



City of Savannah, GA

FLOODPLAIN SPECIES ASSESSMENT AND PLAN



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1. Introduction

Floodplains are areas adjacent to rivers, ponds, lakes, and oceans that are periodically flooded at different points in time. Floodplains are hydrologically important, environmentally sensitive, and ecologically productive areas that perform many natural functions. They contain both cultural and natural resources that are of great value to society. Flooding occurs naturally along every river and coastal area. Flood waters can carry nutrient-rich sediments which contribute to a fertile environment for vegetation. Floodplains are beneficial for wildlife by creating a variety of habitats for fish and other animals. In addition, floodplains are important because of storage and conveyance, protection of water quality, and recharge of groundwater.

These natural processes influence human activities and are, in turn, affected by our activities. They represent important natural functions and beneficial resources and provide both opportunities and limitations for particular uses and activities. Traditionally, while much attention has been focused on the hazards associated with flooding and floodplains, less attention has been directed toward the natural and cultural resources of floodplains or to evaluation of the full social and economic returns from floodplain use. The natural and cultural values associated with floodplain resources can be categorized in a variety of ways. Floodplain values can be thought of in terms of environmental quality values such as fish and wildlife habitat and water quality. They can also be thought of in terms of socioeconomic values, which are more easily understood by some because these values provide either dollar savings (related to flood and storm damage protection, for example) or financial profit (related to increased production from floodplain use). A document initially prepared by the U.S. Water Resources Council in 1979 titled *A Unified National Program for Floodplain Management* divides riverine and coastal floodplain resources into three categories: 1) water resources, 2) living resources (habitat), and 3) cultural resources.

Humans have always been attracted to floodplains because of their many sustaining attributes; however, human development and industrialization take a toll on the natural functions of the floodplains. Development in the floodplains causes decreases in water quality, loss of wildlife habitats, and an increase in severity and frequency of flood losses. In many cases, the communities responsible for decisions about growth, development, and flood protection do not understand the natural processes that take place in riverine and coastal areas and lack adequate tools to deal with the flooding issues they face. Floodplain management decisions often are made outside of the context of regional or watershed-level planning and without appreciation of the complexities of the water-based ecosystem.

Understanding the importance of maintaining the natural functions of floodplains can lead to better floodplain management approaches that will better protect the natural and beneficial functions of floodplains. The goal of this plan is to aid in the understanding of floodplain natural

resources and functions and to examine strategies and tools to help protect, preserve and/or restore these resources.

Some benefits of natural floodplains or relatively undisturbed floodplains can include reduced or moderated flooding conditions, reduced erosion and sedimentation, reduced or lessened waves or wave action from coastal storms, better water quality including the recharge of groundwater and provision of fish and wildlife habitat to name a few.

Purpose and Background

The City of Savannah is an active participant in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) and is currently a Class 5 community within the program. The CRS program recognizes and encourages community floodplain management activities that exceed the minimum standards defined by the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that (1) reduce flood losses, (2) facilitate accurate insurance ratings, and (3) promote the awareness of flood insurance. Through the City's participation in the NFIP and a Class 5 rating with the CRS, flood insurance policyholders in the City are entitled to a 25% discount on their flood insurance premiums.

The CRS encourages communities to implement effective floodplain management activities, including those intended to improve natural floodplain functions. The current definition of "natural floodplain functions" in the CRS Glossary (Section 120) reads:

- a) The functions associated with the natural or relatively undisturbed floodplain that moderate flooding, retain flood waters, reduce erosion and sedimentation, and mitigate the effects of waves and storm surges from storms; and
- b) Other significant beneficial functions, which include maintenance of water quality, recharge of groundwater, and provision of fish and wildlife habitat.

The CRS Program is primarily concerned with reducing flood losses to insurable buildings and there are several reasons why protecting natural floodplain functions supports that goal. Studies show that natural floodplain features can be more effective at controlling or attenuating flooding and can be less expensive over the long run than traditional human-made flood control structures. Therefore, there is a direct, supportive relationship between protecting natural floodplain functions and the CRS's goal of reducing flood losses to insurable buildings. Natural floodplain functions are not limited to locations in the mapped floodplain. Floodwaters come from the watershed and there are many watershed features and functions that affect flooding and water quality.

The goal of this plan is to aid in the understanding of floodplain natural resources and functions and to examine strategies and tools to protect, preserve and/or restore these resources. This plan covers the City of Savannah, including the special flood hazard areas.

Natural and Beneficial Floodplain Resources and Functions

Undeveloped floodplain land provides many natural resources and functions of considerable economic, social, and environmental value. A fairly well accepted (but not necessarily comprehensive) list and descriptions are included within this section. The resources and functions have been loosely grouped into two categories, and the categories have been labeled according to the primary recipient of the benefit or its relationship to a larger system. “Water resources” include those resources and functions of floodplains that are part of or provide a benefit to the hydrologic cycles on the earth’s surface and sub-surface, including natural moderation of floods, water quality maintenance, and groundwater recharge. “Biological resources” are floodplain resources and functions that benefit large and diverse populations of plants and animals.

Table 1.1 – Benefits of Natural Floodplains

Water Resources	
Natural Flood and Erosion Control	Provide flood storage and conveyance Reduce flood velocities Reduce peak flows Reduce sedimentation
Water Quality Maintenance	Filter nutrients and impurities from runoff Process organic wastes Moderate temperature fluctuations
Groundwater Recharge	Promote infiltration and aquifer recharge Reduce frequency and duration of low surface flows Helps to reduce saltwater intrusion
Biological Resources	
Biological Productivity	Rich alluvial soils promote vegetative growth Maintain biodiversity Maintain integrity of ecosystems
Fish and Wildlife Habitats	Provide breeding and feeding grounds Create and enhance waterfowl habitat Protect habitats for rare and endangered species

Source: A Unified National Program for Floodplain Management, 1994

Water Resources

Natural Flood Storage and Erosion Control

The characteristics of the floodplain and of flooding are essentially interdependent. Floods shape floodplain topography and soils and influence ecology. In turn, the physical characteristics of the floodplain shape flood flows. Floodplains provide a broad area to spread out and temporarily store stormwater from rain events. This reduces flood peaks and velocities and the potential for erosion. Flood storage is particularly important in urbanized areas where even small floods resulting from heavy rainstorms can cause severe flood damage. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches

the main water body. Vegetation also reduces shoreline erosion. In coastal areas, beaches, bars, dunes, and wetlands act as natural barriers to dissipate waves and protect back-lying areas from flooding and erosion.

Water Quality Maintenance

Floodplains serve important functions in protecting water quality. Water that runs off quickly over the surface, as over a barren floodplain, is capable of carrying with it large amounts of sediment and debris to the main water body. Vegetated floodplains have important filtering capabilities for slowing and intercepting surface-water runoff from higher dry land before the runoff reaches open water. As the runoff water passes through, the floodplains retain excess nutrients and some pollutants, and reduce sediment that would clog waterways and affect fish and amphibian egg development. Another example of water quality maintenance is the beneficial shading effect of riparian (streambank) vegetation, which helps to avoid temperature stress on natural biota. Natural floodplain systems can further serve to reduce or avoid the environmental and economic costs associated with wastewater treatment and water quality maintenance.

Groundwater Recharge

In addition to improving water quality through filtering, some floodplains maintain stream flow during dry periods, and many replenish groundwater. The slowing of runoff across the floodplain allows additional time for the runoff to infiltrate and recharge available groundwater aquifers, when there is unused storage capacity. The slowing of runoff provides the additional benefit of natural purification of water as local runoff or overbank floodwater infiltrates through the floodplain alluvium. Natural purification comes from filtration, ion exchange, adsorption, absorption, and aerobic and anaerobic biological action.

Biological Resources

Biological Productivity

The nation's coastal and riverine floodplains support large and diverse populations of plants and animals. In addition, they provide habitat and critical sources of energy and nutrients for organisms in adjacent and downstream terrestrial and aquatic ecosystems. The wide variety of plants and animals supported directly or indirectly by floodplains constitutes an extremely valuable, renewable resource important to economic welfare, enjoyment, and physical well-being. The floodplain is biologically important because it is the place where land and water meet and the elements of both terrestrial and aquatic ecosystems mix. Riparian floodplain ecosystems are distinct associations of soil, flora and fauna occurring along a river, stream, or other body of water and depend for survival upon high water tables and occasional flooding.

Fish and Wildlife Habitats

Due to the abundance of water and vegetation, floodplains provide wetland, riparian and other habitat (including shelter and food sources) for large and diverse populations of fish and wildlife species. More than one-third of the United States' threatened and endangered species live only in wetlands, and nearly half use wetlands at some point in their lives. Many other animals and plants depend on wetlands for survival.

Estuarine and marine fish and shellfish, various birds, and certain mammals must have coastal wetlands to survive. Most commercial and game fish breed and raise their young in coastal marshes and estuaries. Menhaden, flounder, sea trout, spot, croaker, and striped bass are among the more familiar fish that depend on coastal wetlands. Shrimp, oysters, clams, and blue and Dungeness crabs likewise need these wetlands for food, shelter, and breeding grounds.

For many animals and plants, like wood ducks, muskrat, cattails, and swamp rose, inland wetlands are the only places they can live. Beaver may actually create their own wetlands. For others, such as striped bass, peregrine falcon, otter, black bear, raccoon, and deer, wetlands provide important food, water, or shelter. Many of the U.S. breeding bird populations-- including ducks, geese, woodpeckers, hawks, wading birds, and many song-birds-- feed, nest, and raise their young in wetlands. Migratory waterfowl use coastal and inland wetlands as resting, feeding, breeding, or nesting grounds for at least part of the year. Indeed, an international agreement to protect wetlands of international importance was developed because some species of migratory birds are completely dependent on certain wetlands and would become extinct if those wetlands were destroyed.

2. Natural Resource Inventory

Under natural conditions, a flood causes little or no damage to floodplains. Nature ensures that floodplain flora and fauna can survive the more frequent inundations. This is the case with the local marshlands within the City of Savannah. They are flooded daily during high tide and yet life exists without damaging the environment. Historic floodplain areas also include canals and green spaces such community parks, nature preserves and wildlife refuges. Such areas reduce flood damage by allowing flood water to spread over a large area. This reduces flood velocities and provides flood storage to reduce peak flows downstream. Natural and historic floodplains also reduce wind and wave impacts, and their vegetation stabilizes soils during flooding.

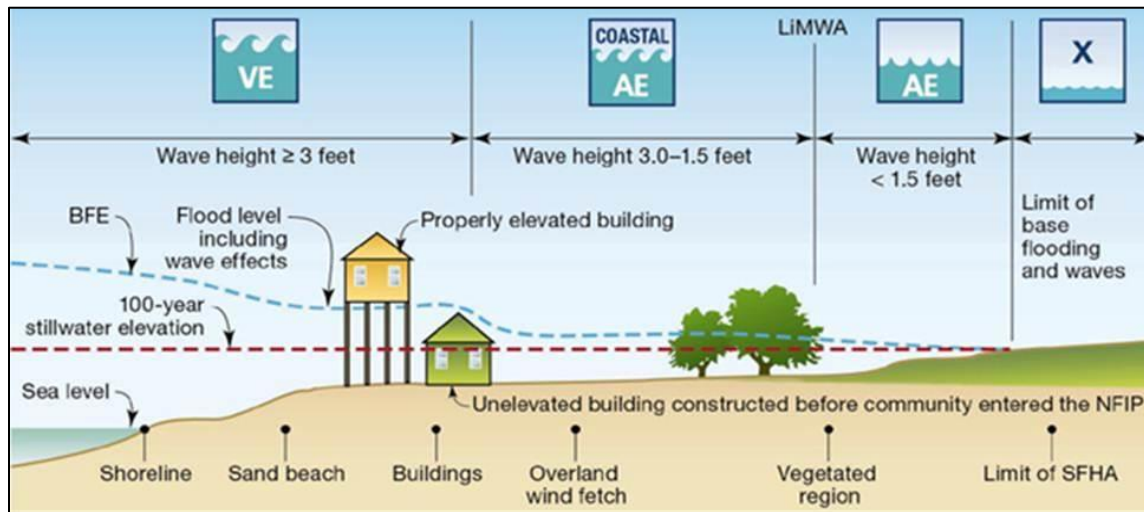
Chatham County has barrier islands such as Little Tybee, Ossabaw, Cabbage and Wassaw Islands. These islands serve as a natural protective barrier for Savannah from forces associated with incoming storms such as wave attack and serve to reduce tidal and wind energies. These islands serve as natural aquatic habitats and support the existence of wetlands, marshes, and estuaries.

Floodplains

In its common usage, the floodplain most often refers to the area that is inundated by the “100-year flood,” which is the flood that has a 1% chance in any given year of being equaled or exceeded. The 1%-annual-chance flood is the national minimum standard to which communities regulate their floodplains through the NFIP. The “500-year flood” is the flood that has a 0.2% chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

The City of Savannah is susceptible to both coastal and inland flooding. Coastal flooding includes high tides, tidal waves, or storm surge, which typically involve the added risk of wave action. Inland flooding includes heavy rains and riverine overbank flooding and can occur in combination with coastal flooding. The 1%-annual-chance floodplain reflect both of these types of flooding. Figure 2.1 shows the typical coastal floodplain, which accounts for decreasing wave height and intensity as floodwaters move inland.

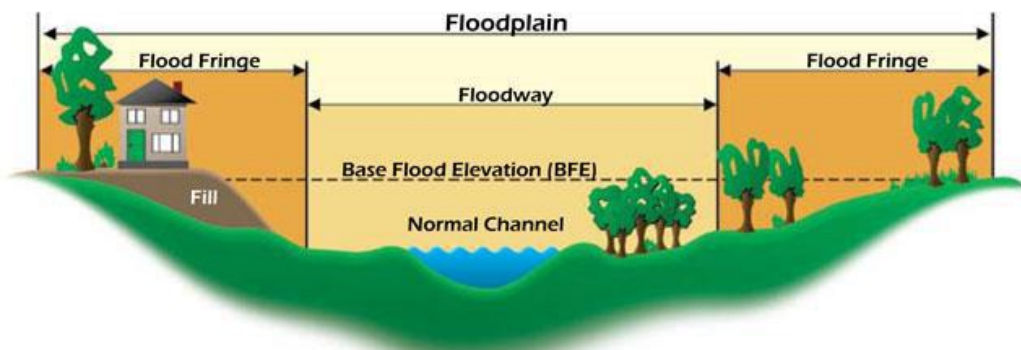
Figure 2.1 – Characteristics of a Coastal Floodplain



Source: FEMA

Figure 2.2 reflects the typical riverine floodplain, which includes the area adjacent to a channel. A riverine floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current. Floodplains are made when floodwater exceeds the capacity of the main channel or escape the channel by eroding its banks. When this occurs, sediments (including rocks and debris) are deposited that gradually build up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

Figure 2.2 – Characteristics of a Riverine Floodplain



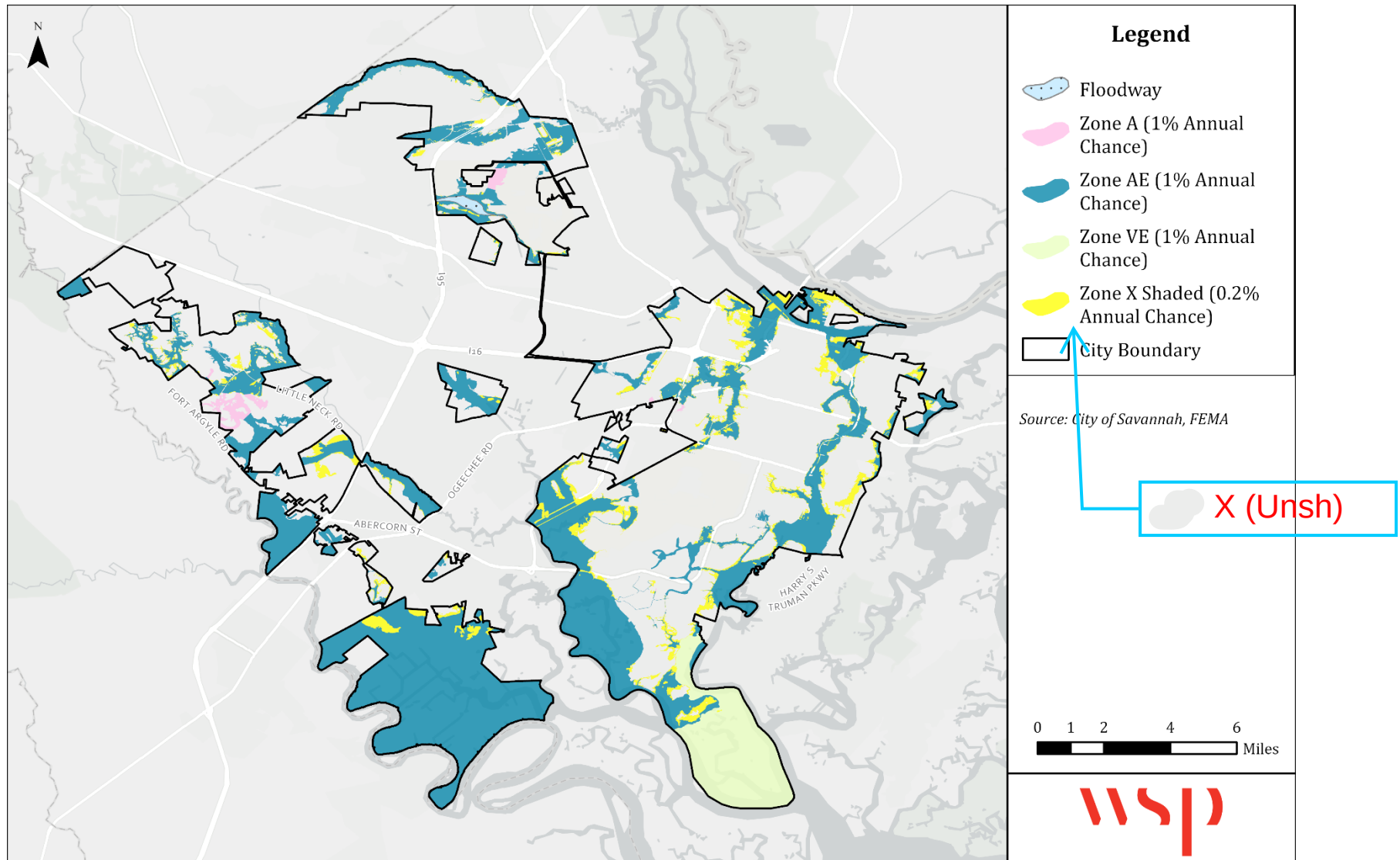
Source: NFIP Guidebook, FEMA

Figure 2.3 illustrates the flood hazard areas within the City of Savannah. Approximately 41% of the land area within Savannah is considered high risk for flooding according to FEMA's Flood Insurance Rate Maps (FIRMs). Around 5% of the City is designated as a VE zone; these are located in southeastern Savannah in and around the land that is surrounded by the Vernon River and Little Ogeechee. A little over 35% of the City falls within an AE zone. These areas are located throughout the City, similarly, in areas adjacent to waterways such as the Ogeechee River and the Little Ogeechee River. Another 1% of the City falls within Zone A, which is concentrated in the northwestern portion of Savannah. Over half of the City, around 53% is designated as low risk or unshaded X. The remaining 5% falls within the moderate risk zone (500-year or shaded X). Lastly, less than 12% of the City is designated as low risk or unshaded X.

	41%	58%
A	1%	
AE	35%	
VE	5%	
X (SH)		5%
X(Unsh)		53% (12%)

This exceeds
amount
exceeds 100%

Figure 2.3 – Flood Hazard Areas



Wetlands

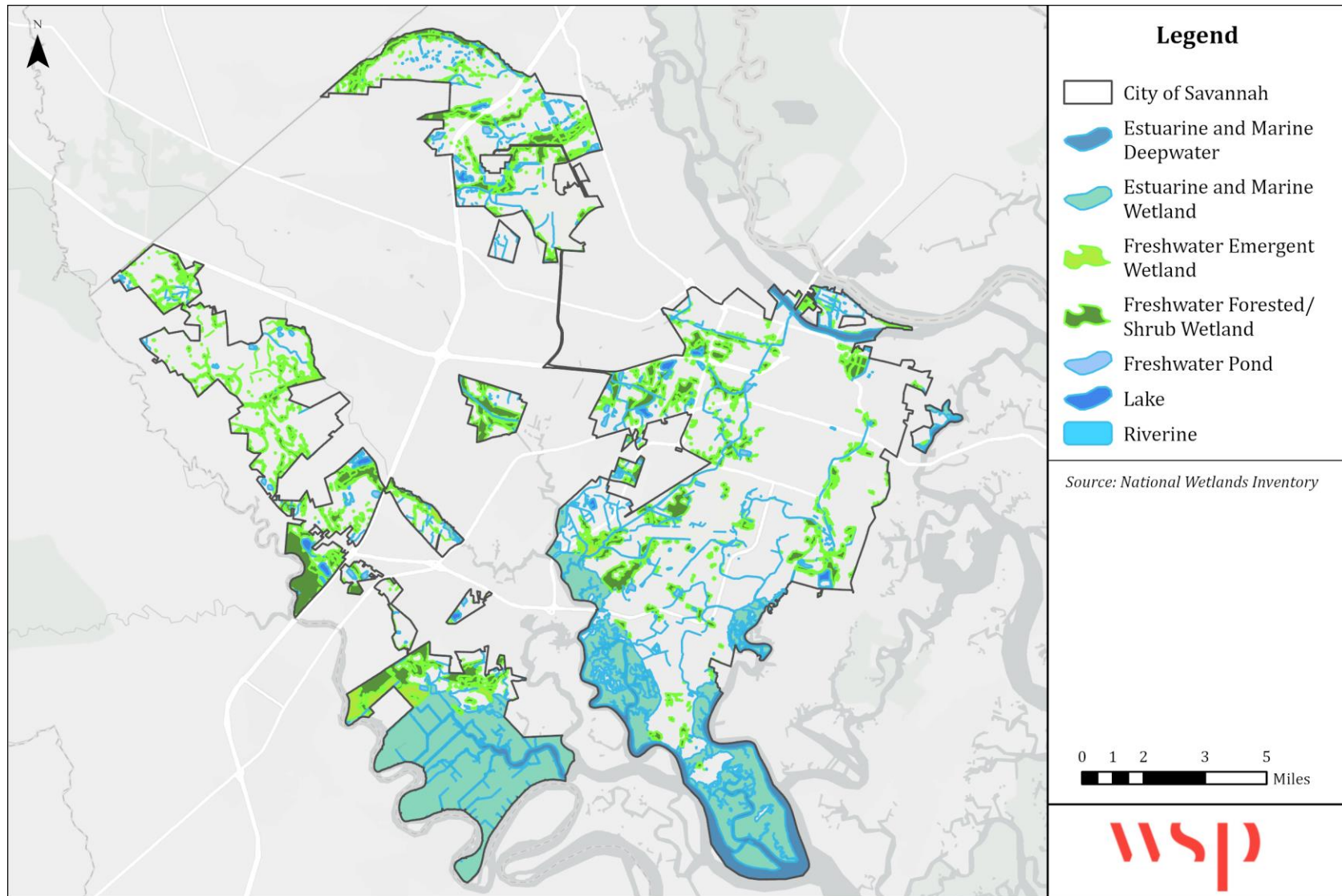
The benefits of wetlands are hard to overestimate. They provide critical habitat for many plant and animal species that could not survive in other habitats. They are also critical for water management as they absorb and store vast quantities of storm water, helping reduce floods and recharge aquifers. Not only do wetlands store water like sponges, they also filter and clean water as well, absorbing toxins and other pollutants. Wetlands are often found in floodplains and topographically depressed areas of a watershed.

The coast of Georgia comprises a vast array of wetlands ranging from freshwater non-tidal and tidal wetlands to estuarine wetlands, or saltmarshes. With approximately 100 linear miles of coastline, Georgia boasts approximately 348,000 acres of estuarine tidal marsh. These marshes are ecologically significant as habitat for aquatic organisms, including fish, shellfish, waterfowl, and other wildlife species. In addition to serving as habitat for specific organisms, saltmarshes also function as feeding grounds for terrestrial vertebrates, as a buffer to protect against coastal storm surge, and as a natural filtration system to improve water quality, transform nutrients and retain sediment. Table 2.1 and Figure 2.4 detail the types and acreage of wetlands that exist within the City of Savannah.

Table 2.1 – Wetland Acreage

Class	Total Acreage	Percent
Lake	345.89	0.28%
Freshwater Pond	736.34	0.59%
Riverine	1,340.72	1%
Estuarine and Marine Deepwater	93,204.06	74%
Estuarine and Marine Wetland	12,839.21	10%
Freshwater Forested/Shrub Wetland	15,447.85	12%
Freshwater Emergent Wetland	1,713.91	1%

Figure 2.4 – Wetlands



Waterways

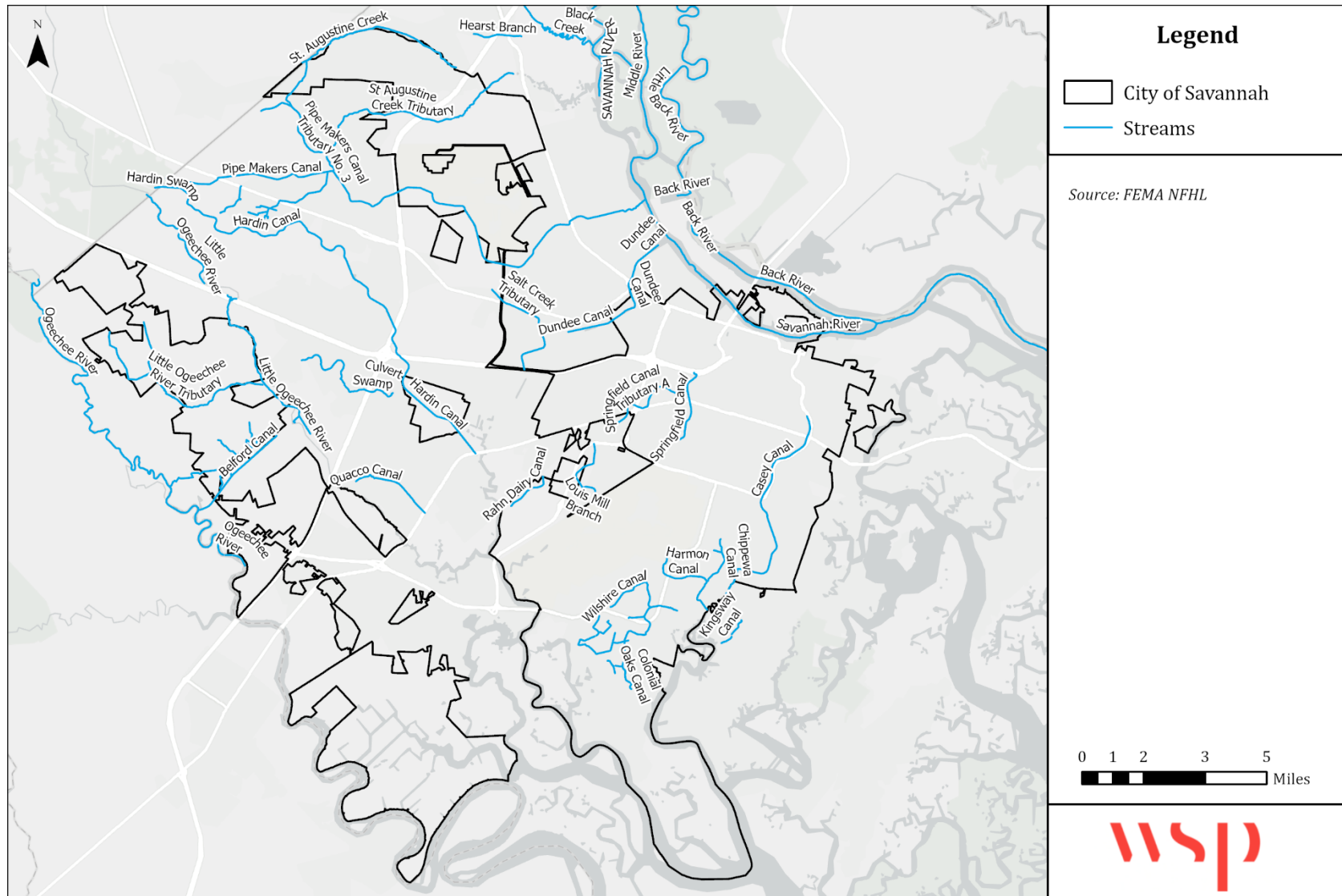
A stream can be defined as a body of concentrated flowing water in a natural low area or natural channel on the land surface. There are three stream types: ephemeral, intermittent, and perennial.

Ephemeral streams are features that only carry stormwater in direct response to precipitation. They may have a well-defined channel and they typically lack the biological, hydrological, and physical characteristics commonly associated with intermittent or continuous conveyances of water. These features are typically not regulated.

Intermittent streams have a well-defined channel that contains water for only part of the year (typically during winter and spring). The flow may be heavily supplemented by stormwater. When dry, they typically lack the biological and hydrological characteristics commonly associated with continuous conveyances of water. These features are typically regulated by State and Federal agencies.

Perennial streams have a well-defined channel that contains water year-round during a year with normal rainfall. Groundwater is the primary source of water, but they also carry stormwater. They exhibit the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water. These features are regulated by State and Federal agencies. Perennial and intermittent watercourses are typically identified through site inspection and US Geological Survey (USGS) maps. Perennial streams are those which are depicted on a USGS map with a solid blue line and are shown on the following page in Figure 2.5.

Figure 2.5 – USGS Waterways



Threatened & Endangered Species

According to the U.S. Fish & Wildlife Service (USFWS) Information Planning and Conservation (IPaC) System and the FEMA Flood Risk and Endangered Species Habitat (FRESH) Map, there are 18 threatened, endangered, or candidate species that are known or suspected to occur within the City of Savannah based on the species' current range and/or critical habitat defined by USFWS and the National Marine Fisheries Service (NMFS) as shown in Table 2.2 below.

Table 2.2 – City of Savannah Threatened and Endangered Species

Common Name	Species Name	Status	Listing Agency
Birds			
Eastern Black Rail	Laterallus jamaicensis ssp. jamaicensis	Threatened	USFWS
Piping Plover	Charadrius melodus	Threatened	USFWS
Rufa Red Knot	Calidris canutus rufa	Threatened	USFWS
Red-cockaded Woodpecker	Dryobates borealis	Threatened	USFWS
Wood Stork	Mycteria americana	Threatened	USFWS
Fishes			
Atlantic Sturgeon	Acipenser oxyrinchus	Endangered	NMFS
Shortnose Sturgeon	Acipenser brevirostrum	Endangered	NMFS
Trispot Darter	Etheostoma trisella	Threatened	USFWS
Insects			
Monarch Butterfly	Danaus plexippus	Proposed Threatened	USFWS
Mammals			
Tricolored Bat	Perimyotis subflavus	Proposed Endangered	USFWS
West Indian Manatee	Trichechus manatus	Threatened	USFWS
Reptiles			
Eastern Indigo Snake	Drymarchon corais couperi	Threatened	USFWS
Green Sea Turtle	Chelonia mydas	Threatened	USFWS & NMFS
Southern Hognose Snake	Heterodon simus	Proposed Threatened	USFWS
Hawksbill Sea Turtle	Eretmochelys imbricata	Endangered	USFWS & NMFS
Flowering Plants			
Pondberry	Lindera melissifolia	Endangered	USFWS
American Chaffseed	Schwalbea americana	Endangered	USFWS
Canby's Dropwort	Oxypolis canbyi	Endangered	USFWS

Source: USFWS IPaC and FEMA FRESH Map

The FEMA FRESH Map was used to evaluate the ranges of all species with available data. However, all evaluated species ranges are at least city-wide, with many extending to a slightly larger region.

The FEMA FRESH Map and the USFWS IPaC System were used to identify critical habitat areas for applicable species. There are no critical habitat areas designated by the USFWS within the City of Savannah. The NMFS has designated critical habitat in the Ogeechee River, Savannah River, and the Little Black River for the Shortnose Sturgeon. Critical habitat areas are shown in Figure 2.6 on the following page. As can be seen in the map, critical habitat areas are concentrated along the major rivers. Figure 2.7 shows the critical habitat areas in relation to the floodplain and open space.

Figure 2.6 – Shortnose Sturgeon Critical Habitat

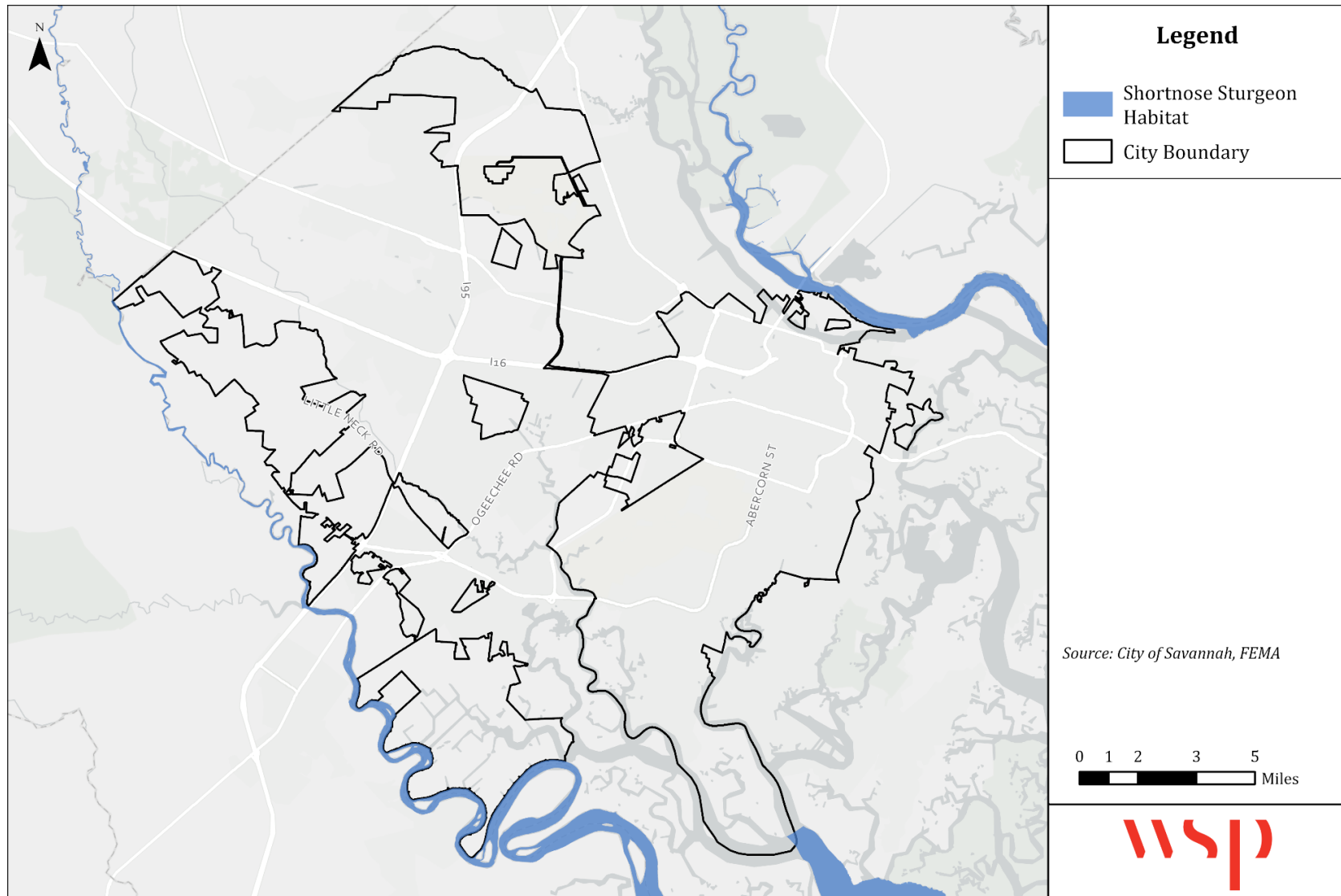
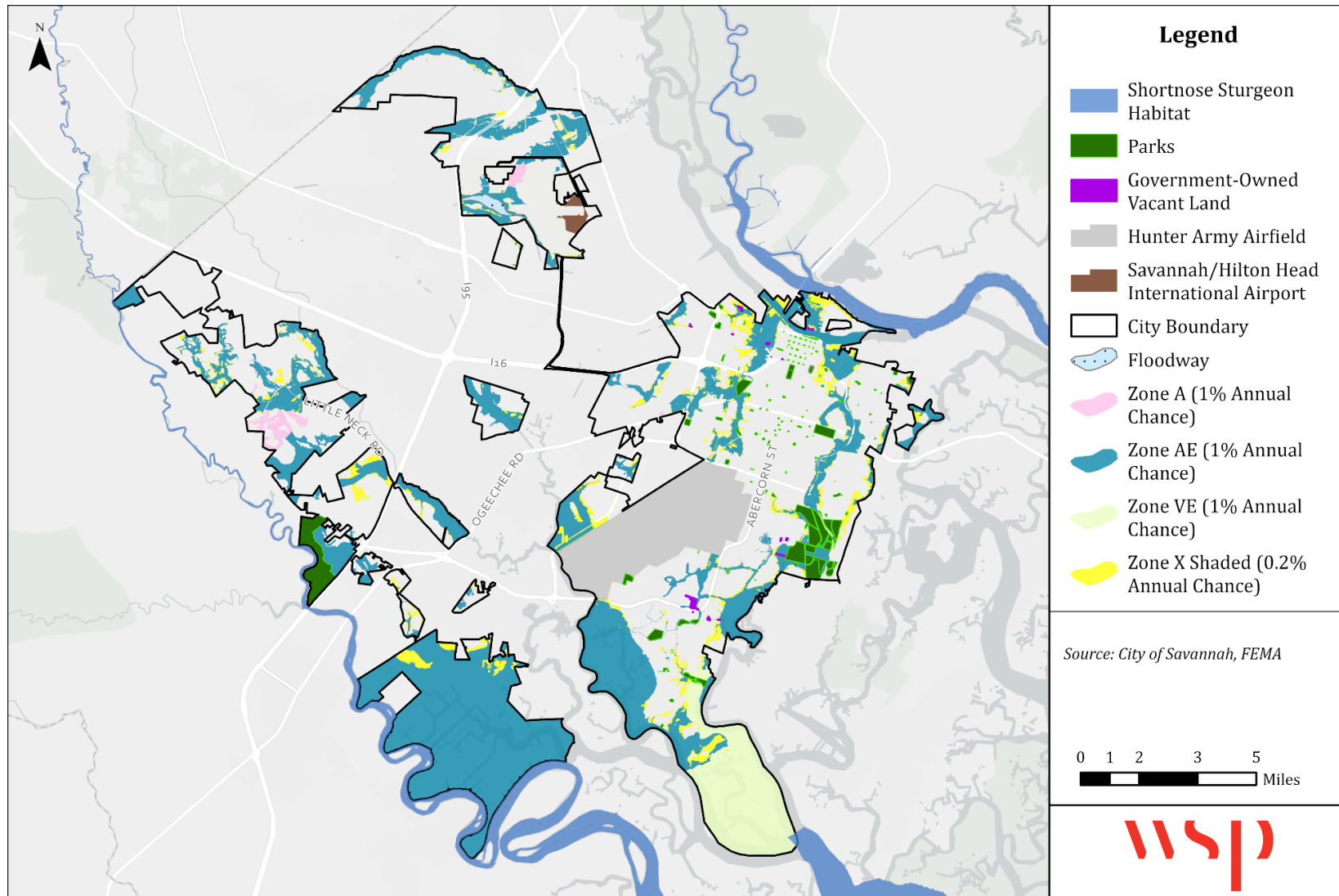


Figure 2.7 – Shortnose Sturgeon Habitat in Relation to Floodplain and Open Space

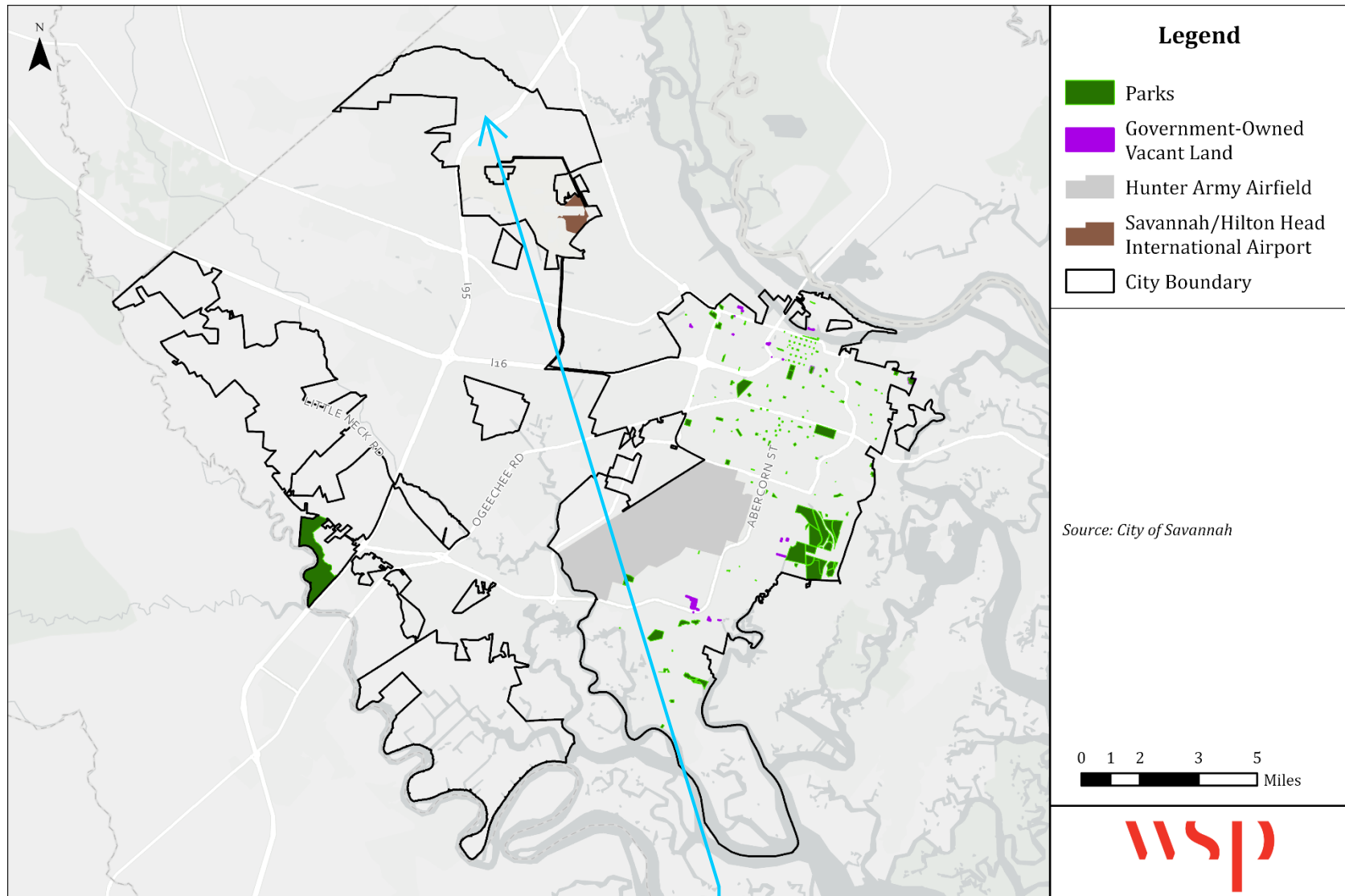


Open Space

Open space preservation is key to the protection and restoration of threatened and endangered species and their habitat. Existing open space in the City includes city parks, neighborhood parks, federal lands, parcels zoned for conservation, and other City owned parcels.

Open space areas in the City of Savannah are shown in Figure 2.8.

Figure 2.8 – Open Space



3. Conservation & Recovery Capability Assessment

Prevention measures like planning, land acquisition and regulations help modify development in floodplains to reduce susceptibility to flood damage and protect natural floodplain functions, including threatened and endangered species habitat. Comprehensive and Capital Improvement Plans can be used to identify floodplain and wetland areas to be preserved by zoning, acquisition and other means. A Comprehensive Plan, in broad terms, is a policy statement that guides a community's growth and development. It is the basis for a community's zoning, subdivision and design regulations and a community's official maps and amendments to the zoning, subdivision and design ordinances. A Capital Improvement Plan (CIP) is a community planning and fiscal management tool used to coordinate the location, timing and financing of capital improvements over a multi-year period.

Planning and zoning activities should direct development away from floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Planning and zoning activities can also provide benefits by simply allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach.

Local Planning Mechanisms

Metropolitan Planning Commission

The Metropolitan Planning Commission is a joint planning agency for the City of Savannah and Chatham County. Each governmental body appoints seven members to the board. Two of these members are the City and County Managers. These fourteen members serve without pay and represent government, private enterprise, and citizens' interest groups. Commissioners are appointed for three-year overlapping terms. The MPC meets every three weeks to consider matters of zoning and land use, as well as other studies and issues for which it has responsibility. Planning Meetings are held as needed to discuss planning issues.

The Chatham County – Savannah Comprehensive Plan, Plan 2040, was developed by the MPC and adopted in 2021. The next update will be done in 2026.

Capital Improvement Program

The City of Savannah's Office of Capital Projects Management oversees the development and implementation of capital projects during the planning, design, permitting and construction phases. The city produces a semi-annual Capital Improvement Projects (CIP) Status Report

that provides project-specific information including a status on all active projects. The program includes drainage, sewer, street, and parks and recreation improvements.

Coastal Georgia Regional Commission

The Coastal Georgia Regional Commission (CRC) is a multi-county planning and development agency that serves municipal and county governments. The CRC serves 10 counties and 35 cities and encompasses the six coastal counties in Georgia. The CRC provides local and regional comprehensive planning services as well as specialized planning services in transportation, water resources, and historic preservation.

Coastal Georgia Indicators Coalition

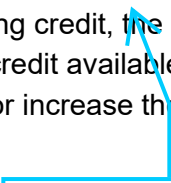
The Coastal Georgia Indicators Coalition is comprised of community members and advocates working together through a comprehensive, coordinated approach for planning and accountability and serves as a resource for agencies addressing overall health and well-being while leveraging resources for community initiatives. The purpose of the Coalition is to improve community well-being by engaging and leading the community to work collectively in its development of strategic priorities that guide policy, programs, and resource allocation.

Community Rating System Credit for Conservation and Recovery

The Community Rating System (CRS) credits several conservation and recovery actions that can be implemented by local governments. The CRS provides reduced flood insurance premiums in communities that undertake activities to prevent or reduce flood losses and protect natural floodplain functions.

The City of Savannah is implementing several activities to improve its CRS Class, saving floodplain residents and businesses money spent on their insurance premiums each year. Implementing more activities, such as threatened and endangered species recovery actions, could help the City move to a better class.

Table 3.1 reviews general CRS-credited actions that support the protection of threatened and endangered species and their habitats. The “Doing” column identifies whether the City is implementing what is or could be a CRS credited activity. If the City is getting credit, the “Credited” column shows the current CRS credit points and the maximum credit available. The “Feasible” column identifies if it would be feasible to implement an activity or increase the credit points.



City

Table 3.1 – CRS Credited Conservation and Recovery Actions

Activity/Element	Doing?	Credited?	Feasible?
300 Public Information Activities			
Providing information on areas that serve natural floodplain functions, such as wetlands (MI7)	Yes	90/90	
Outreach projects (OP) with messages on protecting natural functions	Yes	200/200 ²	Yes, the County is receiving full credit but could update projects to include messages on protecting natural functions
Designing and disseminating messages on protecting natural floodplain functions in a program for public information (PPI)	No	0/100	Yes, the County could develop a PPI with messages on protecting natural floodplain functions
Having materials in the local public library (LPD) on protecting local natural floodplain functions	Yes	10/10 ²	Yes, materials with appropriate messages could be added
Having materials on protecting local natural floodplain functions in the community's website (WEB)	Yes	69/77 ²	Yes, appropriate messages and links could be added
420 (Open Space Preservation)			
Preserving open space in the floodplain (OSP)	Yes	667/1,450	No more to be done for now
Preserving open space in the floodplain in its natural state (NFOS)	Yes	80/350	No more to be done for now
Preserving open space on eroding shorelines (CEOS ¹)	No	0/750	No more to be done for now
Offering incentives to developers to keep the floodplain open (OSI)	No	0/250	Yes, this could be done with ordinance amendments
Zoning flood prone areas for large lot sizes to preserve low density uses (LZ)	No	0/600	Yes, this could be done with ordinance amendments
Preserving stream banks and shorelines in their natural state (NSP)	No	0/120	Yes, this could be done with ordinance amendments
430 (Higher Regulatory Standards)			
Prohibiting filling in the floodplain (DL1a)	No	0/280	Yes, this would require ordinance amendments and is under consideration
Regulating development in areas subject to coastal erosion (CER ¹)	No	0/370	No more to be done. Not applicable
Other regulations to protect natural floodplain functions not specifically listed in the <i>Coordinator's Manual</i>	No	0/100	No more to be done for now.
450 (Stormwater Management)			
Requiring new developments in the watershed to account for the total volume of runoff released (SMR-DS)	No	0/225	Yes, this would require ordinance amendments

Activity/Element	Doing?	Credited?	Feasible?
Requiring new developments to use low impact development techniques (SMR-LID)	No	0/25	Not currently receiving credit, but LID techniques are required in Stormwater Management Local Design Manual. Improvements to LID ordinance and ways to improve developer participation are under consideration.
Setting stormwater management standards based on an overall plan for the watershed (WMP)	No	0/315	Yes, the City could consider developing a plan for the watershed
510 (Floodplain Management Planning)			
Adopting one or more plans that address protecting natural floodplain functions (NFP)	No	0/100	Yes, will address natural floodplain protection with this plan
540 (Drainage System Maintenance)			
Having a habitat-friendly program to clear debris in drainageways (CDR)	No	0/200	Yes, the City could establish a maintenance program and identify areas to ensure habitat-friendly practices are used
¹ These elements are appropriate only for species dependent on beaches, such as sea turtles and shore birds. ² Elements are being implemented by the City; however, the messages and materials currently do not address threatened and endangered species but may be amended to do so.			

Summary of CRS Actions

Series 300 (Public Information Activities): The City implements most of the public information activities and elements listed in Table 3.1. It would not take much work to adjust ongoing actions to better address threatened and endangered species. The City receives credit for furnishing inquirers with basic flood zone information from the latest FIRM, as well as information shown on most FIRMs, historical flood information, and natural floodplain functions.

The City's outreach projects and library and web references could be revised or expanded to provide more information on protecting threatened and endangered species. Relevant agencies and organizations may have outreach materials and recommended messages that the City could disseminate.

Activity 420 (Open Space Preservation): The City currently receives credit for preserving 70% of the Special Flood Hazard Area as open space. The City preserves open space land in a natural state. The City could receive more credit by protecting open space through deed restrictions and incentivize new developments to maintain and designate flood-prone land as open space.

Activity 430 (Higher Regulatory Standards): The City receives credit for enforcing regulations that require development limitations, freeboard for new construction and substantial improvement, cumulative substantial improvement, protection of critical facilities, enclosure

limits, local drainage protection, enforcing V-Zone rules inland from the V-Zone boundary, maintains off-site record storage of permit files, and has a Certified Floodplain Manager (CFM) on staff. Credit is also provided for the enforcement of building codes, and a Building Code Effectiveness Grading Schedule (BCEGS®) Classification of 4/3. The City could enact regulations to prohibit filling in the floodplain or set other higher standards for development in the floodplain that could benefit natural floodplain functions.

Activity 450 (Stormwater Management): The City enforces regulations for stormwater management and soil and erosion control. The City could increase points by developing a plan for the watershed and requiring the use of low impact development techniques. The Stormwater Management Local Design Manual does encourage the use of low impact development techniques.

Activity 510 (Floodplain Management Planning): The City receives credit for a Floodplain Management Plan, Repetitive Loss Area Analysis, and will receive natural floodplain functions plan (NFP) credit for this plan once completed.

Activity 540 (Drainage System Maintenance): The City does not currently receive credit under Activity 540, however, it should evaluate potential credit for any activities related to regular drainage site inspections and problem site maintenance. The City has an ongoing Capital Improvements Program that could be credited under this activity. Savannah could also consider regulations for prohibiting dumping in the drainage system and annually publicize this regulation, which would support natural floodplain functions.

Local Preservation Initiatives

Savannah Tree Foundation

The Savannah Tree Foundation promotes, through direct action and education, an awareness of trees as vital environmental resources and an important part of cultural heritage.

Chatham County – Savannah Comprehensive Plan, Plan 2040

Relevant land use objectives and natural resource protection objectives identified in Plan 2040 are as follows:

- Prioritize land acquisition for open space and conservation
- Decrease development pressures on environmentally sensitive lands
- Inventory existing tree canopy in each jurisdiction and establish programs to ensure a minimum tree canopy is maintained countywide.
- Engage with property owners to educate on the importance of trees to the community and their role as private property owners to protect the region's tree canopy.
- Evaluate existing policies, plans, and regulations to ensure that they encourage low impact development principles and are consistent with best management practices in regards to stormwater runoff.

- Identify funding sources and other mechanisms to conserve properties in open space as part of the community stormwater management system.

Coastal Marshlands Protection Act

In 1970, the State of Georgia established the Coastal Marshlands Protection Act (CMPA) to protect the marsh and estuarine areas, and to regulate the activities within these public trust lands that are held for the citizens of Georgia. Through the Georgia Department of Natural Resources, Coastal Resources Division (GADNR-CRD), the CMPA is enacted to protect the estuarine area. Activities and structures in the coastal marshlands are regulated to ensure that the values and functions of the coastal marshlands are not impaired. GADNR-CRD allows for the sustainable use of the estuarine area through permits and other methods of authorization that will preserve the condition of the marsh while still allowing for its enjoyment.

Coastal Georgia Regional Commission

The Coastal Georgia Regional Commission prepared a Regional River Corridor Protection Plan that describes the ten local governments and the associated rivers that are affected by the River Corridor Protection Act and puts forward a regional plan for the protection of river corridors. The plan provides for construction of road crossings, acceptable uses of river corridors, maintenance of a vegetative buffer along rivers for a minimum of 100 feet from the river's edge (residential structures are allowed within the buffer zone), timber production standards, wildlife and fisheries management, recreation, and other uses. Chatham County is one of the eight coastal counties affected by the River Corridor Protection Act and therefore, as required, has adopted a Regional River Corridor Protection Plan for the Savannah River. The maintenance of a 100-foot natural vegetative buffer, often referred to as a "riparian buffer", on both sides of any protected river is required under the River Corridor Protection Act. Similarly, under the State of Georgia Erosion and Sedimentation Act, one provision requires that land-disturbing activities shall not be conducted within 25 feet of the banks of any State waters, thus mandating a riparian buffer 25 feet in width.

Stormwater Ordinance

The City's Stormwater Management Ordinance requires that all stormwater management systems be designed to comply with the requirements of the Savannah Stormwater Management Local Design Manual and comply with the latest edition of the Coastal Stormwater Supplement to the Georgia Stormwater Management Manual. The City's Local Design Manual requires stormwater runoff reduction and stormwater water quality BMPs. Post-construction stormwater management and site planning and design criteria must be applied to all new development and redevelopment activities that are subject to the Stormwater Management Ordinance. The criteria include a natural resources inventory, use of Green Infrastructure/Low Impact Development practices, stormwater runoff reduction, stormwater quality management and protection, aquatic resource protection and energy dissipation, overbank flood protection, and extreme flood protection.

Nature Conservancy

The Nature Conservancy is the leading conservation organization working to protect ecologically important lands and waters for both nature and people. One important attribute is the Private Lands Conservation Program as the Nature Conservancy works with landowners, communities, cooperatives and businesses to establish local groups who can protect land. Some of the tools include Land Trusts, conservation easements, private reserves and incentives. The Nature Conservancy has helped to protect more than 21 million acres in the United States alone. One of the primary conservation areas in the state of Georgia is in the Savannah River Basin which runs throughout Chatham County. Some of the Nature Conservancy lands that are protected are in Chatham County.

Relevant Agencies and Organizations

There are several federal and state agencies and private organizations that have goals and programs to protect and threatened and endangered species and help them recover. The following organizations were contacted to help the City define appropriate activities and provide guidance on implementation. A copy of the outreach letter sent to stakeholders is shown in Figure 3.1.

U.S. Fish and Wildlife Service HQ ESA 5275 Leesburg Pike Falls Church, VA 22041-3803	NMFS HQ ESA 1315 East-West Hwy, F/ST1 Silver Spring, MD 20910
FEMA HQ NFIP ESA Team P.O. Box 10055 Hyattsville, MD 20782-8055	U.S. Fish and Wildlife Service Townsend / Coastal GA Field Office 4890 Wildlife Drive NE Townsend, GA 31331 (706) 613-9493
Savannah Tree Foundation P.O. Box 8880 Savannah, GA 31412 (912) 233-8733	Georgia Environmental Protection Division 2 Martin Luther King Jr. Drive SE, Suite 1456, East Tower Atlanta, GA 30334 (404) 463-1511
Georgia Department of Natural Resources Wildlife Resources Division One Conservation Way, Suite 310 Brunswick, GA 31520 (912) 264-7355	South Atlantic Fishery Management Council 4055 Faber Place Drive, Suite 201 North Charleston, SC 29405 (843) 571-4366

NOAA Southeast Fisheries Science Center 75 Virginia Beach Drive Miami, FL 33149 (305) 361-4200	FEMA Region IV 3303 Chamblee Tucker Road Atlanta, GA 30341
Metropolitan Planning Commission 110 East State Street Savannah, GA 31401 (912) 651-1440	Coastal Georgia Regional Commission 1181 Coastal Drive SW Darien, GA 31305 (912) 514-1593
The Nature Conservancy Southeast Georgia Field Office P.O. Box 484 Darien, GA 31305 (470) 316-3240	Birds Georgia 825 Warner Street SW, Suite B Atlanta, GA 30310 (678) 973-2437

Figure 3.1 – Agency and Organization Outreach Letter Example



January 12, 2026

Chellby Kilheffer
USFWS HQ NFIP ESA
5275 Leesburg Pike
Falls Church, VA 22041
Chellby_Kilheffer@fws.gov

RE: City of Savannah Natural Floodplain Functions Plan

The City of Savannah is developing a Natural Floodplain Functions Plan (NFP), which identifies potentially endangered and threatened species and evaluates ways to protect and recover the species and their habitats. The primary aim in developing this plan is to identify specific actions the city can pursue to support conservation and recovery of the species and habitats throughout Savannah.

The NFP follows the guidance under the Community Rating System (CRS) 2025 Coordinator's Manual to meet the requirements of the Community Rating System (CRS) of the National Flood Insurance Program (NFIP). This CRS project encourages and recognizes community actions taken to protect species, and their critical habitats, listed pursuant to the Endangered Species Act.

Our objective in reaching out to additional agencies and stakeholders is to coordinate with those who may bring additional information to the planning process regarding species and habitat protection. Any information or feedback that may help us refine the species assessment, identify conservation and recovery actions, or otherwise improve the plan would be welcomed. Your review of the identified species would be most helpful. Below is a list of general guiding questions:

1. Is the list of threatened and endangered species in the *Threatened & Endangered Species* section (p.14) of the plan appropriate? Are there any species that the city should not spend time on?
2. For the species that deserve attention from the city, do you have additional information on their habitats and threats?
3. Are there any specific recovery actions that should be considered?

If you have any feedback or would like to submit comments or questions for consideration, please forward it to my attention via email at tmcdonald@savannahga.gov. You may also contact our planning consultant, Abby Moore with WSP, at abigail.moore@wsp.com. Please send all

P.O. BOX 1027, SAVANNAH, GA 31402
PHONE 912.651.6510 TDD 912.651.6702 FAX 912.651.6519 SAVANNAHGA.GOV

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comments by Friday, February 13th. If you would like to discuss your comments in more detail, please reach out to Abby Moore at abigail.moore@wsp.com. We thank you for your support of this important planning process and look forward to hearing from you.

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas McDonald".

Thomas McDonald, CFM
Floodplain Manager
Development Services Department
City of Savannah, GA

P.O. BOX 1027, SAVANNAH, GA 31402
PHONE 912.651.6510 TDD 912.651.6702 FAX 912.651.6519 SAVANNAHGA.GOV

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4. Feedback

Stakeholder Comments

Savannah received comments from the following agencies and organizations:

- National Marine Fisheries Service
- USFWS Georgia Ecological Services Field Office
- Georgia DNR Environmental Protection Division Floodplain Unit
- Georgia Department of Natural Resources (DNR) Wildlife Conservation Section
- Birds Georgia

A record of comments is provided on the following pages.

National Marine Fisheries Service

We have completed our review of the City of Savannah's Natural Floodplain Functions Plan. First, I want to thank you and your staff for all of the hard work that went into producing this document, and for taking this important step towards the recovery of threatened and endangered species. Overall, this is a very well-researched and informative document that identifies both the threats to floodplain associated ESA-listed species and the floodplain management recovery measures that can be implemented to alleviate impacts to these species.

Specific Recommendations and Comments:

- 1. Based on the information provided in your plan, and as a Class 5 CRS community, it is clear that the City of Savannah is already doing many good things to reduce flood risk and promote the conservation of ESA-listed species and the natural and beneficial functions of floodplains. The survival and recovery of these species depends, to a large extent, on actions taken at the local level by numerous communities, businesses, and private landowners. We strongly encourage your community to continue with these positive efforts.*
- 2. Table 2.2 of your plan, which lists the City of Savannah's threatened and endangered species, includes green and hawksbill sea turtles. From your map showing Savannah's city boundary (Figure 2-3), it is unlikely that sea turtles would be found this far inland in primarily freshwater environments. If your plan extends out to the barrier islands, including marine environments, then several ESA-listed sea turtles would be found (green, loggerhead, Kemp's ridley, leatherback and hawksbill).*
- 3. The caption for Figure 2.6 reads "Atlantic Sturgeon Critical Habitat" but the legend reads "Shortnose Sturgeon Habitat." This is likely a typo. The caption for Figure 2.7 reads "Shortnose Sturgeon Habitat...." and matches the legend. Please confirm that Figure 2.7 should be shortnose sturgeon and not Atlantic sturgeon.*
- 4. The plan concludes with a summary of CRS activities (pages 21-24) that the City of Savannah could implement (or do more of) that would simultaneously reduce flood risk and promote the natural and beneficial functions of floodplains. To the extent possible, we suggest developing these recommendations into more detailed action items including estimated implementation timelines, responsible office/persons, and identification of funding sources (if needed). This step is described in more detail in FEMA's community guidance document Developing a Floodplain Species Assessment or Floodplain Species Plan for CRS Credit (Step 8).*
- 5. The plan includes several recommended action items related to open space preservation. We agree that open space preservation is an essential mitigation tool for reducing the effects of stormwater runoff and restoring the natural and beneficial functions of floodplains, and we recommend that the City of Savannah move forward with implementation of these action items.*
- 6. In addition to open space preservation, we recommend the City of Savannah explore other approaches to achieve conservation benefits for floodplain dependent species including sustainable or "green" development practices that incorporate nature based solutions, and conversion of impervious to pervious (porous) surfaces.*

USFWS Georgia Ecological Services Field Office

Thank you for reaching out for information and feedback for the City of Savannah Natural Floodplain Functions Plan (NFP) planning process regarding species and habitat protection. For your consideration, I will provide answers to the three general guiding questions from the stakeholder letter I received. I am basing my answers on my understanding that the project area is the 'City Boundary' aka 'City of Savannah' as shown in the NFP figures 2.3, 2.4, and 2.5.

Question 1a. Is the list of threatened and endangered species in the Threatened & Endangered Species section (p.14) of the plan appropriate?

The list of species to consider seems to have come from the FEMA Flood Risk and Endangered Species Habitat (FRESH) Map. The U.S. Fish and Wildlife Service (Service) - Information for Planning and Consultation (IPaC) system considers the range of three species to not include the project area. Those are: Fish - trispot darter (*Etheostoma trisella*), Plant - American chaffseed (*Schwalbea americana*), and Plant - Canby's dropwort (*Oxypolis canbyi*). As the project area does not include the range of these species, as indicated by IPaC, they should be eliminated from the list of species to consider for this plan.

Question 1b. Are there any species that the city should not spend time on?

There are several species that are not likely to occur due to no suitable habitat in the project area. Those are: Birds – eastern black rail (*Laterallus jamaicensis*), piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus*), and red-cockaded woodpecker (*Dryobates borealis*), Fish – trispot darter (out of range as mentioned above), Reptiles – eastern indigo snake (*Drymarchon couperi*) and southern hognose snake (*Heterodon simus*), and Plants – pondberry (*Lindera melissifolia*), additionally American chaffseed and Canby's dropwort are out of range as mentioned above. The Service has authority over the green sea turtle (*Chelonia mydas*) and hawksbill sea turtle (*Eretmochelys imbricata*) when they are out of the water on nesting beaches. The National Marine Fisheries Service (NMFS) has authority over the turtles when they are in the water. The turtles are not likely to occur out of the water in the project area. There is no suitable nesting habitat for the green sea turtle and the hawksbill sea turtle is not known to nest in Georgia.

Question 2. For the species that deserve attention from the city, do you have additional information on their habitats and threats?

The species that deserve attention or may deserve attention are: Birds – wood stork (*Mycteria americana*), Fishes – Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) are under the authority of the NMFS – please inquire with them for information on these species, Insect – monarch butterfly (*Danaus Plexippus*), Mammals – tricolored bat (*Perimyotis subflavus*) and West Indian manatee (*Trichechus manatus*), and Reptiles – green sea turtles and hawksbill sea turtles in the water are under the authority of the NMFS – please inquire with them for additional information on these species.

The wood stork breeds in colonies in coastal counties. Currently there are no breeding colonies in the project area but some occur nearby. Wetlands in the project area may be used for foraging, loafing, and roosting at any time of the year by the birds depending on current conditions in the wetlands.

The monarch butterfly may come through Savannah in spring and are documented in fall migrations. Native milkweed and nectar plants are important energy sources for migration. Pesticides, especially neonicotinoids, are a threat to the butterflies and caterpillars.

The tricolored bat is active year-round in Savannah utilizing trees and structures including bridges and culverts for roosting and raising their young. Pups may be present and unable to fly from May 1 until July 15.

*The West Indian manatee is present in tidal waters of the project area when the water temperature is 17°C and above. Manatees forage on smooth cord grass (*Spartina alterniflora*) in our tidal marshes. Manatees commonly stay near the edges of tidal waters in Georgia. Manatees seek out freshwater sources for drinking and warm water sources for comfort as water temperatures drop in the fall.*

Question 3. Are there any specific recovery actions that should be considered?

Preserve wetland quantity and quantity for use by wood storks. Suitable habitats are shallow wetlands with fluctuating water levels to concentrate prey. Preserve natural vegetation surrounding and in the wetlands. It can serve many positive purposes for the wood storks, flood control, and water quality.

*For the monarch butterfly plant native milkweed and other nectar source plants. Time mowing to allow a fall bloom. Minimize or eliminate insecticide use, especially neonicotinoids. For more information see: [Monarch Butterfly \(*Danaus plexippus*\) Conservation in Georgia | U.S. Fish & Wildlife Service](#) or <https://www.fws.gov/project/monarch-butterfly-danaus-plexippus-conservation-georgia>.*

The tricolored bat is currently a proposed endangered species with the final listing decision unknown. There is no obligation for federal agencies to address it at this time unless an action is likely to jeopardize the continued existence of this species. We recommend implementing seasonal tree clearing restrictions during the pup season (May 1 to July 15), during which young bats are still unable to fly. This would apply to all clearing of trees except for a) isolated trees >1,000 from forested areas; b) minimal clearing (<1 acre) that is localized to highly-developed urban or commercial areas (e.g., street trees, downtown areas, trimming of trees overhanging roads or rights-of-way); or c) vegetative clearing that is limited to saplings, brush, shrubs, and herbaceous vegetation. For projects involving structure demolition, structures should be inspected for bat usage within two weeks of demolition if safe to do so. Survey concrete culverts 36 inches in diameter or greater opening, and 23 feet or greater in length that may be impacted by a project. We do not require surveys of corrugated metal or plastic/PVC culverts of any size. If evidence of current bat usage is found or inspection is not possible, contact the U.S. Fish and Wildlife Service at GAES.Assistance@fws.gov for ESA consultation.

For the manatee, avoid impacts to tidal waters and tidal marsh to maintain their habitat. Inspect and repair freshwater sources that may leak into manatee waters. Eliminate constant or consistent warm water attractants that may cause manatees to stay in the area after the ambient water has cooled. Cold stress can be fatal. When on the water watch for and avoid collisions with manatees. Be aware that manatees may be in tidal creeks or near the edges of rivers any time the water temperature is 17°C or greater. Do not use silt fence or other siltation barriers below the high tide line in manatee accessible waters.

Georgia DNR Environmental Protection Division Floodplain Unit

After reviewing the City of Savannah's Natural Floodplain Functions Plan (NFP), I am encouraged to see a strong alignment between your local strategies and federal principles for flood risk reduction. The plan effectively captures the economic and social value of natural floodplains, a factor that is often overlooked in land-use decisions.

Specifically, the plan correctly identifies that 41% of the City's land area lies within high-risk flood zones (Zones AE and VE). Given that a single acre of floodplain can hold approximately 330,000 gallons of water when flooded just one foot deep, your emphasis on preserving these natural "sponges" is a critical step toward community resilience.

I also want to commend the focus on coastal erosion control. By identifying barrier islands like Little Tybee and Wassaw as protective buffers, and highlighting the role of marshlands in stabilizing soils, the plan demonstrates a clear understanding of how natural systems dissipate storm energy more effectively—and often more cheaply—than man-made structures.

However, from a regulatory standpoint, there are opportunities to strengthen the plan to maximize Community Rating System (CRS) credits. While the plan acknowledges the importance of water storage, the City does not currently prohibit fill in the floodplain (CRS Activity 430, element DL1a). Implementing a prohibition on fill would better protect the storage capacity you have identified as essential. Additionally, while Low Impact Development (LID) is currently encouraged, moving toward requiring LID techniques would significantly improve stormwater management and CRS scoring.

Overall, this plan successfully bridges the gap between protecting biological resources, such as habitat for threatened species, and managing water resources. It is a solid foundation for future resilience efforts.

Georgia DNR Wildlife Conservation Section



WALTER RABON
COMMISSIONER

CHRIS HARPER
DIRECTOR

February 13, 2026

Tom McDonald
Floodplain Manager
Development Services Dept.
20 Interchange Drive
Savannah, GA 31415

Subject: Review of the City of Savannah's Natural Floodplain Functions Plan

Dear Tom McDonald:

This is in response to your request of January 13, 2026. Our office has reviewed the materials you submitted for the City of Savannah's Natural Floodplain Functions Plan and have the following comments and recommendations to make.

The following species listed in the planning document do not need to be addressed in the City of Savannah's floodplain planning:

- **Trispot Darter (*Etheostoma trisella*)** – This species is endemic to the upper Coosa River system in the southern Appalachians. In Georgia, it is only found in the northwestern part of the state. Thus, it does not need to be considered for the scope of this planning document.
- **Chaffseed (*Schwalbea americana*)** – *S. americana* typically occurs in longleaf pine sandhills, savannas, and flatwoods that are not typically associated with floodplain habitats. Additionally, there are no known records of this species in Chatham or surrounding counties. This species does not merit a significant time investment within the scope of this project.
- **Hawksbill Sea Turtle (*Eretmochelys imbricata*)** – Hawksbill sea turtles are a tropical species that feed in and around coral reefs as adults. Some individuals may pass by Georgia's coastal waters as transient visitors, but they are not typically found in Georgia. Thus, it does not need to be considered for this planning document.

The following species listed in the planning document would benefit from conservation actions taken by the city:

- **Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)** – Atlantic sturgeon are an anadromous fish species meaning that adults reside in the ocean, but migrate back to their natal river to spawn. Their migration routes include the Savannah and Ogeechee rivers within Savannah's floodplain areas. Sturgeon in the Savannah river appear to be stable and successful, however the population in the Ogeechee river may be more fragile.

WILDLIFE CONSERVATION SECTION
2065 U.S. HIGHWAY 278 S.E. | SOCIAL CIRCLE, GEORGIA 30025-4743
770.918.6411 | FAX 706.557.3033 | WWW.GEORGIAWILDLIFE.COM

- **Conservation action** – Atlantic sturgeon would benefit from reductions in water pollution and sedimentation to the greatest extent possible in Savannah area floodplains. Stringent erosion control practices should be used during construction or maintenance projects and native vegetation should be re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. We strongly recommend that silt fences or other erosion control devices be made of natural, biodegradable materials such ‘jute’ or ‘coir’. Mesh strands should be movable, as opposed to fixed. Use of plastic netting or fencing frequently leads to wildlife entrapment and death.
- **Shortnose Sturgeon (*Acipenser brevirostrum*)** – Shortnose sturgeon are another migratory fish species that reside in large coastal rivers where fresh and salt water meet. This species migrates upriver, including on the Savannah and Ogeechee, to spawn. Shortnose sturgeon are stable in the Savannah, but population trends in the Ogeechee are unclear.
 - **Conservation action** – Shortnose sturgeon would benefit from reductions in water pollution and sedimentation to the greatest extent possible in Savannah area floodplains. Stringent erosion control practices should be used during construction or maintenance projects and native vegetation should be re-established on disturbed areas as quickly as possible. Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. We strongly recommend that silt fences or other erosion control devices be made of natural, biodegradable materials such ‘jute’ or ‘coir’. Mesh strands should be movable, as opposed to fixed. Use of plastic netting or fencing frequently leads to wildlife entrapment and death.
- **Eastern Black Rail (*Laterallus jamaicensis jamaicensis*)** – Eastern black rails are a very small, secretive marsh-dwelling bird whose life history is largely a mystery. They are known to nest in salt and freshwater marshes and other wetlands types, although it’s unclear the extent of nesting that exists in Georgia.
 - **Conservation action** – One of the major threats to eastern black rails is habitat loss due to ditching, filling, or draining of wetlands. Conservation and/or restoration of wetlands would greatly benefit eastern black rails along with a host of other species that depend on these habitats.
- **Wood Stork (*Mycteria americana*)** – Wood storks are a very large, long-legged wading bird with white plumage, dark bare heads, and long, down-curved bills. They are colonial nesters meaning that anywhere from a dozen to hundreds of nesting pairs can be found at one site. These nesting colonies are found in freshwater and estuarine wetlands where they also feed, breed, and roost.
 - **Conservation action** – Habitat loss of wetlands is the main threat to wood stork populations. As such, conservation and/or restoration of wetlands would greatly benefit wood storks around Savannah. Additionally, existing wood stork colonies should be protected and disturbance to nesting colonies should be avoided. Georgia DNR has guidelines for projects located near wood stork nesting colonies. These guidelines recommend the following:
 1. Active colonies should not be intruded upon within 100 feet.

2. Powerline placement and towers <200 feet should be restricted within one mile on an active colony.
 3. Towers >200 feet should be restricted from within three miles on an active colony.
 4. Vegetation removal, hydroperiod, and construction of buildings, roads, or towers should be restricted year-round within the “Primary Zone”, which is defined as 700-1,300 feet from the colony.
 5. Increases or changes in human activity should be restricted during the breeding season within the Primary Zone.
 6. Hydrological alterations that could impact colony hydrology, changes in human activity above existing levels, and decreases in area of wetlands or forested areas with roosting or foraging potential for storks should be restricted within the “Secondary Zone”, defined as 1,300=2,500 feet from the colony.
- **Monarch (*Danaus plexippus*)** – Monarchs are a large butterfly species whose iconic adult forms display orange, black, and white coloration. They are highly associated with their host plant, milkweed, throughout their range, including in migration corridors. Monarchs are typically considered a visitor rather than a resident in Georgia, but can breed within Georgia in the spring and fall on either leg of their migration. Additionally, monarchs in Georgia have been observed forming winter roosts in evergreen trees, including pines and red cedar, along shorelines and barrier islands. Thus, it is important to protect clusters of mature evergreens when possible to create habitat for migrating or winter-roosting monarchs.
 - **Conservation action** – Monarchs face a growing number of threats throughout their range. One of the largest comes from habitat loss of grasslands and their milkweed host plants. While monarchs aren’t exclusively associated with floodplains or wetland habitat, there are milkweed species native to Georgia that can be planted in and around these areas to benefit monarchs. Two common milkweed species in freshwater habitats of the coastal floodplain are white swamp milkweed (*Asclepias perennis*) and fewflower milkweed (*Asclepias lanceolata*). *A. perennis* is readily available through the horticulture trade and can be planted in suitable habitat to promote monarch habitat. Naturally occurring populations of *A. lanceolata* often occur in wet roadsides or ditches and thus should be protected from herbicide and frequent mowing whenever possible. Gulf coast swallow-wort (*Pattalia palustre*) is a saltwater tolerant milkvine species that occurs in coastal habitats where it is unlikely to find other native milkweeds. *P. palustre* has relatively recently been discovered to be important for coastal monarch populations in Georgia and should be protected and/or promoted. Lastly, clusters of mature evergreens should be protected when possible to promote habitat for migrating or winter-roosting monarchs.
 - **Tricolored Bat (*Perimyotis subflavus*)** – Tricolored bats are small, yellowish bat species that is proposed for listing under the Endangered Species Act. Tricolored bats can be found statewide in Georgia, although their populations have declined significantly since the appearance of white-nose syndrome in Georgia in 2013. Tricoloreds are known to roost in suitable trees, typically within riparian habitat, during the summer while their roosting sites in the winter are more associated with caves or similar habitats.

- **Conservation action** – Suitable tricolored bat roost trees should be preserved in floodplains whenever practical and known roost trees should not be destroyed. Forest management, where there is suitable habitat, should be conducted to ensure there are continuously available roost trees. This will help stem the loss of summer roosting habitat. Improved water quality benefits tricolored bats too and should be strived for whenever possible. These actions will also benefit other bat species with overlapping habitat needs including state listed species like Rafinesque’s Big-eared Bat (*Corynorhinus rafinesquii*).
- **West Indian Manatee (*Trichechus manatus*)** – Manatees are large, iconic aquatic mammals that can measure up to 13 feet long and weigh as much as 1.5 tons. They typically inhabit tropical and subtropical waterways including in creeks, estuaries, and the lower reaches of several Georgia rivers including the Savannah and Ogeechee rivers. Manatees in Georgia forage on large amounts of marsh grass and other emergent wetland vegetation that can found in rivers and other coastal waterways.
 - **Conservation action** – Known manatee zones should display signage alerting boaters and other recreators to their presence along with how to mitigate impacts to them. Slow or no wake zones should be established and well-advertised to boaters. Protection of suitable foraging habitat in coastal waterways will also benefit manatees. Please contact Georgia DNR Wildlife Resources Division’s Jessica Thompson (Jessica.thompson1@dnr.ga.gov) to seek further guidance on conservation actions for manatees.
- **Loggerhead (*Caretta caretta*), Kemp’s ridley (*Lepidochelys kempi*), and Green sea turtles (*Chelonia mydas*)** – While green sea turtles were originally listed in the draft planning document, loggerhead sea turtles and Kemp’s ridley sea turtles should be included as well. All three of these species are known to use Georgia’s coastal waterways, including coastal floodplains. Loggerheads and Kemp’s ridleys are known to spend summer months in marsh habitats feeding on crabs and greens while juvenile greens have been documented feeding on algae growing on docks and jetties. In addition, loggerheads regularly nest in coastal Georgia meaning that coastal floodplains may provide critical habitat for juveniles.
 - **Conservation action** – The primary threats to sea turtle species in coastal Georgia are overall ecosystem function and expansion of impervious surfaces. Care should be taken to ensure that new actions in floodplain habitats consider the overall health of the ecosystem as well as limiting new pavement whenever possible. Additionally, approximately 30% of observed sea turtle mortalities are caused by collisions with humans and boats. Much like with manatees, prominent signage should be established to warn boaters of potential sea turtle presence. Establishment of slow or no wake zones should be considered as well for maximum benefit. For more information on conservation actions for sea turtles, please contact Mark Dodd (Mark.Dodd@dnr.ga.gov).

The remaining species have historically occurred in Savannah, can be found in the vicinity of Savannah, or have potential habitat that exists within city of Savannah floodplains. There are likely no significant conservation actions that can be taken for these species, but should still be considered as part of floodplain planning.

- **Piping Plover (*Charadrius melodus*)** – Piping plovers winter in coastal Georgia typically on beaches, mudflats, or tidal ponds. While suitable habitat occurs within Savannah, it is

concentrated on the fringes of city floodplains. Thus, conservation actions for other species (e.g., wetland conservation and/or restoration) will also benefit piping plovers.

- **Red Knot (*Calidris canutus rufa*)** – Red knots migrate through coastal Georgia on their way to breeding sites in the Arctic Circle or wintering grounds in South America. They are primarily associated with beach habitat when on stopover sites in Georgia. Thus, this would fall outside the scope of Savannah floodplains. Conservation actions for other species, such as reducing sedimentation and pollution in waterways, will also benefit red knots.
- **Red-cockaded Woodpecker (*Leuconotopicus borealis*)** – Red-cockaded woodpeckers require large tracts of mature, open pine forests that are not found in or around Savannah. However, suitable habitat exists adjacent to Savannah on Fort Stewart. Collaboration may be possible to promote supplemental suitable habitat in and around floodplains in Savannah.
- **Eastern Indigo Snake (*Drymarchon couperi*)** – Eastern indigo snakes (EIS) are closely associated with longleaf pine habitats and are considered a commensal species of gopher tortoises (*Gopherus polyphemus*). EIS can use floodplain habitats during the summer months, including wetlands. There are no known EIS occurrences in Chatham County, however they do occur in surrounding counties. Care should be taken when floodplains or wetlands are disturbed, especially during summer months, to ensure that no snakes are on-site. Please see the following website for more information: <https://www.fws.gov/story/eastern-indigo-snake-conservation>.
- **Southern Hog-nosed Snake (*Heterodon simus*)** – Southern hog-nosed snakes are short, stout snake with a distinctive upturned nose. Little is known about this species, but are typically associated with well drained, xeric, sandy soils in longleaf pine and/or scrub oak dominated tree cover. As such, they are unlikely to be found in floodplain habitats. Land managers should still familiarize themselves with the species defining identification characteristics and document and photograph any incidental sightings of southern hognose snakes.
- **Pondberry (*Lindera melissifolia*)** – Pondberry is known in Chatham County from historical records only. Suitable habitat may exist in Savannah, but it is unlikely to be extensive. Land managers should familiarize themselves with its primary characteristics and document any potential sightings.
- **Canby's Dropwort (*Oxypolis canbyi*)** – There are no known occurrences of Canby's dropwort in Chatham County, but suitable habitat may occur there. This species is found in wet habitats, such as sloughs or cypress ponds. As such, identification characteristics should be known to those working in these habitats. Conservation and/or restoration of wetland habitats would benefit any extant populations of this species.

In addition to the above federally listed, or proposed listed, species, we recommend including state protected species in the development of Savannah's Natural Floodplain Functions Plan. State listed species are protected under state law by the Endangered Wildlife Act of 1973 and the Wildflower Preservation Act of 1973. These regulations protect species from habitat destruction on public land or direct harm or death. Species protected in Georgia are classified 'endangered', 'threatened', 'rare', or 'unusual'. These protected species are included in the Georgia State Wildlife Action Plan (SWAP) as Species of Greatest Conservation Need (SGCN). We recommend including the following species in floodplain planning as they are both state protected and listed as SGCN species under the SWAP:

- **Spotted Turtle (*Clemmys guttata*)** – Spotted turtles are a relatively small turtle that is easily identifiable by its smooth black carapace with randomly arranged yellow spots. They are typically found in heavily vegetated, shallow wetlands with standing or slowly flowing water that have soft, mucky substrate. Surveys for spotted turtles are difficult given their secretive nature and little is known about population trends because of this.
 - **Conservation action** – Degradation of non-alluvial wetlands is a primary threat to spotted turtle populations in the coastal plain of Georgia. Protection and/or restoration of these habitats would greatly benefit spotted turtles and many other sensitive reptile and amphibian species. Suitable wetlands for spotted turtles can include open or closed canopy that have varying amounts of emergent wetland vegetation.
- **Swallow-tailed Kite (*Elanoides forficatus*)** – Swallow-tailed kites are a distinctive raptor with black and white plumage and deeply forked tail that is unmistakable. They once nested in 17-21 states, but have since experienced a major range contraction and population decline. Nesting sites in Georgia are typically associated with mature stands of loblolly pines with emergent trees or an uneven height canopy that are in or on the edge of floodplains. Nesting also occurs in and among bald cypress, water tupelo, and other pine species. Swallow-tailed kites often nest in “neighborhoods” of up to 7 nests spaced 100 meters or more from their nearest neighbor. They exhibit high site fidelity to these “neighborhoods” and are known to use the same stands over multiple years. Nesting sites should be considered active for at least 10 years after the last confirmed nesting event as birds often return even after prolonged absences.
 - **Conservation action** – The most important conservation action for swallow-tailed kites is to protect habitat where they choose to nest followed closely by the protection of suitable habitat, even if kites have not been documented nesting there. Ideally, several miles around known nest sites should be managed with kites in mind. Buffer zones of at least 200 meters should be established around known nesting sites. Additional activities prohibited seasonally (March 15-July 1) including burning within 400 meters and all activities that produce loud, sustained noise like target/skeet shooting and operating chainsaws, heavy equipment, motorcycles, or ATVs. Suitable habitat for kites may be created through minor adjustment to timber management. One simple approach is to create “pine islands” by leaving small clusters of pines adjacent to bottomlands out of a scheduled timber harvest. Kites only find these sites suitable if they are less than 2 meters higher in elevation than the bottomland.
- **Robust Redhorse (*Moxostoma robustum*)** – Robust redhorse are a large, heavy-bodied sucker species that can reach up to 28 inches in length and weigh almost 18 pounds. They are primarily known from habitats in main-stem rivers, but are capable of long distances movements that have been documented in the lower Savannah River. There have been reintroduction efforts into the Broad, Ogeechee, and Ocmulgee rivers to augment existing populations.
 - **Conservation action** – The Robust Redhorse Conservation Committee is a voluntary stakeholder partnership that directs the recovery of the species. Collaboration with this group is one of the best ways to support robust redhorse conservation in Georgia. More broadly, improving water quality and prevention of habitat degradation are needed to help protect extant populations.

- **Diamond-backed Terrapin (*Malaclemys terrapin*)** – Diamond-backed terrapins are a medium-sized turtle species that have distinctive concentric, diamond-shaped markings on the scutes of their carapace and pale grayish-black skin with dark spots, blotches, or lines. This species is found in brackish and saltwater estuarine habitats in coastal Georgia where they eat a variety of invertebrates and, occasionally, plant matter. They will also utilize upland habitat adjacent to estuarine areas where they haul up for nesting.
 - **Conservation action** – One of the primary concerns for terrapins is shoreline bulkheading or stabilization. This technique creates an impervious barrier for terrapins between estuarine habitats and upland nesting grounds in hammocks and on small islands adjacent to the marsh. This in turn makes successful reproduction much more difficult for the population as a whole. We recommend alternative methods to bulkheading whenever possible to promote landscape permeability for nesting terrapins. For more information on conservation actions for diamond-backed terrapins, please contact Mark Dodd (Mark.Dodd@dnr.ga.gov).

Other SGCN species in the SWAP are tracked to monitor the need for potential listing under state protection in the future. These species can also be classified as being of highest or high conservation concern. The following tracked species are classified as highest or high conservation concern under the SWAP and should be considered for inclusion in floodplain planning:

- **Georgia St. John's-wort (*Hypericum erythrae*)** – *H. erythrae* is a perennial herb found in the coastal plain of Georgia that can stand between 15-46 inches tall and flowers in yellow petals in a small cluster near the top of the stem. This species is typically found in wet areas that are poorly drained but not continuously inundated, including pitcherplant bogs, wet savannas, or powerline rights-of-way.
 - **Conservation action** – Protection of wetland areas from being drained, ditched, or filled is the primary conservation action that will benefit *H. erythrae*. Prescribed fire every 2-3 years in suitable habitat, where practicable, can help encourage growth.
- **Simpson's Rain Lily (*Zephyranthes simpsonii*)** – *Z. simpsonii* is a perennial herb with an underground bulb that often grows in clumps or large patches. Flowers are large, white, and often tinted pink, or purple with age. This species is typically found in wet savannas, low pastures, and roadsides.
 - **Conservation action** - Protection of wetland areas from being drained, ditched, or filled is the primary conservation action that will benefit *Z. simpsonii*. Prescribed fire every 2-3 years in suitable habitat, where practicable, can help encourage growth.

The state protected and/or tracked species shown above are not a comprehensive list of SGCN species that occur, or have the potential to occur, within Savannah city floodplains. Rather, these are species whose conservation actions would have trickle down effects for other SGCN species. Further coordination with the Wildlife Conservation Section would be needed for a more comprehensive report of state protected and tracked species that would benefit from floodplain conservation actions. We encourage you to explore the Georgia Biodiversity Portal (<https://georgiabiodiversity.org/portal/>) to learn more about SGCN species that may be affected by floodplain management in the City of Savannah. We also encourage you to explore the 2025 Georgia SWAP documents and the Wild Georgia Conservation Hub

(<https://georgiawildlife.com/WildGeorgiaSWAP>). Here, you will find more information on the SWAP including conservation actions, regional and taxonomic breakdown of SWAP goals, and opportunities for collaboration.

Please don't hesitate to contact the Environmental Review team (nongame.review@dnr.ga.gov), or myself, for any further questions or discussion regarding conservation actions associated with the Natural Floodplain Functions Plan. We appreciate the opportunity to provide input on this document and are happy to help coordinate further with any of our biologists who may be able to assist you with implementing conservation actions.

Sincerely,



Johnny Stutzman, Wildlife Biologist
Johnny.Stutzman@dnr.ga.gov, 706-318-3296

Data Available on the Wildlife Conservation Section Website

- Georgia protected plant and animal species profiles are available on our website. These profiles cover basics such as species physical descriptions, preferred habitat, and life history, as well as threats, management recommendations, and conservation status. To view these profiles, visit: <http://georgiawildlife.com/conservation/species-of-concern#rare-locations>
- Rare species and natural community information can be viewed by Quarter Quad, County, and HUC 8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: <http://georgiabiodiversity.org/>
- Downloadable files of rare species and natural community data by Quarter Quad and County are also available at: https://www.georgiabiodiversity.org/portal/additional_data_resources



**BIRDS
GEORGIA**

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Tom McDonald
20 Interchange Drive, Savannah, GA 31415

Comments on the City of Savannah Draft Natural Floodplain Functions Plan

1. Is the list of threatened and endangered species in the Threatened & Endangered Species section (p.14) of the plan appropriate? Are there any species that the city should not spend time on?
 - a. For the species listed, the Wood Stork is the most appropriate species listed in regards to this plan. The Wood Stork relies on freshwater wetlands for breeding, feeding, and roosting and would be directly impacted by decisions made that affect natural floodplain functions.
 - b. The rufa Red Knot and Piping Plover utilize remote barrier islands, estuarine habitats, and sandbars. While not directly impacted by this plan, increases in water quality and preservation of marsh margin areas could have positive effects for these species. Nearby, Little Tybee is a critical habitat for these species. Threats to these species include disturbance by people, dogs, and boats in their remote nonbreeding and feeding areas. Additionally, sea level rise may cause a shift in the optimal areas for these species.
 - c. The Eastern Black Rail and Red-cockaded Woodpecker are not known to occur within the geographic city limits of Savannah, although the Red-cockaded Woodpecker occurs nearby at Fort Stewart, and the habitat that would best fit the requirements of the Eastern Black Rail would be nearby at the Savannah National Wildlife Refuge.
 - d. Although not currently listed, a candidate species for Federal Listing is the Saltmarsh Sparrow, which occurs in the nonbreeding season in the marshes surrounding Savannah and eastward towards Tybee Island. Restoring natural floodplain functions and utilizing nature-based solutions where appropriate would benefit this species. Sea level rise has caused degradation of their high marsh habitat and decreased breeding success.
2. For the species that deserve attention from the city, do you have additional information on their habitats and threats?
 - a. Not particularly, these inquiries would be better directed towards Tim Keyes (re: Wood Storks) or Fletcher Smith (re: Saltmarsh Sparrows) at the Georgia Department of Natural Resources.
3. Are there any specific recovery actions that should be considered?
 - a. For listed and non-listed species, any amount of nature-based solutions including, but not limited to: vegetated wetland buffers, bank stabilization, maintenance of natural hydrological cycles, and preserving undeveloped land for future marsh migration space would be beneficial to all species, avian and otherwise.

Warm Regards,
Sarah Manning
Coastal Conservation Coordinator
Birds Georgia

Incorporation of Feedback

Based on the above reviewer comments, some revisions were made to the Floodplain Species Assessment, and Savannah developed a Floodplain Species Plan presented in Section 5. Reviewer comments were used to refine the inventory of threatened and endangered species to select relevant and priority species for focused recovery efforts, as detailed in Section 5.1. Additionally, reviewer input on recommended recovery actions was used to develop the action plan presented in Section 5.3.

Specific revisions based on stakeholder feedback are summarized below:

- Per feedback from NMFS, USFWS Georgia Ecological Services Field Office, and Georgia DNR Wildlife Resources Division, hawksbill sea turtles were not included in the prioritized species list because they do not occur within Savannah city limits. NMFS and USFWS Georgia Ecological Services Field Office also suggested omitting green sea turtles, however, these species were included due to input from Georgia DNR Wildlife Resources Division suggesting they may feed in marshes in Savannah.
- Per feedback from USFWS Georgia Ecological Services Field Office, the trispot darter, American chaffseed, and Canby's dropwort were not included in the selected species list because they do not occur within the city limits according to the USFWS – Information for Planning and Consultation (IPaC) system. Input from Georgia DNR Wildlife Resources Division corroborated the decision to omit the trispot darter and American chaffseed.
- USFWS Georgia Ecological Services Field Office recommended omitting the eastern black rail, piping plover, rufa red knot, red-cockaded woodpecker, eastern indigo snake, southern hognose snake, and pondberry due to lack of suitable habitat. Georgia DNR Wildlife Resources Division further stated that there are no conservation actions the City could take for these species.
- While not included as identified species for the purpose of this plan, the City considered ways that conservation activities for identified species and habitats could also benefit state-protected species noted by Georgia DNR Wildlife Resources Division, including the spotted turtle, swallow-tailed kite, robust redhorse, diamond-backed terrapin, Georgia St. John's-wort, and Simpson's Rain Lily.
- While not included as identified species for the purpose of this plan, the City considered ways that conservation activities for identified species and habitats could also benefit the Saltmarsh Sparrow, noted by Birds Georgia as a candidate species for federal listing.

5. Floodplain Species Plan

Selected Species

Threatened and endangered species identified by the USFWS IPaC System and the FEMA FRESH Map, discussed in Section 2.4, were evaluated for inclusion in this plan. Input from stakeholders, summarized in Section 4, helped to narrow the focus of this plan by removing some species that are not found in Savannah.

Further research on each species was conducted and the feedback from relevant agencies and organizations, discussed in Section 4, was used to identify other priority species. The results of that evaluation are summarized in Table 5.1 below. The priority species list was used to evaluate opportunities for species conservation.

Table 5.1 – Summary of Species Evaluation

Species	Selected For Conservation and Recovery Actions?
Birds	
Eastern Black Rail	No – USFWS Georgia Ecological Services Field Office indicates there is no suitable habitat in Savannah, however Georgia DNR Wildlife Resources Division suggests eastern black rails may benefit from wetland conservation in the city. Birds Georgia noted that habitat may be found in nearby Savannah National Wildlife Refuge.
Piping Plover	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah, however Georgia DNR Wildlife Resources Division indicated that piping plovers could benefit from wetland conservation in the fringes of the city's floodplains. Birds Georgia confirms marsh preservation could benefit the piping plover.
Red Knot	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah. Georgia DNR Wildlife Resources Division and Birds Georgia confirmed red knots are not found in the city, though Birds Georgia noted that marsh preservation could benefit the species.
Red-cockaded Woodpecker	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah. Georgia DNR Wildlife Resources Division and Birds Georgia noted that habitat is found in nearby Fort Stewart.
Wood Stork	Yes – per USFWS Georgia Ecological Services Field Office, Georgia DNR Wildlife Resources Division, and Birds Georgia, wood storks may use wetlands in the city for foraging, loafing, and roosting.
Fishes	
Atlantic Sturgeon	Yes – Included based on species range information from NMFS. Corroborated by USFWS Georgia Ecological Services Field Office and Georgia DNR Wildlife Resources Division.
Shortnose Sturgeon	Yes – Included based on species range information from NMFS. Corroborated by USFWS Georgia Ecological Services Field Office and Georgia DNR Wildlife Resources Division.

Species	Selected For Conservation and Recovery Actions?
Trispot Darter	No – Per USFWS Georgia Ecological Services Field Office and Georgia DNR Wildlife Resources Division input, there is no suitable habitat in Savannah.
Insects	
Monarch Butterfly	Yes – Per USFWS Georgia Ecological Services Field Office input, the monarch butterfly may come through the city in spring and are documented in fall migrations. Georgia DNR Wildlife Resources Division confirms monarchs migrate through Georgia.
Mammals	
Tricolored Bat	Yes – Per USFWS Georgia Ecological Services Field Office input, the tricolored bat is active year-round in trees and structures such as bridges and culverts in Savannah. Georgia DNR Wildlife Resources Division confirms this bat is found statewide in Georgia.
West Indian Manatee	Yes – Per USFWS Georgia Ecological Services Field Office input, the manatee is present in tidal waters and marshes. Georgia DNR Wildlife Resources Division confirms manatees are found in lower reaches of the Savannah River.
Reptiles	
Eastern Indigo Snake	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah.
Green Sea Turtle	Yes – NWFS and USFWS Georgia Ecological Services Field Office suggested there is no suitable habitat and this species would not be found in Savannah. However, Georgia DNR Wildlife Resources Division indicates that green sea turtles, as well as loggerhead sea turtles and Kemp's ridley sea turtles, use Georgia's coastal waterways and feed in marsh habitats.
Southern Hognose Snake	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah.
Hawksbill Sea Turtle	No – Per NWFS, USFWS Georgia Ecological Services Field Office, and Georgia DNR Wildlife Resources Division input, there is no suitable habitat and this species would not be found in Savannah.
Flowering Plants	
Pondberry	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah. Georgia DNR Wildlife Resources Division confirms any habitat would be minimal.
American Chaffseed	No – Per USFWS Georgia Ecological Services Field Office and Georgia DNR Wildlife Resources Division input, there is no suitable habitat in Savannah.
Canby's Dropwort	No – Per USFWS Georgia Ecological Services Field Office input, there is no suitable habitat in Savannah. Georgia DNR Wildlife Resources Division indicates wetland conservation could benefit this species

Species Summary Reports

Details on all species selected for conservation and recovery actions are provided below. The information for these species summaries comes directly from the National Parks Service, the U.S. Fish and Wildlife Services, NOAA Fisheries, and the U.S Forest Service.

Birds

Wood Stork

The wood stork is a large wading bird that feeds on fish, crayfish, amphibians, and reptiles. This species of stork was federally listed as threatened in 1984.

Life Cycle: The wood stork is the only species of stork that breeds in the U.S. and will nest together in large colonies of 100-500. Research has shown that some wood storks are moving out of south Florida and are forming nesting colonies in wetlands throughout the Southeast. Incubation period lasts about 30 days and young wood storks will be able to fly 10-12 weeks after hatching. Wood storks will typically live between 11-18 years old in the wild.

Habitat: Wood storks nest in mixed hardwood swamps, sloughs, mangroves, and cypress domes. They will forage from both freshwater and estuarine marshes. This species can be found in freshwater wetlands in and around Savannah.

Threats: Currently, the biggest threat to wood storks comes from drainage of cypress stands that will prevent wood storks from nesting. Normal flooding cycles are necessary for the wood storks to have access to their food source.

Recovery Measures: The main source of recovery comes from the wood storks being listed under the Federal Endangered Species Act as a threatened species. After being federally listed, the FWS and state wildlife agencies were prompted to collaborate with conservation groups, government agencies, and private landowners to help restore and build back wood stork habitat. Since 2005, private landowners located in the southeast United States have helped restore 6,254 acres of habitat in 179 projects that have benefited wood storks and other wildlife living in the region.



Source: FWS (Photo: Mark Cook)

Fishes

Atlantic Sturgeon

Atlantic sturgeons are bluish-black fish with a white belly that are covered in bony plates along the entire length of their body. This species was federally listed as endangered in 2012.

Life Cycle: Atlantic sturgeon are a slow-growing species that has been recorded reaching up to 14 feet in length and up to 60 years of age, according



Source: NOAA Fisheries

to NOAA Fisheries. This species hatches in freshwater rivers and then head out to sea as sub-adults and then return to their place of birth to lay eggs once they reach adulthood.

Habitat: Atlantic sturgeon live a majority of their lives as adults in the ocean and will migrate into coastal estuaries and rivers to spawn. This species can be found in the Ogeechee River and the Savannah River.

Threats: The most significant threats to Atlantic sturgeon are unintended catch (bycatch) in some commercial fisheries, dams that block access to spawning areas, poor water quality (which harms development of sturgeon offspring), dredging of spawning areas, water withdrawals from rivers, vessel strikes, and changing environmental conditions.

Recovery Measures: Primary recovery efforts include preserving and improving existing habitat and restoring access to historical habitat (e.g., dam removals). NOAA also suggests monitoring bycatch and supporting the U.S. FWS and state-run captive breeding and research programs.

Shortnose Sturgeon

Shortnose sturgeons are yellowish-brown colored fish that can grow to approximately 4.5 feet long and up to 60 pounds. This species has been federally listed as endangered since the inception of the Endangered Species Act in 1973.

Habitat: Shortnose sturgeon live most of their lives in rivers, deltas, and coastal estuaries. This species can be found in the Ogeechee River and the Savannah River.

Threats: The largest threat to shortnose sturgeon are dams that block access to spawning areas within rivers. Additionally, habitat degradation through dredging, groundwater pumping, and urban industrialization has lowered the water quality of these habitats.



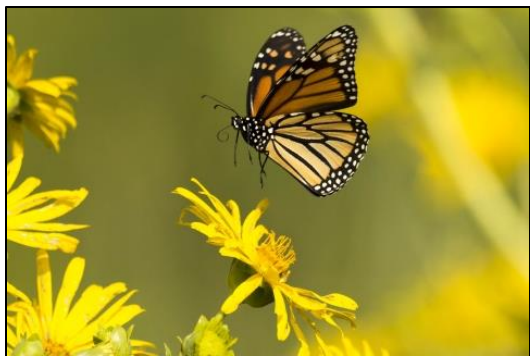
Source: NOAA Fisheries (Photo: Robert S. Michelson)

Recovery Measures: In 1988, NOAA Fisheries approved the shortnose sturgeon recovery plan which has helped implement recovery measures such as removing barriers such as old dams and providing more research on breeding habits and movements. Ultimately, the main source of protection comes from the shortnose sturgeon being protected under the Endangered Species Act.

Insects

Monarch Butterfly

As one of the most recognizable butterfly species in North America, the monarch butterfly has a deep orange color with black borders and white spots. They are one of the few migratory insect's species and was federally listed as endangered in 2020.



Source: FWS

Life Cycle: According to the USDA, the monarch butterfly will develop from an egg to an adult in approximately 22 to 37 days. Monarchs have up to four generations each summer. During the summer breeding season, monarch butterflies will live 2-5 weeks while the last generation will migrate to Mexico before winter.

Habitat: Monarch butterflies will live in many different habitat types but are dependent on milkweed as their host plant. They will feed on the nectar from many flowers but can only lay their eggs on milkweed plants. Monarch butterflies can be found throughout Savannah where milkweed occurs and in mature evergreens.

Threats: The primary drivers affecting the monarch butterfly are the changes in breeding and migratory habitats. Additionally, insecticides and effects of climate change have also negatively impacted the population.

Recovery Measures: Currently the main source of recovery comes from the monarch butterfly being listed under the Federal Endangered Species Act as an endangered species. Additionally, the FWS approved a candidate conservation agreement (CCA) known as the monarch agreement in all 48 contiguous states. This agreement specifically helps protect the habitat necessary for monarchs and their host plant along existing rights-of-way. Other recovery measures include planting native milkweeds, adjusting mowing schedules to ensure milkweeds can bloom, and reducing or eliminating pesticide use, especially neonicotinoids.

Mammals

Tricolored Bat

The tricolored bat is known for its tricolored fur that appears dark at the base and lighter in the middle and dark at the tip. This species was federally listed as endangered in 2022.



Source: FWS (Photo: Pete Pattavina)

Life Cycle: According to the FWS, tricolored bats mate in the fall, hibernate in the winter, and emerge in the spring where females form maternity colonies and typically give birth to two pups. Life span of these species is estimated to be up to 14 years old.

Habitat: During the spring, summer, and fall tricolored bats can be found roosting among live and dead leaf clusters of deciduous hardwood trees. During the winter, this species will hibernate in caves or mines.

Threats: Like the northern long-eared bat, white-nose syndrome has led to 90-100% declines in tricolored bat winter colony abundance and is the largest threat to this species. Additional threats include wind turbines, shifting temperatures and precipitation events, and habitat loss from urban development.

Recovery Measures: Currently the main source of recovery comes from the tricolored bat being listed under the Federal Endangered Species Act as an endangered species. Additional conservation and data collection efforts are currently focused on reducing the symptoms and impacts of the white-nose syndrome. Protection of roosting sites during pup season is also critical to species protection.

West Indian Manatee

According to The U.S. FWS, manatees were listed as endangered in 1967 and later downlisted to threatened in 2017. At the end of 2023, FWS announced a petition to uplist and reclassify the West Indian Manatee as endangered and began a comprehensive review of data concerning the manatee population.

Life Cycle: There is no specific breeding season for manatees. Females will reach sexual maturity between 3 and 10 years of age and will give birth to one or two calves every two to five years. Calves will stay with their mother for up to two years. The average lifespan is 30 years. Their diet consists primarily of aquatic plants and they will spend about five to eight hours eating each day.



Source: NPS

Habitat: West Indian manatees prefer shallow, slow-moving waters and can move between fresh water and saltwater habitats. They are found primarily along the coast of Florida, the Gulf Coast, and the Caribbean during the winter months as they have little tolerance for cold water. They can be found in the lower reaches of the Savannah River and Ogeechee River. Unrestricted and connected waterways between freshwater and marine habitats are necessary for manatee populations to survive.

Threats: Manatees have no natural predators. Today the primary cause of death for manatees is accidental collisions with boats as they live in shallow waters. Additionally, their low

reproductive rates and a decline in suitable habitat have led to them remaining a threatened species.

Recovery Measures: The FWS created the initial Manatee Recovery Plan in 1980. In Georgia, the Department of Natural Resources works closely with the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission to monitor impacts to manatees, including watercraft mortalities and helps educate boaters how to proceed when near manatees. Other conservation actions include documenting manatee sightings and habitats, protecting tidal marshlands, flying aerial surveys and photographing scarred manatees.

Reptiles

Green Sea Turtles

Green sea turtles are the largest hard-shelled sea turtle and are known for their greenish color that comes from them eating primarily seagrasses and algae. The green sea turtle was first listed under the Endangered Species Act in 1978.

Life Cycle: According to NOAA Fisheries, green sea turtles could live for at least 70 years or more with female green turtles reaching maturity at 25 to 35 years. In the United States, breeding season begins in late spring and each female will lay about 110 eggs per nest.



Source: NOAA Fisheries (Photo: Dave Burdick)

Habitat: Green sea turtles are found worldwide in subtropical and temperate regions. In the United States, green turtles are found in inshore and nearshore waters from Texas to Maine. This species uses Georgia's coastal waterways and coastal floodplains.

Threats: One of the primary threats to green sea turtles is their unintended capture in fishing gear. Additionally, coastal development and rising sea levels from climate change have led to the degradation of nesting habitat. Additionally, about 30% of sea turtle mortalities are caused by collision with humans and boats.

Recovery Measures: In 2023, NOAA Fisheries proposed to designate new areas of critical habitat for green sea turtles along the Atlantic coast. The U.S. FWS has developed and implemented recovery plans which contain actions of conservation in different regions. Additionally, the Georgia Sea Turtle Cooperative, a network of 200 volunteers, researchers, and agency employees helps protect sea turtle nests along the coast of Georgia. Signage warning boaters of sea turtle presence can also protect these species in coastal waterways.

Habitat Preservation

Wetlands and Coastal Marshes

Wetlands and coastal marshes provide habitat and foraging area for the wood stork. Preservation and restoration of wetlands and coastal areas will benefit the wood stork as well as several other species that stakeholders noted are important, including the eastern black rail, spotted turtle, Georgia St. John's-wort, Simpson's Rain Lily, and Saltmarsh Sparrow. Wetlands and coastal marshes are also important to many species that reside in coastal waters, discussed in more detail below.

One option for conserving habitat is establishment of a conservation bank, which could serve to mitigate loss and destruction of habitat that occurs in the City by requiring developers to contribute funds to the purchase of preserve areas. An alternative to the conservation bank is to offer financial incentives to private landowners with tracts containing habitat or habitat that is readily restorable to preserve those areas. Federal entities and non-profits may have funding available that could be directed to this purpose.

However, mere preservation of wetland acreage does not necessarily protect the complex processes that create and make available the abundance of food required by the species that depend on wetlands. Wetlands must be managed to maintain or recover these dynamic processes. Threats to species in wetlands and coastal marshes include loss of feeding habitat, water level changes affecting drainage, human disturbance, and pesticides or other chemical pollutants affecting water quality. Savannah already requires a 35-foot buffer along all wetlands and marshes, which protects against degradation of these areas from erosion, sedimentation, and pollutants.

The City could inventory and prioritize wetland and marsh sites to focus restoration efforts where the greatest degree of threat. Private property owners of priority sites should also be informed and encouraged to comply with regulatory mechanisms. Educational materials could be developed for property owners and for use in schools and to educate policymakers and elected officials on the importance of maintaining and protecting wetland habitats.

The City of Savannah should also continue to acquire land for wetland preservation or restoration and encourage the preservation of the tree canopy for protection of this habitat.

Recommendations

These following recommendations could support preservation of wetlands and coastal marshes:

- 1 Establish a conservation bank to support the purchase and conservation of land providing critical habitat.
- 2 Work with the Savannah Tree Foundation for protection of the tree canopy in wetland areas.

- 3 Work with the Nature Conservancy to find willing participants to support land conservation efforts through purchase or dedication of lands.
- 4 Consider adopting restrictions on the use of fill in floodplains to preserve the function of floodplains, including wetlands and marshes.

Riverine and Coastal Waters

The West Indian manatee and several species of fish and turtles use Savannah's rivers and surrounding coastal waters for habitat. These areas encompass the critical habitat areas delineated for the Atlantic sturgeon.

Riverbanks and shallow coastal waters are affected by human activities. Dredge and fill activities, polluted runoff, propeller scarring, and other actions result in the loss of vegetated areas and springs. Quiet backwaters have been made more accessible to human activities and increasing levels of vessel traffic make manatees and turtles increasingly vulnerable to boat collisions in travel corridors.

The first component of preserving manatee habitat is to first identify where manatees are roaming. In coordination with GADNR, which has ample material on manatee protection and conservation, the City should create outreach materials directing residents to report manatee sightings. The information will enhance knowledge of manatee distribution. The City should also create outreach materials and signage urging boaters to slow down. Heeding low-speed and no-wake zones, particularly around docks where manatees eat algae growing on the structures, will reduce collision risks. Finally, the City should work in concert with GADNR and other agencies to identify lands that can be purchased and conserved.

Habitat degradation or loss (resulting, for example, from dams, bridge construction, channel dredging, and pollutant discharges) and mortality (for example, from impingement on cooling water intake screens, dredging, and incidental capture in other fisheries) are principal threats to sturgeon survival. Water quality of the Savannah River and its tributaries along with responsible bridge construction and demolition projects can help to protect this habitat.

Recommendations

The following recommendations support the preservation and protection of rivers and coastal waters:

- 1 Create and disseminate outreach materials and signage to educate residents on the presence of manatees and sea turtles and how to mitigate impacts to them.
- 2 Establish slow or no wake zones and create signage alerting boaters to these restrictions.
- 3 Work with the Nature Conservancy to identify critical paths and connectivity between freshwater and marine habitats and to protect lands to allow for rainwater recharge to help

grow seagrass. This action can preserve and/or increase the manatee population by increasing their food supply.

- 4 Enforce stringent erosion control practices and distribute outreach to developers to encourage re-establishment of native vegetation as soon as possible after land disturbance activities are completed.
- 5 Where erosion control products are necessary, encourage the use of environmentally friendly, biodegradable erosion control materials, such as wildlife friendly plastic-free netting to protect sturgeon species.
- 6 Establish Low-Impact Development (LID) requirements to minimize the expansion of impervious surfaces and associated runoff and water quality degradation. This action will help protect ecosystem function for great sea turtles and sturgeon species.

Other Habitat Areas

The tricolored bat roosts in deciduous hardwood trees in spring, summer, and fall. Tricolored bats can also be found on structures, including bridges and culverts, in Savannah. It is important to protect roosts during spring and early summer when newborn bat pups are still unable to fly.

Monarch butterflies are dependent on milkweed, which can grow in a variety of areas. Leaving areas in a natural state and planting native milkweeds will help to preserve monarch butterfly habitat.

Threats to these habitats include clearing and development as well as pesticide use. Conservation and management recommendations include protecting coastal forests from clearing and development, preserving open space, and planting and protecting native species.

Recommendations

The following recommendations are intended to protect these habitats:

- 1 Create outreach materials on the importance of avoiding tree clearing from May 1 until July 15 when newborn bats (pups) may be in trees and unable to fly.
- 2 Require inspection of structures and large culverts within two weeks prior to any demolition activities that may impact them.
- 3 Set aside and leave areas in a natural state and/or plant native wildflowers, including milkweed, where appropriate.
- 4 Schedule mowing of rights-of-way to allow for fall bloom of milkweed and other monarch nectar source plants.
- 5 Prohibit use of neonicotinoids on public lands and rights-of-way.

Action Plan

This action plan is intended to protect the threatened and endangered species identified above as well as preserve open space and natural floodplain areas. The detailed actions summarize who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented.

It should be noted that the actions included in this plan are subject to further review and refinement, alternatives analyses, and reprioritization due to funding availability and/or other criteria. The City is not obligated by this document to implement any or all of these projects. Rather this action plan represents the desires of the City to preserve and/or restore critical habitat and protect species within the floodplain.

PROJECT	BACKGROUND	TIMEFRAME	RESPONSIBLE PARTY	SUPPORTING AGENCIES	POTENTIAL FUNDING	SPECIES PROTECTED
1. Consider creating a conservation bank to preserve or replace the taking of coastal wetlands and marsh habitat.	Habitat areas should either be preserved through development restrictions or replaced in an alternate location when development does occur. Creating a conservation bank facilitates the latter approach by dedicating funding from development activities. Preservation of open space will also support the City's CRS program.	3-5 years	Development Services Department, City Administration	The Nature Conservancy	Operating budget and private funding	Wood stork
2. Work with the Savannah Tree Foundation on tree canopy preservation projects.	The mission of the Savannah Tree Foundation is to preserve, protect and plant canopy trees in Chatham County. The Savannah Tree Foundation promotes, through direct action and education, an awareness of trees as vital environmental resources. Deciduous hardwoods provide nesting habitat for tricolored bats. Mature evergreens are important to monarch butterflies for winter roosting. Tree canopy is also important in some types of coastal marsh and wetlands.	3-5 years	Development Services Department, Office of Sustainability	Savannah Tree Foundation	Operating budget	Wood stork, tricolored bat, monarch butterfly
3. Work with The Nature Conservancy to develop a private lands database and to protect and conserve environmentally sensitive lands. As part of this effort, identify critical paths and connectivity between freshwater and marine habitats to protect lands to allow for rainwater recharge to help grow seagrass.	Private lands conservation is a tactic that leverages the increasing interest of the private sector to take part in conservation. The Nature Conservancy works with landowners, communities, cooperatives and businesses to establish local groups that can protect land. Some of the main tools used to achieve these goals include land trusts, conservation easements, private reserves and incentives.	2-3 years	Development Services Department, Office of Sustainability	The Nature Conservancy	Operating budget and private funding	All species

PROJECT	BACKGROUND	TIMEFRAME	RESPONSIBLE PARTY	SUPPORTING AGENCIES	POTENTIAL FUNDING	SPECIES PROTECTED
4. Consider adopting restrictions on the use of fill in floodplains.	Prohibiting or limiting fill in floodplains will protect natural and beneficial functions of floodplains and preserve habitat quality in wetlands, coastal marshes, rivers, and coastal waters.	2-3 years	Development Services Department, City Administration	Georgia DNR Environmental Protection Division	Operating budget	Wood stork, Atlantic sturgeon, Shortnose sturgeon, West Indian Manatee, Green sea turtle
5. Create and disseminate outreach materials and signage on the presence of manatees and sea turtles and how to mitigate impacts to them.	Signage and outreach will increase awareness of manatees and turtles among boaters. Greater knowledge should lead to reduced collisions.	1 year	Office of Marketing & Communications	Development Services Department; GA DNR	Operating budget	West Indian Manatee, Green sea turtle
6. Establish slow or no wake zones and create signage alerting boaters to these restrictions.	Manatees and turtles are vulnerable to boat collisions. Heeding low-speed and no-wake zones will reduce collision risks. Industrial warm-water discharge areas and deep-dredged areas are used as wintering sites and stormwater pipes and freshwater discharges in marinas provide manatees with drinking water. These areas should be monitored for manatee activity and restricted from human and boating activity.	1 year	Office of Marketing & Communications	Chatham County - Savannah MPC, Georgia DNR	Operating budget	West Indian Manatee, Green sea turtle
7. Enforce stringent erosion control practices and distribute outreach to developers to encourage re-establishment of native vegetation as soon as possible after land disturbance activities are completed.	Enforcing erosion control measures reduces sedimentation and water quality degradation in wetlands, marshes, rivers, and coastal waters.	2-3 years	Development Services Department, Inspections	Office of Marketing & Communications	Operating budget	Wood stork, West Indian Manatee
8. Where erosion control products are necessary, encourage the use of environmentally friendly, biodegradable erosion control materials, aka wildlife friendly plastic-free netting in erosion and sediment control products.	Wildlife safe materials are those that are 100% biodegradable, made from natural fibers, and use a loose weave (often called leno weave) that allow animals to wiggle free. These methods will minimize wildlife entanglement and plastic debris pollution.	2-3 years	Development Services Department	Office of Sustainability	Operating budget	All fish, West Indian Manatee, all reptiles

PROJECT	BACKGROUND	TIMEFRAME	RESPONSIBLE PARTY	SUPPORTING AGENCIES	POTENTIAL FUNDING	SPECIES PROTECTED
9. Revise the City's Low impact development (LID) ordinance to improve developer participation or adopt LID requirements to minimize the expansion of impervious surfaces and associated runoff and water quality degradation.	LID techniques result in more green space and less impervious area. Vegetation in the urban environment provides habitat for birds, mammals, amphibians, reptiles, and insects. LID techniques can also reduce erosion and sedimentation, which improves habitat in streams and wetlands.	2-3 years	Development Services Department, City Administration	Georgia DNR Environmental Protection Division	Operating budget	Wood stork, Green sea turtle, Atlantic sturgeon, Shortnose sturgeon
10. Create outreach materials on the importance of avoid tree clearing from May 1 until July 15 when newborn bats (pups) may be in trees and unable to fly.	Habitat loss from urban development threatens the tricolored bat, which roosts among live and dead leaf clusters of deciduous hardwood trees.	1 year	Development Services Department	Office of Marketing & Communications	Operating budget	Tricolored bat
11. Require inspection of structures and large culverts within two weeks prior to any demolition activities that may impact them.	Tricolored bats may roost in structures like bridges and culverts throughout Savannah. Inspecting these structures prior to demolition or disrupting activities will ensure tricolored bat nests are not damaged.	2-3 years	Development Services Department, Stormwater Management Department, Inspections	US FWS	Operating budget	Tricolored bat
12. Set aside and leave areas in a natural state and/or plant native wildflowers, including milkweed, where appropriate	Monarch butterflies will live in many different habitat types but are dependent on milkweed as their host plant.	2-3 years	Chatham County - Savannah MPC	The Nature Conservancy	Operating budget	Monarch butterfly
13. Schedule mowing of rights-of-way to allow for fall bloom of milkweed and other monarch nectar source plants.	Monarch butterflies are dependent on milkweed as their host plant. Scheduling mowing to ensure a fall bloom of milkweed will protect the species' source of nectar.	1 year	Stormwater Management Department	Office of Sustainability	Operating budget	Monarch butterfly
14. Prohibit use of neonicotinoids on public lands and rights-of-way.	Pesticides, especially neonicotinoids, are a threat to monarch butterflies survival. Reducing or eliminating the use of these chemicals where milkweeds grow will protect the species.	2-3 years	Stormwater Management Department, City Administration	Office of Sustainability	Operating budget	Monarch butterfly

6. Plan Adoption

The purpose of formally adopting this plan is to secure buy-in from the City of Savannah elected officials, raise awareness of the plan, and formalize the plan's implementation. The City of Savannah has adopted the Natural Floodplain Functions Plan by passing a resolution. A copy of the executed resolution is shown below.

Note to Reviewers: When this plan has been reviewed and approved, the adoption resolution will be signed and added here.

Placement holder
for the signed
adopted resolution

7. Plan Maintenance

Implementation and maintenance of the plan is crucial to the overall success of this Natural Floodplain Functions Plan. This section provides an overview of the strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan.

Implementation

Once adopted, the plan must be implemented in order to be effective. Implementation will be accomplished by adhering to the schedules identified for each action and through constant, pervasive, and energetic efforts to network and highlight the multi-objective, win-win benefits to each program and the community. This effort is achieved through the routine actions of monitoring agendas, attending meetings, and promoting a sustainable community. Simultaneous to these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. When funding does become available, the City will be in a position to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, state and federal earmarked funds, benefit assessments, and other grant programs, including those that can serve or support multi-objective applications.

Responsibility for Implementation of Actions

Officials appointed to head community departments and community staff are charged with implementation of various actions in the plan. During the annual review as described later in this section, an assessment of progress on each of the actions in the plan will be determined and noted. At that time, recommendations will be made to modify timeframes for completion of activities, funding resources, and responsible entities.

Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effective and low-cost is incorporation of the Natural Floodplain Functions Plan actions into other plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement actions. As described in this plan's capability assessment, the City already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- Chatham County Pre- and Post-Disaster Mitigation Plans

- Chatham County – Savannah Comprehensive Plan
- City of Savannah Floodplain Management Plan
- Ordinances
- Flood/stormwater management/master plans
- Other plans, regulations, and practices with a mitigation focus

Those involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc., as appropriate. As described above, implementation and incorporation into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this Natural Floodplain Functions Plan.

Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized.

Maintenance Schedule

The City of Savannah Development Services Department is responsible for initiating plan reviews. In order to monitor progress, the City will revisit this plan annually. Furthermore, the plan must be updated at least once every 10 years. The update must include a review of any changes to conditions as well as progress made since the original plan was prepared. With this plan update anticipated to be fully approved and adopted in 2026, the next plan update for the City will occur in 2036. Any changes to the adopted plan must be approved by City Council.

END