Georgia
Wetland Resources

Georgia has more than 7.7 million acres of wetlands—about one-fifth of the surface area of the State (Hefner and others, 1994.) Most wetlands in Georgia have been adversely affected by human activities, but coastal salt marshes and a large area of preserved wilderness in the Okefenokee Swamp remain relatively undisturbed. One of the few remaining old-growth cypress-tupelo forests in the Southeast is on the lower Altamaha River flood plain (fig. 1).

Wetlands provide many economic and ecological benefits. Flood-plain wetlands dissipate the energy of floods, reduce erosion, and stabilize the streamside environment. Wetlands filter water entering rivers and coastal marsh systems, removing sediment and pollutants. Annual flooding moves leaf litter and other terrestrial organic detritus from the flood plain into the main channel, providing a primary source of food for stream and estuarine organisms. Wetlands bordering many streams in Georgia are important habitat corridors for wildlife. Amid the pine plantations and farms covering most of the uplands, wetland corridors connect areas that provide food, shelter, and water for many species of animals. During low-water periods, flood-plain ponds and backwaters contribute to biological diversity in stream ecosystems by providing still-water habitats for fish, amphibians, reptiles, and aquatic invertebrates. Biological productivity in estuarine emergent wetlands is higher than on most agricultural lands (Teal and Teal, 1969). Such coastal wetlands are essential to the life cycles of many commercially harvested species such as clams, shrimp, blue crab, and mullet (Tiner, 1984).

In addition to their ability to remove undesirable chemicals and support wildlife, wetlands are valued by tourists and Georgians for their recreational uses and natural beauty. Sidney Lanier, a native of Georgia, described a vista of coastal marshland in his poem "The Marshes of Glynn":

> A league and a league of marsh-grass, waist-high,
> broad in the blade,
> Green, and all of a height, and unflecked with a light
> or a shade,
> Stretch leisurely off, in a pleasant plain,
> To the terminal blue of the main.

Figure 1. Old-growth gum-cypress forest on the Altamaha River flood plain. *(Photograph by C.H. Wharton, Clayton, Ga.)*

TYPES AND DISTRIBUTION

Wetlands are lands transitional between terrestrial and deepwater habitats where the water table usually is at or near the land surface or the land is covered by shallow water (Cowardin and others, 1979). The distribution of wetlands and deepwater habitats in Georgia is shown in figure 2*A*; only wetlands are discussed herein.

Wetlands can be vegetated or nonvegetated and are classified on the basis of their hydrology, vegetation, and substrate. In this summary, wetlands are classified according to the system proposed by Cowardin and others (1979), which is used by the U.S. Fish and Wildlife Service (FWS) to map and inventory the Nation's wetlands. At the most general level of the classification system, wetlands are grouped into five ecological systems: Palustrine, Lacustrine, Riverine, Estuarine, and Marine. The Palustrine System includes only wetlands, whereas the other systems comprise wetlands and deepwater habitats. Wetlands of the systems that occur in Georgia are described below.

System	Wetland description
Palustrine	Nontidal and tidal-freshwater wetlands in which vegetation is predominantly trees (forested wetlands); shrubs (scrub-shrub wetlands); persistent or nonpersistent emergent, erect, rooted herbaceous plants (persistent- and nonpersistent-emergent wetlands); or submersed and (or) floating plants (aquatic beds). Also, intermittently to permanently flooded open-water bodies of less than 20 acres in which water is less than 6.6 feet deep.
Lacustrine	Nontidal and tidal-freshwater wetlands within an intermittently to permanently flooded lake or reservoir larger than 20 acres and (or) deeper than 6.6 feet. Vegetation, when present, is predominantly nonpersistent emergent plants (nonpersistent-emergent wetlands), or submersed and (or) floating plants (aquatic beds), or both.
Riverine	Nontidal and tidal-freshwater wetlands within a channel. Vegetation, when present, is same as in the Lacustrine System.
Estuarine	Tidal wetlands in low-wave-energy environments where the salinity of the water is greater than 0.5 part per thousand (ppt) and is variable owing to evaporation and the mixing of seawater and freshwater.
Marine	Tidal wetlands that are exposed to waves and currents of the open ocean and to water having a salinity greater than 30 ppt.

About 95 percent of Georgia's wetlands are palustrine. Estuarine and marine wetlands comprise approximately 4 percent of the State's wetland acreage. Lacustrine and riverine wetlands are not addressed in this report because they constitute a relatively small part of the State's wetlands and are generally fringe areas between palustrine wetlands and deepwater habitats.

Palustrine System.—Forested wetlands constitute about 83 percent of all palustrine wetlands in Georgia (J.M. Hefner, U.S. Fish and Wildlife Service, oral commun., 1993). Large tracts of second-growth bottom-land hardwoods and tupelo-cypress forests exist along many Georgia rivers. Most of these rivers can be characterized as either alluvial or blackwater streams.

Alluvial streams such as the Altamaha, Oconee, Ocmulgee, Savannah, Flint, and Chattahoochee Rivers carry large amounts of sediment. Their flood plains have mineral soils and diverse topographic features such as flats, ridges, backswamps, and oxbow lakes. Flats and ridges support forests of mixed bottom-land hardwood species; backswamps generally have canopies of tupelo and cypress. The alluvial river with the greatest average discharge in Georgia is the Altamaha River, which has a flood plain 3- to 5-miles wide along some reaches. The Altamaha River drainage basin includes about one-fourth of the State and extends from Atlanta to the Atlantic coast. The basin has many small streams and two large rivers, the Oconee and Ocmulgee Rivers, which join to form the Altamaha River.

Blackwater streams such as the Ogeechee, Satilla, and St. Marys Rivers generally contain water that is dark or tea colored because of a high content of tannins and other organic acids. Blackwater streams usually have low velocities and carry little sediment. Their flood plains have less topographic relief and are usually narrower than flood plains of alluvial streams. Blackwater river flood-plain wetlands have canopies of tupelo, cypress, and other tree species tolerant of wet organic soils.

Forested palustrine wetlands in Georgia that are not associated with stream systems include cypress domes, gum swamps, limesinks, Carolina bays, wet pine flatwoods, and hydric hammocks. Isolated cypress swamps and cypress domes occur primarily below the Fall Line (fig. 2*B*), the area of transition between the higher topographic relief of the piedmont to the north and the flatter topography of the coastal plain to the south. Cypress domes are circular depressional wetlands forested by pond cypress trees that grow taller in the center of the wetland and thus create a dome-shaped canopy. Gum swamps are depressional wetlands in which swamp

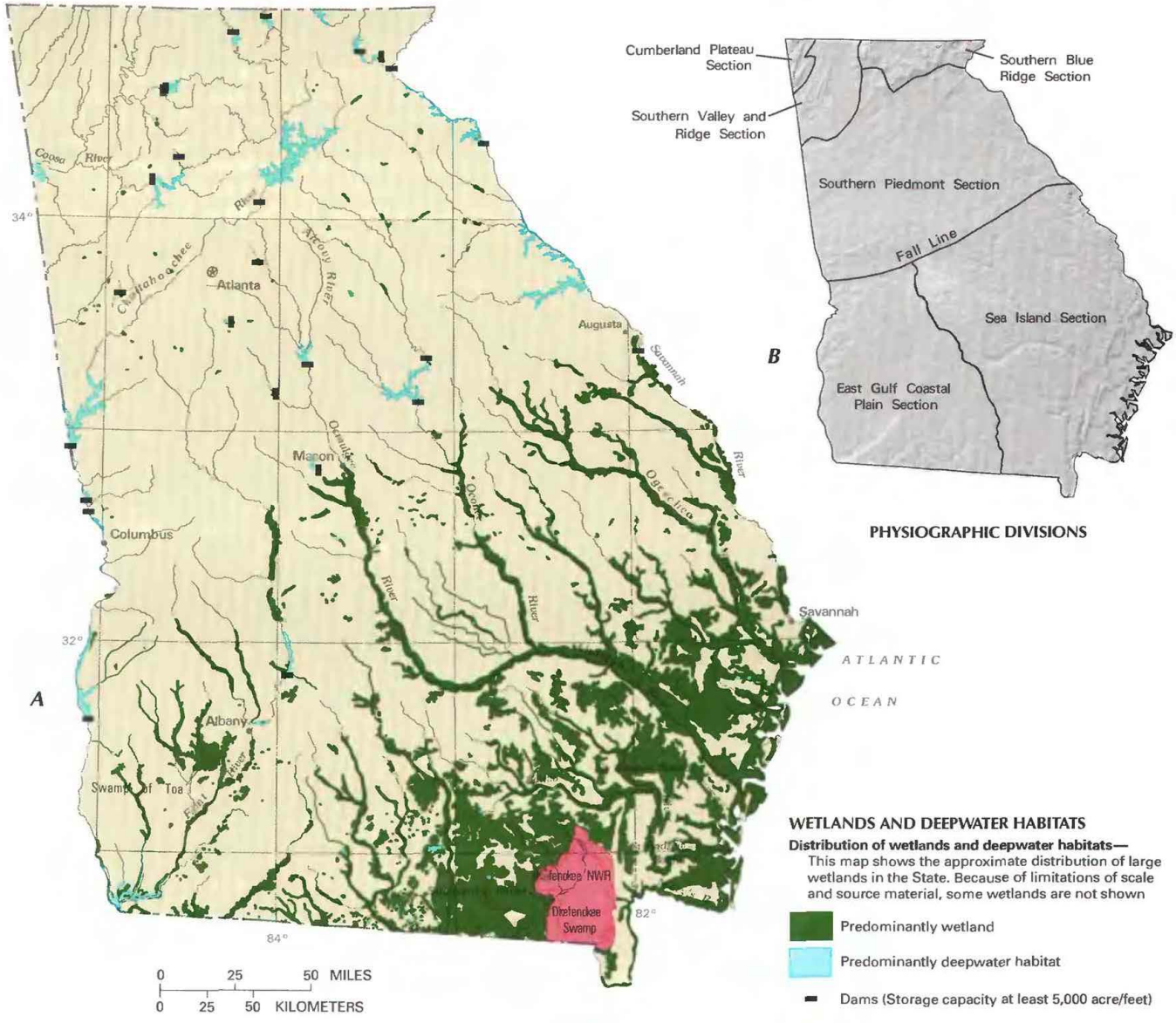

Figure 2. Wetland distribution in Georgia and physiography of the State. ***A***, Distribution of wetlands and deepwater habitats. ***B***, Physiography. *(Sources: A, T.E. Dahl, U.S. Fish and Wildlife Service, unpub. data, 1991. B, Physiographic divisions from Clark and Zisa, 1976; landforms data from EROS Data Center.)*

tupelo is the predominant tree. The northwestern part of the Okefenokee Swamp contains large tracts of gum swamp. Limesinks are depressional wetlands formed by the dissolution or collapse of underlying limestone. Limesinks differ widely in size, depth, and average length of time they are inundated or have saturated soils. The Swamp of Toa in southwestern Georgia is the most extensive limesink area in Georgia. Many of the limesinks are connected to ground-water aquifers and serve as recharge areas (Kalla and others, 1993). The Swamp of Toa is a mosaic of wetland and upland habitats that support rare plant and animal species such as chaffseed and blind cave salamander. Limesink depressions called sagponds are distinctive wetlands because they occur in mountainous northwestern Georgia yet contain relict populations of lowland plants (Wharton, 1977). Sagponds differ in wetness from intermittently to permanently flooded. Carolina bays, a wetland type unique to the Southeastern United States coastal plain, are oval depressions that have acidic, commonly peaty soils (Wharton, 1977). The predominant vegetation in these wetlands generally is leathery-leaved, evergreen, or semideciduous shrubs like fetterbush, titi, and zenobia. More than 1,000 Carolina bays, occupying an area of about 250,000 acres, have been mapped in Georgia (Wharton, 1977). Wet pine flatwoods forested by old-growth slash or pond pine grow mostly in southeastern Georgia and have soils that are saturated during part of the growing season. Small patches of wet pine flatwoods can be interspersed among upland pine forests. Hydric hammocks are a rare wetland type that exists in some areas of coastal Georgia. Semievergreen bottom-land hardwood species such as swamp laurel oak are the predominant vegetation (Vince and others, 1989).

Approximately 17 percent of Georgia's palustrine wetlands are nonforested (J.M. Hefner, U.S. Fish and Wildlife Service, oral commun., 1993). These nonforested wetlands are primarily fresh marshes associated with streams or isolated water bodies. In these wetlands, emergent vegetation such as giant cutgrass, wild rice, pickerelweed, and arrow arum are the predominant plants (Wharton, 1978). More than 20 percent of the Okefenokee Swamp is emergent marshes and aquatic beds. Herb bogs occur on sloping ground or in slight depressions in pine uplands (Wharton, 1978) and have abundant herbaceous plants, including orchids, insectivorous plants (such as pitcher plants), and a variety of wildflowers, but have few or no trees. The absence of a tree canopy in herb bogs might be due to the high frequency of fires and the nutrient-poor, shallow soils and underlying hardpan clays.

Estuarine and Marine Systems.—Most of Georgia's coastal wetlands are located in estuaries at the mouths of rivers. Salt marshes in which the predominant emergent plant species is smooth cordgrass are the most common estuarine wetlands (Wiegert and Freeman, 1990). Smooth cordgrass marshes are flooded daily by tides and are exposed to mostly low-energy waves. These marshes fringe the sounds that are between the mainland and offshore barrier islands. The largest area of estuarine wetlands in Georgia surrounds St. Andrews and St. Simons Sounds. This wetland has more than 110,000 acres of salt marshes (Field and others, 1991). Tidal flats are estuarine wetlands that are regularly exposed and flooded by tides. These flats generally are devoid of rooted vegetation but are important foraging areas for shorebirds. Georgia's marine wetlands comprise the intertidal zone of barrier-island ocean beaches.

HYDROLOGIC SETTING

The abundance of wetlands in Georgia is primarily due to high rainfall statewide and relatively flat topography in the southern part of the State. Annual rainfall in the State averages about 50 inches (Carter and Hopkins, 1986). The largest streams in Georgia originate in or near the mountainous northeastern part of the State, which has high precipitation and runoff. Flood-plain wetlands develop along stream borders in areas of low topographic relief, where stream velocities are slower. Width of flood plains along rivers and the occurrence of isolated depressional wetlands between rivers increase as the land flattens toward the coast. Coastal areas have the greatest acreage of wetlands (fig. 2*A*).

The great diversity of Georgia wetlands is a result of the State's diverse physiography. Clark and Zisa (1976) divided Georgia into six physiographic sections (fig. 2*B*). Three of the sections, the Cumberland Plateau, Southern Valley and Ridge, and Southern Blue Ridge, are in northern Georgia and are the areas with the greatest topographic relief. Many of the wetlands in these sections are mountain seeps and bogs that are too small and scattered to be shown in figure 2*A*. Narrow wetlands border some streams. Depressional wetlands are rare, except for sagponds, which exist in some areas of the Coosa River Valley of the Southern Valley and Ridge Section and in the Cumberland Plateau Section.

The Southern Piedmont Section of Georgia lies between the more mountainous sections and the coastal plain. This section has a broad zone of gently rolling hills that are geologically similar to the Blue Ridge Mountains but have less relief as a result of stream erosion (Wharton, 1978). Flood plains are wider and better developed in the Southern Piedmont Section than in the more mountainous Southern Blue Ridge and Southern Valley and Ridge Sections to the north. Some depressional wetlands such as gum swamps exist in the Southern Piedmont Section, but cypress domes are absent.

The two physiographic sections that form the coastal plain in southern Georgia are the East Gulf Coastal Plain and Sea Island Sections (fig. 2*B*). These sections lie southeast of the Fall Line and include more than one-half the land area of Georgia. Topographic relief is lower, runoff is slower, and depressional features are more common in these two sections than in the Southern Piedmont Section.

Streams in the East Gulf Coastal Plain Section in southwestern Georgia trend north-south and drain into the Gulf of Mexico. Karst topography, which is created by dissolution of porous limestone near the land surface, prevails in parts of this section and is characterized by numerous limesinks and other depressional features.

The Sea Island Section contains the greatest extent of wetlands in Georgia. Flood-plain wetlands along rivers are more extensive in this section than in any other physiographic section. A schematic cross section of an alluvial flood plain in Georgia is shown in figure 3. The topographic features shown in the cross section were formed by deposition and removal of sediments by flowing water. Most areas of an active flood plain are flooded at least annually. The driest part of a flood plain is generally the natural levee adjacent to the river. Levees and flats, which drain rapidly after floods recede, are covered by canopies of bottom-land hardwoods such as live oak, water oak, sweetgum, overcup oak, water hickory, and swamp laurel oak. The wettest part of the flood plain, the backswamp, commonly is farthest from the river and adjacent to the uplands. Backswamps generally hold water after floods recede and are sometimes permanently saturated. Tupelo gum and cypress are the dominant trees because of their ability to tolerate long periods of flooding.

Rivers in the Sea Island Section flow southeastward toward the Atlantic coast, with the exception of the Suwanee River, which flows into the Gulf of Mexico. In their lower reaches, tidal freshwater swamps are flooded by a combination of tidal fluctuations and high seasonal freshwater flows. Estuaries at the river mouths are fringed by extensive marshes. Georgia's concave coastline, situated between the jutting Florida peninsula to the south and the outward-curving South Carolina coastline to the north, provides coastal wetlands in this area some protection from tropical storms. A series of large barrier islands protects estuaries from high-energy waves and provides shallowly inundated shorelines for the development of salt marshes. Tidal ranges are greater on the Georgia coast than along

the other Southeastern Atlantic coastal States. This large tidal range (6–9 feet) influences both the inland extent and topography of salt marshes (Wiegert and Freeman, 1990).

The Sea Island Section also contains the largest acreages of isolated inland wetlands such as wet pine flatwoods, cypress swamps, gum swamps, and Carolina bays. Land-surface slopes are gentle in many areas within this section, and ground water is commonly near the land surface. Typically, there is a hardpan layer in the subsurface soil that prevents rapid infiltration during rainy periods, creating seasonally wet soils. During periods of little rainfall, these same areas can be very dry. Plants adapted to a wide range of moisture conditions, such as gallberry and saw palmetto, are common in these seasonally wet areas.

The Okefenokee Swamp, located in the southern part of the Sea Island Section (fig. 2*B*), covers approximately 440,000 acres in Georgia and is one of the largest freshwater wetlands in the United States. The swamp is a unique area containing a mosaic of emergent marshes, aquatic beds, forested and scrub-shrub wetlands, and forested uplands. The Okefenokee Swamp is located on a large terrace that once might have been a shallow marine lagoon. When sea level declined, the terrace was isolated by a sand ridge along the eastern edge. The swamp ecosystem appears to have developed in the depression within the last 7,000 years (Laerm and Freeman, 1986). The swamp has few inflowing streams and, therefore, primarily depends on rainfall for water (Rykiel, 1984). Headwaters of the Suwannee and St. Marys Rivers are in the swamp. Water depths average about 2 feet over an uneven layer of peat composed of plant material that has accumulated over thousands of years. Impermeable sediments underlying the peat keep most of the water from percolating into the ground. In severe drought, fires can burn the exposed peat, lowering the elevation of the swamp floor.

Major fires probably burn large areas of the Okefenokee Swamp every 25 to 30 years (Izlar, 1984a). When normal hydrologic conditions return, the swamp floor is again inundated, and those areas where the peat was reduced hold deeper water in which aquatic plants such as water lilies grow. If fires are suppressed, swamp-floor levels can become high enough to support other types of wetlands such as an emergent marsh vegetated by maidencane, sedges, iris, and other plants. Accumulated plant material contributes to the buildup of peat until trees like red maple can grow or until fire again reduces the amount of peat on the floor of the swamp.

The Okefenokee Swamp provides habitat for 36 species of fish, 37 species of amphibians, 66 species of reptiles, and 48 species of mammals (Laerm and others, 1984). Among the inhabitants of the swamp are rare animal and plant species such as round-tailed muskrat, sandhill crane, woodstork, and hooded pitcher plants. A reported 232 species of birds inhabit in the swamp during some part of the year; 120 of these species are permanent residents (Sanders, 1987).

The Okefenokee Swamp was preserved by its own inhospitableness for many years. In the 1890's a canal was dug through the ridge on the eastern border to drain the swamp for logging and development. Drainage was unsuccessful, but eventually about 90 percent of the marketable cypress was removed (Izlar, 1984b). Some pioneers managed to establish homesites in the swamp, but it was a place where only a few could make a living. The Okefenokee National Wildlife Refuge, created in 1937, includes approximately 85 percent of the swamp. After devastating fires in the 1950's, an earthern dam, or sill, was built on the Suwannee River to raise water levels in the swamp. This sill has affected water levels over approximately one-fourth of the swamp area. Since the installation of the sill, scientific studies have clarified the role of natural fire in rejuvenating the swamp, and wildlife managers are now considering allowing the sill to degenerate over time (Yin and Brook, 1992).

TRENDS

The FWS National Wetlands Inventory recently reported that Georgia had about 7.7 million acres of wetlands as of the 1980's (Hefner and others, 1994). This estimate was based on the results of a sampling procedure that used aerial photography. Another estimate, based on satellite imagery, classified approximately 4.3 million acres in Georgia as wetland (J.R. Bozeman, Georgia Department of Natural Resources, written commun., 1992). The largest discrepancy between these surveys was in the estimates of palustrine forested wetlands (J.M. Hefner, U.S. Fish and Wildlife Service, oral commun., 1993). The discrepancies between estimates of wetland acreages could have resulted from differences in accuracy and resolution between aerial photography and satellite imagery and in interpretive techniques used for each method (Federal Geographic Data Committee, 1992).

Because estimates of current wetland acreages in Georgia do not agree, estimates of losses are difficult to substantiate. Dahl (1990) reported wetland losses of approximately 23 percent for Georgia from the 1780's to 1980's, the lowest percentage of loss among the Southeastern States. Wetland losses throughout the Southeast have been caused primarily by drainage for farming and forestry operations (Hefner and Brown, 1985). Palustrine forested wetlands along streams and isolated swamps of the coastal plain probably have been the most affected. Between the mid-1970's and mid-1980's, more than 100,000 acres of freshwater forested wetlands in Georgia were destroyed, mostly because of conversion to land uses such as agriculture (Dahl and others, 1991). Nearly 500,000 acres of palustrine forested wetlands were converted during the same time period to scrub-shrub or emergent freshwater wetlands (Hefner and others, 1994). Loss of estuarine marshes has slowed since 1970 when Georgia began protecting those wetlands from development.

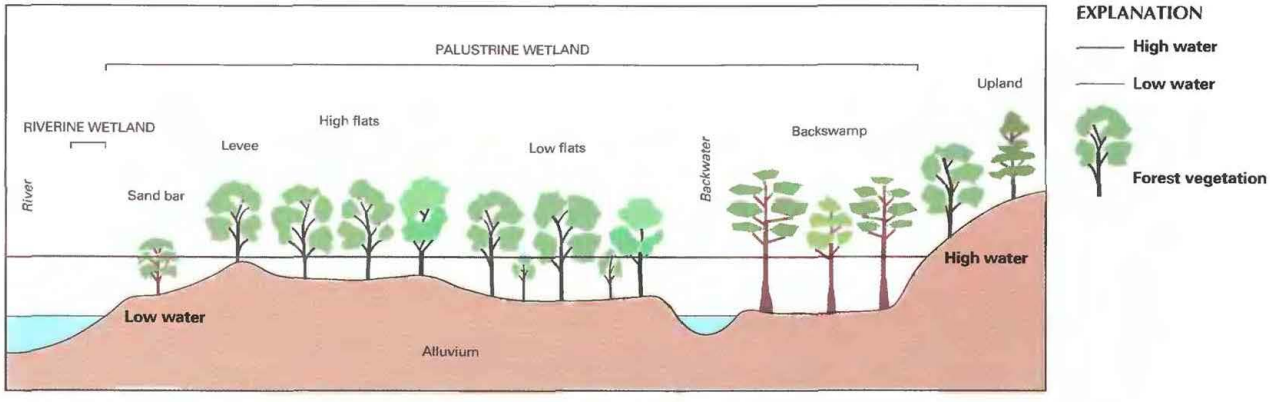

Figure 3. Schematic cross section of an alluvial river flood plain in Georgia.

CONSERVATION

Many government agencies and private organizations participate in wetland conservation in Georgia. The most active agencies and organizations and some of their activities are listed in table 1.

Federal wetland activities.—Development activities in Georgia wetlands are regulated by several Federal statutory prohibitions and incentives that are intended to slow wetland losses. Some of the more important of these are contained in the 1899 Rivers and Harbors Act; the 1972 Clean Water Act and amendments; the 1985 Food Security Act; the 1990 Food, Agriculture, Conservation, and Trade Act; the 1986 Emergency Wetlands Resources Act; and the 1972 Coastal Zone Management Act.

Section 10 of the Rivers and Harbors Act gives the U.S. Army Corps of Engineers (Corps) authority to regulate certain activities in navigable waters. Regulated activities include diking, deepening, filling, excavating, and placing of structures. The related section 404 of the Clean Water Act is the most often-used Federal legislation protecting wetlands. Under section 404 provisions, the Corps issues permits regulating the discharge of dredged or fill material into wetlands. Permits are subject to review and possible veto by the U.S. Environmental Protection Agency, and the FWS has review and advisory roles. Section 401 of the Clean Water Act grants to States and eligible Indian Tribes the authority to approve, apply conditions to, or deny section 404 permit applications on the basis of a proposed activity's probable effects on the water quality of a wetland.

Most farming, ranching, and silviculture activities are not subject to section 404 regulation. However, the "Swampbuster" provision of the 1985 Food Security Act and amendments in the 1990 Food, Agriculture, Conservation, and Trade Act discourage (through financial disincentives) the draining, filling, or other alteration of wetlands for agricultural use. The law allows exemptions from penalties in some cases, especially if the farmer agrees to restore the altered wetland or other wetlands that have been converted to agricultural use. The Wetlands Reserve Program of the 1990 Food, Agriculture, Conservation, and Trade Act authorizes the Federal Government to purchase conservation easements from landowners who agree to protect or restore wetlands. The Consolidated Farm Service Agency (formerly the Agricultural Stabilization and Conservation Service) administers the Swampbuster provisions and Wetlands Reserve Program. The Natural Resources Conservation Service (formerly the Soil Conservation Service) determines compliance with Swampbuster provisions and assists farmers in the identification of wetlands and in the development of wetland protection, restoration, or creation plans.

The 1986 Emergency Wetlands Resources Act and the 1972 Coastal Zone Management Act and amendments encourage wetland protection through funding incentives. The Emergency Wetland Resources Act requires States to address wetland protection in their Statewide Comprehensive Outdoor Recreation Plans to qualify for Federal funding for State recreational land; the National Park Service provides guidance to States in developing the wetland component of their plans. Coastal States that adopt coastal-zone management programs and plans approved by the National Oceanic and Atmospheric Administration are eligible for Federal funding and technical assistance through the Coastal Zone Management Act.

State wetland activities.—The Georgia Department of Natural Resources is the principal State agency reviewing development activities in wetlands. Georgia has a coastal regulatory program and requires a State permit for development activities in coastal marshes. A similar program for regulating activities in freshwater wetlands does not exist. The Georgia Water Quality Control Act and section 401 of the Federal Clean Water Act provide indirect protection of freshwater wetlands in some instances. Under these two acts, the Environmental Protection Division of the Department of Natural Resources must certify, for both freshwater and estuarine areas, that wetland activities will not degrade water quality (Wagner and others, 1989).

In 1970, Georgia enacted the Coastal Marshlands Protection Act to protect and conserve estuarine marshlands. Since that time, permits issued by the Department of Natural Resources' Coastal Resources Division have allowed less than 600 acres of jurisdictional marshlands to be filled by nonexempt activities. Total coastal marshland losses, however, have been much higher as a result of filling for public works projects, which are exempt. For example, the estimated loss of tidal wetlands resulting from the construction of Interstate 95 through Georgia is approximately 4,000 acres (Georgia Department of Natural Resources, 1992).

Nonregulatory programs include acquisition of wetlands as part of wildlife-management areas and public fishing areas by the Department of Natural Resources' Game and Fish Division. Total wetland acreage owned by the State is estimated to exceed 57,000 acres. Wetland acquisitions are a priority of the Preservation 2000 program of 1991. Recent wetland tracts acquired with Preservation 2000 funds include approximately 7,000 acres of tidal salt marshes on two coastal barrier islands and approximately 6,000 acres of flood-plain swamp on the lower Altamaha River. Small areas of wetlands also have been enhanced, restored, or constructed by the Department of Natural Resources for mitigation, wastewater treatment, or waterfowl habitat management (Georgia Department of Natural Resources, 1992).

Table 1. Selected wetland-related activities of government agencies and private organizations in Georgia, 1993

[Source: Classification of activities is generalized from information provided by agencies and organizations. •, agency or organization participates in wetland-related activity; ..., agency or organization does not participate in wetland-related activity. MAN, management; REG, regulation; R&C, restoration and creation; LAN, land acquisition; R&D, research and data collection; D&I, delineation and irventory]

Agency or organization	MAN	REG	R&C	LAN	R&D	D&I
FEDERAL						
Department of Agriculture						
Consolidated Farm Service Agency		•				
Forest Service	•		•	•	•	•
Natural Resources Conservation Service		•	•		•	•
Department of Commerce						
National Oceanic and Atmospheric Administration	•	•			•	
Department of Defense						
Army Corps of Engineers	•	•	•		•	•
Military reservations	•					
Department of the Interior						
Fish and Wildlife Service	•		•	•	•	•
Geological Survey					•	
National Biological Service	.		..	.	•	..
National Park Service	•		•	•	•	•
Environmental Protection Agency		•			•	•
STATE						
Department of Community Affairs		•				
Department of Natural Resources						
Coastal Resources Division	•	•	•		•	•
Environmental Protection Division		•	•			
Game and Fish Division	•		•	•	•	•
Parks, Recreation, and Historic Sites Division	•			•		
Department of Transportation			•			
Georgia Forestry Commission	•				•	
REGIONAL, COUNTY, AND LOCAL						
Regional Development Centers		•	..			
Some county and city governments	•	•	•			
PRIVATE ORGANIZATIONS						
The Nature Conservancy of Georgia	•			•	•	•
Georgia Wildlife Federation				•		
Trust for Public Lands	.			•	..	..

Regional, county, and local wetland activities.—"Growth Strategies Legislation" adopted in 1989 requires county and local governments to formulate planning and land-use control programs that include steps to protect wetlands (Georgia Department of Natural Resources, 1992). Guidelines for these county and local protection plans are being developed by the Department of Natural Resources, the Department of Community Affairs, and Regional Development Centers.

Private wetland activities.—Many private organizations in Georgia such as the Georgia Conservancy, the Sierra Club, and the National Wildlife Federation lobby for wetland-protection measures, participate in litigation involving wetland issues, and comment on State and Federal permits allowing wetland alterations. The Nature Conservancy of Georgia and the Georgia Wildlife Federation are acquiring river flood plains for preservation, primarily along the Altamaha and Alcovy Rivers, respectively.

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