck.	38	29,766	2,977	60	893	2,024		7,600	2,900	10,500
Pintlalla-Tallawassee Creek	39,40,47- 49	195,492	25,413	254	9,657	15,248	254	79,300	29,300	108,600
Catoma Creek	41,50-52	243,056	24,306		10,937	10,937	2,432	87,500	32,800	120,300
Cedar Creek	45,61,62	175,249	17,525	175	6,835	10,515		56,100	21,000	77,100
Dry Cedar Creek	56	83,075	8,308	332	3,157	4,819		27,900	10,500	38,400
Lower Alabama - West Tribs.	57,73	244,620	36,693	1,468	2,202	33,023		29,400	11,000	40,400
Flat Creek	68-70	241,031	36,155	3,616	7,232	25,307		86,800	32,500	119,300
Lower Alabama Tribs.	71,72, 74-81	207,742	6,232		312	5,920		2,500	900	3,400
Subtotal			331,250	20,981	67,274	237,081	5,914	706,000	264,400	970,400
				Coosa River Subbasin (35a -1)						
Chattooga & Little Rivers	2,3, 5	197,612	3,952	988	1,581	1,383		20,600	7,700	28,300
Big Wills Creek	1,6	164,347	8,217	41	7,395	740	41	59,500	22,300	81,800
Upper Coosa Tribs.	4,9	132,902	6,645	1,994	465	3,654	532	19,700	7,400	27,100
Little Wills - Black	7	96,362	4,818	241	3,372	964	241	28,900	10,800	39,700
Upper Middle Coosa Tribs.	8,11-13, 17	178,641	3,572	357	1,072	1,786	357	11,400	4,300	15,700

4-32888 3-73

Table IV-3 (cont'd)

Watershed	CNI[1]	Drainage Area	Flood Plain Land Use Distribution (Acres): Flood Plain	Cropland	Pasture	Forest	Misc.	Average Annual Flood Damage (Dollars): Crop And Pasture	Other And Indirect	Total
			Coosa River Subbasin (35a - 1), (cont'd)							
Big Cane Creek	10,16	164,247	24,637	246	2,217	20,942	1,232	19,700	7,400	27,100
Ohatchee Creek	18	56,102	2,805	280	533	1,964	28	6,500	2,400	8,900
Tallahatchee Creek	20	86,811	5,209	1,042	1,042	3,021	104	16,700	6,300	23,000
Middle Coosa Tribs.	22,26-28, 34	205,210	10,261	103	103	9,952	103	1,600	600	2,200
Kelly Creek	24,25	123,515	6,176	31	62	5,990	93	700	300	1,000
Yellowleaf Creek (Shelby)	31-33, 36	152,633	7,632	763	763	5,724	382	12,200	4,600	16,800
Waxahatchee Creek	37,42	134,949	6,747	135	202	6,073	337	2,700	1,000	3,700
Yellowleaf-Walnut Ck.	48,52	92,424	9,242		462	8,780		3,700	1,400	5,100
Lower Middle Coosa Tribs.	38,39,44, 45,49	136,388	13,639	273	3,410	9,820	136	29,500	11,000	40,500
Cedar Creek (Talladega)	43	33,737	3,374	101	844	2,395	34	7,600	2,800	10,400
Hatchet Creek	41,51,54	239,300	7,179	144	862	6,101	72	8,000	3,000	11,000
Lower Coosa Tribs.	53,55-59, 61	217,373	6,521	326	1,565	4,565	65	15,100	5,700	20,800
Yellow-Taylor Ck.	60,62	67,768	2,033	102	407	1,524		4,100	1,500	5,600
Subtotal			132,659	7,167	26,357	95,378	3,757	268,200	100,500	368,700
			Tallapoosa River Subbasin (35a-2)							
Muscadine Creek	2	15,017	901	225	90	496	90	2,500	900	3,400
Upper Tallapoosa Tribs.	3,5,6,8, 10,15,18	168,725	8,436	169	2,109	6,158		18,200	6,800	25,000
Chickasanoxee - Chatahospee Creek	11,12,14, 16,17,19- 22,24	138,047	6,902	68	1,726	5,108		14,400	5,400	19,800
Lake Martin - West Tribs.	40,41	131,124	6,556	65	328	6,163		3,100	1,200	4,300
Lake Martin - East Tribs.	42,46-50, 52	241,852	12,093	121	1,209	10,763		10,600	4,000	14,000
Sougahatchee Ck.	53,54,59	129,190	3,876			3,837	39			
Uphapee-Storie; Sawacklahatchee-Opintlocco Creek	60-64, 72	129,712	25,942	1,038	5,188	19,457	259	49,800	18,700	68,500
Chubahatchee Creek	69	82,225	12,334	987	4,070	7,030	247	40,500	15,200	55,700
Calebee Creek	70,71,74	124,661	19,946	1,995	6,981	10,571	399	71,800	26,900	98,700
Lower Tallapoosa - South Tribs.	66,67	51,335	5,134	1,283	1,284	1,284	1,283[2]	20,500	7,700	28,200

4-32888 3-73

Table IV-3 (cont'd)

Watershed	CNI No.1/	Drainage Area	Flood Plain Land Use Distribution (Acres): Flood Plain	Cropland	Pasture	Forest	Misc.	Average Annual Flood Damage (Dollars): Crop And Pasture	Other And Indirect	Total
			Tallapoosa River Subbasin (35a-2)							
Lower Tallapoosa-North Tribs.	55-57,65	122,740	24,548	7,364	4,910	12,274		98,200	36,800	135,000
Clannahatchee Ck.	51,58	40,118	2,006	100	301	1,605		3,200	1,200	4,400
Middle Tallapoosa Tribs.	26,27,31-34,37	175,891	17,589	880	2,287	14,071	351	25,300	9,500	34,800
Subtotal			149,365	14,388	31,941	100,368	2,668	370,500	139,000	509,500
			Cahaba River Subbasin (35a-3)							
Upper Cahaba Tribs.	1,2,4,5	230,589	4,612		46	4,520	46	400	100	500
Shades Creek	3	86,546	1,731		52	1,662	17	400	200	600
Upper Middle Cahaba Tribs.	8-10,14	142,387	14,239	71	142	13,670	356	1,700	600	2,300
Cahaba Valley Ck.Tribs.	6,7	50,288	2,514	25	503	1,860	126	4,200	1,600	5,800
Little Cahaba Tribs.	11,12,15,16	190,297	19,030	190	1,142	17,698		10,700	4,000	14,700
Affonee Creek	13	121,435	14,572	438	874	13,260		10,500	3,900	14,400
Middle Cahaba Tribs.	17,18	100,559	10,056	2,011	3,017	4,525	503	40,200	15,100	55,300
Lower Cahaba - Oakmulgee Tribs.	19,20,23,24	202,501	40,500	810	2,835	36,450	405	29,200	10,900	47,300
Lower Middle Cahaba Tribs.	21,32	73,408	11,011	991	3,303	6,607	110	34,400	12,900	47,300
Subtotal			118,265	4,536	11,914	100,252	1,563	131,700	49,300	181,000
Total Basin			731,539	47,072	137,486	533,079	13,902	1,476,400	553,200	2,029,600

1/Alabama Conservation Needs Inventory, 1967.

2/Gravel pits.

4-32888 3-73

Table IV-4-- Estimated flood plain land use and flood damages within P.L. 566 and RC&D Watersheds by subbasins, Alabama River Basin, 1972.

Subbasin and Name Of Watershed	CNI No.	Flood Plain Land Use Distribution (Acres) Drainage Area	Flood Plain	Cropland	Pasture	Forest	Misc.	Average Annual Flood Damage (Dollars) Crop And Pasture	Other And Indirect	Total
COOSA - 35a - 1										
Terrapin Creek	14	183,675	13,786	5,927	3,309	4,135	415	144,979	28,502	173,481
Choccolocco Creek	21	240,600	16,129	3,871	10,000	2,258		169,611	58,782	228,393
Blue Eye	29	14,131	1,402	308	883	211		10,049	11,416	21,465
Cheaha	30	72,934	4,341	1,216	2,865	217	43	34,860	14,778	49,638
Talladega	35	105,970	5,014	1,705	2,105	1,052	152	42,000	50,000	92,000
Tallaseehatchie	40	131,077	10,139	1,014	3,547	5,070	506	72,606	154,375	226,981
Weogufka	46,47,50	85,632	4,000	160	1,200	2,600	40	33,400	31,600	65,000
Shoal Creek	19	21,120	831	14	322	453	41	2,474	1,094	3,568
Subtotal			55,642	14,215	24,223	15,996	1,197	509,979	350,547	860,526
TALLAPOOSA - 35a - 2										
Cahulga	4	12,032	378	132	170	45	31	7,657	4,456	12,113
Dynne	7	16,200	1,183	331	544	284	24	7,685	8,446	16,131
Ketchepedrakee	9	35,110	2,367	876	1,184	284	23	24,814	9,301	34,115
Lost	13	17,139	995	375	510	80	30	7,851	2,449	10,300
Fox	23	27,237	800	56	440	264	40	4,446	2,525	6,971
Crooked	25	63,558	3,896	234	2,493	1,169		10,672	3,517	14,189
High Pine	28	51,590	3,495	769	1,398	1,328		50,818	13,456	64,274
Old Town	73	106,554	15,902	1,272	6,679	7,633	318	127,587	63,695	191,282
Little Hillabee	30	44,894	1,240	155	481	604		13,657	8,550	22,207
Subtotal			30,256	4,200	13,899	11,691	466	255,187	116,395	371,582
ALABAMA - 35a										
Mill Creek	21	6,790	679	20	41	75	543*		24,590	24,590
Upper Big Swamp	37	83,667	14,445	578	5,489	8,378		146,072	54,532	200,604
Lower Big Swamp	37	100,045	25,821	775	9,554	15,492		218,571	75,141	293,712
Mush	46	38,726	3,100	2,294	620	186		44,400	11,000	55,400
Subtotal			44,045	3,667	15,704	24,131	543	409,043	165,263	574,306
CAHABA - 35a - 3	No Flood Control Plans									
Total Basin			129,943	22,082	53,082	51,818	2,206	1,174,209	632,205	1,806,414

* Urban - Residential

Note: These watersheds are in various stages of planning and development.

4-32888 3-73

Erosion and Sediment Control

Erosion and sedimentation are natural processes that cannot be completely halted; but erosion and sedimentation are more profoundly affected by man's activities than most other natural processes. Man can cause the cycle to "run wild" or can, by sound land use and conservation, bring erosion and sedimentation within acceptable limits, so that, in spite of natural erosion, the soil remains fertile and stable. The effects of erosion/sedimentation are four-fold: erosion depletes the resources of the land, sediment impairs the quality of water in which it is transported, damages land and channels where it is deposited and eventually fills lakes and estuaries.

Soil erosion in the Alabama Basin is caused almost entirely by precipitation and storm runoff. Much erosion occurs on agricultural lands; however, other important sources are road construction and land development, road banks and ditches, streambanks and gullies, and recently logged forest. Originally, the soil conservation movement concentrated on holding productive soil on agricultural land. Agricultural erosion is still a very serious problem both as depletion of a natural resource and source of damaging sediment. This was and is of vital concern, but as the nation's farmers have learned to use less land for agriculture, the emphasis has shifted. Locally, the effects of construction erosion and other point erosion sources such as road banks may be very severe and the damage long-lasting and effects widespread. In areas where construction or strip mining has altered the soil and removed the vegetation, erosion may be hundreds of times greater than on well protected farmland, pastureland or, woodland.

Erosion computations indicate that 53.4 million tons of soil are eroded annually from Alabama River Basin lands. Average annual erosion rates for subbasins are shown in Figure IV-2. All eroded soil does not become damaging sediment; however, all erosion in excess of that which natural processes can rebuild, is destructive.

Land use projections indicate that approximately the same acreage of openland can be expected to remain in agricultural and urban use through the year 2020. If the present level of land treatment on erosion sources continues, the erosion damages will continue at the present rate for this period. An accelerated rate of land treatment is needed before satisfactory gains can be realized on conservation accomplishments.

Maximum conservation treatment appears to be an unrealistic goal. However, in small projects, where land treatment is emphasized as the first increment of flood and sediment control, it is common to achieve 25 to 30 percent reduction in erosion by voluntary methods alone. Projection of erosion rates, land use, and needed conservation treatment, indicate that total erosion could be reduced about 75 percent. A wide range land treatment program implemented to ease the initial investment cost to individual landowners, could pay fantastic dividends in terms of increased aesthetic values, clean water, decreased sediment cleanup costs, and increased productivity of the land.

4-32888 3-73

A definite need exists for project measures to control point erosion sources (non-agricultural). It is much less expensive to hold soil on construction sites and road banks than to remove the same soil from lands or waters downstream. Inventories of erosion are incomplete but some information is available. Land treatment needs for strip-mined land is shown in Table IV-5. Areas most subject to gully or roadside erosion (greatest hazard) are shown in Figure IV-3. Acreage of strip-mined land is shown in Table IV-5. Analysis of treatment needs and needed project measures will be suggested by further studies.

Sediment damage may occur in the form of reduced productive capacity of flood plain soils and as damage to water quality and deposits in streams and reservoirs. Soil damage is a long-term damage caused by deposition of infertile material which must be improved by natural processes over a long period of time. This type of damage occurs where water transporting a high sediment concentration is slowed at the base of slopes or where flood flows spill out over the flood plain. Sediment damages from individual floods occur as damage to growing crops, pastures, houses, streets, and roads. Reservoir damages include loss of storage capacity, damage to fish habitat, increase in water treatment costs, and as lowered aesthetic values. Channel filling damages fish habitat, and aesthetic values and causes increased flood water and sediment damage to flood plain lands.

Some areas have major sediment source areas but have large channels and/or small flood plains so that sediment is efficiently transported through the watershed. This may cause only minor damage within the watershed but high sediment yields result in significant downstream damages to major streams and impoundments. These types of damages become more detrimental as recreational and environmental values increase even though the power and/or water supply storage in major reservoirs is not immediately threatened. For example, areas in Dallas, Lowndes, and Wilcox Counties have fairly high erosion rates but, because of large channels and other factors, have only minor sediment problems.

North of the Alabama River in Dallas, Autauga, Chilton and Elmore Counties the topography and soils are conducive to excessive channel type erosion (gullies, roadbanks, and road ditches). The resultant sediment causes significant damage when deposited on downstream flood plains. This deposition is caused in part by the heavy timber growth in the flood plain and by beaver dams and other channel plugs which screen out the coarse sediment before it reaches the main stem of the Alabama River. Thus the Alabama River is largely protected from sediment damage at the cost of damage to the flood plains of tributary streams.

The Piedmont area in Chambers, Tallapoosa, Clay, Randolph and Cleburne Counties is part of an area that was one of the most eroded areas of the United States, 30 years ago. Land use changes (woodland improvement and other soil conserving practices) have reduced erosion, runoff, and sediment damage in most but not all areas. In some areas sediment-filled channels cause very frequent flooding and overbank deposition of sediment; an example of the long-term effect of land abuse.

4-32888 3-73

Estimates of sediment damages were made by SCS personnel during field examinations of sub-watersheds. These are shown in Table IV-6 and on Figure IV-4. There is a general relationship between sediment damage and (1) size of area flooded, (2) frequency of flooding and, (3) value of damaged property. In this relationship flood plain percentage indicates the magnitude of the problem area and to some extent its value. Annual flood frequency reflects weather patterns, channel capacity and upland land use. Sediment damage, expressed as percentage of total flood damage, reflects damageable values and the amount of sediment available for delivery to downstream areas.

Estimates of average annual sediment yield are shown for major subbasins and selected streams in Tables IV-7 and IV-8. Projections of possible sediment and erosion reduction will be made later as part of detailed studies of project proposals.

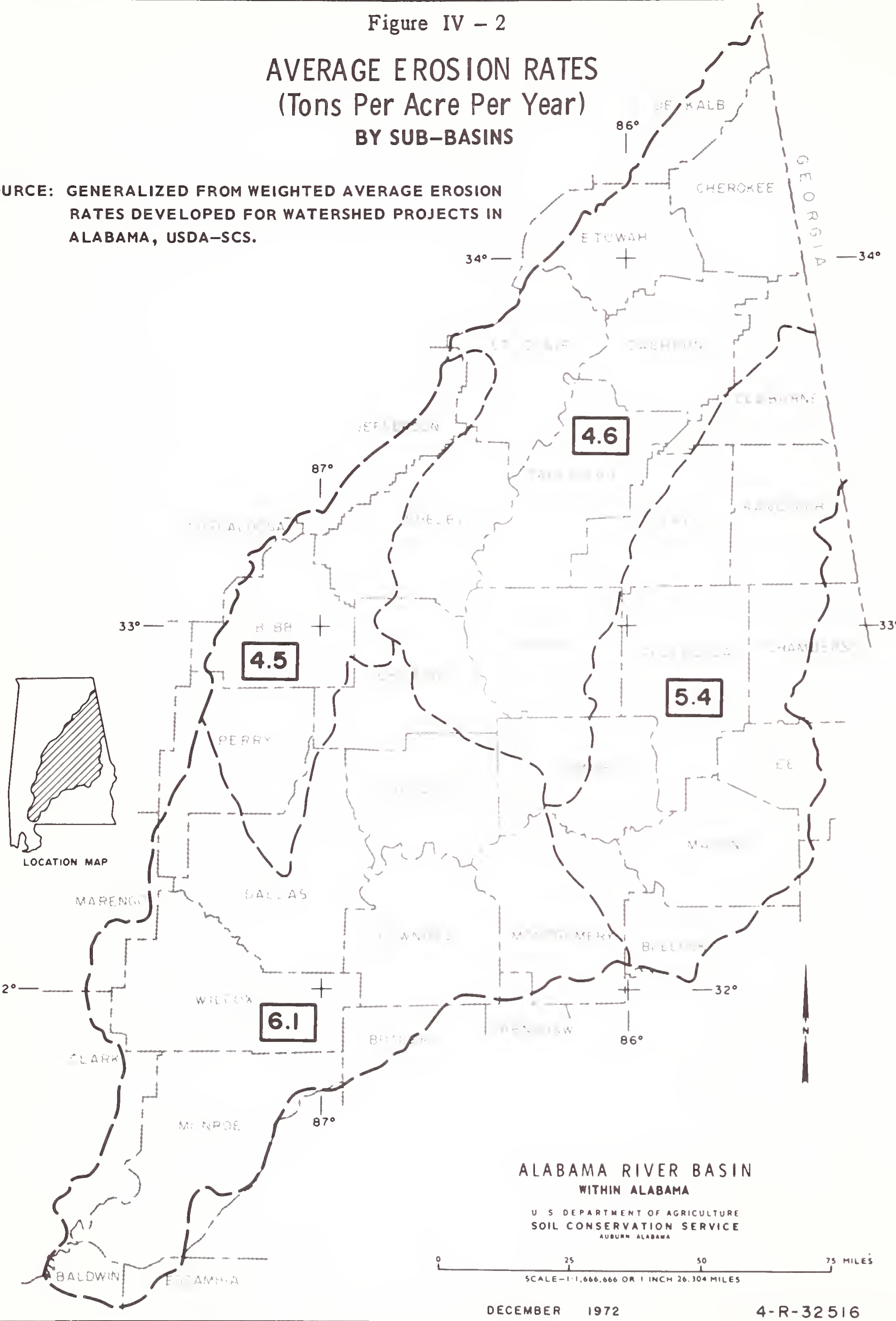
Studies of water resource projects indicate that conservation land treatment can reduce erosion and sediment by 25 to 30 percent with only average participation from landowners. The amount of reduction varies with natural erosion rates, land use, and previous level of conservation treatment. Sediment yields to downstream points may be further reduced by installation of reservoirs which trap sediment either as a project purpose or incidentally along with water storage. Estimates of sediment reduction by structural methods can only be accurately estimated after program formulation and site selection for projects are complete. Sediment reduction due to structures is dependent upon area controlled, design of structures and the texture of the sediment in the system.

4-32888 3-73

Figure IV – 2

AVERAGE EROSION RATES
(Tons Per Acre Per Year)
BY SUB–BASINS

SOURCE: GENERALIZED FROM WEIGHTED AVERAGE EROSION RATES DEVELOPED FOR WATERSHED PROJECTS IN ALABAMA, USDA–SCS.



ALABAMA RIVER BASIN
WITHIN ALABAMA

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AUBURN ALABAMA

DECEMBER 1972 4-R-32516

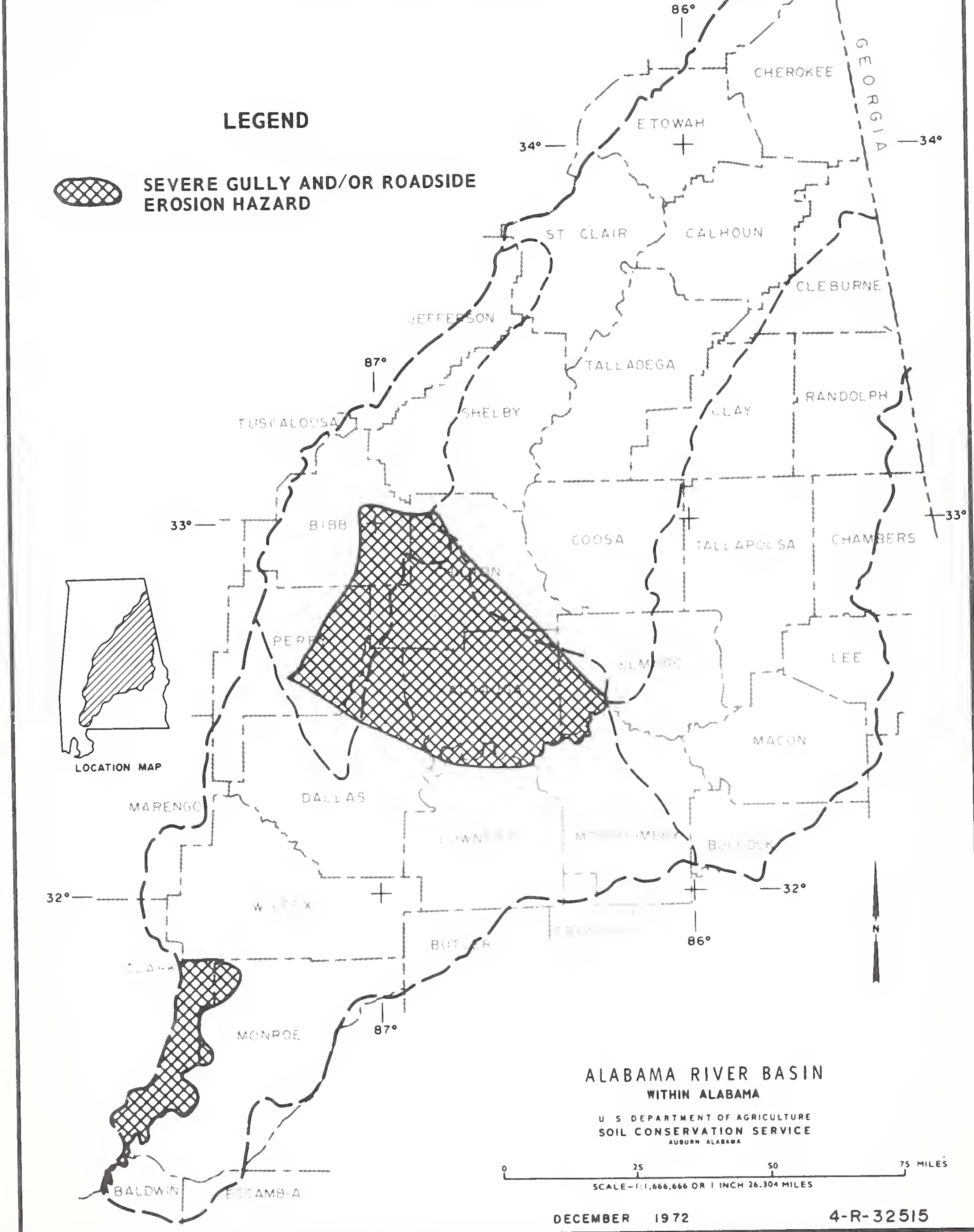
USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Figure IV – 3

EROSION PROBLEMS

SOURCE: FIELD EXAMINATION USDA–SCS 1971



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Figure IV – 4

SEDIMENTATION PROBLEMS

SOURCE: FIELD EXAMINATION USDA–SCS 1971

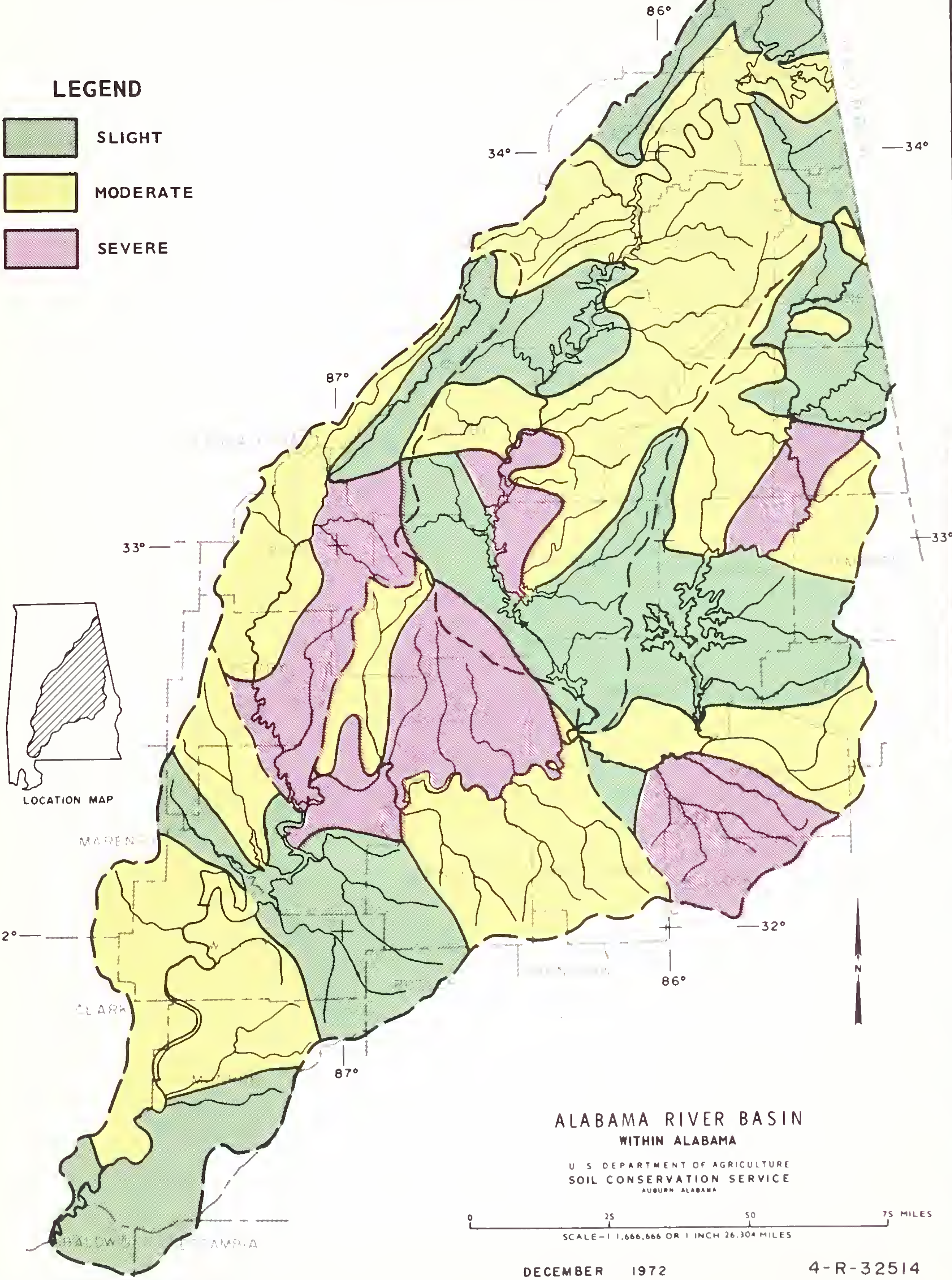


Table IV-5--Land treatment needs on strip mined areas within the Alabama River Basin.1/

County	Mined Acres 2/	Reclaimed Acres 2/	Needs Cons. Treatment Acres 2/	County	Mined Acres 2/	Reclaimed Acres 2/	Needs Cons. Treatment Acres 2/
Autauga	290	70	220	Escambia	74	5	59
Baldwin	32	15	17	Etowah	1,254	0	1,254
Bibb	12,446	11,502	943	Jefferson	2,980	25	2,955
Blount	77	41	36	Lee	3	0	3
Bullock	108	22	86	Lowndes	276	0	276
Butler	1,418	626	792	Macon	653	73	581
Calhoun	1,638	1,038	600	Marengo	12	1	11
Chambers	2,376	1,017	1,359	Monroe	240	5	235
Cherokee	15,385	50	15,335	Montgomery	2,634	878	1,756
Chilton	1,300	0	1,300	Perry	25	4	21
Clarke	147	7	140	Randolph	285	0	285
Clay	94	0	94	Russell	53	3	50
Cleburne	1,050	0	1,050	Shelby	1,540	540	1,000
Coosa	985	945	40	St. Clair	1,375	375	1,000
Crenshaw	232	28	204	Talladega	2,720	2,420	300
Dallas	900	400	500	Tallapoosa	465	1	464
DeKalb	248	208	40	Tuscaloosa	133	19	114
Elmore	472	145	327	Wilcox	100	0	100

1/ Source: Estimate of Strip Mined Land in Alabama USDA-SCS - January 1, 1972.

2/ Acreages for counties partially within the basin estimated by percent of county within the basin.

4-32888 3-73

Table IV-6--Estimate of sediment damages within subareas of the Alabama River Basin, 1972.

Area Name	CNI Watershed No. 1/	Percent of the Area Subject to Flooding	Average Number Damaging Floods Per Year	Sediment Damage as Percent of Total Flood Damage
	Coosa River Subbasin 35a1 2/			
Chattooga-Little River	3-2,3,5	2	3	3
Big Wills Creek	1,6	5	3	5
Upper Coosa Tribs.	4,9	5	3	15
Little Wills-Black Creeks	7	5	4.5	15
Upper Middle Coosa Tribs.	8,11,12,13,17	2	2.25	90
Big Canoe Creek	10,16	15	4.5	5
Terrapin Creek	14	10	2.25	5
Ohatchee Creek	18	5	4.5	10
Tallahatchee Creek	20	6	4.5	10
Cane Creek (Calhoun)	23	5	4.5	10
Beaver-Shoal Creeks	19	10	4.5	10
Choccolocco Creek	21	6	4.5	10
Middle Coosa Tribs.	22,26,27,28,34	5	2.25	5
Kelly Creek	24,25	5	2.25	5
Blue Eye Creek	29	10	4.5	5
Cheaha Creek	30	6	4.5	20
Yellowleaf Creek (Shelby)	31,32,33,36	5	4.5	24
Talladega Creek	35	5	6.5	20
Waxahatchee Creek	37,42	5	2.25	5
Yellowleaf-Walnut Creeks	48,52	10	1.5	8
Lower Middle Coosa Tribs.	38,39,44,45,49	10	4.5	20
Cedar Creek (Talladega)	43	10	4.5	10
Tallaseehatchie Creek	40	10	4.5	10
Hatchet Creek	41,51,54	3	2.25	10
Weogufka Creek	46,47,50	8	5.5	10
Lower Coosa Tribs.	53,55,56,57,58,59,61	3	1.5	5
Yellow-Taylor Creeks	60,62	3	1.5	5
	Tallapoosa River Subbasin 35a2 2/			
Cane Creek (Cleburne)	1	5	4.5	5
Muscadine Creek	2	6	4.5	5
Upper Tallapoosa Tribs.	3,5,6,8,10,15,18	5	2.25	5
Cahulga Creek	4	10	4.5	5
Dynne Creek	7	7	4.5	5
Ketchepedrakee Creek	9	7	4.5	10
Little Tallapoosa Tribs.	11,12,14,16,17,19,20,21,22,24	2	2.25	9
Lost Creek	13	7	1	5
Fox Creek	23	15	6.5	5
Crooked Creek	25	7	6.5	10

4-32888 3-73

Table IV-6--Cont'd

Area Name	CNI Watershed No. 1/	Percent of the Area Subject to Flooding	Average Number Damaging Floods Per Year	Sediment Damage as Percent of Total Flood Damage
Tallapoosa River Subbasin 35a2 2/ (Cont'd)				
Middle Tallapoosa Tribs.	26,27,31,32, 33,34,37	10	6.5	10
High Pine Creek	28	7	5.5	13
Hillabee Creek	29,30,36	10	4.5	10
Chikasnoxee-Chatahospee Ck.	38,39,43,44,45	5	3	10
Lake Martin West Tribs.	40,41	5	6.5	--
Lake Martin East Tribs.	42,46,47,48, 49,50,52	5	6.5	--
Sougahatchee Creek	53,54,59	3	3.5	--
Uphapee & Others	60,61,62, 63,64,72	20	2.25	10
Cubahatchee Creek	69	15	4.5	20
Calebee Creek	70,71,74	16	4.5	20
Line Creek	68	18	6.5	7
Old Town Creek	73	15	6.5	7
Lower Tallapoosa South Tribs.	66,67	10	2.25	5
Lower Tallapoosa North Tribs.	55,56,51,65	20	2.25	10
Channahatchee Creek	51,58	5	1.5	5
Cahaba River Subbasin 35a3 2/				
Upper Cahaba Tribs.	1,2,4,5	2	3.75	5
Shades Creek	3	2	4.5	50
Upper Middle Cahaba Tribs.	8,9,10,14	10	2.25	9
Cahaba Valley Creek Tribs.	6,7	5	2.25	10
Little Cahaba River	11,12,15,16	10	2.25	25
Affonee Creek	13	12	2.25	20
Middle Cahaba Tribs.	17,18	10	3	20
Lower Cahaba-Oakmulgee Trs.	19,20,23,24	20	4.5	50
Lower Middle Cahaba Tribs.	21,22	15	2.25	30
Alabama River Subbasin 35a 2/				
Mulberry River	1,2,4,5	10	1.5	40
Valley Creek	3,12,15,16	5	4.5	20
Little Mulberry Creek	6,7	10	1.5	55
Swift Creek	8,9	10	1.5	60
Upper Alabama West Tribs.	10,11,13, 14,19,20	10	1.5	55
Blue Girth-Beech Creeks	17	30	1.5	30
Upper Alabama Tribs.	18,32,33, 34,35,36	20	2.25	15
Mill Creek	21	10	1.5	10

4-32888 3-73

Area Name	CNI Watershed No. 1/	Percent of the Area Subject to Flooding	Average Number Damaging Floods Per Year	Sediment Damage as Percent of Total Flood Damage
	Alabama River Subbasin 35a 2/ (Cont'd)			
Galbraith Mill Creek	22	35	1.5	5
Boquechitto Creek	23,24,25,26, 27,29,30	10	2.25	10
Middle Alabama Tribs.	28,31,44,55	5	2.25	10
Wilcox Tribs.	42,43,53,54, 58,59,63,64,67	6	3	10
Big Swamp Creek	37	18	3	5
Cypress Creek (Lowndes)	38	10	4.5	5
Pintlalla-Tallawasee Cks.	39,40,47,48,49	13	4.5	5
Catoma Creek	41,50,51,52	10	4.5	5
Cedar Creek	45,61,62	10	2.25	5
Mush Creek	46	8	2.25	--
Dry Cedar Creek	56	10	2.25	5
Lower Alabama West Tribs.	57,73	15	2.25	10
Pine Barren Creek	60,65,66	10	2.25	5
Flat Creek	68,69,70	15	2.25	8
Lower Alabama Tribs.	71,72,74,75, 76,77,78,79, 80,81	3	4.5	--

1/ Alabama Conservation Needs Inventory, 1967.

2/ Subbasin No., Atlas of River Basins of the United States, Second Edition, June 1970, USDA-SCS, Washington, D. C. 20250.

4-32888 3-73

Table IV-7--Estimated average annual sediment yield to main stream reservoirs in the Alabama River Basin, 1972

Reach	Erosion Rate Tons Per	Uncontrolled Drainage Area	Sediment From Uncontrolled Area	Sediment From Upstream Reservoirs	Total Sediment	Sediment Trapped (Est. 85%)	Sediment Passing To Next Reservoir
	------Sq. Mi.-------		------------------------1,000's tons-----------------------				
Tallapoosa System							
To Martin Lake	3456	2,963	2,048	---	2,048	1,741	307
Martin Lake to Yates Dam	3456	302	240	307	547	465	82
Yates Dam to Thurlow Dam	3456	32	39	82	121	102	18
Thurlow Dam to Confluence with Coosa	3456	1,367	945	18	963	---	963 1/
Coosa System							
From Georgia to Weiss Lake	2941	3,784	2,226	131 2/	2,357	2,003	354
Weiss Lake to H. Neely Henry Lake	2941	1,330	782	354	1,136	966	170
H. Neely Henry Lake to Logan Martin Lake	2941	1,170	688	170	858	729	129
Logan Martin Lake to Lay Lake	2941	1,317	775	129	904	768	136
Lay Lake to Jordan Lake	2941	1,005	591	136	727	618	109
Jordan Lake to confluence with Tallapoosa	2941	174	118	109	227	---	227 2/

4-32888 3-73

Table IV-7 (cont'd)

Reach	Erosion Rate Tons Per	Uncontrolled Drainage Area	Sediment From Uncontrolled Area	Sediment From Upstream Reservoirs	Total Sediment	Sediment Trapped (Est. 85%)	Sediment Passing To Next Reservoir
	------Sq. Mi.---------		-------------------------	-1,000's tons-		----------------------------	
Cahaba System							
To confluence with Alabama River	2881	1,821	1,049	----	1,049	----	1,049 3/
Alabama system confluence of Coosa-Tallapoosa to Jones Bluff Lock & Dam		1,370	1,069	1,190 4/	2,259	1,920	339
Jones Bluff Lock & Dam to Wm. F. Dannelly Reservoir	3902	4,400	3,434	1,388 5/	4,822	4,099	723
Wm. F. Dannelly Reservoir to Claiborne Lock & Dam	3902	820	640	723	1,363	1,159	204
Claiborne Lock & Dam to Tombigee Cut-Off	3902	1,128	968	204	1,171	----	1,171

1/ Passed downstream to Jones Bluff Lock and Dam.

2/ Sediment passed downstream from lakes on Coosa Tributaries in Georgia.

3/ Passed downstream to Wm. F. Dannelly Reservoir.

4/ Combined sediment passing Thurlow Dam and Jordan Lake.

5/ Combined sediment from Cahaba system and sediment passed through Jones Bluff Lock and Dam.

4-32888 3-73

Table IV-8--Estimated average annual sediment yield at the mouth of selected streams in the Alabama River Basin, 1972.

Watershed	Drainage Area 1,000 Acres	On-Site Erosion Rate Ton/Ac.1/	Sediment Delivery Ratio (%)2/	Total Sediment 1,000 Ton/Yr.	Bedload 1,000 Ton/Yr.3/	Suspended Material 1,000 Ton/Yr.3/	Sediment Concen-tration PPM4/
Coosa River Subbasin							
Hatchet	239.3	2.6	23	143.1	57.2	85.9	156
Weoka	70.9	3.8	25	67.3	26.9	40.4	247
Weogufka	81.9	3.6	25	73.7	29.5	44.2	234
Walnut	33.6	3.2	27	29.0	11.6	17.4	225
Yellowleaf (Lower)	58.9	3.2	26	48.9	19.6	29.3	216
Waxahatchee	134.9	4.3	23	133.5	53.4	80.1	257
Yellowleaf (Upper)	152.6	4.2	24	153.8	61.5	92.3	262
Tallaseehatchee	128.3	5.4	24	166.3	66.5	99.8	337
Talladega	125.5	4.1	24	123.5	49.4	74.1	256
Kelly	123.5	2.8	24	83.0	33.2	49.8	175
Choccolocco	315.7	6.7	22	465.4	186.1	279.3	334
Dye	5.7	3.1	32	12.2	4.9	7.3	557
Cane	60.8	2.6	26	41.1	16.4	24.7	176
Ohatchee	142.9	3.0	23	98.6	39.4	59.2	180
Big Canoe	164.2	4.2	24	165.6	66.2	99.4	262
Big Wills	220.1	4.7	23	237.9	95.1	142.8	281
Terrapin	197.1	3.0	23	136.0	54.4	81.6	179
Chattooga	262.0	3.2	22	184.4	73.8	110.6	183
Little River	171.2	3.2	23	126.0	50.4	75.6	192
Spring	30.6	9.4	28	80.5	32.2	48.3	685
Chestnut	49.2	3.8	26	48.6	19.4	29.2	257
Tallapoosa River Subbasin							
Line	205.6	5.9	23	279.0	55.8	223.2	471
Cubahatchee	82.2	9.1	25	187.0	37.4	149.6	789
Calebee	124.7	10.8	24	323.1	64.6	258.5	899

4-32888 3-73

Table IV-8--Cont'd

Watershed	Drainage Area 1,000 Acres	On-Site Erosion Rate Ton/Ac.1/	Sediment Delivery Ratio (%)2/	Total Sediment 1,000 Ton/Yr.	Bedload 1,000 Ton/Yr.3/	Suspended Material 1,000 Ton/Yr.3/	Sediment Concentration PPM4/
			Tallapoosa River Subbasin (Cont'd)				
Uphapee	290.5	7.7	22	492.1	196.8	295.3	441
Sougahatchee	129.2	3.6	24	111.6	44.6	67.0	225
Sandy	241.9	4.2	23	233.6	93.4	140.2	251
Elkahatchee	16.4	3.7	29	17.6	7.0	10.6	279
Hillabee	179.3	5.1	23	210.3	84.1	126.2	305
Chatahospee	87.1	4.6	26	104.2	41.7	62.5	311
High Pine	49.1	4.9	26	62.5	25.0	37.5	331
Crooked	62.9	5.7	26	93.2	37.3	55.9	386
Cahulga	17.6	5.1	29	26.0	10.4	15.6	385
Wedowee	37.1	5.0	27	50.0	20.0	30.0	351
Shoal	14.3	5.0	29	20.7	8.3	12.4	377
			Cahaba River Subbasin				
Big Oakmulgee	155.2	5.1	24	189.9	75.9	114.0	318
Rice Creek	27.6	6.4	28	49.5	19.8	29.7	466
Little Cahaba (Lower)	190.3	3.5	23	153.2	61.3	91.9	209
Shades	86.5	10.4	25	225.0	90.0	135.0	677
Buck	50.3	3.9	26	51.0	20.4	30.6	264
Patton	40.8	2.8	27	30.8	12.3	18.5	197
Little Cahaba (Upper)	80.0	2.8	25	56.0	22.4	33.6	182
Upper Cahaba	109.8	2.8	24	73.6	29.4	44.2	175
			Alabama River Subbasin				
Little River	85.1	4.6	24	93.9	18.8	75.1	383
Randons	55.1	5.9	27	87.8	17.5	70.3	553
Limestone	127.3	5.9	22	165.2	33.0	132.2	450
Big Flat	209.7	3.6	23	173.7	34.7	139.0	287
Pursley	72.3	5.0	25	90.4	18.1	72.3	434

4-32888 3-73

Table IV-8--Cont'd

Watershed	Drainage Area 1,000 Acres	On-Site Erosion Rate Ton/Ac. 1/	Sediment Delivery Ratio (%) 2/	Total Sediment 1,000 Ton/Yr.	Bedload 1,000 Ton/Yr. 3/	Suspended Material 1,000 Ton/Yr. 3/	Sediment Concentration PPM 4/
Alabama River Subbasin (Cont'd)							
Pine Barren	241.0	4.4	23	243.9	48.8	195.1	351
Chilatchee	105.7	4.2	24	106.5	21.3	85.2	350
Turkey	163.9	5.0	23	188.5	37.7	150.8	399
Boguechitto	225.6	8.1	23	420.2	84.0	336.2	647
Big Cedar	258.3	4.4	23	261.4	52.3	209.1	351
Big Swamp	24.0	4.2	28	28.2	5.6	22.6	408
Valley	55.7	4.2	27	63.2	12.6	50.6	394
Big Mulberry	174.3	4.6	23	184.4	36.9	147.5	367
Swift	97.8	7.6	25	185.8	37.2	148.6	659
Pintlalla	162.9	5.5	23	206.1	41.2	164.9	439
Catoma	243.1	5.9	23	329.8	65.9	263.9	471
Autauga	97.8	7.2	25	176.1	35.2	140.9	625
Mortar	60.3	7.2	26	112.9	22.6	90.3	649

1/ Average annual gross erosion rates from selected watershed studies by USDA-SCS, Auburn, Alabama.

2/ Delivery ratio is the percentage of sediment delivered to a given point compared to the gross erosion; from curves developed by USDA-SCS.

3/ Estimated.

4/ Average annual suspended sediment concentration--related to average annual runoff; expressed as parts per million.

4-32888 3-73

Conservation Treatment Needs -- The conservation treatment needs for agricultural lands by subbasins are shown in Table IV-9. These estimates were determined by a conservation needs inventory. More detailed information for the state and individual counties can be obtained from the document Alabama Conservation Needs Inventory (1970) which is available in most offices of agencies of the United States Department of Agriculture.

The conservation needs inventory is a detailed land use, treatment. and soils inventory on randomly selected samples of two percent of the land area of Alabama. Sample data was expanded to county areas and adjusted by committees of agricultural workers in each county. The inventory includes cropland, pastureland, forest land, and other land; but excludes federal non-cropland, urban and built-up areas and water. The CNI data is a useful tool in long-range planning, both in solving existing problems and in preventing future ones. An analysis of treatment needs indicates the need and location of land use adjustments, the magnitudes of soil conservation problems and the need for input to solve the problems.

About 81 percent of the cropland in the basin needs one or more conservation practices, in addition to those now being carried out, to protect the soil and maintain or increase its productivity. Adequate conservation treatment may be defined as treatment that keeps erosion within allowable limits and which enables the land to be used for its intended purpose which is to maintain yields on a long-term basis. Allowable erosion usually ranges from three to five tons per acre per year; that is, land eroding at greater than allowable rates cannot maintain good tilth, structure and organic content and usually is continually reduced in fertility, permeability and resistance to erosion. About 50 percent of the treatment needs are simple-type measures relatively inexpensive to install and requiring no earth movement or change of land use. These measures include crop residue or annual cover crops, grasses in rotation with crops, or contouring only. About 23 percent of the cropland needs moderate-type measures such as strip cropping, terraces or diversions. About 8 percent of the cropland should have intensive treatment such as drainage or change of land use to trees or grass.

Pastureland that is inadequately treated is not producing forage at its potential and needs protection to prevent spot erosion from becoming critical. About 9 percent of the pastureland needs simple-type treatment such as protection from over grazing. About 53 percent needs moderate-type treatment such as improvement in plant cover. About 26 percent of the pastureland needs intensive treatment such as reestablishment of plant cover and about 0.1 percent needs a change of land use to trees.

The 1967 inventory indicates that establishment and reinforcement of timber stands are needed on about 36 percent of the forest land in the basin and about 40 percent needs timber stand improvement. About 24 percent of the forest land is adequately treated and producing at or near optimum levels. Most forest land treatment is not strictly for erosion control since even poorly stocked woodland offers fair erosion protection. Most erosion of forested land results from poorly designed firebreaks and harvesting trails, and site preparation. The treatment needs listed here are mainly for improvement of present woodland stands for more uniform growth and coverage and thereby the improvement of infiltration and the reduction of undesirable rapid runoff. Establishment and reinforcement may be defined as the planting of desirable trees rather than waiting for hit-or-miss natural seeding; and timber stand improvement is defined as the removal of we weed trees and/or thinning and culling to improve the growth and uniformity of desirable species.

Acreage defined as "other land" in the inventory consists of non-urban land used for home sites, farm roads, feed lot, ditch banks and similar areas. About 40 percent of the "other land" in the inventory needs some kind of conservation treatment to protect it from erosion and deterioration and to prevent damage to adjacent land. Since this category has such a wide variation in land uses and conditions, the treatment needs cannot be easily categorized but include a high percentage of intensive-type treatment such as critical area planting of perennial vegetation, water diversions, or drainage systems.

A problem identified in the study of the basin is land that is eroding so badly that it is, itself, damaged by excessive loss of top soil and producing sediment and/or runoff in such quantities that it damages adjacent or downstream lands. This type of erosion is known as "critical erosion." A measure of critical erosion potential is land in Capability Classes VI and VII on which steepness or erosion (Subclass "e") is recognized as the dominant hazard. These lands are generally considered to be non-arable lands but are useable for hay, pasture, orchards, and forest land.

Table IV-10 shows the acreages of land by subbasins in Capability Subclasses VIe and VIIe that are used for cropland and pasture and the acreage classified as needing intensive conservation treatment. This needed treatment consists of conversion of cropland to permanent vegetation (pasture or woodland) and conversion of pastureland to woodland or complete reestablishment of pasture grasses. The lands in Subclasses VIe and VIIe, are not all "critical" nor is critical erosion possible only on Classes VI and VII. These lands represent approximately the extent of the basin land subject to critical erosion and the percentage of those lands that are eroding critically and need treatment to arrest this erosion.

4-32888 3-73

Table IV-9--Land treatment needs by subbasin in the Alabama River Basin, 1967.

Conservation Treatment Needs	Total Study Area	Subbasins			
		Alabama	Cahaba	Coosa	Tallapoosa
	----------------1,000's Acres----------------				
Cropland					
Land Adequately Treated	241	74	13	60	94
Treatment Needs:					
Crop Residues or Annual Cover Crops	392	229	28	88	47
Sod in Rotation	207	63	11	85	48
Contouring Only	36	21	2	2	11
Strip Cropping, Terraces and Diversions	292	110	13	116	53
Change to Permanent Cover, Grass or Trees	83	37	3	20	23
Drainage	22	8	2	11	1
Total Needing Treatment	(1032)	(468)	(59)	(322)	(183)
Total Cropland	1273	542	72	382	277
Pastureland					
Land Adequately Treated	163	46	13	57	47
Treatment Not Feasible	2	1	--	--	1
Treatment Needs:					
Protection from Over-grazing	118	27	10	31	50
Improvement in Plant Cover	697	382	47	113	155
Reestablishment of Vegetative cover	345	202	8	56	79
Change of Land Use to Trees	2	--	--	2	--
Total Needing Treatment	(1162)	(611)	(65)	(202)	(284)
Total Pastureland	1327	658	78	259	332
Forest Land					
Land Adequately Treated	1727	578	199	546	404
Treatment Needs:					
Establishment and reinforcement	2524	846	291	797	590
Timber Stand Improvement	2857	957	329	902	669
Total Needing Treatment	(5381)	(1803)	(620)	(1699)	(1259)
Total Woodland	7108	2381	819	2245	1663
Other Land					
Land Adequately Treated	130	46	10	45	29
Land Needing Treatment	85	30	7	29	19
Total Other Land	215	76	17	74	48
Total Land in the Inventory	9923	3657	986	2960	2320

Source: Alabama Conservation Needs Inventory, 1967

4-32888 3-73

Table IV-10--Acreage of cropland and pasture land needing intensive treatment for capability classes VIe and VIIe by subbasins in the Alabama River Basin.[1/]

	Cropland			Pasture		
Subbasin	Total	Needing Intensive Treatment	Need Intensive Treatment	Total	Need Intensive Treatment	Need Intensive Treatment
	Thousands of Acres		Percent	Thousands of Acres		Percent
Tallapoosa	36	19	53	66	18	27
Coosa	16	14	88	25	7	28
Cahaba	4	2	50	9	1	11
Alabama	15	9	60	51	19	37
Total Alabama Basin	71	44	62	151	45	30

1/ Source: Alabama Conservation Needs Inventory, 1967.

4-32888 3-73

Urban and Industrial Water Use and Needs

An expanding population and an increase in industry will necessitate the development and protection of safe, adequate water supplies. Hydrologic data shows that the basin has an adequate supply of good quality water from surface and ground water sources to meet present and prospective needs. Table IV-11 gives withdrawal use of water by source, and principal use by subbasins. Total water withdrawal in 1970 was about 1.5 billion gallons per day. About 94 percent was surface water drawn from streams or reservoirs, while about 6 percent was ground water drawn from wells or springs. If distributed equally among the basin residents, this withdrawal rate would provide every person with nearly 1,500 gallons of water each day. Figure IV-5 presents water use in Alabama from 1955 to 1970 which is comparable to water use in the basin.

Public water systems furnished water to over 60 percent of the basin's 998,000 people and 30 percent of the water utilized by industry. Seventy two percent of the projected population is expected to use public water systems by 2020. Table IV-12 shows present and projected public water supply needs by subbasin. Estimated gross public water supply demands are given in Table IV-13 and Figure IV-6. On the average about 10 percent of the water withdrawal is consumed through public water systems and about 6 percent through industrial water systems.

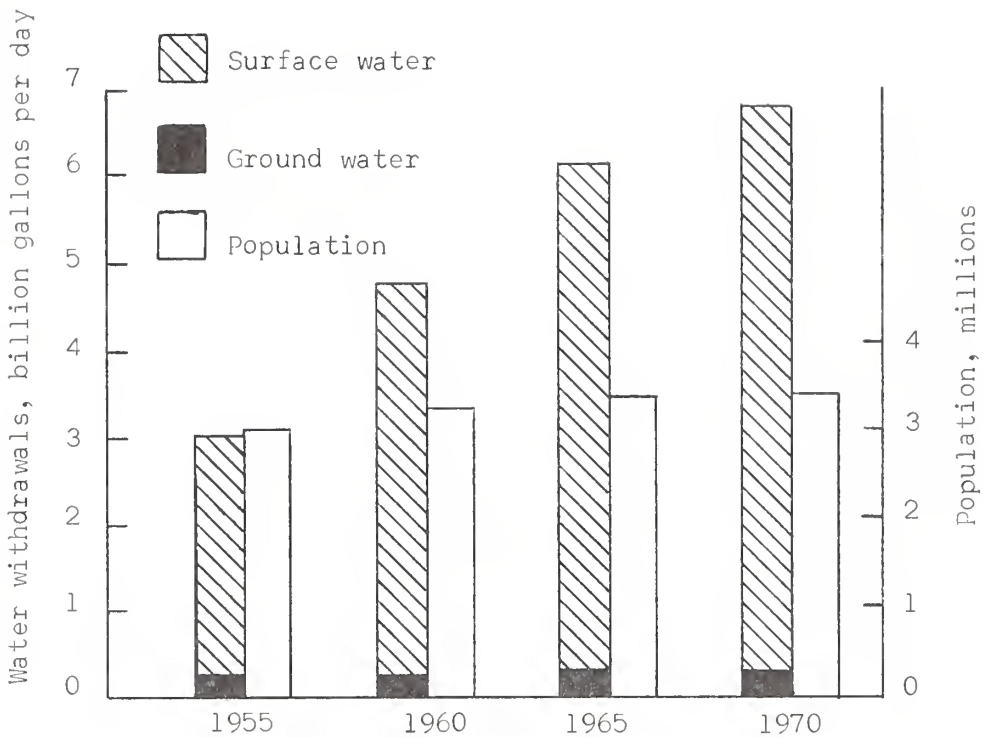
Total water withdrawal is projected to increase almost three times from 1970 to 2020. This trend is shown in Table IV-14 and does not include hydroelectric and thermoelectric use. Estimated water use by hydroelectric and thermoelectric plants is shown in Table IV-15. Water use in Table IV-11 shows 1,373 MGD withdrawn from surface water and 1,008 MGD used by thermoelectric plants. The remaining 365 MGD is used by industrial and municipal water systems. A 10 percent consumptive use for public and industrial systems gives a maximum net commitment against the potential surface water supply of 37 MGD. A summary of water supply and use is as follows:

Total Water Use	1,373	MGD
Thermoelectric Plants	1,008	MGD
Industrial and Municipal Systems	365	MGD
10 Percent Maximum Consumptive Use	37	MGD
Gross Potential Water Supply (Average Outflow at Claiborne, Ala.)	2,120	MGD

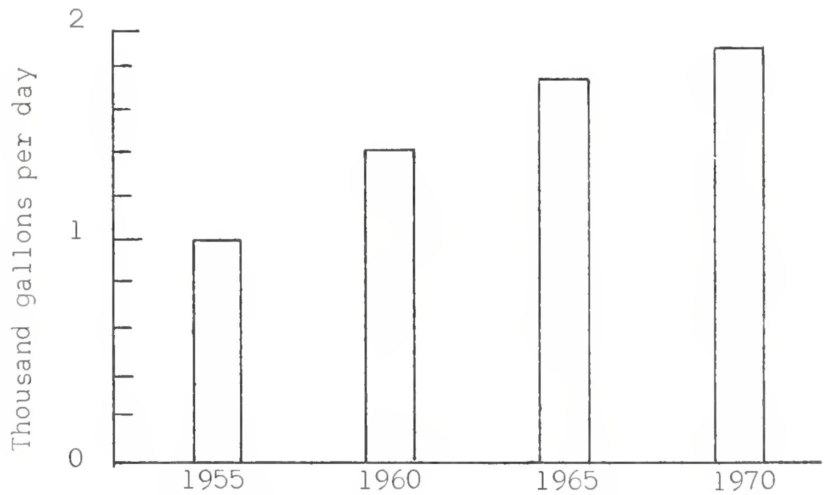
Based on the above data the net reduction in surface water is small. With regard to quantity, there is no general limitation on water within the basin; and with good management of surface water, none should occur except in isolated areas.

4-32888 3-73

Figure IV-5--Trends in total water withdrawal, population, and per capita daily use, 1955-1970, state of Alabama.



a. Total withdrawals and population

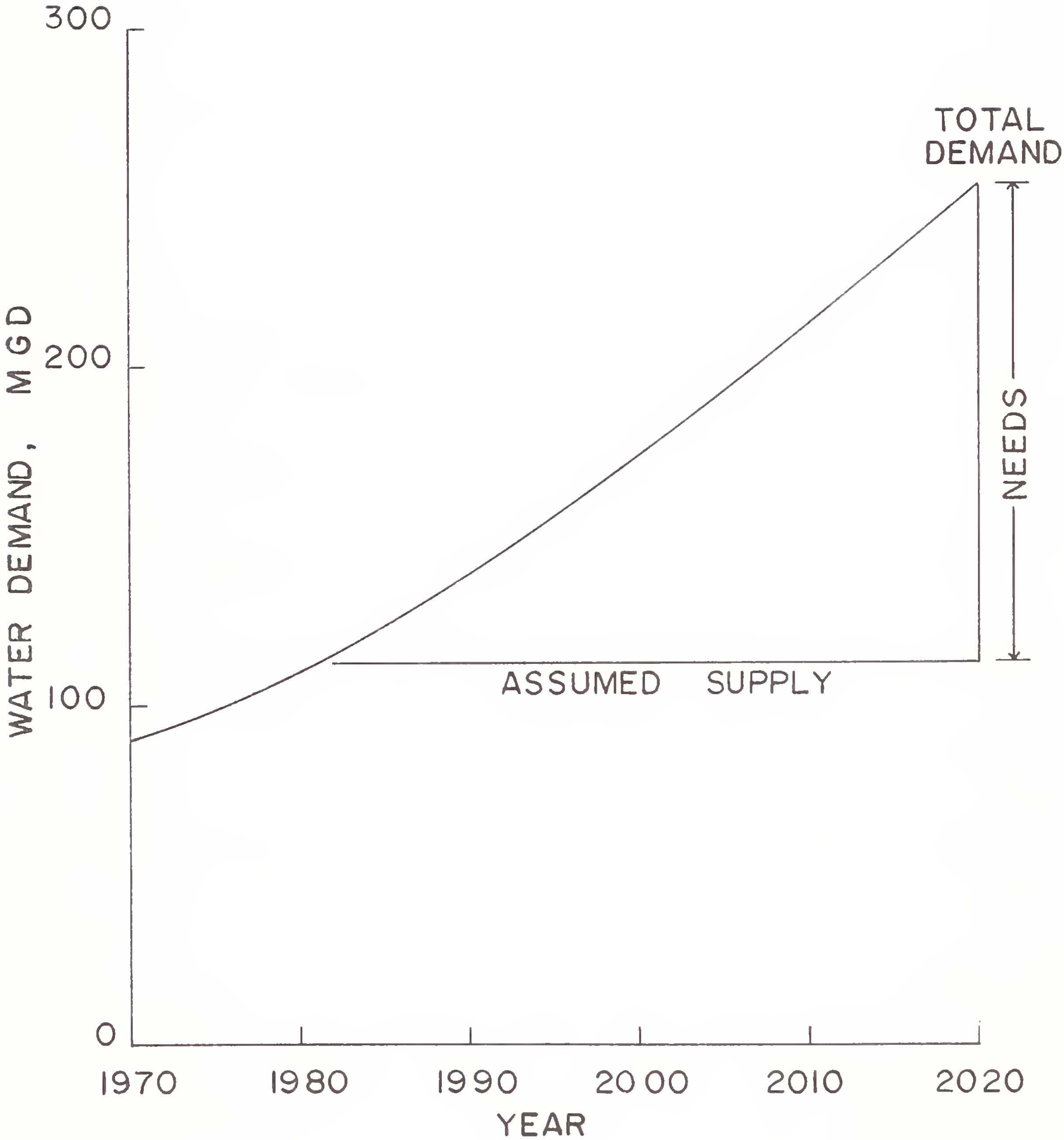


b. Average per capita daily use

Source: Use of Water in Alabama, 1970, Geological Survey of Alabama.

4-32888 3-73

Figure IV-6--Public water supply needs, Alabama River Basin.



4-32888 3-73

Table IV-11--Withdrawal use of water (million gallons per day) by source and principal use by subbasin in the Alabama River Basin, 1970.

River Basin	Public Supply		Rural Use							Self-supplied Industry		Thermoelectric Power Plants		Subtotal		Grand Total
			Domestic	Livestock		Irrigation		Catfish Farming								
	Ground water	Surface water	Ground water	Ground water	Surface water	Ground water	Surface water	Ground water	Surface water	Ground water	Surface water	Ground water	Surface water	Ground water	Surface water	
Alabama	6.61	0	5.69	1.45	2.42	0.34	0.73	1.24	0.69	4.02	51.35	0	0	19.35	55.19	74.54
Cahaba	2.16	54.00	1.51	0.29	0.38	0.03	0.03	0.11	0.02	2.44	2.17	0	0	6.54	56.60	63.14
Coosa	21.58	13.52	8.38	1.22	1.16	0.65	1.32	0.56	0.26	15.56	213.02	0	1,008.40	47.95	1,237.68	1,285.63
Tallapoosa	12.53	17.54	4.32	0.96	1.12	0.63	1.57	0.31	0.70	0.86	3.21	0	0	19.61	24.14	43.75
Total, by source	42.88	85.06	19.90	3.92	5.08	1.65	3.65	2.22	1.67	22.88	269.75	0	1,008.40	93.45	1,373.61	1,467.06
Total by subcategory			19.90	9.00		5.30		3.89								1,467.06
Total by category	127.94						38.09			292.63		1,008.40				

Source: Use of Water in Alabama, 1970, Geological Survey of Alabama.

4-32888 3-73

Table IV-12--Present and projected public water supply needs by subbasins in the Alabama River Basin.

Subbasin	Year	Pop. Served Thousands	Residential Needs Per Capita	Residential Needs Total	Total Needs 1/ Per Capita	Total Needs 1/ Total
			gpd	mgd	gpd	mgd
Alabama	1970	194.1	81 2/	15.7	136 2/	26.4
	1990	257.9	101	26.0	156	40.2
	2020	379.1	140	53.1	195	73.1
Coosa	1970	219.7	78	17.1	160	35.1
	1990	294.7	99	29.2	172	50.7
	2020	491.1	138	67.8	220	108.0
Tallapoosa	1970	74.7	81 2/	6.0	136 2/	10.1
	1990	105.1	101	10.6	156	16.4
	2020	156.7	140	21.9	195	30.6
Cahaba	1970	72.4	116 3/	8.4	238 3/	17.2
	1990	96.9	141	13.7	263	25.5
	2020	138.9	175	24.3	297	41.3
Alabama Basin Total	1970	560.9	84	47.2	158	88.8
	1990	759.6	105	79.5	175	132.8
	2020	1168.9	143	167.1	194	253.0

1/ Total includes industrial and commercial from public supply. Per capita use extended at present rate.
2/ For Alabama and Tallapoosa Basins combined.
3/ Average use of Black Warrior and Cahaba Basins.

4-32888 3-73

Table IV-13--Estimated gross public water supply demands by towns and subbasins in the Alabama River Basin.

Location	1970 1/	1990 2/	2020 2/	Net Needs (1970-2020)
	---------- million gallons per day ----------			
Alabama Subbasin				
Monroeville	0.90	1.13	2.00	1.10
Frisco City	0.10	0.19	0.32	0.22
Camden	0.15	0.25	0.38	0.23
Pine Hill	0.09	0.15	0.37	0.28
Ft. Deposit	0.10	0.16	0.40	0.30
Selma	5.70	7.88	13.73	8.03
Orrville	0.05	0.07	0.13	0.08
Prattville	2.88	5.04	12.59	9.71
Montgomery	34.00	51.16	91.39	57.39
Coosa Subbasin				
Wetumpka	0.68	0.97	3.28	2.60
Goodwater	0.21	0.26	0.53	0.32
Clanton	1.16	1.38	2.17	1.01
Jemison	0.15	0.19	0.29	0.14
Calera	0.18	0.29	1.05	0.87
Columbiana	0.45	0.75	1.93	1.48
Harpersville	0.09	0.15	0.29	0.20
Vincent	0.20	0.38	0.78	0.58
Wilsonville	0.25	0.41	0.78	0.53
Sylacauga	3.07	5.39	12.06	8.99
Childersburg	0.69	1.07	2.36	1.67
Talladega	3.75	5.25	10.22	6.47
Lincoln	0.14	0.29	0.56	0.42
Pell City	1.87	3.74	9.56	7.69
Ragland	0.13	0.23	0.58	0.45
Ashville	0.22	0.48	1.23	1.01
Anniston	18.00	27.61	62.79	44.79
Piedmont	0.75	1.11	2.44	1.69
Oxford	0.20	0.42	0.86	0.66
Jacksonville	1.40	1.95	3.99	2.59
Gadsden	8.10	9.69	20.65	12.55
Attalla	0.75	1.07	2.06	1.31
Glencoe	0.50	0.93	2.37	1.87
Centre	0.29	0.45	0.66	0.37
Ohatchee	0.06	0.11	0.28	0.22
Fort Payne	1.56	1.99	3.81	2.25
Collinsville	0.21	0.35	0.67	0.46
Tallapoosa Subbasin				
Union Springs	1.80	2.39	2.98	1.18
Tuskegee	1.50	2.50	5.85	4.35
Notasulga	0.10	0.14	0.17	0.07
Auburn	3.46	5.58	9.81	6.35
Opelika	3.50	5.91	10.55	7.05
Tallassee-Carrville	1.58	1.91	4.77	3.19
Alexander City	0.79	1.10	2.02	1.23

4-32888 3-73

Table IV-13--Cont'd

Location	1970 1/	1990 2/	2020 2/	Net Needs (1970-2020)
	-----------million gallons per day-------------			
Camp Hill	0.27	0.36	0.62	0.35
Dadeville	0.46	0.74	1.16	0.70
LaFayette	0.43	0.56	0.79	0.36
Roanoke	0.72	0.94	1.38	0.66
Wedowee	0.10	0.13	0.29	0.19
Ashland	0.36	0.52	0.81	0.45
Lineville	0.43	0.60	0.93	0.50
Heflin	1.00	1.40	2.50	1.50
Fruithurst	0.04	0.06	0.13	0.09
Ranburne	0.05	0.07	0.16	0.09
Edwardsville	0.03	0.05	0.12	0.09
Wadley	0.98	1.27	1.71	0.73
Cahaba Subbasin				
Centreville	0.50	0.81	1.26	0.76
Brent	0.15	0.22	0.31	0.16
Montevallo	0.97	1.73	3.91	2.94
Pelham	0.10	0.18	0.40	0.30
Helena	0.10	0.15	0.34	0.24
Alabaster	0.25	0.38	0.75	0.50
Marion	1.30	2.01	2.87	1.57
Leeds	1.44	2.05	3.34	1.90
Trussville	2.16	3.60	7.22	5.06

1/ Maximum usage in million gallons per day. Alabama State Department of Public Health Public water supplies on record, Oct 1969.

2/ Maximum usage in million gallons per day projected per capita - based on 1970 use.

4-32888 3-73

Table IV-14--Present and projected withdrawal of water for residential, industrial, commercial, and rural use by subbasin in the Alabama River Basin.1/

Subbasin	Water Withdrawal 1970	1990	2020
	(million gallons per day)		
Alabama	150	249	377
Coosa	191	317	481
Tallapoosa	95	157	239
Cahaba	50	82	125
Alabama Basin Total	485	805	1,222

1/ Source: Use of Water in Alabama 1970 by Geological Survey of Alabama. Water use by hydroelectric and thermoelectric not included.

Table IV-15--Estimated water use by hydroelectric and thermoelectric plants by subbasins in the Alabama River Basin, 1970.

Subbasins Hydroelectric Plants	Owner1/	Gross Power Need	Average Annual Generation	Average Water Use
		(ft)	(1,000 mwh)	(mgd)
Coosa River				
Weiss	APC	56	216	4,200
H. Neely Henry	APC	43	202	5,100
Logan Martin	APC	69	400	6,270
Lay	APC	83	639	8,300
Mitchell	APC	67	351	5,680
Jordan	APC	103	212	2,260
Walter Bouldin	APC	127	691	5,880
Tallapoosa River				
Martin	APC	146	321	2,390
Yates	APC	55	133	2,650
Thurlow	APC	96	253	2,840
Alabama River				
Jones Bluff	C of E	-	329	-
Millers Ferry	C of E	-	434	-
Subbasins Thermoelectric Plants				
Coosa				
Gadsden	APC			144.4
E. C. Gaston	SEGCO			864.0
Total				1,008.4

1/ APC - Alabama Power Company, C of E - Corps of Engineers, SEGCO - Southern Electric Generating Company.
Source: Use of water in Alabama, 1970 by Geological Survey of Alabama.

4-32888 3-73

Rural and Agricultural Water Use and Needs

Agricultural water requirements along with rural domestic use and needs are presented in Table IV-16 for 1970 and 1990. Projected water requirements for agriculture show an increase of 58 percent by 1990 or a total demand of 63.4 MGD by that time. These quantities of water reflect the growing needs of agriculture.

The rural domestic water demand of 31.4 MGD in 1990 is expected to be 44 percent greater than in 1970, Table IV-16. The increase can be attributed almost entirely to increased per capita consumption. Population living on farms and rural areas not serviced by public water utilities in 1970 was estimated at 437,000 and anticipated to increase to 443,000 by 1990 and to 455,000 by 2020.

Table IV-16--Rural withdrawal use of water, 1970 and 1990, by subbasins in the Alabama River Basin.

Subbasin	Domestic		Livestock		Irrigation		Catfish Farming		Total	
	1970	1990	1970	1990	1970	1990	1970	1990	1970	1990
	(MGD)		(MGD)		(MGD)		(MGD)		(MGD)	
Alabama	5.69	8.13	3.87	8.77	1.07	1.24	1.93	3.86	12.56	22.00
Coosa	8.66	13.39	2.38	4.40	1.97	2.28	0.82	1.64	13.83	21.71
Tallapoosa	6.02	8.53	2.08	3.79	2.20	2.55	1.01	2.02	11.31	16.89
Cahaba	1.48	1.34	0.67	1.16	0.06	0.07	0.13	0.26	2.34	2.83
Total	21.85	31.39	9.00	18.12	5.30	6.14	3.89	7.78	40.04	63.43

Irrigated acreage is increasing slowly in both the state and basin. The Extension Service reported 7,500 acres irrigated in the basin in 1965. This figure climbed to 10,500 acres in 1970, then dropped to a 20-year low of 4,500 acres in 1971 as a result of abundant rainfall and good growing conditions. As changes occur in farming patterns and there is a shift to vegetable crops that are more sensitive to water requirements for quality, quantity, and income efficiencies, the need for additional irrigation will continue. Over the long run, Alabama's irrigated land has been increasing about one percent per year. If the basin continues at this pace, about 12,200 acres would be under irrigation in 1990. As agricultural technology and better management methods are developed, soil moisture deficiency is likely to become a more generally limiting factor in crop yields.

No significant increase in the demand for irrigation water is expected during the next 20 years. With acreage irrigated increasing slightly less than one percent yearly, total use should increase from about 5.3 MGD in 1970 to about 6.1 MGD by 1990. Demand will continue to be strongest in the Tallapoosa and Coosa Subbasins, Table IV-16.

4-32888 3-73

Livestock water requirements should double in the next two decades, reaching 18.1 MGD by 1990, Table IV-16. Other rural uses such as catfish farming are expected to require around 7.8 MGD.

Agricultural Water Shortages -- The average annual rainfall for the study area is 54 inches. However, this rainfall is not distributed uniformly throughout the growing season. Lack of sufficient soil moisture during parts of the growing season reduces yields and sometimes causes crop failures. Evapotranspiration requirements are greater during hot months of the growing season. This often gives rise to drought conditions at the very time when plants are most in need of water. Tables IV-17 through IV-19 give, at different levels of probability, the number of drought days each month from April through October for soils with different available soil moisture capacities. It can be readily seen that there is insufficient available moisture at some time during the growing season to equal the water potential required to meet the evapotranspiration of the plants so that their production is limited from lack of water.

The rate of plant growth is affected greatly by the amount of available moisture in the soil. The vertical distance between available moisture and potential evapotranspiration curve in Figure IV-7 is an indication of irrigation needs for the respective months for maximum plant growth. For the months of June, July, August, and September, three to four inches of water is needed to sustain maximum plant growth and to maintain the original soil moisture base. The soil moisture deficit is due to the fact that precipitation is not sufficient during the summer months to replace the amount lost from the soil by evaporation and to meet the needs of growing plants.

There are no serious shortages of water for livestock and rural domestic purposes in the basin. The source of water for livestock is generally streams and farm ponds and only during an extended drought period is the water supply limited. Wells are the normal source of water for rural domestic use and few cases of water shortages occur. These are generally caused by faulty pumping equipment or wells that are too shallow.

4-32888 3-73

Table IV-17--Minimum number of drought-days for different months, soil storage capacities and probabilities in the Alabama River Subbasin.

Month 1/	Prob.	Minimum drought days if soil has available moisture capacity in the root zone of --			
		1 inch	2 inches	3 inches	5 inches
April	1 in 10	16	9	0	0
	2 in 10	14	6	0	0
	3 in 10	12	3	0	0
	5 in 10	8	0	0	0
May	1 in 10	26	21	15	5
	2 in 10	23	18	12	0
	3 in 10	21	15	10	0
	5 in 10	18	11	6	0
June	1 in 10	26	25	23	19
	2 in 10	24	22	20	15
	3 in 10	22	20	18	12
	5 in 10	19	16	13	6
July	1 in 10	22	20	19	19
	2 in 10	18	16	15	14
	3 in 10	16	13	12	11
	5 in 10	12	8	6	5
August	1 in 10	28	26	24	22
	2 in 10	24	21	17	15
	3 in 10	21	16	12	9
	5 in 10	16	10	4	0
September	1 in 10	25	25	24	21
	2 in 10	21	21	19	16
	3 in 10	19	18	16	11
	5 in 10	16	11	8	2
October	1 in 10	28	28	27	27
	2 in 10	26	25	25	23
	3 in 10	24	23	21	19
	5 in 10	21	18	15	11

1/ January, February, March, November, and December not shown because crops are rarely damaged by drought in these months.

Source: Bulletin 316 Agricultural Drought in Alabama September 1959, Alabama Agricultural Experiment Station.

4-32888 3-73

Table IV-18--Minimum number of drought-days for different months, soil storage capacities and probabilities in the Cahaba and Tallapoosa sub-basins.

Month 1/	Prob.	Minimum drought days if soil has available moisture capacity in the root zone of -- 1 inch	2 inches	3 inches	5 inches
April	1 in 10	15	7	0	0
	2 in 10	12	5	0	0
	3 in 10	11	2	0	0
	5 in 10	8	1	0	0
May	1 in 10	25	21	19	7
	2 in 10	23	18	14	4
	3 in 10	21	16	11	1
	5 in 10	17	12	6	0
June	1 in 10	25	25	24	21
	2 in 10	23	22	20	16
	3 in 10	20	19	18	12
	5 in 10	17	14	13	6
July	1 in 10	22	20	20	18
	2 in 10	18	17	16	14
	3 in 10	16	13	13	11
	5 in 10	12	9	7	5
August	1 in 10	22	18	17	16
	2 in 10	19	14	12	10
	3 in 10	17	12	8	6
	5 in 10	14	8	3	0
September	1 in 10	26	25	24	21
	2 in 10	22	20	20	15
	3 in 10	20	17	16	10
	5 in 10	16	12	8	3
October	1 in 10	26	26	26	26
	2 in 10	24	23	22	22
	3 in 10	22	20	18	16
	5 in 10	19	14	8	1

1/ January, February, March, November, and December not shown because crops are rarely damaged by drought in these months.

Source: Bulletin 316 Agricultural Drought in Alabama September 1959, Alabama Agricultural Experiment Station.

4-32888 3-73

Table IV-19--Minimum number of drought-days for different months, soil storage capacities and probabilities in the Coosa River Subbasin.

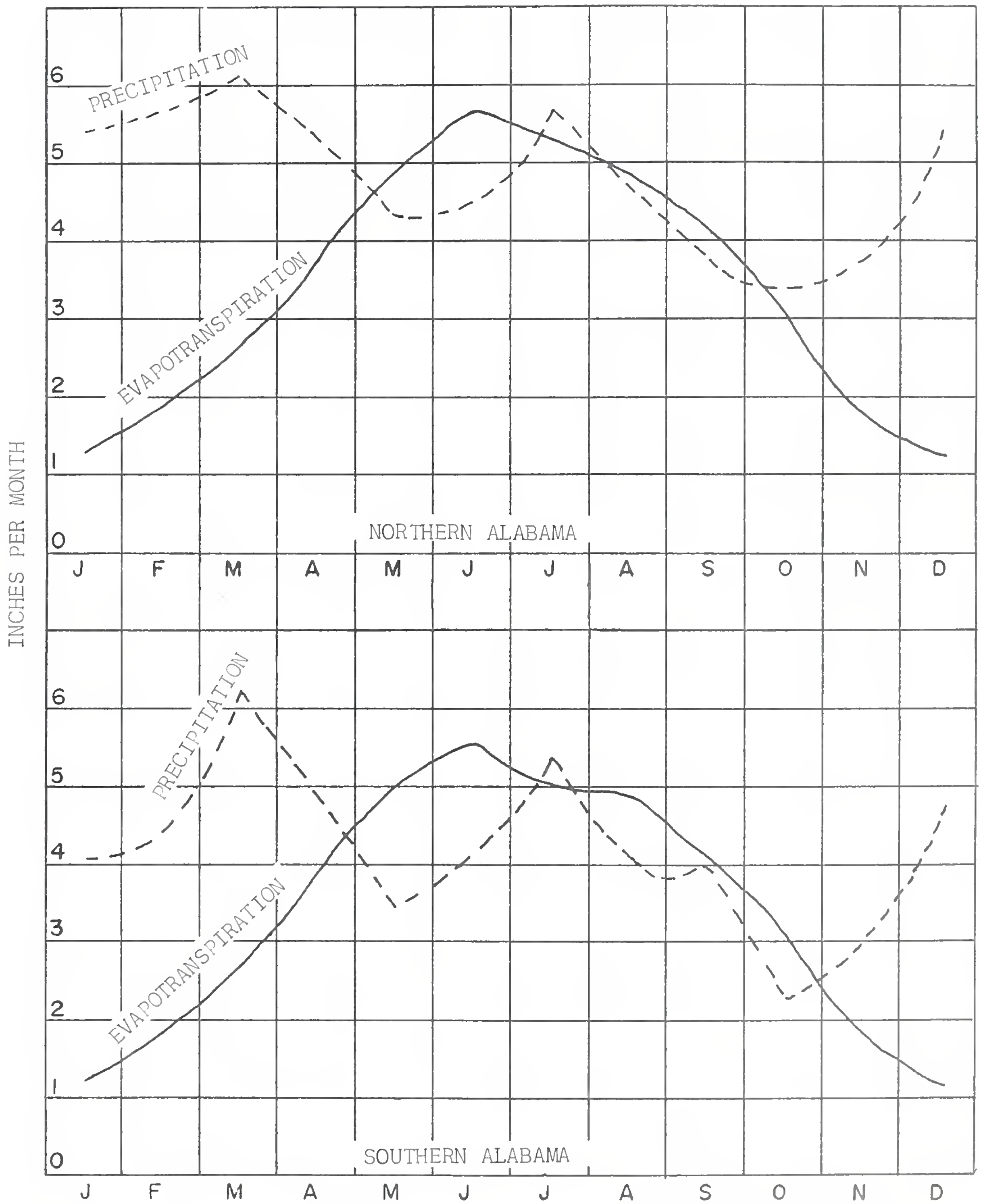
Month 1/	Prob.	Minimum drought days if soil has available moisture capacity in the root zone of --			
		1 inch	2 inches	3 inches	5 inches
April	1 in 10	14	5	0	0
	2 in 10	11	0	0	0
	3 in 10	9	0	0	0
	5 in 10	5	0	0	0
May	1 in 10	24	21	14	1
	2 in 10	21	16	8	0
	3 in 10	18	12	4	0
	5 in 10	14	6	0	0
June	1 in 10	25	25	25	17
	2 in 10	22	20	19	11
	3 in 10	19	17	15	7
	5 in 10	16	12	8	1
July	1 in 10	23	22	20	17
	2 in 10	20	17	15	12
	3 in 10	17	13	11	8
	5 in 10	13	7	5	1
August	1 in 10	21	18	15	13
	2 in 10	18	14	11	7
	3 in 10	16	11	7	3
	5 in 10	13	6	2	0
September	1 in 10	25	24	22	19
	2 in 10	21	19	16	13
	3 in 10	18	16	12	8
	5 in 10	14	10	5	0
October	1 in 10	25	23	22	21
	2 in 10	21	18	17	15
	3 in 10	18	15	12	10
	5 in 10	14	9	6	3

1/ January, February, March, November, and December not shown because crops are rarely damaged by drought in these months.

Source: Bulletin 316 Agricultural Drought in Alabama September 1959, Alabama Agricultural Experiment Station.

4-32888 3-73

Figure IV-7--Monthly precipitation and monthly evapotranspiration for Alabama.



Source: Bulletin 316 Agricultural Drought in Alabama September 1959, Alabama Agricultural Experiment Station.

Impaired Drainage -- Approximately 2,178,462 acres of agricultural land in the study area have some kind of water problem. Most of the land is located in the flood areas adjacent to stream channels.

Drainage problems vary widely throughout the four subbasins. The major streams of the basin provide good outlets for surface drainage. In some areas the smaller streams are so choked with sediment and tree growth that overbank flow is common. Damage from beaver ponds is a problem throughout the basin. The clogged channels do not provide proper outlets for drainage of surface waters from the tributaries. Frequent overbank flows and sediment deposition have resulted in a swamping condition of many areas of fertile bottom land. Watersheds in the Autauga and Dallas County area have a widespread problem of sediment deposition and/or beaver dams. Land with drainage problems is shown in Table IV-20. Subclass (w) is made up of soils where excess water is the dominant hazard or limitation in their use. Poor soil drainage, wetness, high water table, and susceptibility to overflow are the criteria for determining which soils belong in this subclass.

4-32888 3-73

Table IV-20--Land with drainage problems by land class and land use by subbasins in the Alabama River Basin.1/

Land Class Subclass (w)	Land Use				
	Cropland	Pastureland	Forest Land	Other	Total
	--Acres--				
Alabama Subbasin					
IIw	64,205	77,128	141,065	7,067	289,465
IIIw	23,608	69,199	79,368	4,969	177,144
IVw	21,423	110,812	437,564	5,339	575,138
Vw	1,430	3,011	214,347	841	219,629
VIw			244		244
VIIw		319	7,361		7,680
Total	110,666	260,469	879,949	18,216	1.269,300
Coosa Subbasin					
IIw	33,988	29,970	62,690	2,885	129.533
IIIw	12,818	18,179	115,280	1,211	147.576
IVw	5,927	15,506	52,871	1,008	75,312
Vw			311		311
Total	52,733	63,655	231,152	5.104	352.732
Tallapoosa Subbasin					
IIw	13,678	17,289	19,304	1,467	51,738
IIIw	8,484	25,515	74,926	2,372	111.297
IVw	8,896	39,212	195,881	1,978	245,967
Vw	355	226	3,458		4,039
VIIw				409	409
Total	31,413	82,242	293,569	6.226	413,450
Cahaba Subbasin					
IIw	11,189	8.982	35,186	1,145	56,502
IIIw	1,378	1,044	5.262	223	7,907
IVw	2,821	6,185	60,125		69,131
Vw	245	1,046	10,215		11,506
Total	15,633	17,257	110,788	1,368	145,046
Alabama River Basin					
IIw	123,060	133,369	258,245	12,564	527,238
IIIw	46,288	113,937	274,836	8,775	443,836
IVw	39,067	171,715	746,441	6,347	963,570
Vw	2,030	4,283	228,331	841	235,485
VIw		319	244		563
VIIw			7,361	409	7,770
Total	210,445	423,623	1,515,458	28.936	2,178.462

1/ Alabama Conservation Needs Inventory, 1967.

4-32888 3-73

Surface Storage for Low-Flow Augmentation, Recreation. and Municipal Water.

Certain specific water needs have been recognized during the early phase of the basin study that might be met best through surface storage. The Alabama Water Improvement Commission has identified a number of point areas along streams and tributaries which have or will have a pollution problem during periods of low stream flow, (see Table IV-21). The Economic Research Service has projected a demand for water-based recreation in the Cahaba River Subbasin. There will exist a need for additional municipal water throughout the river basin. A portion of this need will have to be met through the use of surface storage.

The areas where low-flow augmentation can possibly alleviate the pollution problem were studied to locate available reservoir sites. These sites are located upstream from the problem area to utilize gravity flow. A number of areas identified as having existing or potential pollution problems cannot be solved using low-flow augmentation. These areas were either physically located such that an upstream reservoir did not exist or the required minimum flow need during periods of low flow was greater than the dependable yield from the drainage area.

Four sites have been tentatively located in the Cahaba River Subbasin to provide surface area for water-based recreation. A potential site located on Shades Creek in Bibb and Jefferson Counties will require considerable clean up of the water draining into the reservoir before this reservoir could be used for water contact sports. These and other potential reservoirs can serve as multiple-purpose structures. The floodwater retarding structures which are planned or where planning is pending under the small watershed program should be utilized as multiple-purpose structures whenever possible.

Statistical data for the reservoir sites located during this study are shown in Table II-7, Page II-29.

4-32888 3-73

Table IV-21--Location of existing and potential water pollution problems, status of impoundment possibility for low-flow augmentation, and minimum flow requirements, Alabama River Basin, 1972.

Location 1/	Minimum Flow Required cfs 2/	Reservoir Site Available 3/	Dependable Yield From Drainage Area and Reservoir cfs 4/
Alabama River Subbasin			
Montgomery County			
Catoma Creek at Montgomery	38	Yes	37.95
Wilcox County			
Pursley Creek at Camden	2	Yes	3.97 & 3.74 5/
Chilton County			
Middle Fork of Mulberry at Thorsby		No	
Cahaba River Subbasin			
Shelby County			
Buck Creek--vicinity of Siluria & Alabaster		No	
Jefferson County			
Cahaba River--vicinity of Highway 280	-	Yes	9.51, 8.52, 7.85 3.06 6/
Jefferson County			
Little Cahaba River--vicinity of Leeds		No	
Perry County			
Rick Creek--vicinity of Marion		No	
Coosa River Subbasin			
Coosa County			
Baker Creek at Goodwater	1.5	Yes	2.19
DeKalb County			
Big Wills Creek at Fort Payne	150	Yes 7/	-
Shelby County			
Buxahatchee Creek at Calera		No	
Calhoun County			
Cave Creek at Anniston-Fort McClellan	4	Yes	1.18
St. Clair County			
Dye Creek at Pell City		No	
St. Clair County			
Kelly Creek at Pell City		No	
Talladega County			
Shirtee Creek at Sylacauga		No	
Talladega County			
Talladega Creek at Talladega	-	Yes 8/	-
Calhoun County			
Tallahatchee Creek at Jacksonville	8	No	
Talladega County			
Tallaseehatchie Creek at Sylacauga	31.5	Yes	17.32 & 4.22 5/

4-32888 3-73

Table IV-21 (cont'd)

Location 1/	Minimum Flow Required cfs 2/	Reservoir Site Available 3/	Dependable Yield From Drainage Area and Reservoir cfs 4/
Chilton County			
Walnut Creek at Clanton		No	
Shelby County			
Waxahatchee Creek at Columbiana	4.5	Yes	10.20
Tallapoosa River Subbasin			
Cleburne County			
Cahulga Creek--vicinity of Heflin		No	
Macon County			
Calebee Creek--vicinity of Tuskegee	2.5	Yes	1.05
Randolph County			
High Pine Creek--vicinity of Roanoke		No	
Clay			
Horsetrough Creek--vicinity Of Ashland	8	Yes	1.29
Bullock County			
Old Town Creek--vicinity of Union Springs		No	
Lee County			
Parkerson Mill Creek--vicinity of Auburn		No	
Lee County			
Sougahatchee Creek--vicinity of Auburn-Opelika	23	Yes	3.22
Randolph County			
Wedowee Creek--vicinity of Wedowee	0.5	Yes	9.26

1/ Location of problem areas were identified by Alabama Water Improvement Commission.
2/ Flow required to maintain 5 ppm dissolved oxygen in stream. Furnished by Alabama Water Improvement Commission.
3/ For detail location and reservoir statistics see Table II-14.
4/ Estimated as being 50 percent of the average annual runoff.
5/ Two sites available.
6/ Four sites available.
7/ Several sites are available above problem area, however, these sites will not meet the flow requirements. Each site would involve an acquisition of extensive land rights.
8/ Low-flow augmentation storage has been incorporated in the Public Law 566 Work Plan for the Talladega Creek Watershed. This Work Plan has not been approved for operation as of this date.

4-32888 3-73

Recreation and Related Needs

Introduction -- Alabamians now spend more hours engaging in recreation activities outdoors than ever before, and the demand for leisure-time facilities is soaring. Actually, the demand for outdoor recreation in the Alabama River Basin is increasing much faster than the population (Figure IV-8). Participation in recreation is often measured in terms of "activity occasions", i.e., participation in a recreation activity for at least 30 minutes a day. In 1971, residents of the Alabama River Basin and tourists recreating within the basin participated in over 27 million activity occasions. By 1990, the number of occasions is expected to double, and by the year 2020, the number of recreationists is expected to be almost four times greater than in 1971, Table IV-22.

Table IV-22--Projected demand for outdoor recreation by residents and tourists in the Alabama River Basin, 1971, 1990, and 2020.

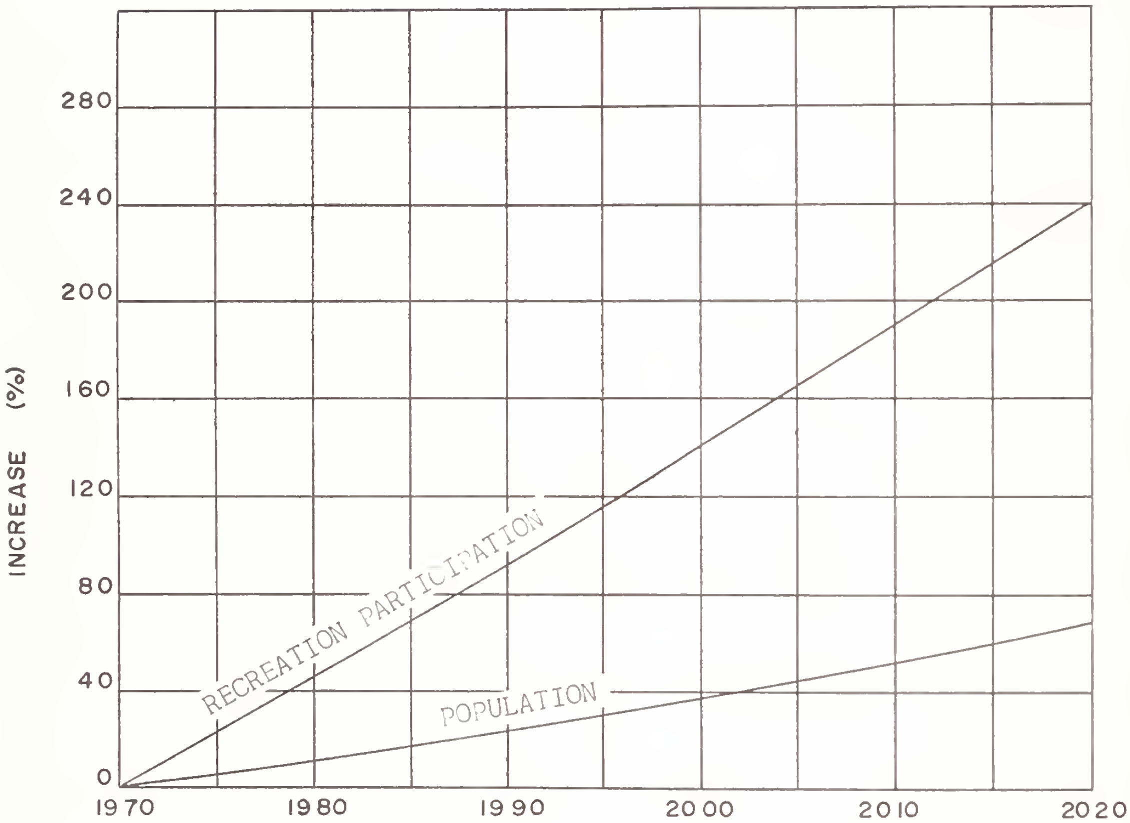
	Demand--Activity Occasions		
Activity	1971	1990	2020
	1000		
Swimming	10,004	19,860	37,020
Picnicking	6,250	9,930	14,100
Boating	2,755	6,280	12,930
Hunting	2,159	2,788	3,666
Fishing	2,001	2,900	4,370
Camping	1,520	3,910	8,330
Golfing	1,326	2,934	5,868
Water Skiing	944	2,845	5,525
Hiking	511	1,080	1,810
Total	27,470	52,527	93,619

Water is vital to most outdoor recreation activity. In 1971, more than 60 percent of all basin recreation activity was water based. Water also enhances land based recreation such as camping and picnicking. Consequently, the recreational use of water must not be overlooked in planning.

Several state agencies are concerned with preserving and improving the recreational environment of Alabama. Chief among these is the Alabama Department of Conservation and Natural Resources, Division of Outdoor Recreation. In 1970, Auburn University completed an extensive Comprehensive Outdoor Recreation Plan for Alabama under contract with the Alabama Department of Conservation and Natural Resources. This plan is being updated. Since the planning regions in the state study did not coincide with the hydrologic boundaries of the basin, and because of unexpected changes in the level of projected population, it became necessary to develop a separate recreational analysis for the basin study area.

4-32888 3-74

Figure IV-8--Outdoor recreation versus population growth Alabama River Basin within Alabama.



4-32888 3-73

Methodology -- The methodology involved in the basin analysis is the same as that used by Auburn University in developing the comprehensive state plan. A detailed discussion of the methodology involved has been published as a separate planning document by Auburn University.1/ A sample worksheet used in estimating facilities is presented in Table IV-23. Facility needs can be estimated from population projections alone, however, much background research has been accomplished to derive the coefficients found in supporting Tables IV-24, IV-25, and IV-26. The Auburn study considered 13 socio-economic factors such as age, education, race, mobility, income, sex, residence, employment, and family size among other factors in estimating local demand for various activities. For purposes of the Alabama Basin Study, the coefficients for Region 2 in the state plan were applied to the Coosa and Cahaba Subbasins, while estimates for Region 4 were used for the Alabama and Tallapoosa Subbasins. An example of the derivation of picnicking facility needs for the Alabama Subbasin is shown in Table IV-23. In 1971, 185 acres developed for public picnicking were needed along with 1,543 tables. The next step was to accurately inventory all recreation facilities available to the public. This was accomplished by updating the 1968 inventory of facilities reported in Volume 3 of the State Recreation Plan, Supply of Outdoor Recreation Resources in Alabama By Counties.

Fishing and hunting resources were inventoried independently by Soil Conservation Service biologists working closely with state and county conservation personnel. Once supply and demand were determined, the obvious step was to pinpoint areas of need, both current and anticipated. Following the picnicking example for the Alabama Subbasin, 300 acres of developed picnicking acreage was available in 1971 along with 566 tables. Acreage is more than sufficient to satisfy current demand, but there is an immediate need for almost 1,000 tables throughout the subbasin. Results are shown in Table IV-33 under picnicking.

The final step was to identify the general area where the facilities should be located to satisfy the greatest demand. The average distance traveled to participate in recreation generally ranges from 20 miles for swimming to 65 miles for camping. Thus, facilities should be located near more populous areas where the possibility exists. Using this philosophy, growth centers in the basin were determined and facility needs distributed based on anticipated population growth. Results for 1990 are shown in Figures IV-9 through IV-16. Because of the nature of some acitivites such as fishing, it was not possible to pinpoint facility needs to the county level. The recreation population was assumed to be those persons 12 years of age and over, except for swimming, camping, boating, and picnicking. For these four activities, persons under 12 were considered as recreating also. Tourist demand for recreation in the basin was estimated from the projected regional tourist demand data found in Volume 2 of the Comprehensive State Recreation Plan.2/ Table IV-27 sets forth the criteria used to determine the unit need for recreation activities.

1/ Participation In Outdoor Recreation In Alabama (A Guide For Establishing Recreational Needs), Agricultural Economics Series 20, Agricultural Experiment Station, Auburn University, October 1970.

2/ Demand For Outdoor Recreation in Alabama, Agricultural Economics and Rural Sociology Department, Auburn University, Vol. 2, pages 67-77, May 1970.

4-32888 3-73

Table IV-23--A sample of the worksheets used for estimating facility needs, Alabama River Basin, 1970.

Alabama Subbasin		Source	Factor
Picnicking			
1.	Area population	OBERS Projections	308,000
2.	Percentage participation by region residents (insert local estimates when available)	Appendix Table 1	37
3.	Number of residents participating	1 x 2	113,960 (156,607)1/
4.	Average number of activity occasions per participant per year (insert local estimates when available.)	Appendix Table 2	14
5.	Total resident activity occasions	3 x 4	2,206,498
6.	Percentage resident participation within State (insert local estimates when available)	Appendix Table 3	50
7.	Total resident within State activity occasions	5 x 6	1,103,249
8.	Percentage resident participation within local area	Local Data	90
9.	Total resident activity occasions within local area	7 x 8	992,924
10.	Number of tourist activity occasions	Local Data	873,676
11.	Total activity occasions in local area	9 + 10	1,866,600
12.	Conversion standard for activity (insert local estimates when available)	Table III-14	10,058 A.O. per Ac. 1,210 A.O. per Table
13.	Facility needs for local area	11 ÷ 12	185 ac.--1,543 Table

1/ Includes all ages over 12 years.
2/ The existing supply facilities should be subtracted from facility needs to determine numet needs.

Table IV-24--Present and projected percentage of the population participating in selected activities by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Activity	Coosa and Cahaba Subbasins			Alabama and Tallapoosa Subbasins		
	1971	1990	2020	1971	1990	2020
Picnicking	45	54	66	37	45	51
Fishing, All waters	29	30	40	24	26	32
Swimming	27	31	37	30	35	37
Playing golf	5	6	7	5	6	7
Boating	15	20	28	13	17	22
Water skiing	6	8	12	4	6	10
Camping	8	10	12	6	8	9
Hiking	12	13	10	5	5	4
Hunting	11	11	11	11 1/	11 1/	11 1/

1/ 12 percent in the Tallapoosa

Source: Participation In Outdoor Recreation In Alabama (A Guide for Establishing Needs), Auburn University, Agricultural Economics Series 20, October 1970.

4-32888 4-73

Table IV-25--Annual per person present and projected activity occasions of participation in selected activities by subbasins, Alabama River Basin, 1971, 1990, and 2020.

Activity	Coosa and Cahaba Subbasins			Alabama and Tallapoosa Subbasins		
	1971	1990	2020	1971	1990	2020
Picnicking	10	10	9	14	12	12
Fishing, all waters	8	9.5	11	9	13	15
Swimming	25	28	46	24	28	32
Playing golf	26	33	64	27	36	71
Boating	16	21	30	21	26	37
Water skiing	21	28	37	26	38	50
Camping	13	22	33	20	30	44
Hiking	6	11	20	16	32	42
Hunting	15	20	20	31	41	41

Source: Participation In Outdoor Recreation In Alabama (A Guide for Establishing Needs), Auburn University, Agricultural Economics Series 20, October 1970.

4-32888 3-73

Table IV-26--Present and projected percentage of within state activity occasions of selected activities by subbasins, Alabama River Basin, 1971, 1990, and 2020.

Activity	Coosa and Cahaba Subbasins			Alabama and Tallapoosa Subbasins		
	1971	1990	2020	1971	1990	2020
Picnicking	54	58	70	50	62	70
Fishing, all waters	98	90	80	96	90	80
Swimming	73	67	66	69	67	61
Playing golf	82	58	51	77	61	55
Boating	67	59	55	63	62	59
Water skiing	59	62	60	59	65	65
Camping	32	23	21	28	27	24
Hiking	53	48	43	48	52	47
Hunting	95	93	90	97	97	97

Source: Participation In Outdoor Recreation In Alabama (A Guide for Establishing Needs), Auburn University, Agricultural Economics Series 20, October 1970.

4-32888 3-73

Table IV-27--Annual use standards for selected outdoor recreation activities, Alabama River Basin.

Item	Activity Occasions[1/]	
	Urban Areas	Rural Areas
<u>Fishing</u>		
per acre of water:		
Lakes and reservoirs	10	10
Rivers and streams	5	5
Small impoundments	15	15
Put, grow and take ponds	1,250	1,250
<u>Hunting</u>		
per acre of habitat:		
Big game	0.5	0.5
Small game	2	2
Waterfowl	1	1
<u>Boating</u>		
per acre of water	72	36
<u>Swimming</u>		
per acre of beach:		
Lakes and reservoirs	23,100	11,800
per sq. ft. in pools	8	4
<u>Water skiing</u>		
per acre of water	45	18
<u>Camping</u>		
per acre of land:		
Tent	1,620	850
Trailer	2,700	1,440
per bed, group	90	90
<u>Hiking</u>		
per mile of trail	1,400	462
<u>Picnicking</u>		
per acre	12,150	5,400
per table	1,350	900
<u>Golfing</u>		
per 9 hole course	23,760	15,840
per 18 hole course	31,680	23,760

1/ Urban-rural standards were weighted to arrive at a single use standard for each activity on the basis of the urban-rural composition of the population in each subbasin in each time period.
Source: <u>Participation In Outdoor Recreation In Alabama</u>, Agricultural Experiment Station, Auburn University, Agricultural Economics Series 20, October 1970.

4-32888 3-73

Demand, Supply, and Facility Needs -- Nine land and water based activities were selected for analysis. They are fishing, hunting, boating, swimming, water skiing, camping, hiking, picnicking, and golfing. These are the primary recreation activities in the area and are those that would potentially be affected by land and water development activities. Each will be discussed separately. It is realized that much of the land and water area required can be used to satisfy several needs, either concurrently or at different seasons of the year. There is no general rule regarding how much of an area can serve dual purposes. This depends on the nature of the particular area.

Boating: Boating demand is projected to increase from 2,755,000 activity occasions in 1971 to 6.3 million by 1990 and 12.9 million occasions by 2020 (Table IV-28). Boating thus ranks third behind water skiing and camping in the rate of increase anticipated during the next 50 years. Currently, no need exists for additional boating waters as there are about 186,000 acres available for public use. One-half of this acreage is in the Coosa Subbasin, consequently, this area has the largest surplus of acreage. The basin can presently satisfy 11 million activity occasions of boating and no serious shortage of boating waters is expected by the year 2020. If boating demand is to be satisfied in the local area, a minor need exists for 2,800 acres in the Cahaba Subbasin within the next 20 years. As has been pointed out, however, this demand could easily be satisfied on one of the many reservoirs in the Coosa Subbasin.

Swimming: Demand for swimming should about double by the year 1990, resulting in the need for an additional 320 acres of beach (Table IV-29). Currently, the basin has 530 acres of beach and 119 public pools together providing the opportunity for 13.3 million activity occasions of swimming. Present demand is for 10.0 million occasions, therefore it is evident that basin facilities are nearing capacity. Most of the new beaches required during the next two decades will be needed in the Alabama Subbasin. Currently, this area can supply only 934,000 activity occasions of swimming, while demand for 3.2 million activity occasions in 1971 was much higher. At present, 117 acres of beach would be required to meet unsatisfied demand. The need in the Alabama Subbasin is expected to increase to 230 acres by 1990. Figure IV-9 indicates the most desirable location for new beaches in each subbasin between 1971 and 1990. Current beach acreage is also shown. With a metropolitan population approaching 200,000 in the Montgomery area, there is increasing pressure on the recreational resources of this area. No beach areas were reported in either Montgomery or Autauga Counties in 1971 hence a real need exists in these counties.

Water Skiing: This activity is expected to have the greatest relative increase in demand throughout the planning period; however, the percentage of the population participating will remain low. In 1971, only five persons in 100 participated in water skiing. By 1990, the estimate is for eight persons per 100 to participate. Demand is expected to climb from 944,000 occasions in 1971 to 2.8 million by 1990 and 5.5 million by 2020 (Table IV-30). Public large water impoundments can currently satisfy skiing demands in each of the four subbasins, but by 1990, 1,100 acres will be needed in the Cahaba area (Figure IV-10). A large surplus of water for skiing is available in the Coosa Subbasin. As with boating, unsatisfied demand in the Cahaba region could easily be met in the Coosa Subbasin if residents were willing to travel 100 miles or more to ski. In the past. most have not been willing or able to do so; consequently, a need will soon exist for skiing waters particularly in the populous Jefferson County area.

Camping: Camping demand is usually satisfied in one of three ways--through tent camping, trailer camping, or group camping in cabins or lodges. In 1971, there were 1,716 individual sites in the basin developed especially for tent camping, 1,853 sites for trailer/tent camping, and 4,200 beds in group camping facilities. Combined they had a capacity of 3.8 million activity occasions (Table IV-31). More than one-half of these facilities are located in the Coosa Subbasin. The demand for camping facilities is expected to increase second only to water skiing among the nine activities considered. Total demand is expected to rise from 1.5 million occasions in 1971 to 3.9 million by 1990 and 8.3 million by the end of the planning period. Only one area--the Alabama Subbasin--has an immediate need for additional developed camping facilities. As pointed out, the need can be satisfied in several ways; consequently, Table IV-31 specifies facility needs in terms of both acreages and beds. Likewise, it appears that by 1990 only the Alabama Subbasin will need additional facilities (Figure IV-11).

Hiking: Public hiking trails in the basin can satisfy only about one-half of the current demand. A total of 239 miles of trail exist, while another 235 miles are needed at present (Table IV-32). By 1990 an additional 720 miles will be required to meet demands (Figure IV-12). None of the four subbasins has sufficient trails, but the bulk of the current deficit is centered in the Alabama Subbasin where only 16 miles of developed trails are reported. The area has a present need for about 140 miles of trail. No other activity appears to be so lacking in facilities as is hiking. With demand expected to double by 1990, there is a real need for additional public trails throughout the basin particularly near the more populated areas.

Picnicking: Picnicking demand is not expected to increase as rapidly as most other activities. Demand by 1990 should be about 9.9 million occasions, 60 percent greater than in 1971 (Table IV-33). Presently. there are about 2,000 acres developed for picnicking in the basin. Four thousand tables are available; 2,000 are in the Coosa Subbasin. The Alabama Subbasin contains only 570 tables for a population of 300,000: consequently. the immediate need is much greater here than in other subbasins. By 1990, however, needs of the Coosa area will surpass those in the Alabama Subbasin because of the heavy tourist activity in the Coosa area. During the next 20 years, an additional 4,200 tables will be needed within the basin--1,800 of these in the Coosa Subbasin and 1,600 in the Alabama Subbasin. The proposed location of these facilities is shown in Figure IV-13. The locations were derived from anticipated population growth, tourist activity, and densities in terms of numbers of persons per table in each county.

Golfing: The current capacity of all courses in the basin is 1.8 million activity occasions, while demand is for 1.3 million occasions. With demand increasing to 2.9 million occasions by 1990 and 5.9 million by 2020, the need for numerous new or expanded courses is quite evident. Currently. only one additional 18-hole golf course is needed to satisfy basin demand, that being in the Alabama Subbasin in the Montgomery area. By 1990, however, demand is expected to change dramatically as 45 additional 18-hole courses will be needed to satisfy demands (Table IV-34). This is double the number of 18-hole courses available in 1971. There are also 26 9-hole courses. The general location of the proposed 45 new courses is shown in Figure IV-14. The locations were determined in a manner similar to that discussed under picnicking, with densities expressed in terms of number of persons per course.

Fishing: Fishing demand has been estimated for four types of water groups--lakes and reservoirs, rivers and streams, small impoundments, and put, grow and take ponds. Brackish and salt water fishing is not available in the basin. This classification into separate types of fishing demand follows the method set forth in Volume 6 of the State Recreation Plan and is consistent with other fishery research being conducted as a part of the basin study.

Large impoundments, i.e., lakes and reservoirs exceeding 500 acres are estimated to supply over one-half of all current fishing demand (Table IV-35). Roughly 50 percent of all such reservoir fishing is available in the Coosa Subbasin. The current capacity in fishing activity occasions is shown in Table IV-35. For purposes of this study, a man-day of fishing is assumed to equal one activity occasion. Each reservoir, lake, river and stream in the basin was analyzed separately regarding man-days of fishing and sustained harvestable production of fish per acre. The total capacity of all public fishing areas in 1971 was slightly more than four million activity occasions compared to a demand of two million occasions. However. only the Alabama Subbasin has sufficient resources to satisfy all four types of fishing demand. About 30,000 additional acres need to be develooed for fishing to meet present needs; the figure increases to 59,000 acres by 1990 (Figure IV-15). By far the greatest demand is for additional river and stream fishing. There appears to be enough reservoirs and put, grow. and take ponds to satisfy this type of demand through the next 20 years. Total fishing demand is exptected to increase about 50 percent during this period.

Hunting: Three types of hunting demand are considered in this study--big game, small game, and waterfowl. The supply of land assumed available for hunting includes state management areas, National Forests, and all company and privately owned land open to the public. Shooting preserves and club leased lands were not a part of the land supply. In all, 2.4 million acres are available for public hunting in the basin. Almost one-half, 1.1 million acres, are in the Coosa Subbasin.

Hunting demand is strongest in the Alabama and Tallapoosa Subbasins. A hunter in these two areas normally participates in about 29 hunting occasions per year, whereas in other parts of the basin the rate is only 15 occasions. Current basin demand is for about 2.2 million activity occasions of hunting annually (Table IV-36). Seventy percent of the demand is for small game. The capacity of basin public hunting lands at present is 6.1 million occasions, hence no serious shortages exist overall. There are however, a few problems in satisfying particular types of hunting. All areas are deficient in acreage for waterfowl hunting. Currently 30,000 acres are available with an additional 18,000 acres needed to satisfy 1971 demand. By 1990 the need for waterfowl hunting acreage is expected to increase by 55,000 acres (Figure IV-16). The remaining area of need is for additional big game acreage in the Alabama Subbasin. Approximately 555,000 acres are available; 44,000 additional acres are needed to meet current damand with another 100,000 acres needed by 1990. The three other subbasins have a surplus of both big and small game acreage which should safisfy 1990 demand.

4-32888 3-73

Table IV-28--Boating demand, public supply, and development needs, by subbasins, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	---------------1000 Activity Occasions---------------				
1971					
Demand	2,755	945	1,060	600	150
Existing facilities:					
Water, acres 1/	186,440	44,820	88,725	49,915	2,980
Ramps, number	392	51	282	58	1
Supply capacity	11,000	2,735	5,235	2,845	185
Surplus (+)	+8,245	+1,790	+4,175	+2,245	+35
Water need, acres. . .	0	0	0	0	0
1990					
Demand	6,280	1,950	2,780	1,180	370
Public supply	11,000	2,735	5,235	2,845	185
Deficit or surplus	+4,720	+785	+2,455	+1,665	-185
Water need, acres. . .	2,800	0	0	0	2,800
2020					
Demand	12,930	3,720	6,210	2,220	780
Public supply	11,000	2,735	5,235	2,845	185
Deficit or surplus	-1,930	-985	-975	+625	-595
Water need, acres. . .	38,300	14,900	14,800	0	8,600

Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

1/ Includes all streams, rivers, and impoundments open to the public.

4-32888 3-73

Table IV-29--Swimming demand, public supply, and development needs, by subbasins, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin: Alabama	Coosa	Tallapoosa	Cahaba
	----------------1000 Activity Occasions----------------				
1971					
Demand	10,004	3,219	3,784	2,019	982
Existing capacity:					
Beach	10,055	294	7,305	2,456	0
Pools	3,259	640	1,533	764	322
Total	13,314	934	8,838	3,220	322
Deficit (-) or surplus (+)	+3,310	-2,285	+5,054	+1,201	-660
Beach needed, acres...	150	117	0	0	33
1990					
Demand	19,860	5,670	8,660	3,460	2,070
Public Supply	13,314	934	8,838	3,220	322
Deficit or surplus	-6,546	-4,736	+178	-240	-1,748
Beach needed, acres...	322	230	0	12	80
2020					
Demand	37,020	9,080	18,290	5,410	4,240
Public supply	13,314	934	8,838	3,220	322
Deficit	-23,706	-8,146	-9,452	-2,190	-3,918
Beach needed, acres...	1,100	380	440	100	180

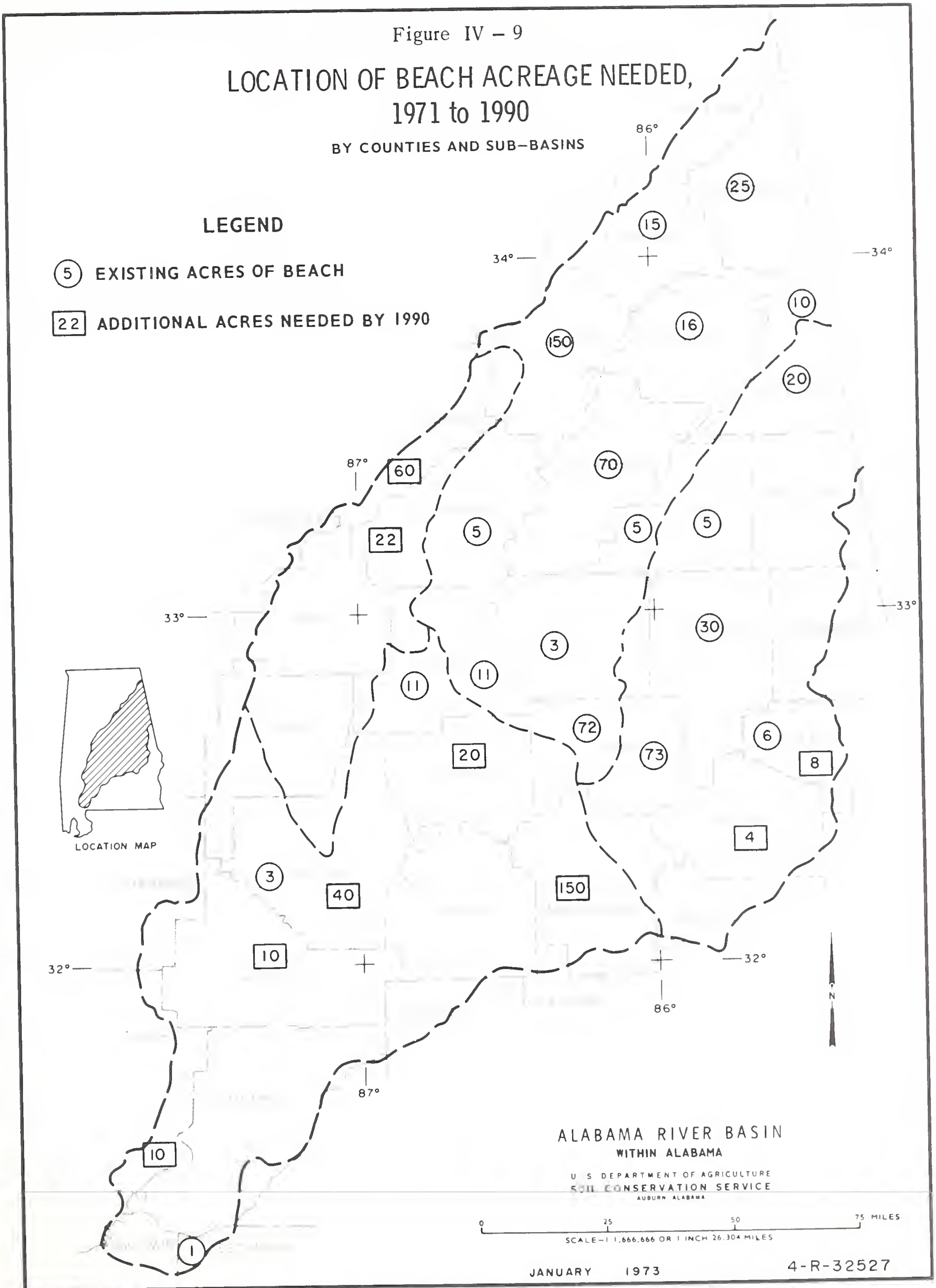
Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 9

LOCATION OF BEACH ACREAGE NEEDED, 1971 to 1990

BY COUNTIES AND SUB–BASINS



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Table IV-30--Water skiing demand, public supply, and development needs by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	--------------1000 Activity Occasions------------------				
1971					
Demand	944	265	420	230	29
Capacity of large impoundments	5,733	1,319	2,927	1,447	40
Deficit (-) or surplus (+)	+4,789	+1,054	+2,507	+1,217	+11
Additional water needs, acres	0	0	0	0	0
1990					
Demand	2,845	780	1,340	640	85
Public supply	5,733	1,319	2,927	1,447	40
Deficit or surplus	+2,888	+539	+1,587	+807	-45
Additional water needs, acres................	1,000	0	0	0	1,100
2020					
Demand	5,525	1,240	2,960	1,150	175
Public supply	5,733	1,319	2,927	1,447	40
Deficit or surplus	+ 208	+79	-33	+ 297	-135
Additional water needs, acres	3,940	0	800	0	3,140

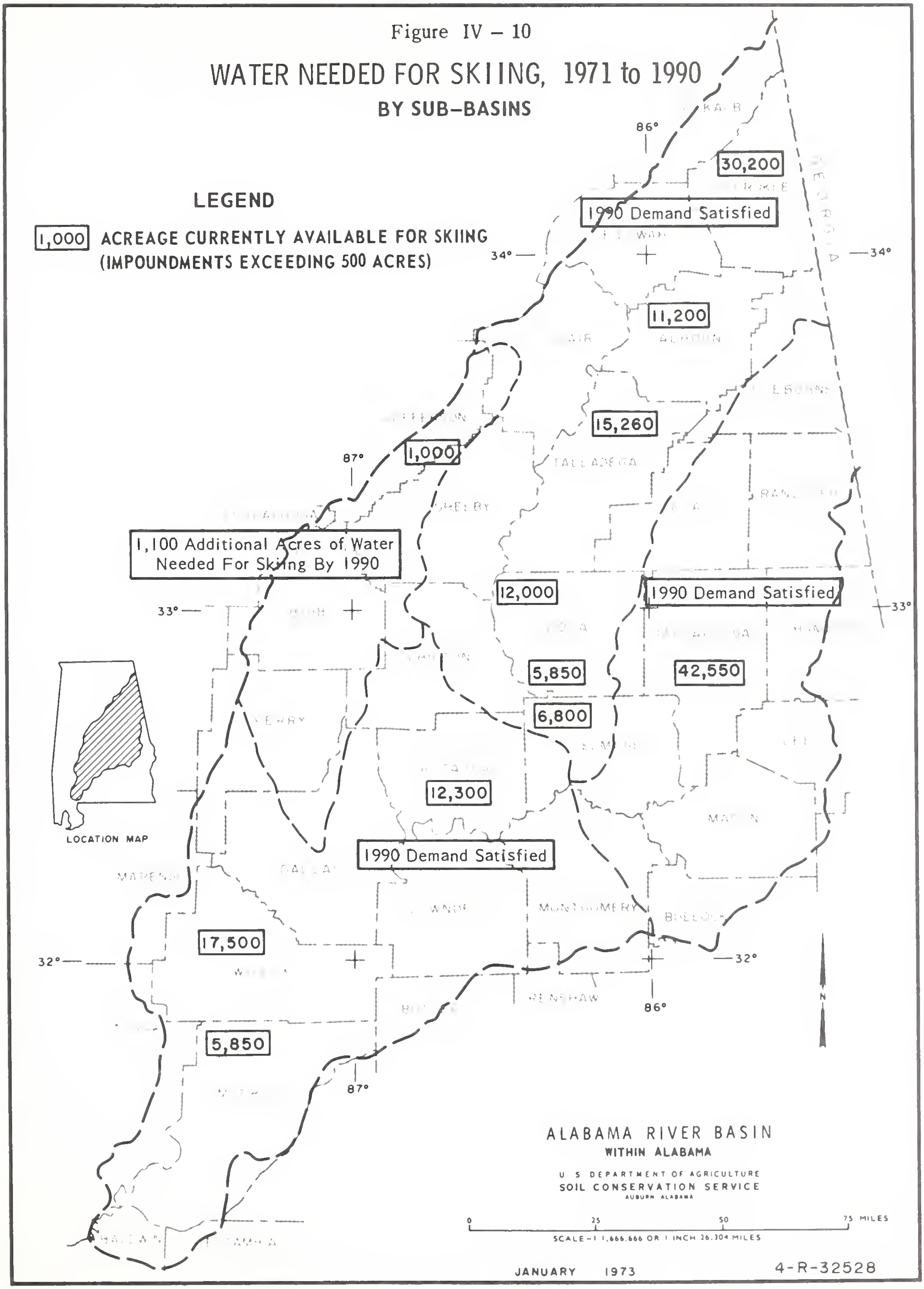
Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 10

WATER NEEDED FOR SKIING, 1971 to 1990

BY SUB–BASINS



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Table IV-31--Camping demand, public supply, and development needs, by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	---------------1000 Activity Occasions---------------				
1971					
Demand	1,520	446	631	279	164
Existing capacity 1/	3,776	300	1,975	961	540
Deficit (-) or surplus (+)	+2,256	-146	+1,344	+682	+376
Additional Needs:					
Tent camping, acres or.	105	105	0	0	0
Trailer/tent camping, acres	65	65	0	0	0
or Group camping, beds.	1,620	1,620	0	0	0
1990					
Demand	3,910	1,135	1,685	685	405
Public supply	3,776	300	1,975	961	540
Deficit or Surplus	-134	-835	+290	+276	+135
Additional needs:					
Tent camping, acres or.	580	580	0	0	0
Trailer/tent camping, acres	350	350	0	0	0
or Group camping, beds.	9,300	9,300	0	0	0
2020					
Demand	8,330	2,220	3,900	1,320	890
Public supply	3,776	300	1,975	961	540
Deficit	-4,554	-1,920	-1,925	-359	-350
Additional needs:					
Tent camping, acres or.	3,050	1,280	1,290	230	250
Trailer/tent camping, acres.	1,830	770	770	150	140
or Group camping, beds.	50,600	21,330	21,390	3,990	3,890

1/ Developed public camping facilities.

Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 11

CAMPING FACILITIES NEEDED, 1971 to 1990
BY SUB–BASINS

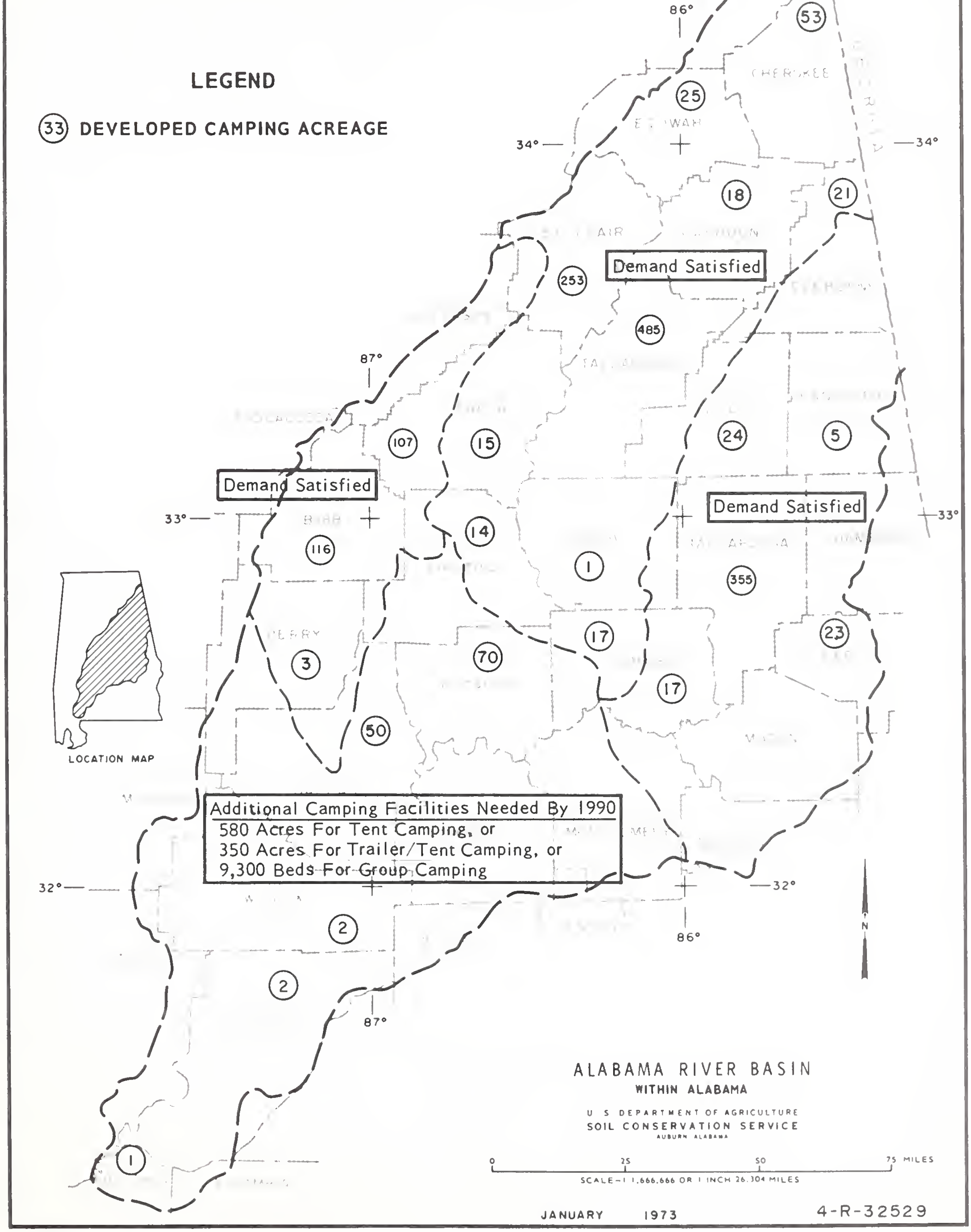


Table IV-32--Hiking demand, public supply, and development needs, by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	------------1000 Activity Occasions------------				
1971					
Demand	511	159	202	98	52
Developed trail, miles	239	16	154	59	10
Capacity of existing trails	253	18	165	59	11
Current deficit	-258	-141	-37	-39	-41
Additional trail needed, miles	235	125	35	40	35
1990					
Demand	1,080	360	400	220	100
Public supply	253	18	165	59	11
Deficit	-827	-342	-235	-161	-89
Additional trail needed, miles	720	290	210	150	70
2020					
Demand	1,810	490	840	290	190
Public supply	253	18	165	59	11
Deficit	-1,557	-472	-675	-231	-179
Additional trail needed, miles	1,290	380	540	230	140

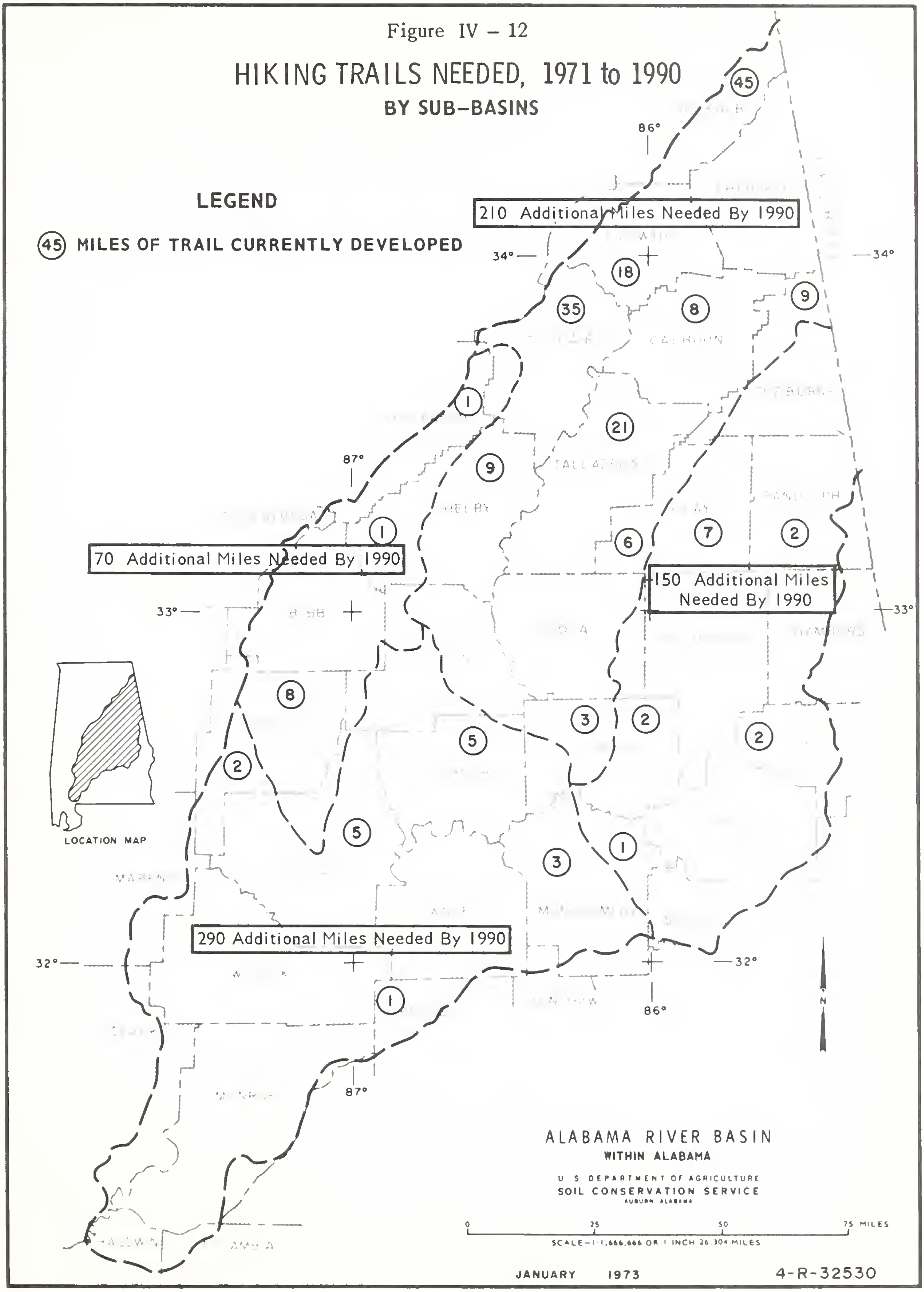
Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 12

HIKING TRAILS NEEDED, 1971 to 1990

BY SUB–BASINS



USDA-SCS-FORT WORTH, TEX 1973

NOVEMBER 1972

4-R-32344-A

Table IV-33--Picnicking demand, public supply, and development needs, by subbasin, Alabama River Basin, 1971, 1990, and 2020.

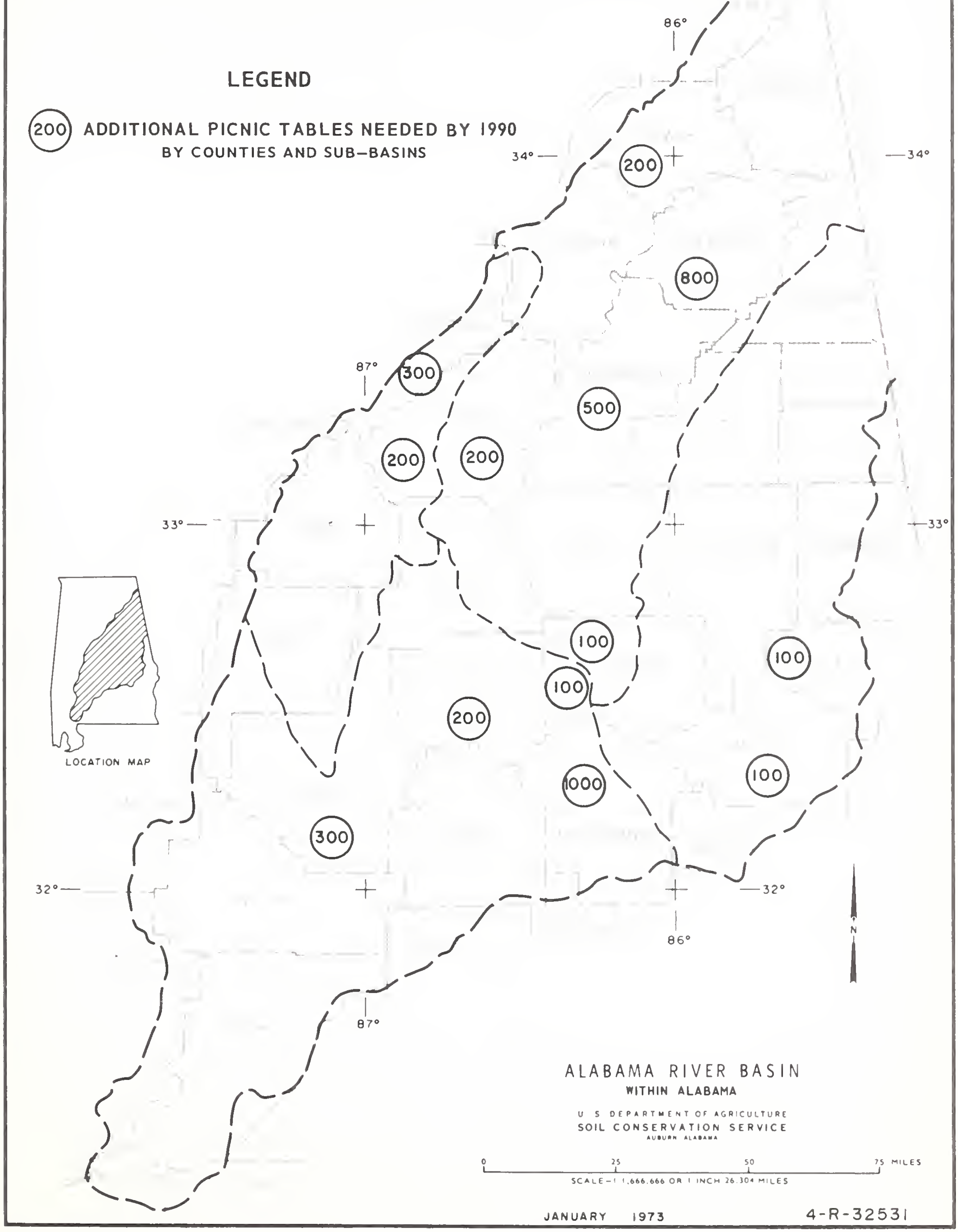
Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	----------------1000 Activity Occasions----------------				
1971					
Demand	6,250	1,867	2,545	1,179	659
Capacity of:					
Developed Acreage	18,730	3,017	10,620	3,894	1,199
Tables	4,707	685	2,354	1,254	414
Deficit(-) or surplus(+)					
of acres	+12,480	+1,150	+8,075	+2,715	+540
of tables	-1,543	-1,182	-191	+75	-245
Additional acres needed.	0	0	0	0	0
Additional tables needed.	1,329	977	157	0	195
1990					
Demand	9,930	2,680	4,570	1,600	1,080
Public supply:					
Existing acres	18,730	3,017	10,620	3,894	1,199
Existing tables	4,707	685	2,354	1,254	414
Deficit or surplus:					
of acres	+8,800	+337	+6,050	+2,294	+119
of tables	-5,223	-1,995	-2,216	-346	-666
Additional acres needed.	0	0	0	0	0
Additional tables needed.	4,220	1,600	1,820	280	520
2020					
Demand	14,100	3,900	6,100	2,500	1,600
Public supply:					
Existing acres	18,730	3,017	10,620	3,894	1,199
Existing tables	4,707	685	2,354	1,254	414
Deficit or surplus:					
of acres	+4,630	-883	+4,520	+1,394	-401
of tables	-9,313	-3,215	-3,746	-1,246	-1,186
Additional acres needed.	6,850	1,100	4,100	1,300	350
Additional tables needed.	7,340	2,520	2,930	990	900

Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 13

LOCATION AND EXTENT OF PICNIC TABLE NEEDS



USDA-SCS-FORT WORTH, TEX 1973

NOVEMBER 1972

4-R-32344-A

Table IV-34--Golfing demand, public supply, and development needs, by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	1000 Activity Occasions				
1971					
Demand	1,326	393	543	249	141
Existing capacity	1,829	378	649	280	522
Deficit (-) or surplus (+)	+503	-15	+106	+31	+381
Additional needs:					
9 hole or. . . .	1	1	0	0	0
18 hole courses .	1	1	0	0	0
1990					
Demand	2,934	932	1,161	564	277
Public supply	1,829	378	649	280	522
Deficit or surplus	-1,105	-554	-512	-284	+245
Additional needs:					
9 hole or	62	25	24	13	0
18 hole courses . .	45	18	17	10	0
2020					
Demand	5,868	1,830	2,401	1,092	545
Public supply	1,829	378	649	280	522
Deficit	-4,039	-1,452	-1,752	-812	-23
Additional needs:					
9 hole or.	181	65	78	37	1
18 hole courses. . .	134	48	58	27	1

Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A.

4-32888 3-73

Figure IV – 14

GOLF COURSE REQUIREMENTS 1971 to 1990

BY COUNTIES AND SUB–BASINS

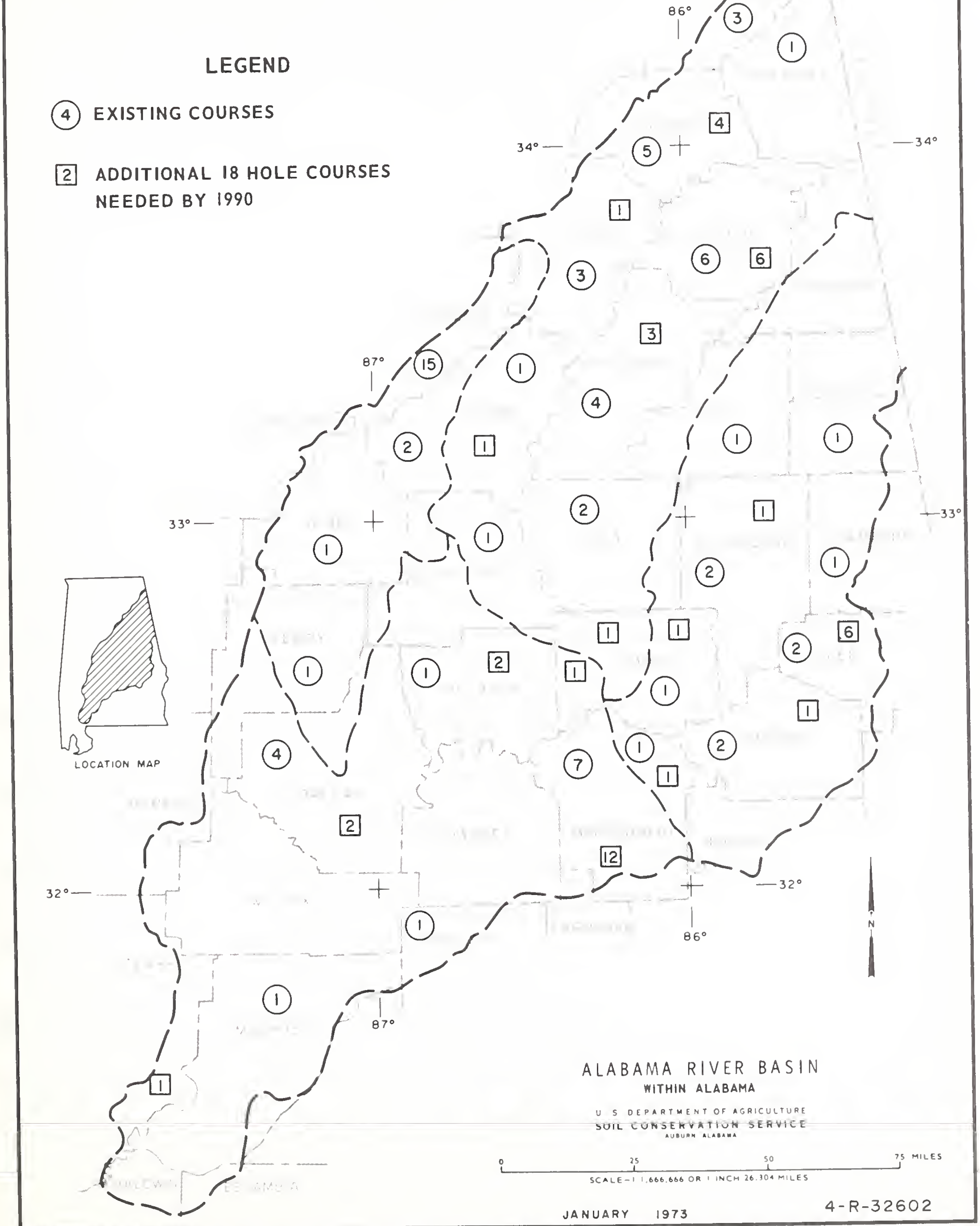


Table IV-35--Fishing demand, public supply, and development needs, by subbasins, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin Alabama	Subbasin Coosa	Subbasin Tallapoosa	Subbasin Cahaba
	------------------1000 Activity Occasions----------------				
1971					
Demand in:					
Lakes & reservoirs	1,078	271	518	248	41
Rivers & streams	376	122	127	89	38
Small impoundments[1]	447	133	161	107	46
Put, grow & take ponds	100	28	43	23	6
Total	2,001	544	849	467	131
Capacity of:					
Lakes & reservoirs	2,832	1,201	1,205	418	8
Rivers & streams	347	205	68	58	16
Small impoundments	409	154	131	101	23
Put, grow & take	498	112	172	181	33
Total	4,086	1,672	1,576	758	80
Total deficit or surplus	+2,085	+1,118	+727	+291	-51
Additional Needs:					
Lakes & reservoirs, acres.	3,300	-	-	-	3,300
Rivers & streams, acres.	22,400	-	11,800	6,200	4,400
Small impoundments, acres.	3,950	-	2,000	400	1,550
Put, grow & take, acres.	-	-	-	-	-
Total, acres. .	29,650	-	13,800	6,600	9,250
1990					
Demand:					
Lakes & reservoirs	1,720	490	680	400	50
Rivers & streams	560	200	170	140	50
Small impoundments	570	200	180	140	50
Put, grow & take	150	50	50	40	10
Total	2,900	940	1,080	720	160
Public supply	4,070	1,672	1,564	754	80
Total deficit or surplus	+1,170	+732	+484	+34	-80

4-32888 3-73

Table IV-35 (cont'd)

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	------------------1000 Activity Occasions--------------				
1990 (cont'd)					
Additional Needs:					
Lakes & reservoirs, acres.	4,200	-	-	-	4,200
Rivers & streams acres.	43,600	-	20,400	16,400	6,800
Small impoundments acres.	10,720	3,050	3,270	2,600	1,800
Put, grow & take acres.	-	-	-	-	-
Total, acres . .	58,520	3,050	23,670	19,000	12,800
2020					
Demand:					
Lakes & reservoirs	2,440	700	1,080	580	80
Rivers & streams	760	250	260	180	70
Small Impoundments	850	280	280	210	80
Put, grow & take	320	90	140	70	20
Total	4,370	1,320	1,760	1,040	250
Public supply	4,070	1,672	1,564	754	80
Total deficit or surplus	-291	+352	-196	-277	-170
Additional Needs:					
Lakes & reservoirs, acres.	23,400	-	-	16,200	7,200
Rivers & streams, acres.	82,600	9,000	38,400	24,400	10,800
Small impoundments, acres.	29,400	8,400	9,930	7,270	3,800
Put, grow & take acres.	-	-	-	-	-
Total acres	135,400	17,400	48,330	47,870	21,800

1/ Under 500 acres.

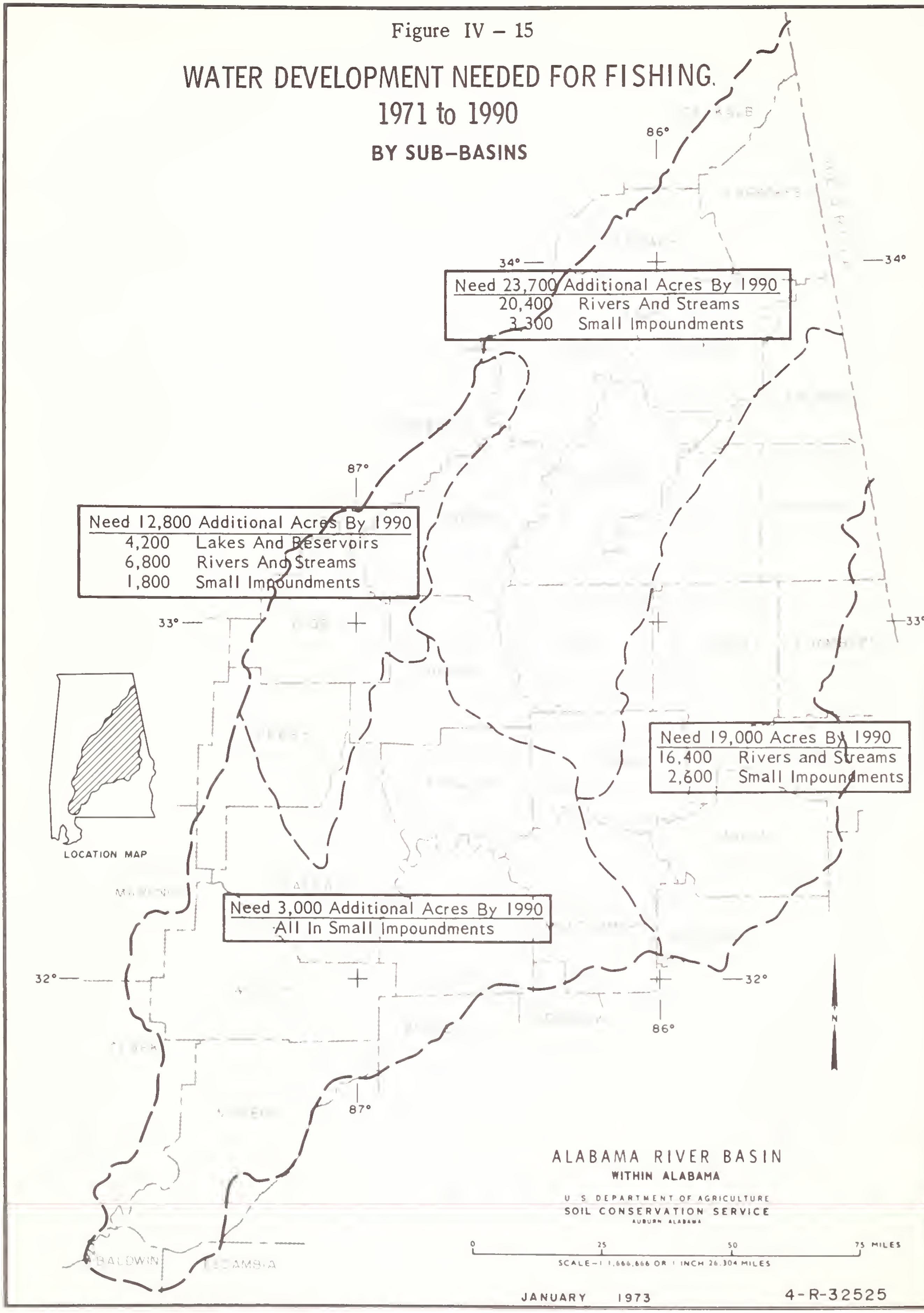
Source: Alabama Statewide Comprehensive Outdoor Recreation Plan and inventory material provided by the U.S.D.A., Alabama Department of Conservation and Natural Resources, and Bureau of Sport Fisheries and Wildlife U.S.D.I.

4-32888 3-73

Figure IV – 15

WATER DEVELOPMENT NEEDED FOR FISHING. 1971 to 1990

BY SUB-BASINS



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972 4-R-32344-A

Table IV-36--Hunting demand, public supply, and development needs, by subbasin, Alabama River Basin, 1971, 1990, and 2020.

Item	Ala. River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	---------------1000 Activity Occasions---------------				
1971					
Demand:					
Big game	640	300	145	165	30
Small game	1,470	645	355	390	80
Waterfowl	49	19	15	11	4
Total	2,159	964	515	566	114
Existing capacity:					
Big game	1,223	278	575	259	111
Small game	4,893	1,111	2,300	1,037	445
Waterfowl	31	15	4	8	4
Total	6,147	1,404	2,879	1,304	560
Deficit(-) or surplus(+)					
Big game	+583	-22	+430	+94	+81
Small game	+3,423	+466	+1,945	+647	+365
Waterfowl	-18	-4	-11	-3	0
Total	+3,988	+440	+2,364	+738	+446
Hunting Needs:					
Big game, acres	44,000	44,000	0	0	0
Small game, acres	0	0	0	0	0
Waterfowl, acres	18,000	4,000	11,000	3,000	0
Total, acres	62,000	48,000	11,000	3,000	0
1990					
Demand:					
Big game	782	350	200	190	42
Small game	1,920	850	490	480	100
Waterfowl	86	40	21	21	4
Total	2,788	1,240	711	691	146
Public Supply	6,147	1,404	2,879	1,304	560
Deficit or surplus:					
Big game	+441	-72	+375	+69	+69
Small game	+2,973	+261	+1,810	+557	+345
Waterfowl	-55	-25	-17	-13	0
Total	+3,359	+164	+2,168	+613	+414
Needs:					
Big game, acres	144,000	144,000	0	0	0
Small game, acres	0	0	0	0	0
Waterfowl, acres	55,000	25,000	17,000	13,000	0
Total, acres	199,000	169,000	17,000	13,000	0

4-32888 3-73

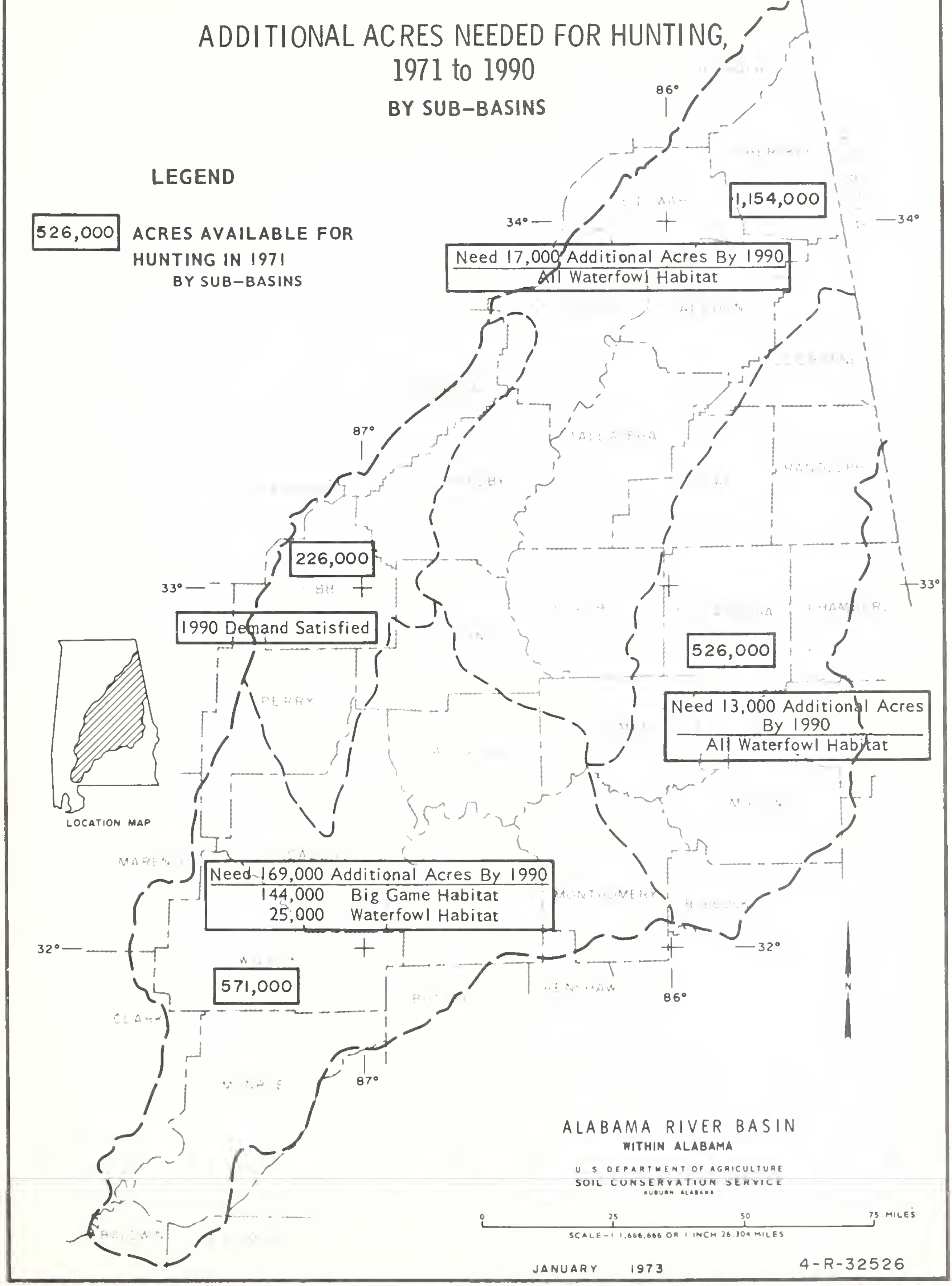
Table IV-36 (cont'd)

Item	Ala.River Basin	Subbasin			
		Alabama	Coosa	Tallapoosa	Cahaba
	----------------1000 Activity Occasions----------------				
2020					
Demand:					
Big game	1,020	460	260	250	50
Small game	2,530	1,130	650	620	130
Waterfowl	116	50	30	30	6
Total	3,666	1,640	940	900	186
Public supply	6,147	1,404	2,879	1,304	560
Deficit or surplus:					
Big game	+203	-182	+315	+9	+61
Small game	+2,363	-19	+1,650	+417	+315
Waterfowl	-85	-35	-26	-22	-2
Total	+2,481	-236	+1,939	+404	+374
Needs:					
Big game, acres	364,000	364,000	0	0	0
Small game, acres	10,000	10,000	0	0	0
Waterfowl, acres	85,000	35,000	26,000	22,000	2,000
Total, acres	459,000	409,000	26,000	22,000	2,000

Source: Alabama Statewide Comprehensive Recreation Plan and inventory material provided by the U.S.D.A., Alabama Department of Conservation and Natural Resources, and Bureau of Sport Fisheries Wildlife, U.S.D.I.

4-32888 3-73

Figure IV – 16



USDA-SCS-FORT WORTH, TEX. 1973

NOVEMBER 1972

4-R-32344-A

Fish

Needs for additional fishery and wildlife habitat are discussed in the section "Recreation and Related Needs".

There are many problems affecting the fishery resources in the Alabama Basin. Pollution and lack of accessibility seem to be the most important, however.

Sediment and many chemical pollutants affect the use and appearance of the water and the reproduction of fish. Tons of sediment from urban and rural construction, roadbanks, unstable stream channels, farm lands, and other sources pass into our waterways annually.

Poor accessibility to fishing waters has resulted in limited utilization of several high quality fishing streams. There are few, if any, established float-fishing areas with adequate facilities within the basin.

Other problems exist, such as aquatic weeds; but they do not appear to be a major limiting factor in management of the fishery resources.

Wildlife

There are numerous problems affecting the management and utilization of the wildlife resources within the basin. Private landowners are becoming more restrictive with the use of their land for public hunting, for various reasons including increased hunting pressure and increased values for wildlife resources. Some species such as deer are heavily hunted while other game animals such as the oppossum, woodcock, and snipe, to mention a few, are underharvested.

Obviously, the problem is to stimulate public interest in the sporting qualities of some of the less important species.

Illegal hunting or poaching is a problem of serious magnitude in many counties. This appears to be a limiting factor on big game population in several areas.

Although Alabama is not in a direct migration route, thousands of waterfowl pass through the state each year from both the Atlantic and Mississippi flyways. The basin does not have the attractive waterfowl habitat found in the Mobile Bay area, but there are many acres of streams, lakes, reservoirs, and beaver ponds with some waterfowl potential. The basin does not contain a waterfowl refuge or management area; and most of the existing wetland habitat receives little, if any, management from private, state, or federal sources. The location of a potential waterfowl management area in the Alabama Subbasin will be discussed in more detail in the final report.

Beaver control seems to be the most prevalent wildlife problem in the river basin. There is no doubt that beaver population need close regulation even where impounded areas are managed for waterfowl or fish, however, most authorities agree that total eradication must be avoided. Many biologists are of the opinion that most of the beaver damage in Alabama occurs on areas with inferior, second-growth hardwood of rather low value. However. a forestry-oriented economist can show staggering monetary losses of raw materials from the estimated 75,000--100,000 forest acres that are flooded by beaver ponds in the state.

Table IV-37- shows the results of an aerial survey that was conducted of beaver ponds in 1967. Nine counties were chosen at random, beaver ponds were counted on all waterways, and the data were expanded for all counties in the state. The final report will contain a discussion of the beaver problem and an assessment of the beaver's status within the basin.

Table IV-37 -Results of Aerial Beaver Pond Survey in Alabama with expanded data and estimates in each county, Alabama River Basin, 1967.

County	Beaver Ponds	Pond Acres	Stream Miles	County	Beaver Ponds	Pond Acres	Stream Miles
Autauga	222	3112	230	Jefferson	48	119	160
Baldwin	212	1121	305	Lee	179	2510	185
Bibb	272	3389	185	Lowndes	179	2510	185
Bullock	169	2369	175	Macon	188	2636	195
Butler	237	2853	250	Marengo	266	1926	240
Calhoun	47	74	125	Mobile	181	957	260
Chambers	70	133	160	Monroe	160	846	230
Cherokee	53	83	140	Montgomery	183	2566	190
Chilton	199	2480	135	Perry	199	1441	180
Clarke	163	862	235	Randolph	81	154	185
Clay	75	108	130	Shelby	57	141	190
Cleburne	59	93	155	St. Clair	97	186	220
Coosa	73	139	165	Talladega	79	150	180
Dallas	316	2288	285	Tallapoosa	86	163	195
DeKalb	70	110	185	Wilcox	238	1723	215
Elmore	198	2776	205				
Etowah	53	83	140	Total	4,091	40.101	7.215

Source: Alabama Beaver Symposium, 1967.

4-32888 3-73

Environmental Quality

The environmental quality of the Alabama River Basin is influenced by various factors. It is impossible to properly evaluate even the most important factors in this report. Therefore, attention is given to some of the more significant problems that face the resource planner, manager, or administrator. Aspects of the river basin environment that are identified include; aesthetic quality, forest environment, confined livestock waste problems, county-wide solid waste disposal systems, and selected sites of historical, archaeological, and scenic value.

Aesthetic Quality -- The Alabama River Basin originates in the Appalachian Plateau displaying both geological and topographical diversity as it extends southwestwardly across the state. For the most part, the basin has a pleasant rural and open country character enhanced by a variety of land uses, lakes, and streams. Generally, the landscape is attractive and pleasing to both city dwellers and rural residents. Approximately 72 percent of the area is in woodland, 26 percent in openland use and 2 percent other uses. The upper portion of the basin offers scenic vistas of wooded hills and valleys with checker-board patterns of openland farmsteads. A scenic vista of wooded hills is best typified in the brilliant colors of fall foilage as viewed from Cheaha Mountain, the state's highest elevation at 2,407 feet. Much of the lower basin is occupied by bottomland hardwoods with commercial value. Large areas of these hardwoods are located along the flood plains and contribute a seemingly infinite flora and fauna for man's enjoyment and welfare. Also, in the flood plain of the lower basin are natural areas such as the Blue Girth-Beech Creek Swamp in Dallas County that are recognized for their unique aesthetic and wildlife value.

The Alabama basin has a temperate, humid climate typical of the southeastern part of the United States. Severe cold weather seldom occurs. The pleasant climate, adequate rainfall, and long growing season provide an environment favorable for the production of plants and animals needed for man's existence.

However, basin inhabitants have not always displayed good stewardship of the natural surroundings. The basin environment has been altered by a never ending quest to have more and better goods and services. The resulting environmental damages to soil and water resources have been significant. Large areas of land are being used for cultivation and other open uses that are best suited for timber production. Other areas of prime agricultural land are being used for residential sections, industrial parks, and other developments. Water resources are being polluted by sediment and less than adequately treated sewage discharged into rivers and small streams. Lack of interest in environmental improvements is exemplified by run-down farmsteads, abandoned houses, idle land, poorly managed woodlands, and eroded cropland, and roadbanks. These and many other related environmental problems of equal importance confront resource managers.

Forest Environment -- The basin forest plays a major role in man's activities. From this dynamic ecosystem man acquires many of the necessities required to maintain a healthy society and improve his quality of life. The forest ecosystem provides important social aspects including intellection,

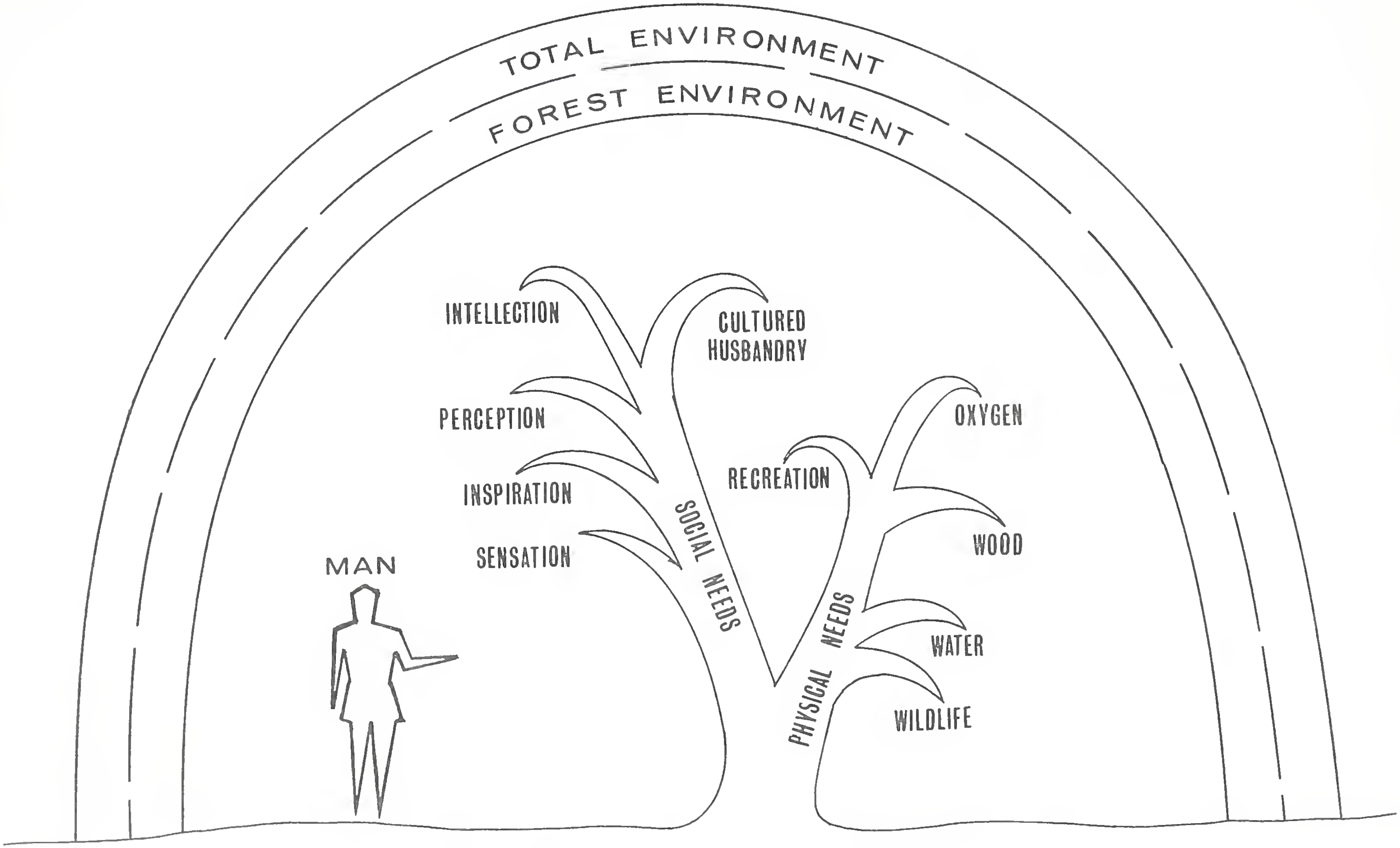


Figure IV-17--Man and the forest ecosystem.

4-32888 3-73

perception, sensation, and an understanding of cultured husbandry at the same time it supplies vital renewable resources such as oxygen, wood, wildlife, water, and recreation (Figure IV-17).

The satisfaction of physical needs is man's primary concern and will continue to govern forestry conservation efforts. Wood products for building materials, paper, and synthetics are emphasized; and needs for these essential commodities are constantly expanding. The demands are real but forest ecosystems provide other valuable benefits also which often go unnoticed. The healing and mending characteristics of the forest reduces noise, cleanses the air and retards sediment and pollutants from entering rivers and streams. All are primary links in the chain which leads to a quality environment.

Enhancement of the visual resource, increasing knowledge and understanding of nature, and recreation experiences are readily available in forest environments. Vegetative screening and visual resource management along travel and water corridors can greatly restore the visual quality of the basin landscape. Green belts and open spaces in and near urban areas can provide a precarious and vital balance between greenery and concrete. This impact can not only improve the visual quality of the city, but also provide accesible areas for leisure, inspiration, and nature education. These uses of the forest resources are virtually untapped in the Alabama River Basin.

The forest provides easy occasion for meaningful leisure opportunities. The associated forest wildlife resource and backcountry areas provide a setting where man can still enact the challenge of man against beast or survival in nature or enjoy the quiet tranquility of the natural environment. Outdoor recreation also provides an opportunity for family activities, especially those related to family cohesiveness through the shared experiences of camping, sightseeing, and hiking activities.

Forest ecosystems are a part of our heritage and a major element in our aesthetic lives. They not only supply vital materials and secondary effects for our primary physical needs, but also offer the manifold aspects for improving our social environment. Wise forest resource planning and management must incorporate highly imaginative and innovative programs to blend the diverse forest resources to satisfy the diverse needs of man.

Livestock Waste -- With the abundant availability of synthetic nitrogen fertilizers at low cost following World War II, it became more economical for the farmer to supply plant nutrients to his fields from the fertilizer bag rather than meet the expense of hauling manure from barnyard or feedlot. Further, the general trend in mechanizing and streamlining production was given impetus by labor shortages during and after the war. Manure accumulated in vast quantities. Disposal of the waste became a problem of both engineering efficiency and aesthetics.

The value of manure as a resource changed rapidly. For example, the 1938 Yearbook of Agriculture carries this statement:

4-32888 3-73

"One billion tons of manure, the annual product of livestock on American farms, is capable of producing $3,000,000,000 worth of increase in crops. The potential value of this agricultural resource is three times that of the nation's wheat crop and equivalent to $440 for each of the country's 6,800,000 farm operators. The crop nutrients would cost more than six times as much as was expended for commercial fertilizers in 1936. Its organic matter content is double the amount of soil humus annually destroyed in growing the nation's grain and cotton crops."

Obviously, the optimistic outlook has changed drastically. The change occurred because livestock and poultry production in the basin became concentrated in large scale, confinement-type-enterprises. Such large concentrations of animals have greatly magnified the problems of handling wastes, including health hazards and aesthetic nuisances. Economic studies indicate that the costs of handling manures make them no longer competitive in price with chemical fertilizers.

A study of the extent of livestock waste problems in the Alabama River Basin was conducted by gathering data in each basin county through the Soil Conservation Service District Conservationist. This information will be used by the Alabama Development Office (ADO) and the Alabama Water Improvement Commission (AWIC) in preparing a State Water Quality Management Plan for each subbasin. The information gathered includes pertinent data on (1) all beef cattle feedlots where 100 animals or more are kept in continuous confinement, (2) all hog parlors, (3) all dairy operations where cows are kept in continuous confinement, (4) and all dairy operations milking more than 100 cows.

Table IV-38 summarizes the results of the confined livestock inventory for the total basin and each subbasin. According to the survey, 301 operators had approximately 75,890 hogs, dairy cattle, and beef cattle confined as set forth in the above paragraph. This varies from about 6,000 animals in the Cahaba Subbasin to 40,000 animals in the Alabama Subbasin.

Approximately 168 hog parlor operators are housing 51,330 hogs in the Alabama River Basin. The survey indicated 27 operators with 7,395 confined hogs in Autauga County, the largest county total for the basin. The Alabama Subbasin had 90 hog parlor operators handling 29,200 hogs, contrasted to 7 operators and 2,000 animals in the Cahaba Subbasin. The percentage of operations with some type of waste treatment facility range from 50 percent in the Alabama Subbasin to 86 percent in the Cahaba Subbasin. The adequacy of the facilities or the efficiency of the treatment is not a part of this inventory.

Operators of 116 dairies are milking more than 100 cows each, or keeping smaller herds in continuous confinement. Less than half, 47 percent, have some type of waste treatment facility. The Coosa Subbasin has the largest number of operators (53), and reported 5,860 cows in confinement or large herds, the largest number in any subbasin.

4-32888 3-73

Table IV-38--Confined livestock operations by type and subbasin in the Alabama Basin, 1972.1/

Subbasin	Type of Operation 2/											
	Hog Parlors				Dairy Operations				Cattle Feedlots			
	No. of Operators	No. of Animals	Treatment No.	Treatment %	No. of Operators	No. of Animals	Treatment No.	Treatment %	No. of Operators	No. of Animals	Treatment No.	Treatment %
Coosa	33	11,105	17	52	41	5,860	28	68	6	2,640	6	100
Cahaba	7	2,000	6	86	23	3,635	17	74	--	--	--	--
Alabama	90	29,200	58	64	27	4,919	8	30	8	5,350	6	75
Tallapoosa	38	9,025	23	60	13	1,756	2	15	3	400	2	67
TOTAL	168	51,330	104	62	104	16,170	55	53	17	8,390	14	82

1/ Data was taken from a questionnaire sent to each county Soil Conservation Service office in the river basin.

2/ Inventory includes all hog parlors, dairy herds kept in continuous confinement dairy herds exceeding 100 head, and beef cattle feedlots exceeding 100 animals.

4-32888 3-73

Of the 17 beef cattle feedlots inventoried in the basin, 8 were in the Alabama Subbasin, 6 in the Coosa Subbasin and 3 in the Tallapoosa Subbasin. The survey indicated that in November, 8,390 beef cattle were in feedlots handling more than 100 head per feedlot. The largest operation, feeding 3,000 cattle was reported in Lowndes County. Only 3 of 17 beef cattle feedlots inventoried did not have waste treatment facilities.

As shown in Table IV-39, the total solid waste production of the confined animals will exceed 280,000 tons annually if the total number does not increase. More than half of the solid waste is generated by dairy cows. Using an average population equivalent factor from several sources, the 75,890 confined animals inventoried in this report will create a waste treatment problem equivalent to a human population of approximately 500,000.

Additional information on livestock waste disposal problems for a specific area may be available from the State Public Health Department, Extension Service, Agricultural Experiment Station, and the Soil Conservation Service Field Offices.

Table IV-39--Production of wastes by confined livestock in the Alabama River Basin, 1972.

Livestock	Population	Total Production of solid waste1/	Total Production of liquid waste1/
	Thousands	Thousands tons/yr.	Thousands tons/yr.
Beef Cattle	8	75.2	29.1
Hogs	51	55.1	32.7
Dairy Cattle	16	150.4	58.4
Total	75	280.7	120.2

1/ Source: "Wastes in Relation to Agriculture and Forestry", U.S.D.A. Miscellaneous Publication No. 1065.

4-32888 3-73

Solid Waste Systems -- The following is a brief summary of the solid waste disposal systems in each county that is partially or wholly within the Alabama River Basin as of November, 1972. The information was obtained from a questionnaire sent to each Soil Conservation Service Field Office. The information was reviewed by the Division of Solid Waste, State Department of Public Health. Approximately 64 percent of the counties within the basin meet the requirements for the collection and disposal of solid waste set forth by the State Department of Public Health.

A rating system which measures various factors relating to the collection and disposal of solid waste is used as the basic criteria for determining the approval of a waste disposal system. However, the maximum state standards for a land disposal site require that; (1) no burning of refuse be permitted, (2) refuse be compacted and covered daily as used, (3) no pollution of ground or surface water occurs, (4) all hazardous waste such as pesticide containers be properly managed. Detailed information on the requirements of an approved county-wide solid waste system may be obtained from the State Department of Public Health--Division of Solid Waste.

Following is a list of counties having an approved solid waste disposal system as of November 1972:

COUNTY	DESCRIPTION OF SYSTEM
Autauga	Autauga County uses a system of 75 bulk containers to collect solid waste in rural areas. These containers are serviced by county packer disposal trucks and hauled to a sanitary landfill operated in cooperation with the city of Prattville.
Baldwin	Baldwin County has two sanitary landfills for disposal of solid waste. The county contracted with individual collectors to service the rural areas.
Calhoun	Calhoun County handles solid waste pickup in bulk containers serviced by a private contractor. The county owns a sanitary landfill and the city of Anniston provides personnel and equipment for operation.
Chambers	Chambers County owns and operates a sanitary landfill for the disposal of solid waste. Approximately 75 percent of the rural households are served by private collectors. The collectors, in turn, pay a use fee when dumping in the sanitary landfill.
Cherokee	Cherokee County has a bulk container system for solid waste collection. The containers are serviced by two county vehicles and the waste is hauled to a sanitary landfill.
Chilton	Chilton County owns and operates a bulk container system for solid waste disposal. The containers are picked up twice weekly and hauled to a county owned sanitary landfill. The

COUNTY	DESCRIPTION OF SYSTEM
Chilton (Cont'd)	towns of Maplesville, Jemison, Thorsby, and Clanton haul waste to the county landfill.
Clarke	Clarke County has a county-wide solid pickup service with dispersal at an approved landfill site near Grove Hill. A supervisor is employed and two packer trucks are routed through the rural areas. The county furnishes a front-end loader and operator to compact and cover refuse daily.
Cleburne	Cleburne County and the city of Heflin have a waste disposal system agreement. The county picks up solid waste county-wide through use of bulk containers and hauls it to a sanitary landfill near Heflin. The city provides labor and equipment to operate the landfill.
Coosa	Coosa County uses a bulk container system in the collection of solid waste. The county empties these containers each week in a centrally located landfill approximately five miles north of Rockford.
DeKalb	DeKalb County has a county-wide system of solid waste collection using a private contractor. The contractor maintains a sanitary landfill.
Elmore	Elmore County handles solid waste in bulk containers which were purchased by the county and Alabama Power Company. Containers are serviced by two trucks which haul to three sanitary landfills.
Escambia	Escambia County operates two sanitary landfills and furnishes equipment to maintain them. Rural pickup services are made available to the entire county by a private firm.
Etowah	Etowah County has bulk containers located throughout the county. These containers are serviced three times weekly and hauled to a sanitary landfill which is operated by the county.
Jefferson	Most of the Jefferson County area is covered by a solid waste pickup service using private contractors. The county maintains several landfills periodically.
Lee	There is a county-wide solid waste garbage service for Lee County. The soild waste is picked up in the county by both public and private operators and is dumped in both public and private sanitary landfills.
Macon	Macon County owns and operates a bulk container system which is serviced by county trucks and hauled to a sanitary landfill at Tuskegee

COUNTY	DESCRIPTION OF SYSTEM
Montgomery	Montgomery County provides county-wide solid waste pickup twice weekly for $4.00 per month. Services are contracted from a private operator. All solid wastes are hauled to one county-maintained sanitary landfill and two sanitary landfills operated by the city of Montgomery.
Randolph	Randolph County has a county-wide solid waste collection system. Collections are made house-to-house each week by a private contractor. The waste is hauled to a sanitary landfill operated by the county.
St. Clair	St. Clair County contracts the collection of solid waste to an independent operator. Collections are made house-to-house each week and hauled to a sanitary landfill operated by the contractor.
Tallapoosa	Tallapoosa County uses a bulk container system to collect solid waste in rural areas. The waste is hauled to a county operated sanitary landfill, and to a sanitary landfill operated by Alexander City.
Tuscaloosa	Tuscaloosa County has bulk containers which are serviced by county trucks. The solid waste is hauled to a central county-municipal sanitary landfill in the city of Tuscaloosa.

Following is a list of counties that do not have an approved solid waste disposal system as of November 1972:

COUNTY	DESCRIPTION OF SYSTEM
Bibb	Bibb County has 40 acres approved by the health department for a sanitary landfill. The county will furnish the trucks to pickup and haul the solid waste to a centrally located sanitary landfill located near Brent.
Blount	Blount County has engaged a private firm to collect solid waste. The contractor operates a sanitary landfill near Hendrix.
Bullock	Bullock County has a new sanitary landfill for disposal of solid waste operated in cooperation with the city of Union Springs, but does not have an organized pickup service in the rural areas. Plans are pending to contract pickup services from independent operators.
Butler	Butler County does not have a solid waste collection program in the rural areas. Each family is still dispersing of its solid waste at this time. A cooperative sanitary landfill is in operation at Greenville.

4-32888 3-73

COUNTY	DESCRIPTION OF SYSTEM
Clay	Clay County does not have a solid waste program in operation. However, a sanitary landfill site has been purchased and, in addition, the county plans to buy bulk containers to implement the planned collection system.
Crenshaw	Crenshaw County has contracted solid waste collection with a private firm. The waste will be picked up in plastic bags and carried to a sanitary landfill operated by the county. The system is in an early stage of implementation.
Dallas	Dallas County has three landfills located throughout the county to which residents and private collectors can carry solid waste. Two of these sites are operated as sanitary landfills, and the third site is not yet fully implemented.
Lowndes	Lowndes County has postponed implementation of a solid waste collection program until January 1, 1973.
Marengo	Marengo County does not have a solid waste disposal plan in operation at this time. However, they are working on a sanitary landfill and a road to it. They expect to have it in operation by December 1, 1972, with county-wide pickup expected to begin March 1, 1973. The pickup will be let on contract. The county will operate the fill with financial support from the cities.
Monroe	Although Monroe County does not have a rural solid waste collection program, county officials are considering implementing a program in the near future. A sanitary landfill operated in cooperation with the municipalities is in use.
Perry	Although Perry County does not have a solid waste program in operation, the county commissioners have ordered trucks and bulk containers to handle the problem. The county will also furnish an operator and bulldozer at the sanitary landfill, in cooperation with the city of Marion.
Russell	Russell County is planning a solid waste program that will involve house-to-house collection. Some bulk containers have been placed in several communities by civic groups. These containers are serviced by county equipment.
Shelby	There is no organized collection of solid waste in rural areas. However, independent collectors service municipalities and part of the rural area. The solid waste is hauled to two sanitary landfills operated by the county.
Talladega	Talladega County does not have an approved solid waste program. Plans are being formulated for house-to-house collection program, and two sanitary landfills.

4-32888 3-73

COUNTY	DESCRIPTION OF SYSTEM
Wilcox	Wilcox County does not have an approved solid waste collection and disposal system. Open dumps scattered throughout the county are used to dispose of the solid wastes.

Places of Historical, Archeological and Scenic Value -- The National Historic Preservation Act of 1966 (80 Stat. 915) provides for the preservation of certain properties including historic districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology and culture. Section 106 of the act requires that all federal agencies must take into account the effect of any work undertaken on sites that appear on the National Register of Historic Places.

In this study, an attempt was made to identify these sites that were, (a) listed on the National Register of Historic Places, (b) battle sites, or Indian villages that played a significant role in the early settlement of the state, (c) covered bridges, (d) undeveloped natural and scenic areas of unusual aesthetic or scientific value. In general, homes, stores, churches, graveyards, museums, and monuments were not included.

Basic data was collected from the Federal Register, Alabama Historical Commission, Alabama Regional Planning and Development Commissions, and the Appraisal of Potentials for Outdoor Recreation Development for each county in the river basin. These sources should be consulted for a more comprehensive listing.

In the following list of Places of Historical, Archaeological and Scenic Value, special notation has been given to certain items and is indicated by the number (1) places appearing on the National Register of Historic Places, (2) places designated by historic highway markers, or (3) places of scenic value recorded in the Appraisal of Potentials for Outdoor Recreation Development of each county.

4-32888 3-73

COUNTY	SITE AND LOCATION
Autauga	Kinsha-Chapinta--Near Vernon; aboriginal Indian village. Aboriginal/Prehistoric
	Pratt Gin Factory (Continental Gin Company) (2)--Established 1833 by Daniel Pratt; oldest operating gin in the state. Industry/Manufacturing
Baldwin	Fort Mims--Four miles from Tensaw on the Alabama River; home of Samuel Mims who settled here in 1778; stockade built around his house for defense against Indians; Fort Mims massacre occurred here in 1813. (1) (2)
Bibb	Bibb Naval Furnaces-BrierField Furnaces--One-half mile, located on Alabama Highway 25 west of Wilton; principal iron producer for Confederate foundry at Selma. Furnaces destroyed 1865 by Wilson's Raiders; rebuilt 1866. (2)
	Ebenezer Church--April 1, 1865; cavalry engagement here among the fiercest of the Civil War; fought between Forrest and Wilson. (2)
	Montebrier--Near Montevallo; 1854; Victorian with gingerbread. (1)
Bullock	Chunnenuggee Gardens, Site of--First formal garden in the United States.
Calhoun	Cane Creek Furnace--Highway 78 east of Eastaboga; 1840; one of the earlier pig iron furnaces built in Alabama; destroyed 1864 by U.S. Calvary raiders under General Rousseau site. (2)
	Coldwater Covered Bridge--Six miles southwest of Anniston; one-span, 60'; modified Kingpost truss; c. 1900.
	Ft. McClellan Indian Site--700 year old Indian village.
	Weaver Cave--Weaver; 1/2 mile southeast of Weaver on county road, natural and undeveloped cave. (3)
	Tallahatchee Covered Bridge--North of Anniston, $2\frac{1}{2}$ miles east of U.S. 431, c. 1900; 60' long, of rare King post design.
	J. C. Francis Doctor's Office and Apothecary Shop--100 Gayle Street, Jacksonville.(1)(2)

COUNTY	SITE AND LOCATION
Calhoun (Cont'd)	Tallahatchee Town--Three miles southwest of Jacksonville; large Upper Creek town; site of battle between Creeks and General John Coffee, November 3, 1813; one of the first engagements of the Creek War; first American victory to avenge Fort Mim.(2)
Chambers	Bibby's Ferry--15 miles northwest of LaFayette; operated since mid-1800's; last county operated ferry in Alabama; still in use.
	Ripville--5 miles south of Bibby's Ferry; beautiful waterfall and rock formation.(3)
Cherokee	Cornwall Furnace--1862; made iron for Confederacy; best preserved furnace in the state; Cedar Bluff area.(1)
	Yellow Creek Falls-Blue Pond; Near U.S. 411; beautiful waterfall off Lookout Mountain into Lake Weiss.(3)
Chilton	Verbena--Settled by people fleeing from epidemics of Yellow Fever; the town once had a gold mine, and was one of the leading producers of gold in Alabama.
	H. H. Miller Grist Mill--Cane Creek Community, $1\frac{1}{2}$ miles off Lay Dam Road; only water grist mill in county. (3)
Clay	Hillabi Town--On Koufadi or Little Hillabi Creek; near the line of Clay and Tallapoosa Counties, in the vicinity of Gilbert's Mill, opposite to, and a short distance from, present Pinkneyville; a main Hillabee town which prior to 1761 threw off several settlements nearby.
	Potus-Hatchi (Potchushatchi)--On the headwaters of Hatchet Creek, six miles from the present town of Hatchet Creek and a short distance from the present community of Coleta; this was an Upper Creek Town that extended one mile up and down the creek.
	Hugo Black Home--15 miles south of Ashland, birthplace of Hugo Black, U. S. Supreme Court member.

4-32888 3-73

COUNTY	SITE AND LOCATION
Cleburne	Oakfuskee--On the Tallapoosa River; Upper Creek town; considered the largest Creek community of the Creek Confederacy.
	Cheaha Mountain--Able; highest mountain in Alabama, elevation 2407 feet.(3)
	Arbacoochee--5 miles from Heflin on Highway 9; scene of gold discovery and mining operations.
Coosa	Itaba (Itawa)--On Hatchett Creek, 4 miles north of Rockford, on highway from Rockford to Sylacauga at point where the stream flows through deep gulches; an Upper Creek town of great antiquity; visited by DeSoto in 1540.
	Okachoy Covered Bridge--Southeast of Rockford on Alabama 22, turn right on Ala. 9 near Noxburg; built of homemade timber, one-span 56 foot modified Queenpost bridge, 1915.
	Sakapatayi--On Socapatoy branch of Hatchett Creek, a few miles west of Kellyton; a small Upper Creek town of some importance.
	Shepherd Falls--Hissop; 1 mile north of Highway 22; 30 foot waterfall surrounded by natural wooded area.(3)
Dallas	Cahawba Historic District--Site of Alabama's first permanent capital 1820-26; county seat of Dallas County, 1820-66; Confederate Prison during the Civil War. (2)
	Caxa--On the Alabama River, Just below the mouth of Cedar Creek; Indian village visited by DeSoto's expedition in 1540.
	Morgan (Sen. John T.) House--719 Tremond St., Selma; two story frame. Home of confederate general and U.S. Senator. (1)
	Live Oak Cemetery--Dallas Avel, Selma; mausoleum contains the remains of William Rufus King, Vice-President of the United States; a marble shaft marks the grave of U.S. Senator John T. Morgan.

4-32888 3-73

COUNTY	SITE AND LOCATION
Dallas (Cont'd)	Sturdivant Hall--713 Mabry St., Selma; 1853; designed by Thomas Helm Lee for Edward T. Watts; two story brick and stucco; Neo-classic architecture. (1)(2)
	Talasi--At Durant's Bend, 35 miles from Montgomery; an aboriginal town of great antiquity; DeSoto stayed here for 20 days in 1540.
	Water Avenue Historic District (21 structures)--Water Avenue, Selma, 19th Century commercial structures.
	Blue-Girth Swamp--6 miles east of Selma; 200 acre natural swamp of exceptional wildlife value.(3)
DeKalb	Fort Payne Opera House--Fort Payne; 1889 structure from Fort Payne's days as a "Boom town"; built from native stone. (1) (2)
	Manitou Cave--Fort Payne; home of early man, 250 million years old; Indians camped here; large cave room used as ballroom during the ante-bellum and Civil War periods.
	Will's Town--Will's Valley; a short distance north of present Lebanon, 6 miles south Fort Payne; Cherokee town of considerable importance founded in 1770.
	Railway Terminal--Fort Payne; c. 1889; large hewn stone block construction; Richardsonian Romanesque. (1)
Elmore	Bibb (William Wyatt)--Grave site; private cemetery near home, Millbrook; first governor of Alabama, 1819-1820; only governor of Alabama Territory 1817-1819.(2)
	Fuoihatchi--One mile above Ware's Ferry, on the right bank of the Tallapoosa River, two miles below the old Indian town of Huithelwalli; an Upper Creek town; some Kaisa tribe united with the Creeks here.
	Hoithlewalli (Ulibahali) Town and Mound--On the right bank of the Tallapoosa River, east of the influx of Mitchell Creek and extended one-half mile back from the Creek; this town was visited by DeSoto on August 31, 1540. Extensive mound located on this site.

COUNTY	SITE AND LOCATION
Elmore (Cont'd)	Ikan-Hatki Mounds--About opposite the influx of the Eight Mile Creek into the Tallapoosa River; extensive mounds.
	Koasati--On the right bank of the Alabama River, three miles below the confluence of the Coosa and Tallapoosa Rivers, near Coosada; this was an Alibamon town of the Upper Creeks.
	Tomonfa (Tomopa)--On the west bank of the Coosa River, opposite old Fort Toulouse; an Alibamon town of great antiquity which lost its identity to the Indian town of Witumpka.
	Fort Toulouse (Fort Alabamu: Fort Jackson Site); Within the junction of the Tallapoosa and the Coosa Rivers, three miles west of Alabama Highway 9, about 13 miles from Montgomery; built in 1714 by Frency Captain de La Tour, by orders of Bienville, at the request of the Chiefs of the Alibamu for a trading center; here in 1814 William Weatherford, the Red Eagle surrendered to Gen. Andrew Jackson, signalling the end of the Creek War.(1) (2)
	Tuckabatchi Mound (Tookabatcha)--Large mound on the west bank of the Tallapoosa River, two and one-half miles below the present city of Tallassee; site of an influential town and the ancient capital of the Upper Creeks.
	Witumpka--Practically on the site of the present city of Wetumpka; an Upper Creek town, this town incorporated the small Indian village of Tomonpa which was adjoining.
	Wi-Wux-Ka (Weewoka)--On the left bank of Wewoka Creek, four miles from the Coosa River; an Upper Creek town; the name meaning "Roaring Waters."
	Woksoyudshi--East of the Coosa River, two miles east of Fort Toulouse; an Upper Creek town of several villages adjoining one another at this location.
Etowah	Gilliland Covered Bridge (Old Reece City Bridge)-In Gadsden at Noccalula Falls; 1899; one-span, 40 foot Town bridge; first completely restored covered bridge in Alabama.

4-32888 3-73

COUNTY	SITE AND LOCATION
Etowah (Cont'd)	Noccalula Falls Park--Gadsden on Alabama Highway 227; park, pioneer museum, botanical garden; contains authentic post office, covered bridge; meeting house, grist mill, barn, and pioneer house; name of falls came from a legend that an Indian girl, Noccalula, jumped to her death when refused permission to marry.
	Natural Bridge--Gallant, County Highway 35; natural rock bridge on Little Canoe Creek. (3)
Jefferson	Indian Burial--Near Pinson; 500-1000 AD; remains 44 corpse.
Lee	Noble Hall--On Shelton's Mill Road, N.E. of Auburn; 1854; two story rock and mortar; Greek Revival. (1)
Lowndes	Holy Ground Battle Site (Ikan-A-Cha-Ka)--2½ miles due north of Whitehall on Alabama River Creek; Creek Indians soundly defeated here in 1813; now a marked overlook area of the corps of Engineers.
	Lowndes County Courthouse--Hayneville; 1856; Greek Revival.(1)
Macon	Atassi (Autosee)--20 miles east of the mouth of the Coosa River, below and adjoining Calebee Creek, on the south side of the Tallapoosa River; an Upper Creek town shown on De Crenay's map of 1733; Indians from this Red Stick tribe took part in the Fort Mims massacre; in November 1813, General John Floyd burned the town; located on this site is a large flat-topped mound in regular shape.
	Conaliga--Near to and west of Society Hill; a Lower Creek village; friendly to white settlers.
	Nafolee (Yufali)--On the east bank of the Tallapoosa River, near its confluence with Eufaubee Creek; an Upper Creek town of great antiquity; Oxceola, the great Seminole Chief, was born here.
	Thloblocco--On the Thloblocco Creek, a tributary of Cubahatchee Creek, and 4 miles east of the Montgomery to Tuskegee Highway, U.S. 80; Upper Creek town; home of Jim Boy, a leader during the Civil War.

COUNTY	SITE AND LOCATION
Macon (Cont'd)	Tuskegee Institute; Tuskegee; early 1900's; educational landmarks associated with Booker T. Washington and George Washington Carver. (1) (2)
Monroe	Athahatchee--On the east bank of the Alabama River near Tinela; here, in 1540 DeSoto took Chief Tuscaloosa Prisoner.
	Fort Claiborne--At the mouth of Limestone Creek, on the east bank of the Alabama, 10 miles east of Monroeville; 1813-1814; used in the Creek War.(2)
	Lisbon Formation, Gosport Sand & Moody's Branch Formation of Eocene Age--Claiborne Bluff on the east side of the Alabama River; beds under bridge and along the road to the Claiborne Landing; pelecypods; gastropods and echinoids.
	Piachi--At the old town of Claiborne; aboriginal Indian village visited by DeSoto in 1540.
Montgomery	Alibamu Town Mounds--One mile south of Jackson's Ferry, on the west and east side of Jackson Ferry Road within a half mile of each other; three mounds, thought to be the mound of Alibamu Town.
	First White House of the Confederacy--Montgomery; 1825(1840?); two story frame; Greek Revival; home of Jefferson Davis, first President of the Confederacy from early March until the end of May, 1861; moved 1921 to its present location at the corner of Washington Avenue and Union Street. (1) (2)
	Gilmer-Thomas House--3175 Thomas Avenue, Montgomery; 1821; Greek Revival; one of the oldest houses in Central Alabama; oldest plantation house intact in Montgomery.(1)
	Hu-Ithie-Walli--At the mouth of Mitchell's Creek, on the Tallapoosa River; an extensive branch village of the Creek Indians.
	Kulumi (Caloomi)-- mile below old Ware's Ferry, 12 miles east of Montgomery; a town of great antiquity, visited by DeSoto on September 2, 1540.

COUNTY	SITE AND LOCATION
Montgomery (Cont'd)	Muklasa--On the left bank of Eight-Mile Branch, $1\frac{1}{2}$ miles from the south bank of the Tallapoosa River; very old Upper Creek town; belonged to the Red Sticks during the Creek War, 1813-1814.
	Rice-Semple House (Haardt Building)--725 Monroe Street, Montgomery; early 1850's; home of a Chief Justice of the Alabama Supreme Court, Samuel F. Rice; French and Spanish architectural influences. (1)
	Sawonogi--On the south bank of the Tallapoosa River, near Ware's Ferry, one mile below and adjoining what was later the pioneer town of Augusta; a Shawnee and Creek town; Shawnees were of the Hatawekela Bank; Red Stick town during the Creek War; home of Savannah Jack, a brutal Indian leader.
	Shaw-Ordeman House--230 N. Hull Street, Montgomery; 1853; two story masonry; Italianate; Charles Ordeman, local architect; a model historic restoration; original slave quarters and Greek Revival cottage adjoining. Century old hard pine barn reconstructed in rear.(1)
	State Capitol--Head of Dexter Avenue, Montgomery; 1851; built on "Goat Hill"; Stephen D. Button, architect; east wing added, 1885; south wing, 1905; north wing, 1911; Confederate government organized here; Greek Revival; spiral staircases.(1)
	Winter Building--Southeast corner of Court and Dexter, Montgomery; 1840-1850; three story brick structure; Southern Telegraph office on the second floor for many years; through this office was transmitted the order that resulted in the firing on Ft. Sumter. (1)
	Governor's Mansion--1907; 1142 South Perry Street; Montgomery; Neo-Classical Revival. (1)
	Perry Street Historic District--1820's - 1850's; 17 structures. (1)
Perry	Marion Female Seminary (Perry County High School)--Marion; 1836; formerly three story brick (two stories since 1930); Greek Revival; Nicola Maroschall (musician and artist) designed the first Confederate flag and Confederate uniform here. (3)

4-32888 3-73

COUNTY	SITE AND LOCATION
Randolph	Aboriginal Structure--Seven miles northeast of Wedowee; at this point is seen a circular stone structure, two or three feet high, with two entrances, one on the east side and the other on the west; running from this structure, in a northeasterly direction, can be seen traces, for more than a mile, stone pillars about two feet high, located one hundred yards apart.
	Kitcho Pataki--On a creek by the same name, locally spelled Ketchapedrakee, at its influx into the Tallapoosa River, a few miles below the present village of Okfuski; this was an Upper Creek town.
	Lutchapoga--On the Tallapoosa River, nearly opposite the mouth of Corn House Creek, and below Welborne's Ferry; this was an Upper Creek town, the name signifies "Terrapin gathering place."
	Wah-Wah-Wee (Wee-Dah-Wee)--One-half mile south of Trylett's Ferry, on the west bank of the Tallapoosa River, near the present town of Wedowee, this was the village of the Indian Chief "Wee Dow Wee," whose name was given to the modern town near this location.
	Bald Rock--Almond, Highway 22; granite rock outcropping, vegetation sparse.
	Horton's Waterfall--Rock stand, off U.S. 431; beautiful waterfall.
St. Clair	Litafatchee--Aboriginal Upper Creek town 8 miles north of present Ashville; in 1813 entire village burned at order of Andrew Jackson.
	Fort Struther--4 miles west of Ohatchee in Calhoun County; erected under the direction of General Andrew Jackson in November, 1813, as a base for his campaign against the Creek Nation; site. (1) (2)
	Tasqui--Aboriginal town on the Coosa River; visited by DeSoto on July 14, 1540 and mentioned in his chronicles.
	Horse Pens 40--Near Steele; unusual rock formation on Chandler Mountain.

COUNTY	SITE AND LOCATION
Shelby	Athens Shale of Ordo--Vician age; roadcut on south side of Alabama Highway 25, 2.3 miles west of intersection of Alabama Highway 25 & U.S. Highway 31 in Calera; graptolites are preserved as carbonaceous films in dark gray shale.
	King Mansion House and Cemetery--Montevallo; 1823; two story brick; first brick structure in the county and had first glass windows to be used in that part of the state; oldest building on campus. (1)
	Tulauhabsho (Tulawahajah - Old Mad Town)--About ten miles south of present Birmingham on the east bank of the Cahaba River; Upper Creek town in the extreme northwestern section of Creek Territory.
	Falling Rock Falls--Between Dogwood and Pearidge; water plunges 60 feet vertically, unusual rock formation and plant life.
Talladega	Abi'hka--In Talladega County, near the Coosa River, south of Tallaseehatchie Creek, about 2½ miles south of Rendalia; Upper Creek town considered one of the oldest; this town was located in the northern limits of the Creek Country; and was a defense outpost against hostile tribes from the north.
	Abiku'dshi--Five miles east of the Coosa River, on the right bank of the Tallaseehatchie Creek, on the property of Adam Riser, of Childersburg; inhabitants of this town spoke Chickasaw, and they lived among white people.
	Cedar Creek Village--On the Coosa River, at the mouth of Cedar Creek, near present Talladega Springs; old Upper Creek Village.
	Chickasaw Town (Tchikachas, Chicachas)--On the south bank of the headwaters of Talladega Creek, just north of Chandler Springs; inhabitants were Chickasaws; prior to 1755.
	Curry (J.L.M.) Home--Talladega; early 19th Century. (1)(2)

COUNTY	SITE AND LOCATION
Talladega (Cont'd)	Cosa (Coca, Coosa Old Town)--Between the mouths of the Talladega and Tallaseehatchie Creeks, $1\frac{1}{2}$ miles northeast of Childersburg on the Central of Georgia Railroad; town of great antiquity; DeSoto arrived here with his expedition on July 16, 1540.(2)
	Istapoga--At the mouth of Estaboga Creek, which flows into Choccolocco Creek, about 10 miles above it's influx into the Coosa River; Upper Creek settlement, the name meaning "where people reside"; remains of this town are still visible.
	Kymulga Cave--18 miles south of Anniston, three miles west of Winterboro; largest natural cave in the state; has colorful stalactites and stalagmite formations and a small lake; supposed to have been used in prehistoric times and is referred to in the Indian tradition and legends.
	Naotche (Nachez)--On the flats below the ford of Tallaseehatchie Creek, about four miles west of Sycamore; a Natchez town; the people here were friendly to the whites and they took refuge with other tribes in Talladega County.
	Waldo Covered Bridge--4 miles southwest of Talladega on Talladega Creek; one span, 115 feet long; Town truss; early 20th Century.
	Fort Williams Site--At the mouth of Cedar Creek, about six miles southwest of Fayetteville, and three miles below Talladega Springs, erected by General Andrew Jackson as a base of supplies shortly before the Battle of Horseshoe Bend, which was fought in 1814, now underwater (Lay Lake).
	Salt Creek Falls--8 miles southeast of Munford near Salt Creek Road; 50 foot waterfall. (3)
	Suplhur Springs--Talladega Springs, 3 miles west of Fayetteville; large boiling springs of sulphur water.
	Oakchinawa--On both banks of Oakchinawa Creek, or Salt Creek, near its influx into Big Shoal Creek; Upper Creek town of great antiquity.

4-32888 3-73

COUNTY	SITE AND LOCATION
Talladega (Cont'd)	Talladega County Courthouse--Town Square, Talladega; 1834, two story brick; columns and brick design with original brick; unique in 1912 and 25; Greek Revival; damaged but repaired.
Tallapoosa	Chattukchufaula--A short distance north of the present town of East Tallassee; Upper Creek town, home of Peter McQueen, Indian leader of 1813; destroyed 1813 by Indians friendly to the white settlers.
	Horseshoe Bend Battle--Now a National Military Landmark; in a bend of the Tallapoosa River, 12 miles north of Dadeville; also site of Fort Tohopeka; known by Indians as Cholocco Litabixee; March 26, 1814; scene of a battle between General Andrew Jackson and the Creek Red Sticks; Jackson's victory broke the power of the Creeks, and on August 9, 1814, they signed a peace treaty at Fort Jackson.(1)(2)
	Imuckfa--At the mouth of Imuckfa Creek near Horseshoe Bend; Upper Creek town used as a concentration point by the Creeks during the Creek War.
	Okfuski--On both banks of the Tallapoosa River at the mouth of Sandy Creek; largest town in the Creek Confederacy.
	Soapstone Quarry--Near Horseshoe Bend; Indian soapstone quarry; three of the larges soapstone bowls found in America have been found near Horseshoe Bend and are believed to have come from here.
	Suk-At-Ispoka--12 miles upstream from Okfuski; Upper Creek town; here on May 14, 1760; the first white trader in what is now Alabama was killed by Indians.

Forest Resource Management

The even-aged forest management system currently practiced by the U. S. Forest Service and Forest industries can provide increased quality species composition, volumes per acre, and wildlife benefits. Silviculturally, the method is sound, but has met with public criticism. Users must recognize the hazards of overcutting which can influence timber and wildlife species composition and greatly affect water quality and quantity.

Primary conflicts arise in the misunderstanding of the use of the system and the temporary impairment to aesthetics in newly cutover areas. Aesthetic appeal enhanced through careful stand selection, distribution, and harvesting techniques, would reduce criticism of timber harvest operations. Cuts blended to compliment the natural environment along roadsides, water courses, and on mountainsides can greatly enhance the scenic values of the land. These cuts can also create scenic vistas and generate diversity in the forest setting. An educational program on the even-aged management system should be directed toward gaining public acceptance.

Most forest land ownership is in small private tracts. Even-aged management is often not practical in these timber stands. The owners frequently choose a selection or shelterwood method of harvest so his entire stand is not eliminated in one cutting. These are also effective forest management practices and are used to enhance the forest resource on individual private tracts. Properly managed stands will increase ecological benefits of the forest. Private landowners should be encouraged to seek advice from professional sources which can provide a systematic plan of management for their forested areas.

Forest industries are enlarging the capabilities of their mills. Over-concentration of wood-using industries in a particular area could upset the balance of harvestable forest products. This imbalance would lessen the economic, physical, and social benefits of the forest resource.

Total forest land area has increased during recent years, but the gain is not distributed proportionately between bottomland hardwood and upland pine types (bottomland hardwoods decrease while upland pines increase). The fertile level bottomlands provide higher economic returns for other uses. Much of the land is being converted to cropland, flooded by reservoirs along main streams, or cleared for housing developments. Although the most favorable economic return appears to be through cropland or development, the change could break a vital link in the natural ecosystem.

Bottomland hardwood ecosystems provide most favorable conditions for diverse vegetation, providing escape cover and breeding places for wildlife, thus increasing recreational and educational opportunities through forest use. These deep-soil areas also serve to absorb some overflow during wet periods and lessen flooding conditions.

Hardwood timber values are high, particularly for veneers and solid woods used by furniture industries. Typical hardwood stands in the basin are deficient in trees of quality, sizes, and utility demanded by the distinctive hardwood industries. Hardwoods are now used for pulp and

4-32888 3-73

proper management of stands can utilize the pulpwood harvest for clearing and thinning stands to improve their quality. The market for hardwood fuelwood and posts can be used to the same advantage.

Although the stands have many defective trees, care must be taken to preserve some of these culls in proper distribution to serve as wildlife den trees.

Understory vegetation is often neglected in stand management. This area is where most of the vital ecological processes take place. The understory can influence soil fertility, provide indication of future forest crops, and provide food and breeding places for wildlife. Manipulation of light to the understory can greatly increase vegetation productivity, thus regulate wildlife, water, timber, and range capabilities of the area.

Wildfire--Uncontrolled fire raging through the forest can create tremendous impact on the natural environment. Areas are denuded of vegetation and soils exposed to the erosive forces of nature. Wildlife productivity can be impaired and the aesthetic appeal of the forest is lost.

The upper three fourths of the basin experiences a moderate (51-150 fires annually) to heavy (151 + fires annually) fire occurence. The most severe burning is in the Southern Appalachian Ridge and Valley Resource Area and the Sand Mountain Resource Area. More fires occur during the period of October through April. See Figure IV-18 for locations of heavy fire occurrence.

Although the graph (Figure IV-19) lists causes on a statewide basis, fires in the basin would be similar except for possibly a slight increase in the incendiary column. Some incendiary fires (persons willfully causing fires) in the basin are generated by persons burning areas in hopes of improving wildlife habitat, creating better berry patches, or reducing the numbers of insects. Railroad use in the basin has been a contributing cause of fires.

The Alabama Forestry Commission's fire protection on private and state forest lands is financed with receipts from the Forest Products Severance Tax, landowner funds, county appropriations, county acreage assessments, miscellaneous receipts, state funds, and a federal allotment, (Clark-McNary-2).

Eighty-nine percent of the fires in the basin burned on forest land. Approximately 98 percent burned on Pine-Hardwood timber types. The average annual acreage burned is 62,000 acres by 2,975 fires (See Table IV-40). Timber loss through mortality and reduced growth averages $16.43 per acre. This creates over $1,000,000 loss of timber resource annually. Impacts on other resources such as fish and wildlife, recreation, watershed forage, and aesthetics are considerable, but cannot be expressed in monetary terms.

Fire suppression equipment and men are limited. The crawler tractor and plow are the primary tools used for fire fighting. Seventy-four state units serve the basin. This allows one unit for each 227,000 acres of pro-

4-32888 3-73

tected area. This does not include fire fighting equipment owned and operated by forest industries or private landowners. All basin counties except five expressed a current need for additional equipment. Forty additional units were requested to provide adequate protection.

The state employs 128 men full-time to engage in fire prevention and suppression activities in the basin. This allows one man for each 128,947 acres of protected area.

Factors leading to difficulty of control include steep topography and limited access in the northern portion of the basin. Limited personnel and equipment also make fire fighting difficult.

The U. S. Forest Service provides fire protection on the total 309,485 acres of National Forest. The U. S. Forest Service also takes action on any fires threatening National Forest lands. Fire occurrence on National Forest land within the basin is shown in Table IV-41. Several fires listed were on private lands and are duplicated in Table IV-40 on fire statistics for state lands.

Some environmental influences associated with the fire situation should be noted.

- Highest fire occurrence is on steep terrain.

- The primary fire season extends from October through April. Fawning and nesting seasons for wildlife begin in March.

- Ninety-eight percent of the fires occur in pine-hardwood types. Heaviest occurrence in oak-pine or loblolly-shortleaf forest types. Fires weaken or kill the hardwoods, reduce mast production and can adversely effect wildlife populations (particularly squirrel and deer). Deer populations in the heavy fire occurrence areas are listed as low to moderate.

- Flood producing storms occur during the winter and spring months. This corresponds with the fire season and fires expose soil to the erosive forces of the storm, thereby adding silt loads to streams, and damages the fisheries habitat.

These influences should be considered in the final analysis of the river basin study. Further study is needed to determine the over-all impact of the wildfire situation.

4-32888 3-73

Figure IV – 18

FIRE OCCURRENCE MAP

BY COUNTIES

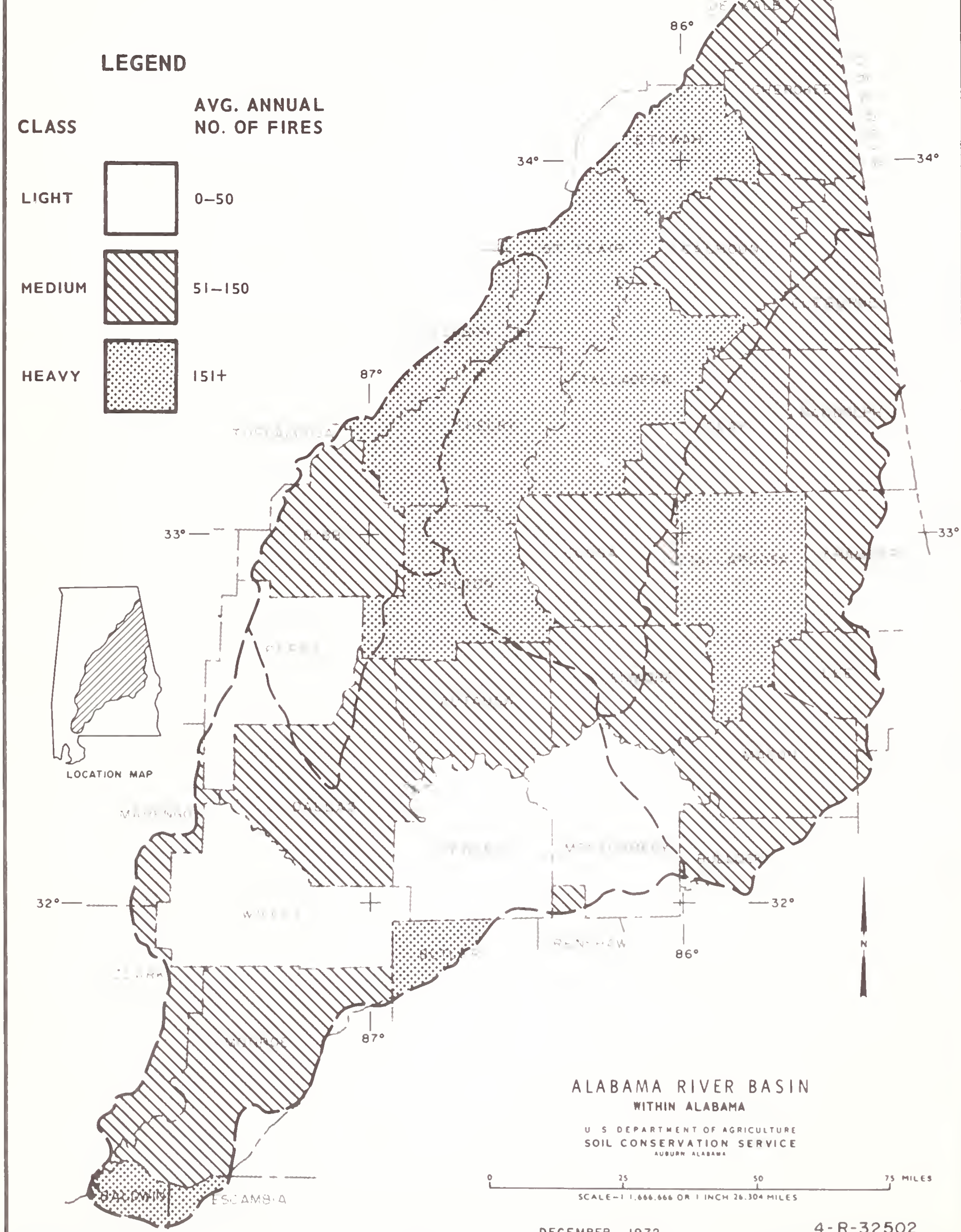
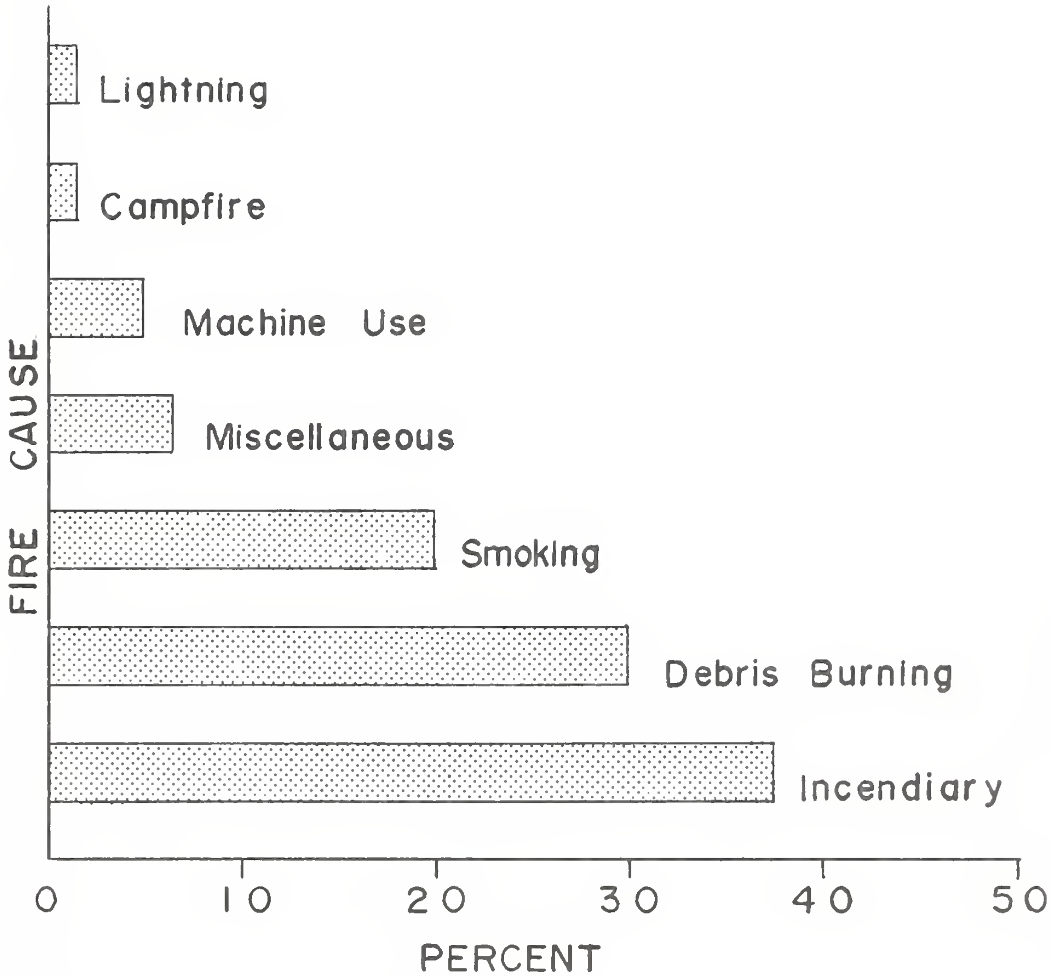


Figure IV-19--Causes of wildfire in the state of Alabama, 1968-1970.



4-32888 3-73

Table IV-40--Fire statistics summary of all fires occurring on state protected lands in the Alabama River Basin, (1968--1970).

Percent Fires in Forested Areas	89
Percent Fires Burned in Pine-Hardwood Forest Type	98
Average Annual Acres Burned	62,000
Average Annual Number of Fires	2,975
Average Per-Acre Loss of Timber Through Mortality and Growth	$16.43
Number of Crawler Tractors (State)	74
Number of Full-Time Personnel (State)	128

Table IV-41--Summary of fire occurrence on National Forest land in the Alabama River Basin, (1968-1970).

District	Average Annual No. of Fires	Average Annual N.F. Ac. Burned	Average Annual Pvt. Ac. Burned
Oakmulgee	11	67	27
Shoal	24	187	123
Talladega	42	308	201
Tuskegee	1	3	12
Total	78	565	363

4-32888 3-73

Demand For Food And Fiber

A basic concept of river basin planning is that plans for resource development be related to the projected needs of the Nation as well as regional development. These needs, normally expressed in quantities of agricultural products which will be demanded from the Study Area, should be considered baseline estimates of future production rather than optimum levels of output. Baseline production estimates can be used to pinpoint problems which may arise in the future. These problems may be insufficient land to produce at the projected level, or inefficiencies which could be overcome through resource development. The estimates of future quantities produced are based on historical production relationships between the basin, state, and nation. They are in no way a goal or a constraint on the state or basin's economic activity. Neither are they a constraint in considering alternative levels of growth.

Significant increases are projected in the per capita use of soybeans, sorghum, citrus fruits, beef, and poultry products. This reflects the anticipated higher income allowing consumers to select a more desirable and better balanced diet. Per capita use of cotton, wheat, eggs, and dairy products is expected to be cut sharply. Little change is forecast for other commodities.

Estimates of total U. S. requirements were obtained by multiplying per capita requirements for each commodity by the projected U. S. population. Import-export balances were then projected and analyzed in finalizing U.S. requirements.

Projections for the Alabama River Basin were developed from projections for the State of Alabama. State estimates were prepared using two techniques. One was to allocate a part of the national food and fiber requirements to Alabama based on historical state-national production relationships. The other method was based on linear extension of historical production trends. The results of these two projections were analyzed by commodity, and final Alabama projections were developed. These are shown in Table IV-44.

Projections for the Study Area were developed in a similar manner by relating the basin to the state historically, and by analyzing basin linear production trends (Table IV-45).

4-32888 3-73

Table IV-44--Production of major farm products, 1968-1970 average, with projections to 2020 for Alabama.

Commodity Group	Unit	Alabama Production			
		1968-70	1990	2000	2020
		------Thousands------			
Crops					
Corn	Bu.	17,294	10,000	10,000	10,000
Cotton	Bales	456	480	500	540
Peanuts	Lbs.	282,000	424,000	480,000	600,000
Soybeans	Bu.	13,767	29,360	33,450	43,750
Wheat	Bu.	2,521	4,400	5,400	7,400
Oats	Bu.	1,049	865	880	915
Grain Sorghum	Bu.	530	1,975	2,225	2,750
Vegetables	Lbs.	236,000	310,000	350,000	450,000
Potatoes	Lbs.	230,000	240,000	245,000	250,000
Hay	Tons	752	920	1,000	1,150
Livestock Products 1/					
Beef and Veal	Lbs.	549,000	885,000	1,020,000	1,365,000
Pork	Lbs.	312,000	380,000	430,000	560,000
Poultry	Lbs.	1,304,000	2,290,000	2,680,000	3,600,000
Eggs	Doz.	225,471	388,700	486,250	615,850
Milk	Lbs.	811,000	875,000	970,000	1,185,000

1/ Livestock estimates are liveweight.

Source: Alabama Agricultural Statistics, 1971, Alabama Crop and Livestock Reporting Service, and ERS, USDA estimates of future production.

Table IV-45--Production of agricultural commodities, 1970, with projections to 2020 for the Alabama River Basin.

Commodity Group	Unit	1970	Projected	
			1990	2020
		------Thousands------		
Crops				
Corn	Bu.	2,905	3,670	2,900
Cotton	Bales	156	140	250
Peanuts	Lbs.	2,840	3,420	2,100
Soybeans	Bu.	3,177	7,100	12,100
Wheat	Bu.	430	2,130	4,960
Oats	Bu.	358	560	520
Grain Sorghum	Bu.	258	27	550
Vegetables	Lbs.	66,900	198,000	375,000
Potatoes	Lbs.	15,265	56,000	120,000
Hay	Tons	316	540	860
Livestock Products				
Beef and Veal	Lbs.	205,000	310,000	480,000
Pork	Lbs.	58,400	57,000	85,000
Poultry	Lbs.	399,000	665,000	1,050,000
Eggs	Doz.	74,800	128,300	203,250
Milk	Lbs.	367,000	395,000	535,000

Source: Alabama Agricultural Statistics, 1971, and Economic Research Service estimates of future production.

4-32888 3-73

Demand For Food And Fiber

A basic concept of river basin planning is that plans for resource development be related to the projected needs of the Nation as well as regional development. These needs, normally expressed in quantities of agricultural products which will be demanded from the Study Area, should be considered baseline estimates of future production rather than optimum levels of output. Baseline production estimates can be used to pinpoint problems which may arise in the future. These problems may be insufficient land to produce at the projected level, or inefficiencies which could be overcome through resource development. The estimates of future quantities produced are based on historical production relationships between the basin, state, and nation. They are in no way a goal or a constraint on the state or basin's economic activity. Neither are they a constraint in considering alternative levels of growth.

Significant increases are projected in the per capita use of soybeans, sorghum, citrus fruits, beef, and poultry products. This reflects the anticipated higher income allowing consumers to select a more desirable and better balanced diet. Per capita use of cotton, wheat, eggs, and dairy products is expected to be cut sharply. Little change is forecast for other commodities.

Estimates of total U. S. requirements were obtained by multiplying per capita requirements for each commodity by the projected U. S. population. Import-export balances were then projected and analyzed in finalizing U.S. requirements.

Projections for the Alabama River Basin were developed from projections for the State of Alabama. State estimates were prepared using two techniques. One was to allocate a part of the national food and fiber requirements to Alabama based on historical state-national production relationships. The other method was based on linear extension of historical production trends. The results of these two projections were analyzed by commodity, and final Alabama projections were developed. These are shown in Table IV-44.

Projections for the Study Area were developed in a similar manner by relating the basin to the state historically, and by analyzing basin linear production trends (Table IV-45).

4-32888 3-73

Table IV-44--Production of major farm products, 1968-1970 average, with projections to 2020 for Alabama.

Commodity Group	Unit	Alabama Production			
		1968-70	1990	2000	2020
		------------------Thousands------------------			
Crops					
Corn	Bu.	17,294	10,000	10,000	10,000
Cotton	Bales	456	480	500	540
Peanuts	Lbs.	282,000	424,000	480,000	600,000
Soybeans	Bu.	13,767	29,360	33,450	43,750
Wheat	Bu.	2,521	4,400	5,400	7,400
Oats	Bu.	1,049	865	880	915
Grain Sorghum	Bu.	530	1,975	2,225	2,750
Vegetables	Lbs.	236,000	310,000	350,000	450,000
Potatoes	Lbs.	230,000	240,000	245,000	250,000
Hay	Tons	752	920	1,000	1,150
Livestock Products 1/					
Beef and Veal	Lbs.	549,000	885,000	1,020,000	1,365,000
Pork	Lbs.	312,000	380,000	430,000	560,000
Poultry	Lbs.	1,304,000	2,290,000	2,680,000	3,600,000
Eggs	Doz.	225,471	388,700	486,250	615,850
Milk	Lbs.	811,000	875,000	970,000	1,185,000

1/ Livestock estimates are liveweight.

Source: Alabama Agricultural Statistics, 1971, Alabama Crop and Livestock Reporting Service, and ERS, USDA estimates of future production.

Table IV-45--Production of agricultural commodities, 1970, with projections to 2020 for the Alabama River Basin.

Commodity Group	Unit	1970	Projected	
			1990	2020
		------------Thousands------------		
Crops				
Corn	Bu.	2,905	3,670	2,900
Cotton	Bales	156	140	250
Peanuts	Lbs.	2,840	3,420	2,100
Soybeans	Bu.	3,177	7,100	12,100
Wheat	Bu.	430	2,130	4,960
Oats	Bu.	358	560	520
Grain Sorghum	Bu.	258	27	550
Vegetables	Lbs.	66,900	198,000	375,000
Potatoes	Lbs.	15,265	56,000	120,000
Hay	Tons	316	540	860
Livestock Products				
Beef and Veal	Lbs.	205,000	310,000	480,000
Pork	Lbs.	58,400	57,000	85,000
Poultry	Lbs.	399,000	665,000	1,050,000
Eggs	Doz.	74,800	128,300	203,250
Milk	Lbs.	367,000	395,000	535,000

Source: Alabama Agricultural Statistics, 1971, and Economic Research Service estimates of future production.

4-32888 3-73

Projection of Agricultural Development

Crops -- Corn production is forecast to continue declining, but it is doubtful basin production will drop much below the current level. Acreage in 1990 should be less than one-half that harvested in 1970 in view of the low production; yield increases are expected to average around 40 percent. Tonnage of hay should be up; however, yields should be about 35 percent above the 1970 level, thereby reducing the land need here also. The other feed crops--oats and grain sorghum--should remain of minor importance.

The outlook for fiber and oil crops is much more optimistic. Soybean production should reach 7.1 million bushels by 1990, an increase of about 125 percent over the 1970 crop. Two factors contribute to this expectation. Alabama is producing a larger share of the U. S. soybean crop, and an increasing amount of Alabama's soybeans is coming from the Study Area--an estimated one-fourth in 1990. Acreage harvested in 1990 is expected to be about 16 percent greater than in 1970.

No significant change is expected in basin cotton production during the next 20 years. Nationally, less cotton is being utilized per person, reducing U. S. needs. Per capita use is projected to drop from 34.7 pounds in 1964 to 22.2 pounds by 1990.

A small increase is anticipated in the production of peanuts, but the total is insignificant when compared to the state. Only one percent of Alabama's peanut crop comes from the basin. Food crops will remain a minor enterprise in the future, probably utilizing less than 50,000 acres in 1990, mostly wheat in the Alabama and Coosa subbasins.

Livestock -- Growth of the livestock industry should continue as in the past with substantial gains in the quantity of eggs, poultry, and beef leading the way. Alabama is contributing an increasing share of the Nation's poultry, meat, and egg production. About 30 percent of the state's poultry industry is located in the Study Area. Broilers will continue to comprise 95 percent of the poultry meat marketed in Alabama.

Small gains are forecast for the dairy industry as a result of the expected decline in per capita utilization. Milk use per individual is expected to drop from 627 pounds to around 460 pounds by 1990.

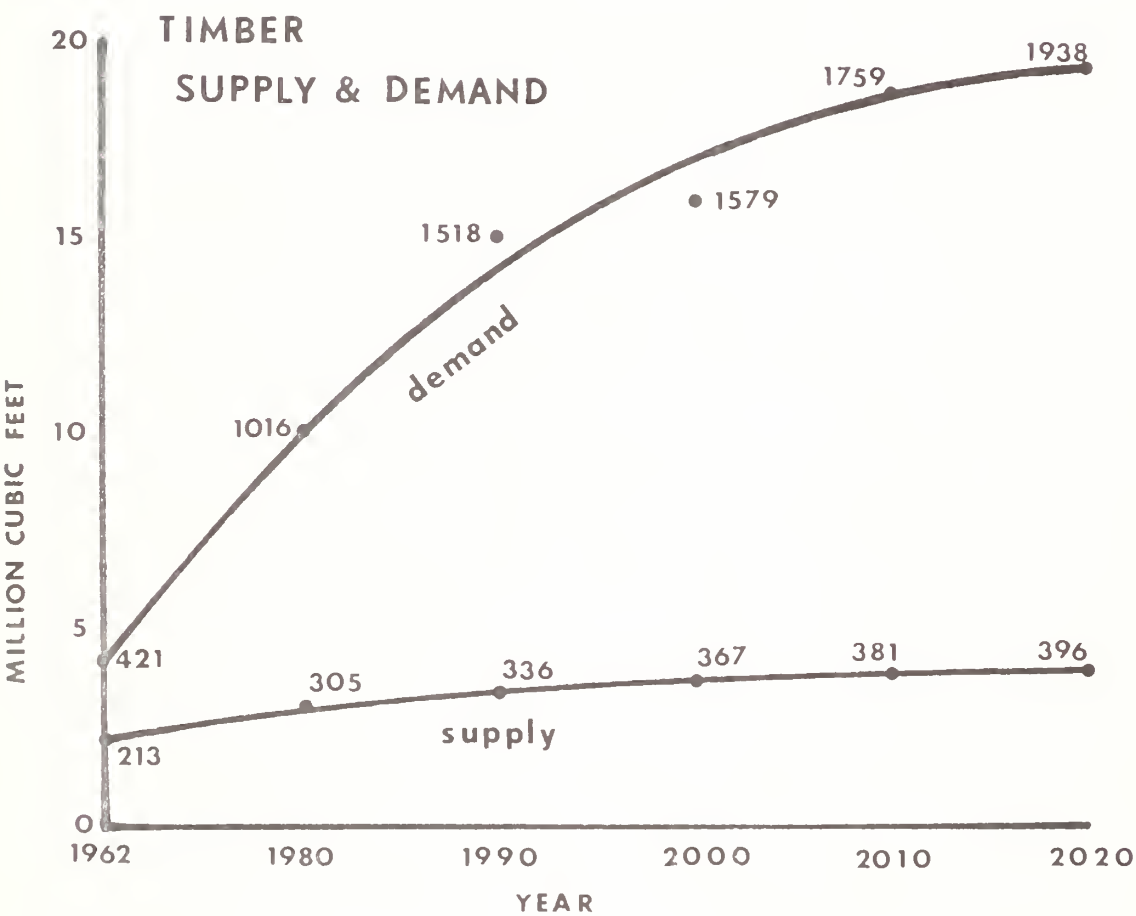
An analysis of projected crop and pasture yields, production costs, and land requirements necessary to yield the projected production has been completed. The analysis examines the crop production capability of both the state and river basin area. Results of these analyses are presented in a separate report covering projected agricultural land use and production potentials in both the state and basin.

Wood Products -- Comparisons of the projected demands indicate that future supplies, assuming a continuation of recent management levels, would not be large enough to meet expected demands and maintain reasonably stable prices in the projection period. Timber product prices would rise and only part of the projected demands would be met. This would mean higher costs for houses and other products made in whole or in part from wood.

Studies indicate that if forest management programs were substantially accelerated, the demands for timber products in the next decade at least, could be met without significant price increases.

Figure IV-20 indicates supply and demand projections for future timber resources in the Alabama River Basin.

Figure IV-20--Timber supply and demand projections, Alabama River Basin.



The new plant construction and plant expansions since the mid 1960's have created thousands of new jobs in forest industries. New increments of forest industry are expected in the next 10 to 15 years, but probably not on the scale generated by the major installations since 1964.

With the additional wood supply needed by 2000, the trend in improved forest management should continue on lands controlled by forest industry.

4-32888 3-73

Increased mechanization and improved labor efficiency is the current trend in wood harvesting. Use of advanced machinery and careful planning of plant layout for improved efficiency has become general in Alabama forest industry.

Increasing demand for wood products in the next 10 to 20 years may further restrict the size and quality of available wood supplies, but will surely lower the general level of availability of all supplies under current market conditions. Adaptations to restrictions in normally available wood supplies will continue to be made in forest industry.

Reallocation Of Resources

Agricultural Land Use -- Linear programming is being used to help appraise the effects of water resource development in both Alabama and the basin. This analysis requires estimates of future conditions, by soil groups, concerning production costs per acre, yields, acreage restrictions, and production requirements for each crop considered. Agricultural specialists with Auburn University and the U.S.D.A. assisted in the development of coefficients for the model.

Alabama's projected production was discussed under demand for food and fiber. These estimates were derived from projected U. S. requirements. It was assumed that Alabama farmers would attempt to produce this output as efficiently as possible in the long run.

To date, only runs without development have been made. "Without Development" assumes no alleviation of the damages caused by flooding and/or poor drainage, i.e., no change in soil conditions. Yields and technology are assumed to improve as they have historically. Results of these initial runs without accelerated land development measures are shown in Table IV-46.

Under the base conditions and without development, the Alabama River Basin's projected 1990 crop production could be produced on approximately 500 thousand acres. This would be a reduction of about 175,000 acres compared to cropland harvested in 1970. Even though land harvested is declining, projections indicate that basin farmers will be producing an increasing share of the state's crops. According to Table IV-46, the basin contained 26 percent of the state's harvested cropland in 1970 and would account for 29 percent in 1990 and 35 percent by 2020.

The area appears to have a strong comparative advantage in the production of vegetables, hay, corn, and wheat. Cotton is also projected to increase, although not in the near future. The only activity in which the basin is expected to lag is beef production. Beef sales will increase, but not as rapidly as in other sections of Alabama.

One of the most significant changes anticipated during the next 20 years is a shift to vegetable production on Class I land in the Alabama subbasin. The area could easily supply all of Alabama's vegetable needs in both 1990 and 2020, however, it is expected that about one-half of the state's production will come from this subbasin in the future. Harvest labor should be no problem. Some areas currently report as much as 35 percent of the unskilled labor force unemployed. A larger share of Alabama's hay, wheat and corn is also forecast for the Alabama Subbasin.

Cotton and soybeans appear to be the key to agricultural growth in the Coosa Valley. The potential for cotton is particularly strong. Soybean acreage should climb to around 70,000 acres by 1990. The area's strongest comparative advantage is in the production of wheat. The Coosa Subbasin has a large amount of idle and marginal pastureland offering prospects for increased beef production. However, improvement of these pastures will probably not occur until late in the planning period.

Immediate prospects for crop production in the Tallapoosa Subbasin are dim. The area is projected to have the largest relative drop in harvested cropland, from 113,000 acres in 1970 to about 52,000 acres by 1990. With the exception of corn and wheat, production of all crops is expected to gradually shift to other areas of the state. The greatest potential for agricultural growth probably lies in improving marginal pastures for beef production.

Of the four subbasins comprising the Alabama River Basin, the Cahaba has the least potential for agricultural growth. Cropland harvested is projected to drop to 34,000 acres by 1990, a 20 percent reduction from 1970. Soybeans, cotton, and oats offer the most promise for stabilizing the declining farm economy here.

Additional linear programming has been done to examine questions such as: (1) what are the efficiency gains and/or adverse effects of resource development projects, (2) what would be the productive capacity of the state and basin assuming demand for agricultural products was increased and (3) where can additional crops be most efficiently produced? Results are presented in a separate report entitled Alabama Agriculture, Projected and Potential Agricultural Land Use and Returns. Copies may be obtained from the Economic Research Service in Auburn.

Other Social Needs

Migration: Migration is a measure of the desirability of an area. People generally go where job opportunity exists. Other factors, however, can weigh just as heavily in a person's decision to migrate. Marion Clawson recently addressed this point during a series of meetings on balanced growth for the Nation.1/ Speaking on migration, Clawson noted, "By and large, the non-metropolitan areas are deficient in many of the important social services. Schools are generally poorer, medical care is poorer--or nonexistent...Libraries, sports, and cultural activities generally are less available. It is often the poverty of social life as well as the deficiency in job opportunities which drives the young people to leave the smaller towns and rural areas." Apparently, this is the case in the Study Area. Between 1950 and 1960, the migration rate for 20-29 year-olds exceeded 60 percent in five counties, 50 percent in another five, and 40 percent in ten other counties.

Even though outmigration slowed somewhat during the past decade, six basin counties experienced net inmigration while 28 sustained outmigration. This loss of such a large share of the childbearing population must be stopped if healthy economic growth is to occur.

Education and Health: The 1970 Census of Population reported that 41 percent of the Basin's residents over 25 had completed high school compared to only 27 percent in 1960. The State average in 1970 was also 41 percent. Median grade completed was 10.6 years compared to 10.8 years

1/ From a report on the lecture series, "Toward Balanced Growth" presented in Washington, D.C., during November and December 1970 and sponsored by the Graduate School, U.S. Department of Agriculture.

4-32888 3-73

statewide. The pupil-teacher ratio of 27:1 is slightly higher than the national average of 22:1. Overall, the 1969 ratio of white to nonwhite instructors in both the basin and Alabama was 2:1.

During the 1968-1969 school year, there were 3,555 dropouts from among the 253,000 school children, or 14 dropouts per 1,000 children, compared to 38 per 1,000 in the age 5 to 17 population nationwide.

There are definite problems in both the quantity and quality of medical aid, particularly in rural areas of the Alabama River Basin. Lowndes County, for example, with a 1970 population of 12,897, had no doctors, hospitals, or nursing homes in the county. Coosa County had only one doctor and no hospital facilities. The shortage of doctors appears to be most critical in the Coosa Subbasin where there are 200 physicians for a population of almost 400,000 or one doctor per 2,000 persons. The 1970 state average was one per 1,370 persons while the national figure was one per 1,200. Forty-three of Alabama's 140 hospitals are located in the Study Area. Combined they offer approximately 4,000 beds, or one per 250 persons. This ratio is indicative of the severe shortage of hospital beds. In 1968, the American Hospital Association reported one bed for each 120 persons in the U. S.

The importance of good schools and hospitals, skilled physicians, adequate recreational areas, and other social and cultural opportunities is often overlooked. The situation described must be improved if the area is to significantly increase its desirability and growth potential.

4-32888 3-73

Table IV-46--Projected agricultural land use, current and projected assuming no accelerated development, for the state of Alabama, the Alabama River Basin and its subbasins.

	1970	1990	2020
	-----------	Thousand Acres	------------
Alabama			
Cropland harvested	2,566	1,717	1,640
Improved pasture	1,600	2,530	3,350
Total	4,166	4,247	4,990
Alabama Basin			
Cropland harvested	678	503	581
Corn	133	51	32
Cotton	153	96	119
Peanuts	2	1	2
Soybeans	141	164	187
Wheat	15	48	89
Oats	9	7	6
Grain Sorghum	8	1	9
Vegetables	8	22	31
Potatoes	1	2	4
Hay	208	111	102
Improved pasture	590	675	930
Total	1,249	1,178	1,511
Alabama Subbasin			
Cropland harvested	311	213	265
Corn	52	21	13
Cotton	58	26	13
Peanuts	1	1	1
Soybeans	66	76	89
Wheat	8	15	41
Oats	5	2	2
Grain Sorghum	6	1	1
Vegetables	5	18	20
Potatoes	0	0	0
Hay	110	53	85
Improved pasture	293	353	386
Total	605	566	651
Coosa Subbasin			
Cropland harvested	212	206	224
Corn	52	20	12
Cotton	58	50	94
Peanuts	0	0	0
Soybeans	49	70	75
Wheat	3	21	29
Oats	2	1	3
Grain Sorghum	1	0	0
Vegetables	2	3	2
Potatoes	1	2	4
Hay	44	39	35

4-32888 3-73

Table IV-46--Cont'd

	1970	1990	2020
	---------------Thousand acres----------		
Coosa Subbasin (Cont'd)			
Improved Pasture	115	126	206
Total	327	332	430
Tallapoosa Subbasin			
Cropland harvested	113	52	46
Corn	24	8	5
Cotton	27	12	6
Peanuts	1	1	1
Soybeans	14	6	10
Wheat	3	8	3
Oats	2	1	1
Grain Sorghum	1	0	7
Vegetables	1	1	9
Potatoes	0	0	0
Hay	40	15	4
Improved pasture	147	160	281
Total	260	212	327
Cahaba Subbasin			
Cropland harvested	42	34	46
Corn	5	2	2
Cotton	10	8	6
Peanuts	0	0	0
Soybeans	12	12	13
Wheat	1	4	16
Oats	0	4	0
Grain Sorghum	0	0	1
Vegetables	0	0	0
Potatoes	0	0	0
Hay	14	4	8
Improved pasture	35	37	56
Total	77	71	102

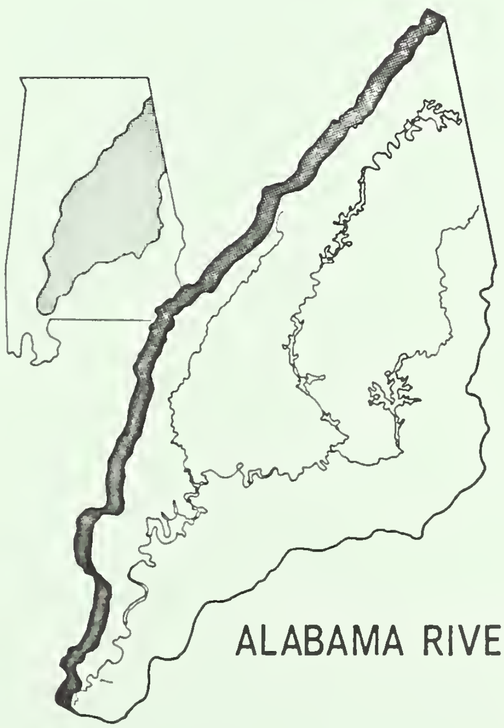
Source: Statistical Reporting Service 1970 and Projections developed by Economic Research Service U.S.D.A.

4-32888 3-73

SECTION

5

RESOURCE AREAS SELECTED FOR FURTHER STUDY



4-32888 3-73

V. RESOURCE AREAS SELECTED FOR FURTHER STUDY

Resource Problems and Needs Identified

The inventory of water and related land resources completed at this time reveals a number of problems and needs related to the use of these resources in the Alabama River Basin. Some of the problems and needs identified early in the study are discussed in Section IV. Additional problems and needs deserving consideration for further study have been identified through a series of meetings with representatives of the Alabama Development Office and the Regional Planning and Development Commissions in the basin. The following problems and needs were discussed at these meetings:

1. Areas where soils maps are needed:

   Bibb County - general map
   St. Clair County - general map
   Birmingham Metropolitan area - detailed map

2. Areas to be considered for land use planning:

   Shades Creek (Jefferson County)
   Upper Cahaba Tributaries (St. Clair, Jefferson, and Shelby Counties)
   Cahaba Valley Creek and Buck Creek (Shelby County)
   Blue Girth - Beech Creeks (Dallas County)
   Catoma Creek (Montgomery County)

3. Areas having flood problems:

   A. Urban areas, towns, and communities

      Shades Creek (includes Homewood, Irondale & Mountain Brook)
      Upper Cahaba River Tributaries (includes Trussville, Leeds, Vestavia Hills, Hoover, Green Valley & Patton Creek)
      Cahaba Valley Creek and Buck Creek (includes Helena and Alabaster)
      Cane Creek (Calhoun County)
      Catoma Creek (Montgomery County)

Glencoe	Selma	Minter
Anniston	Montgomery	Coy
Oxford	Benton	Sprott
Talladega	Autaugaville	Kimbrough
Sylacauga	Prattville	Claiborne

4-32888 3-73

In addition to the preceeding list, the following urban areas having flood problems were identified by the Alabama Development Office from information compiled by several state and federal agencies:

Waxahatchee Creek (Shelby County)	Clanton
Columbiana	Dadeville
Jacksonville	Fort Payne
Marion	Gadsden
Uphapee Creek (Macon & Lee Counties)	Monroeville
Vincent	Montevallo
Wadley	Pell City
Alexander City	Roanoke
Attalla	Tallassee
Auburn	Wetumpka
Opelika	Childersburg

B. Agricultural areas

Upper Mulberry River (Bibb and Chilton Counties)
Boguechitto Creek (Perry and Dallas Counties)
Cutnose Creek (Randolph County)
Pintlalla Creek (Montgomery County)
Cedar Creek (Butler, Wilcox, Lowndes, and Dallas Counties)

4. Areas having drainage problems:

A. Urban areas, towns, and communities

Carrville	Selma
Millbrook	Orrville
Shades Creek, South of Bessemer	

B. Agricultural areas

None identified

5. Urban and rural areas having a water supply problem:

A. Urban areas

Gadsden	Thorsby
Jemison	Maplesville

B. Rural areas

Cleburne County	Macon County
Jefferson County	Chambers County - Northwest quarter
Shelby County	

6. Forest Resource Information and Management Needs:

The planning commissions expressed interest in obtaining woodland ownership maps and woodland economic data. The cities of Birmingham and Montgomery would be interested in urban woodland planning assistance.

7. Areas having potential and/or need for recreation development:

Crooked Creek Reservoir (proposed)	Coosa-Alabama River Canoe Trail
Allen Creek (Chambers County)	Bike and cycle trails basin wide
Black Creek (Etowah County)	

8. Fish and wildlife problems and needs:

A. Areas having potential for waterfowl management

Wm. Dannelly Reservoir
Crooked Creek Reservoir (proposed)

B. Beaver management problems basin wide

C. Control of illegal night hunting basin wide

9. Historic, archaeological or aesthetic sites to be preserved:

The planning commissions are interested in any information developed.

10. Areas where erosion is a problem:

<u>Gully erosion</u>

Autauga County
Clarke County
Monroe County
Dallas County
Wilcox County

<u>Strip-mined areas</u>

Jefferson County
Cleburne County
Bibb County

<u>Roadside erosion</u>

Basin-wide

<u>Erosion from urban development</u>

Birmingham
Anniston
Gadsden
Montgomery

11. Agricultural development needs:

A. Evaluation of potential for increasing agricultural income

The planning commissions are interested in any information to be developed by the Economic Research Service. The

Tombigbee-Alabama Rivers Regional Planning Commission is interested in information to be used in an agricultural land use plan. All other commissions were particularly interested in agricultural potentials.

B. Areas having interest in developing the potential for irrigation

Monroe County	Butler County
Clarke County	Macon County
Marengo County	Bullock County
Dallas County	Chilton County
Perry County	Shelby County
Lowndes County	St. Clair County

Resource Areas Scheduled for Further Evaluation

The Field Advisory Committee and the study sponsors have considered all problems and needs identified and have selected resource areas for further study. Selections were based on the relative significance of the problems and needs, knowledge of studies presently underway, and expertise available to conduct appropriate studies. Selections are consistent with the planning resources expected to be available during the final phase of the study. Similar problems and needs occurring in several locations will be studied in the priority listed.

Planning efforts during the final phase of the study will be directed toward the following:

1. The inventory of resources in Section II will be updated and/or expanded. It is recognized that the inventory of resources is not complete at this time.

2. Water and land related problems and needs will be identified in more detail. Where appropriate, projections of needs will be made for the years 1990, 2000, and 2020.

3. A general soil association map will be completed for the basin area during 1973. Additional soils information and/or maps will be prepared for selected areas in the basin on a request basis and in keeping with resources available.

4. Flooding problems will be studied in the following priority order:

A. Urban areas, towns, and communities

1. Upper Cahaba Tributaries (includes Trussville, Leeds, Vestavia Hills, Hoover, Green Valley, and Patton Creek.
2. Cahaba Valley Creek & Buck Creek (includes Helena & Alabaster)
3. Glencoe
4. Prattville
5. Autaugaville
6. Selma
7. Montgomery
8. Catoma Creek (Montgomery Co.)

4-32888 3-73

B. Agricultural areas

1. Upper Mulberry River (Bibb & Chilton Counties)
2. Upper Beaver Creek (St. Clair County)
3. Boguechitto Creek (Perry & Dallas Counties)
4. Cutnose Creek (Randolph County)
5. Cedar Creek (Butler, Wilcox, Lowndes & Dallas Counties)'

The extent of flood studies will vary significantly. Flood plains will be delineated following extensive hydraulic analysis in some problem areas. In other areas, flood plains will be delineated on the basis of soils information. The most feasible solution for alleviating flood damages will be determined in each area.

5. Assistance will be provided units of local government or the Regional Planning and Development Commission in developing plans for land use in the following areas:

   1. Shades Creek (Jefferson County)
   2. Upper Cahaba Tributaries (St. Clair, Jefferson & Shelby Counties)
   3. Cahaba Valley Creek and Buck Creek (Shelby County)
   4. Blue Girth-Beech Creeks (Dallas County)
   5. Catoma Creek (Montgomery County)

6. A limited number of sites for storage of water for low-flow augmentation will be studied in detail. These sites will be selected by the study sponsors upon completion of the general low-flow augmentation storage study in early 1973.

7. The most feasible source of additional water to meet projected municipal, industrial, or rural system needs will be determined for the following locations:

   A. Rural system needs (including municipalities)

   1. Cleburne County
   2. Jefferson County
   3. Shelby County
   4. St. Clair County
   5. Etowah County
   6. Macon County
   7. Chambers County, northwest quarter

   B. Municipal and industrial needs

   1. Auburn
   2. Opelika
   3. Prattville
   4. Piedmont
   5. Jacksonville
   6. Wedowee
   7. Montgomery

   Where surface water storage is the most feasible source of additional water, an appropriate site or sites for water storage will be selected and preliminary costs will be developed.

8. Urban drainage problems will be studied in the following locations:

1. Carrville
2. Millbrook
3. Shades Creek, south of Bessemer
4. Selma
5. Orrville

The most feasible solution to the problem will be determined and preliminary cost estimates made.

9. The potential for increasing agricultural production in the basin will be analyzed as follows:

A. Agricultural areas where improved drainage or the use of irrigation would increase production will be located. The selection of these areas will be consistent with soil capabilities and present and projected future land use. The interest in and need for project-type developments to reach production potential will be investigated. Preliminary project-type drainage or irrigation plans will be developed where applicable.

B. Through the use of linear programming and other research methods

1. Crops with highest potential for increased production and marketing will be identified.

2. Areas where additional crops can be produced at the least cost will be identified.

3. The agricultural production capacity of the state and basin will be projected.

Results of the above will be presented in a separate land use report due for release in early 1973.

10. The market development potential for agricultural products will be determined. The cost of market development for those products with the greatest potential will be estimated.

11. The inventory of critically eroded and sediment producing areas will be expanded. The most applicable ways of achieving the needed treatment will be identified. Categories are expected to be:

A. Mined land not subject to the strip-mining law.

B. Erosion resulting from urban development and highway construction.

C. Roadside erosion.

4-32888 3-73

D. Gullies and streambanks with erosion problems.

12. Sediment accumulation studies will be conducted in selected existing reservoirs to provide data for future reservoir planning. Studies will be designed to encompass reservoirs with drainage areas above 20 square miles, and reservoirs with a high rate of construction-induced erosion and other concentrated erosion problems in the watershed.

13. A field survey of forest land by soil association grouping will be made. The hydrologic condition, erosion problem, wildlife habitat value, and the potential for timber, range, and recreation uses will be evaluated.

14. Sites will be selected for recreational developments to meet projected needs. Preliminary plans will be developed as appropriate. Some identified needs are:

    A. Impoundments for fishing. A large impoundment is needed only in the Cahaba Subbasin.

    B. Beach development adjacent to existing or future reservoirs--need exists in all four subbasins.

    C. Camping areas in the Alabama Subbasin.

    D. Hiking and cycling trails in all subbasins.

15. Proposals will be developed for meeting projected future public hunting and fishing demands. These will include:

    A. Selection of the most appropriate location for development of waterfowl management areas in the Alabama and Tallapoosa Subbasins in cooperation with the U. S. Fish and Wildlife Service and the State Department of Conservation and Natural Resources. Preliminary plans will be developed as appropriate.

    B. Selection of streams in each subbasin that are most suitable for public fishing, and investigation of the land rights required to insure public use.

16. The severity of damage caused by beavers will be analyzed. Proposals for reducing this damage and capitalizing on impoundments created by beavers will be developed.

17. Areas having historical, archaeological, or aesthetic value will be identified. Proposals will be developed to insure appropriate preservation and/or utilization of these areas.

18. The economic effects of resource development in the basin will be analyzed and presented in an impact report.

Upon completion of the study in late 1974, a comprehensive river basin report will be prepared for distribution to interested federal, state, and local agencies. The comprehensive report, to be published in late 1975, will include data from this progress report as well as results of the additional studies outlined herein. In accordance with the concept of multi-objective resource planning, the report will include an evaluation of land and water resource potential and a determination of land and water resource requirements. Alternative solutions and programs for resource development and management will be analyzed to display their effect on national economic development, environmental quality, regional development, and social well-being.

4-32888 3-73

APPENDIX AND BIBLIOGRAPHY

APPENDIX

Appendix Table 1--Water quality characteristics and their effects.

Constituent	Source or Cause	Effects
Silica (SiO_2)	Most abundant element in igneous resistant to solution.	Causes scale in boiler and deposits on turbine blades.
Iron (Fe)	Very abundant in igneous rocks, readily precipitates as hydroxide.	Stains laundry and porcelain, bad taste.
Manganese (Mn)	Less abundant than iron, present in sedimentary and metamorphic rocks.	Stains laundry and porcelain, bad taste
Calcium (Ca)	Dissolved from most rock, especially limestone and dolomite.	Causes hardness, forms boiler scale, helps maintain good soil structure and permeability.
Magnesium (Mg)	Dissolved from igneous and carbonate rocks, industrial wastes.	Causes hardness, forms boiler scale, helps maintain good soil structure and permeability.
Sodium (Na)	Dissolved from feldspars and other common rocks, industrial wastes.	Injurious to soils and crops, and certain physiological condition in man.
Potassium (K)	Abundant in many rocks and soils, but not very soluble.	Causes foaming in boilers, stimulates plankton growth.
Bicarbonate (HCO_2)	Abundant and soluble from limestone, dolomite, and soils.	Causes foaming in boilers, and embrittlement of boiler steel.
Sulfate (SO_4)	Sedimentary rocks, mine water, and industrial wastes.	Excess: cathartic, taste.
Chloride (Cl)	Most rocks, soils, industrial wastes and sewage, and sea water.	Unpleasant taste, increases corrosiveness.

4-32888 3-73

Appendix Table 1--(Cont'd)

Constituent	Source or Cause	Effects
Fluoride (F)	Not very abundant, sparingly soluble, fluorite most common source, seldom found in industrial wastes except as spillage, some sewage.	Over 1.5 ppm causes mottling of children's teeth, 0.88 to 1.5 ppm aid in preventing tooth decay.
Nitrate (NO_3)	Spoil, sewage, industrial waste, decomposition of plants and animals, bacteria.	High content in water indicates pollution, causes methemoglobinemia in infants.
Hardness as $CaCO_3$		Excessive soap consumption, scale in pipes interferes in industrial processes. Up to 60 ppm - soft 61 to 120 ppm - moderately hard 121 to 180 ppm - hard over 180 ppm - very hard

4-32888 3-73

Appendix Table 2--Use limitations of water quality parameters.

Constituent	Objectionable features of excessive concentration	Recommended limiting concentration for indicated use (ppm)1/ Public water supply2/	Cooling water	Food processing	Pulp & paper making	Plastics manufacturing	Boilers	Textile manufacturing
Sulfate	Diuretic effect, bitter taste.	250		20-250				100
Hardness as $CaCO_3$	Boiler scale, produces insoluble "curd" when it reacts with soap.		50	10-400	100-200		2-80	0-50
Dissolved solids	Diuretic effect, unpleasant taste.	500		850	200-500	200	50-3,000	
Iron	Unpleasant taste, stains porcelain and linen.	0.3	0.5	0.2	0.1-1.0			0.1-1.0
Manganese	Unpleasant taste, stains porcelain and linen.	0.05	0.2-0.5	0.2	0.05-.5	0.02		0.1-1.0
Aluminum	Boiler scale.						0-3	
Suspended Solids3/	Clogs treatment facilities and water courses.	5	50	1-10	10-100		0-10	0.3-25
pH4/	Increases corrosiveness.			7.5			8.0-9.6	

1/ California Water Quality Control Board (1963).
2/ U. S. Public Health Service (1962).
3/ Turbidity, as silica, in parts per million.
4/ Value not to be less than limits shown.

A-32888 3-73

Appendix Table 3--Chemical composition of selected streams in Alabama River Basin.

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$ Calcium, magnesium	Hardness as $CaCO_3$ Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Alabama River Subbasin																			
024200 Alabama River near Montgomery																			
1- 7-71	41,800	4.7	.066	12.0	3.5	8.0	1.8	52	9.6	8.2	.1	0.2	76	74	44	1	126	6.5	48
2- 4-71	25,700	5.9	.057	9.1	2.7	5.0	1.3	41	5.8	2.2	.1	0.2	58	52	34	0	92	7.2	44
3-16-71	51,800	4.1	.10	7.0	1.8	2.8	1.4	28	5.2	2.8	.1	0.5	46	40	25	2	68	7.1	54
4-19-71	9,080	8.1	.16	5.2	1.6	3.5	1.2	30	1.6	2.6	.1	0.8	38	40	20	0	68	7.2	64
5-24-71	8,050	6.0	.10	8.0	2.4	3.9	1.0	34	5.4	3.2	0	0.8	57	48	30	2	83	6.7	72
6-28-71	8,320	7.4	.05	3.8	1.5	3.2	1.4	19	3.4	2.4	.1	0.1	36	32	16	1	53	6.8	74
8- 9-71	15,800	6.7	.05	11.0	3.5	5.3	1.3	47	7.4	5.0	.1	0.4	58	64	42	4	114	7.1	82
9-22-71	12,900	4.5	.02	12.0	3.8	5.4	1.4	57	6.8	5.0	.1	1.1	78	68	46	0	126	7.8	79
11-30-71	22,000	6.7	.03	12.0	4.0	6.5	1.7	56	6.2	6.5	.1	1.4	74	73	47	1	120	7.6	55
10-26-71	5,320	4.2	.09	9.2	3.3	5.4	1.5	43	5.6	4.4	.1	1.2	50	56	37	2	101	7.1	72
12-20-71	37,100	5.8	.08	11.0	3.6	7.1	1.7	51	7.6	7.0	.1	1.0	64	70	43	1	128	7.2	59
1-25-72	62,000	6.3	.13	6.6	2.0	2.6	1.6	26	6.4	2.4	.1	0.2	42	41	25	4	67	6.4	51
2-23-72	24,000	7.4	.12	8.5	2.7	3.4	1.5	36	5.8	3.3	.1	1.0	50	52	32	3	86	7.4	50
4- 3-72	36,000	5.7	.15	12.0	3.2	4.3	1.3	48	5.8	3.2	.1	1.6	65	61	43	4	94	6.9	60
5-12-72	20,500	1.1	.23	10.0	3.2	4.2	1.1	48	3.8	3.8	.1	0.3	52	52	38	0	101	6.7	68
6-20-72	1,000	7.7	0	8.5	3.2	4.8	1.2	40	6.4	4.2	.1		63	56	34	1	88	6.7	75

4-32888 3-73

024210 Catoma Creek																			
12- 8-70	15.5							106		11.0					100	13	230	8.0	48
3- 1-71	1,970							60		4.4					58	9	126	7.7	57
8- 2-71	1,040							36		2.8					20	0	85	6.9	73
1-25-72	203	8.5	0.24	31	1.6	4.2	2.3	86	15.0	7.2	.1	0.4	126	112	84	14	188	7.1	50
024220 Big Swamp Creek Near Lowndesboro																			
3-27-70	384							138		6.6					131	18	263	8.2	59
5- 7-70	54.4	6.2		60	2.5	7.4	1.8	173	24.0	10.0	.2	0.1	216	197	160	18	364	7.3	62
6-16-70	60.6	7.9	0.56	38	1.9	4.0	2.2	116	12.0	5.6	.2	0.1	138	129	103	7	231	7.6	71
9-11-70	1							185		9.0					161	9	323	7.3	77
11-10-70	3.5	5.0	0.61	36	2.0	4.5	3.4	118	6.4	7.6	.1	0.2	126	123	98	8	220	7.3	
12- 8-70	.73							110		10.0					95	5	216	8.0	45
12-15-70	0.9	1.4	0.42	34	2.1	5.8	2.9	108	2.0	12.0	.1	0.1	125	113	94	5	21	7.0	
1-18-71	60.1							106		4.6					100	13	192	7.6	37
1-20-71	28	7.9	0.74	73	0.8	7.6	2.9	182	41.0	12.0	.2	0.2	230	237	194	45	394	7.1	
2-23-71	1,950	5.7	0.74	26	0.8	1.8	2.6	80	5.4	2.8	.2	0.5	109	85	68	2	150	7.1	
4- 7-71	215	5.6	1.3	55	2.2	5.5	1.6	146	24.0	8.0	.1	0.4	183	174	150	31	299	7.5	55
5-11-71	50.8	6.5	0.79	52	2.0	5.1	2.4	147	17.0	6.9	.3	0.3	172	164	140	20	282	7.4	70
6-16-71	14	6.2	0.09	54	2.0	4.8	2.9	157	15.0	7.3	.3	1.2	178	171	140	12	292	7.2	77
7-19-71	1	8.3	0.09	52	1.5	4.8	4.3	156	7.0	9.2	.2	0.2	174	164	140	12	302	7.2	81
8- 2-71	59.9							99		3.6					98	17	195	7.6	73
9- 7-71	13	7.2	0.11	42	1.6	2.5	4.0	130	8.8	6.0	.2	0.6	164	137	120	14	254	6.9	79
10- 4-71	0.9	6.5	0.23	49	2.3	4.9	4.7	155	7.0	8.0	.1	0	203	158	132	5	298	7.3	75
11- 3-71	0.5	7.1	0.44	32	2.0	4.9	3.6	100	2.8	11.0	.1	0.1	115	113	88	6	214	7.3	69
024225 Mulberry Creek at Jones																			
10-29-68	49							16		2.0					12	0	39	7.0	55
12- 6-68	148							14		2.8					12	1	41	7.1	48
1-20-69	3,520							3		1.4					8	6	26	6.1	50
3-13-69	199							8		2.0					10	3	34	7.0	45
4-16-69	249							14		2.7					11	0	43	7.1	64
5-27-69	168							14		2.0					11	0	37	7.0	81
7- 8-69	60							18		2.0					12	0	43	6.9	90
8-27-69	63							16		2.0					12	0	41	6.8	86

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Alabama River Subbasin (Cont'd.)																			
024225 Mulberry Creek at Jones (Cont'd.)																			
11-18-69	80							13		2.4					10	0	43	6.8	59
1- 8-70	307							10		2.6					10	2	37	7.2	45
2-11-70	198							10		3.0					10	2	38	6.8	43
3-27-70	443							8		2.4					8	1	30	6.7	59
5- 8-70	193	10		2.5	1.1	1.5	0.8	8	4.0	2.2	.1	0.2		26	11	1	37	6.3	68
6-19-70	90	13		2.6	1.2	1.6	1.1	13	2.0	2.8	.1	0.1		30	8	0	38	6.8	72
024230 Alabama River at Selma																			
1-20-71	27,000	4.6	.11	10.0	3.2	6.9	1.5	45	8.4	5.6	0	0.2	67	62	38	1	114	6.6	
2-23-71	79,700	5.7	.10	11.0	1.9	3.2	1.3	39	6.8	3.2	.1	0.4	61	53	35	3	92	7.1	50
4- 7-71	54,700	6.4	.12	9.0	2.8	2.8	0.9	35	5.6	3.6	.1	0.2	57	48	34	6	85	6.8	55
5-11-71	23,000	5.4	.15	10.0	2.2	4.3	1.2	38	6.0	5.0	0	0.2	55	53	34	3	95	6.7	69
6-16-71	19,800	5.4	.12	8.9	3.1	4.9	1.2	36	6.0	6.0	.1	0.2	58	54	35	6	95	6.8	79
7-19-71	24,400	4.2	.06	9.4	3.0	5.8	1.0	42	7.0	7.2	.1	0.3	62	59	36	2	104	7.2	80
9-17-71	1,710	5.3	.07	9.3	2.7	4.2	1.4	41	5.2	3.1	.1	0.1	68	52	34	1	95	7.3	82
10- 4-71	16,300	4.2	.06	9.5	3.4	6.7	1.3	44	6.2	5.9	.1	0.2	62	60	38	2	107	7.2	81
11- 3-71	9,000	6.5	.16	8.8	3.0	6.4	1.5	42	6.0	6.1	.1	0.7	61	60	35	1	104	7.1	73

4-32888 3-73

12- 7-71	31,600	5.8	.10	8.5	2.4	4.7	2.0	36	6.2	5.8	.1	1.0	66	54	31	2	96	7.0	55
1-17-72	68,700	6.3	.15	7.7	1.9	2.7	1.4	26	5.0	4.8	.1	0.8	48	44	27	6	66	6.6	50
2-11-72	46,900	4.5	.13	8.5	2.0	3.2	1.4	32	6.6	3.5	.1	0.2	49	47	29	3	78	7.0	49
3-27-72	35,700	6.0	.16	8.3	2.5	4.0	1.1	38	5.9	3.6		0.02	62	50	31		84	6.9	63
4-24-72	5,500	3.0	.09	9.6	2.9	4.2	1.2	41	6.2	4.6		0.5	48	52	36	3	91	6.9	69
6- 5-72	6,500	3.4	.07	10.0	3.6	5.5	1.2	43	6.2	5.2	.1	0.4	63	57	40	5	100	7.2	76
7-17-72	9,300											0.1					94	8.0	86

024255 Cedar Creek at Minter

1-19-67	132							160		5.2					140	9	317	8.4	
3- 2-67	188							162		7.0					145	12	304	8.2	
4- 4-67	72							166		6.0					142		307	8.4	
4-14-67	39.3							148		3.4					91		273	8.5	
5-18-67	24.0							154		3.0					142	3	290	8.5	
9-12-67	5,690							62		0.8					55	4	121	7.5	
1- 8-68	274							154		8.4					155	29	347	8.5	46
2-29-68	535							124		5.2					114	6	234	8.3	48
4- 1-68	108							172		5.0					116	0	325	8.5	68

24260 Boguechitto Creek near Browns

9-14-67	26.9							60		6.6					56	7	144	7.0	
12- 4-67	179							46		2.0					48	10	121	7.6	46
1- 9-68	108							40		4.4					44	11	112	7.8	43
2-20-68	43							36		4.6					40	10	93	7.5	46
3- 3-68	40							40		4.4					48	9	112	7.7	64

024277 Turkey Creek at Kimbrough

4- 6-67	34.6							36		7.0					40	10	112	7.5	70
5- 2-67	56.1																118		68
10-30-68	.69							68		16.0					47	0	179	7.7	59
12- 1-70	14.6							36		5.8					32	2	96	7.5	57
1-19-71	40.7							32		6.6					34	8	122	6.5	45
10-21-71	3.0							54		9.0					44	0	135	7.2	70

024290 Limestone Creek near Monroeville

10-10-68	21.2							66		13.0					33	0	162	8.0	69
12- 4-70	66							6		8.2					43	0	134	7.7	61
3-88-71								36		3.0					32	3	74	7.1	52
6-17-71								58		9.6					48	1	137	7.7	64

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Alabama River Subbasin (Cont'd.)																			
024295 Alabama River at Claiborne																			
2-24-71	89,100	6.4	.10	18.0	0.9	3.6	1.4	49	7.8	7.8	.1	0.4	70	70	49	9	109	7.2	54
4- 8-71	77,500	7.4	.15	9.9	2.6	3.0	1.0	37	5.0	3.6	.1	3.0	61	51	35	5	89	7.0	55
5-12-71	30,300	5.4	.22	9.2	2.2	3.8	1.2	36	5.8	3.7	0	0.2	60	50	32	3	85	6.9	70
6-17-71	15,800	6.7	.19	11.0	2.9	4.9	1.3	40	6.8	5.3	.1	0.4	61	59	40	7	102	6.8	81
7-21-71	27,100	4.9	.04	9.3	2.8	5.8	1.0	41	7.4	5.1	.1	0.5	61	57	35	2	104	6.9	83
9- 9-71	13,900	6.1	.10	10.0	2.7	4.9	1.5	44	6.2	5.2	.1	1.0	76	59	36	0	105	7.2	81
10- 6-71	13,100	4.7	.06	11.0	3.1	6.0	1.5	48	7.0	5.7	.1	0.2	65	63	41	2	118	7.0	81
11- 4-71	11.300	7.2	.17	9.2	2.6	6.4	1.4	41	5.6	6.4	.1	0.2	71	59	34	1	107	7.2	72
12- 9-71	84,700	5.8	.10	15.0	2.3	3.8	2.2	54	6.6	4.4	.2	3.0	84	70	47	3	122	7.4	54
1-17-72	160,000	6.0	.13	9.1	1.9	2.6	1.1	29	5.8	2.9	.1	0.2	50	44	31	7	73	6.6	52
2- 9-72	93,650	4.7	.14	12.0	1.8	2.5	1.4	39	7.6	2.6	.1	0.2	58	53	35	6	86	7.0	48
3-30-72	39,300	6.4	.20	10.0	2.6	3.8	1.1	40	7.0	3.6	.1	0.3	66	56	36	3	82	6.9	60
4-27-72	17,800	4.0	.110	11.0	2.9	4.2	1.2	44	6.0	4.0	0	0.9	57	56	40	4	98	7.3	70
6- 8-72	24,300	3.0	0	13.0	3.6	5.4	1.4	54	7.4	5.1	.1	0.6	70	67	48	4	118	7.0	79
7-20-72	18,900							41				0.7					99	7.2	85

4-32888 3-73

Coosa River Subbasin

023292 Little River Near Blue Pond

10- 5-65	20.9		10		1.4		12	5	24	7.4
10-14-65	A13.0	.08	10	1.2	1.4	.1	8	0	32	6.6
11- 5-65	3.8		14		2.2		18	7	32	7.2
12-21-65	28.1		8		2.4		10	3	23	6.9
1-19-66	274		6		2.8		10	5	20	7.5
4-21-66	74.0		6		1.2		10	5	21	7.3
6- 2-66	90.2		17		1.6		14	0	47	6.7
7-19-66	24.2		10		0.8		15	7	32	7.2
8-29-66	4.4		10		1.0		12	4	33	7.5
10-20-66	1,760		2		1.8		8	6	26	6.1
11-23-66	202		6		1.8		10	5	20	6.2
1- 6-67	385		4		2.6		8	5	20	6.4
2-20-67	4,290		4		0.8		5	2	20	6.9
2-23-67	1,250		6		1.8		8	3	22	6.2
3-27-67	135		18		1.8		8	0	25	6.9
3-30-67	109		6		1.4		8	3	24	6.8
5-17-67	283		14		1.6		5	0	16	6.3
7- 6-67	336		7		1.4		4	0	21	7.2
8- 9-67	74.1		8		1.4		6	0	21	6.6
9-14-67	122		8		2.2		12	5	22	6.5

024001 Terrapin Creek at Ellisville

10-19-66	2,760		38		1.0		28	0	74	7.3
11-22-66	224		84		1.2		75	6	143	7.2
1- 6-67	298		66		1.6		60	6	117	7.2
2-21-67	1,660		26		0.6		22	1	57	6.7
2-22-67	925		38		2.6		32	1	73	6.6
3-27-67	316		92		1.4		62	0	133	7.8
3-30-67	286		76		2.0		62	0	128	7.4
5-12-67	309		64		1.0		61	9	133	7.5
7-13-67	212		82		0.6		68	1	140	7.6
8-10-67	181		107		0.4		88	0	180	7.4
9-14-67	236		82		1.0		79	12	150	7.3

A -- Daily Mean Discharge

4-32888 3-73

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Coosa River Subbasin (Cont'd.)																			
024001 Terrapin Creek at Ellisville (Cont'd.)																			
10-11-67	324							64		2.0					55	3	110	7.5	61
11-17-67	198							86		1.0					79	8	161	7.4	57
12-18-67	1,300							44		1.0					42	6	87	7.1	46
2-20-68	296							80		1.0					69	3	137	8.1	48
3-28-68	390							64		1.2					56	4	115	7.3	59
024005 Coosa River at Gadsden																			
9-18-70	5,780	4.7	.06	14.0	4.2	8.4	2.0	70	8.4	5.4	.2	0.2	94	82	52	0	140	7.3	82
10-15-70	17,900	3.0	0	14.0	4.2	9.8	1.9	70	8.8	6.6	.1	0.1	80	82	52	0	154	7.6	73
11-30-70	19,100	3.8	.05	16.0	4.3	9.7	2.0	72	8.8	8.0	.1	0.2	96	88	58	0	161	7.1	53
1- 6-71	26,700	4.7	.12	15.0	3.8	6.8	1.3	64	8.0	5.8	.1	0.1	77	78	53	1	127	6.6	44
2- 3-71	22,000	5.0	.077	9.7	2.5	3.2	1.2	34	7.4	2.8	.1	0.3	60	49	35	7	84	7.3	43
3-17-71	25,100	3.8	.10	9.8	2.5	3.0	1.2	39	5.6	2.3	.1	0.7	54	48	35	3	87	7.0	53
4-20-67	21,800	4.9	.07	12.0	3.0	3.4	1.0	50	5.4	2.4	0	0.1	53	57	43	2	98	7.9	65
5-25-71	24,800	4.5	.07	12.0	3.2	4.2	1.1	52	6.2	2.7	0	0.8	68	61	43	1	110	7.0	73
6-29-71	26,400	2.9	.01	13.0	4.4	6.5	1.6	67	7.2	4.0	.1	0.1	76	73	51	0	138	7.9	86

4-32888 3-73

8-11-71	9,510	5.5	.03	11.0	3.4	5.0	1.6	51	6.6	3.6	.2	0.2	78	62	42	0	112	7.2	82
9-21-71	12,000	4.3	.05	13.0	3.8	6.3	1.4	61	7.2	4.8	.1	2.1	83	73	48	0	140	7.4	81
10-29-71	5,670	2.6	.01	13.0	4.3	9.7	1.8	68	8.8	6.4	.1	0.3	70	80	50	0	142	7.6	68
12- 1-71	15,500	5.4	.03	13.0	4.0	9.8	1.8	65	8.6	6.6	.1	0.1	91	81	49	0	144	7.7	50
12-22-71	15,100	7.2	.09	12.0	3.2	4.9	1.5	45	7.8	4.0	.1	1.2	55	64	43	6	102	6.8	52
1-28-72	16,100	6.8	.10	9.4	2.7	3.1	1.4	39	6.4	2.8	.1	2.0	55	52	35	3	89	6.8	49
2-25-72	32,700	5.9	.09	11.0	3.8	3.2	1.4	47	7.6	2.8	.1	1.3	59	60	43	5	97	7.3	46
4- 5-72	12,600	5.7	.07	11.0		3.9	1.0	50	6.8	2.9	0		65	60	41	0	99	7.0	56
5-11-72	7,590	1.8	.05	13.0	3.6	5.1	1.2	60	5.0	3.6	0	0.4	63	64	48	0	116	7.0	70
6-26-72	7,460	1.3	0	13.0	3.5	5.2	1.1	56	6.4	3.6	.1	0.2	64	62	47	1	111	7.3	75

024010 Big Wills Creek Near Crudup

10-14-65	A55		.02					152	4.2	7.0		0.1			130	5	270	7.5	
11- 9-65	46.3							144		5.0					110	0	251	8.5	
12-22-65	43.4							154		6.2					130	4	248	8.1	
1- 1-66	65.2							152		5.4					135	10	259	8.2	
3- 8-66	597							96		4.4					90	11	171	8.2	
5- 2-66	860							94		2.4					80	3	163	7.5	
7-14-66	79.0							68		1.2					58	2	118	7.3	
8-28-66	59.9							154		3.6					128	2	243	7.9	
10-13-66	95.2							146		5.4					128	8	250	8.2	
11-11-66	168							146		3.6					125	5	251	7.7	
1- 4-67	232							138		3.0					118	5	234	7.7	
2-20-67	410							120		2.2					112	14	209	7.6	
2-24-67	562							108		3.2					92	3	188	7.1	
3-27-67	173							132		3.2					115	0	237	8.4	
4- 3-67	143							138		4.4					115	2	233	7.2	
5-12-67	290							126		0.8					102	0	222	7.0	

024013.90 Big Canoe at Ashville

1- 6-71	639	4.2	0.33	20	3.7	2.1	1.6	69	8.4	3.0	.1	0.2	96	77	65	8	134	6.6
2- 3-71	166	4.8	1.3	24	4.4	2.2	0.8	88	6.2	4.2	.1	0.1	80	90	78	6	162	6.9
3-17-71	815	3.4	0.27	20	3.4	2.1	0.6	70	5.6	2.4	.1	0.2	80	72	64	7	129	7.3
4-21-71	359	4.2	0.15	22	4.4	2.2	1.7	78	11.0	2.4	.1	0.1	103	87	73	9	153	7.0

A -- Daily Mean Discharge

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Coosa River Subbasin (Cont'd.)																			
024013.90 Big Canoe at Ashville (Cont'd.)																			
5-25-71	92.4	13.0	.02	29	5.8	1.6	0.8	112	3.8	2.6	0	0.5	104	112	97	5	182	7.4	68
6-23-71	40.1							112		3.6					90	0	195	7.3	77
6-29-71	59.9	5.1	.06	27	6.0	1.8	1.6	107	5.6	2.2	.1	0.2	109	103	92	5	192	7.3	77
8-10-71	71.6	1.7	.01	27	5.8	1.5	1.1	107	4.0	2.4	.1	0.2	97	97	92	5	190	7.1	75
9-21-71	118	6.6	.50	28	5.3	2.3	1.5	98	5.4	2.8	.1	11.0	131	111	92	12	198	7.0	
10-20-71	27.6							150		2.0					100	0	243	7.8	68
10-29-71	33	6.5	.05	38	8.3	2.1	1.5	150	4.6	2.6	.1	3.8	172	142	129	6	258	7.4	75
12- 1-71	44	4.9	.31	35	8.4	2.3	1.3	144	5.6	3.0	.1	0.2			120		250	7.7	47
12-22-71	343	6.4	.07	21	3.5	1.8	1.4	70	7.2	2.8	.2	1.2	78	80	67	10	130	7.1	45
1-28-72	181	6.2	.07	25	4.9	1.8	0.9	90	7.4	2.8	0	0.2	112	93	83	9	159	7.3	48
024044 Choccolocco Creek at Jackson Shoals Near Lincoln																			
11- 3-66	489							106		24.0					95	8	297	7.8	
12-14-66	893							68		20.0					72	16	196	7.2	
1-25-67	660							86		22.0					88	17	235	7.9	
3- 8-67	1,410							52		4.8					48	5	113	7.4	
3-29-67	660							94		12.0					78	1	193	7.8	

4-32888 3-73

4-19-67	408	74	56.0	115	54	354	8.1	
5-30-67	444	93	20.0	91	15	236	8.2	
7-12-67	527	90	14.0	84	10	226	8.2	
10- 4-67	414	98	43.0	128	48	343	7.8	61
11-14-67	468	88	46.0	125	49	339	8.3	57
1-25-68	2,960	47	7.0	48	9	129	7.8	46
3- 5-68	625	79	33.0	99	34	276	7.9	52
4-17-68	2,060	38	9.2	44	13	109	7.6	63
9-12-68	243	128	56.0	129	24	455	8.0	72
024055 Kelley Creek Near Vincent								
10- 3-67	23	50	2.4	45	4	103	7.2	57
11-14-67	103	36	2.8	35	5	76	8.2	52
12-12-67	1,810	16	1.4	15	2	45	7.3	55
1-26-68	695	18	0.2	16	1	46	7.3	41
3- 5-68	127	29	2.4	25	1	64	7.4	43
4-16-68	1,300	14	0.4	18	7	35	6.9	57
5-28-68	90	35	0.6	29	0	69	7.9	64
7-10-68	12	77	1.0	62	0	134	7.4	70
8-20-68	26	46	0.2	38	0	88	7.6	75
9-12-68	11	64	0.4	52	0	116	7.2	72
10- 8-68	3.8	100	0.2	81	0	159	7.6	64
11-15-68	10	72	2.8	60	1	128	7.3	45
1- 7-69	303	22	1.6	20	2	52	7.3	39
024058 Talladega Creek Above Talladega								
10- 3-67	31	18	2.2	19	4	46	7.3	35
11-14-67	44	18	1.4	19	4	44	8.0	54
12-20-67	228	16	0.2	15	2	42	7.3	61
1-23-68	136	42	0.2	38	4	80	7.5	
3-19-68	87	14	1.2	11	0	33	7.2	50
4- 5-68	1,990	8	0.4	10	3	23	7.0	57
4-17-68	245	10	0.8	12	4	27	6.7	57
7-10-68	57	14	0.6	11	0	34	7.0	70
8-20-68	17	20	0.2	15	0	44	7.1	73

4-32888 3-73

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Coosa River Subbasin (Cont'd.)																			
024058 Talladega Creek Above Talladega (Cont'd.)																			
9- 9-68	8.0							19		2.0					14	0	45	7.4	72
10- 8-68	17							20		0.6					15	0	42	6.9	64
11-21-68	36							16		2.0					16	3	47	7.2	37
1- 2-69	92							12		1.6					11	1	36	7.2	36
2-12-69	127							11		1.3					10	1	33	7.0	43
5- 7-69	68							16		1.1					12	0	37	7.2	63
6-18-69	44							21		1.0					14	0	39	6.7	66
024070 Coosa River at Childersburg																			
1- 5-71	23,800	3.7	.057	15	4.5	7.3	1.6	68	10	6.6	.1	0.1	84	82	56	0	142	7.5	48
2- 1-71	22,400	5.6	.11	15	4.6	7.1	1.3	67	9.4	5.6	.1	0.2	93	80	56	1	152	6.9	46
3-17-71	29,800	4.1	.11	12	3.4	5.3	1.2	49	6.6	5.0	.1	0.1	70	62	44	4	114	7.2	54
4-22-71	600	4.4	.08	12	3.4	6.5	1.1	49	13.0	4.8	0	0.2	79	69	44	4	130	7.1	63
5-25-71	11,100	4.1	.06	15	4.7	4.9	1.1	64	8.6	3.5	.1	1.1	80	75	57	5	138	7.0	72
6-29-71	500	2.1	.02	16	5.0	8.8	1.7	68	10.0	9.4	.1	0.1	97	86	61	6	170	7.2	83
8-10-71	23,300	4.7	.05	15	4.5	5.8	1.8	64	8.6	5.0	.1	0.2	73	77	56	4	140	7.0	82
9-24-71	20,000	5.2	.02	15	5.1	6.5	1.4	71	7.4	6.5	.1	0.5	94	83	59	1	159	7.6	80
10-29-71	11,000	3.1	.16	15	5.4	8.4	1.9	72	7.2	7.2	.1	1.2	74	84	60	1	161	7.3	72

4-32888 3-73

12- 2-71	25,000	4.8	.08	17.0	5.7	10.0	1.9	8	10.0	9.6	.1	1.5	120	100	66	1	178	7.7	54
12-21-71	20,000	6.4	.10	12.0	3.6	7.6	1.8	54	9.0	7.4	.1	0.8	70	76	45	1	141	7.0	55
1-26-72	31,000	6.1	.39	9.8	2.9	3.3	1.5	37	9.0	3.2	.1	0.4	56	54	37	7	96	7.0	50
2-25-72	20,700	6.0	.10	13.0	4.2	4.1	1.4	54	7.0	3.6	.1	1.2	87	68	50	6	132	7.0	49
4- 4-72	18,600	6.0	.07	15.0	5.3	5.1	1.1	68	7.2	4.7	0	1.7	86	79	60	5	134	7.1	58
5-11-72	21,000	0.6	.02	14.0	4.5	4.4	1.0	64	8.2	3.6	0	0.2	68	70	54	2	127	6.9	
6-22-72	500	4.4	.03	15.0	5.9	8.1	1.4	71	8.2	8.0	.2	0.6	92	87	62	4	157	6.9	75

024075 Yellowleaf Creek Near Wilsonville

10- 3-67	5.4							36		3.2					31	1	72	7.6	57
11-14-67	31							18		3.6					22	7	46	7.3	52
12-12-67	880							11		0.4					11	2	35	7.2	55
1-26-68	662							8		0.4					9	2	27	7.0	41
3- 5-68	68							13		2.0					12	1	41	7.5	43
4-16-68	146							12		2.2					12	2	33	6.9	57
5-27-68	60							18		1.4					14	0	41	7.3	68
7-10-68	5.5							62		0.8					48	0	107	7.2	70
8-19-68	10							34		0.8					24	0	64	7.6	75
9-11-68								34		1.2					25	0	68	6.9	70
10- 8-68	30							32		0.2					28	2	70	6.8	64
11-15-68	3.0							52		1.2					39	0	95	7.7	43
1- 7-69	200							12		2.4					10	0	35	7.2	39

024080 Yellowleaf Creek Near Clanton

5-18-65	3.4		.32					20	0.6	3.2		0.3			15	0	52	6.2	
9- 9-68	33.9							18		2.4					15	0	51	6.6	74

024085 Hatchet Creek Near Rockford

4- 5-68	8,610							7		0.8					12	6	23	7.3	63
4-15-68	1,650							10		0.2					10	2	29	7.1	61
7- 9-68	163							17		0.8					12	0	37	7.0	72
8-19-68	71							26		0.2					14	0	48	7.3	77
9-10-68	42							22		0.2					14	0	45	7.2	72
10- 7-68	214							20		1.2					12	0	41	7.0	64
11-12-68	142							20		1.0					15	0	45	7.2	45
1- 7-69	206							16		2.4					11	0	36	7.5	36

4-32888 3-73

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Coosa River Subbasin (Cont'd.)																			
024085 Hatchet Creek Near Rockford (Cont'd.)																			
3-24-69	3,650							10		0.7					10	2	32	7.1	52
5- 5-69	233							20		1.3					11	0	38	7.1	63
6-16-69	153							17		1.4					11	0	37	6.9	73
Cahaba River Subbasin																			
024235.55 Cahaba River Near Helena																			
3-28-67	138							102		4.0					87	3	213	7.7	
9-11-68	46							122		2.4					105	5	202	7.5	72
024238 Little Cahaba Near Brierfield																			
10-28-68	80.8							104		3.0					138	3	279	8.1	
12- 5-66	65.2							102		2.6					135	2	267	8.1	
12- 7-69	152							109		2.0					109	15	222	8.5	54
1- 8-68	392							88		1.2					85	13	176	8.2	45
2-23-68	144							128		2.2					116	11	229	7.3	45
4- 2-68	128							126		2.0					114	11	224	7.7	59
4-17-68	177							120		2.2					112	10	217	8.4	66
6-24-68	127							156		1.8					139	11	262	7.5	73

4-32888 3-73

024240 Cahaba River at Centerville																			
1- 5-71	4,540	6.9	.98	14	4.6	4.1	1.9	50	13	4.4	0	1.7	55	76	54	8	122	7.0	
1-20-71	1,170	7.9	.33	16	5.9	4.8	1.4	54	16	2.6	0	0.7	92	87	64	11	150	6.5	45
2- 4-71	970	7.3	.40	19	6.4	4.6	1.1	77	16	4.4	.1	0.1	87	97	74	11	166	6.7	
3-16-71	4,080	7.6	.51	15	3.9	4.2	1.3	55	11	2.6	.1	0.4	67	73	54	9	120	6.8	59
4-16-71	1,050	1.7	.17	22	6.9	4.3	1.1	91	14	3.4	0	0	86	98	84	10	190	7.0	64
5-21-71	1,110	8.2	.11	21	7.1	3.3	1.0	90	14	1.6	.2	0.1	92	100	82	8	175	7.2	67
7- 8-71	4,280	12.0		18	5.5	4.8	2.3	73	14	3.0	.2	2.3	103	98	68	8	159	7.8	
8-19-71	753	5.4		25	9.0	3.6	1.2	110	16	2.4	.1	0.3	141	117	100	10	215	7.3	79
10- 4-71	394	7.2	.25	25	9.3	3.5	1.1	110	14	2.6	.1	0.2	126	118	100	9	210	7.5	
11-22-71	332	5.0	.01	33	10.0	3.3	1.6	130	19	5.2	.1	0.1	144	141	120	14	228	7.9	
12-20-71	1,990	8.3	.02	18	5.4	3.8	1.6	72	11	3.0	.1	0.1	92	86	67	8	149	7.7	55
2- 9-72		7.6	.02	14	4.8	3.0	1.2	55	14	2.4	.2	0.3		74	55	10	127	7.2	49
3-20-72	1,810							70		2.6					68	11	146	7.7	61
024250 Cahaba River Near Marion Junction																			
2- 1-49	A6,850	8.2	.18	7.8	3.0	3.9	0.6	32	9.5	3.0	0	0.9	59		32	6	81	7.7	
9-21-49	A1,090	6.9	.01	18.0	7.0	2.6	0.5	76	8.1	3.5	0	1.4		86	74	11	149	7.4	
8- 4-65	649							55		5.6					58	13		6.7	
Tallapoosa River Subbasin																			
024120 Tallapoosa River Near Heflin																			
1- 6-71	1,220	8.5	.28	2.2	1.1	2.2	0.8	13	3.2	1.8	.1	0.5	36	26	10	0	32	7.2	43
2- 3-71	768	8.2	.10	2.0	1.0	2.3	0.7	12	2.2	1.6	0	0.2	34	24	9	0	32	7.1	37
3-18-71	1,120	5.8	.23	2.6	1.0	2.1	0.6	12	1.4	2.0	0	0.4	24	22	11	1	29	6.8	50
4-20-71	846	8.7	.33	2.3	1.0	2.2	0.6	13	3.0	1.4	0	0.2	21	25	10	0	31	6.8	63
5-21-71	538							14		3.2					12	0	32	6.6	64
5-26-71	583	8.7	.41	2.0	1.0	2.1	0.6	130	1.0	1.2	0	0.7	30	23	9	0	30	6.4	66
6-30-71	748	8.7	.25	2.4	1.2	2.0	1.3	14	2.0	1.4	.1	0.3	29	26	11	0	34	6.8	74
8-11-71	583	4.2	.33	2.4	1.1	1.9	0.9	14	1.8	1.4	.1	0.4	25	21	11	0	33	6.6	74
9-23-71	326	10.0	.27	2.9	1.2	2.5	0.9	16	0.4	1.9	.1	1.0	38	29	12	0	42	7.0	73
10-28-71	239	6.4	.21	2.5	1.4	2.4	1.3	17	1.4	2.0	.1	0.5	26	26	12	0	40	6.4	64
12- 1-71	252	11.0	.36	2.9	1.2	2.5	1.0	17	0.4	2.0	0	0.2	31	29	12	0	40	6.9	45
12-21-71	674	10.0	.43	2.5	1.1	2.3	0.7	14	0.8	1.6	.1	0.5	36	27	11	0	38	6.9	54
1-27-72	653	10.0	.28	2.4	1.1	2.1	0.7	12	2.2	1.6	.1	0.1	24	26	11	1	35	6.8	48

A -- Daily Mean Discharge

4-32888 4-73

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Tallapoosa River Subbasin (Cont'd.)																			
024120 Tallapoosa River Near Heflin (Cont'd.)																			
2-24-72	762	9.0		2.8	0.9	2.0	0.8	12	8.0	1.6	.1	0.6	25	25	11	1	31	6.6	47
4- 5-72	725	8.8	.17	1.8	1.0	2.2	0.5	12	1.0	1.4	0		22	23	9	0	28	6.8	53
5-11-72	742	8.1	.30	2.1	1.0	2.0	0.6	12	2.2	1.6	0	0.7	31	24	9	0	30	6.4	64
6-22-72	835	8.2	.17	2.4	1.0	1.9	0.9	12	2.4	1.4	.1	0.7	20	25	10	0	30	6.4	68
024145 Tallapoosa River at Wadley																			
1- 7-71	3,080	7.7	.10	2.1	1.0	2.6	0.8	15	2.4	2.0	.1	0.3	36	26	9	0	32	7.3	42
2- 2-71	2,640	7.7	.16	2.0	0.9	2.3	0.7	12	2.0	2.2	0	0.2	33	24	9	0	32	6.5	39
3-18-71	4,080	4.4	.19	1.7	0.8	2.0	0.8	10	1.4	1.7	0	0.9	25	19	8	0	28	6.8	54
4-21-71	2,580	8.1	.15	1.6	0.9	2.1	0.7	12	0.4	1.6	0	0.1	22	21	8	0	30	7.5	
5-26-71	2,160	8.3	.32	1.6	0.9	2.1	0.6	12	1.2	1.4	0	0.7	30	23	8	0	27	6.9	72
4- 8-71	4,830							14		2.0					8	0	28	7.4	56
6-30-71	2,340	6.5	.06	1.3	1.0	2.1	1.5	11	2.6	1.4	.1	0.4	30	22	7	0	31	6.7	77
8-11-71	1,850	4.4	.37	1.8	1.1	2.0	0.9	12	2.0	1.8	.1	0.4	23	20	9	0	32	6.9	80
9-23-71	1,140	8.2	.27	2.0	1.0	2.2	1.1	12	2.0	2.2	.1	1.6	29	26	9	0	34	6.9	73
10-28-71	789	5.8	.34	2.5	1.3	3.0	1.3	15	2.4	2.4	.1	0.5	26	26	12	0	39	7.0	68
12- 2-71	1,180	9.3	.36	2.1	1.2	3.0	1.3	14	2.8	2.8		0.6	32	30	10	0	40	6.7	45

4-32888 3-73

12-21-71	2,970	8.6	.27	2.2	1.1	2.2	1.0	13	0.6	2.6	.1	0.9	37	25	10	0	37	6.6	55
1-27-72	2,960	9.2	.23	2.2	1.0	2.1	0.7	12	2.4	1.6	.1	0.1	22	25	10	0	32	7.3	53
2-24-72	3,770	8.0	.17	1.9	1.0	2.0	8.0	11	1.0	1.8	.1	1.0	26	23	9	0	31	6.9	50
4- 5-72	3,270	8.5	.23	1.6	1.0	2.2	0.6	12	1.2	1.6	0		23	23	8	0	27	6.6	57
5-11-72	2,600	6.3	.10	1.6	1.0	2.2	0.6	10	2.8	2.0	0	0.6	24	22	8	0	28	6.3	70
6-22-72	3,560	4.0	.08	2.0	0.9	2.1	1.1	13	1.6	1.2	.1	1.4	21	20	9	0	30	6.3	70
						024150 Hillabee Creek Near Hackneyville													
10-10-68	634							14		0.8					9	0	33	6.7	64
11-13-68	99							14		1.4					9	0	35	7.1	43
1- 8-69	187							12		2.0					8	0	32	7.1	37
3-25-69	747							11		1.1					8	0	31	7.3	52
5- 6-69	235							21		1.1					18	1	64	9.1	63
6-17-69	161							13		1.4					9	0	32	7.1	70
8- 7-69	100							16		0.9					8	0	33	6.8	73
9-11-69	53							21		0.7					11	0	39	7.5	68
						024185 Tallapoosa River Below Tallassee													
1-11-71	7,700	8.6	.035	2.2	1.1	3.6	1.1	17	2.8	2.2	.1	0.5	34	30	10	0	41	7.1	49
2- 2-71	7,700	7.9	.057	2.0	1.0	3.7	1.1	17	2.2	1.4	0	0.3	37	28	9	0	46	7.2	39
3-16-71	10,700	5.5	.10	2.2	1.0	3.2	1.1	14	2.0	2.0	0	0.1	27	24	10	0	36	6.9	53
4-19-71	6,000	8.4	.17	1.4	1.0	2.6	1.0	13	2.0	1.6	0	0.7	33	25	8	0	35	6.9	60
5-24-71	4,000	8.1	.10	2.0	1.0	2.8	1.0	12	2.2	1.8	0	0.8	33	26	9	0	35	6.6	63
6-28-71	7,770	7.3	.03	2.0	1.1	2.8	1.3	13	2.4	1.6	.1	0.2	27	25	10	0	35	6.5	66
8- 9-71	7,770	4.6	.03	2.7	1.1	2.7	0.9		4.8	1.8	.1	0.2	20	26	11	0	38	6.5	70
9-22-71	3,510	8.0	.06	2.4	1.2	2.9	0.9	18	1.0	2.2	.1	0.4	34	28	11	0	42	7.0	79
11-30-71	7,930	9.3	.13	2.2	1.1	3.8	1.0	18	0.4	2.8	.1	1.3	33	31	10	0	44	7.2	58
10-28-71	4,140	5.5	.20	2.2	1.2	4.1	1.2	18	1.2	2.4	.1	0.2	38	27	11	0	46	6.8	70
12-20-71	7,950	11.0	.08	2.2	1.2	3.7	1.1	16	0.4	2.2	.1	0.02	39	31	11	0	47	6.8	56
1-26-72	10,500	8.1	.13	1.8	1.0	2.8	1.4	11	3.6	2.0	.1	0.07	23	26	9	0	38	6.6	52
2-23-72	10,460	7.3	.21	2.8	0.6	2.7	1.6	10	4.4	2.6	.1	0.1	29	28	10	2	34	6.5	50
4-4-72	5,790	8.9	.12	1.6	1.0	2.8	1.1	10	2.8	1.8		0.3	22	26	8	0	37	6.6	
5- 9-72	3,510	6.3	.07	3.6	1.1	3.0	1.0	16	3.8	2.4	.1	0.2	31	30	14	1	45	5.6	64
6-21-72	4,310	7.2	0	2.8	1.2	3.1	1.0	17	1.8	2.2	.1	0.2	28	28	12	0	37	6.8	70

4-32888 3-73

Appendix Table 3--(Cont'd)

(Chemical constituents are in parts per million. Analyses are by U. S. Geological Survey.)

Date of Collection	Discharge (cfs)	Silica (SiO_2)	Iron in solution (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (CL)	Flouride (F)	Nitrate (NO_3)	Residue on evaporation (180°C)	Sum of determined constituents	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Tallapoosa River Subbasin (Cont'd.)																			
024190 Uphapee Creek Near Tuskegee																			
2- 2-71	672	8.3	.66	5.2	1.7	3.3	1.1	18	4.8	5.4	.1	3.2	41	42	20	5	61	6.7	
3-16-71	1,160	3.7	.68	6.3	1.1	2.2	0.8	18	4.6	3.2	.1	0.4	36	31	20	5	49	6.7	
4-19-71	242	6.8	.54	4.9	1.8	2.8	1.1	23	3.0	3.0	.1	0.4	40	35	20	1	54	6.8	
5-24-71	202	8.8	.20	5.0	2.0	2.7	1.1	26	2.6	1.8	0	0.6	44	38	21	0	56	6.9	77
6-28-71	34.6	8.3	.35	7.0	3.0	3.8	2.1	38	3.4	4.0	.1	0		51	30	0	83	6.8	90
8- 9-71		6.0	.42	6.3	2.1	2.6	1.4	28	4.4	3.4	.1	0.8	52	41	24	1	65	7.1	85
9-22-71	93	9.3	.30	5.9	2.8	3.6	2.0	34	4.0	4.4	.1	0.1	45	49	26	0	73	6.4	82
10-26-71	92	8.8	.40	8.6	3.9	6.0	2.9	44	4.8	6.4	.1	0.2	70	64	38	2	103	6.5	73
11-30-71	156	2.8	.27	4.8	2.5	3.7	2.7	30	2.8	5.4	.1	0.1	42	40	23	0	78	6.7	53
12-20-71	462	6.1	.23	3.9	1.7	3.0	2.2	18	3.8	4.0	.2	2.1	47	36	17	2	52	6.6	47
1-25-72	399	8.8	.40	5.9	1.8	2.9	1.2	16	6.8	6.4	0	0.2	36	42	22	9	60	6.3	48

4-32888 3-73

Appendix Table 4--Water quality parameters measured in Alabama.

	U.S.G.S.-GSA Partial (1)	U.S.G.S.-GSA Standard (2)	U.S.G.S.-EPA Field Analysis (3)	T.V.A. (4)	Ala. Water Improvement Commission (5)	Ala. Department of Public Health (6)
Time	X	X	X	X	X	
Discharge	X	X	X	Pt.1	X	
Silica		X		X		
Dissolved Iron		X		X		X
Dissolved Manganese		X				X
Calcium		X		X		
Magnesium		X		X		X
Sodium		X		X		X
Potassium		X		X		
Zinc						
Bicarbonate	X	X	X	X		
Carbonate	X	X	X			
Sulfate		X		X		
Chloride	X	X		X		X
Flouride		X				X
Nitrate		X		X		X
Dissolved Solids (@180°C)		X		X		X
Dissolved Solids (sum of constituents)		X				
Dissolved Solids (tons/acre-ft.)		X		X		
Total Solids						
Hardness	X	X		X		X
Non-Carbonate Hardness	X	X		X		
Specific Conductance	X	X	X	X		
pH	X	X	X	X	X	X
Dissolved Oxygen			X	X	X	X
Temperature	X	X	X	X	X	
Organic Nitrogen				X		
Ammonia Nitrogen				X		
Nitrate				X		
Phosphate				X		
Chemical Oxygen Demand						
Biochemical Oxygen Demand					X	
Turbidity					X	
Color					X	
Alkalinity (Total)					X	X
Alkalinity (phenolphalein)						X
Acidity						X
CO_2						X

4-32888 3-73

Appendix Table 5--Municipal waste disposal facilities in the Alabama River Basin, by subbasins, 1970.

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Alabama River Subbasin		
Camden	1,742			
West Plant		Single-Cell Lagoon	Red Branch, Rockwest Cr.	
South Plant		Single-Cell Lagoon	Town Branch, Pursley Cr.	
North Plant		Single-Cell Lagoon	Rockwest Creek	
Frisco City	1,286	Imhoff Tank	Randons Creek	1/
Marion	4,289	Standard Rate Filter	Boguechitto Creek	
Monroeville	4,846			
Broughton St. Plant		High-Rate Filter w/Cl_2	Limestone Creek	
Hudson Branch Plant		Aerated Lagoon	Hudson Branch	
Montgomery	133,386			
Catoma Plant		Bioactivation Process w/Cl_2	Catoma Creek	
Econchate Plant		High-Rate Filters w/Cl_2	Alabama River	
Towassa Plant		High-Rate-Filters w/Cl_2	Alabama River	
Pine Hill	697	One-Cell Lagoon	Cub Creek	
Prattville	13,116	High-Rate Filter w/Cl_2	Autauga Creek	
Selma	27,379	High-Rate Filter w/Cl_2	Alabama River	
Thorsby	944	Primary Imhoff Tank	Charlotte Creek	1/
		Cahaba River Subbasin		
Alabaster	2,642	Imhoff Tank	Buck Creek	1/
Birmingham	300,910	(See Jefferson County)		
Brent	2,093	Single-Cell Lagoon	Cahaba River	

4-32888 3-73

Appendix Table 5--(Cont'd)

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Cahaba River Subbasin (Cont'd.)		
Centreville	2,233	Single-Cell Lagoon (Only partially sewered)	Cahaba River	
Homewood	21,245	(See Jefferson County--Shades Valley)		
Hoover	1,393	(See Jefferson County--Patton Creek)		
Irondale	3,166	(See Jefferson County--Shades Valley)		
Jefferson County Sanitary Dist.				
Cahaba River		Activated Sludge w/Cl_2	Cahaba River	
Shades Valley		Activated Sludge w/Cl_2	Shades Creek	
Leeds Plant		Standard Rate Filter w/Cl_2	Little Cahaba River	
Trussville Plant		Standard Rate Filter w/Cl_2	Cahaba River	
Patton Creek		High-Rate Filter w/Cl_2		
Leeds	6,991	(See Jefferson County--Leeds)		
Marion	4,289	One-Cell Lagoon	Rice Creek	
Montevallo	3,719	Extended Aeration w/Cl_2	Shoal Creek	
Mountain Brook	19,474	(See Jefferson County--Shades Valley)		
Trussville	2,985	(See Jefferson County--Trussville)		
Vestavia Hills	8,311	(See Jefferson County--Patton Creek)		

4-32888 3-73

Appendix Table 5--(Cont'd)

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Tallapoosa River Subbasin		
Alexander City	12,358			
Christian Creek Plant		Modified Act. Sludge w/Chlorination	Christian Creek	
Coley Creek Plant		Modified Act. Sludge w/Chlorination	Branch of Coley Creek	
Dobbs Plant		Modified Act. Sludge w/Chlorination	Dobbs Creek	
Spring Hill Plant		Standard Rate Filter w/Chlorination	Elkahatchee Creek	
Sugar Creek Plant		Aerated Lagoon/Mech. Clarifier w/Cl_2	Sugar Creek	
Ashland	1,921			
Eastside		High-Rate Filter	Horsetrough Creek	2/
Westside		Imhoff Tank	Enitachope Creek	1/
Auburn	22,767			
Northside		High-Rate Filter w/Cl_2	Wright's Mill Creek	
Southside		Stage Filters w/Cl_2	Parkerson's Mill Creek	2/
Camp Hill	1,554	Single-Cell Lagoon	Sandy Creek	
Dadeville	2,847			
Outfall		No Treatment	Chattashofka Creek	1/
Plant No. 1		Single-Cell Lagoon	Sandy Creek	
Heflin	2,872	Single-Cell Lagoon	Cahulga Creek	
Lafayette	3,530	Five Raw Discharges	Kellem, Allen, Mill Creeks	1/
		0.018 MGD Imhoff Tank	Mill Creek	1/
Lineville	1,984	Septic Tanks		

4-32888 3-73

Appendix Table 5--(Cont'd)

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Tallapoosa River Subbasin (Cont'd)		
Notasulga	833	Septic Tank		1/
Opelika	19,027			
Plant No. 1		High-Rate Filters		3/
Plant No. 2		One-Cell Lagoon	Chewacla Creek	
Plant No. 3		Two-Cell Lagoon	Saugahatchee Creek	
Plant No. 4		One-Cell Lagoon	Rocky Branch	
Roanoke	5,251			
Plant No. 1		One-Cell Lagoon	Graves Creek	
Plant No. 2		One-Cell Lagoon	Trib. to High Pine Creek	
Tallassee	4,809	Two-Cell Lagoon in Parallel	Tallapoosa River	
Tuskegee	11,028			
Plant No. 1		One-Cell Lagoon	Uphapee Creek	
Plant No. 2		One-Cell Lagoon	Uphapee Creek	
Plant No. 3		One-Cell Lagoon	Calabee Creek	
Plant No. 4		One-Cell Lagoon	Calabee Creek	
Plant No. 5		One-Cell Lagoon	Calabee Creek	
Wadley	626	One-Cell Lagoon	Hutton Creek	
Wedowee	842	One-Cell Lagoon	Wedowee Creek	
		Coosa River Subbasin		
Anniston	31,533	Activated Sludge w/Cl_2	Choccolocco Creek	
Ashville	986	Septic Tank	Canoe Creek	1/
Attalla	7,510	Single-Cell Lagoon	Big Wills Creek	

Appendix Table 5--(Cont'd)

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Coosa River Subbasin (Cont'd)		
Blue Mountain	466	Standard Rate Filter	Cane Creek	
Bon Air	214	Septic Tank	Griffin Branch (Tallaseehatchee Creek)	1/
Calera	1,655	Extended Aeration (Air)	Buxahatchee Creek	
Cedar Bluff	956	Three-Cell Lagoon	Chatooga River (Coosa River)	
Centre	2,418	Single-Cell Lagoon	Terrapin Creek	
Childersburg	4,831			
West Plant		Two-Cell Lagoon (Parallel)	Coosa River	
Northeast Plant		One-Cell Lagoon	Coosa River	
Clanton	5,868	Standard Rate Filter	Walnut Creek	
Collinsville	1,300	Single-Cell Lagoon	Big Wills Creek	
Columbiana	2,248	One-Cell Lagoon	Waxahatchee Creek	
Fort Payne	8,435	Standard Rate Filter	Little Wills Creek	
Gadsden	53,928			
West Side Plant		High Rate Filter w/Cl_2	Coosa River	
East Side Plant		High Rate Filter w/Cl_2	Coosa River	
Glencoe	2,901	Single-Cell Lagoon	Coosa River	
Goodwater	2,172	Single-Cell Lagoon	Hatchett Creek	
Jacksonville	7,715	High-Rate Filter w/Cl_2	Tallahatchee Creek	

4-32888 3-73

Appendix Table 5--(Cont'd)

Municipality	Population 1970 Census	Waste Disposal Facility	Receiving Stream	Remarks
		Coosa River Subbasin (Cont'd)		
Oxford	4,361	City of Anniston Plant		
Pell City	5,381			1/
Plant No. 1		Primary w/Digestion w/Cl_2	Dye Creek	
Plant No. 2		Extended Aeration	Kelly	
Piedmont	5,063	One-Cell Lagoon	Nances Creek	
Rainbow City	3,107	One-Cell Lagoon	Big Wills Creek	
Springville	1,153	Primary--Septic Tank	Spring Branch	1/
Sylacauga	12,255			
Plant No. 1		High-Rate Filter w/Cl_2	Shirtee Creek	
Plant No. 2		Extended Aeration	Trib. to Tallaseehatchee	
Plant No. 3		Extended Aeration	Trib. to Tallaseehatchee	
Talladega	17,662			
Plant No. 1		High-Rate Filters w/Cl_2	Talladega Creek	
Brecon System		Standard-Rate Filter	Cheaha Creek	
Bemiston Plant		Standard-Rate Filter	Talladega Creek	
Wetumpka	3,786	Two-Cell Lagoon in Parallel	Coosa River	
Wilsonville	659	Extended Aeration	Bullets Creek	

1/ Inadequate.
2/ Overloaded.
3/ Inoperable -waste to lagoon.

Source: Alabama Water Improvement Commission

Appendix Table 6--Industrial waste disposal facilities in the Alabama River Basin, by subbasins, 1970.

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
		Alabama River Subbasin		
Gurney Manufacturing Co. Prattville, Autauga Co.	Prattville sewerage system	None		
Monroe Mills, Subsidiary of Vanity Fair Mill, Inc. Monroeville, Monroe Co.	Monroeville sewerage system	Monroeville sewerage system: aerated lagoon and a mechanical clarifier		Intrastate waters. Adequate
Ring Around Products, Inc. Prattville, Autauga Co.	Septic tank and absorption field	Acid neutralization and evaporation. Incineration of insecticide wastes with burial of residue.	No discharge	Intrastate waters. Adequate
Independent Lock Co., Selma, Dallas Co.		Discharge to municipal sewerage system.	Alabama via Selma Treatment Plant	Interstate waters. Inadequate.
Poultry Products Co., Inc. Montgomery, Montgomery Co.	Montgomery sewerage system	Pretreatment consisting of screening and partial recirculation of process waters. Municipal plant consists of trickling filter--activated sludge plant with chlorination.	Catoma Creek via Catoma Creek Treatment Plant	Intrastate waters. Adequate
Frosty Morn Meats, Montgomery, Montgomery Co.	Montgomery sewerage system	Pretreatment consisting of screening and grease removal. Municipal plant consists of trickling filter--activated sludge plant with chlorination.	Catoma Creek via Catoma Creek Treatment Plant	Intrastate waters Adequate.

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
R. L. Ziegler, Inc. Selma, Dallas Co.	Selma sewerage system	Selma sewerage system: high rate trickling filter and chlorination	Alabama River via Selma Treatment Plant	Interstate waters. Adequate
Whitfield Pickle Co. Montgomery, Montgomery Co.	Montgomery municipal sewerage system	Municipal system consists of a high rate trickling filter plant with chlorination.	Alabama River via Econchate Treatment Plant	Interstate waters. Adequate
Alabama Renderers, Inc. Montgomery, Montgomery Co.	Montgomery sewerage system: Econchate Plant	Pretreatment consisting of a clarifier for grease and solids removal. Municipal plant consisting of a high rate type trickling filter and chlorination.	Alabama River via Econchate Treatment Plant	Interstate waters. Adequate
Hammermill Paper Co., Selma, Dallas Co.	Treated with industrial wastes	Mechanical clarifier, 5-day retention basin and 60-day oxidation storage lagoon, diffusion in River.	Alabama River	Interstate waters. Adequate
Koppers Co.,Montgomery, Montgomery Co.	Montgomery sewerage system: Econchate Plant	Pretreatment for removal of oil, phenol, and solids. Municipal facilities consists of a high rate trickling filter plant and chlorination	Alabama River via Econchate Treatment Plant	Interstate waters. Adequate
MacMillan Bloedel United, Inc., Pine Hills, Wilcox Co.	Treated with industrial wastes	Mechanical clarifier, 90-day oxidation--storage lagoon, diffusion in river.	Alabama River	Interstate waters. Adequate

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Union-Camp Corp. Prattville, Autauga Co.	Treated with industrial wastes	Settling basin, 1,500 acres (2,260 MG capacity) of oxidation--storage lagoons, diffusion in river.	Alabama River	Interstate waters. Adequate
		Coosa River Subbasin		
A Model Threaded Rod Co. Columbiana, Shelby Co.	Columbiana municipal system	Chemical treatment facilities for metal plating wastes.	Tributary of Waxahatchee Creek	Intrastate waters. Adequate. Storage basin in design stage.
Alabama Plating Co. Vincent, Shelby Co.	Septic tank and absorption field	Chemical treatment facilities for metal plating wastes and a blending basin. (Under construction)	Tributary of Spring Creek	Intrastate waters. Adequate.
Anniston Army Ordnance Bynum, Calhoun Co.	Secondary treatment trickling filter.	None	Coldwater Creek	Intrastate waters. Federal Installation.
Avondale Mills Sylacauga, Talladega Co.	Sylacauga municipal system	Two aerated lagoons each having a water surface area of 2.4 acres, a 50-foot mechanical clarifier and two sludge lagoons each having a surface area of 1.0 acre.	Shirtee Creek	Intrastate waters. Adequate

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Wehadkee Yarn Mills Talladega, Talladega Co.	Talladega municipal system	Municipal facilities consist of a high rate trickling filter type plant with chlorination.	Talladega Creek via Talladega Treatment Plant	Intrastate waters. Adequate.
Big Wills Poultry, Inc. Division of Cagle's, Inc. Collinsville, DeKalb Co.	Treated with industrial wastes	Screening, grease and solids removal, an anaerobic lagoon having a water surface area of 7.0 acres	Big Wills Creek	Intrastate waters. Adequate.
Alpine Mills, Inc. Attalla, Etowah Co.	Municipal system	Discharge to municipal system	Big Wills Creek	Intrastate waters. Pretreatment needed.
Alabama Power Co. Gadsden, Etowah Co.	Septic tank and absorption field	Ash settling ponds.	Coosa River	Interstate waters. Adequate.
Beaunit Mills, Childersburg, Talladega Co.	Primary treatment Imhoff tank	Sedimentation, blending basin and 25-acre storage basin with controlled discharge and diffusion in river.	Coosa River	Interstate waters. Adequate.
Goodyear Tire and Rubber Co., Gadsden, Etowah Co.	Gadsden municipal system	Oil and solids removal equipment for the waste stream which is composed principally of cooling water and surface drainage. Facilities include an oil separation equipped with mechanical equipment for removal of oil and solids and a polishing basin.	Coosa River	Interstate waters. Adequate.

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Kimberly-Clark Corp. Childersburg, Talladega Co.	Primary treatment. Imhoff tank	Mechanical clarifier, 268-acre (960 MG capacity) oxidation-storage basin, diffusion in river.	Coosa River	Interstate waters. Adequate.
Southern Electric Generation Co., Maylene, Shelby Co.	Secondary treatment. trickling filter.	Ash settling ponds.	Coosa River	Interstate waters. Adequate
Keystone Metal Moulding Co. Clanton, Chilton Co.	Clanton municipal system	Chemical treatment facilities for metal finishing wastes including sedimentation basins.	Walnut Creek	Intrastate waters. Undetermined. Under study by commission.
Linen Thread Co., Blue Mountain, Calhoun Co.	Treated with industrial wastes	Treatment system is that of a slow rate type trickling filter plant.	Cane Creek	Intrastate waters. Inadequate.
Malone Hosiery Mill Ft. Payne, DeKalb Co.	Ft. Payne municipal system	Municipal facilities consist of a slow rate type trickling filter treatment plant.	Little Wills Creek via Ft. Payne treatment plant.	Intrastate waters. Adequate. Construction drawings approved by WIC. Discharge will be to Big Wills Creek.

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Monsanto Chemical Co. Anniston, Calhoun Co.	Anniston municipal system	Pretreatment including neutralization. Municipal plant is the activated sludge type including chlorination.	Choccolocco Creek via Anniston treatment plant.	Intrastate waters. Adequate
Republic Steel Corp. Gadsden, Etowah Co.	Gadsden municipal system	In-plant control, 2.5 acre sedimentation, blending, and oil removal basin.	Black Creek	Intrastate waters. Implementation program proceeding on schedule.
Shugart Hosiery Mill Ft. Payne, Dekalb Co.	Ft. Payne municipal system	Municipal facilities consist of a slow rate trickling filter treatment plant.	Little Wills Ck. via Ft. Payne treatment plant.	Intrastate waters. Adequate. Construction drawings approved by WIC.
National Gypsum Co. Anniston, Calhoun Co.	Septic tank and absorption field	Mechanical clarifier and two earthen basins.	Coldwater Creek	Intrastate waters. Inadequate
National Standard Co. Columbiana, Shelby Co.	Columbiana municipal system	Chemical treatment facilities for metal finishing wastes including sedimentation and storage basin.	Tributary of Waxahatchee Ck.	Intrastate waters. Adequate.

4-32888 3-73

Appendix Table 6- (cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Crown Textile Manufacturing Co., Talladega, Talladega Co.	Talladega municipal system	Pretreatment facilities consisting of blending and aeration basins. Municipal facilities consisting of a high rate trickling filter plant and chlorination.	Talladega Creek via Talladega Creek Sewage Treatment Plant	Intrastate waters. Adequate.
W.B. Davis Hosiery Mills, Inc., Ft. Payne, DeKalb Co.	Ft. Payne municipal system	Municipal facilities consist of a slow rate trickling filter treatment plant.	Little Wills Creek via Ft. Payne treatment plant.	Intrastate waters. Adequate. Construction drawings approved by WIC. Discharge will be to Big Wills Ck.
National Metal Manufacturing Co., Inc. Sylacauga, Talladega Co.	Sylacauga municipal system	In plant control and oil handling facilities.	Tributary of Shirtee Creek	Intrastate waters. Inadequate.
Ft. Payne Hosiery Mills, Inc., Ft. Payne, Dekalb Co.	Ft. Payne municipal system	Municipal facilities consist of a slow rate trickling filter treatment plant.	Little Wills Creek via Ft. Payne treatment plant.	Intrastate waters. Adequate. Construction drawings approved by WIC. Discharge will be to Big Wills Ck.

4-32886 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Hackney Corporation Columbiana, Shelby Co.	Columbiana municipal system	Chemical treatment facilities for metal plating wastes including sedimentation and storage basins.	Tributary of Waxahatchee Creek	Intrastate waters. Adequate.
Spring Valley Foods, Inc. Gadsden, Etowah Co.	Treated with industrial wastes	Screening, a primary mechanical clarifier, 2 anaerobic lagoons each having a water surface area of 5.0 acres, an aerated lagoon having a detention period of 18 hours, a secondary mechanical clarifier, and a polishing lagoon having a water surface area of 12.4 acres, and chlorination.	Coosa River	Interstate waters. Adequate.
Ellis Brothers Seed Co. Ellisville, Cherokee Co.	Septic tank and absorption field	Temporary facilities; basin for containment of wastes.	Terrapin Creek	Interstate waters. Adequate. Temporary facilities. Engineering studies underway for permanent facilities.
Bemis Co., Inc., Talladega Talladega Co.	Municipal system	Discharge to secondary municipal plant.	Talladega Creek via Municipal Plant	Intrastate waters. Adequate.

4-32888 3-73

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
		Cahaba River Subbasin		
Woodward Company, Pyne Mine, Bessemer, Jefferson Co.	Septic tank and absorption field	A closed system for recirculation of ore washing waters. The facilities include: a series of three settling basins; pumping and piping equipment for the collection and reuse of process waters as well as surface drainage in the production area.	No discharge	Intrastate waters. Adequate.
W. E. Belcher Lumber Co. Centreville, Bibb Co.	Septic tank and absorption field	Oil recovery facilities and a polishing basin.	Tributary of the Cahaba River	Intrastate waters. Adequate.
Olin Belcher Lumber Co. Brent, Bibb Co.	Brent municipal sewerage	Temporary facilities consist of hauling off all wastes.	No discharge from temporary facilities	Intrastate waters. Adequate--(temporary facilities). Permanent facilities being designed.
Mann Brothers Plating Co. Trussville, Jefferson Co.	Jefferson Co. sewerage system	Pretreatment consisting of chemical treatment of metal plating wastes. Municipal facilities consist of a slow rate trickling filter and chlorination.	Cahaba River via Trussville Treatment Plant	Intrastate waters. Adequate; however, operational difficulties have arisen and are under study by Commission.

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Siluria Mills, Siluria Shelby Co.	Community septic tank	Present facilities consist of a series of stabilization lagoons. Active plans underway for municipal treatment system which will also provide treatment for the mill wastes.	Buck Creek	Intrastate waters. Inadequate. Implementation schedule proceeding on schedule.
		Tallapoosa River Subbasin		
Ampex Corporation, Opelika, Lee Co.	Undetermined	Neutralization and pH control equipment	Pepperell Branch	Intrastate waters. Adequate.
Avondale Mills, Alexander City, Tallapoosa Co.	Alexander City sewerage system	Municipal facilities consist of an activated sludge type treatment plant with chlorination.	Coley Ck. via municipal sewage system	Intrastate waters. Adequate.
Beaver Creek By-Products, Inc., Wadley, Randolph Co.	Treated with industrial wastes	A 1.2 acre anaerobic lagoon, and two aerobic lagoons having water surface areas of 4.97 and 3.36 acres, respecitively.	Beaver Creek	Intrastate waters. Adequate.
Walley Clegg Poultry Processing Co., Ashland Clay Co.	Ashland municipal sewerage system	Existing high rate trickling filter plant overloaded and is to be replaced by an aerated lagoon system.	Horse-trough Creek via Ashland Treatment Plant	Intrastate waters. Inadequate. Application for federal grant pending. Under review by Commission

4-32888 3-73

4-32888 3-73

Appendix Table 6--(Cont'd)

Name of Industry and Location	Sewage Disposal Facilities	Industrial Treatment Facilities	Receiving Stream	Remarks
Loy Reynolds Meat Processing Co., Lafayette, Chambers Co.	Treated	Oxidation lagoon	Tributary of Chatahospee Creek	Intrastate waters. Adequate.
West Point Pepperell, Opelika, Lee Co.	Opelika municipal sewerage system	In plant facilities including a caustic recovery system, an aerated lagoon having a retention of 2.9 days, a trickling filter 39 feet in diameter and 28 feet deep, an aerated lagoon having a retention of 2.6 days and a 15 acre polishing lagoon.	Pepperell Branch	Intrastate waters. Adequate.
Russell Mfg. Co., Alexander City, Tallapoosa Co.	Alexander City municipal sewerage system	Aerated lagoon system including aerobic digester, mechanical clarifiers, and chlorination.	Sugar Ck. via municipal sewerage system	Intrastate waters. Adequate.
Uniroyal, Inc. Opelika, Lee Co.	Opelika municipal sewerage system	Two separate systems: system No. 1 consists of a 0.5 acre settling basin and system No. 2 consists of a 0.7 acre basin.	Chewacla Ck.	Intrastate waters. Adequate
C. F. Clegg, Inc., Heflin Cleburne Co.	Septic tank	Existing facilities consist of two oxidation lagoons.	Tallapoosa River	Interstate waters. Inadequate. New facilities under review by Commission.

Source: Alabama Water Improvement Commission

Appendix Table 7--Use classification of streams in the Alabama River Basin.

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
INTERSTATE WATERS OF THE ALABAMA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON MAY 5, 1967								
ALABAMA RIVER	MOBILE RIVER	Claiborne Lock & Dam			X			
ALABAMA RIVER	Claiborne Lock and Dam	Frisco Railroad crossing		X	X			
ALABAMA RIVER	Frisco Railroad crossing	Miller's Ferry Lock & Dam			X			
ALABAMA RIVER	Miller's Ferry Lock & Dam	Blackwell Bend (Six Mile Ck.)		X	X			
ALABAMA RIVER	Blackwell Bend(Six Mi. Ck.)	Jones Bluff Lock and Dam			X			
ALABAMA RIVER	Jones Bluff Lock & Dam	Pintlalla Creek		X	X			
ALABAMA RIVER	Pintlalla Creek	its source			X			
INTRASTATE WATERS OF THE ALABAMA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19,1967								
Little River	ALABAMA RIVER	its source		X	X			
Randons Creek	ALABAMA RIVER	its source			X			
Limestone Creek	ALABAMA RIVER	its source			X			
Big Flat Creek	ALABAMA RIVER	its source		X	X			
Pursley Creek	ALABAMA RIVER	its source			X			
Turkey Creek	ALABAMA RIVER	its source			X			
Pine Barren Creek	ALABAMA RIVER	its source		X	X			
Chilatchee Creek	ALABAMA RIVER	its source		X	X			
Boguechitto Creek	ALABAMA RIVER	its source			X			
Sand Creek	Boguechitto Creek	its source			X			
Unnamed Branch	Sand Creek	Marion Sewerage Treatment Plant						X

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE ALABAMA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967 (Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural Industrial Water Supply	Navigation	Treated Waste Transportation
Big Cedar Creek	ALABAMA RIVER	its source		X	X			
Valley Creek	ALABAMA RIVER	Selma-Summerfield Road			X			
Valley Creek	Selma-Summerfield Road	its source		X	X			
Mulberry Creek	ALABAMA RIVER	Plantersville		X	X			
Mulberry Creek	Plantersville	its source			X			
Big Swamp Creek	ALABAMA RIVER	its source		X	X			
Swift Creek	ALABAMA RIVER	its source		X	X			
Pintlalla Creek	ALABAMA RIVER	its source		X	X			
Autauga Creek	ALABAMA RIVER	Western boundary of Prattville			X			
Autauga Creek	Western boundary of Prattville	its source		X	X			
Catoma Creek	ALABAMA RIVER	Catoma Creek Sewage Treatment Plant, Montgomery						X
Catoma Creek	Catoma Creek Sewage Treatment Plant, Montgomery	its source			X			
Mortar Creek	ALABAMA RIVER	its source			X			
Valley Creek Lake	Within Valley Creek State Park			X	X			
Little River Lake	Within Valley Creek State Park			X	X			

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE CAHABA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON OCTOBER 16, 1972

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural and Industrial Water Supply	Navigation	Treated Waste Transportation
Cahaba River	Alabama River	Head of backwater from Millers Ferry Reservoir		X				
Cahaba River	Head of backwater from Wm. F. Dannelly Reservoir	Dam near U. S. Highway 280			X			
Cahaba River	Dam near U.S. Highway 280	Grant's Mill Road	X					
Cahaba River	Grant's Mill Road	U.S. Highway 11			X			
Cahaba River	U.S. Highway 11	its source			X			
Childers Creek	Cahaba River	its source			X			
Oakmulgee Creek	Cahaba River	its source			X			
Little Oakmulgee	Oakmulgee Creek	its source			X			
Rice Creek	Cahaba River	its source				X		
Waters Creek	Cahaba River	its source			X			
Old Town Creek	Cahaba River	its source			X			
Blue Outtee Creek	Cahaba River	its source			X			
Affonee Creek	Cahaba River	its source			X			
Haysop Creek	Cahaba River	its source			X			
Schultz Creek	Cahaba River	its source			X			
Little Cahaba River (Bibb County)	Cahaba River	its source (junction of Mahan and Shoal Creeks)			X			
Sixmile Creek	Little Cahaba River	its source			X			
Mahan Creek	Little Cahaba River	its source			X			
ShadesCreek	Little Cahaba River	its source			X			

4-32888 3-73

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE CAHABA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON OCTOBER 16, 1972
(Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Caffee Creek	Cahaba River	Its source			X			
Shades Creek	Cahaba River	Jefferson County Line			X			
Shades Creek	Jefferson County Line	Shades Creek Sewage Treatment Plant				X		
Shades Creek	Shades Creek Sewage Treatment Plant	Its source			X			
Rocky Brook	Shades Creek	Its source				X		
Buck Creek	Cahaba River	Cahaba Valley Creek			X			
Buck Creek	Cahaba Valley Creek	Its source				X		
Cahaba Valley Creek	Buck Creek	Its Source			X			
Peavine Creek	Buck Creek	Its source			X			
Oak Mountain State Park Lakes				X				
Patton Creek	Cahaba River	Its source				X		
Little Shades Creek	Cahaba River	Its source				X		
Little Cahaba River (Jefferson-Shelby Counties)	Cahaba River	Head of Lake Purdy	X					
Little Cahaba River (Jefferson County)	Head of Lake Purdy	Corporate Limits, City of Leeds			X*			

*Fish and Wildlife classification is an objective to be attained when the Jefferson County Commission completes its program under which the Leeds sewage discharge will be abandoned. This discharge will go to the Cahaba River Interceptor Sewer upon its completion. The classification of Fish and Wildlife is not currently being met.

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE CAHABA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON OCTOBER 16, 1972 (Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Little Cahaba River (Jefferson County)	Corporate Limits, City of Leeds	Its source				X		
Pinchgut Creek	Cahaba River	Its source				X		

INTERSTATE WATERS OF THE COOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON MAY 5, 1967

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
COOSA RIVER	Its junction with the TALLAPOOSA RIVER	Alabama Highway 14 bridge at Wetumpka			X			
COOSA RIVER	Alabama Highway 14 bridge at Wetumpka	Jordan Dam	X		X			
COOSA RIVER Lake Jordan	Jordan Dam	Mitchell		X	X			
COOSA RIVER Lake Mitchell	Mitchell Dam	Lay Dam	X	X	X			
COOSA RIVER Lay Lake	Lay Dam	Southern RR Bridge (1-1/3 miles above Yellowleaf Creek)	X	X	X			
COOSA RIVER Lay Lake	Southern RR Bridge (1-1/3 miles above Yellowleaf Creek)	River Mile 89 (1-1/2 miles above Talladega Creek)			X			
COOSA RIVER Lay Lake	River Mile 89(1-1/2 miles above Talladega Creek)	Logan Martin Dam	X		X			
COOSA RIVER Logan Martin Lake Lake Henry	Logan Martin Dam	McCardney's Ferry						

4-32888 3-73

Appendix Table 7--Cont'd

INTERSTATE WATERS OF THE COOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON MAY 5, 1967
(Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
COOSA RIVER Lake Henry	McCardney's Ferry	City of Gadsden's water supply intake			X			
COOSA RIVER Lake Henry	City of Gadsden's water supply intake	Weiss Dam powerhouse	X		X			
COOSA RIVER	Weiss Dam powerhouse	Weiss Dam			X			
COOSA RIVER Weiss Lake	Weiss Dam and Weiss Dam powerhouse	Spring Creek	X	X	X			
COOSA RIVER Weiss Lake	Spring Creek	Alabama-Georgia state line		X	X			
Terrapin Creek	COOSA RIVER	Alabama Highway 9	X		X			
Terrapin Creek	Alabama Highway 9	U. S. Highway 278			X			
Terrapin Creek	U. S. Highway 278	Borden Springs	X		X			
Terrapin Creek	Borden Springs	Alabama-Georgia state line			X			
Little River	COOSA RIVER (Weiss Lake)	Alabama-Georgia state line	X	X	X			
West Fork of Little River	Little River	Alabama-Georgia state line	X	X	X			
Chattooga River	COOSA RIVER (Weiss Lake)	Gaylesville		X	X			
Chattooga River	Gaylesville	Alabama-Georgia state line			X			
Spring Creek	COOSA RIVER (Weiss Lake)	Alabama-Georgia state line			X			

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE COOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Weoka Creek	COOSA RIVER (Lake Jordan)	Its source		X	X			
Chestnut Creek	COOSA RIVER (Lake Jordan)	Its source			X			
Hatchet Creek	COOSA RIVER (Lake Mitchell)	Socapatoy Creek			X			
Hatchet Creek	Socapatoy Creek	Central of Georgia RR		X	X			
Hatchet Creek	Central of Georgia RR	Its source	X	X	X			
Socapatoy	Hatchet Creek	Its source			X			
Weogufka Creek	Hatchet Creek (Lake Mitchell)	Its source		X	X			
Walnut Creek	COOSA RIVER (Lake Mitchell)	Interstate Hwy. 65			X			
Walnut Creek	Interstate Hwy. 65	Its source				X		
Waxahatchee Creek	COOSA RIVER (Lake Mitchell	Its source			X			
Buxahatchee Creek	Waxahatchee Creek	Its source			X			
Yellowleaf Creek	COOSA RIVER (Lay Lake)	Its source		X	X			
Tallaseehatchie Creek	COOSA RIVER (LAY LAKE)	City of Sylacauga's water supply reservoir dam			X			
Tallaseehatchie Creek	City of Sylacauga's water supply reservoir dam	Its source	X		X			

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE COOSA RIVER SUBBASIN ADOPTED BY THE WATER IMRPOVEMENT COMMISSION ON JUNE 19, 1967 (Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Shirtee Creek	Tallaseehatchie Creek	Its source						X
Talladega Creek	COOSA RIVER (Lay Lake)	Its source			X			
Mump Creek	Talladega Creek	City of Talladega's water supply reservoir dam			X			
Mump Creek	City of Talladega's water supply reservoir dam	Its source	X		X			
Kelly Creek	COOSA RIVER (Lay Lake)	Its source		X	X			
Choccolocco Creek	COOSA RIVER (Logan Martin Lake)	Its source			X			
Eastaboga Creek	Choccolocco Creek	Its source			X			
Cheaha Creek	Choccolocco Creek	Lake Chinnabee		X	X			
Lake Chinnabee	Within Talladega National Forest			X	X			
Coldwater Creek	Choccolocco Creek	Its source			X			
Snow Creek	Choccolocco Creek	Its source				X		
Dye Creek	COOSA RIVER (Logan Martin Lake)	County road one mile east of Pell City			X			
Dye Creek	County road one mile east of Pell City	Pell City sewage treatment plant						X
Cane Creek	COOSA RIVER (Logan Martin Lake)	Southern RR Bridge			X			

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE COOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967
(Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Cane Creek	Southern RR Bridge	Ft. McClellan Reservation		X		X		
Cave Creek	Cane Creek	Ft. McClellan Reservation			X			
Ohatchee Creek	COOSA RIVER (Logan Martin Lake)	Its source			X			
Tallahatchee Creek	Ohatchee Creek	Its source			X			
Canoe Creek	COOSA RIVER (Lake Henry)	Its source			X			
Big Wills Creek	COOSA RIVER (Lake Henry)	Mouth of Little Wills Creek near Alabama Highway 35			X			
Big Wills Creek	Mouth of Little Wills Creek near Ala. Hwy. 35	Its source	X		X			
Black Creek	Big Wills Creek (Lake Henry)	U. S. Highway 431				X		
Black Creek	U. S. Highway 431	Its source			X			
Coleman Lake	Within Talladega National Forest			X	X			
Sweetwater Lake	Within Talladega National Forest		X	X	X			
High Rock Lake	Within Talladega National Forest			X	X			
Hillabee Lake	Within Talladega National Forest		X	X	X			
Salt Creek Lake	Within Talladega National Forest			X	X			
Shoal Creek	Choccolocco Creek	Sweetwater Lake		X	X			

4-32888 3-73

Appendix Table 7--Cont'd

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
INTERSTATE WATERS OF THE TALLAPOOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON MAY 5, 1967								
TALLAPOOSA RIVER	ALABAMA RIVER	U. S. Highway 231			X			
TALLAPOOSA RIVER	U. S. Highway 231	Macon-Tallapoosa county line	X		X			
TALLAPOOSA RIVER	Macon-Tallapoosa county line	Thurlow Dam			X			
TALLAPOOSA RIVER	Thurlow Dam	Yates Dam	X	X	X			
TALLAPOOSA RIVER	Yates Dam	Martin Dam	X	X	X			
TALLAPOOSA RIVER (Lake Martin)	Martin Dam	Hillabee Creek		X	X			
TALLAPOOSA RIVER	Hillabee Creek	Alabama-Georgia state line			X			
LITTLE TALLAPOOSA RIVER	TALLAPOOSA RIVER	Alabama-Georgia state line line			X			
INTRASTATE WATERS OF THE TALLAPOOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967								
Oakfuskee Creek (Line Creek)	TALLAPOOSA RIVER	Its source			X			
Old Town Creek	Oakfuskee Creek (Line Creek)	Two miles downstream from U. S. Highway 29			X			

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE TALLAPOOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967

(Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Old Town Creek	Two miles downstream from U. S. Highway 29	Its source						X
Cubahatchee Creek	TALLAPOOSA RIVER	Its source		X	X			
Calebee Creek	TALLAPOOSA RIVER	Its source			X			
Uphapee Creek	TALLAPOOSA RIVER	City of Tuskeegee water supply intake			X			
Uphapee Creek	City of Tuskegee water supply intake	Opintlocco Creek	X		X			
Uphapee Creek	Opintlocco Creek	Its source			X			
Chinquapin Creek	Uphapee Creek	Its source	X		X			
Chewacla Creek	Uphapee Creek	Mahone Creek	X	X	X			
Chewacla Creek	Mahone Creek	Its source		X	X			
Chewochleehatchee Creek	Uphapee Creek	Chewacla State Park Lake			X			
Chewochleehatchee Creek	Chewacla State Park Lake	Its source	X		X			
Moore's Mill Creek	Chewochleehatchee Creek	Its source	X		X			
Sougahatchee Creek	TALLAPOOSA RIVER	County road two miles north of Loachopoka			X			
Sougahatchee Creek	County road two miles north of Loachopoka	its junction with Pepperell Branch				X		

4-32888 3-73

4-32888 3-73

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE TALLAPOOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967
(Cont'd)

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Sougahatchee Creek	its junction with Pepperell Branch	Opelika water supply reservoir			X			
Sougahatchee Creek	Opelika water supply reservoir	its source	X		X			
Pepperell Branch	Sougahatchee Creek	its source						X
Sandy Creek	TALLAPOOSA RIVER (Lake Martin)	Alabama Highway 49	X		X			
Sandy Creek	Alabama Highway 49	its source			X			
North Fork of Sandy Creek	Sandy Creek	its source			X			
South Fork of Sandy Creek	Sandy Creek	its source			X			
Little Sandy Creek	South Fork of Sandy Creek	Central of Georgia RR			X			
Little Sandy Creek	Central of Georgia RR	its source	X		X			
Elkahatchee Creek	TALLAPOOSA RIVER (Lake Martin)	Alabama Highway 63			X			
Elkahatchee Creek	Alabama Highway 63	Alabama Highway 22	X		X			
Elkahatchee Creek	Alabama Highway 22	its source			X			
Sugar Creek	Elkahatchee Creek	its source						X
Hillabee Creek	TALLAPOOSA RIVER	Sandy Creek			X			

Appendix Table 7--Cont'd

INTRASTATE WATERS OF THE TALLAPOOSA RIVER SUBBASIN ADOPTED BY THE WATER IMPROVEMENT COMMISSION ON JUNE 19, 1967

Stream	From	To	Public Water Supply	Swimming	Fish and Wildlife	Agricultural, Industrial Water Supply	Navigation	Treated Waste Transportation
Hillabee Creek	Sandy Creek	County road bridge 3 miles east of Hackneyville	X		X			
Hillabee Creek	County road bridge three miles east of Hackneyville	its source			X			
Hackney Creek	Hillabee Creek	its source	X		X			
Chatahospee Creek	TALLAPOOSA RIVER	its source			X			
Finley Creek	Chatahospee Creek	its source	X		X			
High Pine Creek	TALLAPOOSA RIVER	Alabama Highway 22			X			
High Pine Creek	Alabama Highway 22	its source	X		X			
Crooked Creek	TALLAPOOSA RIVER	Alabama Highway 9			X			
Crooked Creek	Alabama Highway 9	its source	X		X			
Horsetrough Creek	Crooked Creek	Alabama Highway 9			X			
Horsetrough Creek	Alabama Highway 9	its source						X
Wedowee Creek	LITTLE TALLAPOOSA RIVER	its source			X			
Cahulga Creek	TALLAPOOSA RIVER	U. S. Highway 78			X			
Cahulga Creek	U. S. Highway 78	its source	X		X			

BIBLIOGRAPHY

BIBLIOGRAPHY

Alabama, Agricultural Experiment Station, Auburn. Alabama's Statewide Comprehensive Outdoor Recreation Plan, 9 volumes, prepared by Auburn University Department of Agricultural Economics and Rural Sociology, sponsored by Alabama Department of Conservation, Auburn, Alabama, May 1970.

Alabama, Agricultural Experiment Station, Auburn. 100 Years--Alabama Crop, Livestock and Income Data, Auburn, Alabama, March 1968.

Alabama, Agricultural Experiment Station, Auburn. Agricultural Drought for Alabama, Bulletin 316, September 1959.

Alabama, Agricultural Experiment Station, Auburn. Participation in Outdoor Recreation in Alabama, Agricultural Economics Series 20, October 1970.

Alabama Crop and Livestock Reporting Service. Alabama Agricultural Statistics, Annual Reports for Selected Years, Montgomery, Alabama.

Alabama Department of Conservation and Alabama Forest Products Association. First Alabama Beaver Symposium, October 1967.

Alabama Department of Conservation and Natural Resources. Rare and Endangered Vertebrates of Alabama, June 1972.

Alabama Department of Education. Annual Report - 1969, Bulletin No. 2. Montgomery, Alabama.

Alabama Development Office. Industrial Development Reports, Annual Reports for Selected Years, Montgomery, Alabama.

Alabama Department of Industrial Relations. Alabama Employment Review - 1947-1964, Research & Statistics Division, Montgomery, Alabama.

Alabama Department of Industrial Relations. Basic Labor Market Information by County: Alabama, Selected Years, Montgomery, Alabama.

Alabama Forest Products Association. Forest Products -- 1970-1971 Directory, Montgomery, Alabama, July 1970.

Alabama Geological Survey. Use of Water in Alabama, 1970, With Projections to 2020, Information Series No. 42, 1972.

Alabama Resource Development Committee. Agribusiness in Alabama, Montgomery, Alabama, July 1970.

Alabama State Department of Health. Directory of Licensed Health Facilities, 1970, BLC-206, Montgomery, Alabama, 1970.

Auburn University, Extension Service. Forest Products Marketing In Alabama, Circular R-22, Auburn, Alabama, 1970.

4-32888 3-73

Auburn University, Extension Service. Livestock Marketing in Alabama, Circular R-24, Auburn, Alabama, 1970.

Auburn University, Extension Service. Vegetable Marketing in Alabama, Circular R-25, Auburn, Alabama, 1970.

Auburn University, School of Business. Industrial Use and Community Supplies of Water in Alabama, Research Series, Auburn, Alabama, January 1970.

Beltz, Roy C. Southern Pulpwood Production - 1970, U. S. Forest Service, Resource Bulletin SO-28, Southern Forest Experiment Station, New Orleans, Louisiana.

Federal Reserve Bank of Atlanta. Statistics on the Developing South, Atlanta, Georgia, May 1971.

Gilbert, Oscar E. Jr. Mineral Resource Map of Alabama, Geological Survey of Alabama Unpublished map and text.

Graham, Joe W. Annual Report, October 1, 1967--September 30, 1968, Alabama Department of Conservation, Division of Forestry, Montgomery, Alabama.

Graham, Joe W. Annual Report, October 1, 1968--September 30, 1969, Alabama Department of Conservation, Division of Forestry, Montgomery, Alabama.

Nixon, Richard. Economic Report of the President, Washington, D.C., 1970.

Stauffer, J. M. Annual Report-Alabama Forestry Commission--October 1, 1969--September 30, 1970, Alabama Forestry Commission, Montgomery, Alabama.

Stauffer, J. M. Forest Land Ownership Lists of 500 Acres or More as of July 1969, by Counties, Alabama Forestry Commission, 513 Madison Avenue, Montgomery, Alabama.

Stenitzke, Herbert S. Alabama Forests, U. S. Southern Forest Experiment Station, New Orleans, Louisiana, 1963.

U. S. Army Corps of Engineers. Review of Reports on Alabama-Coosa River System Georgia and Alabama, Volume 2, Appendixes I-IV, 1965.

U. S. Bureau of the Census. U. S. Census of Agriculture: 1950, Volume 1, Part 21, Washington, D. C., 1952.

U. S. Bureau of the Census. U. S. Census of Agriculture: 1954, Volume 1, Part 21, Washington, D. C., 1956.

U. S. Bureau of the Census. U. S. Census of Agriculture: 1959, Volume 1, Part 32, Washington, D. C., 1961.

U. S. Bureau of the Census. U. S. Census of Agriculture: 1964, Volume 1, Part 32, Washington, D. C., 1967.

4-32888 3-73

U. S. Bureau of the Census <u>U. S. Census of Agriculture; 1969, Alabama</u>, Washington, D. C., 1972.

U. S. Bureau of the Census. <u>United States Census of Population, 1960</u>, Volume 1, Part 2, Alabama, Washington, D. C., 1963.

U. S. Bureau of the Census. <u>United States Census of Population, 1970</u>, Advance Report, Volume 1, Part 2, Alabama, Washington, D. C., 1971.

U. S. Bureau of Mines. <u>Bureau of Mines Minerals Yearbook</u>, 1969.

U. S. Department of Agriculture. <u>Agricultural Statistics, 1970</u>, Washington, D. C.

U. S. Department of Agriculture. <u>Fact Book of U. S. Agriculture</u>, Misc. Publication No. 1063, Washington, D. C., 1970.

U. S. Department of Agriculture. <u>Farm Labor</u>, Monthly Reports for Selected Years, Washington, D. C.

U. S. Department of Agriculture. <u>Soils and Men</u>, Yearbook of Agriculture, 1968.

U. S. Department of Agriculture, Agricultural Research Service. <u>Wastes in Relation to Agriculture and Forestry</u>, Misc. Publication No. 1065, March 1968.

U. S. Department of Agriculture, Economic Research Service. <u>An Economic Base Study of the Alabama River Basin Area</u>, June 1971.

U. S. Department of Agriculture, Economic Research Service. <u>Selected U. S. Crop Budgets</u>, ERS 57, Volume 1, Southeast Region, Washington, D. C., April 1971.

U. S. Department of Agriculture, Graduate School. <u>Forward Balanced Growth,</u> Report on Lecture Series, November and December 1970.

U. S. Department of Agriculture, Statistical Reporting Service. <u>Agricultural Prices</u>, Selected Monthly Reports, Washington, D. C.

U. S. Department of Agriculture, and U. S. Department of Commerce. <u>Economic Activity in the United States by Water Resource Regions and Subareas, Historical and Projected 1929-2020</u>, Volumes 1 and 2, Washington, D. C., 1970.

U. S. Department of Commerce. <u>Area Measurement Reports, Alabama, 1960</u>, Washington, D. C., 1965.

U. S. Department of Commerce. <u>Survey of Current Business</u>, Volume 50, Number 8, Washington, D. C., August 1970.

U. S. Department of Interior, Federal Register. <u>National Register of Historical Places</u>, Volume 36, February 1971.

4-32888 3-73

U. S. Forest Service. Wildlife Habitat Management Handbook, Southern Region FSH 2609.23R, 1971.

U. S. Geological Survey. Water in Alabama, Geological Survey Water Supply Paper-1765, 1964.

U. S. Office of Business Economics. Personal Income by States Since 1929, August 1970.

U. S. Soil Conservation Service. Alabama Watershed Progress Report, 1971.

U. S. Soil Conservation Service. Atlas of River Basins of the United States, Second Edition, June 1970.

U. S. Soil Conservation Service. Conservation Needs Inventory, Alabama, Auburn, Alabama, June 1970.

U. S. Soil Conservation Service. Guide to Making Appraisals of Potentials for Outdoor Recreation Developments, 1966.

U. S. Soil Conservation Service. Proposed Multi-Objective Guidelines for Planning and Evaluation of Water and Land Resource Use. August 1971.

U. S. Soil Conservation Service. Public Law 566, Watershed Work Plans, Alabama, Various Years.

U. S. Southern Forest Experiment Station, New Orleans. A Forest Atlas of the South, U. S. Department of Agriculture, Forest Service, 1969.

4-32888 3-73