ALABAMA POWER COMPANY

BIRMINGHAM, ALABAMA

MARTIN HYDROELECTRIC PROJECT

FERC NO. 349

STUDY PLAN 5 – RARE, THREATENED, AND ENDANGERED SPECIES SURVEYS

MARCH 2009

Prepared by:

ALABAMA POWER
A SOUTHERN COMPANY

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BIRMINGHAM, ALABAMA

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TABLE OF CONTENTS

LIST OF TABLES

STUDY PLAN 5 – RARE, THREATENED, AND ENDANGERED SPECIES SURVEYS

1.0 GOALS AND OBJECTIVES OF STUDY

The U.S. Fish and Wildlife Service (USFWS) and the Alabama Department of Conservation and Natural Resources (ADCNR) (agencies) are concerned about the presence of any Federal and/or State Rare, Threatened, and Endangered (RTE) species that currently reside within the Martin project boundary.

The goal of this study is to identify the location and abundance of any RTE species within the project boundary and determine if project operation potentially impacts any species present. If there are project related impacts, the agencies would like to determine ways to limit those impacts. The agencies would also like to determine if there are opportunities to enhance or reintroduce species to specific areas within or near the project.

2.0 RELEVANT RESOURCE MANAGEMENT GOALS

The USFWS has mandatory federal authority under Section 7 of the Federal Power Act to identify and limit the impacts of hydropower projects on any Federally protected Threatened or Endangered species within the project boundary. A potential impact is fragmentation of species populations by the project and reduction of connectivity of populations. The ADCNR has developed a policy to enhance RTE species through protection of habitat, supplemental stocking, and/or reintroduction of species to historic habitats. Protection and or enhancement of any populations of RTE species within the project boundary would be a positive action for sustaining any RTE species identified.

3.0 BACKGROUND AND EXISTING INFORMATION

The Martin Preliminary Application Document (PAD) identified several federally protected species that are present in the Tallapoosa Basin and may be present in the Martin Project Boundary (Table 1). Preliminary surveys were performed during 2006 for unionids (mussels and snails), red cockaded woodpecker (RCW), and bald eagles within the project boundary. Although no RTE species were detected during these surveys. Alabama Power has agreed to perform additional surveys of aquatic and terrestrial habitats as outlined in Section 6 of this Study Plan.

Table 1: Federally Threatened, Endangered, and Candidate Species in Alabama Counties Occupied by the Martin Project (Source: United States Fish and Wildlife Service, 2006a)

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS[1]	COUNTY OF OCCURRENCE	OCCURRENCE IN BASIN[2]	DOCUMENTED HISTORIC RANGE IN AL[3]
Picoides borealis	Red-Cockaded Woodpecker	E	Coosa & Tallapoosa	Y	Statewide in appropriate habitat
Haliaeetus leucocephalus	Bald Eagle	P	Coosa, Elmore & Tallapoosa	Y	Statewide
Cyprinella caerulea	Blue Shiner	T	Coosa	N	Cahaba River, Coosa River system above fall line
Tulotoma magnifica	Tulotoma Snail	E	Coosa & Elmore	N	Coosa and Alabama River systems
Pleurocera foremani	Rough Hornsnail	C	Elmore	N	Coosa and Cahaba River systems
Leptoxis foremani	Interrupted rocksnail	C	Elmore	N	Coosa River system, from headwaters in GA downstream to Elmore Co.
Pleurobema georgianum	Southern Pigtoe Mussel	E	Coosa	N	Coosa River system
Hamiota altilis	Fine-lined Pocketbook Mussel	T	Coosa, Elmore & Tallapoosa	Y	Coosa, Tallapoosa, Cahaba River systems
Sagittaria secundifolia	Kral's Water-Plantain	T	Coosa	N	Little River Canyon in Coosa River Basin, West Sipsey Fork in the Warrior Basin, and Town Creek in Tennessee Basin (USFWS, 1991)
Sarracenia rubra alabamensis	Alabama Canebrake Pitcher Plant	E	Elmore	N	Coosa River Basin (USFWS, 1992)
Arabis georgiana	Georgia Rockcress	C	Elmore	Y	Gulf Coastal Plain, Piedmont, and Ridge and Valley physiographic provinces of Alabama and Georgia (USFWS, 2005)
Amphianthus pusillus	Little Amphianthus	T	Tallapoosa	Y	Granite outcrops in Piedmont of SC, GA, AL (USFWS, 1993)

1 E = Federally listed as Endangered, T = Federally listed as Threatened, C = Candidate for federal listing, P = not federally listed, but protected under Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act.

2 Indicates known or historic occurrence in the Tallapoosa River Basin.

3 Historic range as summarized in Mirarchi et al. (2004) unless otherwise cited.

4.0 PROJECT NEXUS

The study would determine if there are existing populations of RTE species within the Martin project boundary or in the Tallapoosa River downstream of Thurlow Dam consistent with the geographic scope described in Section 5.0. Fragmentation of the populations by the project is one area of effect to consider.

5.0 STUDY AREA AND STUDY SITES

Alabama Power has identified Martin Project operation-related effects downstream to the USGS river gauge at Montgomery Water Works located on the Tallapoosa River at RM 12.9. The proposed geographic scope for this study would include the Tallapoosa River from the Project to the Montgomery Water Works river gauge. Alabama Power has selected the Montgomery Water Works location for three primary reasons. Having a geographic scope that includes 30+ miles below the Project will account for the principal effects of Martin's operations downstream. Also, the Montgomery Water works location has 18+ years of gage data that would be available for use in depicting elevations and Martin Project related effects on that gage. Finally, keeping the geographic scope limited to the Montgomery Water Works, compared to expanding the scope to the confluence of the Coosa and Tallapoosa Rivers, would minimize the hydrologic complexity of the Coosa and Alabama Rivers operations and intervening flows. Keeping the geographic scope to the Montgomery Water Works would focus on the effects of the Martin Project operations, including low, normal and high flow operations.

6.0 PROPOSED METHODOLOGY

The overall purpose of this study would be to gather additional data for determination of the presence and location of RTE species within the project boundary and to determine if project operations affect these populations.

Aquatic Species

Consultation with the USFWS and ADCNR have identified specific species of interest, areas of collection, and collection methodology for aquatic habitats. Field surveys will be performed by qualified investigators in the areas of interest (Table 2). These surveys will determine the presence or absence of RTE species within the project boundary.

The USFWS and ADCNR recommended several new sites (Table 2), including additional surveys at sites surveyed in 2006. Species of interest (based on the USFWS Feb. 17, 2009 comment letter) are presented in Table 3. Sites will be surveyed for fish, mussels, and snails at or slightly upstream of the summer pool elevation (491 msl) or at a

specific area as listed in Table 2. Qualitative surveys will be conducted at each site during 2009. Additional RTE distribution data will also be collected from existing sources and experts as identified by the MIG1 during 2009. If the presence of RTE species or "high quality" habitat for RTE species is detected during the qualitative surveys, a follow-up survey in 2010 may be recommended by the USFWS.

Table 2: Rare, Threatened, and Endangered Species Sample Sites for 2009

SITE NAME	LAST SAMPLED FOR MOLLUSKS	APPROXIMATE LOCATION	NOTES
Tallapoosa River	July 28-30, 2006 (1 hr bottom time)	at Irwin Shoals	Survey in 2009
Tallapoosa River	July 28-30, 2006 (1 hr bottom time)	between Irwin Shoals & Jaybird Creek	Survey in 2009
Tallapoosa River	July 28-30, 2006 (.75 hr bottom time)	below mouth of Jaybird Creek	
Timbergut Creek			Survey in 2009
Hillabee Creek	July 28-30, 2006 (~15 min bottom time)	in Martin pool	
Hillabee Creek	July 28-30, 2006 (~1.75 hr bottom time)	above rocks at Hwy 22	Compile existing survey data from Auburn
Coley Creek			Survey in 2009
Elkahatchee Creek			Survey in 2009
Chapman Creek			Survey in 2009
Parker Creek			Survey in 2009
Johnson Creek			Survey in 2009
Little Kowaliga Creek			Survey in 2009
Manoy Creek	July 28-30, 2006 (~30 min bottom time)	3 locations near creek mouth	Survey in 2009
Sandy Creek	July 28-30, 2006 (~30 min bottom time)	in Martin pool	
Sandy Creek	July 28-30, 2006 (~1.1. hr bottom time)	upstream and downstream of Hwy 49 bridge	Survey in 2009
Blue Creek	July 28-30, 2006 (~ 20 min bottom time)	In Martin pool near creek mouth	Survey in 2009
Tallapoosa River (tailrace)	July 28-30, 2006 (~1 hr bottom time)	Several locations between dam and head of Island	Survey in 2009
Wind Creek			Survey in 2009
Tallapoosa River downstream of Thurlow Dam		Site One located between RM 10 and RM 49 (Thurlow Dam)	Specific site will be selected by USFWS
Tallapoosa River downstream of Thurlow Dam		Site Two located between RM 10 and RM 49 (Thurlow Dam)	Specific site will be selected by USFWS

Table 3: Threatened, Endangered and State Priority Species of Interest

(Source: US Fish and Wildlife Service – letter dated Feb. 17, 2009)

	COMMON NAME	SCIENTIFIC NAME	STATUS
Mussels			
	Delicate Spike	Elliptio arctata	P1
	Ovate clubshell	Pleurobema perovatum	P1, E
	Rayed creekshell	Anodontoides radiatus	
	Finelined pocketbook	Hamiota altilis	P2, E
	Black sandshell	Ligumia recta	P2
	Southern clubshell	Pleurobema decisum	P2, E
	Alabama heelsplitter	Lasmigona alabamensis	P2
	Alabama creekmussel	Strophitus connasaugaensis	P2
	Alabama spike	Elliptio arca	P1
	Alabama moccasinshell	Medionidus acutissimus	P2, T
Crayfish			
	Tallapoosa crayfish	Cambarus englishi	P2
	Slackwater crayfish	Cambarus halli	P2
	Chattahoochee crayfish	Cambarus cracens	P2
Fish			
	Alabama sturgeon	Scaphirhynchus suttkusi	P1
	Gulf sturgeon	Acipenser oxyrinchus desotoi	P2
	Alabama shad	Alosa alabamae	P2
	Lipstick darter	Etheostomoa chuckwachatte	P2
Reptiles			
	Alligator snapping turtle	Chelydra serpentina	P2
Plants			
	Little amphianthus	Amphianthus pusillus	T
	Alabama canebrake pitcher plant	Sarracenia rubra alabamensis	E
Birds			
	Red-cockaded woodpecker	Picoides borealis	T
	Bald eagle	Haliaeetus leucocephalus	

P1: Priority 1 – Highest Conservation Concern
P2: Priority 2 – High Conservation Concern
T: Federally listed as Threatened
E: Federally listed as Endangered

Qualitative fish community surveys will be conducted between July and October 2009. The fish community at each site (Table 2) will be sampled using either boat electrofishing or backpack electrofishing in combination with seining. Sampling will focus on identifying the range of species present at each sampling site.

Boat electrofishing sampling will be used to sample predominantly "deep sites" (greater than 2 feet deep) and will consist of up to 20 minutes of electrofishing at each site. Within each sampling site, all microhabitats (pools, riffles, runs, brush piles, stumps, boulders, etc.) will be sampled in an attempt to clearly describe the fishery community present. All stunned fish will be collected during sampling, placed in a live well or collection container and identified to species.

Backpack daytime electrofishing and seining will be used to sample the fish community at sites that are predominantly "shallow" (less than 2 feet deep). Up to 20 minutes of sampling will be used at each site. Sampling can include a combination of a seine haul through a pool, a seine set in a riffle or run where fishes are shocked into the seine, or a set length of shoreline shocked for fish. Within each sampling site, all microhabitats (pools, riffles, runs, brush piles, stumps, boulders, etc.) will be sampled in an attempt to clearly describe the fishery community present. All stunned fish will be collected during sampling, placed in a live well or collection container and identified to species.

Any problematic species identifications will be collected and preserved in 10% formalin or on ice and returned to the lab for identification and enumeration and addition to the data sheet. Other information pertinent to collections will also be recorded (date, time, weather conditions, sample location, collection technique, sampling effort, water temperature, DO, and secchi disc, etc.) as directed on each data sheet.

Qualitative mussel and snail surveys would be conducted at the locations listed in Table 2 between May and October 2009. Sampling will include up to 1-hour of timed qualitative searches performed by a diver (using a surface-supplied air dive system equipped with a hardwire communication system) in deep stream sections or by wading/snorkeling in shallow stream sections. Most searches will be of 10 minutes in duration, but may extend longer when varying substrates were encountered. The surveyor will place all mussels and snails found during a search into a mesh bag and bring them to the surface for identification. Mussels will be identified and returned to the river bottom. Snails will be preserved for later identification. If a search encounters abundant snails and/or Asiatic clams (*Corbicula*), a representative sub-sample will be collected and sorted at the surface. All field data such as GPS coordinates, water depth, visibility, substrate type, dive times, and mussel/snails collected will be documented at each search location.

The USFWS has asked to reserve the ability to request additional sampling during 2010 as needed. They may request additional quantitative fish, mussel, and snail surveys at specific sites based on the results of the 2009 RTE sampling and report. In addition, the information developed during the qualitative fish community surveys in 2009 may justify the collection of some limited migratory fish data at a reduced number of locations in the Lake Martin area during 2010. Sampling would include a variety of sampling techniques (e.g., electrofishing, gill netting, etc.). Alabama Power has provided as much detail for this request as possible based on current information.

Terrestrial Species

As previously stated, Alabama Power performed surveys for RCW and bald eagle during 2006. Extensive areas of long-leaf pine habitat were surveyed but no active colonies of RCW were observed within the project boundary. Several bald eagle nests have been observed over several years as part of the annual bald eagle surveys. The locations of the currently active nests is well documented.

Two other terrestrial plant species of concern that are currently known to exist in the Tallapoosa Basin are Georgia rockcress and little amphianthus (Table 1). To assess the presence of these species within the project boundary, Alabama Power will consult with an expert Botanist to review habitat requirements for these two species. This will be compared with habitats available within the project boundary using LIDAR data, topography, and soil maps. Areas that exhibit the necessary habitat characteristics will be surveyed to determine the presence or absence of these two species. Each area surveyed will be documented on a survey data sheet (i.e. date, location, habitat type, species present, etc.). Alabama Natural Heritage Program sighting forms will be completed for each rare plant population located. Sighting forms document each population and include detailed information, such as size of area occupied, habitat description, and associated plant species. Locations of populations will be mapped with the aid of a geographic positioning (GPS) unit and depicted on physical and electronic maps. Rare plant species will be photographed (close-ups of individual plants and more general habitat shots).

Data Analysis

The collected data will be summarized into a list of species collected at each site surveyed. Any threatened or endangered species observed and their habitat "requirements" will be included in the 2009 study report. GIS overlays of results will also be provided to the agencies and incorporated into other studies as necessary. The USFWS will use this information to determine if a recommendation for additional sampling in 2010. Ultimately all RTE data collected will be used by Alabama Power to develop a Biological Assessment in cooperation with USFWS as part of the required Section 7 Consultation needs.

7.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE

This study employs generally accepted practices for evaluating RTE distributions at hydroelectric projects. The study methodology provided here was recommended by the USFWS and the ADCNR and is consistent with generally accepted sampling principles and practices for fish and unionid communities.

8.0 PRODUCTS

This study will produce a report of RTE locations, including maps (both electronic and hard copy)[1], within and/or adjacent to the Lake Martin Project. This information will also be used to prepare a Biological Assessment for threatened and endangered species.

Data and analyses from this study will be included in periodic reports to ADCNR, USFWS, and the MIG 1. Draft reports will be distributed to the MIG 1 for review and comment upon completion of the product. Final reports will be provided for each product as part of the draft license application and will contain all necessary data in tabular and graphic form to depict RTE abundance and/or distribution within the Lake Martin Project.

9.0 SCHEDULE

This schedule corresponds to Alabama Power's Process Plan and Schedule filed with FERC on February 16, 2009. Actual consultation meeting dates will be determined with MIG 1 members upon FERC approval of the study plan.

Identify Field Survey sites .....October 2008
Alabama Power files Final Study Plan .....March 2009
FERC Approval .....April 2009
MIG 1 Consultation .....May 2009 – December 2010
Conduct Field Surveys..... May – October 2009
Initial Study Report.....November 2009
Initial Study Report Meeting .....December 2009
Finalize Report of Surveys.....January 2010
Draft Report .....June 2010
Final Report ..... September 2010
FERC Updated Study Report..... September 2010
Updated Study Report Meeting ..... September 2010

10.0 LEVEL OF EFFORT AND COST

Alabama Power estimates the cost of consulting on the study plan, developing the RTE database, performing field surveys, and preparing a report is approximately $150,000 based on the number of sites identified for field surveys. The total number of terrestrial survey sites is not know at this time and may influence this estimate.

11.0 REFERENCES

Alabama Power Company. 2008. Preliminary Application Document for the Martin Hydroelectric Project (FERC No. 349). Alabama Power Company, Birmingham, AL.

[1] RTE location information is viewed as sensitive information and will not be distributed beyond state and federal agencies.