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Alabama's Land Resources :
*a review of the need for
critical areas protection*

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COVER PHOTO. Satellite photograph showing Mobile Bay and the estuarine region of Alabama. (NASA photograph)

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ALABAMA'S LAND RESOURCES: A Review of the Need for Critical Areas Protection

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INTRODUCTION

HISTORICALLY, LAND USE in the United States has been regulated by the ownership of a "bundle" of property rights. These rights provided exclusive control to the property owner and established economic gain as the guide for land use. This historical view of land gives the property owner the right to sell, lease, cultivate, mine, or otherwise use or abuse land as long as such use or abuse does not interfere with the property rights of neighboring land owners.

During the last quarter century the nation's resource base has been greatly affected by an increased population, greater mobility of people, and an increased urbanization and demand for development. These changes created a strong demand for public land use controls. Within the last decade, every state of the United States enacted some form of land use control. By September 1974, twenty-three states also had enacted or were preparing to enact a statewide comprehensive land use plan, see Appendix.

Examples of the controls found among the various states include: power plant locations, critical areas designation, coastal zone management, wetlands management, floodplains management, surface mining controls, and land use tax incentives.

Various state land use programs in existence indicate that environmental protection problems are a major concern of individual

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states. Providing protection for the environment and promoting a systematic pattern of development within even a small region of a state can be a big task. Yet, the possibility of resource depletion prompts action to achieve a balance between progress and environmental quality. Such a balance is necessary to maintain progress and to manage resources for the benefit of society. Thus, each state must consider the need for enactment of policies to meet specific and often peculiar needs. Concern for needs may result in parallel actions originating at the local, state, and national levels. In each case, interaction results when resource uses extend beyond the boundaries of various governmental jurisdictions.

Numerous national land use proposals have been defeated in both House and Senate Chambers in recent years. Actions from other levels of society include citizens on the "grass roots" level. Many individuals are beginning to realize that they are involved in the issue of land use. Developers, environmentalists, and people from all walks of life are becoming informed about what is happening on the state and national level concerning planning for land use. With Federal legislation pushing from the top and local activity stirring underneath, states are caught in a position that demands action. The State of Alabama may be near that position.

In addition to pressures for resource management from national and local levels, the Alabama legislature has considered a proposal to establish a Land Resource Management Commission.¹ The basis for such legislation apparently stems from a conviction by a segment of the population that vital information is needed to guide future actions related to use of Alabama's scarce, aesthetic and productive resources. Actions in surrounding states, the current lack of adequate resource management tools, and pending Federal legislation add to the concern by citizens for proper resource management in Alabama. Such factors have caused dissatisfaction by various groups in the State over exploitation of resources. Consequently, these groups and individuals have been motivated to examine the resources of the State with emphasis on areas of a fragile or critical nature.

The meaning of "fragile or critical resources" takes many dif-

¹ The Alabama Land Resources Management Act was introduced in the Alabama State Legislature on April 25, 1975. The Bill was not voted out of committee in the 1975 Legislative Session.

ferent forms. However, the definition more commonly accepted, and the one used in this study, assumed "critical" areas to be those of cultural, natural, or developmental importance which constitute significant regional or statewide concern. These are areas generally managed under more than one level of government. This broad definition could be broken down specifically into areas of environmental, developmental, agricultural, and recreational importance. Such areas include: coastal and inland wetlands; floodplains of lakes, streams, and rivers; certain soil types; rare or valuable ecosystems; wilderness areas and wild and scenic rivers; natural areas of aesthetic importance; recreational lands for future use; prime agricultural lands; open spaces between urban areas; historic sites; and areas of major public developments.

Objectives

In examining Alabama's resource base, several factors had to be investigated with regard to possible critical areas of the State. The overall objective of this study was to examine Alabama's resource base and lay the groundwork for future investigations in land use, specifically critical areas designation.

Specific objectives of the study were:

- (1) Determine the need for critical environmental developmental areas designation in the State of Alabama.
- (2) Develop a basis for studying critical areas in terms of their relative importance with regard to statewide concerns.
- (3) Define legal alternatives for critical environmental and developmental designation in Alabama.

Procedure

Concise data on land use in Alabama were not readily available for study. Therefore, the procedures used in several other states to define and locate critical areas were reviewed. This procedural review was followed by interviews with personnel in numerous governmental agencies and other professionals in resource related fields throughout Alabama. Agencies and resource specialty areas in which individuals were interviewed included:

Alabama Development Office
Alabama Coastal Area Board
Alabama Department of Conservation and Natural Resources

Alabama Office of The Attorney General
Alabama Agricultural Experiment Station
Alabama State Legislature
Alabama State Docks
Alabama Cooperative Extension Service
U.S. Army Corps of Engineers
USDA Soil Conservation Service
The Alabama Conservancy
Alabama Petroleum Council
Alabama Power Company
Dauphin Island Sea Lab

Problems related to critical areas, as well as recommendations for specific site designations, were obtained through these interviews. Simultaneously, requests for information on problems, costs, and results of specific land use programs in various states were made. These data were useful in determining the relevancy of specific site proposals and the probability of success in delineating critical areas.

Additional specific data were gathered on each site recommended for critical designation. Previous studies in particular areas were reviewed. Visual inspections were conducted on sites considered to have highest potential for inclusion in critical areas. Finally, all data on the various sites were examined to determine relative priorities in terms of need for action.

STATE AND FEDERAL PROGRAMS

Land use issues are not new. The main theme in a 1945 issue of *State Government* was land use as a challenge to the states (15). This publication indicated that the major thrust that year was conservation of agricultural production in rural America. Conservation of production was considered by *State Government* to be a burden for the state level of government. This was evidenced by an introductory statement to that 1945 issue.

Except where under the direct management of the federal government or where closely related to national defense or interstate commerce the use of the American land remains primarily in the custody of the states and their political subdivisions. The zoning powers exercised by counties and cities are state-derived, and the conservation of fish and wildlife, the regulation of private forestry practice, the formation of soil con-

ervation districts, and the control of livestock grazing on state and private lands are dependent upon state legislation and administration. The states under their general power to legislate on behalf of the public health and safety are able to deal directly with a variety of problems affecting land use, whereas federal jurisdiction is frequently indirect, often requiring state implementation.

The crux of emerging national legislation today follows the same general line of reasoning. States are provided with technical and financial assistance to encourage and support land use management on the state level. All 50 states have enacted some form of land management program. There is evidence to indicate many of these were enacted to take advantage of any available Federal funds. However, several states (Hawaii, Oregon, New York, New Jersey, and Maryland) have been innovative in solving internal land management problems (23).

Federal Legislation

Although many proposals for land use measures have been initiated in the U.S. Congress in recent years, only two have received strong consideration. These were a Senate Bill introduced by Senator Henry Jackson and a House Bill introduced by Representative Morris Udall (25). These proposals had essentially the same purpose, although significant differences appeared throughout the bills. The inherent function was encouraging state governments to take the initiative in managing the scarce resources within their jurisdictions. In so far as possible, responsibility for specific areas in the states was to be placed in the hands of local government officials.

One major difference in the House and Senate bills pertained to the amount of Federal funding to assist the states and the time period for funding. Representative Udall proposed a 6-year time table with \$500 million in grants made on a 75 percent Federal and 25 percent state matching basis. Senator Jackson's bill proposed \$800 million in funding and an 8-year time table, with grants under this proposal on a 90 percent Federal and 10 percent state matching basis. Under the Jackson bill, states would be free to set more stringent controls than the Federal sanctions, although no assurance was given that states and other agencies apart from the Federal level would be consulted prior to formulation of any

regulations. The Udall bill had no requirement on stringency; however, it did provide for consultation between Federal and state governments prior to the formulation of any regulations. Another contrast between the bills was the terminology used in reference to the role of local and state governments. The Jackson bill emphasized mandatory conditions throughout, with terms such as control, guide, and coordinate. The Udall bill appeared to lean toward hopeful cooperation among all levels of government. It emphasized terms such as consider, promote, and encourage.

Although the Senate has produced several land use bills, the legislature has yet to simultaneously review bills from both the Senate and House and formulate an acceptable proposal for Federal land use legislation. Federal land use related programs, however, have provided some incentive and guidance in certain areas. The Coastal Zone Management Program, the Clean Air Act, the Federal Water Pollution Control Act, and the National Disaster Protection Act (Flood Insurance Act) affect land use and generally are action programs as opposed to plans.

The Coastal Zone Management Program has been well received by most states and its success probably will be used as an indicator to determine future development of a national land use policy. The primary objective of the Coastal Zone Management Program is to provide states with Federal grants to develop and implement coastal land management processes.

State plans for maintenance and prevention of significant deterioration of air quality will also affect land use. The Clean Air Act is currently being reviewed for amendments which, if adopted, will indirectly determine land use patterns by specifying the degree to which clean air may be deteriorated. On this basis the Act may affect large-scale private and public development.

The Federal Water Pollution Control Act and the National Disaster Protection Act are also important in land use related policy decisions. Prevention of water pollution is so closely tied as to be almost inseparable from land use policy. Flood insurance through the National Disaster Protection Act already affects more than 22,000 communities across the country (9). To be eligible for this insurance, a community must control land use in flood hazard areas.

These and other policies are important in solving land use conflicts. Their sufficiency will be reflected by the enactment or lack of enactment of future policy in the land use arena.

Alabama's Legislative Activity

The major thrust for land use legislation in Alabama came in 1973, when the legislature passed House Joint Resolution 208 creating a six-member Environmental Land and Water Management Study Committee. Purpose of the Committee was established by the Resolution (6), as follows: "The Committee was created to study all facets of land resource management and land development regulation with a view toward ensuring that Alabama's land use laws provide the 'highest quality of human amenities and environmental protection consistent with a sound and economic pattern of planned development.' It is to recommend new legislation or amendments to existing legislation as are needed to achieve that goal."

As stated in the 1975 report by the Alabama Legislative Committee, the majority of the Committee recommended no new state land use legislation. As a result of a minority recommendation, however, the Alabama Land Resources Management Act (SB 84) was introduced in an effort to provide protection for critical areas within the State. This bill was not voted out of committee in 1975.

The 1975 legislature did provide continued support in two main areas, strip mining and coastal zone management. A new strip mining control bill, The Alabama Surface Mining Reclamation Act of 1975 (Act No. 551), was passed requiring (1) mined areas to be immediately planted with a grass covering, and (2) prevention of damage or injury to nearby persons or property from the use of explosives during mining operations. The bill also prohibits strip mining within 300 yards of an occupied dwelling or building, except with permission of the owner, and empowers the State Attorney General to act independently to enforce the act.

In 1973, the Coastal Area Act (Act No. 1274) was passed allowing Alabama to participate in the Federal Coastal Zone Management Program. An eight-member board, the Alabama Coastal Area Board, was established to administer the Coastal Zone Management Program. The Board composition was changed to nine members by a 1976 Legislative Act.

The express purpose of the Coastal Area Board (CAB) is to develop a comprehensive coastal area administrative program. Included in this program are: Identification of all the States' coastal resources; evaluation of coastal resources relative to quan-

tity, quality, and capability for present and future use; a determination of present and potential uses and present conflicts in use of each coastal resource; inventory and designation of areas of particular concern within coastal areas; broad guidelines on priority of uses in particular areas; and provisions for adequate consideration of the local, regional, state, and national interest involved in the locating of facilities for development, generation, transmission, and distribution of energy, transportation, and other public services.

There has been extensive effort to develop a program that will provide proper management of the coastal zone resources. Since its initiation, the CAB received Federal grants totaling \$450,000 (1976 grants included), which have been awarded several agencies for the purpose of establishing a basis for implementing Alabama's Coastal Areas Act. This Act also established a permit system for development in the coastal zone. However, implementation of the program depends on a proper inventory of the resource base in the coastal zone. The Board was reorganized by legislation in 1976 in an effort to overcome internal problems of function.

Problem areas within the coastal zone identified by the CAB included unregulated development in wetlands, storm damage and flooding, shoreline erosion, and increased competition among industrial, commercial, agricultural, and residential developers for a limited amount of coastal land (9).

Currently, existing data for 10 key areas are being gathered by the CAB, for use in developing broad policy goals within each of the 10 areas: industrial development, commercial development, residential development, recreational resources, mineral extraction, transportation, navigation, waste disposal, fisheries, and agriculture. Decision-making for the economic and social benefit of the State should be greatly enhanced once these broad policy goals are specified.

CRITICAL AREAS REVIEW

Recommendations for designating critical areas within a state generally are made on the basis of specific findings of a study committee². Recommendations for Alabama that follow are based on data obtained from a field interview of knowledgeable people, relevant literature reviewed, and the descriptive analyses in this section.

² Hawaii and Wyoming are well known for work in this area.

Natural Resource Areas

Specific sites recommended by individuals interviewed generally were representative of a broader resource area. The broader areas were emphasized throughout this study. General areas recommended for consideration by professionals in the field interview were:

- Prime agricultural land
- Floodplains
- Recreational areas
- Estuarine region
- Spoil areas
- Natural phenomena
- Wild and scenic rivers
- Wilderness areas
- Historical areas
- Major developments

Numerous specific sites could be classified in each of the recommended areas. However, there was significant variation with respect to the number of sites within each major category. A brief description of recommended areas is provided below, followed by reviews of specific sites selected on basis of the area description.

Prime Agricultural Land

Of the 33,029,760 surface acres in Alabama, some 29 million are used for agricultural and forestry purposes (3). Prime agricultural land is defined (21) as "land that can be cultivated indefinitely with few hazards and limitations or requiring only moderate conservation practices." Normally, these characteristics fit what is referred to as Class I land. Soils in Class I are deep, generally well-drained, and easily worked. They are either fairly well supplied with plant nutrients or highly responsive to applications of fertilizer. Erosion hazards (wind and water) are low on these nearly level soils.³ These characteristics make Class I land well suited to a variety of plant life.

³This definition was accepted for this report. A more detailed definition of "Prime Agricultural Lands" may be found in a USDA advisory prepared by the Land Inventory and Monitoring Division (LIM) of the Soil Conservation Service (*Advisory LIM-12, LIM-Task Force Report USDA, SCS, November 1974, revised April 1975*).

Prime agricultural land, defined in terms of Class I land, can be used for multiple purposes, such as wildlife, recreation, and watershed management. However, such use priorities as crop production and forestry should be specified if a critical designation is made. Other land classes, such as II, III, or even some IV, may in some places fit the prime definition. This is especially true of Class II land, which is cultivated indefinitely in many localities. However, since a limited amount of Class I land does exist in Alabama, the designation of it as prime land was accepted.

Only 3 percent, or 830,653 acres, of the land area of Alabama is considered Class I land. The 1970 *Alabama Conservation Needs Inventory* (26) revealed that of the 830,653 acres of Class I land, 477,291 acres were used for cropland, 109,622 for pastureland, 208,600 for forest land, and 35,140 acres for other land. Class II lands account for an additional 19 percent of Alabama lands. These two classes together encompass a fifth of the State land now used for agriculture and forestry.

Floodplains

Floodplains are those areas along streams formed by recurring floods over a long period of time. Floodwater damages caused by excess rainfall and runoff are estimated to amount to millions of dollars annually to agricultural land as well as urban and developed land in Alabama (21). Floodwater damages reportedly contribute to a reduction in the farming of fertile bottomland acres and to extensive damages to industrial, commercial, and residential properties (1).

The passage of the Watershed Protection and Flood Prevention Act (P.L. 566) in 1954 gave rural and urban communities help in preventing unchecked erosion and flooding. In 1966, a Presidential Task Force on Federal Flood Control Policy recommended that flood control be established under state and local authority. Alabama's Comprehensive Land Management and Use Program in Flood-Prone Areas Act (1958, supplemented 1973) provided counties "power to enact zoning, subdivision, building codes, and health regulations in order to protect the community against injuries caused by floods, i.e., the general and temporary condition of partial or complete inundation of normally dry land areas" (7). This power applies only to the area under county jurisdiction, outside the corporate limits of municipalities, and within areas determined to be flood prone. But there is no legislation at statewide

level dealing *per se* with municipal land use control over flood hazard areas. However, some municipalities have included flood plain management in their existing land use control programs. The lack of controls has been attributed, in part, to the inconsistency of statewide planning. Because of the multijurisdictional nature of floodplains, it is difficult to place controls at the county or municipal level. Consistency of statewide planning should provide cooperation among jurisdictions for thorough controls in this area.

The Soil Conservation Service (SCS), under the Small Watershed Program (officially known as the Watershed Protection and Flood Prevention Act), is heavily involved in improving Alabama's flood-prone areas. There have been 72 applications for watershed controls approved since 1955. Eight had been completed by June 1976, with 23 approved for operation and 7 authorized for planning (13). Also, four river basins studies had been authorized: (1) Alabama River Basin, (2) Black Warrior River Basin, (3) Tombigbee River Basin (revised study), and (4) Northeast Gulf River Basin.

The SCS program has provided technical, financial, and credit assistance to local sponsoring organizations in planning and installing improvements in watersheds of less than 250,000 acres. Larger drainage basins fall under the authority of the Corps of Engineers.

Recreational Areas

Recreational facilities within the State are numerous and widely dispersed. The latest and most complete study undertaken in the Alabama recreation field is *Alabama's Statewide Comprehensive Outdoor Recreation Plan*, Vol. I, 1975 (2). This publication covers all aspects of outdoor recreation and in so doing reveals relevant information for purposes of this study.

The total area involved in recreational use in Alabama is 4,079,138 acres (4,019,760 land acres and 59,378 water acres), which is approximately 12.3 percent of the entire surface area of the State. Included in the area used for recreation are some 3 million acres of hunting land, which is largely multiple-use land.

Rapid rises in citizen affluence and awareness of natural features in the State have resulted in a large demand for recreational areas. Areas in existing facilities such as State and National Parks and Forests in Alabama are not expected to vary greatly in the

foreseeable future. However, the number of additional private recreational areas is expected to increase substantially.

Estuarine Region

Estuaries include bays, bayous, salt marshes, lagoons, tidelands, coastal zones, and other areas where salt water and fresh water meet and mix. The justification for designating these areas as environmentally critical areas lies in their productivity. They are nursery, spawning, and feeding grounds for shrimp, oysters, crabs,

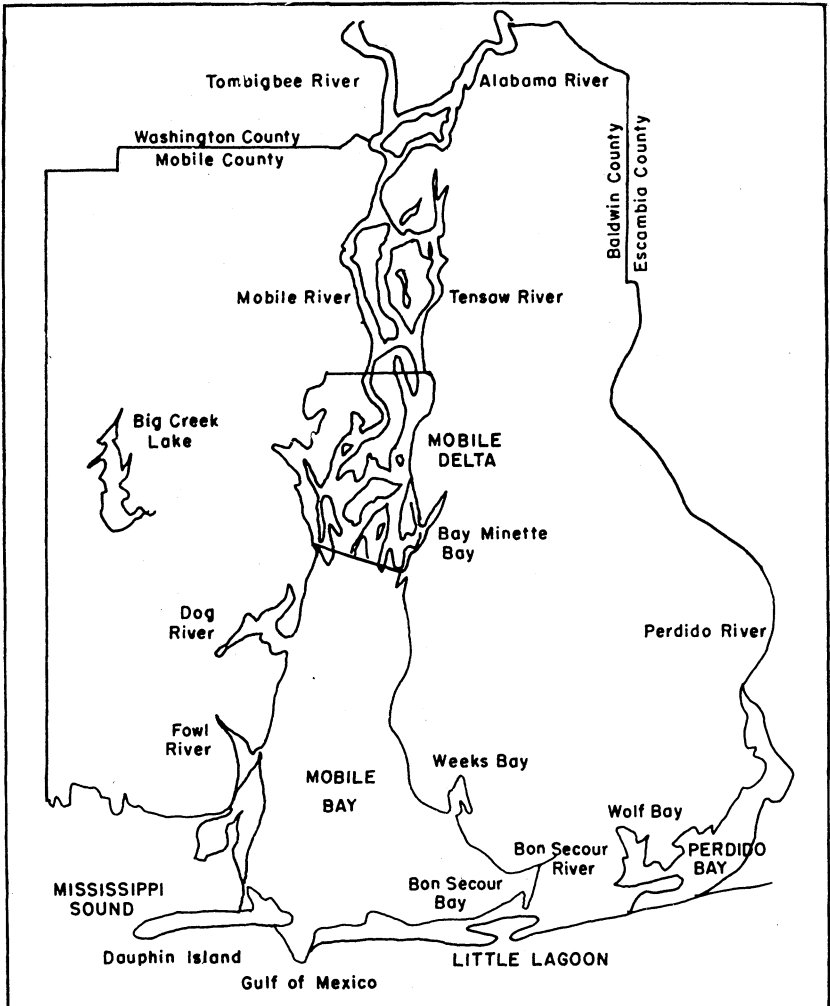


FIG. 1. Estuarine region of Alabama as defined for this report.

fish, and other species utilized by man. In 1969 alone, the estuarine dependent shrimp, oysters, crabs, croakers, and mullet that were landed had a dockside value of \$9,905,737 (17). The estuaries also are essential for waterfowl and other birds.

Estuaries are highly productive and valuable to the State's economy. Economic value of the estuarine region is revealed by analyses of the five specific Alabama estuaries shown in Figure 1 — Mississippi Sound, Mobile Bay, Mobile Delta, Perdido Bay, and Little Lagoon. These areas are divisible for analytical purposes (17), but are in actuality segments of the whole, referred to as the estuarine region in the table, pages 16-17.

The *Cooperative Gulf of Mexico Estuarine Inventory* (17) provided a thorough summary and sets the background for justification when it states:

The Alabama estuarine study area has 387,353 acres of open water, a volume of 3,833,489 acre-feet at mean high water, 34,614 acres of tidal marsh, 433 miles of bay and open water shoreline, 306.8 miles of streams, 3,064 acres of natural oyster reefs, approximately 924 acres of leased oyster bottoms, and 1,050 acres of riparian bottoms used to grow oysters. In July 1970, there were 23 sources of municipal waste and 31 sources of industrial waste that discharged a minimum total of 827.3 million gallons of effluents daily into the estuaries and nearby contributory streams. The effluents had a total estimated population equivalent of 632,190. There were 73,584 acres of estuarine water permanently closed to the harvest of shellfish, 143 miles of navigation channels, and 2,152 acres of emergent spoil banks and other filled areas in the estuaries in 1970. Total human population of Mobile and Baldwin counties in 1960 was 366,400. It is expected to increase to 629,000 by the year 1995.

Other than the natural aspects of the estuaries, they are valued for their support of aquatic life upon which commercial fishing thrives. They are also valued for use in recreational activities, such as sport-fishing, swimming, boating, and skiing.

Despite their value in the natural state, estuaries are being filled for real estate development and becoming dumping sites for waste products. The demand for the use of these areas continues to grow as the surrounding human population increases. Increased demand for use of the estuarine region may simultaneously result in increased abuse.

SELECTED DATA ON PHYSICAL CHARACTERISTICS OF ALABAMA ESTUARINE
REGIONS, FROM 1971 COOPERATIVE GULF OF MEXICO
ESTUARINE INVENTORY

Mobile Bay Estuary

Total area of open water (MHW).....	264,470 acres
Area 0 to 3.5 feet deep ¹	34,000 acres
Area 3.5 to 6.5 feet deep ¹	27,000 acres
Area 6.5 to 10.5 feet deep ¹	146,000 acres
Area 10.5 to 14.5 feet deep ¹	47,500 acres
Area 14.5 to 18.5 feet deep ¹	5,600 acres
Area 18.5 to 30 feet deep ¹	2,100 acres
Area over 30 feet deep ¹	2,270 acres
Average water depth (MHW).....	9.74 feet
Volume of open water (MHW).....	2,585,446 acre-feet
Diurnal tide range.....	1.0 to 1.6 feet
Area of tidal marsh (MHW).....	6,224 acres
Length of shoreline of bays.....	142.4 miles
Length of streams.....	75.7 miles
Number and length of bridges.....	8—0.5 mile
Number and length of navigation channels.....	9—57.6 miles

Mobile Delta Estuary

Total area of open water (MHW).....	20,323 acres
Area 0 to 1.5 feet deep ¹	4,860 acres
Area 1.5 to 3.5 feet deep ¹	4,280 acres
Area 3.5 to 6.5 feet deep ¹	930 acres
Area 6.5 to 10.5 feet deep ¹	550 acres
Area 10.5 to 14.5 feet deep ¹	820 acres
Area 14.5 to 18.5 feet deep ¹	3,840 acres
Area 18.5 to 30 feet deep ¹	4,470 acres
Area over 30 feet deep ¹	573 acres
Average water depth (MHW).....	10.84 feet
Volume of open water (MHW).....	166,368 acre-feet
Diurnal tide range.....	1.1 to 1.5 feet
Area of tidal marsh (MHW).....	15,257 acres
Length of shoreline of bays.....	55.4 miles
Length of streams.....	209.2 miles
Number and length of bridges.....	18—9.7 miles
Number and length of navigation channels.....	5—23.7 miles

Mississippi Sound (Ala.) Estuary

Total area of open water (MHW).....	92,702 acres
Area 0 to 1.5 feet deep ¹	8,195 acres
Area 1.5 to 3.5 feet deep ¹	10,483 acres
Area 3.5 to 6.5 feet deep ¹	15,095 acres
Area 6.5 to 10.5 feet deep ¹	22,540 acres
Area 10.5 to 14.5 feet deep ¹	22,067 acres
Area 14.5 to 18.5 feet deep ¹	14,322 acres
Average water depth (MHW).....	10.09 feet
Volume of open water (MHW).....	935,686 acre-feet
Diurnal tide range.....	1.1 to 1.7 feet
Area of tidal marsh (MHW).....	11,762 acres
Length of shoreline of bays and islands.....	125 miles
Length of streams.....	21.9 miles
Length of shoreline having tidal marsh.....	101 miles
Number and length of bridges.....	7—2.3 miles
Number and length of navigation channels.....	8—27.3 miles

Continued

SELECTED DATA ON PHYSICAL CHARACTERISTICS OF ALABAMA ESTUARINE
REGIONS, FROM 1971 COOPERATIVE GULF OF MEXICO
ESTUARINE INVENTORY (Continued)

Mississippi Sound (Ala.) Estuary (continued)

Area of some major named islands	
Mon Louis Island (tidal marsh only).....	3,944 acres
Isle Aux Herbes.....	699 acres
Barton Island.....	88 acres
Marsh Island (Portersville Bay).....	68 acres
Marsh Island (Grand Bay).....	62 acres
Big Island.....	35 acres
Cat Island.....	23 acres

Perdido Bay Estuary

Total area of open water (MHW).....	17,271 acres
Area 0 to 1.5 feet deep ¹	1,215 acres
Area 1.5 to 3.5 feet deep ¹	3,563 acres
Area 3.5 to 6.5 feet deep ¹	2,877 acres
Area 6.5 to 10.5 feet deep ¹	4,721 acres
Area 10.5 to 14.5 feet deep ¹	3,683 acres
Area 14.5 to 18.5 feet deep ¹	1,067 acres
Area over 30 feet deep ¹	145 acres
Average water depth (MHW).....	7.86 feet
Volume of open water (MHW).....	135,677 acre-feet
Diurnal tide range.....	0.5 foot
Area of tidal marsh (MHW).....	1,072 acres
Length of shoreline of bays.....	91.5 miles
Length of shoreline having tidal marsh.....	10.4 miles
Number and length of bridges.....	3—1.0 mile
Number and length of navigation channels.....	2—19.8 miles

Summary of Region

Area of water (MHW).....	397,353 acres
Volume of water (MHW).....	3,833,489 acre-feet
Area of tidal marsh (MHW).....	34,614 acres
Filled areas.....	2,059 acres
Length of streams.....	306.8 miles
Length of shoreline (excluding streams).....	433 miles
Length of completed navigation channels.....	128.4 miles
Stream discharge (average annual)	
Mobile Bay (gauged).....	58,761.6 cfs
Perdido Bay (gauged).....	937.1 cfs
Area of oyster beds (public and private).....	5,038 acres
Commercial fishery development (1969)	
Number of firms.....	67
Number employed at peak of season.....	1,470
Man-years.....	1,014
Dockside value of fishery products.....	\$10,557,425
Gross wholesale value of processed products.....	\$17,616,400
Population of coastal counties (1968).....	375,300
Area permanently closed to shellfish harvest.....	72,616 acres

¹ Mean low water. Area at mean low water and mean high water is approximately equal.

SOURCE: *Description of Alabama Estuarine Areas—A Gulf of Mexico Estuarine Inventory*, Marine Resources Bull., Vol. 6. Alabama Department of Conservation and Natural Resources.

Paper mills, chemical plants, steamship lines, shipyards, and other heavy industries that are attracted to the water supply, port facilities, and other desirable factors of the Mobile area may be detrimental to the estuaries. The area needs specific management to protect this valuable asset.

It is noted that the area specified above as being in Alabama estuaries does not coincide with the area defined as the Alabama coastal area by the 1976 State Legislature. In that legislation (S.B. 501), an estuary was defined as "that part of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage." The coastal area was further defined as that land surface area that extends upward to a contour line 10 feet above mean sea level. This contour follows the coast, bay, and river shores in Alabama from the Mississippi state line to the northern Mobile and Baldwin County boundaries and finally to the Florida state line. There are several geographic locations in Mobile and Baldwin counties where the 10-foot contour line is quite close to the shore line. Estuarine characteristics still exist in those areas. In addition, land uses in those areas will impact on the estuaries. Thus, a discrepancy exists between the area of concern expressed in this report and that of the 1976 Alabama Legislature.

Spoil Areas

Officials at the Alabama State Docks view a shortage of spoil areas as a threatening situation within the next 10 years (10). Unless new spoil sites are approved, those areas now used will reach capacity in approximately 8 years.

Spoil from river dredging is currently placed in one of several places. The main areas are on Blakely and Pinto Islands. Approval was recently granted for additional spoil usage in the Pinto Pass area, and temporary easements have been obtained in an area west of Telegraph Road and south of Three Mile Creek (Illinois Central Gulf). At present, only spoil from ship channel dredging can be dumped in the bay.

Alternatives include: (1) development of a spoil area in Polecat Bay, (2) the formation of islands for spoil areas in the Mobile Bay, and (3) hauling spoil out into the Gulf and dumping it. Polecat Bay appears to be the most logical place for a spoil area, in the opinion of those handling the spoil. A study on the feasibility of forming islands in Mobile Bay as spoil areas was recently com-

pleted by the Corps of Engineers. Spoil dumpage in the Gulf currently is prohibited.

The issue is compounded by the productivity of the areas being filled. Spoil sites are included in the estuarine area previously discussed. Thus, the problem becomes a dilemma between the functioning of the State Docks and the preservation of the estuarine region. The Corps of Engineers is conducting a study on new ways to compact spoil which may prove beneficial, but will only curb the immediate problem. The question of the relative importance of these opposing forces to the State must be resolved.

Natural Phenomena

Natural areas are defined in terms of unusual or exemplary biological habitats, geologic features, or hydrologic locations. These type areas are representative of natural phenomena that are valued for their recreational and aesthetic qualities. These areas also represent opportunities for biological and geological studies of unique environments. Examples of such areas in Alabama include Shelta Cave (Huntsville), Cathedral Caverns (Marshall County), the Bald Rock Environmental Study Area (near Wadley), and other common sites such as natural bridges, waterfalls, and natural springs.

The outstanding characteristic justifying a critical designation is the sensitivity of these areas to development. Once development intrudes, the essential characteristics are destroyed and the phenomena are lost and not replaceable.

Some natural areas have specific characteristics in that they contain rare or endangered plant or animal species. Congress, in 1973, passed the Endangered and Threatened Species Conservation Act (P.L. 93-205). Its purposes were "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, protected, or restored; to provide a program for the conservation, protection, restoration, or propagation of such endangered species and threatened species; and to take such steps as may be appropriate to achieve the purposes . . . of this section" (4).

Volume 18 of *Alabama's Statewide Comprehensive Outdoor Recreation Plan* contains a thorough study of Alabama's natural sites, including the rare and endangered species in the various areas. Also included in this volume are recommendations for a state program for the protection of natural phenomena.

Wild and Scenic Rivers

The National Wild and Scenic Rivers Act of 1968, revised in 1973, states the intent of Congress in Section 1:

... certain selected rivers of the Nation with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values shall be preserved, in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declared that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes (5).

The committee performing the study leading to the passage of the Act reviewed 650 recommended watercourses. Their review resulted in naming 67 waterways for further study before recommending legislation for the establishment of the Act. The National Wild and Scenic Rivers Act initially contained 8 designated rivers and 27 watercourses specified for detailed study. None of Alabama's 13 recommended watercourses, Figure 2, were among the 35 selected. However, the 1969 Regular Session of the Alabama Legislature designated "Little River south of the State Highway 35 Bridge to the mouth of the Canyon" (5) as a State Wild and Scenic River.

In the interim between the passage of the national act and December 1974, Little River was the only watercourse that was so designated. During this period, a thorough study of Alabama's potential wild and scenic rivers was conducted (5).

In January 1975, the President signed two Congressional Bills authorizing a study for the Cahaba River and West Fork Sipsey as potential wild and scenic rivers. The Forest Service is expected to begin these studies in 1976 (11). Hatchet Creek in Coosa and Clay counties and the Escatawpa River in Mobile and Washington counties have been recommended for study as potential wild and scenic waterways (11). Bills were submitted to Congress for this purpose, but no action has yet been taken.

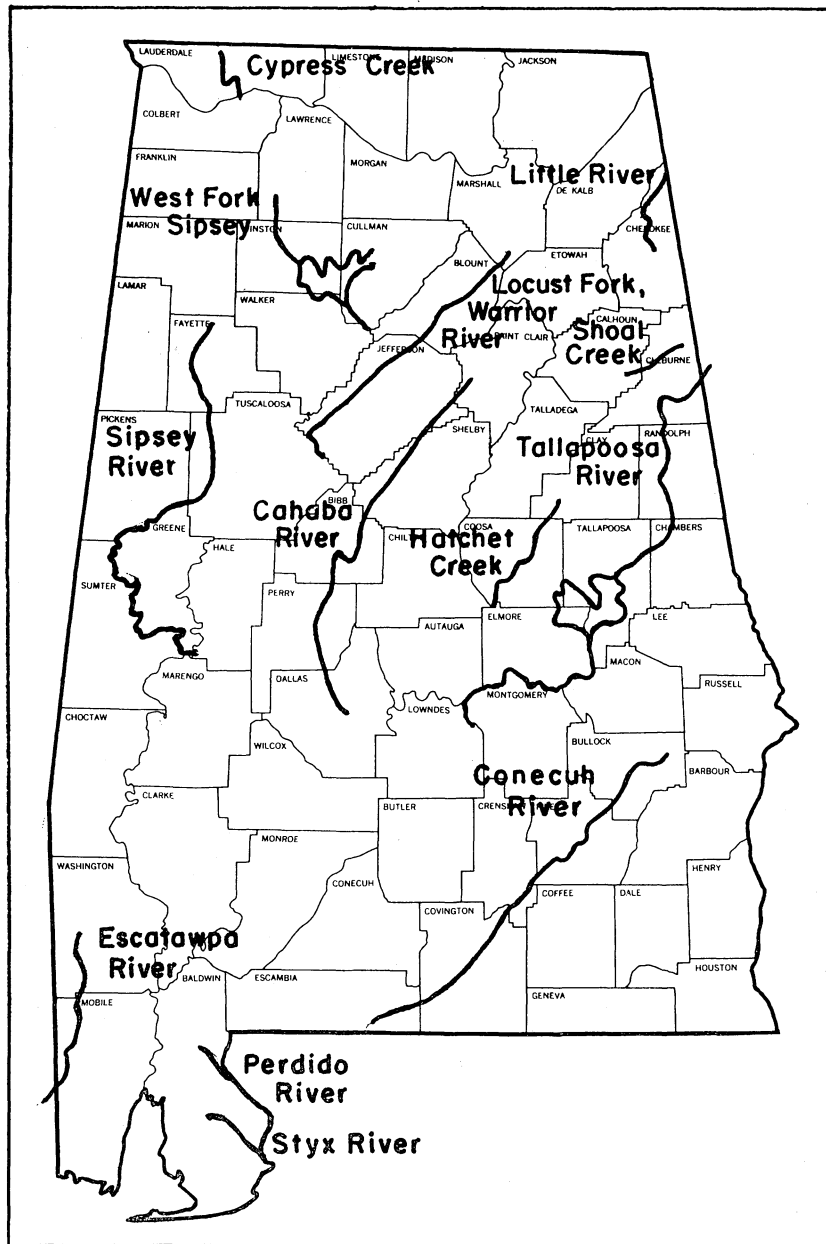


FIG. 2. Potential wild and scenic rivers in Alabama.

Wilderness Areas

A wilderness area as defined by the National Wilderness Act of 1964 (PL 88-577) is:

A wilderness, in contrast with these areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by forces of nature, with the imprint of man's work substantially unnoticeable, (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation, (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition, and (4) may also contain ecological, geological, and other features of scientific, educational, scenic, or historical value (28).

Primitive areas were first established in 1929 by the Forest Service. Beginning in 1939, wilderness and wild areas were designated within the previously named primitive areas. Wilderness areas were defined as 100,000 acres or more and wild areas were smaller than 5,000 acres (18). This updating and classification system has provided accurate data for the United States regarding wilderness areas, although Alabama has only one area meeting these criteria. This is the Sipsey Wilderness Area, a 12,000-acre portion of Bankhead National Forest, located in northwest Alabama. This area was officially designated in January 1975 by the passage of the Eastern Wilderness Areas Act (P.L. 93-622). No other designations, to date, have been made. However, environmental groups are reviewing several areas within the State, including areas in Tuskegee and Talladega National Forests and around DeSoto State Park, for possible inclusion as designated wilderness sites (12).

Official actions taken under the 1964 Wilderness Act have been rather limited since 1970. Designation of the Sipsey area and a botanical area in Bibb County by the Forest Service are exceptions, not the rule, for Alabama efforts. The size limitation criteria will be a factor for further designations in Alabama.

Historical Areas

In 1966, the Alabama Legislature created the Alabama Historical Commission. This agency "is responsible for preserving and safeguarding surviving evidence of the past, particularly historic structures, archaeological sites, and architectural landmarks" (2).

The AHC has worked diligently to get Alabama sites entered on the National Register of Historic Places.⁴ As of August 1, 1975, there were 194 Alabama entries on the national register.

In addition to the National Register of Historic Places there is a National Register of Historic Landmarks for entries of national significance. Alabama currently has 15 entries on this register. There is also a National Register of Natural Landmarks on which Alabama has three entries: Shelta Cave in Huntsville, Cathedral Caverns near Grant, and Beaverdam Creek Swamp in the Wheeler area of Lawrence County. The Bald Rock Environmental Study Area near Wadley is the only Alabama entry on the National Environmental Education Landmark Register.

Major Developments

Decisions for development of a specific tract of land are no longer made solely by agreement between a landowner and developer. The manner in which a particular development affects the surrounding property, community, or environment influences the decision. Thus, several viewpoints must be considered before land use is changed. Public investments in such basic facilities as sewer systems, water systems, and roadways regulate development somewhat, but any development that is controversial by nature probably will be extensively reviewed. Historically, economic benefits and costs provided the basis for final decisions even though opposing views were expressed. Today, environmental factors often overrule economic decisions; tomorrow it may be economic benefits again. In each case, resource use decisions still rest primarily in the hands of a few people. However, any development having a regional or statewide impact should not be left to the discretion of a few individuals.

Numerous examples illustrate the regional impacts of certain large scale developments. For example, the Tennessee-Tombigbee Waterway in west Alabama is estimated to provide large benefits

⁴ The National Register of Historic Places is the only official inventory of the historical, architectural, and archaeological resources of our nation and serves as a master list of landmarks that meet established criteria.

to the State and the Nation. Conversely, this project illustrates the concern that may be generated over the location of large-scale resource developments. It further illustrates why a large development may qualify for inclusion in areas designated as "critical." The physical characteristics and economic benefits of the waterway are relevant only as they are applied to increased development and population and the value of surrounding properties.

New industrial development in the Tennessee-Tombigbee Waterway area is expected to reach \$2.6 billion by the year 2020, generated by low-cost water transportation (24). This increase means land use changes in addition to changes involved with development of the waterway itself. Large-scale industries, residential developments for laborers filling new positions, and recreational areas may cause more abrupt changes in resource management patterns than the waterway itself. The total distance connecting the Tennessee River with Mobile is 470 miles. All along the waterway will be potential sites for industries requiring large volumes of water and adequate water transportation. Recreation and residential housing along the waterway to meet the expanding commerce caused by the Tenn-Tom Waterway may alter land uses tremendously. In addition to these factors, the Waterway is a multistate jurisdictional program coupled with regional impacts within each state. Thus, it becomes obvious that local regulations concerning land and water resource management will not be sufficient. Broader, more comprehensive powers are needed to guide development that becomes "critical" by definition.

Those areas herein reviewed may not constitute the totality of resources to be considered for designation. However, the review of the individual areas does provide some insight into Alabama's situation with respect to urgency. The following section examines these areas more closely, with the ultimate objective of selecting those areas in immediate need of protection and possibly legislative action.

RECOMMENDATIONS FOR DESIGNATION STUDY

As previously stated, Alabama's Environmental Land and Water Management Study Committee did not recommend legislation on resource designation in the 1975 Legislative Session. The following remarks relate to the committee's action to some extent. However, the more important aspects of special designations for

land areas may be tied to the complexities and interrelationships among particular land and water uses.

Prime Agricultural Land

The concern over prime agricultural land stems primarily from questions relative to food and fiber production in the United States. In conjunction with this is the fear that urbanization is consuming large blocks of agricultural land, most of which is considered prime land. Other issues at the State and local level involve the use of agricultural land for open space needs, economic stability, and effective rural-urban community buffers.

Much of this concern has not been supported by past events. Otte, in a study of Standard Metropolitan Statistical Areas (22), found that:

The amount of agricultural land taken each year for urban uses has had little impact on the total supply of U.S. cropland. In recent years, five or six times the quantity of cropland so taken was shifted to lower intensity agricultural or forestry uses, or was idle simply because cropping was not profitable. Irrigation, drainage, and clearing add three times as much land annually to the cropland base as urbanization absorbs.

However, the National Academy of Sciences has recommended constraint on the shift of productive agricultural lands to irreversible uses except where the public welfare is enhanced in the long run (20).

More locally, the question of prime agricultural land use is tied to particular communities in the State. Yet, prime agricultural land, based solely on Class I or even Class II land, is found in varying quantities in each of Alabama's 67 counties. The designation of any one geographical area would be highly arbitrary, unless other factors were considered. Other criteria for the designation of prime agricultural land would include the proximity of markets, availability of transportation facilities, and land use practices in surrounding areas. The Madison County (Huntsville) area was specifically cited by several professional people in the field interview. However, there is no basis for designating prime agricultural land, by definition, in Madison County as opposed to Baldwin County at the opposite end of the State. Both counties contain Class I land. Baldwin County has more Class I land than

any of the 67 Alabama counties, but Madison County has more total Class I and II land than Baldwin. If other factors are considered, however, the special considerations mentioned for Madison County may make that county more feasible for prime agricultural land designation than Baldwin or nearby Escambia County.

Once prime agricultural land is taken out of agricultural uses and converted to urban uses, reconversion for agricultural purposes is extremely difficult and costly. Therefore, long-range planning must be considered even though most decisions are made on the basis of short-run needs. Although the need for a critical designation of prime agricultural land may arise in the future, current productivity and land availability for agricultural purposes in Alabama do not support such a designation at this time. But, as indicated, this short-run sufficiency should not preclude long-range planning.

Floodplains

According to the Soil Conservation Service, "Local people start watershed projects and local people complete watershed projects" (27). The need for improvements in flood-prone areas is usually noticed by individuals making use of that or surrounding land areas or professionals serving people in the area. Recognition and concern initiate action for improvements. Thus far, the SCS has provided help in improving water flow in 29 Alabama floodplain areas at the request of local sponsors.

Unfortunately, there are many other flood-prone areas in the State which need correction or restrictions regarding their use. Installation of flood retarding structures has been quite useful, but such structures cannot be economically justified in all situations. Thus, it remains for State and local governments to respond with measures to protect life and property in these areas. The Alabama Comprehensive Land Management and Use Program in Flood-Prone Areas Act was a progressive step toward problem solution. More efforts are needed, but they do not command the priority attention of other critical resource areas at present.

Recreational Areas

Recreational lands are for the most part managed for maximum citizen use. As indicated, the acres in Federal and State owner-

ship or purchase areas are not expected to change significantly. Thus, these lands were not considered to represent a potential for critical areas designation. These uses are important, but since use is more or less established, there is no need to consider them as being in a critical condition.

Estuarine Region

Under the State Water Pollution Control Act of 1965 (Act No. 574), the Alabama Water Improvement Commission has authority to stop water pollution. This one regulatory power could be used forcefully to protect the estuaries, if additional considerations are given to the effects of potential industrial sites at Theodore and Brookley and possible oil developments in the coastal area.

Under specifications of the *Cooperative Gulf of Mexico Estuarine Inventory (17)*, the estuarine region should be entirely designated as an environmentally critical area. This would include an area extending westward in the Mississippi Sound to the Alabama-Mississippi state line and eastward in Perdido Bay to the Alabama-Florida state line. Inland, the northern boundary would be located at latitude 30° 52' 30" north, which corresponds to river mile 17.5 on the Mobile River. The northern shores of Dauphin Island, Sand Island, Fort Morgan Peninsula, and the entrances of Perdido Bay and Little Lagoon to the Gulf of Mexico, Figure 1, would form the seaward boundaries.

The 1976 revision of the Coastal Areas Program restricted the coastal area to include only that land area that extends to an elevation 10 feet above mean sea level from the Mississippi-Alabama state line along the coastal, bay, and river shores to the north line of Mobile County and Baldwin County, and to the Alabama-Florida state line.

Citizens should realize that recommended boundaries encompass a large area that includes industrial complexes and communities. This area, if uncontrolled or inadequate development is allowed, will be depleted of productivity. Commercial fishing, recreational activities, waterfowl habitats, and other means of resource utilization will be lost. On the other hand, utilization of the estuarine resources will be enhanced if development is pursued in a coordinated manner. Since the State's economy and citizens will neither allow progress to override the estuaries nor the estuaries to deny progress, it is evident that some tradeoffs will be necessary.

Spoil Areas

There is little doubt that Alabama's State Docks are vitally important to the State and Nation and must be maintained. However, this maintenance would likely entail actions that would not meet standards that need to be established for the protection of those fragile areas under question. In the Blakely Island Area, the spoil actually improved the water quality of an economically non-productive swamp (10). Further study is essential to determine the projected capacity of areas presently used and the feasibility of the suggested alternatives. Since State Docks development can be continued only at the cost of a portion of the estuaries, the necessity of tradeoffs is evident. Spoil disposition recommendations can not be made by any one individual without consideration given to laws pertaining to water pollution and property rights, both publicly and privately held. There are arguments in support of both the environmental factors involved and maintenance of the State Docks.

Natural Phenomena

There is a definite need to develop an organizational plan for a protective program for Alabama's natural and scenic areas and rare and endangered species. The recommendations for a State program mentioned above cover four basic aims:

(1) To encourage preservation of representative portions of the State's original plant communities, aquatic areas, and geological features.

(2) To encourage preservation of habitats supporting rare or endangered plant and animal populations.

(3) To enhance the recreational, educational, and scientific value of the preserved sites.

(4) To increase concern among citizens for protecting and preserving Alabama's natural heritage.

A program designed to meet these four specifications would be sufficient. Since little land acreage is involved with natural phenomena, however, this area was not considered significant in this study.

Wild and Scenic Rivers

The National Wild and Scenic Rivers Program is functioning at present in a limited manner. However, continued efforts on

the State level are encouraged. Once a waterway is placed under the protection of this Act, the capabilities of its use as a productive resource are restricted. This is the only area of concern related to the land use issue.

Wilderness Areas

Wilderness areas in Alabama are virtually non-existent, with exception of the Sipsey and Bibb county areas. Small "pocket wilderness" areas may be designated in the future; otherwise, no action dealing with wilderness areas *per se* within the State is expected in the immediate future. One area worthy of consideration is the Mobile Delta. Designation of the Delta as a wilderness area would complement efforts in the entire estuarine region. This possibility should be pursued by researchers.

Historical Areas

All entries on any of the four national registers should be considered as sites already under protection. Only additional entries to these registers should be allowed special protection as a significant historic or environmental educational site.

Historical areas generally involve relatively insignificant amounts of land. For this reason, no special emphasis was needed for this study, although the area was of sufficient interest and importance to merit mention.

Major Developments

Major developments, such as the ones discussed, extend beyond local and regional governments by requiring multistate coordination or by affiliation with national concerns. For these reasons, State and Federal government regulations must apply. Yet, local governments have to exercise control in areas surrounding development; therefore, citizens should have a voice in large-scale developments. Hence, it is recommended that a system be established whereby citizens of the area surrounding the immediate vicinity of the proposed development have direct input in the decision-making procedure. This should, of course, be coordinated with regional and state concerns.

Priorities

Critical areas designation may or may not be the needed land resource management policy for Alabama. Some will view the land use issue with contentment, while others will discern an urgency about the matter. However, the importance of the various resource areas discussed cannot be underestimated. This is especially true with respect to maintenance of environmental quality in the State of Alabama. Although present conditions surrounding the use and abuse of resources within the State do not justify immediate action toward centralized protection in all areas, immediate protection is needed for the full estuarine region.

Estuaries are now under the regulatory authority of the Alabama Coastal Area Board. However, the limitations under which this board operates allow only for establishing objectives toward resource protection. No authority has been implemented to assure fulfillment of protective objectives.

Few of the remaining Alabama resource areas can be placed in a higher priority ranking because of action already in progress or a lack of urgency regarding their deterioration. Tradeoffs in the various areas under study eliminate much of the need for immediate action. For example, urbanization of agricultural lands requires compromise decisions on land use. In addition, special interest groups and existing Federal and State laws provide some degree of protection and management for areas such as historic sites, natural phenomena, wild and scenic rivers, and wilderness areas. A large portion of the recreational facilities, including land and water usage, is also under State and Federal ownership and control. Some of these areas, although not covered under a comprehensive plan, are subject to State or Federal law and do not face an immediate threat of deterioration.

The tradeoffs now occurring between prime agricultural land and development will continue even if land resource management policies are enacted. There is no immediate threat of one encompassing the other as long as each remains essential. Some management at the State level may be necessary to assure that these tradeoffs are in the best interest of all citizens of the State. Even though tradeoffs do not appear to pose an immediate problem, it is in the best interest of all citizens that the widely separated local problems are reviewed in the aggregate at the State level.

Floodplains do not merit individual attention for statewide planning because they are gradually being improved by the Soil

Conservation Service and the Corps of Engineers. However, a greater exercising of local authority over flood-prone areas or the addition of authority on the local level is imperative. The latter case would necessitate legislative action. Hence, additional information on the effect of floods in local areas must be aggregated for legislative use.

Spoil areas, by definition, are of immediate concern. Yet, locational needs are such that policies affecting the estuarine region will also regulate spoil disposition.

Although the estuarine region is the only area recommended for immediate action, the need for a concentrated study of Alabama's total resource base is evident.

POLICY RECOMMENDATIONS

The immediate need for resource protection in Alabama is additional legislation to provide for fulfilling objectives established for the total estuarine region by the Alabama Coastal Area Board. The authority and coordination of various responsible agencies appear insufficient at this time to achieve these objectives. However, this need is short-term. Long-term planning to encompass all of Alabama's resources is needed.

Designation of any given area in Alabama as "critical" requires a thorough review of the possible implications before any action is taken. This means that economic, social, and environmental factors should be considered before deciding whether a given area may be designated "critical."

Prime agricultural land is perhaps the best example to illustrate the factors that should be considered. Once agricultural land is removed from agricultural uses and converted to urban uses it is almost impossible to reconvert to agricultural uses. For this reason, the value of prime agricultural land to meet future needs must be weighed against the economic, social, and environmental implications of such a designation. Fiscal and economic implications are those associated with pecuniary gains. In the short-run, agricultural land in some areas, although increasing rapidly in use value, is worth more per acre for such uses as subdivision lots or industrial sites. Socially, lifetime residents on agriculturally oriented land are generally at a disadvantage, particularly educationally, when forced to the city (19). Freedom of choice is narrowed if agricultural lands are swallowed by urban sprawl. On the other hand, people can and do adjust. Designation of agricultural lands

would displace development that brings possible housing, employment, and monetary gain for individuals. Environmentally, open space, outdoor recreation, and water supplies are major considerations. Development may ruin the open spaces and outdoor recreation possibilities. Undeveloped watershed areas that filter rainfall and provide natural underground reservoirs for storage are not readily found in metropolitan centers. Adjustments can and will be made either with or without designated prime agricultural land.

Each of the other special resource use areas, such as floodplains and natural phenomena, have economic, social, and environmental implications that differ among areas. These implications should be considered prior to taking any action in the specified area.

A review of the implications of designating an area as "critical" would also give insight to the best approach in protecting that specific area.

States have continually directed policies at existing resource related problems. The established process of basing land use decisions on expediency, tradition, and short-term economic impacts is not the correct approach for protecting and extending resource life. These factors are unrelated to land management policy and should be replaced by preventive, prohibitive, and regulatory tools to cope with increasing urban development, expansion of transportation systems, and large-scale industrial and economic growth.

Changing the basis for land use decision-making calls for consideration of several factors. Education of the public, a study of existing resource related controls on the state level, an inventory of the state's resource base, and the effect of pending Federal legislation are several of the factors to be examined. Only a concentrated effort will yield a thorough report of these and other factors. Although the resolution creating the Environmental Land and Water Management Study Committee called for its termination 10 days into the 1975 legislative session, it is recommended that this commission or a new commission or task force be created with specific mandates, time schedules, and budgeting to provide information necessary for recommending legislation. Some broadening of commission constituents is also recommended.

The study commission may prove the need for land resource

management policies. On the other hand, it may present evidence showing that satisfactory controls are already in operation. Several agencies already may be obligated by Alabama law to perform studies in specific areas of resource management. Yet, the need for a comprehensive study of Alabama's resource situation is still quite evident. Existing agencies may be able to provide vital inputs to reduce current time and money requirements for resource management. On the other hand, information received from various agencies with different procedural practices may prove inadequate and more time consuming than valuable. It is important to establish a procedure and methodology consistent with the specific objectives of the study. Generally, these objectives do not vary greatly among states. Several objectives or mandates are listed below as a guide for establishing the goals of a study commission.

(1) To study past, present, and future land use controls in Alabama on the State, Federal, and local government level.

(2) To report on the existing available data base for land use planning.

(3) To recommend projected data requirements necessary for statewide land use planning.

(4) To conduct hearings in various sections of the State and consult appropriate Federal agencies in making the study.

(5) To study the desirability of a public education effort relative to Alabama land use planning.

(6) To study national legislation affecting state land use planning and consider such in recommending appropriate state legislation.

(7) To recommend necessary or appropriate constitutional amendments and legislation regarding statewide land use policy and planning.

(8) To recommend to the Governor and Legislature a reasonable consolidation of existing land use controls with a recommendation for any additional controls (29).

Legislative Alternatives

Several alternative approaches are available to the Alabama Legislature if action is recommended by the Study Commission. These alternatives include: (1) statewide comprehensive land

use management; (2) land management according to functional criteria; (3) management of specific geographical or critical areas; and (4) State management of uncontrolled areas (16).

These different approaches show that critical areas designation may be only one part of the large plan, i.e., a statewide comprehensive plan. However, these categories are not exclusive of each other but are identifiable highlights of a management continuum.

Statewide Comprehensive Land Use Management

The development of a statewide comprehensive land use plan has been initiated by several states. Constitutionally granted police and regulatory powers are being exercised through a long-range, comprehensive land resource plan specifically designed for each state. Administration of such a plan may be the responsibility of the state or by agreement of state and local governments. However, if a comprehensive land use management program is undertaken, sole responsibility of implementing that plan should not be administered by local governments. This would impair the effectiveness of the plan due to a lack of implemental powers on the local level.

Hawaii's State Land Use Law is illustrative of this approach. A nine-member State Land Use Commission was created in 1961 and given the responsibility of classifying all land in agricultural, conservation, urban, and rural districts. The administration of regulations for each district became the responsibility of different levels of government, thus proving that a statewide comprehensive land use management program could be established and implemented.

Land Management According to Functional Criteria

Controlling unregulated, large-scale developments or placement of key facilities is the basis of this approach. The states using this type management represent those in which the aesthetics of natural areas have been endangered or the erosion of agricultural lands has been increased by large-scale development. Rather than preparing a program to cover the entire state, controls have been implemented on a functional basis. Specific types of development (i.e. commercial and industrial) or achievement of such aims as environmental quality may be controlled by land management according to functional criteria without a statewide plan. A state agency usually is responsible for evaluating each site of develop-

ment and has authority to approve or disapprove large-scale development. This method of viewing each site for development for a particular proposed use allows considerable flexibility in planning. In this way, high-priority needs may be met immediately. However, the management of land resources of functionally defined problem areas more than likely will give way to statewide comprehensive plans.

Management of Specific Geographical or Critical Areas

Management of resources may be needed only in specific portions of the State. Included under this approach would be areas that are geographically definable, such as wetlands and coastal areas. This is the most popular type of management of the four alternatives. Although similar to the functional criteria approach, this method is more definable on a geographical basis.

Implementation of this approach comes through the selection of critical areas. More specifically, critical areas may be defined as those areas "which are affected by or have a significant effect on an existing or proposed major governmental development, or which contain or have significant impact on historical, natural, scientific, or cultural resources of regional or statewide importance" (16). The same should apply to private development, also. Although this approach identifies and designates areas of regional or statewide importance it also may be criticized as a piecemeal solution. Enaction of legislation to manage specific geographical or critical areas must assure a solution rather than a shift of pollution and overdevelopment to another portion of the State.

State Management of Uncontrolled Areas

The lack of responsibility by local governments often results in direct state involvement in land resource management. The State usually administers a set of minimum standards for controlled or uncontrolled areas only until the county or municipality enacts legislation of its own. This approach provides only a temporary solution to land resource problems unless it is related to a more encompassing program. Also, management of uncontrolled areas by states does not provide resolutions satisfactory for regulating problems of greater than local concern nor avoiding limited planning practices harmful to areas outside local jurisdiction. Oregon's statewide comprehensive land use law requires all local govern-

ments to adopt implementing tools in conjunction with a comprehensive plan. A system such as Oregon's provides the comprehensive program and the necessary local government management responsibility.

SUMMARY

Practically every state in the Nation has been prompted by the possibility of resource deterioration or depletion to enact some type of land resource management controls to achieve a balance between the environment and progress. Each state has approached the land use issue differently. Although some action is underway in Alabama toward protecting the estuarine region, other resources are also in need of inventory and possible future protection.

The purpose of this study was to examine Alabama's resource base and lay the groundwork for future investigations in land use, specifically critical areas designation. "Critical areas" were defined as those areas of cultural, natural, or developmental importance which constituted significant regional or statewide concern. These areas are generally managed under more than one level of government. In fulfilling the purpose, emphasis was placed on the following objectives:

- (1) Determination of the need for critical environmental or developmental areas designation in the State of Alabama.
- (2) Development of a basis for studying critical areas in terms of their relative importance with regard to statewide significance.
- (3) Defining of legal alternatives for critical environmental and developmental designation in Alabama.

Data were collected from an interview field which included numerous governmental agencies and other professionals in resource related fields. In addition, information on the problems, policies, and results of several states other than those selected for review was examined. This aided in determining the relevancy of specific site proposals and the probability of success in delineating critical areas.

Federal action for land use policy is presently at a stalemate, with no significant progress expected until 1977. Land use-related policy has continued to gain support. The Coastal Zone Management Program, the Clean Air Act, the Federal Water Pollution

Control Act, and the Flood Insurance Act are a few of the policies affecting land use.

Legislative activity within Alabama has centered primarily on the Coastal Area Management Program, although strip mining has received some attention. No other land use-oriented legislation has gained enough support to merit mention, with the exception of a minority recommendation seeking to protect critical areas within the State (King bill SB-84).

Whether forced by Federal legislation or local activity, Alabama is faced with the issue of land use planning. More immediately, the problem is management of any area deemed environmentally or developmentally critical.

The State resources reviewed for possible critical designation were prime agricultural land, floodplains, historical and recreational areas, wild and scenic rivers, wilderness areas, the estuarine region, natural phenomena, spoil areas, and major developments. Of these, the estuarine region (coastal zone) was the only area to merit immediate attention. Considerations are expected in the near future for several of the remaining areas. The productivity of the estuarine region as nursery, spawning, and feeding grounds for shrimp, oysters, crabs, fish, and other species utilized by man was the basis for its priority ranking. Commercial fishing and recreational activities also contribute to the value of the estuaries.

This study has presented a review of the significant resource problem areas in the State. Areas which have potential as critical areas have been cited as such. Priority was given the estuarine region as an immediate problem area.

Several alternatives exist for establishing special use designations. Some states are approaching resource management responsibilities with the view that a comprehensive program is inevitable and more logical than other existing alternatives. Other states are focusing on immediate solutions by implementing functional or geographically centered programs. However, only the actual data findings of a study commission will determine which alternative should be applied in Alabama.

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APPENDIX

STATE LAND USE PROGRAMS,¹ SEPTEMBER 1974

State or territory	Statewide land use planning & control ²	Coastal zone management ³	Wetlands management ⁴	Power plant siting ⁵	Surface mining ⁶	Designation of critical areas ⁷	Land use tax incentives ⁸	Flood-plain management ⁹
Alabama.....	P	----	----	----	----	----	----	----
Alaska.....	----	----	----	yes	----	----	yes	----
Arizona.....	P	NA	----	yes	----	----	----	yes
Arkansas.....	----	NA	----	yes	yes	----	yes	yes
California.....	P	yes	----	yes	----	----	yes	yes
Colorado.....	P	NA	----	yes	yes	yes	yes	yes
Connecticut.....	P	----	yes	yes	----	----	yes	yes
Delaware.....	P	yes	yes	----	----	----	yes	----
Florida.....	P and R	yes	yes	yes	----	yes	yes	----
Georgia.....	P	----	yes	----	yes	----	----	----
Hawaii.....	P and R	yes	----	yes	----	yes	yes	yes
Idaho.....	----	NA	----	----	yes	----	----	----
Illinois.....	----	----	----	yes	yes	----	yes	----
Indiana.....	----	----	----	----	yes	----	yes	yes
Iowa.....	----	NA	----	----	yes	----	yes	yes
Kansas.....	----	NA	----	----	yes	----	----	----
Kentucky.....	----	NA	----	yes	yes	----	yes	----
Louisiana.....	----	----	yes	----	----	----	yes	----
Maine.....	P and R	yes	----	yes	yes	yes	yes	yes
Maryland.....	P and R	----	yes	yes	yes	----	yes	yes
Massachusetts.....	----	----	yes	yes	----	----	----	----
Michigan.....	P	yes	----	----	yes	----	----	yes
Minnesota.....	P and R	yes	yes	yes	yes	yes	yes	yes

Continued

STATE LAND USE PROGRAMS,¹ SEPTEMBER 1974 (Continued)

State or territory	Statewide land use planning & control ²	Coastal zone management ³	Wetlands management ⁴	Power plant siting ⁵	Surface mining ⁶	Designation of critical areas ⁷	Land use tax incentives ⁸	Flood-plain management ⁹
Mississippi.....	----	yes	----	----	----	----	----	----
Missouri.....	----	NA	----	----	yes	----	----	----
Montana.....	----	NA	----	yes	yes	----	yes	yes
Nebraska.....	----	NA	----	yes	----	yes	yes	yes
Nevada.....	P and R	NA	----	yes	----	----	----	----
New Hampshire.....	----	----	yes	yes	----	----	yes	----
New Jersey.....	----	----	yes	yes ¹⁰	----	----	yes	yes
New Mexico.....	----	NA	----	yes	yes	----	yes	----
New York.....	P	----	yes	yes	yes	yes	yes	----
North Carolina.....	P	yes	yes	----	yes	----	yes	yes
North Dakota.....	----	NA	----	----	yes	----	yes	----
Ohio.....	----	----	----	yes	yes	----	yes	----
Oklahoma.....	----	NA	----	----	yes	----	----	yes
Oregon.....	P and R	yes ¹¹	----	yes	yes	yes	yes	----
Pennsylvania.....	P	----	----	yes	yes	----	yes	----
Rhode Island.....	P	yes	yes	yes	----	----	yes	----
South Carolina.....	----	----	----	yes	yes	----	----	----
South Dakota.....	----	NA	----	----	yes	----	yes	----
Tennessee.....	----	NA	----	yes ¹²	yes	----	----	----
Texas.....	----	yes	----	----	----	----	yes	----
Utah.....	----	NA	----	----	----	yes	yes	----
Vermont.....	P and R	NA	yes	yes	----	----	yes	----
Virginia.....	----	yes	yes	----	yes	----	yes	----

Continued

STATE LAND USE PROGRAMS,¹ SEPTEMBER 1974 (Continued)

State or territory	Statewide land use planning & control ²	Coastal zone management ³	Wetlands management ⁴	Power plant siting ⁵	Surface mining ⁶	Designation of critical areas ⁷	Land use tax incentives ⁸	Flood-plain management ⁹
Washington.....	-----	yes	yes	yes	yes	-----	yes	-----
West Virginia.....	-----	NA	-----	-----	yes	-----	-----	-----
Wisconsin.....	P	yes	yes	-----	yes	yes	yes	yes
Wyoming.....	-----	NA	-----	-----	yes	-----	yes	-----
Guam.....	P and R	yes	-----	yes	yes	-----	-----	yes
Puerto Rico.....	P and R	-----	-----	yes	yes	-----	-----	yes

¹ Indications that a State has a program in one of the categories does not constitute an evaluation of the effectiveness of the program, nor does it indicate that the program is based on specific enabling legislation. NA = not applicable.

² P indicates the state has a land use planning program under way; R means the state has authority to review local plans or has direct control.

³ State has authority to plan or review local plans or the ability to control land use in the coastal zone.

⁴ State has authority to plan or review local plans or the ability to control land use in the wetlands.

⁵ State has authority to determine the siting of power plants and related facilities.

⁶ State has authority to regulate surface mining.

⁷ State has established rules, or is in the process of establishing rules, regulations, and guidelines for the identification and designation of areas of critical state concern (e.g., environmentally fragile areas, areas of historical significance).

⁸ State has adopted tax inducements to withhold or delay development of open space (e.g., tax on present use, rollback penalty, contract between the State and landholders to provide preferential tax for commitment to open-space usage).

⁹ State has authority to regulate the use of floodplains.

¹⁰ Only in coastal zone area.

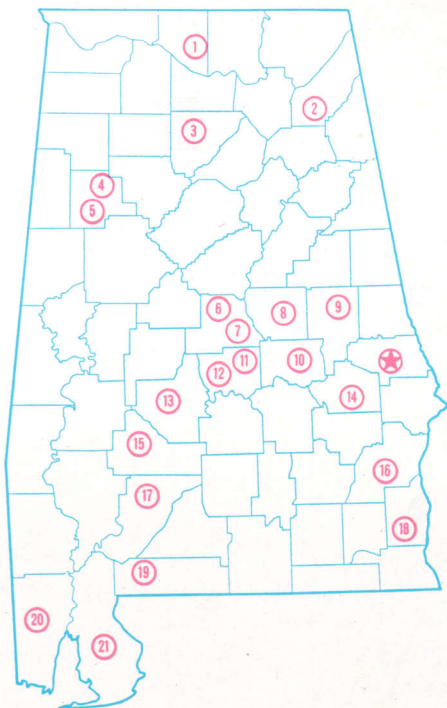
¹¹ Partial.

¹² Tennessee Valley Authority.

SOURCE: *A Legislator's Guide to Land Management*, Council of State Governments.

Alabama's Agricultural Experiment Station System AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

★ Main Agricultural Experiment Station, Auburn.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Thorsby Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. Tuskegee Experiment Field, Tuskegee.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Ornamental Horticulture Field Station, Spring Hill.
21. Gulf Coast Substation, Fairhope.