

Appendix A—Georgia Coastal Management Program

Activities Performed Directly by the Coastal Resources Division

Resource Management: The Coastal Resources Division manages marine resources by conducting research and surveys, monitoring saltwater fish stocks, enhancing marine access, constructing inshore artificial reefs, and educating coastal residents on fisheries issues. Research and monitoring activities focus on spotted sea trout and red drum. Enhancing marine access includes construction of fixed and floating docks at existing boat ramp sites, maintenance of existing boat ramps, and conversion of existing shoreside structures into public piers. Staff are actively involved in marine education with field demonstrations and presentations to school groups, civic groups, and conservation associations.

Ecological Monitoring: The Coastal Resources Division monitors coastal water quality and implements the National Shellfish Sanitation Program for the State of Georgia. These responsibilities include labelling areas open and/or closed to shellfishing, analyzing water quality, educating the public on shellfishing safety issues, and implementing other programs that monitor and improve coastal water quality. While the Coastal Resources Division has always administered the Georgia Shellfish Program, implementation of a federally-approved Coastal Management Program increases funding and staff dedicated to monitoring projects.

Direct Permit Authorities: The Coastal Resources Division administers several State authorities. With the approval of the Coastal Marshlands Protection Committee and the Shore Protection Committee, the Division issues Marsh Permits, Shore Permits, and the Revocable License. The Division also executes leases for State-owned water bottoms. In addition, the Division makes recommendations to the Environmental Protection Division on 401 Water Quality Certification issuance for projects that affect the coastal area. Marsh Permits and Shore Permits have always been administered at the Coastal Resources Division, while the Revocable License was previously administered by the Department of Natural Resources in Atlanta. Together, these programs give direct management authority over critical coastal habitats such as marshlands, beaches, navigable waters, and freshwater wetlands.

Technical Assistance: The Coastal Resources Division provides technical assistance for projects to minimize adverse impacts and coordinate the permitting process. The Division provides information on Best Management Practices; technical guidance on planning, construction, and design; and, information on habitat and endangered species. The Division also maintains a list of contacts in various agencies and institutions so that applicants and project designers can consult with local experts and design their projects appropriately. The Division serves as a liaison among agencies and provides forums for prospective applicants and developers to discuss potential issues and permit requirements with the appropriate agencies. The goals of this service are to promote quality development, to address resource issues, and to simplify the permit process and requirements for applicants. Implementation of a federally-approved Coastal Management Program involves significant increases in staff time and resources devoted to pre-project consultations, interagency coordination, and local government assistance.

Federal Consistency Review: With a federally-approved Coastal Management Program, the Coastal Zone Management Act gives the State of Georgia authority to review federal permits and licenses, federal projects, and federally-funded projects that affect the coastal area. The Coastal Resources Division reviews these activities to ensure that they are consistent with the Georgia Coastal Management Program. If a federal agency disagrees with the Division's consistency decision, a formal conflict resolution process may be used to settle the dispute.

Activities Implemented Through the Coastal Management Network

Local Governments: Local governments assist in long-term planning, economic development, and natural resource protection through preparation and implementation of their respective comprehensive plans, local laws and zoning regulations, as well as through their chambers of commerce and economic development authorities. Through the Georgia Coastal Management Program, the Coastal Resources Division provides technical assistance to local governments to assist in their planning efforts and address natural resource issues.

State Agencies: State agencies continue to administer their respective coastal management efforts as defined by existing Georgia State law. Memoranda of Agreement between the Coastal Resources Division and other State agencies with regulatory authority in the coastal area help ensure that all agencies act in accordance with the policies of the Georgia Coastal Management Program. The following State agencies are involved in the Georgia Coastal Management Program network.

Federal Agencies: Federal agencies continue to administer their respective programs as they are reviewed for consistency with the Georgia Coastal Management Program. On-going coordination efforts between the Coastal Resources Division and federal agencies is conducted to ensure communication and consistency.

THE FEDERAL COASTAL ZONE MANAGEMENT PROGRAM

The federal Coastal Zone Management Act of 1972 created a voluntary program for states to develop and administer coastal management programs. This Act set broad guidelines and approval criteria for states' management programs. Individual states are given the responsibility of identifying priority issues for their respective coasts, and implementing their program using State laws and regulations. General concerns such as consideration of national defense and interstate transport must be addressed to ensure that a management program does not unduly hamper these activities.

Almost all of the eligible states developed approved coastal management programs by 1990. Each state's program is unique -- the policies and administration reflect the state's individual priorities and laws. As one of the last coastal states to develop a coastal management program, Georgia has benefitted from the experiences of the other states with federally-approved management programs. The decision to submit Georgia's Coastal Management Program for federal approval is made by the Governor. Implementation and administration of the Georgia Coastal Management Program is performed by the State of Georgia and its agencies. States with federally-approved management programs have the option of withdrawing from the voluntary federal program at any time. The federal Coastal Zone Management Program provides Georgia with several significant benefits.

Federal Consistency: While federal agencies and activities are usually exempt from state laws, states with federally-approved coastal management programs gain review authority over federal activities. The Coastal Zone Management Act is the only law that provides this power to the states. This authority also gives states an equal voice with respect to interstate issues. Without a federally-approved coastal management program, Georgia forfeits its consistency review authority over federal projects, as well as its "seat at the table" of national coastal management.

Funding: Congress appropriates funds every year for approved coastal management programs under the Coastal Zone Management Act. Georgia is entitled to a portion of these funds with an approved program. If Georgia receives federal funding for coastal management, the funds will be used to sponsor monitoring, enforcement, technical assistance, public education, and research on coastal management issues.

Technical Assistance: The National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management provides assistance to state coastal programs in the form of information, technical support, and relating coastal issues to the Administration. A uniformed service of the Administration, the NOAA Corps provides

research vessels, equipment, and technical staff. The NOAA Coastal Services Center in Charleston is a regional office providing technical support and other coastal services to states participating in the national coastal management program.

This section describes the mission, goals, and objectives of the Georgia Coastal Management Program. Goals and objectives of the Program are categorized as either Program Goals or Resource Goals. Program Goals were developed by the Department of Natural Resources, Coastal Resources Division with the concurrence of the Coastal Zone Advisory Committee. Resource Goals were developed by the Coastal Zone Advisory Committee.

When developing goals, the Coastal Zone Advisory Committee recognized a number of common threads in their discussions. Despite differing viewpoints on coastal issues, all committee members agreed on the following points. A coastal management program for Georgia should: provide a mechanism for conflict resolution; promote and enhance educational programs that increase the awareness and understanding of the value of our resources; promote and enhance information links to the citizenry and user groups; recognize the complexities of private property rights; improve and enhance coastal resource related tourism; address cumulative impacts; result in better enforcement and monitoring of existing regulations; and provide and enhance managed public access to the resources; and provide a simplified and efficient process for permitting, that allows for ample and early review of significant projects.

PROGRAM GOALS

Goal: Develop and implement a management program that balances sustainable economic development and natural resource conservation in coastal Georgia.

Objectives:

Encourage and assist natural and social scientific research in coastal Georgia, in order to develop a comprehensive database of the area.

Promote increased recreational opportunities in coastal areas and increased public access to tidal waters in a manner that protects coastal resource quality, public health, and public safety.

Develop and institute a comprehensive erosion policy that identifies critical erosion areas, evaluates the long-term costs and benefits of erosion control techniques, seeks to minimize

the effects on natural systems (both biological and physical), and avoids damage to life and property.

Encourage new coastal development to locate in existing developed areas capable of accommodating additional growth, and in areas determined to be more environmentally and economically suitable for development.

Resolve conflicts and minimize potential conflicts among activities through improved coastal management that reflects the public's desires, the capacity of natural resources, and expected costs and benefits.

Encourage new facilities to locate in areas where adverse social, economic, and environmental impacts can be minimized, and encourage planning that prioritizes water-dependent uses along shoreline areas.

Promote the use of impact assessments which incorporate energy-saving benefits, economic effects, and social and environmental factors as the basis for decisions on development of energy facilities; and ensure that affected local governments obtain sufficient financial and technical assistance to cope with these impacts.

Support the wise commercial development of harbors, rivers, and waterways for trade and commerce in locations and using methods that maintain the environmental integrity of the coastal region.

Protect and, where possible, restore or enhance the resources of the State's coastal area for this and succeeding generations.

Develop a coastal program with flexibility for revision and improvement as knowledge and experience in managing coastal resources evolves.

Goal: Simplify the permitting system for activities in the coastal area in a manner that implements the goals and objectives of the Management Program and promotes the public interest.

Objectives:

Simplify the permitting system for activities in the coastal area in a manner that maintains the integrity and purpose of the Management Program.

Ensure that permits approved for coastal area activities are designed to minimize negative impacts on water quality, marine productivity, beach and shoreline stability, and other environmental aspects.

Give full consideration to the Rules and Regulations for permitting, with thorough and comprehensive reviews of all permit applications.

Provide guidance on environmentally suitable methods of design, construction, and development in the coastal area, and assist permit applicants to incorporate these environmentally suitable alternatives in their proposals where feasible.

Goal: Promote intergovernmental coordination and public participation in the development and implementation of the Georgia Coastal Management Program.

Objectives:

Provide full opportunity for participation by federal, State, and local government agencies, concerned organizations, and the general public in developing, implementing, and improving the Georgia Coastal Management Program.

Increase public awareness and encourage public participation during development of and decisions made pursuant to the Georgia Coastal Management Program.

Strengthen the planning and decision-making capabilities of cities and counties in the coastal area by providing financial, technical, and other assistance; and provide for coordination of local comprehensive plans and ordinances with the policies of the Georgia Coastal Management Program.

Promote coordination and use of existing State programs to minimize duplication of efforts, conflicting actions, and permit processing delays, and achieve coastal management objectives and policies.

Provide adequate representation of the interests of the State of Georgia in federal agency decisions and actions affecting the coastal area.

RESOURCE GOALS

Goal: Protect and sustain the unique character of life on the Georgia coast that is reflected in its cultural, historical, archeological, and aesthetic values by providing management of its resources.

Objectives:

Fisheries

Provide a coastal zone with finfish, crustaceans, and shellfish populations that will support commercial and sport fisheries on a sustainable basis.

Wildlife

Provide a coastal zone that maintains diverse indigenous wildlife populations at viable and sustainable levels. Provide a coastal zone in which wildlife species listed as special concern, threatened, or endangered are recovered to healthy, viable populations. Provide a coastal zone that attracts and sustains historic migratory bird populations.

Plants

Provide a coastal zone in which diverse indigenous plant populations are maintained at viable and ecologically balanced levels.

Historic and Archeological

Provide a coastal zone in which all significant archeological and historic sites and artifacts are preserved.

Cultural

Provide a coastal zone in which the unique cultural entities are recognized and protected.

Scenic Vistas

Provide a coastal zone in which marsh, river, and other natural scenic vistas, such as highway and river corridors, are free of visual obstructions and blight.

Minerals

Provide a coastal zone in which extraction and utilization of mineral resources will not detrimentally impact other coastal resources.

Surface Water

Provide a coastal zone in which surface waters of the State meet or exceed recreation-use water quality standards.

Groundwater

Provide a coastal zone in which the water supply aquifers are managed at levels needed to provide adequate, potable drinking water in perpetuity. Provide a coastal zone in which the groundwater is managed to meet demands other than drinking water on a sustainable basis, while achieving some restoration of the resource.

Tidal, Marsh, and Submerged Lands

Provide a coastal zone in which the scenic quality and biological productivity of tidal resources is maintained.

Freshwater Wetlands

Provide a coastal zone in which the area and functional integrity of wetlands that impact the coastal region of Georgia are maintained.

Barrier Islands

Provide a coastal zone in which the natural systems of barrier islands are preserved and protected.

Beaches

Provide a coastal zone in which the integrity and functioning of the sand-sharing system is maintained.

Farmlands and Woodlands

Provide a coastal zone in which the productivity of woodlands and farmlands is maintained, with management practices that preserve water quality and biodiversity.

Appendix B—Site Assessment Resources

Much of the information presented in this appendix has been reproduced from the Green Growth Guidelines, 1st Edition, and from resource lists compiled from the Center for Watershed Protection (CWP) and the Southern Georgia Regional Commission (SGRC).

GIS Resources

Although a lot of the information needed to complete an inventory of the natural and man-made resources found on a development site will need to be gathered using surveying and assessment techniques, some of it may be available, in GIS format, from online data clearinghouses or from other sources, such as local planning and zoning offices.

The following table provides an overview of GIS data layers that are typically used during the site assessment phase.

Data Types	GIS Data Layers	Sources
Topography	<ul style="list-style-type: none">• Digital Line Graphs (DLGs)• Digital Raster Graphics (DRGs)• Digital Elevation Models (OEMs)• National Elevation Database (NED)	<ul style="list-style-type: none">• USGS Mapping• USGS Topographic Maps• USGS Mapping• USGS Mapping
Hydrology	<ul style="list-style-type: none">• National Hydrography Dataset (NHD)• Digital Line Graphs	<ul style="list-style-type: none">• USGS Mapping• USGS Mapping
Wetlands	<ul style="list-style-type: none">• National Wetland Inventory (NWI)	<ul style="list-style-type: none">• USFWS

Data Types	GIS Data Layers	Sources
100-year floodplain	<ul style="list-style-type: none"> • Digital Q3 Flood Data • Digital Flood Insurance Rate Maps (DFIRM) • Coastal Barrier Resource Area (CRBA) Q3 	<ul style="list-style-type: none"> • FEMA
Soils	<ul style="list-style-type: none"> • State Soil Geographic Database (STATSGO) • Soil Survey Geographic Database (SSURGO) 	<ul style="list-style-type: none"> • NRCS STATSGO • NRCS SSURGO
Watershed/subwatershed boundaries	<ul style="list-style-type: none"> • Hydrologic Unit Code (HUC) boundaries 	<ul style="list-style-type: none"> •USGS Water Resources
Parcel boundaries	Check with local GIS or planning department	
Municipal boundaries	<ul style="list-style-type: none"> • Topological/ Integrated Geographic Encoding and Referencing (TIGER)/Line files •Digital Line Graphs 	<ul style="list-style-type: none"> •Census Bureau USGS Mapping
Aerial photos	<ul style="list-style-type: none"> • Digital Orthophoto Quadrangles (DOQs) • Ikonos imagery • National Agriculture Imagery Program (NAIP) 	<ul style="list-style-type: none"> •USGS DOQs Space Imaging •USDA Geospatial Data Gateway
Land use/land cover	<ul style="list-style-type: none"> •National Land Cover data 	<ul style="list-style-type: none"> •USGS National Land Cover Characterization

Data Types	GIS Data Layers	Sources
Municipal boundaries	<ul style="list-style-type: none"> • Topological/ Integrated Geographic Encoding and Referencing (TIGER)/Line files • Digital Line Graphs 	<ul style="list-style-type: none"> • Census Bureau USGS Mapping
Aerial photos	<ul style="list-style-type: none"> • Digital Orthophoto Quadrangles (DOQs) • Ikonos imagery • National Agriculture Imagery Program (NAIP) 	<ul style="list-style-type: none"> • USGS DOQs Space Imaging • USDA Geospatial Data Gateway
Land use/land cover	<ul style="list-style-type: none"> • National Land Cover data 	<ul style="list-style-type: none"> • USGS National Land Cover Characterization
Zoning		<ul style="list-style-type: none"> • Check with local GIS or planning department
Roads	<ul style="list-style-type: none"> • Topological Integrated Geographic Encoding and Referencing (TIGER)/Line files • Digital Line Graphs 	<ul style="list-style-type: none"> • Census Bureau USGS Mapping
Buildings		<ul style="list-style-type: none"> • Check with local GIS or planning department
Parking lots		<ul style="list-style-type: none"> • Check with local GIS or planning department
Driveways		<ul style="list-style-type: none"> • Check with local GIS or planning department

Data Types	GIS Data Layers	Sources
Sidewalks		<ul style="list-style-type: none"> • Check with local GIS or planning department
Turf cover		<ul style="list-style-type: none"> • Check with local GIS or planning department
Forest cover		<ul style="list-style-type: none"> • Check with local GIS or planning department
Utilities		<ul style="list-style-type: none"> • Check with local GIS or planning department
Sanitary sewer lines		<ul style="list-style-type: none"> • Check with local GIS or planning department
Storm drain network		<ul style="list-style-type: none"> • Check with local GIS or planning department
Storm water practices		<ul style="list-style-type: none"> • Check with local GIS or planning department
Storm water outfalls		<ul style="list-style-type: none"> • Check with local GIS or planning department
Other utilities (e.g., electric, gas, phone)		<ul style="list-style-type: none"> • Check with local GIS or planning department
National Pollutant Discharge Elimination System (NPDES) permit holders	<ul style="list-style-type: none"> • Permit Compliance System (PCS) 	<ul style="list-style-type: none"> • EPA BASINS
Hazardous waste/materials sites (e.g., CERCLA, RCRA permit holders)	<ul style="list-style-type: none"> • Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) 	<ul style="list-style-type: none"> • EPA PCS

Data Types	GIS Data Layers	Sources
Erosion and sediment control (ESC) construction permits		<ul style="list-style-type: none"> • Check with local GIS or planning department
Sanitary or Combined Sewer Overflow Occurrences		<ul style="list-style-type: none"> • Check with local GIS or planning department
Other Potential Hotspots: Gas Stations & Underground Storage Tanks		<ul style="list-style-type: none"> • Check with local GIS or planning department
Historic Sites	<ul style="list-style-type: none"> • Federal and/or State Historic Sites 	<ul style="list-style-type: none"> • National Park Service • GADNR State Parks and Historic Sites • Local GIS, planning, or historic departments
Conservation Areas	<ul style="list-style-type: none"> • Federal and/or State Conservation Areas 	<ul style="list-style-type: none"> • GADNR Wildlife Resources Division • USFWS GA Ecological Services • Local GIS, planning, or environmental departments
Rare, threatened or endangered (RTE) species habitat	<ul style="list-style-type: none"> • Federal and/or State threatened, endangered, proposed species, and species of concern and their habitat 	<ul style="list-style-type: none"> • USFWS GA Ecological Services • NOAA Fisheries • GADNR Wildlife Resources Division

Data Types	GIS Data Layers	Sources
Stream Condition: Monitoring stations	<ul style="list-style-type: none"> • 305(b) Water Quality Assessments • Storage and Retrieval (STORET) 	<ul style="list-style-type: none"> • EPA Watershed Assessments • EPA STORET • GADNR/Environmental Protection Division
Impaired Stream Segments	<ul style="list-style-type: none"> • 305(b) Water Quality Assessments • Storage and Retrieval (STORET) 	<ul style="list-style-type: none"> • EPA Watershed Assessments • EPA STORET • GADNR/Environmental Protection Division

GIS Data Clearinghouses

This section provides a list of GIS data clearinghouses. Free, downloadable resources are marked with an asterisk (*).

EPA Better Assessment Science Integrating Point and Nonpoint Sources (BASINS)*

<http://www.epa.gov/waterscience/basins/b3webdwnihtm>

Order software and EPA regional data including point sources, hydrology, and watershed boundaries.

EPA Permit Compliance System (PCS)*

<http://www.epa.gov/enviro/html/pcs/index.html>

Query and download data on NPDES permits and other industrial discharges. Data is in tabular format but contains coordinates for input into GIS.

EPA STORET (STORage and RETreival)*

<http://www.epa.gov/storet>

Download water quality data in tabular format from existing monitoring sites for input into GIS.

EPA Surf Your Watershed*

<http://www.epa.gov/surf/locate/index.cfm>

Online mapping tool used to obtain data about any specific watershed in the US.

EPA Watershed Assessments*

<http://www.epa.gov/waters/data/downloads.html>

Download EPA 305b assessment and 303d impaired stream layers.

ESRI*

<http://www.esri.com/data/free-data/index.html>

Contains a wealth of technical resources for GIS software, downloadable data layers and a downloadable GIS viewing software called ArcExplorer.

Federal Geographic Data Committee's National Geospatial Data Clearinghouse

<http://fgdc.ftw.nrcs.usda.gov/gateways.html>

Search hundreds of spatial data servers for data and metadata and ordering information.

Federal Emergency Management Agency (FEMA)

<http://msc.fema.gov/webapp/wcs/stores/servlet/StoreCatalogDisplay?storeId=10001&catalogId=10001&langId=-1&userType=G>

Flood maps available for purchase.

Georgia Department of Community Affairs, Georgia Data Base and Network*

<http://www.georgiaplanning.com/dataforplanning.asp>

Provides boundary maps, census maps, coastal resource maps, cultural resource maps, demographic and economic data, groundwater recharge area map, Homeland Security Infrastructure Program (HSIP), land use maps, national wetlands inventory, southeastern ecological framework, protected mountain map, protected rivers map, opportunity zone map, and aerial photography.

Georgia Department of Natural Resources, Wildlife Resources Division, Coastal Georgia Land Conservation Initiative and Coastal Mapping Project

<http://www.georgiawildlife.com/node/267>

Provides green infrastructure maps showing high priority ecological resources along the Georgia coast.

Georgia GIS Data Base and Network*

<http://gis.state.ga.us>

Maintains current GIS layers and attributes for the state categorized by county.

GIS Data Depot*

<http://data.geocomm.com/>

Contains national, state, or county-level GIS data for sale at a reasonable price or for free download in some cases.

Mapmart

<http://www.mapmart.com>

Contains national, state, or county-level GIS data for sale at a reasonable price.

National Atlas of the United States*

<http://www.nationalatlas.gov/atlasftp.html>

Contains various GIS layers from the US Department of the Interior.

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, Essential Fish Habitat*

<http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>

Contains a mapping tool and downloadable data for essential fish habitat.

Space Imaging

<http://www.spaceimaging.com/products/ikons/>

Vendor offering satellite imagery for sale.

Terra server*

<http://www.terra-server.com>

Online mapping tool used for viewing aerial photos and topographic quadrangles for locations across the US. Searchable by address, geographic coordinates and more.

US Census Bureau TIGER*

<http://www.census.gov/geo/www/tiger/index.html>

Download TIGER/Line files from 2010 and earlier by state. Files include municipal boundaries, roads, and other general data.

USDA Geospatial Data Gateway*

<http://datagateway.nrcs.usda.gov/>

Download various data including free imagery.

USDA Natural Resources Conservation Service (NRCS), State of the Land*

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/nri/?&cid=nrcs143_013689

Download various ArcInfo coverages for the entire US and individual states.

USDA NRCS State Soil Geographic (STATSGO) Database*

<http://soils.usda.gov/survey/geography/statsgo/>

Download soil layers for U.S. states.

USDA NRCS Soil Survey Geographic (SSURGO) Database*

<http://soils.usda.gov/survey/geography/ssurgo/>

Download soil layers for U.S. counties.

US Fish and Wildlife Service (FWS), Georgia Ecological Services Field Offices, Threatened and Endangered Species*

<http://www.fws.gov/Athens/Endangered.html>

Download GIS layers for the entire state or select counties.

US Fish and Wildlife Service Migratory Bird Data Center*

<http://mbdcapps.fws.gov/>

Provides access to bird population and habitat information relevant to population management, conservation planning, and evaluation. It includes an interactive mapping application, data query capabilities on the biological databases, and spatial data download options.

US Fish and Wildlife Service (FWS) National Wetland Inventory (NWI)*

<http://www.fws.gov/wetlands/Data/DataDownload.html>

Download NWI GIS layers for the entire US.

USGS Center for Spatial Analysis Technologies (CSAT)

<http://csat.er.usgs.gov>

Maintains database where various GIS data sets can be found.

USGS Digital Orthophoto Quadrangles (DOQs)

<http://egsc.usgs.gov/isb/pubs/factsheets/fs05701.html>

Fact sheet on DOQs that provides basic description and instructions for ordering.

USGS Mapping*

<http://eros.usgs.gov/>

Downloads and ordering information for DEMs, DLGs, NED and NHD.

USGS National Land Cover Characterization*

<http://landcover.usgs.gov/landcoverdata.php>

Download land cover data by state.

USGS Topographic Maps

<http://topomaps.usgs.gov/drg>

Download or order DRGs, also contains basic info about topographic maps and USGS map symbols.

USGS Water Resources Maps and Info

<http://water.usgs.gov/maps.html>

Download HUC boundaries, stream ecoregions, landuse and more for the entire US.

US Department Of Transportation TRANSTAT*

<http://www.transtats.bts.gov>

TRANSTAT database provides updated transportation and infrastructure layers including streets, highways, rails, pipelines, sidewalks and bike paths.

Non-GIS Resources

Some additional non-GIS resources that may be useful for completing an inventory of the natural and man-made resources found on a development site are provided below.

Coastal Georgia Regional Commission

<http://crc.ga.gov/default.aspx>

Information about regional land use planning efforts.

Georgia Conservancy, Coastal Georgia Land Conservation Initiative

<http://www.georgiaconservancy.org/coast/cglci.html>

Information about regional land conservation efforts.

Georgia Department of Natural Resources, Coastal Resources Division, Shellfish Sanitation Program

<http://www.coastalgadnr.org/maps>

Information about shellfish harvesting practices and protected shellfish harvesting areas.

Georgia Department of Natural Resources, Environmental Protection Division, Integrated 305(b)/303(d) List

<http://www.georgiaepd.org/Documents/305b.html>

Information about water quality and Georgia's degraded waterbodies.

Georgia Department of Natural Resources, State Parks and Historic Sites

<http://www.gastateparks.org/historic/>

Information about Georgia's state parks and historic sites.

Georgia Department of Natural Resources, Wildlife Resources Division, Nongame Conservation Section, Animals and Plants

<http://www.georgiawildlife.com/conservation/georgia-animals-plants>

Information about federal and state threatened, endangered and protected animal and plant species.

Georgia Department of Natural Resources, Wildlife Resources Division, Nongame Conservation Section, Coastal Georgia Land Conservation Initiative

<http://www.georgiawildlife.com/node/267>

Information about preserving critical lands and promoting sustainable growth and development.

Georgia Department of Natural Resources, Wildlife Resources Division, Nongame Conservation Section, State Wildlife Action Plan

<http://www.georgiawildlife.com/conservation/wildlife-action-plan>

Information about coastal Georgia's priority plant and animal species and habitat areas.

Georgia Exotic Pest Plant Council

<http://www.gaepcc.org/>

Information about non-native and invasive species in the state of Georgia.

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, Endangered Species Act

<http://www.nmfs.noaa.gov/pr/laws/esa/>

Information about federal and state threatened, endangered and protected animal and plant species.

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, Marine Mammal Act

<http://www.nmfs.noaa.gov/pr/laws/mmpa/>

Information about federal and state threatened, endangered and protected animal and plant species.

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, Magnuson-Stevens Act

<http://www.nmfs.noaa.gov/msa2007/>

Information about federal and state threatened, endangered and protected animal and plant species. The Magnuson-Stevens Act protects essential fish habitat.

National Park Service, Department of the Interior, National Historic Sites in Georgia

<http://www.nps.gov/state/ga/index.htm?program=parks>

Information about historic sites in Georgia.

Southern Georgia Regional Commission

<http://www.sgrc.us/>

Information about regional land use planning efforts.

US Army Corps of Engineers, Regulatory Division, Savannah District

<http://www.sas.usace.army.mil/regulatory/permits.html>

Information about federal regulations for wetlands and waters of the US.

US Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds, Wetlands Program

<http://water.epa.gov/type/wetlands/index.cfm>

General information about wetlands.

**US Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds,
Wetlands Program, Water Quality Standards**

http://water.epa.gov/lawsregs/guidance/cwa/waterquality_index.cfm

Information about federal water quality regulations for wetlands.

US Fish and Wildlife Service, Bald and Golden Eagle Protection Act

<http://www.fws.gov/migratorybirds/baldeagle.htm>

Information about the protection of bald eagles.

US Fish and Wildlife Service, Migratory Bird Protection Act

<http://www.fws.gov/migratorybirds>

Information about the protection of migratory birds.

**US Fish and Wildlife Service, Georgia Ecological Services Field Offices, Threatened and
Endangered Species**

<http://www.fws.gov/Athens/endangered.html>

Information about federal and state threatened, endangered and protected animal and plant species.

University of Georgia, Ecosystem Health and Invasive Species Program (Bugwood)

<http://www.bugwood.org/>

Information about non-native and invasive species in the state of Georgia.

University of Georgia, Marine Extension Service, CoastScapes Program

<http://www.coastscapes.org>

Provides an online search engine for trees and plants that are native to coastal Georgia.

APPENDIX C

High Priority Coastal Habitats

(Source: Georgia Stormwater Management Manuals, Coastal Stormwater Supplement, August 2009 and GDNR Wildlife Resources Division *Comprehensive Wildlife Strategy for Georgia, 2005*)

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Amorpha georgiana</i> var. <i>georgiana</i>	Georgia indigo-bush	G3T2	S1			River terraces; floodplain woods; flint kaolin outcrop; mesic habitats with wiregrass, longleaf pine, mixed oaks	UCP
<i>Amorpha herbacea</i> var. <i>floridana</i>	Florida leadbush	G4T?Q	S1			River terraces along the Alapaha River	LCP, if accepted as taxonomically significant
<i>Arabis georgiana</i>	Georgia rockcress	G2	S1	C	T	Rocky or sandy river bluffs and banks, in circumneutral soil	PD, RV, UCP; along Coosa, Oostanaula and lower Chattahoochee Rivers
<i>Aristida simpliciflora</i>	Chapman three-awn grass	G3	SH			Longleaf pine-wiregrass savannas	UCP
<i>Arnoglossum diversifolium</i>	Variable-leaf Indian-plantain	G2	S2		T	Calcareous swamps	UCP
<i>Arnoglossum sulcatum</i>	Grooved-stem Indian-plantain	G2G3	S1			Bottomland forests	UCP
<i>Asplenium heteroresiliens</i>	Morzeni's spleenwort	G2Q	S1		T	Limestone and marl outcrops; tabby ruins	UCP, LCP
<i>Astragalus michauxii</i>	Sandhill milkvetch	G3	S2			Longleaf pine-wiregrass savannas; turkey oak scrub	UCP
<i>Balduina atropurpurea</i>	Purple honeycomb head	G2G3	S2		R	Wet savannas, pitcherplant bogs	UCP, LCP
<i>Baptisia arachnifera</i>	Hairy rattleweed	G1	S1	LE	E	Pine flatwoods	LCP, entire global range in parts of Brantley and Wayne Cos.
<i>Brickellia cordifolia</i>	Heartleaf brickellia	G2G3	S2			Mesic hardwood forests	UCP
<i>Calamintha ashei</i>	Ashe's wild savory	G3	S2		T	Ochoopee dunes	UCP, Tattnall and Candler Cos.
<i>Campylopus carolinae</i>	Sandhills awned-moss	G1G2	S2?			Fall line sandhills; Altamaha Grit outcrops in partial shade of mesic oak forests	UCP
<i>Carex calcifugens</i>	Lime-fleeing sedge	G2G4	SR			Said by FNA to occur in "Mesic deciduous forests, in sandy loams and sands, usually on stream bank slopes."	LCP (only?)
<i>Carex dasycarpa</i>	Velvet sedge	G4?	S3		R	Evergreen hammocks; mesic hardwood forests	LCP, UCP
<i>Carex decomposita</i>	Cypress-knee sedge	G3	S2?			Swamps and lake margins on floating logs	LCP, UCP

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Carex godfreyi</i>	Godfrey's sedge	G3G4	S3?			Forested depressional wetlands.	UCP, possibly LCP?, uncertain, verification needed
<i>Carex lupuliformis</i>	Mock hop sedge	G5	SU			Said by FNA to occur in "Wet forests, especially in openings around forest ponds, riverine wetlands, marshes, wet thickets, 0-500 m."	LCP?, uncertain, verification needed
<i>Coreopsis integrifolia</i>	Tickseed	G1G2	S1S2			Floodplain forests, streambanks	UCP, LCP
<i>Ctenium floridanum</i>	Florida orange-grass	G2	S1			Moist pine barrens	LCP
<i>Dicerandra radfordiana</i>	Radford's dicerandra	G1Q	S1			Sandridges	LCP, entire global range consists of 2 small areas in McIntosh Co.
<i>Eccremidium floridanum</i>	Florida eccremidium moss	G1?	S1			Sandy or sometimes clay soil in open, disturbed sites, often in areas that are wet part of the year and quite dry other parts of the year, fields and roadsides, thin soil over rock outcrops, around margins of cypress	UCP
<i>Eleocharis tenuis</i> var. <i>tenuis</i>	Slender spikerush	G5T?	SU			Moist to wet sandy-peaty soils; pine flatwoods	RV, PD, where doubtfully recorded and in need of comparison with other named varieites known to be present
<i>Elliottia racemosa</i>	Georgia plume	G2G3	S2S3		T	Scrub forests; Altamaha Grit outcrops; open forests over ultramafic rock	PD, UCP, LCP; from Ft. Stewart to Ashburn, Turner Co.;disjunct on piedmont on Burks Mtn., Columbia Co.
<i>Epidendrum conopseum</i>	Green-fly orchid	G4	S3		U	Epiphytic on limbs of evergreen hardwoods; also in crevices of Altamaha Grit outcrops	UCP, LCP; widespread, sometimes locally abundant especially in bottomland forests along major rivers in Southeast Georgia
<i>Eriochloa michauxii</i> var. <i>michauxii</i>	Michaux's cupgrass	G3G4T3T4	S1?			Coastal freshwater and brackish marshes; flatwoods	LCP; map in FNA shows records from Charlton, Glynn, Liberty and McIntosh Cos.
<i>Eupatorium anomalum</i>	Florida boneset	G2G3	SU			Wet, low ground	LCP, UCP; likely close to Florida pending scrutiny of closely related <i>E. mohrii</i> and <i>E. rotundifolium</i>
<i>Evolvulus sericeus</i> var. <i>sericeus</i>	Creeping morning-glory	G5T?	S1		E	Altamaha Grit outcrops; open calcareous uplands	UCP
<i>Forestiera godfreyi</i>	Godfrey's wild privet	G2	S1			Mesic, maritime forests over shell mounds	LCP, Camden Co.
<i>Forestiera segregata</i>	Florida wild privet	G4	S2			Shell mounds on barrier islands in scrub or maritime forests	Restricted to shell middens overlooking or upon barrier islands; LCP

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Fothergilla gardenii</i>	Dwarf witch-alder	G3G4	S2		T	Openings in low woods and swamps; edges of seepage bogs	UCP, LCP; widely distributed from Fall Line Sandhills to more southern flatwoods
<i>Habenaria quinqueseta</i> var. <i>quinqueseta</i>	Michaux's orchid	G4G5T ?	S1			Moist shade, Altamaha Grit outcrops; open pine woods	UCP, LCP; widely scattered sites
<i>Hartwrightia floridana</i>	Hartwrightia	G2	S1		T	Wet savannas; ditches, sloughs and flatwood seeps	LCP, restricted to Okefenokee Basin
<i>Hypericum</i> sp. 3	Georgia St.-John's-wort	G2G3	S2S3			Seepage bogs; roadside ditches	UCP, LCP, upper Ogeechee and Canoochee watersheds (only?) and near Eulonia, McIntosh Co.
<i>Justicia angusta</i>	Narrowleaf water-willow	G3Q	SH			Roadside ditches; perhaps with Hartwrightia in shallow sloughs and wet savannas	LCP
<i>Lachnocaulon beyrichianum</i>	Southern bog-button	G2G3	S1			Flatwoods	UCP, LCP
<i>Leitneria floridana</i>	Corkwood	G3	S1			Swamps; sawgrass-cabbage palmetto marshes	UCP, LCP
<i>Lindera melissifolia</i>	Pondberry	G2	S1	LE	E	Margins of seasonal ponds, both sandhill and limesink with swamp blackgum (<i>Nyssa biflora</i>).	LCP, UCP
<i>Litsea aestivalis</i>	Pondspice	G3	S2		T	Cypress ponds; swamp margins	UCP, LCP; especially southeastern Georgia
<i>Lycium carolinianum</i>	Carolina wolfberry	G4	S1			Coastal sand spits	LCP, Cumberland Island, Camden Co.
<i>Malaxis spicata</i>	Florida adders-mouth orchid	G4?	S1			Low hammocks; spring-fed river swamps	UCP, LCP, potentially over Coastal Plain based on Florida distribution; documented recently only from LCP; historic from UCP in Jenkins Co.
<i>Matelea alabamensis</i>	Alabama milkvine	G2	S1		T	Open bluff forests; mesic margins of longleaf pine sandridges	UCP, LCP; on Gulf CP and an area of Atlantic CP along the Altamaha River, Wayne Co..
<i>Matelea pubiflora</i>	Trailing milkvine	G3G4	S2		R	Exposed sandy soils; sandridges	UCP, LCP
<i>Myriophyllum laxum</i>	Lax water-milfoil	G3	S2		T	Bluehole spring runs; shallow, sandy, swift-flowing creeks; clear, cool ponds	UCP, in many watersheds, most often in westcentral Georgia sandhills
<i>Orbexilum virgatum</i>	Slender leather-root	G1	SH			Sandridges	LCP, Charlton Co.
<i>Oxypolis ternata</i>	Savanna cowbane	G3	S2			Wet pine savannas and bogs	UCP, widely scattered

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Peltandra sagittifolia</i>	Arrow arum	G3G4	S2?			Swamps; wet hammocks on pristine sphagnum mats	UCP, LCP; locally abundant in Okefenokee Swamp
<i>Penstemon dissectus</i>	Cutleaf beardtongue	G2	S2?		R	Altamaha Grit outcrops and adjacent pine savannas; rarely sandridges	UCP, endemic to Altamaha Grit (Tifton Uplands)
<i>Phaseolus polystachios</i> var. <i>sinuatus</i>	Trailing bean-vine	G4T3?	S2?			Sandhills; dry pinelands and hammocks	UCP, LCP
<i>Physostegia leptophylla</i>	Tidal marsh obedient-plant	G4?	S2S3		T	Freshwater tidal marshes; perhaps disjunct in wet savannas of extreme SW Georgia	LCP, coastal cos. on tidally influenced shorelines; reports from UCP in SW Georgia need verification
<i>Plantago sparsiflora</i>	Pineland plantain	G3	S2			Open, wet pine savannas; shallow ditches	UCP, LCP
<i>Platanthera blephariglottis</i> var. <i>blephariglottis</i>	White fringed-orchid	G4G5T4?	S1?				
<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	Southern white fringed-orchid	G4G5T3T4	S2?			Bogs, seeps, roadsides, wet savannas	UCP, LCP; scattered from Fall Line Sandhills to coast and South Georgia plantations
<i>Platanthera chapmanii</i>	Chapman's fringed-orchid	G4?	S1			Open, wet meadows; pine flatwoods	UCP, LCP, extreme Southeast Georgia; historic in Southwest Georgia
<i>Platanthera integra</i>	Yellow fringeless orchid	G3G4	S2			Wet savannas, pitcherplant bogs	UCP, LCP; documented from 9 cos., scattered on coastal plain
<i>Polygonum glaucum</i>	Sea-beach knotweed	G3	SH			Coastal beaches in dune depressions and among protected accumulations of beach wrack	LCP
<i>Portulaca biloba</i>	Grit portulaca	G1G2	S1			Altamaha Grit outcrops	UCP
<i>Pteroglossaspis ecristata</i>	Wild coco	G2	S1			Grassy saw palmetto barrens; longleaf pine grasslands, sometimes with <i>Schwalbea americana</i>	LCP, UPC; widely scattered, including barrier islands
<i>Ptilimnium</i> sp. 1	Mock bishop-weed	G1	SH			Tidal freshwater marshes	LCP, narrow endemic from Savannah into South Carolina
<i>Rhynchospora breviseta</i>	Short-bristle beakrush	G3G4	SU			Bogs; flatwoods	Uncertain, documentation needed, UCP, LCP
<i>Rhynchospora decurrens</i>	Decurrent beakrush	G3G4	S1?			Swamps	UCP, LCP
<i>Rhynchospora fernaldii</i>	Fernald's beakrush	G3G4	SR			Flatwoods depressions	LCP (only?), to be considered as a rarity from Okefenokee Swamp, whence all specimens from Georgia came
<i>Rhynchospora</i>	Many-bristled	G3	S1?			Peaty, sandhill seepage slopes;	LCP an old record from Coffee Co.

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
macra	beakrush					streamhead pocosins	near Douglas
Rhynchospora pleiantha	Clonal thread-leaved beakrush	G2	SH			Margins of limesink depression ponds (dolines)	UCP
Rhynchospora punctata	Spotted beakrush	G1?	S1?			Wet savannas, pitcherplant bogs	UCP, LCP
Ruellia noctiflora	Night-blooming wild petunia	G2	SH			Open, slash pine flatwoods	LCP, outer Coastal Plain on the Barrier Island Sequence
Sageretia minutiflora	Climbing buckthorn	G4	S1?		T	Calcareous bluff forests; maritime forests over shell mounds	UCP, LCP
Sagittaria graminea var. chapmanii	Chapman's arrowhead	G5T3?	S3?			Low woods and seasonal wet swamps with Carex leptalea, Rhynchospora miliacea	UCP, LCP, perhaps widespread, including a pond on Sapelo Island
Sapindus saponaria	Soapberry	G5	S1			Shell mound forests	LCP
Sarracenia flava	Yellow flytrap	G5?	S3S4		U	Wet savannas, pitcherplant bogs	UCP, LCP
Sarracenia minor var. minor	Hooded pitcherplant	G4T4	S4			Wet savannas, pitcherplant bogs	UCP LCP
Sarracenia minor var. okefenokeense	Okefenokee giant	G4T2T3	S2S3			Wet savannas, pitcherplant bogs	LCP, Okefenokee Basin only
Sarracenia psittacina	Parrot pitcherplant	G4	S2S3		T	Wet savannas, pitcherplant bogs	UCP, LCP
Sarracenia rubra	Sweet pitcherplant	G3	S2	(PS)	E	Atlantic white cedar swamps; wet savannas	UCP, in two areas, Atlantic Coastal Plain and Fall Line Sandhills west of Macon
Schoenolirion elliotii	White sunnysbell	G3	S1?			Wet savannas	LCP, few observations from Wayne and Brantley Cos.
Scutellaria altamaha	Altamaha skullcap	G2G3	S1?			Sandy, deciduous woods	UCP, LCP. (only?), perhaps adjacent Piedmont, of Southeast Georgia
Scutellaria arenicola	Sandhill skullcap	G3G4	SH			Sandy scrub	LCP, Trail Ridge; Camden Co.
Scutellaria mellichampii	Mellichamp's skullcap	G?Q	S1?			Sandy deciduous woods	LCP, UCP; widely scattered
Sideroxylon sp. 1	Dwarf buckthorn	G3Q	S3			Dry longleaf pine woods with oak understory; often hidden in wiregrass	UCP, LCP
Sideroxylon thornei	Swamp buckthorn	G2	S2		E	Forested limesink depressions; calcareous swamps	UCP, LCP
Sphagnum cyclophyllum	Round-leaved peat-moss	G3	S2			CP: bare sand where wet or submerged for part of the year and then drying, as around seasonal ponds in pine barrens.. PD:	PD, LCP, UCP

Table A.2: High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
						seepage over granite outcrops	
<i>Spiranthes floridana</i>	Florida ladies-tresses	G1	S1?				
<i>Sporobolus pinetorum</i>	Pineland dropseed	G3	S2?			Wet savannas with wiregrass	LCP
<i>Stewartia malacodendron</i>	Silky camellia	G4	S2		R	Along streams on lower slopes of beech-magnolia or beech-basswood-Florida maple forests	PD, UCP
<i>Tillandsia bartramii</i>	Bartram's airplant	G4	S2				
<i>Vaccinium crassifolium</i>	Evergreen lowbush blueberry	G4G5	SH			Open margins of Carolina bays	LCP, historically in or near Screven Co.
<i>Xyris drummondii</i>	Drummond's yellow-eyed grass	G3	S1			Pine flatwoods	UCP, LCP
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass	G3	S1			Sedge bogs; pitcherplant bogs; pine flatwoods	UCP, LCP

References

Georgia Department of Natural Resources Wildlife Resources Division (WRD). 2005. A *Comprehensive Wildlife Conservation Strategy for Georgia*. Georgia Department of Natural Resources. Wildlife Resources Division. Social Circle, GA. Available Online: <http://www1.gadnr.org/cwcs/Documents/strategy.html>.

APPENDIX D

High Priority Plant & Animal Species

(Source: Georgia Stormwater Management Manuals, *Coastal Stormwater Supplement*, August 2009 and GDNR Wildlife Resources Division *Comprehensive Wildlife Strategy for Georgia*, 2005)

At least 71 high priority animal species can be found in coastal Georgia, including 27 birds, 14 reptiles, 10 mammals, 7 amphibians, 7 mollusks, 5 fish and 1 aquatic arthropod (WRD, 2005). In addition, at least 91 high priority plants species can be found in coastal Georgia (WRD, 2005). These high priority animal and plant species are listed in the following tables, along with information on global and state rarity ranks, protected status (if any) under federal or state law and habitat and range in coastal Georgia.

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Cordulegaster sayi</i>	Say's spiketail	G2	S1			Trickling hillside seepages in deciduous forest near weedy fields	Southeastern coastal plain only.
<i>Ambystoma cingulatum</i>	Flatwoods salamander	G2G3	S2	LT	T	Pine flatwoods; moist savannas; isolated cypress/gum ponds	Lower CP, extremely localized throughout large but fragmented range. Only four sites with known extant populations
<i>Desmognathus auriculatus</i>	Southern dusky salamander	G5	S3			In or around the margins of slowly moving or stagnant bodies of water with mucky, acidic soils; cypress swamps, floodplains, sloughs	Lower CP
<i>Necturus punctatus</i>	Dwarf waterdog	G4	S2			Sluggish streams with substrate of leaf litter or woody debris	Atlantic drainages, primarily CP, one record in the PD
<i>Notophthalmus perstriatus</i>	Striped newt	G2G3	S2		R	Pine flatwoods, sandhills; isolated wetlands	CP
<i>Pseudobranchius striatus</i>	Dwarf siren	G5	S3			Swamps; marshes; limesink ponds; cypress ponds	lower CP
<i>Rana capito</i>	Gopher frog	G3G4	S3			Sandhills; dry pine flatwoods; breed in isolated wetlands	CP
<i>Stereochilus marginatus</i>	Many-lined salamander	G5	S3			Sluggish, swampy streams and bayheads with substrate of leaf litter	eastern CP
<i>Aimophila aestivalis</i>	Bachman's sparrow	G3	S3	SAR	R	Open pine or oak woods; old fields; grassy forest regeneration	RV, PD, CP: where appropriate habitat
<i>Ammodramus henslowii</i>	Henslow's sparrow	G4	S3	SAR		Grassy areas, especially wet grasslands; wet pine savanna & flatwoods	CP, PD - historically and migrants
<i>Ammodramus savannarum</i>	Grasshopper sparrow	G5	S4			Grassland surrounded by open country (ag, grassland etc.)	CP, PD predominantly, less common in CU, RV, rare in BR
<i>Calidris canutus</i>	Red knot (SE winter population)	G5	S3	SAR		Beaches and sandbars	Coastal
<i>Charadrius melodus</i>	Piping plover	G3	S1	(LE,LT)	T	Sandy beaches; mud and sand flats; isolated sand spits	CP - coastal
<i>Charadrius wilsonia</i>	Wilson's plover	G5	S2		R	Sandy beaches; sand and mud flats, dunes and back dune swales	CP - coastal
<i>Colinus virginianus</i>	Northern bobwhite	G5	S4			Early successional mixed grass/forb habitat; longleaf pine savanna	CP most numerous; uncommon in PD, RV; scattered in CU, BR
<i>Egretta tricolor</i>	Tricolored heron	G5	S3			Coastal aquatic environments, salt and fresh, nests with other waders in low thick cover	All coastal counties
<i>Elanoides forficatus</i>	Swallow-tailed kite	G5	S2	SAR	R	River swamps and upland adjacent habitats particularly with large, emergent pines and pine islands; marshes	CP - nesting primarily in SE CP with scattered records statewide post breeding

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
Falco sparverius paulus	Southeastern American kestrel	G5T4	S3	SAR		Pine sandhills and savannas; open country with scattered trees for nesting; military base habitats; artificial/man-made nesting habitats include nest boxes, power poles, building columns	CP
Grus canadensis pratensis	Florida sandhill crane	G5T2T3	S1			Freshwater prairies	Restricted to Okefenokee and Grand Bay
Haematopus palliatus	American oystercatcher	G5	S2	SAR	R	Sandy beaches; tidal flats; salt marshes, oyster shell bars	CP - coastal
Haliaeetus leucocephalus	Bald eagle	G4	S2	(PS:LT,P DL)	E	Edges of lakes & large rivers; seacoasts	CP - primarily and reservoirs and rivers PD, BR, RV
Himantopus mexicanus	Black-necked stilt	G5	S3	(PS)		Shallow ponds; lagoons; isolated freshwater wetlands; dredge spoil sites; managed wetlands	CP - coastal
Ixobrychus exilis	Least bittern	G4	S3			Freshwater and brackish marshes with tall, dense emergent vegetation. Nests close to open areas	Probably more common as a breeder in CP due to much more potentially suitable habitat than in PD
Lanius ludovicianus migrans	Loggerhead shrike	G4T3Q	S?	SAR		Open woods; field edges; savannas	CP - primary area of abundance; scattered and low number in the PD (none in 20-county metro Atlanta area); low numbers in RV
Laterallus jamaicensis	Black rail	G4	S2?	SAR		Freshwater marsh grassy margins; wet grassy meadows; brackish high marsh	PD, CP - most likely breeding would occur in eastern PD or along Coast
Limnothlypis swainsonii	Swainson's warbler	G4	S3	SAR		Dense undergrowth with heavy litter (CP,M); canebrakes in swamps and river floodplains (CP)	Although found widespread, bulk of population restricted to river floodplains of CP and PD; small BR population
Mycteria americana	Wood stork	G4	S2	(PS:LE)	E	Cypress/gum ponds; freshwater marshes; saltmarshes, river swamps; bays, isolated wetlands, ephemeral wetlands, coastal hammocks	1,200 pairs nesting in Coastal Plain 2002, with post-nest dispersal throughout state
Numenius phaeopus	Whimbrel	G5	S3			Saltmarsh openings, Mud flats, shell rakes, outer barrier sand spits	All coastal counties
Passerina ciris	Painted bunting	G5	S3	SAR		Shrub-scrub and open grassy habitats; open mature pine forest and maritime oak forest associated with freshwater wetlands	CP - primarily barrier islands and immediate coast with scattered occurrences up major river corridors; occurrences in CP agricultural lands reduced and poorly understood

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
Picoides borealis	Red-cockaded woodpecker	G3	S2	LE	E	Open pine woods; pine savannas	Found mostly in CP, also lower PD. Disjunct populations in counties of Muscogee, Chattahoochee (Ft Benning); Liberty, Long, Bryan (Ft Stewart); Charlton, Brantley (Okefenokee NWR, private); Jones, Jasper (Piedmont NWR, Oconee NF, Hitchiti); Thomas, Grady
Rallus elegans	King rail	G4G5	S3			Freshwater marshes, often cattail bulrush, cutgrass, for breeding; also brackish marshes non-breeding (saltmarshes?)	Principally Piedmont and CP; possibly R&V
Rynchops niger	Black skimmer	G5	S1			Sandy beaches, isolated accretional sand spits, N and S tips of barrier islands	Strictly outer coast
Sterna antillarum	Least tern	G4	S3	(PS:LE)	R	Sandy beaches; sandbars, large flat gravel roof tops	Coastal Counties
Sterna nilotica	Gull-billed tern	G5	S1		T	Outer sand beaches and mud flats, Salt marshes; fields on barrier islands; Isolated sand spits	Coastal
Tyto alba	Barn owl	G5	S3/S4			Grassland savanna with large cavity trees, also neighborhoods with large cavity trees, generally needs open country	Local: CP, PD, RV, CU, rare in BR
Acipenser brevirostrum	Shortnose sturgeon	G3	S2	LE	E	Estuaries; lower end of large rivers in deep pools with soft substrates	Atlantic drainage large rivers
Elassoma okatie	Bluebarred pygmy sunfish	G2G3	S1S2			Temporary ponds and stream backwaters with dense aquatic vegetation	Fort Gordon
Enneacanthus chaetodon	Blackbanded sunfish	G4	S1		R	Blackwater streams; bays; cypress/gum ponds	Disjunct historic locales in SE GA; T. Peterson (recent) able to find at one historic locale outside of OK Swamp
Lucania goodei	Bluefin killifish	G5	S1		U	Heavily vegetated ponds and streams with little or no current; frequently associated with springs	Lower Flint River system and in McIntosh County on east coast of GA
Micropterus notius	Suwannee bass	G3	S2		R	Flowing water over rocky shoals or large springs and spring runs	Suwannee drainage so. GA
Condylura cristata	Star-nosed mole	G5	S2?			Moist meadows; woods; swamps	Known only from Charlton, Chatham, Clinch, Effingham, Jackson and Union counties
Corynorhinus rafinesquii	Rafinesque's big-eared bat	G3G4	S3?		R	Pine forests; hardwood forests; caves; abandoned buildings; bridges; bottomland hardwood forests and cypress-gum swamps	Range in state disjunct--C.r.rafinesquii found in northern BR and C. r. macrotis found in lower CP. Not known from PD, but either subsp might occur there.

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Eubalaena glacialis</i>	North Atlantic right whale	G1	S1 and S?	LE	E	Inshore and offshore oceanic waters of Georgia	Occurs along the entire Georgia coast and also observed offshore up to 40 nm. Most frequently observed in waters > 8ft. Maximum depth or distance from shore is unknown but strongly suspected to occur West of the Gulf Stream
<i>Geomys pinetis</i>	Southeastern pocket gopher	G5	S4			Sandy well-drained soils in open pine woodlands with grassy or herbaceous groundcover, fields, grassy roadsides	Fairly widespread over CP, but population apparently greatly reduced and fragmented; small local populations
<i>Lasiurus intermedius</i>	Northern yellow bat	G4G5	S2S3			Wooded areas near open water or fields	Has been found only in lower CP
<i>Neofiber alleni</i>	Round-tailed muskrat	G3	S3		T	Freshwater marshes; bogs	Okefenokee and surrounding areas in Camden, Charlton and Ware; also Grand Bay WMA in Lanier and Lowndes; also Brooks.
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	G5T2	S?			Pine forests; pine savannas	Some sources say this subspecies only occurs in extreme SE corner of Georgia around Okefenokee Swamp. However, Turner and Laerm (1993) say <i>S.n. shermani</i> occurs up into Piedmont.
<i>Trichechus manatus</i>	West Indian manatee	G2	S1S2	LE	E	Inshore ocean; estuaries, tidal rivers, warm and fresh water discharges	Found in six coastal counties. These animals are unique because they can migrate between fresh and salt water.
<i>Tursiops truncatus</i>	Bottlenose dolphin	G5	S?			Coastal estuarine and offshore waters of Georgia	Bottlenose dolphins range in all 6 coastal counties; Camden, Glynn, McIntosh, Liberty, Bryan and Chatham. All tidal rivers and creeks provide dolphin habitat. They also extend offshore. CP.
<i>Ursus americanus floridanus</i>	Florida black bear	G5T2	S2			Large undeveloped wooded tracts in areas that include multiple forest types	Parts of Echols, Clinch, Charlton, Ware and Brantley counties support breeding population. Individuals frequently wander into surrounding counties and along Altamaha corridor.
<i>Alasmidonta triangulata</i>	Southern elktoe	G2Q	S1			Large creeks and river mainstems in sandy mud and rock pools	Confined to the Chattahoochee, Flint, Ogeechee, Savannah river drainages

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Alasmidonta varicosa</i>	Brook floater	G3	S2			Small rivers and creeks in sand and gravel shoals	Present distribution includes 4 sites in the Chattooga River in Rabun County (Savannah River drainage).
<i>Elliptio fraterna</i>	Brother spike	G1	SU			Sandy substrates of river channels with swift current	Uncertain of range in Savannah River system
<i>Fusconaia masoni</i>	Atlantic pigtoe	G2	S1		E	Moderate to fast current in substrate of sand or gravel	Historical range included 6 sites in the Ogeechee and Savannah River basins-all of which have been extirpated. One newly discovered population was found in Williamson Swamp Creek in Jefferson County (Alderman 1991).
<i>Medionidus walkeri</i>	Suwannee moccasinshell	G1	SH			Large creeks and medium-sized rivers with sand and gravel substrate	Endemic to the Suwannee River basin in GA and FL
<i>Quincuncina kleiniana</i>	Suwannee pigtoe	GU	S2			Small to large rivers in the Suwannee Basin, in slow to moderate current, pools of flowing rivers, often in detritus. More common in Alapaha and Withalacoochee rivers and tribs	Endemic to the Suwannee River basin in GA and FL
<i>Toxolasma pullus</i>	Savannah lilliput	G2	S2			Altamaha River; Savannah River	Historical distribution included the Altamaha River basin (Johnson 1970, Sepkoski and Rex 1974, Keferl 1981). Present distribution from recent surveys appears to be only the Ohoopsee River (Keferl pers. com.).
<i>Caretta caretta</i>	Loggerhead	G3	S2	LT	T	Open ocean; sounds; coastal rivers; beaches	Ocean, sounds, coastal rivers, beaches
<i>Chelonia mydas</i>	Green sea turtle	G3	S2	(LE,LT)	T	Open ocean; sounds; coastal rivers; beaches	Ocean, sounds, coastal rivers, beaches
<i>Clemmys guttata</i>	Spotted turtle	G5	S3		U	Heavily vegetated swamps, marshes, bogs and small ponds; nest and possibly hibernate in surrounding uplands	Widely distributed across CP
<i>Crotalus adamanteus</i>	Eastern diamondback rattlesnake	G4	S4			Early successional habitats on barrier islands and mainland; pine flatwoods; sandhills	CP, including barrier islands
<i>Dermochelys coriacea</i>	Leatherback sea turtle	G3	S2	LE	E	Open ocean; sounds; coastal beaches	Ocean, sounds, beaches
<i>Drymarchon couperi</i>	Eastern indigo snake	G4T3	S3	LT	T	Sandhills; pine flatwoods; dry hammocks; summer habitat includes floodplains and bottomlands	Middle and lower CP
<i>Eumeces anthracinus</i>	Coal skink	G5	S2			Mesic forests; often near streams, springs or bogs	Very little known about range especially in CP

High Priority Animal Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Eumeces egregius</i>	Mole skink	G4	S3	(PS)		Coastal dunes; longleaf pine-turkey oak woods; dry hammocks	Widespread throughout CP
<i>Gopherus polyphemus</i>	Gopher tortoise	G3	S2	(PS:LT)	T	Sandhills; dry hammocks; longleaf pine-turkey oak woods; old fields	CP
<i>Heterodon simus</i>	Southern hognose snake	G2	S2			Sandhills; fallow fields; longleaf pine-turkey oak	CP
<i>Lepidochelys kempii</i>	Kemp's or Atlantic ridley	G1	S1	LE	E	Open ocean; sounds; coastal rivers; beaches	Ocean, sounds, coastal rivers
<i>Macrochelys temminckii</i>	Alligator snapping turtle	G3G4	S3		T	Large streams and rivers; impoundments; river swamps	Gulf CP drainages
<i>Malaclemys terrapin</i>	Diamondback terrapin	G4	S3			Entire coast, esturine and marine edge. All saltmarsh, beaches	Strictly Coastal
<i>Ophisaurus mimicus</i>	Mimic glass lizard	G3	S2			Pine flatwoods; savannas; seepage bogs	Lower CP, substantial gaps in range
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	G4T3?	S3			Sandhills; scrub; old field	CP
<i>Rhineura floridana</i>	Florida worm lizard	G4	S1			Dry upland hammocks, sand pine and longleaf pine-turkey oak sandhills; old fields	Lanier Co. in CP
<i>Tantilla relicta</i>	Florida crowned snake	G5	S1			Sandhills, scrub and moist hammocks	Lowndes Co. in CP

High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Amorpha georgiana</i> var. <i>georgiana</i>	Georgia indigo-bush	G3T2	S1			River terraces; floodplain woods; flint kaolin outcrop; mesic habitats with wiregrass, longleaf pine, mixed oaks	UCP
<i>Amorpha herbacea</i> var. <i>floridana</i>	Florida leadbush	G4T?Q	S1			River terraces along the Alapaha River	LCP, if accepted as taxonomically significant
<i>Arabis georgiana</i>	Georgia rockcress	G2	S1	C	T	Rocky or sandy river bluffs and banks, in circumneutral soil	PD, RV, UCP; along Coosa, Oostanaula and lower Chattahoochee Rivers
<i>Aristida simpliciflora</i>	Chapman three-awn grass	G3	SH			Longleaf pine-wiregrass savannas	UCP
<i>Arnoglossum diversifolium</i>	Variable-leaf Indian-plantain	G2	S2		T	Calcareous swamps	UCP
<i>Arnoglossum sulcatum</i>	Grooved-stem Indian-plantain	G2G3	S1			Bottomland forests	UCP
<i>Asplenium heteroresiliens</i>	Morzent's spleenwort	G2Q	S1		T	Limestone and marl outcrops; tabby ruins	UCP, LCP
<i>Astragalus michauxii</i>	Sandhill milkvetch	G3	S2			Longleaf pine-wiregrass savannas; turkey oak scrub	UCP
<i>Balduina atropurpurea</i>	Purple honeycomb head	G2G3	S2		R	Wet savannas, pitcherplant bogs	UCP, LCP
<i>Baptisia arachnifera</i>	Hairy rattleweed	G1	S1	LE	E	Pine flatwoods	LCP, entire global range in parts of Brantley and Wayne Cos.
<i>Brickellia cordifolia</i>	Heartleaf brickellia	G2G3	S2			Mesic hardwood forests	UCP
<i>Calamintha ashei</i>	Ashe's wild savory	G3	S2		T	Ochoopee dunes	UCP, Tattnall and Candler Cos.
<i>Campylopus carolinae</i>	Sandhills awned-moss	G1G2	S2?			Fall line sandhills; Altamaha Grit outcrops in partial shade of mesic oak forests	UCP
<i>Carex calcifugens</i>	Lime-fleeing sedge	G2G4	SR			Said by FNA to occur in "Mesic deciduous forests, in sandy loams and sands, usually on stream bank slopes."	LCP (only?)
<i>Carex dasycarpa</i>	Velvet sedge	G4?	S3		R	Evergreen hammocks; mesic hardwood forests	LCP, UCP
<i>Carex decomposita</i>	Cypress-knee sedge	G3	S2?			Swamps and lake margins on floating logs	LCP, UCP
<i>Carex godfreyi</i>	Godfrey's sedge	G3G4	S3?			Forested depressional wetlands.	UCP, possibly LCP?, uncertain, verification needed

High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Carex lupuliformis</i>	Mock hop sedge	G5	SU			Said by FNA to occur in "Wet forests, especially in openings around forest ponds, riverine wetlands, marshes, wet thickets, 0-500 m."	LCP?, uncertain, verification needed
<i>Coreopsis integrifolia</i>	Tickseed	G1G2	S1S2			Floodplain forests, streambanks	UCP, LCP
<i>Ctenium floridanum</i>	Florida orange-grass	G2	S1			Moist pine barrens	LCP
<i>Dicerandra radfordiana</i>	Radford's dicerandra	G1Q	S1			Sandridges	LCP, entire global range consists of 2 small areas in McIntosh Co.
<i>Eccremidium floridanum</i>	Florida eccremidium moss	G1?	S1			Sandy or sometimes clay soil in open, disturbed sites, often in areas that are wet part of the year and quite dry other parts of the year, fields and roadsides, thin soil over rock outcrops, around margins of cypres	UCP
<i>Eleocharis tenuis</i> var. <i>tenuis</i>	Slender spikerush	G5T?	SU			Moist to wet sandy-peaty soils; pine flatwoods	RV, PD, where doubtfully recorded and in need of comparison with other named varietes known to be present
<i>Elliottia racemosa</i>	Georgia plume	G2G3	S2S3		T	Scrub forests; Altamaha Grit outcrops; open forests over ultramafic rock	PD, UCP, LCP; from Ft. Stewart to Ashburn, Turner Co.; disjunct on piedmont on Burks Mtn., Columbia Co.
<i>Epidendrum conopseum</i>	Green-fly orchid	G4	S3		U	Epiphytic on limbs of evergreen hardwoods; also in crevices of Altamaha Grit outcrops	UCP, LCP; widespread, sometimes locally abundant especially in bottomland forests along major rivers in Southeast Georgia
<i>Eriochloa michauxii</i> var. <i>michauxii</i>	Michaux's cupgrass	G3G4T3T4	S1?			Coastal freshwater and brackish marshes; flatwoods	LCP; map in FNA shows records from Charlton, Glynn, Liberty and McIntosh Cos.
<i>Eupatorium anomalum</i>	Florida boneset	G2G3	SU			Wet, low ground	LCP, UCP; likely close to Florida pending scrutiny of closely related <i>E. mohrii</i> and <i>E. rotundifolium</i>
<i>Evolvulus sericeus</i> var. <i>sericeus</i>	Creeping morning-glory	G5T?	S1		E	Altamaha Grit outcrops; open calcareous uplands	UCP
<i>Forestiera godfreyi</i>	Godfrey's wild privet	G2	S1			Mesic, maritime forests over shell mounds	LCP, Camden Co.
<i>Forestiera segregata</i>	Florida wild privet	G4	S2			Shell mounds on barrier islands in scrub or maritime forests	Restricted to shell middens overlooking or upon barrier islands; LCP
<i>Fothergilla gardenii</i>	Dwarf witch-alder	G3G4	S2		T	Openings in low woods and swamps; edges of seepage bogs	UCP, LCP; widely distributed from Fall Line Sandhills to more southern flatwoods

High Priority Plant Species Found in Coastal Georgia

(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Habenaria quinqueseta</i> var. <i>quinqueseta</i>	Michaux's orchid	G4G5T ?	S1			Moist shade, Altamaha Grit outcrops; open pine woods	UCP, LCP; widely scattered sites
<i>Hartwrightia floridana</i>	Hartwrightia	G2	S1		T	Wet savannas; ditches, sloughs and flatwood seeps	LCP, restricted to Okefenokee Basin
<i>Hypericum</i> sp. 3	Georgia St.-John's-wort	G2G3	S2S3			Seepage bogs; roadside ditches	UCP, LCP, upper Ogeechee and Canoochee watersheds (only?) and near Eulonia, McIntosh Co.
<i>Justicia angusta</i>	Narrowleaf water-willow	G3Q	SH			Roadside ditches; perhaps with <i>Hartwrightia</i> in shallow sloughs and wet savannas	LCP
<i>Lachnocaulon beyrichianum</i>	Southern bog-button	G2G3	S1			Flatwoods	UCP, LCP
<i>Leitneria floridana</i>	Corkwood	G3	S1			Swamps; sawgrass-cabbage palmetto marshes	UCP, LCP
<i>Lindera melissifolia</i>	Pondberry	G2	S1	LE	E	Margins of seasonal ponds, both sandhill and limesink with swamp blackgum (<i>Nyssa biflora</i>).	LCP, UCP
<i>Litsea aestivalis</i>	Pondspice	G3	S2		T	Cypress ponds; swamp margins	UCP, LCP; especially southeastern Georgia
<i>Lycium carolinianum</i>	Carolina wolfberry	G4	S1			Coastal sand spits	LCP, Cumberland Island, Camden Co.
<i>Malaxis spicata</i>	Florida adders-mouth orchid	G4?	S1			Low hammocks; spring-fed river swamps	UCP, LCP, potentially over Coastal Plain based on Florida distribution; documented recently only from LCP; historic from UCP in Jenkins Co.
<i>Matelea alabamensis</i>	Alabama milkvine	G2	S1		T	Open bluff forests; mesic margins of longleaf pine sandridges	UCP, LCP; on Gulf CP and an area of Atlantic CP along the Altamaha River, Wayne Co..
<i>Matelea pubiflora</i>	Trailing milkvine	G3G4	S2		R	Exposed sandy soils; sandridges	UCP, LCP
<i>Myriophyllum laxum</i>	Lax water-milfoil	G3	S2		T	Bluehole spring runs; shallow, sandy, swift-flowing creeks; clear, cool ponds	UCP, in many watersheds, most often in westcentral Georgia sandhills
<i>Orbexilum virgatum</i>	Slender leather-root	G1	SH			Sandridges	LCP, Charlton Co.
<i>Oxypolis ternata</i>	Savanna cowbane	G3	S2			Wet pine savannas and bogs	UCP, widely scattered
<i>Peltandra sagittifolia</i>	Arrow arum	G3G4	S2?			Swamps; wet hammocks on pristine sphagnum mats	UCP, LCP; locally abundant in Okefenokee Swamp
<i>Penstemon dissectus</i>	Cutleaf beardtongue	G2	S2?		R	Altamaha Grit outcrops and adjacent pine savannas; rarely sandridges	UCP, endemic to Altamaha Grit (Tifton Uplands)

High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Phaseolus polystachios</i> var. <i>sinuatus</i>	Trailing bean-vine	G4T3?	S2?			Sandhills; dry pinelands and hammocks	UCP, LCP
<i>Physostegia leptophylla</i>	Tidal marsh obedient-plant	G4?	S2S3		T	Freshwater tidal marshes; perhaps disjunct in wet savannas of extreme SW Georgia	LCP, coastal cos. on tidally influenced shorelines; reports from UCP in SW Georgia need verification
<i>Plantago sparsiflora</i>	Pineland plantain	G3	S2			Open, wet pine savannas; shallow ditches	UCP, LCP
<i>Platanthera blephariglottis</i> var. <i>blephariglottis</i>	White fringed-orchid	G4G5T4?	S1?				
<i>Platanthera blephariglottis</i> var. <i>conspicua</i>	Southern white fringed-orchid	G4G5T3T4	S2?			Bogs, seeps, roadsides, wet savannas	UCP, LCP; scattered from Fall Line Sandhills to coast and South Georgia plantations
<i>Platanthera chapmanii</i>	Chapman's fringed-orchid	G4?	S1			Open, wet meadows; pine flatwoods	UCP, LCP, extreme Southeast Georgia; historic in Southwest Georgia
<i>Platanthera integra</i>	Yellow fringeless orchid	G3G4	S2			Wet savannas, pitcherplant bogs	UCP, LCP; documented from 9 cos., scattered on coastal plain
<i>Polygonum glaucum</i>	Sea-beach knotweed	G3	SH			Coastal beaches in dune depressions and among protected accumulations of beach wrack	LCP
<i>Portulaca biloba</i>	Grit portulaca	G1G2	S1			Altamaha Grit outcrops	UCP
<i>Pteroglossaspis ecristata</i>	Wild coco	G2	S1			Grassy saw palmetto barrens; longleaf pine grasslands, sometimes with <i>Schwalbea americana</i>	LCP, UPC; widely scattered, including barrier islands
<i>Ptilimnium</i> sp. 1	Mock bishop-weed	G1	SH			Tidal freshwater marshes	LCP, narrow endemic from Savannah into South Carolina
<i>Rhynchospora breviseta</i>	Short-bristle beakrush	G3G4	SU			Bogs; flatwoods	Uncertain, documentation needed, UCP, LCP
<i>Rhynchospora decurrens</i>	Decurrent beakrush	G3G4	S1?			Swamps	UCP, LCP
<i>Rhynchospora fernaldii</i>	Fernald's beakrush	G3G4	SR			Flatwoods depressions	LCP (only?), to be considered as a rarity from Okefenokee Swamp, whence all specimens from Georgia came
<i>Rhynchospora macra</i>	Many-bristled beakrush	G3	S1?			Peaty, sandhill seepage slopes; streamhead pocosins	LCP an old record from Coffee Co. near Douglas
<i>Rhynchospora pleiantha</i>	Clonal thread-leaved beakrush	G2	SH			Margins of limesink depression ponds (dolines)	UCP
<i>Rhynchospora punctata</i>	Spotted beakrush	G1?	S1?			Wet savannas, pitcherplant bogs	UCP, LCP

High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
Ruellia noctiflora	Night-blooming wild petunia	G2	SH			Open, slash pine flatwoods	LCP, outer Coastal Plain on the Barrier Island Sequence
Sageretia minutiflora	Climbing buckthorn	G4	S1?		T	Calcareous bluff forests; maritime forests over shell mounds	UCP, LCP
Sagittaria graminea var. chapmanii	Chapman's arrowhead	G5T3?	S3?			Low woods and seasonal wet swamps with Carex leptalea, Rhynchospora miliacea	UCP, LCP, perhaps widespread, including a pond on Sapelo Island
Sapindus saponaria	Soapberry	G5	S1			Shell mound forests	LCP
Sarracenia flava	Yellow flytrap	G5?	S3S4		U	Wet savannas, pitcherplant bogs	UCP, LCP
Sarracenia minor var. minor	Hooded pitcherplant	G4T4	S4			Wet savannas, pitcherplant bogs	UCP LCP
Sarracenia minor var. okefenokeense	Okefenokee giant	G4T2T3	S2S3			Wet savannas, pitcherplant bogs	LCP, Okefenokee Basin only
Sarracenia psittacina	Parrot pitcherplant	G4	S2S3		T	Wet savannas, pitcherplant bogs	UCP, LCP
Sarracenia rubra	Sweet pitcherplant	G3	S2	(PS)	E	Atlantic white cedar swamps; wet savannas	UCP, in two areas, Atlantic Coastal Plain and Fall Line Sandhills west of Macon
Schoenolirion elliotii	White sunnybell	G3	S1?			Wet savannas	LCP, few observations from Wayne and Brantley Cos.
Scutellaria altamaha	Altamaha skullcap	G2G3	S1?			Sandy, deciduous woods	UCP, LCP. (only?), perhaps adjacent Piedmont, of Southeast Georgia
Scutellaria arenicola	Sandhill skullcap	G3G4	SH			Sandy scrub	LCP, Trail Ridge; Camden Co.
Scutellaria mellichampii	Mellichamp's skullcap	G?Q	S1?			Sandy deciduous woods	LCP, UCP; widely scattered
Sideroxylon sp. 1	Dwarf buckthorn	G3Q	S3			Dry longleaf pine woods with oak understory; often hidden in wiregrass	UCP, LCP
Sideroxylon thornei	Swamp buckthorn	G2	S2		E	Forested limesink depressions; calcareous swamps	UCP, LCP
Sphagnum cyclophyllum	Round-leaved peat-moss	G3	S2			CP: bare sand where wet or submerged for part of the year and then drying, as around seasonal ponds in pine barrens.. PD: seepage over granite outcrops	PD, LCP, UCP
Spiranthes floridana	Florida ladies-tresses	G1	S1?				
Sporobolus pinetorum	Pineland dropseed	G3	S2?			Wet savannas with wiregrass	LCP

High Priority Plant Species Found in Coastal Georgia
(Source: WRD, 2005)

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Habitat in Georgia	Range in Georgia
<i>Stewartia malacodendron</i>	Silky camellia	G4	S2		R	Along streams on lower slopes of beech-magnolia or beech-basswood-Florida maple forests	PD, UCP
<i>Tillandsia bartramii</i>	Bartram's airplant	G4	S2				
<i>Vaccinium crassifolium</i>	Evergreen lowbush blueberry	G4G5	SH			Open margins of Carolina bays	LCP, historically in or near Screven Co.
<i>Xyris drummondii</i>	Drummond's yellow-eyed grass	G3	S1			Pine flatwoods	UCP, LCP
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass	G3	S1			Sedge bogs; pitcherplant bogs; pine flatwoods	UCP, LCP

References

Georgia Department of Natural Resources Wildlife Resources Division (WRD). 2005. A *Comprehensive Wildlife Conservation Strategy for Georgia*. Georgia Department of Natural Resources. Wildlife Resources Division. Social Circle, GA. Available Online: <http://www1.gadnr.org/cwcs/Documents/strategy.html>.

APPENDIX E

How Stormwater Management Practices Can Be Used to Satisfy the Stormwater Management Criteria

**(Source: Georgia Stormwater Management Manuals, Coastal
Stormwater Supplement, August 2009)**

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Low Impact Development Practices

Alternatives to Disturbed Pervious Surfaces

<p>Soil Restoration</p>	<p>“Credit”: Subtract 50% of any <i>restored pervious areas</i> from the total site area and re-calculate the runoff reduction volume (RR_v) that applies to a development site.</p>	<p>“Credit”: Subtract 50% of any <i>restored pervious areas</i> from the total site area and re-calculate the runoff reduction volume (RR_v) that applies to a development site.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored pervious areas</i> are equivalent to those of open space in good condition.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored pervious areas</i> are equivalent to those of open space in good condition.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored pervious areas</i> are equivalent to those of open space in good condition.</p>
--------------------------------	---	---	---	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Site	“Credit”:	“Credit”:	“Credit”:	“Credit”:	“Credit”:
Reforestation/ Revegetation	Subtract 50% of any <i>reforested or revegetated areas</i> from the total site area and re-calculate the runoff reduction volume (RR _v) that applies to a development site.	Subtract 50% of any <i>reforested or revegetated areas</i> from the total site area and re-calculate the runoff reduction volume (RR _v) that applies to a development site.	Assume that the post-development hydrologic conditions of any <i>reforested/revegetated</i> are equivalent to those of a similar cover type in fair condition.	Assume that the post-development hydrologic conditions of any <i>reforested/revegetated areas</i> are equivalent to those of a similar cover type in fair condition.	Assume that the post-development hydrologic conditions of any <i>reforested/revegetated areas</i> are equivalent to those of a similar cover type in fair condition.

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Soil Restoration with Site Reforestation/ Revegetation</p>	<p>“Credit”: Subtract 100% of any <i>restored and reforested/ revegetated areas</i> from the total site area and re-calculate the runoff reduction volume (RR_v) that applies to a development site.</p>	<p>“Credit”: Subtract 100% of any <i>restored and reforested/ revegetated areas</i> from the total site area and re-calculate the runoff reduction volume (RR_v) that applies to a development site.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored and reforested/ revegetated areas</i> are equivalent to those of a similar cover type in good condition.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored and reforested/ revegetated areas</i> are equivalent to those of a similar cover type in good condition.</p>	<p>“Credit”: Assume that the post-development hydrologic conditions of any <i>restored and reforested/ revegetated areas</i> are equivalent to those of a similar cover type in good condition.</p>
--	---	---	--	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Alternatives to Impervious Surfaces

Green Roofs	“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>green roof</i> by 60%.	“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>green roof</i> by 60%.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>green roof</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>green roof</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>green roof</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.
--------------------	--	--	--	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Permeable Pavement, No Underdrain</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>permeable pavement system</i> from the runoff reduction volume (RR_v) conveyed through the <i>system</i>.</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>permeable pavement system</i> from the runoff reduction volume (RR_v) conveyed through the <i>system</i>.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>permeable pavement system</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>permeable pavement system</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>permeable pavement system</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
---	---	---	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Permeable Pavement, Underdrain</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>permeable pavement system</i> from the runoff reduction volume (RR_v) conveyed through the <i>system</i>.</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>permeable pavement system</i> from the runoff reduction volume (RR_v) conveyed through the <i>system</i>.</p>		
--	--	--	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

“Receiving” Low Impact Development Practices

<p>Undisturbed Pervious Areas, A/B Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through an <i>undisturbed pervious area</i> located on A/B soils by 90%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through an <i>undisturbed pervious area</i> located on A/B soils by 90%.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>undisturbed pervious area</i> when calculating the aquatic resource protection volume</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>undisturbed pervious area</i> when calculating the overbank peak</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>undisturbed pervious area</i> when calculating the extreme peak</p>
---	---	---	---	--	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Undisturbed Pervious Areas, C/D Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through an <i>undisturbed pervious area</i> located on C/D soils by 60%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through an <i>undisturbed pervious area</i> located on C/D soils by 60%.</p>	<p>(ARP_v) on a development site.</p>	<p>discharge (Q_{p25}) on a development site.</p>	<p>discharge (Q_{p100}) on a development site.</p>
---	--	--	--	--	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Vegetated Filter Strips, A/B or Amended Soils	“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>vegetated filter strip</i> located on A/B or amended soils by 60%.	“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>vegetated filter strip</i> located on A/B or amended soils by 60%.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.
--	--	--	--	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Vegetated Filter Strips, C/D Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>vegetated filter strip</i> located on C/D soils by 30%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>vegetated filter strip</i> located on C/D soils by 30%.</p>		
--	---	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Grass Channels, A/B or Amended Soils	“Credit”: Reduce the runoff reduction volume (RR _v) conveyed through a <i>grass channel</i> located on A/B or amended soils by 25%.	“Credit”: Reduce the runoff reduction volume (RR _v) conveyed through a <i>grass channel</i> located on A/B or amended soils by 25%.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the aquatic resource protection	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the overbank peak discharge (Q _{p25}) on a development site.	“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>vegetated filter strip</i> when calculating the extreme peak discharge (Q _{p100}) on a development site.
---	---	---	--	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Grass Channels, C/D Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>grass channel</i> located on C/D soils by 12.5%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>grass channel</i> located on C/D soils by 12.5%.</p>	<p>volume (ARP_v) on a development site.</p>	
---	--	--	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Simple Downspout Disconnection, A/B or Amended Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>simple downspout disconnection</i> located on A/B or amended soils by 60%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>simple downspout disconnection</i> located on A/B or amended soils by 60%.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>simple downspout disconnection</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>simple downspout disconnection</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>simple downspout disconnection</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
--	--	--	--	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Simple Downspout Disconnection, C/D Soils</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>simple downspout disconnection</i> located on C/D soils by 30%.</p>	<p>“Credit”: Reduce the runoff reduction volume (RR_v) conveyed through a <i>simple downspout disconnection</i> located on C/D soils by 30%.</p>		
---	---	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Rain Gardens	“Credit”:	“Credit”:	“Credit”:	“Credit”:	“Credit”:
	Subtract 100% of the storage volume provided by a <i>rain garden</i> from the runoff reduction volume (RR _v) conveyed through the <i>rain garden</i> .	Subtract 100% of the storage volume provided by a <i>rain garden</i> from the runoff reduction volume (RR _v) conveyed through the <i>rain garden</i> .	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rain garden</i> when calculating the aquatic resource protection volume (ARP _v) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rain garden</i> when calculating the overbank peak discharge (Q _{p25}) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rain garden</i> when calculating the extreme peak discharge (Q _{p100}) on a development site .

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Stormwater Planters	“Credit”:	“Credit”:	“Credit”:	“Credit”:	“Credit”:
	Subtract 50% of the storage volume provided by a <i>stormwater planter</i> from the runoff reduction volume (RR _v) conveyed through the <i>stormwater planter</i> .	Subtract 50% of the storage volume provided by a <i>stormwater planter</i> from the runoff reduction volume (RR _v) conveyed through the <i>stormwater planter</i> .	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>stormwater planter</i> when calculating the aquatic resource protection volume (ARP _v) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>stormwater planter</i> when calculating the overbank peak discharge (Q _{p25}) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>stormwater planter</i> when calculating the extreme peak discharge (Q _{p100}) on a development site.

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Dry Wells	“Credit”:	“Credit”:	“Credit”:	“Credit”:	“Credit”:
	Subtract 100% of the storage volume provided by a <i>dry well</i> from the runoff reduction volume (RR _v) conveyed through the <i>dry well</i> .	Subtract 100% of the storage volume provided by a <i>dry well</i> from the runoff reduction volume (RR _v) conveyed through the <i>dry well</i> .	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry well</i> when calculating the aquatic resource protection volume (ARP _v) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry well</i> when calculating the overbank peak discharge (Q _{p25}) on a development site.	Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry well</i> when calculating the extreme peak discharge (Q _{p100}) on a development site.

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

Rainwater Harvesting	<p>“Credit”: Subtract 75% of the storage volume provided by a <i>rainwater harvesting system</i> from the runoff reduction volume (RR_v) captured by the <i>system</i>.</p>	<p>“Credit”: Subtract 75% of the storage volume provided by a <i>rainwater harvesting system</i> from the runoff reduction volume (RR_v) captured by the <i>system</i>.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rainwater harvesting system</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rainwater harvesting system</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>rainwater harvesting system</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
-----------------------------	--	--	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Bioretention Areas, No Underdrain</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>bioretention area</i> from the runoff reduction volume (RR_v) conveyed through the <i>bioretention area</i>.</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>bioretention area</i> from the runoff reduction volume (RR_v) conveyed through the <i>bioretention area</i>.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>bioretention area</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>bioretention area</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>bioretention area</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
---	--	--	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Bioretention Areas, Underdrain</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>bioretention area</i> from the runoff reduction volume (RR_v) conveyed through the <i>bioretention area</i>.</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>bioretention area</i> from the runoff reduction volume (RR_v) conveyed through the <i>bioretention area</i>.</p>		
--	--	--	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Infiltration Practices</p>	<p>“Credit”: Subtract 100% of the storage volume provided by an <i>infiltration practice</i> from the runoff reduction volume (RR_v) conveyed through the <i>infiltration practice</i>.</p>	<p>“Credit”: Subtract 100% of the storage volume provided by an <i>infiltration practice</i> from the runoff reduction volume (RR_v) conveyed through the <i>infiltration practice</i>.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>infiltration practice</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>infiltration practice</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by an <i>infiltration practice</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
--------------------------------------	--	--	--	---	---

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Dry Swales, No Underdrain</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>dry swale</i> from the runoff reduction volume (RR_v) conveyed through the <i>dry swale</i>.</p>	<p>“Credit”: Subtract 100% of the storage volume provided by a non-underdrained <i>dry swale</i> from the runoff reduction volume (RR_v) conveyed through the <i>dry swale</i>.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry swale</i> when calculating the aquatic resource protection volume (ARP_v) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry swale</i> when calculating the overbank peak discharge (Q_{p25}) on a development site.</p>	<p>“Credit”: Proportionally adjust the post-development runoff curve number (CN) to account for the runoff reduction provided by a <i>dry swale</i> when calculating the extreme peak discharge (Q_{p100}) on a development site.</p>
---	--	--	---	--	--

How Stormwater Management Practices Can Be Used to Help Satisfy the Stormwater Management Criteria

(Source: Georgia Stormwater Management Manual, Coastal Stormwater Supplement (CSS), 2009.)

<p>Dry Swales, Underdrain</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>dry swale</i> from the runoff reduction volume (RR_v) conveyed through the <i>dry swale</i>.</p>	<p>“Credit”: Subtract 50% of the storage volume provided by an underdrained <i>dry swale</i> from the runoff reduction volume (RR_v) conveyed through the <i>dry swale</i>.</p>		
--	--	--	--	--

Appendix F—List of Relevant Sources

Adams, L. (1994). *Urban Wildlife Habitats – A Landscape Perspective*. University of Minneapolis Press. Minneapolis, MN.

Advisory Council for the Georgia Land Conservation Partnership. (2004). *Georgia Land Conservation Partnership Plan: a Report to Governor Sonny Perdue*, Georgia Department of Natural Resources and the Carl Vinson Institute of Government.

Agricultural Buffers (DCA Model Code 4-3),

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=135#MO>

http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/4_3.pdf

Agricultural Land Use Regulations (DCA Model Code 4-1) -

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=108>

http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/4_1.pdf

Agricultural Zoning - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=52>

Alexander, C. Skidaway Institute of Technology; David Bush, University of West Georgia, *Assessing Shoreline Change and Coastal Hazards for the Georgia Coast*

Alexander, C.R., Skidaway Institute of Oceanography, (Mar 2012). *Field Assessment and Simulation of Shading from Alternative Dock Alternative Construction Materials*.

Allen, H.H. and Leech, J.R., US Army Corps of Engineers, (Apr 1997) *Bioengineering for Streambank Erosion Control Manual*, Waterways Experiment Station.

Alliance for Quality Growth - <http://aqg.ecology.uga.edu/>

Altamaha Riverkeeper - <http://www.altamahariverkeeper.org/>

Altamaha Scenic Byway (and other GA byways) - <http://www.byways.org/browse/states/GA/>

Alternatives to Conventional Zoning

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=93>

Amendments to the Rules of the Georgia Department of Natural Resources Coastal Resources Division. Chapter 391-2-3; 391-2-3-2 Regulation of Marinas, Community Docks and Commercial Docks and 391-2-3-.03 Regulation of Upland Component of Project.

American Farmland Trust - <http://www.farmland.org/default.asp>

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-1

American Rivers, Association of State and Interstate Water Pollution Control Administrators, National Association of Clean Water Agencies, Natural Resources Defense Council, The Low Impact Development Center, and U.S. Environmental Protection Agency. (Jan 2008). *Managing Wet Weather with Green Infrastructure Action Strategy*.

American Society of Landscape Architects (ASLA), Sustainable Sites Initiative (SITES), (2009). *The Case for Sustainable Landscapes and Guidelines and Performance Benchmarks*.

Anderson, L.M. and Cordell, H.K., *Residential Property Values Improved by Landscaping with Trees*. Southern Journal of Applied Forestry.

APA Growing Smart Program, adapted from The Trust for Public Land. (2003). *Local Greenprinting for Growth Workbook: Using Land Conservation to Guide Growth and Preserve the Character of Our Communities. Volume II: How to Define a Conservation Vision*.

Arendt, Randall, et. al. (1994). *Rural by Design*. American Planning Association, Chicago, IL.

Arendt, Randall. (1994 and 1997). *Designing Open Space Subdivisions*. Natural Lands Trust, Media, PA.

Arendt, Randall. (1996). *Creating Open Space Networks in Environmental and Development*, (May/June 1996 Issue). American Planning Association, Chicago, IL.

Arkema, K. K.; G. Guannel; G. Verutes; S. A. Wood; A. Guerry; M. Ruckelshaus; P. Kareiva; M. Lacayo; J. M. Silver, (Oct 2013). *Nature Climate Change Vol. 3. Coastal Habitats Shield People and Property from Sea-Level Rise and Storms*.

Aronson, J., Blignaut, J.N., Milton, S.J., Raven, P.H. (Jun 2007). *Restoring Natural Capital: Science, Business, & Ecological Restoration Series*, Island Press.

Asous, A.L. and R.R. Horner, Editors. (1997). *Wetlands and Urbanization: Implications for the Future*. Washington State Department of Ecology, Olympia, WA, University of Washington, Seattle, WA.

Association County Commissioners of Georgia - <http://www.accg.org/>

Atlanta Audubon Society - <http://www.atlantaudubon.org/>

Atlanta Bicycle Campaign - <http://www.atlantabike.org/>

Atlanta Clean Water Campaign: <http://www.cleanwatercampaign.org/>

Atlanta Regional Commission - <http://www.atlantaregional.com/cps/rde/xchg/>

Atlanta Regional Commission (ARC). (Aug 2001). *Georgia Stormwater Management Manual, Vol. 1 Stormwater Policy Guidebook, Vol. 2 Technical Handbook, Vol. 3 Pollution Prevention Guidebook*.

Atlanta Regional Commission, Georgia Conservancy, and the Trust for Public Lands, (Mar 2011). *Green Infrastructure Toolkit*.

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-2

Atlanta Regional Commission. (August 2001) *Georgia Stormwater Management Manual, Volumes 1-2: Technical Handbook, First Edition.*

Audubon International, (2006). *Golf's Green Bottom Line: Uncovering the Hidden Business Value of Environmental Stewardship on Golf Courses.*

Baird, J.V., Bruneau, A.H., & Cook, M.G. (Dec 1997). *Managing Lawns and Gardens to Protect Water Quality.* N.C. State University, North Carolina Cooperative Extension Service.

Baker, D. M., Yousef, Y.A., (1998). *Metal Accumulation and Impacts on Benthic Organisms in Detention Pond Sediments.*

Banerjee, S., S. Secchi, J. Fargione, S. Polasky, S. Kraft, *Frontiers in Ecology and the Environment*, Vol. 11. (Aug 2013) *How to Sell Ecosystem Services: A Guide for Designing New Markets.*

Beaufort County, (May 2010). *Manual for Stormwater Best Management Practices.*

Benedict, M. A. and McMahon, E. T. (Mar 2006). *Green Infrastructure: Linking Landscapes and Communities*, Island Press.

Benedict, Mark A., & McMahon, Edward T. (Aug 2002). *Green Infrastructure: Smart Conservation for the 21st Century*, The Conservation Fund, The Sprawl Watch Clearinghouse Monograph Series.

Benthrup, G. (Sept 2008). *Conservation Buffers: Design Guidelines for Buffers, Corridors, & Greenways*, USDA, Forestry Service, Southern Research Station.

Bentrup, G., Hoag, C.J, U.S. Department of Agriculture. (May 1998). *The Practical Streambank Bioengineering Guide.*

Blain, T., Schear P., (1990). *Land Use Series*, Ohio State University.

Bulski K., C. Alexander, M. Robinson, and C Jackson Jr., *GIS and Field-Based Documentation of Armored Estuarine Shoreline In Georgia*, Skidaway Institute of Oceanography.

Center for Neighborhood Technology, *Green Values: National Stormwater Management Calculator*, www.greenvalues.cnt.org.

Center for Neighborhood Technology. (2010). *The Value of Green Infrastructure: Guide to Recognizing Its Economic, Environmental, & Social Benefits.*

Center for Quality Growth and Regional Development at the Georgia Institute of Technology. (Sept 2006). *Georgia Coast 2030: Population Projections for the Low Country Coastal Region.*

Center for Watershed Protection (CWP), (2003). *Watershed Protection Research Monograph No. 1, Impacts of Impervious Cover on Aquatic Systems.*

Center for Watershed Protection (CWP), Chatham County-Savannah Metropolitan Planning Commission (MPC), Georgia Department of Natural Resources (DNR), Environmental Protection Division. (Apr 2009). *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual, 1st Ed.*

Center for Watershed Protection, (1998). *Better Site Design: A Handbook for Changing Development Rules in Your Community.*

Chatham County – Savannah Metropolitan Planning Commission. (Jun 2001). *Islands Area Community Plan.*

Clements, J., St. Juliana, A., Davis, P., Levine, L., (Dec 2013). *The Green Edge: How Commercial Property Investment in Green Infrastructure Creates Value*, National Resources Defense Council (NRDC).

Cluster Development - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=58>

Coastal Plain Native Plant Society - <http://www.gnps.org/cpnps.htm>

Coastal Regional Commission of Georgia (CRC). (July 2009). *Coastal Georgia Water, Sewer, and Stormwater Inventory Summary Report.*

Coastal Regional Commission of Georgia. (Jun 2012). *Regional Important Resources Plan.*

Coastal Regional Commission, (Jan 2011). *The Regional Plan of Coastal Georgia.*

Congress for New Urbanism, Natural Resources Defense Council, & US Green Building Council. (Updated 2011). *LEED for Neighborhood Development Rating System.*

Conservation Easements - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=35>

Conservation Easements - <http://www.gepinstitute.com/consease.htm>

Conservation Subdivision Model Ordinance - http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/ModConsEsmnt.pdf

Cook, M.G., St. Clair, M.B, & Zublena, Z.P. *Pollutants in Groundwater: Health Effects*, N.C. State University, Soil Sciences Publications.

Corcovan, Claire. (May 2009). *Losing Ground: Beyond the Footprint*, Mass Audubon.

Daily, G.C. & Turner, R.K. (Dec 2007). *The Ecosystem Services Framework and Natural Capital Conservation*, Springer Science + Business Media.

Daniels, T. and Lapping, M. (2005). *Land Preservation: An Essential Ingredient in Smart Growth.*

DeKalb County Greenspace Program - <http://dekalbgreenspace.com/>

Dodson, Ronald G., (Feb 2000). *Managing Wildlife Habitat on Golf Courses*, John Wiley & Sons.

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-4

Bowker, Dr. J.M., J.D., Leeworthy, Dr. V.R., Stone, E.A. (Mar 2005). *National Survey for Recreation and the Environment, Project Participation in Marine Recreation: 2005 & 2010*, National Oceanic & Atmospheric Administration National Ocean Service Special Projects, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service Special Projects.

Duerksen, C., and Snyder, C., (2005). *Nature Friendly Communities: Habitat Protection and Land Use Planning*, Island Press.

Earth 911 site for waste disposal and recycling locations - Call 1-800- CLEANUP or go to:
<http://www.cleanup.org>

Environmental Protection Agency – www.epa.gov/smartgrowth

Environmental Protection Agency (EPA), University of Georgia, and Ecological Solutions. (Sept 2009). *Hydromodification Best Management Practices Manual for Coastal Georgia*.

Farm Service Agency - <http://www.fsa.usda.gov/pas/>

Federal Highway Administration - <http://www.fhwa.dot.gov/index.html>

Flink, C., and R. Searns. (1993). *Greenways – A Guide to Planning, Design, and Development*. The Conservation Fund. Island Press. Washington, D.C.

Florida Department of Environmental Protection, Office of Greenways and Trails (2000). *What is a Greenway?*.

Florida Geoplan www.geoplan.ufl.edu/projects/greenways/greenwayindex.html

Georgia Center for Urban Agriculture: <http://www.griffin.peachnet.edu/urbanag/>

Georgia Citizen Riparian Network: <http://www.riversalive.org/CRN/>

Georgia Coastal Research Council, (Feb 2005). *Marinas: Best Management Practices & Water Quality*.

Georgia Department of Agriculture – www.agr.state.ga.us

Georgia Department of Community Affairs – www.dca.state.ga.us

Georgia Department of Community Affairs (DCA), Office of Environmental Management. *Backyard Buffers: Protecting Habitat and Water Quality*.

Georgia Department of Community Affairs - <http://www.dca.state.ga.us>

Georgia Department of Natural Resources - <http://www.gadnr.org/>

Georgia Department of Natural Resources (DNR) (2001). *Condition of Georgia's Estuarine & Coastal Habitats 2000-2001*.

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-5

Georgia Department of Natural Resources (DNR) and Savannah State University, *Best Environmental Management Practices for Georgia Marinas*.

Georgia Department of Natural Resources (DNR), (1993). *Management Measures for Nonpoint Point Source in Coastal Georgia*.

Georgia Department of Natural Resources (DNR)-Environmental Protection Division (EPD) and Georgia Water Council. (Jan 2008). *Georgia Comprehensive State-Wide Water Management Plan*.

Georgia Department of Natural Resources (DNR)-Environmental Protection Division (EPD), (2009). *The State of Georgia's Environment*.

Georgia Department of Natural Resources (DNR)-Environmental Protection Division (EPD). (Jul 2007). *Streambank and Shoreline Stabilization Guidance*.

Georgia Department of Natural Resources (DNR)-Environmental Protection Division (EPD). (Apr 2011). *Streambank and Shoreline Stabilization: Techniques to Control Erosion and Protect Property*.

Georgia Department of Natural Resources (DNR)-Environmental Protection Division (EPD). (Dec 2013). *Georgia's Water Future in Focus: Highlights of the Regional Water Planning 2009-2011*.

Georgia Department of Natural Resources (DNR)-Wildlife Resources Division (WRD), (June 2010). *Landowners Guide to Conservation Incentives, 4th Ed*.

Georgia Department of Natural Resources, *The Landowners Guide to Conservation Incentives*.
<http://georgiawildlife.dnr.state.ga.us/content/displaycontent.asp?txtDocument=370>

Georgia Department of Transportation - <http://www.dot.state.ga.us/index.shtml>

Georgia DNR Wildlife Resource Division - <http://georgiawildlife.dnr.state.ga.us>

Georgia DNR, Environmental Protection Division - <http://www.gaepd.org/>

Georgia DNR, Pollution Prevention Assistance Division - <http://www.gadnr.org/p2ad/>

Georgia Environmental Action Network - <http://www.protectgeorgia.net/>

Georgia Environmental Council - <http://www.gecweb.org/>

Georgia Environmental Facilities Authority - <http://www.gefa.org/>

Georgia Environmental Policy Institute - <http://www.gepinstitute.com/>

Georgia Environmental Protection Division - <http://www.dnr.state.ga.us/dnr/environ/>

Georgia EPD Adopt-A-Stream Program - <http://www.riversalive.org/aas.htm>

Georgia Farm Service Agency - <http://www.fsa.usda.gov/ga/>

Georgia Forestry Association - www.gfagrow.org

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-6

Georgia Forestry Commission – www.gfc.state.ga.us

Georgia ForestWatch - <http://www.gafw.org/>

Georgia Incentives for Conservation - <http://www.biodiversitypartners.org/state/ga/incentives.shtml>

Georgia Institute of Technology’s Center for Quality Growth and Regional Development, (2006). *Georgia Coast 2030: Population Projections for the 10-county Coastal Region*.

Georgia Integrated Pest Management (IPM) site: <http://www.gaipm.org/>

Georgia Land Conservation Program - <http://www.gadnr.org/glcp/Documents/>

Georgia Land Trust – www.galandtrust.org

Georgia Land Trust Service Center – www.gepinstitute.com

Georgia Land Trusts - <http://www.gepinstitute.com/>

Georgia Municipal Association - <http://www.gmanet.com/home/default.asp>

Georgia Native Plant Society - <http://www.gnps.org/>

Georgia Native Plant Society: <http://www.gnps.org/>

Georgia Natural Resources Conservation Services – www.ga.nrcs.usda.gov

Georgia Quality Growth Partnership – www.georgiaqualitygrowth.com

Georgia Resource Conservation & Development Council - <http://garcd.org/>

Georgia River Network - <http://www.garivers.org/>

Georgia Rural Development Council - <http://www.dca.state.ga.us/ruralcouncil/>

Georgia Soil & Water Conservation Commission. (Jan 2014). *Manual for Erosion & Sediment Control in Georgia, 6th Ed.*

Georgia Stormwater Management Manual - <http://www.georgiastormwater.com/>

Georgia Water Coalition - <http://www.gwf.org/gawater/>

Georgia Wetlands Trust Fund – www.gepinstitute.com

Georgia Wildlife Federation – www.gwf.org

Georgia Wildlife Federation: <http://www.gwf.org>

Georgia Wildlife Federation’s Native Plant site: <http://www.gwf.org/habitatplants.htm>

Georgia Wildlife Resource Division - <http://georgiawildlife.dnr.state.ga.us/content/>

Gillihan, S. W., Colorado Bird Observatory and US Golf Association. (2000) *Bird Conservation on Golf Courses: A Design and Management Manual*.

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Giovengo, K., University of Georgia Marine Extension. (Oct 2010). *CoastScapes: Conservation Landscape Guidelines for the Coast*.

Goldman, R.L., Tallis, H., Kareiva, P., Daily, G.C., (Jan 2008). *Field evidence that ecosystem service projects support biodiversity and diversify options*.

Green Infrastructure - <http://www.greeninfrastructure.net>.

Green Roofs Projects Database - www.greenroofs.com.

Greenways and Natural Areas Collaborative. (1997). *Metro Greenprint: Planning for nature in the face of urban growth*.

Hanson, S. and R. Rountree. (1988). *Influence of Urban Forest Cover on Radiation, Temperature, and Runoff*.

Hartigan, J.P. (1988). *Basis for Design of Wet Detention Basin BMPs, in Design of Urban Runoff Quality Control*. American Society of Engineers.

Hawken, P., Lovins, A., and Lovins, L.H. (Dec 2008). *Natural Capitalism: Creating the Next Industrial Revolution*.

Heritage Preservation Programs <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=50>

Historic Preservation Easements - <http://www.cr.nps.gov/hps/tps/tax/easement.htm>

Historic Preservation Ordinance, (DCA Model Code 5-4)
<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=118>
http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/5_4.pdf

Historic Preservation Tax Incentives - <http://www.cr.nps.gov/hps/tps/tax/easement.htm>

Quality Growth Toolkit - <http://www.dca.state.ga.us/toolkit/toolkit.asp>

Holland, F. (1998). *Tidal Creeks Project: Understanding our Coastal Waterways*.

Hollis H. Allen; James R. Leech. US Corps of Engineers Waterways Experiment Station (1997). *Bioengineering for Streambank Erosion Control, Report 1 Guidelines*.

Hopper, K. and Cook, E. (2004). *Conservation Finance Handbook: How Communities are Paying for Parks and Land Conservation*, San Francisco, The Trust for Public Land.

Hunt, W. F. (Feb 2004). *Surface Infiltration Rates of 30 Permeable Pavement Applications in NC and the Mid-Atlantic*.

Hunt, W. F. and Doll, B. A. *Urban Waterways: Designing Stormwater Wetlands for Small Watersheds*. North Carolina Cooperative Extension Service.

Incentive Zoning - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=55>

Institute of Transportation Engineers. (1987). *Parking Generation, 2nd Edition*. Washington, D.C.

International Rivers Network – www.irn.org

Green Growth Guidelines, Second Edition 2014
A Sustainable Development Strategy for Georgia

Jones, N. W. (1998). *Laboratory Manual for Physical Geology*, WCB/McGraw-Hill.

Kareiva, P., Tallis, H., Ricketts, T. H., Daily, G.C., & Polasky, S. (Jun 2011). *Natural Capital: Theory & Practice of Mapping Ecosystem Services*, Oxford Biology.

Kates, R.W., Parris, T. and Leiserowitz, A. (Apr 2005). *Environment: Science and Policy for Sustainable Development*.

Keep Georgia Beautiful - <http://www.dca.state.ga.us/environmental/kgb/>

Keller, Edward A. (1992). *Environmental Geology*, MacMillan Publishing Company.

Kirby, K. (1993). *Wetlands Not Wastelands*, Scenic America Technical Information Series 1(5).

Kramer, L., Dorfman, J., University of Georgia. *A Toolkit for the Evaluation of Land Parcels for Green Space Planning*.

Kriesel, Mullen, and Dorfman), University of Georgia (UGA), (Aug 2010). *Economic Analysis of Coastal Georgia Real Estate Market and Applications of Results*.

Land Trust Alliance, (Oct 2011). *The Economic and Tax-Based Benefits of Land Conservation*.

Land Trust Alliance, Southeast Region - <http://www.lta.org/regionallta/southeast.htm>

Landscape Management Manual for Georgia Homeowners - www.p2ad.org/landmanual.html

Landscaping Ordinance: (DCA Model Code 3-9)
http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/3_9.pdf
<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=106>

Large Lot Zoning - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=38>
http://www.dca.state.ga.us/intra_nonpub/Toolkit/Guides/LgLotZng.pdf

League of Conservation Voters Education Fund – www.voteenvironment.org

LMI Government Consulting, (Sep 2005). *Low Impact Development Strategies and Tools for Local Governments: Building a Business Case*.

Low Impact Development - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=144>

Markowitz, L. (1996). *Shared Parking Planning Guidelines*, Institute of Transportation Engineers, Washington, D.C.

Maryland Greenprints Program - www.dnr.state.md.us/greenways/greenprint/

Maryland Office of Planning. (1989). *Environmental and Economic Impacts of Lot Size and Other Development Standards*. Baltimore.

Massachusetts Office of Coastal Management. (Apr 2001). *Massachusetts Clean Marina Guide: Strategies to Reduce Environmental Impacts*, A Coastal Zone Management/EOEA Publication.

Mayer, P.M., S.K. Reynolds, M.D. McCutchen, & T.J. Canfield. (2006). *Riparian buffer width, vegetative cover, and nitrogen removal effectiveness: A review of current science and regulations*, EPA/600/R-05/118. Environmental Protection Agency.

McConnell, V.D., Walls, M.A. (Jan 2005). *The Value of Open Space: Evidence from Studies of Nonmarket Benefits, Resources for the Future*.

Mohamed, R. (Jan 2006). *The Economics of Conservation Subdivisions: Price Premiums, Improvement Costs, and Absorption Rates*, Urban Affairs Review.

Morales, D.J. (1980). *The Contribution of Trees to Residential Property Values*, Journal of Arboriculture.

National Association of Homebuilders (NAHB). (1986). *Cost-Effective Site Planning– Single Family Development*. Washington, D.C.

National Marine Manufacturers Association, (2008). *The Recreational Boating Industry in Georgia*.

National Oceanic & Atmospheric Administration - US Global Change Research Program, (2009). *Global Climate Change Impacts in the US*.

National Oceanic & Atmospheric Administration (NOAA) and National Centers for Coastal Ocean Science Office of Ocean and Coastal Resource Management, (May 2005). *Small Dock and Pier Management Workshop Workbook*.

National Oceanic & Atmospheric Administration (NOAA) Coastal Services Center & National Centers for Coastal Ocean Science (NCCOS). (Apr 2003). *Residential Docks & Piers: Inventory of Laws, Regulations, & Policies for the Southeastern US*.

National Oceanic & Atmospheric Administration (NOAA). *Clean Marinas Program*, www.cleanmarinas.noaa.gov.

National Oceanic & Atmospheric Administration National Ocean Service Special Projects, (2005 and 2010). *National Survey for Recreation and the Environment, Project Participation in Marine Recreation*.

National Park Service - <http://www.nps.gov/>

National Park Service Rivers, Trails, and Conservation Assistance Program - www.nps.gov/rtca

National Recreation and Park Association – www.nrpa.org

National Scenic Byways Program - <http://www.byways.org/>

National Trust for Historic Preservation – www.nthp.org

National Wildlife Federation - <http://www.nwf.org/backyardwildlifehabitat/>

Natural Land Trust and the Department of Conservation and Natural Resources (DCNR), (Mar 2009). *Growing Greener: Conservation by Design*.

Natural Resources Conservation Service - <http://www.nrcs.usda.gov/feature/backyard/>

NESPAL Native Plants and Landscaping - <http://nepsal.cpes.peachnet.edu/Native/>

Nichols, G., (1999). *Sedimentology and Stratigraphy*, Blackwell Sciences, Ltd.

North Inlet – Winyah Bay NERR Coastal Training Program. (2002). *Economics of Protection: Watershed Protection Techniques*.

Outdoor Foundation. (2009). *Outdoor Recreation Participation Topline Report*.

Overlay District Model Ordinance <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=7>
http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/ModOvrlyDist.pdf

Partners for Fish & Wildlife Program, Region 4 - <http://ecos.fws.gov/partners/>

Path Foundation - <http://www.pathfoundation.org/>

Pendered, D. (2006). *Landowner testing transit loop waters*. The Atlanta Journal-Constitution.

Pennings, S.C., Alber, M., Alexander, C.R., Booth, M., Burd, A., Cai, W.J., Craft, C., Depratter, C.B., Dilorio, D., Hopkinson, C., Joye, S.B., Meile, C.D., Moore, W.S., Silliman, B., Thompson, V., and Ware, J.P. (2012) *South Atlantic Tidal Wetlands in Wetland Habitats of North America: Ecology and Conservation Concerns*. University of California Press.

Perry, M.J. and Mackun, P.J. (2001). *Population Change and Distribution 1990-2000: Census Brief 2000*

Pipkin, B. W. (1994). *Geology and the Environment*, West Publishing Company.

Plummer, McGeary, Carlson. (1999). *Physical Geology*, WCB/McGraw-Hill.

Prince George’s County, Maryland, Department of Environmental Resources, Programs and Planning Division. (Jun 1999). *Low Impact Development and Design Strategies, An Integrated Design Approach*. www.lowimpactdevelopment.org.

Purchase of Development Rights

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=36>

Rails to Trails Conservancy - www.railtrails.org

Riparian Buffers In Your Backyard, For Chatham County And The Georgia Coast -

www.thempc.com/Backyard%20buffers/Backyard%20Buffer_1.pdf

Riparian Buffers Ordinance - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=67>

[River Basin Center, UGA, Institute of Ecology - http://www.rivercenter.uga.edu/index.htm](http://www.rivercenter.uga.edu/index.htm)

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-11

Rural Clustering (DCA Model Code 4-7)

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=112>

http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/4_7.pdf

Scenic Byway Designation - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=65>

Scenic Corridor Overlay District (DCA Model Code 4-8)

<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=113>

http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/4_8.pdf

Scholz-Barth, Katrin. (2001). *Green Roofs: Stormwater Management From the Top Down*.

Source: Environmental Design and Construction Feature Article. January/ February 2001.

Schueler, T. Center for Watershed Protection (Jan 2000). *The Practice of Watershed Protection: Techniques for Protecting and Restoring Urban Watersheds*.

Schueler, T. & Brown, W. (1997). *National Pollutant Removal Performance Database for Stormwater Best Management Practices*, Center for Watershed Protection.

Schueler, T. (1995). *Site Planning for Urban Stream Protection*. Center for Watershed Protection. Metropolitan Washington Council of Governments. Silver Spring, MD.

Schueler, T. (2000). *The Compaction of Urban Soil. Techniques for Watershed Protection*. Center for Watershed Protection, Ellicott City, MD.

Schueler, T.; Brown, Whitney. (1997). *National Pollutant Removal Performance Database for Stormwater Best Management Practices*. Center for Watershed Protection.

Science, Business, & Ecological Restoration Series, (Jun 2007). *Restoring Natural Capital*.

Sheldon, J.E., Alber, M. Georgia Coastal Research Council, UGA. (Sept 2011). *The Conditions of Georgia's Coastal Waters: Development & Analysis of Water Quality Indicators*.

Sierra Club, Georgia Chapter - <http://www.georgia.sierraclub.org/>

Smart Landscaping – A Georgia Native Plant Guide (Southface article Spring 2002):

Smarth Growth America, (Apr 2014). *Measuring Sprawl 2014*.

Smith, Thomas. (1984). *Flexible Parking Requirements*. Planning Advisory Service Report No. 377. American Planning Association. Chicago, IL.

Soil and Water Conservation Commission. (2000). *Georgia Manual for Erosion and Control, 5th Edition*.

Southeastern Cave Conservancy, Inc. - <http://www.scci.org/>

Southern Environmental Law Center, Georgia – <http://www.selcga.org/states/georgia.htm>

Special Purpose Local Option Sales Tax - http://www.accg.org/static/2005_SPLOST_Guide.pdf

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-12

The Conservation Fund, Green Infrastructure - <http://www.conservationfund.org/our-conservation-strategy/focus-areas/green-infrastructure/>

The Farm Bureau of Georgia – www.gfb.org

The Georgia Conservancy – www.georgiaconservancy.org

The Nature Conservancy, Georgia Chapter –
<http://nature.org/wherewework/northamerica/states/>

The Southeastern Watershed Forum, (July 2006). *From Open Space to Wild Places: The Economic Value of Habitat Protection to your Community.*

The Southeastern Watershed Forum, University of Georgia River Basin Center, Environmental Protection Agency Region IV, and Southeast Smart Growth Network, (2012). *An Analysis of Selected Community Green Building Programs in Five Southeastern States.*

The State of Georgia and Georgia Department of Natural Resources. (Mar 2014). *Georgia Statewide Comprehensive Outdoor Recreation Plan.*

The Sustainable Sites Initiative – www.sustainableites.org

The Sustainable Sites Initiative, (Nov 2009). *Guidelines & Performance Benchmarks 2009.*

The Trust for Public Land – www.tpl.org

The Trust for Public Lands, *Greenprint Georgia.*

The Trust for Public Land and Land Trust Alliance. (2005). *LandVote 2005: Americans Invest in Parks & Conservation.*

The Trust for Public Land, (2008). *Greenprint for Camden County, Georgia.*

The Trust for Public Land. (2006). *Georgia Conservation Financing Study.*

The Trust for Public Land. (2007). *The Economic Benefits of Land Conservation.*

The Wilderness Society - <http://www.wilderness.org/>

TND, Comprehensive TND Ordinance
<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=11>
http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/TND_ModOrd.pdf

TND, Floating Districts <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=9>

Transfer of Development Rights - <http://outreach.ecology.uga.edu/tools/tdr.html>

Tree Protection (DCA Model Code 3-4)
<http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=102>
http://www.dca.state.ga.us/intra_nonpub/Toolkit/ModelOrdinances/AltZ/3_4.pdf

Trees Atlanta - <http://www.treesatlanta.org/>

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

U.S. Army Corps of Engineers, Waterways Experiment Station (Apr 1997). *Technical Report EL-97-8*.

U.S. Department of Agriculture - <http://www.usda.gov/wps/portal/usdahome>

U.S. Department of Agriculture – Natural Resource Conservation Service. (Dec 1996) *Engineering Field Handbook: Streambank & Shoreline Protection*.

U.S. Department of Agriculture, National Soil Survey Center. (2004). *Understanding Soil Risks and Hazards*.

U.S. EPA Chesapeake Bay Program. (1996). Clean Water Partnership. *Wetlands, Water Quality, and Property Values*. Annapolis, MD.

U.S. EPA. (1995). *Economic Benefits of Runoff Controls*. Office of Wetlands, Oceans and Watersheds. Washington, D.C. EPA 841-5-95-002.

U.S. Fish & Wildlife Service, Southeast Region Headquarters – <http://southeast.fws.gov>

U.S. Forest Service – <http://www.fs.fed.us/>

U.S. Golf Association. *Golf and Water Quality*-
http://www.usga.org/course_care/articles/environment/water/Golf-and-Water-Quality/

UGA Cooperative Extension Service, for free assistance, useful publications, and other valuable information: <http://www.ces.uga.edu/>

UGA Office of Environmental Sciences – <http://unit.caes.uga.edu/oes/>

UGA Pesticide Safety for the Homeowner - <http://www.ces.uga.edu/pubcd/L430-w.html>

UGA, Carl Vinson Institute – www.cviog.uga.edu

UGA, College of Agricultural & Environmental Sciences – <http://www.caes.uga.edu/extension/>

United States of Golf Associations (USGA). (Mar 1996). *The Environmental Principles for Golf Courses in the United States*.

University of Georgia Marine Extension, (2005). *Water Quality Database for Georgia's Coast, Final Report*.

University of Georgia River Basin Center, (Jan 2007). *Model Coastal Riparian Buffer Ordinance for Georgia's Local Governments*.

University of Georgia, (Mar 1999). *A Review of the Scientific Literature on Riparian Buffer Width Extent & Vegetation*.

Urban Growth Boundary - <http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=53>

American Society of Engineers, (1998). *Urban Runoff Quality Control*.

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-14

US Climate Change Science Program, (Jan 2009). *Coastal Sensitivity to Sea-level Rise: A Focus on the Mid-Atlantic Region*.

US Department of Agriculture - Forestry Service, (Oct 2002). *A Soil Bioengineering Guide to Streambank & Lakeshore Stabilization*.

US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), (Aug 2001). *Stream Corridor Restoration: Principles, Processes, and Practices*.

US Environmental Protection Agency (EPA), (1985). *Coastal Marina Assessment Handbook*.

US Environmental Protection Agency (EPA), (1993). *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*.

US Environmental Protection Agency (EPA), (2001). *EPA National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating*.

US Environmental Protection Agency (EPA), (Aug 1996). *Clean Marinas, Clear Value*.

US Environmental Protection Agency (EPA), (July 2005). *National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution*.

US Environmental Protection Agency (EPA), Region 4, (May 2002). *Final Report: Southeastern Ecological Framework*.

US Environmental Protection Agency (EPA). (Mar 2007). *Using Green Infrastructure to Protect Water Quality in Stormwater CSO, Nonpoint Source and other Water Programs*.

US Environmental Protection Agency (EPA). (May 2009). *Valuing the Protection of Ecological Systems and Services: A Report of the EPA Science Advisory Board*.

US Environmental Protection Agency and the Low Impact Development Center, (2006). *Managing Wet Weather with Green Infrastructure Action Strategy*.

US Environmental Protection Agency, (2006). Mayer, P.M., S.K. Reynolds, M.D. McCutchen, and T.J. Canfield. *Riparian buffer width, vegetative cover, and nitrogen removal effectiveness: A review of current science and regulations*.

US Forestry Service (USFS), (2012). *Green Infrastructure Planning Guidelines for Coastal Georgia*.

US Georgia Building Council (USGBC), (Oct 2013). *LEED for Neighborhood Development*.

USDA Farm Service Agency, Georgia Office – www.fsa.usda.gov/ga

USDA Roadless Area Conservation - <http://www.roadless.fs.fed.us/>

USDA Stream Corridor Restoration: Principles, Processes and Practices:
www.usda.gov/stream_restoration/

Green Growth Guidelines, Second Edition 2014

A Sustainable Development Strategy for Georgia

Appendix F-15

USEPA Pesticides site: <http://www.epa.gov/pesticides>

USEPA River Corridor and Wetland Restoration: <http://www.epa.gov/owow/restore/>

Virginia Institute of Marine Science, Coastal Economies and Recreation and Coastal Research (Dec 2012). *Assessment of the Economic Impacts of Recreation Boating in Virginia*.

Wells, C. (1994). *Impervious Surface Reduction Technical Study. Draft Report*. City of Olympia Public Works Department. Washington Department of Ecology.

Wildlife Habitat Council: <http://www.wildlifehc.org/managementtools/backyard.cfm>

Wildlife Habitat Enhancement Council. (1992). *The Economic Benefits of Wildlife Habitat Enhancement on Corporate Lands*. Silver Spring, MD.

Williamson, K. S. (2003). *Growing with Green Infrastructure*. Heritage Conservancy.

Witten, Jon and Scott Horsley. (1995). *A Guide to Wellhead Protection*. American Planning Association, Chicago, IL.

Woodworth, James, et. al. (2002). *Out of the Gutter: Reducing Polluted Runoff in the District of Columbia*. NRDC: Washington, D.C.

Wright Water Engineers, Inc., Denver Regional Council of Governments, and Colorado Nonpoint Source Task Force. (Dec 1996). *Guidelines for Water Quality Enhancement at Golf Courses Through the Use of Best Management Practices*.