

Tier 1 Checklist

Ecology Resources

Georgia Landscape
Describing Aquatic Resources
Describing Protected Species and Their Habitats
Surveying for Ecology Resources
Regulatory Agencies, Policies, and Regulations

GEORGIA LANDSCAPE

Has a basic understanding of Georgia ecoregions and their general characteristics and differences; acknowledgement of the diversity of GA.	General	<i>Enter Completion Date or List/Tally to Track Progress</i>
	Read: Level III Ecoregions of Georgia descriptions and review map for boundaries <ul style="list-style-type: none"> • Level III Ecoregion Descriptions • Level III Ecoregion Map 	
	Read: Natural Communities of Georgia Website <i>Alternative: Review “The Natural Communities of Georgia” - Leslie Edwards, or an equivalent book</i>	
	Review: Georgia's Natural Communities and Associated Rare Plant and Animal Species	
	Visit 5 different ecoregions across the state and note identifiable characteristics.	

DESCRIBING AQUATIC RESOURCES

Can describe the various characteristics of federal aquatic resources, different parts of the resources (terminology), functionality, quality, etc.	General	
	Review: Cowardin Codes and understand their structure and organization	
	Streams	
	Read: Learn About Streams	
	Read: National Ordinary High Water Mark (OHWM) Field Delineation Manual for Rivers and Streams (Sections 1 and 2)	
	Read: NCDWQ Identification Methods for the Origins of Intermittent and Perennial Streams	
	Watch: A Guide for Field Identification of Bankfull Stage in the Western United States	
	Read: GAEPD Field Guide for Determining the Presence of State Waters That Require a Buffer	
	Watch: Stream Morphology and Critical Concepts (Morphology sections, starting ~5:30)	
	Wetlands	
	Read: Classification and Types of Wetlands	
	Read: Field Indicators of Hydric Soils in the United States	
<ul style="list-style-type: none"> • Read Introduction • Browse the glossary • Read through the following indicators most commonly encountered in Georgia wetlands (in alphabetical order): A11, A12, S5, S6, S7, F3, F7, F8, F19. • Download Atlantic and Gulf Coastal Plain (AGCP) Supplement and Eastern Mountain and Piedmont (EMP) Supplements from the USACE Regional Supplements webpage 		

EDP | Ecology Resources Tier 1 Checklist

Can describe the various characteristics of federal aquatic resources, different parts of the resources (terminology), functionality, quality, etc. (continued)	Quality Assessments	
	Read: Understanding Our Streams and Rivers	
	Watch: Perennial Stream Culvert Requirements: Design and Delivery Strategies (9:00- 12:00) – Take note of features hindering aquatic connectivity	
	Identify 5 perched culverts in the field.	
	Identify 5 straightened stream channels in the field.	
	Identify 5 aquatic resources with an oily sheen and or litter in the field.	
	Identify 5 streams with incised banks in the field.	
	Identify evidence of wetland draining via ditches in the field.	
Can distinguish between artificial and natural water features in the field.	General	
	Identify 5 vegetated swales in the field.	
	Identify 5 ditches in the field.	
	Identify 5 stormwater ponds in the field.	
	<i>Optional: Identify 1 canal in the field.</i>	
	<i>Optional: Identify 1 concrete flume in the field.</i>	
	Read: Adjacent Wetlands and Lakes, Ponds, Impoundments of WOTUS <i>Note, regulations defining “adjacent” may change or have varied interpretation.</i>	
Can describe the function and characteristics of natural buffers.	General	
	Read: GA EPD 2017 Field Guide for Determining the Presence of State Waters That Require a Buffer	
	Read: Riparian Forest Buffers: An Agroforestry Practice Presentation	
	Identify and take notes on the natural riparian buffer size and vegetation composition for 10 streams in the field.	
	Read: Technical Note on Riparian Buffer design (<i>through page 4</i>)	

Can describe the function and characteristics of natural buffers. (continued)	<p>With a mentor or manager, discuss the following functions of natural riparian buffers:</p> <ul style="list-style-type: none"> • Sediment trapping • Nutrients and heavy metals • Temperature control/shading • Aquatic and Terrestrial food chain • Terrestrial habitat, food chain, and migration corridor • Streambank stabilization • Flooding 	
-------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

DESCRIBING PROTECTED SPECIES AND THEIR HABITATS

Can locate species and habitat descriptions for protected species that may occur within the ESB.	General	
	<p>Read: GDOT Protected Species Survey Methodology Manual (“<i>Survey Standard Operating Procedures</i>” and “<i>Reporting, Timelines, and Deliverables</i>” sections)</p>	
	<p>Review: Habitat requirements on GA Biodiversity Portal and Protected Species Survey Methodology Manual prior to field surveys for:</p> <ul style="list-style-type: none"> • 10 aquatic species • 5 terrestrial species • 10 plant species 	
Can determine suitability of habitats for protected species and understand when a survey is warranted, with assistance.	Habitat Suitability	
	<p>Referencing the Protected Species Survey Methodology Manual, for 10 habitat types, describe in fields notes what characteristics make the habitat suitable, marginally suitable, or not suitable for:</p> <ul style="list-style-type: none"> • 10 protected plant species • 5 protected terrestrial species <p><i>Recommended: Identify at least 2 examples of marginally suitable or suitable habitat.</i></p>	
	<p>For 10 streams, describe in field notes what characteristics that make the habitat suitable, marginally suitable, or not suitable for:</p> <ul style="list-style-type: none"> • 5 protected mussel species • 5 protected fish species <p><i>Recommended: Identify at least 2 examples of marginally suitable or suitable habitat.</i></p>	

SURVEYING FOR ECOLOGY RESOURCES

<p>Conducts high-level desktop evaluations for a project site in preparation for field surveys. Is proficient with equipment preparation.</p>	Desktop Survey	
	Read: GDOT Ecology Resource Survey Guidebook	
	Read: GDOT Environmental Survey Boundary (ESB) Guidance	
	<p>For 5 projects, complete the following steps to conduct early coordination:</p> <ul style="list-style-type: none"> Using the U.S Fish and Wildlife Service Information for Planning and Consultation (IPaC) website, generate and download a draft species list Using the Georgia's Natural, Archaeological, and Historic Resources GIS (GNAHRGIS) - Ecology Review and Survey Module, generate and download a draft GNAHRGIS letter Using the National Oceanic and Atmospheric Administration (NOAA) Section 7 Mapper, generate and download a NOAA species list Using the Essential Fish Habitat Mapper, determine whether Essential Fish Habitat overlaps with the project area 	
	Review topographic maps, aerial imagery, Google StreetView, National Wetland Inventory (NWI), and WebSoil Survey to locate potential resources on 5 projects	
	Review: OES cold water/trout streams, GA391-3-6-.03(15) Trout Streams KMZ in Google Earth	
	Prepare field maps, GPS, and equipment prior to fieldwork for 5 projects.	
	Request a property access letter prior to fieldwork for 1 project.	
<p>Takes organized, detailed, field notes (i.e., can collect all general data required for reports, including photos).</p>	Field Notes	
	Read: GDOT Ecology Resource Survey Guidebook	
	Review field notes of 5 previously completed field surveys.	
	<i>Recommended: Review field notes of projects within the same county as your current project.</i>	
	Take general field notes on 5 projects.	
Take representative photos of habitat types on 5 projects.		

Takes organized, detailed, field notes (i.e., can collect all general data required for reports, including photos). (continued)	Review your organization's procedures for storing and processing data after field collection.	
	Process data from 5 field surveys. <ul style="list-style-type: none"> • Label and organize all photos • Scan and/or digitize all data forms and field notes • Clean and convert GIS data to DGN format • Other data <i>(Data post-processing is also covered in Environmental Process Tier 1 Checklist in more detail.)</i>	
Can identify and delineate all aquatic resource types in the field (with assistance) across the state.	Aquatic Resources	
	Read: GDOT Water Resource Delineation Guidebook	
	Read: NCDWQ Identification Methods for the Origins of Intermittent and Perennial Streams	
	Complete a stream delineation course taught by a state or federal agency, accredited university, or from GDOT approved list.	
	Watch: Perennial Stream Culvert Requirements: Design and Delivery Strategies - YouTube (33:00 – 57:00, Bankfull measurements)	
	Complete a wetland delineation course taught by a state or federal agency, accredited university, or from GDOT approved list. <i>Alternative: Read and Watch: Watch and Learn Now: How To Do A Wetland Delineation</i>	
	Review: USACE National Wetland Plant Lists (denote indicator status for common wetland species) <ul style="list-style-type: none"> • Atlantic and Gulf Coastal Plain • Eastern Mountains and Piedmont 	
	Assist with the identification, delineation, and data collection of 10 streams in the Eastern Mountain and Piedmont region, as defined by the USACE EMP Regional Supplement.	
	Assist with the identification, delineation and data collection of 10 streams in the Coastal Plain region, as defined by the USACE AGCP Regional Supplement.	
	Assist with the identification, delineation and data collection of 10 wetlands in the Eastern Mountain and Piedmont region, as defined by the USACE EMP Regional Supplement.	
Assist with the identification, delineation and data collection of 10 wetlands in the Coastal Plain region, as defined by the USACE AGCP Regional Supplement.		

Assists with completing all required data forms.	Data Forms	
	Fill out wetland/upland data forms for 10 wetlands in the Eastern Mountain and Piedmont region, as defined by the USACE EMP Regional Supplement.	
	Fill out wetland/upland data forms for 10 wetlands in the Coastal Plain region, as defined by the USACE AGCP Regional Supplement.	
	Fill out 10 NCDWQ Stream Identification forms in the Eastern Mountain and Piedmont region, as defined by the USACE EMP Regional Supplement.	
	Fill out 10 NCDWQ Stream Identification forms in the Coastal Plain region, as defined by the USACE AGCP Regional Supplement.	
	Fill out 20 GADNR Bats in Bridges Data forms.	
	Submit Early Detection and Distribution Mapping System (EDDMaps) reports for 5 different Category 1 invasive species.	
Can describe vegetative communities.	Landscape Evaluation	
	In the field, identify 5 specialized wetland habitats and 5 specialized upland habitats each in the 7 Botanical Regions as described in the GDOT Protected Species Survey Methodology Manual (Plants > Habitat and Species Survey Methodology for Protected Plant Species > Inserts 2-8)	
	Examples include granite outcrop, berm, stream terrace or river bluff, seep or spring head, isolated wetlands (for flatwoods salamanders), ROW habitats (inundated ditches)	
	Review: Category 1 Invasive Species List	
Identify 5 Category 1 invasive species in the field.		
<i>Optional: Use a GPS to delineate 1 large monoculture of Category 1 invasive species.</i>		

EDP | Ecology Resources Tier 1 Checklist

Can describe vegetative communities. (continued)	<p>In the field, identify evidence of each of the following habitat disturbances:</p> <ul style="list-style-type: none"> • Herbicide/pesticide use • Management by fire and/or fire suppression • Clear-cutting or logging; conversion to agriculture • Litter • Invasive species • Stream channel straightening or re-routing <p><i>Optional: For 5 projects, review historic aerial imagery and describe landscape changes.</i></p>	
	Read: GDOT Ecology Resource Survey Guidebook (Habitat/Land Use Delineation Section)	
	Classify and describe all habitat types present for 5 projects.	
	For 5 different forested areas, roughly estimate the age of trees.	
Can use available tools and guides to identify plants to species in the field.	Plant Identification	
	Review: North Carolina Common Wetland Plants Guide	
	Complete a plant identification course taught by a state or federal agency, accredited university, or from GDOT approved list.	
	Review: Guide to Native Plants of Georgia	
	Download and use the latest version of Weakley's Flora (Flora of the Southeastern US) (or equivalent guide).	
	Review: USDA Plants Database for plant species ranges and wetland status	
	At 5 different locations, identify 5 plants in each major stratum (Eastern Mountains and Piedmont) (Tree canopy, shrub/sapling, herbaceous, and woody vine layers)	
	At 5 different locations. identify 5 plants in each major stratum (Atlantic Gulf and Coastal Plain) (Tree canopy, shrub/sapling, herbaceous, woody vine layers)	
Can conduct a non-aquatic Protected Species Survey, with assistance.	Protected Species Surveys	
	Read: GDOT Protected Species Survey Methodology Manual (Survey Standard Operating Procedures, Reporting Timelines and Deliverables Sections)	
	Read: Protected Species Survey, Avoidance and Minimization (Field Survey Section)	

Can conduct a non-aquatic Protected Species Survey, with assistance. (continued)	Assist with 5 non-aquatic protected species surveys. Prior to fieldwork, review survey techniques and protocol for that species in the GDOT Protected Species Survey Methodology Manual	
	Complete “GADNR Bats in Bridges” training course, or equivalent. <i>Alternative: Watch Virtual Bat and Transportation Structures Assessment Training</i> <i>Alternative: Watch GADNR Bat Culvert Survey Video</i>	
	Review: Georgia Bat Species Descriptions	
	Conduct Bats in Bridges surveys on 10 bridges and 10 culverts.	

REGULATORY AGENCIES, POLICY AND REGULATIONS

Can list relevant agencies for each resource type and list what laws are applicable to GDOT work.	US Fish and Wildlife Service	
	Read: Interagency Cooperation—Endangered Species Act of 1973, as Amended	
	Read: GDOT Protected Species Survey, Avoidance, and Minimization Guidebook (Regulations, Guidance, and Policy > Federal)	
	Read: Fact Sheet: Consultations with Federal Agencies: Section 7 of the Endangered Species Act	
	Watch: Section 7 Interagency Consultation Videos (1-4)	
	Review: Bald and Golden Eagle Protection Act	
	Review: Migratory Bird Treaty Act	
	Review: GDOT Miscellaneous Resources Guidebook (Fish and Wildlife Coordination Act Section)	
	US Army Corps of Engineers	
	Review: Overview of Clean Water Act Section 404 and subpages	
	Read: GDOT Section 404 Regional General Permits Guidebook	
	Watch: Section 404 of the Clean Water Act	
	Read: GDOT Miscellaneous Permits Guidebook (Rivers and Harbors Act Permitting Activities Section)	

EDP | Ecology Resources Tier 1 Checklist

Can list relevant agencies for each resource type and list what laws are applicable to GDOT work. (continued)	Georgia Department of Natural Resources	
	Wildlife Resources Division	
	Read: GDOT Protected Species Survey, Avoidance, and Minimization Guidebook (<i>Regulations, Guidance, and Policy > State</i>)	
	Review: Georgia Endangered Wildlife Act	
	Review: Georgia Wildflower Preservation Act	
	Review: GDOT Miscellaneous Resources Guidebook (<i>Game and Fish Code – Taking of Nongame Species Section</i>)	
	Environmental Protection Division	
	Review: OCGA § 391-3-6-.03(15) (Trout Streams)	
	Review: GDOT Buffer Variance Guidebook	
	Review: OCGA § 391-3-7 (<i>Subsections .01, .04, .05, and .11 on Erosion and Sedimentation Control</i>)	
	Review: NPDES GAR100002	
	Coastal Resources Division	
	Review: Coastal Marshlands Protection Act	
	Review: Vegetated marshland species list (as defined in OCGA §12-5-282 item #3) and review photos and identification criteria for each species.	
	National Park Service	
	Read: GDOT Federal Lands Guidebook (<i>National Park Service Section</i>)	
	US Forest Service	
	Read: GDOT Federal Lands Guidebook (<i>US Forest Service Section</i>)	
	NOAA Fisheries	
	Review: GDOT Miscellaneous Resources Guidebook (<i>Magnuson-Stevens Fishery Conservation and Management Act Section</i>)	
Review: GDOT Miscellaneous Resources Guidebook (<i>Marine Mammal Protection Act Section</i>)		
Review: Laws & Policies: Magnuson-Stevens Act		
Review: Laws & Policies: Endangered Species Act		