WALLACE DAM

Lake Oconee

Study Report

Rare, Threatened, and Endangered Species (RTE)

Wallace Dam Hydroelectric Project

FERC Project No. 2413

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1.0 EXECUTIVE SUMMARY

This Rare, Threatened, and Endangered Species (RTE) Report provides descriptions of federally and state-listed species and their preferred habitats that potentially occur within the Project boundary. The report presents findings of the RTE study conducted for Federal Energy Regulatory Commission (FERC) relicensing of Georgia Company's (Georgia Power's) Wallace Dam Hydroelectric Project (Wallace Dam Project, the Project) (FERC No. 2413).

The study area is defined as the FERC Project boundary, which generally encompasses Wallace Dam and the reservoir (Lake Oconee), a narrow strip of land beginning on the east and west banks of the dam's tailrace and continuing approximately 4.0 river miles downstream of the dam, a 15.67-mile transmission line right-of-way (ROW), portions of adjacent public lands including three sites in the Redlands Wildlife Management Area (WMA), which is located in the Oconee National Forest, and a number of Georgia Power-managed recreational areas.

After conducting a detailed literature review, Georgia Power developed a Geographic Information System (GIS) database and map files to aid field investigators in evaluating lands within the Project boundary for potentially occurring RTE species and/or suitable habitats. Field surveys were conducted in three discrete events, with a total of three survey weeks conducted over the course of three months (April through June). The RTE surveys were performed concurrently with the terrestrial fauna and botanical resource surveys, which are discussed in the Terrestrial Resources Report for the Wallace Dam Hydroelectric Project (Georgia Power Company 2016).

The initial literature review identified 21 RTE species that are known or expected to occur in Greene, Hancock, Morgan, and Putnam Counties, Georgia and/or within the Oconee River watershed. However, more refined occurrence data obtained from the Georgia Department of Natural Resources (GADNR) depicted six RTE species that potentially occur within or immediately adjacent to the Project boundary. As a result of the field surveys, only three RTE species were observed, including pool sprite (*Amphianthus pusillus*), bald eagle (*Haliaeetus leucocephalus*), and Bachmans' sparrow (*Peucaea aestivalis*). A literature review of fish surveys within the Project vicinity indicated that no listed fish species occur within the Project boundary. Recent surveys for mussels within Lake Oconee and downstream of Wallace Dam did not document any RTE mussel species.

2.0 INTRODUCTION

The Wallace Dam Hydroelectric Project consists of an existing 321.3-megawatt hydroelectric pump storage facility, which operates at the terminal end of the Oconee River and uses Lake Oconee as the upper reservoir. Lake Sinclair, which is located immediately downstream, serves as the lower reservoir and is operated by Georgia Power as the separately licensed Sinclair Hydroelectric Project. The Project boundary includes lands and waters located within Hancock, Putnam, Greene, and Morgan Counties, Georgia. The Project currently occupies approximately 370 acres of U.S. Forest Service (USFS) lands within the Oconee National Forest, which abuts Lake Oconee's northernmost reaches. Georgia Power is not proposing to add capacity or make any major modifications to the Project under the new license, but proposes to continue operating the Wallace Dam Project as it is currently operated. The existing license expires May 31, 2020.

Georgia Power has completed a study of RTE species at the Project for use in the analysis of potential effects of continued Project operation. The study was conducted according to the Revised Study Plan for Relicensing the Wallace Dam Hydroelectric Project (Georgia Power 2015a), which was filed with FERC on November 24, 2015 and approved by FERC on December 17, 2015. The information presented in this report will be used by Georgia Power to evaluate the environmental effects of its proposed action in the Preliminary Licensing Proposal (PLP), which will be filed with FERC by November 21, 2017.

1.1 Objectives

Georgia Power conducted the RTE study with the following objectives: 1) list federal and state RTE plant and animal species with known records of occurrence in and near the Project; 2) identify their habitat requirements; and 3) describe distributions and habitat use of RTE species presently occurring in and near the Project.

1.2 Study Area

The Project is located on the Oconee River in east-central Georgia (Figure 1). Wallace Dam is located at river mile 172.7, approximately 13.4 air miles east of the City of Eatonton in Putnam County and about 15.4 air miles south of the City of Greensboro in Greene County. Wallace Dam is located approximately 12 air miles northwest of the City of Sparta in Hancock County, 19 air miles north of the city of Milledgeville in Baldwin County, and approximately 25 air miles southeast of the City of Madison in Morgan County. The Hancock County-Putnam County line, which follows the Oconee River channel within the Project

boundary, bisects the Project dam. The Wallace Dam powerhouse is located on the east side of the river, mostly within Hancock County. The spillway portion of the dam is located on the west side of the river within Putnam County. Wallace Dam is situated 29.7 river miles upstream of Georgia Power's Sinclair Dam (river mile 143) and immediately upstream of Lake Sinclair, with no intervening riverine reach. Releases from Wallace Dam flow directly into Lake Sinclair.

The Project reservoir, known as Lake Oconee, covers 19,050 acres, has 374 miles of shoreline, and extends approximately 39 river miles upstream on the Oconee River (Georgia Power 2015b). Lands and waters within the FERC Project boundary are located within Hancock, Putnam, Greene, and Morgan Counties. The majority of the Project boundary, which varies in measurement from metes and bounds to elevation contour, is confined to a 25-foot strip of fee-simple land offset from the full pool elevation of 435 feet plant datum[1]. The Project boundary exceeds this width along areas surrounding the dam as well as areas at Lawrence Shoals Park, Long Shoals Boat Ramp, Old Salem Park, Sugar Creek Boat Ramp, Parks Ferry Park, Redlands WMA (including the Dyar Pasture, Redlands, and Swords Recreation Areas), and other areas (Figure 2). The Project boundary extends downstream of Wallace Dam within Lake Sinclair about 1.3 river miles to the Georgia Highway 16 bridge. It also extends approximately 4.0 river miles downstream (tailrace waters) of Wallace Dam on the shoreline on each side of the upper reach of Lake Sinclair and tributaries that flow into the lake. Also located in this area are three small waterfowl impoundments (two on west side, one on east side of Lake Sinclair) within the Oconee Wildlife Management Area and within the Wallace Dam Project boundary. The Project boundary also includes land within the 15.67-mile transmission line right-of-way that originates at Wallace Dam and extends westward, where it eventually terminates at a switching station southwest of Eatonton, Georgia (Figure 1). Based upon the Project boundary described above and the boundary line developed by Georgia Power and distributed through GIS shapefiles to the field survey teams, the cumulative acreage of the study area totals approximately 25,660 acres (including Lake Oconee).

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[1] Plant datum = mean sea level (NAVD88) – 0.23 feet (+/- 0.01 feet)

3.0 STUDY METHODS

The RTE study approach was conducted in general accordance with Section 6 of the Wallace Dam Revised Study Plan (Georgia Power 2015a). Methods for conducting the RTE study consisted of the following elements:

3.1 Review of Existing Information

Online and literature reviews were conducted to acquire information about RTE species that may be located within the Project boundary. Literature and digital resources included, but were not limited to:

- A Gap Analysis of Georgia: August 2003 Final Report (USGS 2003)
- *Amphibians and Reptiles of Georgia* (Jensen, et al. 2008)
- Chattahoochee-Oconee National Forest Land and Resource Management Plan (USFS 2004)
- Christmas Bird Count Historical Results (National Audubon Society 2010)
- Surveys for Freshwater Mussels in Lake Oconee (Dinkins Biological Consulting 2016)
- *Ecoregions of Alabama and Georgia* (Griffith, et al. 2001)
- *Field Guide to the Rare Plants of Georgia* (Chafin 2007)
- Georgia Rare Elements Spatial Distribution Data (GADNR 2014)
- Georgia Rare Species Range Maps (GADNR 2016)
- NatureServe Explorer: An Online Encyclopedia of Life (NatureServe 2015)
- North American Breeding Bird Dataset 1966 – 2015 (Pardieck, et al. 2016)
- Revised Study Plan for Relicensing the Wallace Dam Hydroelectric Project (Georgia Power 2015a)
- State Wildlife Action Plan of Georgia (GADNR 2015)
- The Flora of the Oconee National Wildlife Refuge (Georgia Botanical Society 2014)
- Wallace Dam Preliminary Application Document (Georgia Power 2015b)

RTE species research targeted Federal and State listed RTE species (including candidate species) located within the counties of Greene, Hancock, Morgan, and Putnam Georgia. The RTE lists presented in Section 4.0 were generated using online and literature reviews, and the RTE species table located in the Revised Study Plan. Georgia Power also reviewed a letter from the GADNR, dated May 13, 2016 (Appendix A), that provided the most current list of known occurrences of RTE species within, and immediately surrounding,

the Project boundary. Various GIS data were reviewed to evaluate where potentially suitable habitats preferred by RTE listed species (RTE habitats) may occur within the Project boundary.

3.2 GIS Mapping

Prior to conducting field surveys, GIS maps were developed from current aerial imagery and the Project boundary. GIS map layers included data from, but not limited to, the U.S. Geological Survey (USGS), National Agriculture Imagery Program (NAIP), Project boundary data provided Georgia Power, and GADNR's spatial distribution data. Due to the size of the study area, and to coordinate survey efforts between survey teams, the Project was divided into a grid system (map index). Grid maps were developed with each map displaying an area of approximately 0.5 square mile. Maps were provided to field staff that included: 1) aerial imagery, 2) land cover classifications (habitat indicator), and 3) known/recorded occurrence data of RTE species. The occurrence data shapefiles were obtained from GADNR data and depict species occurrences buffered by one square kilometer (~0.62 square mile). These maps were used to coordinate team survey planning and to target specific areas/habitats within the Project boundary where RTE species could potentially occur.

Maps produced after field surveys were completed include a site location map showing the Project boundary in relation to surrounding counties and larger cities (Figure 1). Figure 2 depicts public lands within the vicinity of the Project. Figure 3 is an index map that is used as reference for individual grids regarding RTE occurrences, observations, and habitat data. Figure 4 presents the GDNR-based RTE species occurrence data that overlap or fall within the Project boundary. Finally, Figures 5 through 55 depict the RTE findings of this study, including observed RTE species and potentially suitable habitats for RTE species observed by survey teams.

3.3 Field Surveys

Field surveys were conducted April 25-28, May 9-12, and June 20-23, 2016 with the objectives to observe and document RTE species and/or their respective potential habitats found within the Project boundary. The spring and early summer survey dates were favorable for conducting field surveys for a number of listed species, due to the active nature of fauna and flowering periods of many listed flora. Survey methods included pedestrian and boat reconnaissance surveys. Much of the Project boundary is limited to 25 feet from the full pool elevation of Lake Oconee. This narrow width allowed for flora and fauna to be evaluated efficiently from the water.

Two teams consisting of a minimum of two biologists/ecologists were utilized to conduct the field surveys. During survey work, Georgia Power Land Management and Environmental Affairs provided additional personnel support. Field survey teams carried equipment such as binoculars, "Rite in the Rain" field notebooks, hand-held GPS units, data sheets, field identification guides, and internet capable cellular phones in order to observe and document field survey observations. Teams were informed and knowledgeable of both flora and fauna of surrounding areas of the Piedmont physiographic province of Georgia. Each day, teams would investigate assigned areas within the Project boundary to ensure thorough coverage of lands within the Project boundary.

Teams conducted pedestrian surveys throughout the variety of available habitats and noted potentially suitable RTE species' habitats and/or individuals observed. Certain habitats, however, were further evaluated where optimal habitat and occurrence data indicated the likelihood of encountering a listed species. Targeted habitats included granite outcrops, xeric forests/dry oak-pine forests, relatively undisturbed floodplains and mesic slope forests, and high quality wetlands. For example, field investigators thoroughly evaluated plant species composition when granite outcrops were encountered because numerous RTE species could potentially occur in these habitats. If RTE species were observed, the species name and location were documented in dedicated field notebooks, GPS located and, if possible, photographed. When applicable, field data were transferred to Special Concern Collection Data Sheets (Appendix C) to document observations of listed species.

The initial field survey period (April 25-28) focused on areas within the Project boundary that were accessible on foot, which included several public recreation areas and the 15.67-mile transmission ROW. Initial pedestrian surveys allowed for the development of detailed plant and wildlife species and habitat lists that would serve as the foundation for the remaining survey efforts. Investigators noted which habitats should be evaluated further for RTE species so that additional survey efforts could be scheduled for those areas.

Field reconnaissance surveys conducted in May were primarily performed from Georgia Power watercraft along portions of the Project boundary that were limited to 25 feet from Lake Oconee's full pool elevation. This approach reduced the amount of time required to perform the field surveys that would otherwise have been conducted on foot. In cases where the Project boundary extended beyond 25 feet and access was prohibited from roads, the boat driver would find a suitable landing and a team of two investigators would perform a pedestrian survey.

Field surveys conducted in June included completing the surveys of areas accessible by watercraft and targeting additional areas in the northern section of the Project boundary that required pedestrian access. These areas mostly consisted of large expanses of forested floodplain along the Oconee River that were primarily located within the Oconee National Forest and Redlands Wildlife Management Area. Finally, any remaining parcels/segments not previously visited were evaluated for potential RTE occurrences and investigated on foot.

4.0 RARE, THREATENED, AND ENDANGERED SPECIES

For the purposes of this report, listed RTE species include those that are either: 1) federally listed species and designated as endangered, threatened, or candidate species; or 2) state listed species and designated as endangered, threatened, or rare. Section 4.1 describes listed terrestrial RTE species that occur in the Project vicinity and Section 4.2 addresses aquatic RTE species.

Species occurrence data presented in this report include, at a minimum, those having confirmed observations within at least one of the four counties that are affected by the Project. Based on literature and online research, 21 federal- and/or state-listed species of flora and fauna potentially exist within the four counties associated with the Project. Table 1 in Appendix B identifies 7 animal and 14 plant RTE species and provides their global, federal, and state conservation status; occurrence location information; preferred habitat; and whether individuals or their preferred habitats were observed within the Project boundary during the surveys. GADNR Data of RTE species occurrences that touch or overlap the Project boundary are depicted on Figure 4, and include one animal and five plant species.

At the request of the U.S. Fish and Wildlife Service (USFWS), Michaux's sumac (*Rhus michauxii*) was added to the RTE list and accounted for during survey efforts despite occurrence data being located outside of Greene, Hancock, Morgan, or Putnam Counties.

4.1 Terrestrial RTE Species

Twenty terrestrial RTE species were identified as having the potential to occur in proximity of the Project boundary.

4.1.1 Federally Listed Species

According to the GADNR spatial distribution data, the six federally listed species listed below, which include one bird and five plant species (Table 4-1), occur or potentially occur within or near the Project

boundary (Appendix B). Each species is similarly listed by the GADNR as state protected. The detailed species descriptions that follow are limited to those with documented occurrences (from the GADNR Data shapefiles) and where suitable habitat is present within, or immediately adjacent to (Project vicinity) the Project boundary, or where field investigators documented observations of a listed species. During the course of the field surveys, one federally listed plant species was observed within the Project boundary, the threatened pool sprite.

Table 4-1: Federally Listed Species Occurrences within Project Boundary.

Common Name	Scientific Name	Federal Listing Status	State Listing Status	Occurrence Data	Suitable Habitat
Red-cockaded woodpecker	*Picoides borealis*	Endangered	Endangered	GADNR Data	yes
Pool sprite	*Amphianthus pusillus*	Threatened	Threatened	GADNR Data/Observed During Field Surveys	Yes
Black-spored quillwort	*Isoetes melanospora*	Endangered	Endangered	No Records in Project Vicinity	Yes
Mat-forming quillwort	*Isoetes tegetiformans*	Endangered	Endangered	GADNR Data	Yes
Harperella	*Ptilimnium nodosum*	Endangered	Endangered	GADNR Data	Yes
Michaux's sumac	*Rhus michauxii*	Endangered	Endangered	No Records in Project Vicinity	Yes

4.1.1.1 Pool Sprite

Pool sprite is listed as threatened both federally and by the State of Georgia. This annual herb occurs within the Piedmont and inhabits shallow, flat-bottomed depressions on granite outcrops. This species requires that the depressions receive full sun and remain inundated for several weeks in winter or spring. Pool sprite also prefers thin, gravelly soils (Chafin 2007). The optimal time to survey for this species is late March through April. Pool sprite has been documented in Greene, Putnam, and Hancock counties and within the Rockville, Georgia, NE and Liberty, Georgia, NE USGS quarter quads. Populations of pool sprite were observed within the Project boundary. Additional findings data for this species is provided within Appendix E.

4.1.1.2 Mat-Forming Quillwort

Mat-forming quillwort is listed as endangered federally and by the State of Georgia. No individuals or populations were observed during the field survey; however, this species is documented as occurring

within the Rockville, Georgia, NE and Liberty, Georgia, NE USGS quarter quads and within Greene, Putnam, and Hancock counties. This perennial herb forms dense mats in granite outcrop depressions and pools. This species shares similar habitat characteristics with the pool sprite in that it requires shallow granite outcrop depressions that contain water and thin, gravelly soils (Chafin 2007). Suitable habitat for this species occurs within the granite outcrops located in the Lawrence Shoals Recreation Area (Figure 42).

4.1.1.3 Harperella

Harperella is an annual herb that is listed as endangered both federally and by the State of Georgia. This plant occurs in varied habitats that include mesic savannas, edges of cypress ponds, and granite outcrop seeps (Chafin 2007). The optimal time of the year to survey for this species is July through October. No individuals of harperella were observed within the Project boundary but GADNR spatial distribution data (quarter quad occurrences) depict occurrences in parts of Greene, Putnam, and Hancock counties. Suitable habitat for this species occurs within the granite outcrops located in the Lawrence Shoals Recreation Area (Figure 42).

4.1.2 State Listed Terrestrial Species

Twelve state-listed terrestrial species potentially occur in the counties affected by the Wallace Dam Project (Appendix B). These include one reptile, two birds, and nine plant species (Table 4-2). Species listed both federally and by the State of Georgia are described in Table 4-1 above. The following sections identify state-listed terrestrial species and provide descriptions of those that were observed during field studies or those for which GADNR Data show occurrences within, or immediately adjacent to, the Project boundary.

Table 4-2: State Listed Species Occurrences within Project Boundary.

Common Name	Scientific Name	State Listing Status	Occurrence Data	Suitable Habitat
Southern hognose snake	*Heterodon simus*	Threatened	No Records in Project Vicinity	Yes
Bald eagle	*Haliaeetus leucocephalus*	Threatened	GADNR Data; Observed During Field Surveys	Yes
Bachman's sparrow	*Peucaea aestivalis*	Rare	Observed During Field Surveys	Yes
Carolina trefoil	*Acmispon helleri*	Endangered	No Records in Project Vicinity	Yes
Sun-loving draba	*Draba aprica*	Endangered	GADNR Data	Yes
Dwarf hatpins	*Eriocaulon koernickianum*	Endangered	No Records in Project Vicinity	Yes
Oglethorpe oak	*Quercus oglethorpensis*	Threatened	GADNR Data	Yes
Bay star-vine	*Schisandra glabra*	Threatened	No Records in Project Vicinity	Yes
Granite stonecrop	*Sedum pusillum*	Threatened	No Records in Project Vicinity	Yes
Ovate catchfly	*Silene ovata*	Rare	No Records in Project Vicinity	No
Silky camellia	*Stewartia malacodendron*	Rare	No Records in Project Vicinity	No
Piedmont barren strawberry	*Waldsteinia lobata*	Rare	No Records in Project Vicinity	Yes

4.1.2.1 Bald Eagle

The bald eagle is listed as threatened in the State of Georgia and is protected under the Bald and Golden Eagle Protection Act (16 USC. 668-668c). The adult stage of this large bird of prey is easily recognized by its dark brown body and contrasting white head and tail. Nesting activity is concentrated mostly along major waterways, rivers, and coastal areas. Nests are usually found away from human activity in large, open-topped pines near open water, and often at higher elevations than surrounding lands (Ozier and Schneider 2010). Suitable nesting habitat occurs within, and in proximity to, the Project boundary and Lake Oconee provides suitable foraging habitat for this species. Occurrence data for bald eagles within the Project boundary include locations in Green, Morgan, Putnam, and Hancock Counties. GADNR Data indicate documented occurrences in several locations along Lake Oconee, and field investigators documented five sightings within the Project boundary during the field surveys (Table 4-3). Table 4-4 provides a list of documented nesting sites in the Project vicinity, which was provided to Georgia Power

by GADNR in May 2016. Seven nests are located within the Project boundary, with general location information provided in Table 4-4.

Table 4-3: Bald Eagle Sightings at Lake Oconee during Field Surveys

Bald Eagle Sighting	Latitude	Longitude	Figure
1	33.463449	-83.258370	26
2	33.348352	-83.163082	43
3	33.360917	-83.161865	43
4	33.651863	-83.289028	9
5	33.648532	-83.289487	9

Table 4-4: Bald Eagle Nests in Vicinity of Wallace Dam Project Boundary

Due to the sensitivity of these findings data, Table 4-4 is provided in a separate Appendix E – Privileged and Confidential RTE Findings Data

4.1.2.2 Bachman's Sparrow

The Bachman's sparrow is listed as rare within the State of Georgia. This small bird is roughly six inches in length with a long rounded tail. Adults have alternating reddish brown and gray vertical stripes running down the back from the nape to the top of the rump. A reddish brown cap is found on the head and a similarly colored stripe runs from the back of the eye to the nape of the neck. Bachman's sparrows have a light buff to white lower breast. This sparrow prefers open and mature pinewoods, but also occurs in clearcuts, utility ROWs, and old pastures/grasslands with dense ground cover and a sparse midstory (Schneider and Keyes 2010). A review of the USGS Breeding Bird Survey data indicated that Bachman's sparrows were observed along the Siloam and Rutledge bird survey routes (Pardieck, et al. 2016), which are located within approximately 10 miles of Lake Oconee. Although occurrence data depicts this species occurring in Hancock County, the GADNR Data do not indicate this species has been previously documented within the Project boundary. However, suitable habitat exists within the Project boundary and field investigators identified the calls of Bachman's sparrows at six locations while walking the transmission ROW (Figures 42 and 52).

4.1.2.3 Sun-Loving Draba

The sun-loving draba is listed as endangered in Georgia. Sun-loving draba is a perennial plant that usually germinates in the fall and overwinters in the form of a rosette. This species prefers soils on and around granite outcrops, usually near the edges, and in areas containing eastern red cedar (*Juniperus virginiana*) (Chafin 2007). Suitable habitat exists within the Project boundary (Figure 42) and this species has been documented to occur in Putnam County. GADNR Data includes records of occurrences within the Project boundary in the Lawrence Shoals Recreation Area (Figure 4, Grid I7). No individuals were observed during field surveys.

4.1.2.4 Oglethorpe Oak

Oglethorpe oak is listed as threatened in Georgia. This tree grows up to 80 feet and typically has reddish gray bark. The bark is arranged in loose scales or plates similar to other oaks (*Quercus spp*). The leaves are two to five inches long, leathery, and with varied shapes. Leaf margins are not toothed or bristled and usually wavy or with small lobes. Notably, this species has velvety yellow hairs that cover the lower surface of its leaves. This large oak prefers wet clay soils in the Piedmont, particularly along seepages, stream terraces, and moist hardwood forests (Chafin 2007). It has also been observed on roadsides and pasture edges adjacent to these habitats. Although suitable habitat is present in areas within the Project

boundary, no individuals were observed while conducting field surveys. Occurrence data indicate that this species occurs in portions of Greene and Putnam Counties, including north of Madison Road along the east side of Lake Oconee (Figure 14) and both sides of the lake in the vicinity of Greensboro Road (Figures 26-27, 30-32).

4.2 Aquatic RTE Species

A combination of literature reviews of aquatic fish surveys conducted in the Oconee River watershed (see references provided in the Preliminary Application Document; Georgia Power 2016b) and Oconee River mussel surveys conducted by Dinkins Biological Consulting (Dinkins 2016) concluded that federally listed aquatic species are not known to occur within the Project boundary. Three state listed RTE species are known to occur within the Oconee River watershed and are discussed in the following sections.

4.2.1 State Listed Fishes

There are two state listed RTE fish species that potentially occur in the vicinity of the Project; however, there are no records of occurrence for either species within the Project boundary. These species include the Altamaha shiner (*Cyprinella xaenura*) and robust redhorse (*Moxostoma robustum*).

4.2.1.1 Altamaha Shiner

The Altamaha shiner, a Georgia threatened species, is endemic to the Piedmont of the upper Altamaha River basin in north-central Georgia, where it occurs in both the upper Oconee and upper Ocmlugee River basins. The Altamaha shiner has been reported from relatively recent collections in tributary streams upstream of Lake Oconee, including the Oconee River, Apalachee River, Hard Labor Creek, and Richland Creek. The nearest collections to the Project documented since 2010 were from the lower Apalachee River upstream of Lake Oconee. The most recent occurrence records from Richland Creek, Oconee River, and Hard Labor Creek just upstream of Lake Oconee are over 11 years old. There are no known occurrence records for Altamaha shiner from Lake Oconee within the Project boundary. Altamaha shiners inhabit small streams and rivers, where they are most often found in small pools with rock and sandy substrates.

4.2.1.2 Robust Redhorse

The robust redhorse, a Georgia endangered species, is a riverine sucker that occurs in large rivers of the Atlantic slope in Georgia, South Carolina, and North Carolina. It inhabits the Oconee and Ocmulgee Rivers in the Altamaha River basin. This species was petitioned for federal listing in 2010. The species is currently undergoing a status review by USFWS to determine if listing as a threatened or endangered species is

warranted. A population currently exists in the Oconee River downstream of Sinclair Dam but the species is not known to occur upstream of Wallace Dam. The robust redhorse typically inhabits main-channel, free-flowing rivers in riffles, runs, and pools. Recent occurrences of robust redhorse in Little River, a tributary to Lake Sinclair, and Lake Sinclair reportedly have resulted from escaped hatchery fish (Georgia Power Company 2013).

4.2.2 State Listed Mussels

Recent surveys by Dinkins Biological Consulting (2016a, 2016b) did not identify any RTE mussel species within the Project boundary. Upon review of the literature and GADNR Data, the Atlantic pigtoe (*Fusconaia masoni*) is the only listed RTE species that is documented to occur in proximity to the Project. Records from Hancock County, however, indicate that the species was found in the Ogeechee River; consequently, the Atlantic pigtoe is not known to occur in the Oconee River watershed. Therefore, no RTE mussels are expected to occur within the Project boundary.

6.0 CONCLUSION

The literature and spatial distribution data reviewed for the Wallace Dam Hydroelectric Project identified 21 RTE species that are known or expected to occur in Greene, Hancock, Morgan, and Putnam counties, Georgia. This list includes 1 mussel, 2 fishes, 1 reptile, 3 birds, and 14 plants (Appendix B). In review of the more refined GADNR Data files, the number of previously documented occurrences of RTE species within or immediately adjacent to the Project boundary is limited to six species, including one bird and five plants. Field surveys confirmed the occurrences of three RTE species (bald eagle, Bachman's sparrow and pool sprite).

Although the findings within this report were limited to listed RTE species, field investigators recorded occurrences of additional species that the State of Georgia considers species of conservation concern or otherwise unusual species as described in the GADNR State Wildlife Action Plan (SWAP; GADNR 2015). The Swainson's warbler (*Limnothlypis swainsonii*) was observed in forested wetlands within the Project boundary east of Lake Sinclair and along the floodplain of Shoulderbone Creek. Additional occurrences of this species were noted in the forested floodplain wetlands of the Oconee River near the northern end of the Project boundary. Northern bobwhite quail (*Colinus virginianus*) were observed along the transmission ROW and within pine forests. Prothonotary warblers (*Prothonotaria citrea*) were observed in forested and scrub-shrub wetlands throughout the Project boundary. The inflated floater (*Pyganodon*

gibbosa), a native mussel endemic to the Altamaha River basin, prefers soft substrates of mud, silt, or fine sand within larger bodies of water. This species was petitioned for placement on the federal list of threatened and endangered species; however, the petition request was withdrawn in 2015. Mussel surveys of Lake Oconee conducted by Dinkins Biological Consulting (2016b) identified several individuals throughout the main river channel within Lake Oconee as well as smaller tributary embayments.

Georgia Power proposes to continue operating the Wallace Dam Hydroelectric Project as it is currently operated. No capacity addition or major modifications are proposed under the new license. Georgia Power's proposal to continue operating the Project would not involve activities that are expected to negatively affect RTE resources.

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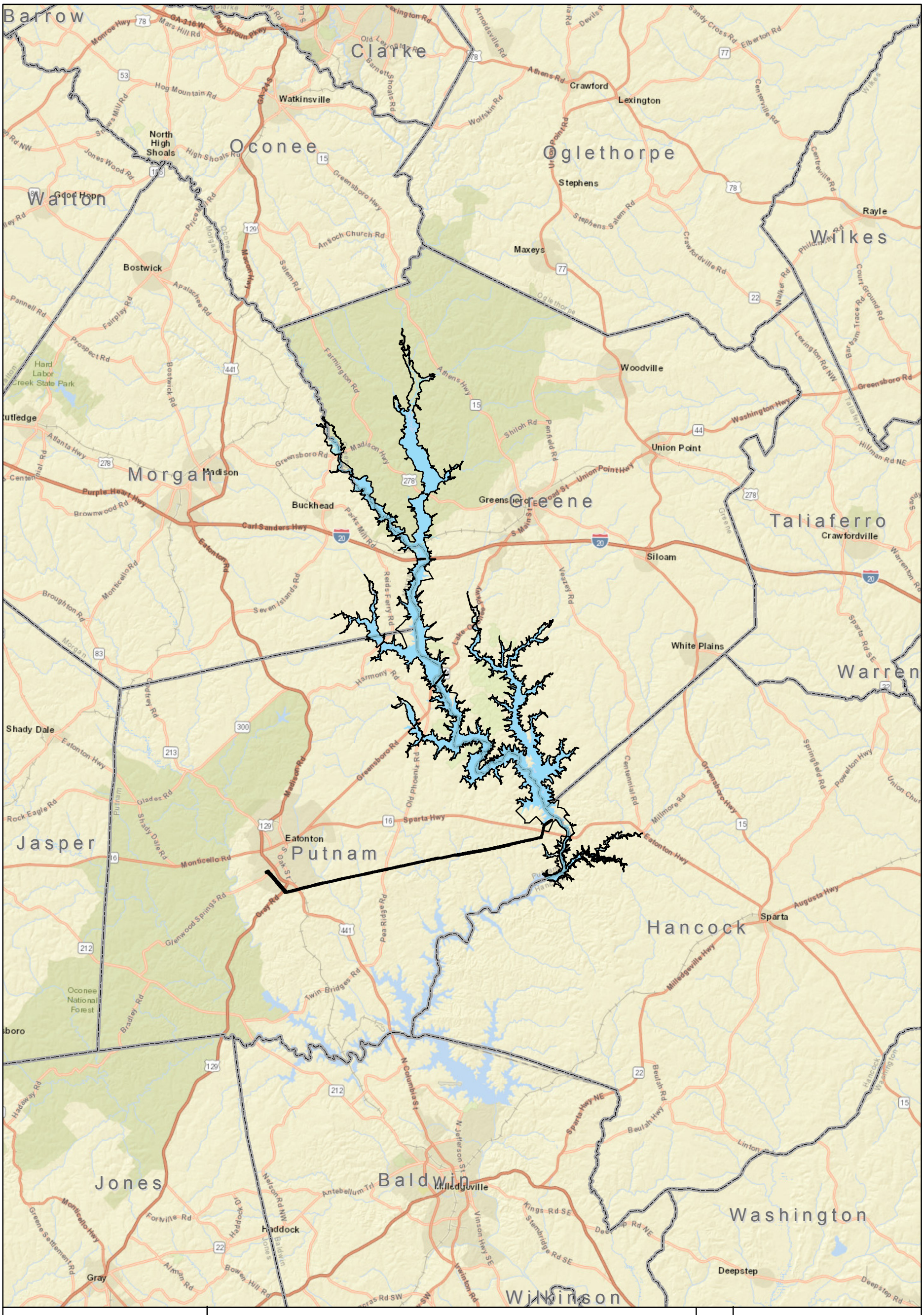
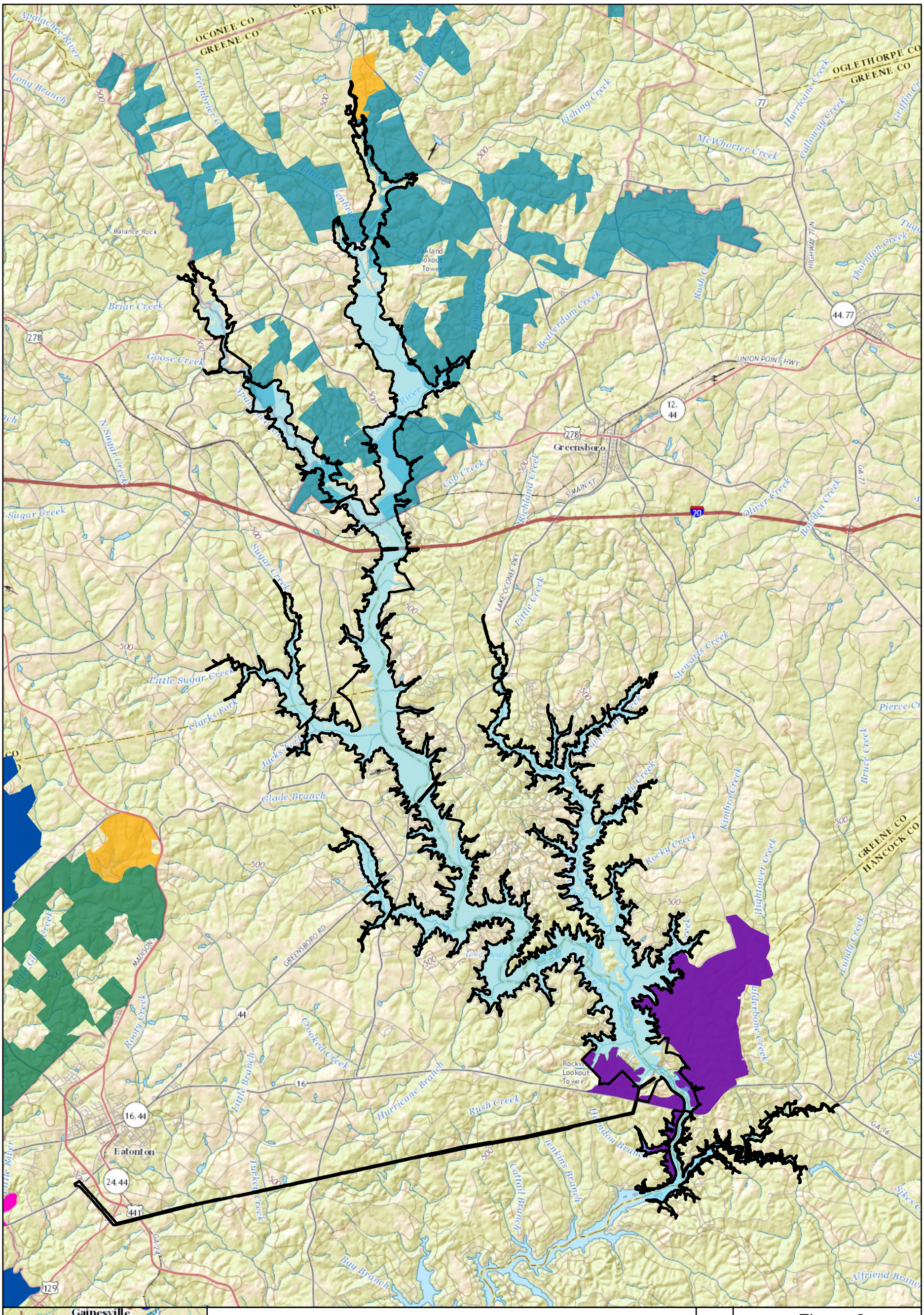
FIGURES


Barrow
Clarke
Oconee
Oglethorpe
Walton
Wilkes
Morgan
Greene
Taliaferro
Jasper
Putnam
Hancock
Warren
Jones
Baldwin
Washington
Wilkinson
Watkinsville
North High Shoals
Good Hope
Bostwick
Maxeys
Stephens
Crawford
Lexington
Rayle
Woodville
Union Point
Buckhead
Greensboro
Siloam
Crawfordville
White Plains
Shady Dale
Eatonton
Sparta
Gray
Haddock
Milledgeville
Deepstep
Hard Labor Creek State Park
Oconee National Forest
Madison
Monroe Hwy
Mars Hill Rd
Paul Broun Pkwy
Old Lexington Rd
Barnett Shoals Rd
Hog Mountain Rd
GA-15
GA-316 W
GA-24 S
Snows Mill Rd
Jones Wood Rd
High Shoals Rd
Greensboro Hwy
Price Mill Rd
Morgan
Oconee
Mason Hwy
Antioch Church Rd
Salem Rd
Apalachee Rd
Fairplay Rd
Pannell Rd
Prospect Rd
Bostwick Rd
Farmington Rd
Athens Hwy
Madison Hwy
Shiloh Rd
Penfield Rd
Greensboro Rd
Washington Hwy
Lexington Rd NW
Bartram Trace Rd
Court Ground Rd
Walker Rd
Crawfordville Rd
Stephens-Salem Rd
Athens Rd
Arnoldsville Rd
Wolfskin Rd
Union Point Rd
Centerville Rd
Sandy Cross Rd
Elberton Rd
Wilkes
Hillman Rd NE
Atlanta Hwy
Purple Heart Hwy
Brownwood Rd
Carl Sanders Hwy
Eatonton Rd
Monticello Rd
Seven Islands Rd
Broughton Rd
Parks Mill Rd
Reids Ferry Rd
Lake Oconee Pkwy
Vesrey Rd
S Main St
Union Point Hwy
Harmony Rd
Shady Dale
Eatonton Hwy
Rock Eagle Rd
Glades Rd
Shady Dale Rd
Monticello Rd
Greenwood Springs Rd
Gray Rd
Pea Ridge Rd
Twin Bridges Rd
Bradley Rd
Hadaway Rd
Greene Settlement Rd
Fortville Rd
Haddock Dr
Nelson Rd NW
Antebellum Trl
Bowen Hill Rd
Almon Rd
N Columbia St
N Jefferson St
Old Phoenix Rd
Vinson Hwy SE
Irwinton Rd
Milledgeville
Kings Rd SE
Stembridge Rd SE
Sparta Hwy NE
Beulah Rd
Beulah Hwy
Linton
Hancock
Washington
Deepstep Rd
Sparta Hwy
Millmore Rd
Centennial Rd
Greensboro Hwy
Springfield Rd
Powelton Hwy
Union Church Rd
Augusta Hwy
Milledgeville Hwy
Sparta Rd SE
Warrenton Rd
Wilkes
Oglethorpe
Putnam
Hancock
Jones
Baldwin
Washington
Wilkinson
Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia
Legend
Project Boundary
Georgia Counties
N
Figure 1
Project Location
0 3 6
Miles
corblu ECOLOGY GROUP
GEORGIA POWER
A SOUTHERN COMPANY



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- **Public Lands**
  - GDNR (Redlands Wildlife Management Area)
  - U.S. Forest Service (Oconee National Forest
  - USG Board of Regents
  - GDNR (Oconee Wildlife Management Area)
  - GDNR (Cedar Creek Wildlife Management Area)
  - GDNR (B.F. Grant Wildlife Management Area)

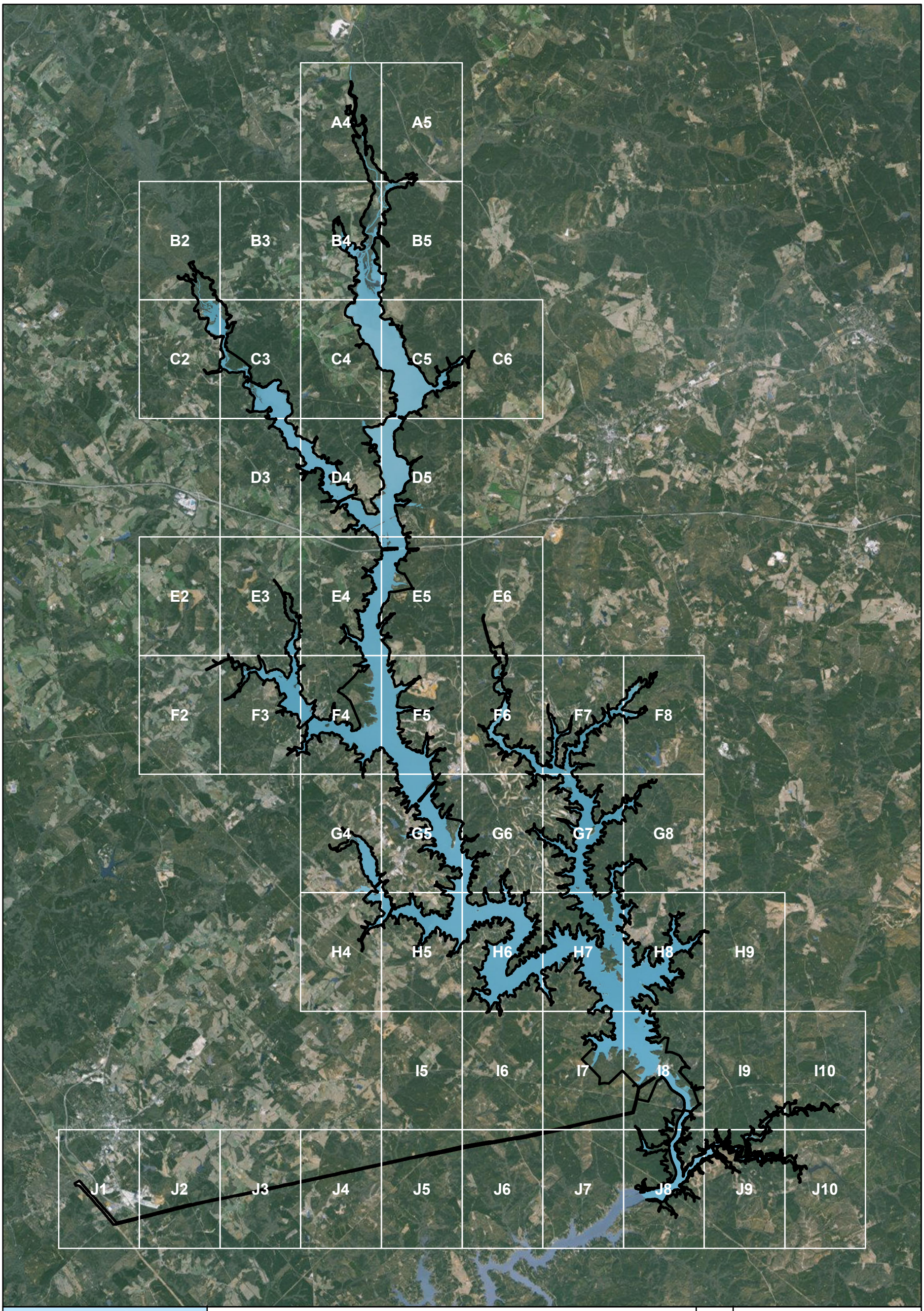
N

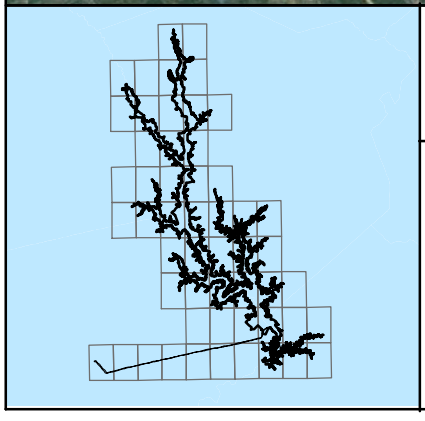
Figure 2
Public Lands in Vicinity of Project

0 1.5 3 Miles

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY





Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

Project Boundary

Map Index

N

Figure 3
Species Map Index

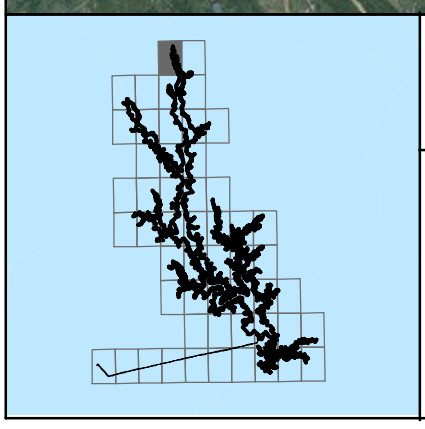
0 1.5 3 Miles

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

A4 A5
B2 B3 B4 B5
C2 C3 C4 C5 C6
D3 D4 D5
E2 E3 E4 E5 E6
F2 F3 F4 F5 F6 F7 F8
G4 G5 G6 G7 G8
H4 H5 H6 H7 H8 H9
I5 I6 I7 I8 I9 I10
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10

Source: Georgia Department of Natural Resources, Wildlife Resources Division - 2014



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Georgia DNR Species Occurrence

- Oglethorpe Oak
- Bald Eagle
- Pool Sprite
- Harperella
- Mat-forming Quillwort
- Sun-loving Draba

N

Figure 4
Georgia DNR RTE
Species Occurrences

0 1.5 3 Miles

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

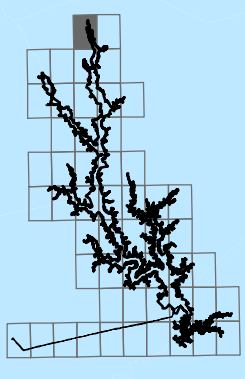
A4

A5

B3

B4

B5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 5 - A4
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

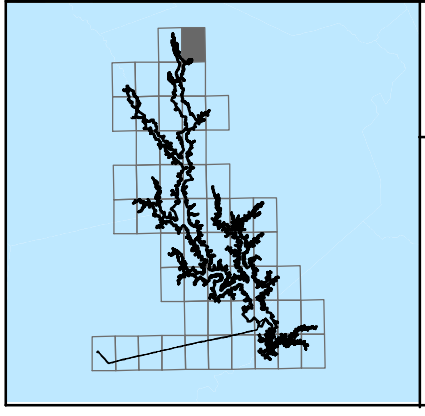
GEORGIA POWER
A SOUTHERN COMPANY

A4

A5

B4

B5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 6 - A5
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

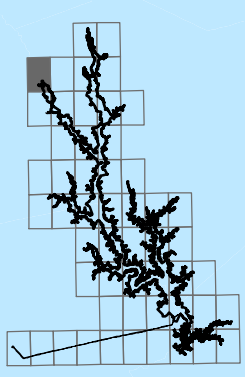
GEORGIA POWER
A SOUTHERN COMPANY

B2

B3

C2

C3



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 7 - B2
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

A4

B2 B3 B4

C2 C3 C4

Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 8 - B3
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

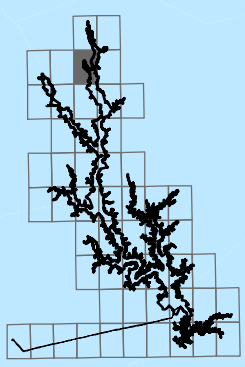
corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

A4 A5

B3 B4 B5

C3 C4 C5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

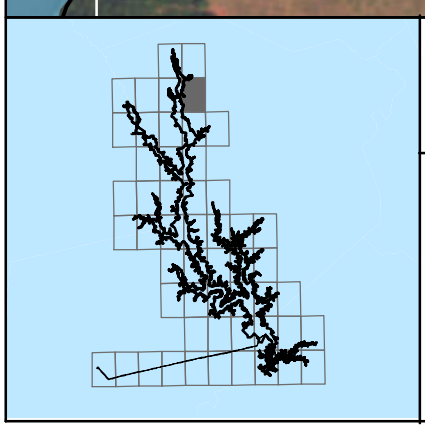
N

Figure 9 - B4
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

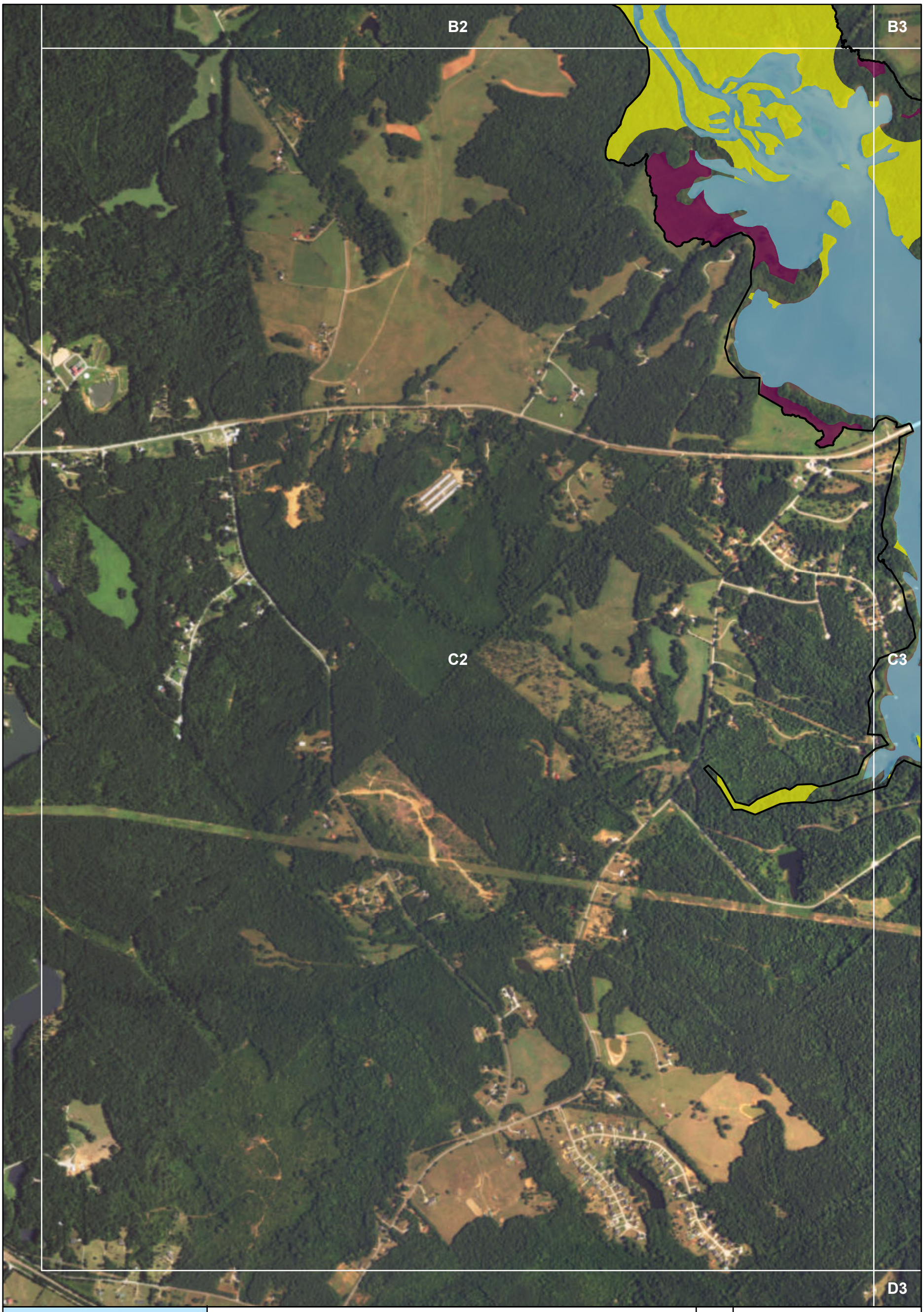
N

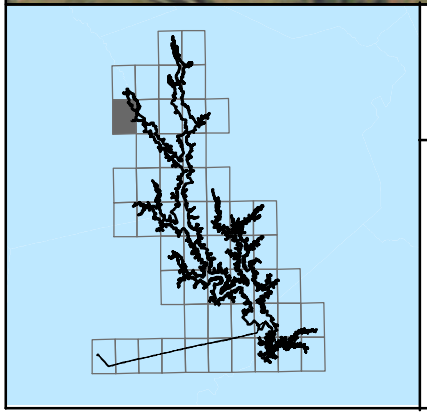
Figure 10 - B5
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY





Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

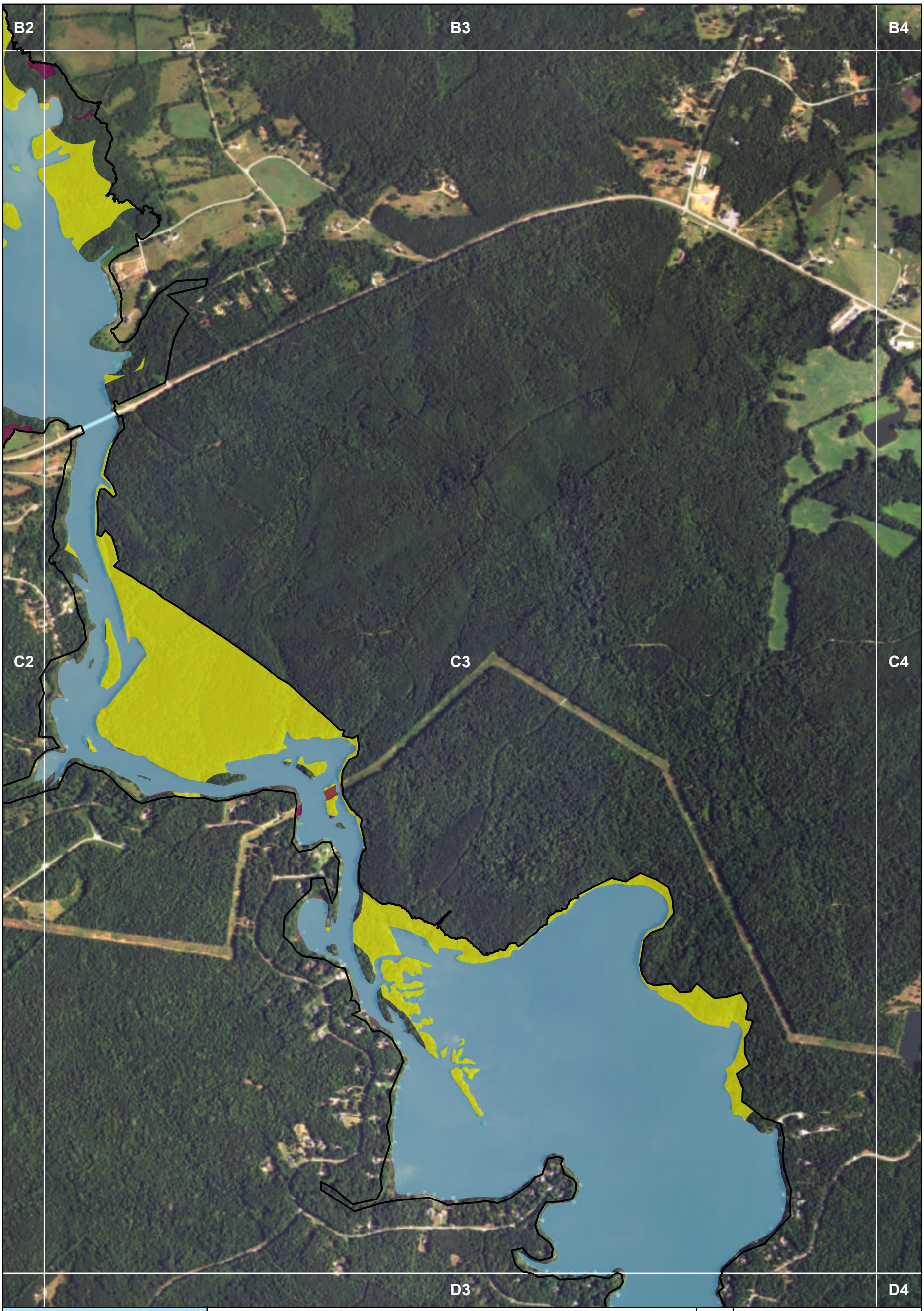
N

Figure 11 - C2
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 12 - C3
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

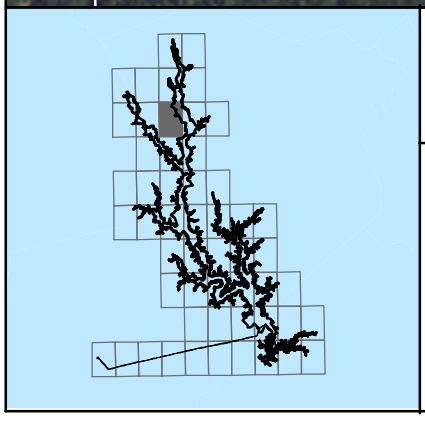
corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

B3 B4 B5

C3 C4 C5

D3 D4 D5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 13 - C4
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

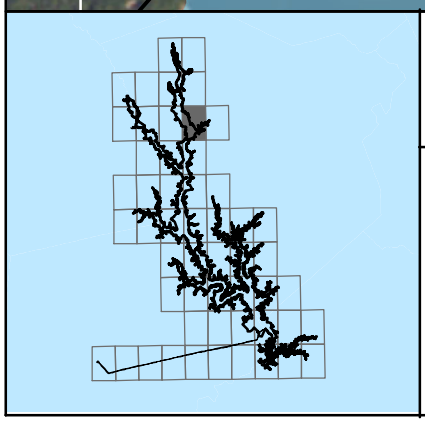
corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY

B4 B5

C4 C5 C6

D4 D5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

Project Boundary
Map Index
Lake Oconee

Species Observations

Bald Eagle
Bachman's Sparrow
Pool Sprite

Potential Habitats

Bald Eagle
Pool Sprite
Bachman's Sparrow

N

Figure 14 - C5
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

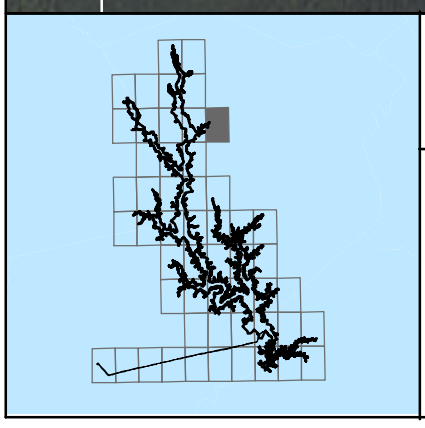
GEORGIA POWER
A SOUTHERN COMPANY

B5

C5

C6

D5



Wallace Dam Hydroelectric Project (FERC No.2413)
Morgan, Greene, Putnam & Hancock Counties, Georgia

Legend

- Project Boundary
- Map Index
- Lake Oconee

Species Observations

- Bald Eagle
- Bachman's Sparrow
- Pool Sprite

Potential Habitats

- Bald Eagle
- Pool Sprite
- Bachman's Sparrow

N

Figure 15 - C6
RTE Species
Occurrences & Habitats

0 800 1,600
Feet

corblu ECOLOGY GROUP

GEORGIA POWER
A SOUTHERN COMPANY