

Appendix D: Protected Species Assessment

CAMP HALL RAIL PROJECT



**Palmetto Railways
540 East Bay Street
Charleston, South Carolina**

25 July 2017

July 27, 2017

Mr. Mark Caldwell
U. S. Fish & Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

**SUBJECT: Protected Species Assessment
23-mile corridor, approximately 866 acres
Pringletown to Cross, Berkeley County, South Carolina**

Dear Mr. Caldwell:

This letter initiates Informal Consultation with the U.S. Fish and Wildlife Service (USFWS), Charleston Field Office, under Section 7 of the Endangered Species Act regarding the project area referenced above.

PROJECT LOCATION AND LIMITS / PROPOSED ACTION

An investigation was conducted on approximately 866 acres located in rural Berkeley County. The corridor is being considered by Palmetto Railways, a division of the SC Department of Commerce, as a route to provide rail service to the new Volvo manufacturing plant. Therefore, Palmetto Railways is conducting necessary due diligence activities. Present owners of the properties that include the route are primarily Weyerhaeuser (previously Plum Creek and MeadWestvaco), Santee Cooper, with smaller parcels owned by additional private entities. The corridor begins at the proposed Volvo Plant in Pringletown, Berkeley County, South Carolina, off of SC HWY 176 and ends near the Cross Generating Station in Cross, Berkeley County, South Carolina. An approximately 200-foot wide area was assessed for the majority of the corridor, plus some expanded areas where minor alternatives in the original alignment may be considered. The proposed action to occur on site is the construction of a new railroad line connecting the Volvo plant to an existing rail line in Cross. The proposed action will include a timber harvest and site preparation, the deposition of fill material, and construction of the rail line. The width of the final impacted area is anticipated to be 42 to 55 feet along most of the corridor except 175 feet on the approaches to the Diversion Canal. In those areas where a secondary track or pull off area is required, the corridor will be wider. The proposed impacts to wetlands will be mitigated in accordance with US Army Corps of Engineers and SC Department of Health and Environmental Control (DHEC) requirements.

HABITAT DESCRIPTION

The railroad corridor consists of **upland pine forest, planted pine forest, upland hardwood forest, gum pond, Carolina bay, bottomland hardwood forested wetlands, open water and agriculture fields**. Age classes for habitat types were based upon observation of tree size and height as well as site index for the area. Increment Borings were not taken.

The **upland pine forest** habitat was characterized by having an overstory composed primarily of loblolly pine (*Pinus taeda*) with some interspersed longleaf pine (*P. palustris*). Cover ranged from 40-70% in the overstory. The upland pine forest habitat found within and immediately adjacent to the corridor ranged from new growth to approximately 50 years old; however, nothing within this habitat type was considered to be old growth. The midstory was composed of loblolly pine, sweetgum (*Liquidambar styraciflua*), and farkleberry (*Vaccinium arboreum*) with a cover ranging from 10-30%. The shrub layer was sparse, with 10-20% cover consisting of wax myrtle (*Morella cerifera*), farkleberry, redbay (*Persea borbonia*) and deerberry (*Vaccinium stamineum*). The herbaceous layer was healthy, at approximately 30-50% cover, and was composed primarily of bracken fern (*Pteridium aquilinum*), broomstraw (*Andropogon virginicus*), longleaf woodoats (*Chasmanthium sessiliflorum*), dogfennel (*Eupatorium capillifolium*), panic grass (*Panicum sp.*), and slender lespedeza (*Lespedeza virginica*). Vines were present in both stages of management with muscadine (*Vitis rotundifolia*), greenbriar (*Smilax sp.*), and sawtooth blackberry (*Rubus argutus*) making up approximately 10% of the cover. This natural upland pine community was only found within areas of Santee-Cooper ownership and on the Cross Generating Station Wildlife Management Area (WMA). This area was characterized by infrequent low-intensity prescribed burns.

The **upland hardwood forest** occupied a small area of the corridor, and was generally found on the ecotone of the project area between uplands and wetland areas. Overstory composition was generally composed of white oak (*Quercus alba*), live oak (*Quercus virginiana*), southern red oak (*Quercus falcata*) and pignut hickory (*Carya glabra*), with water oak (*Quercus nigra*) found on the lower slopes leading to the wetlands. Overstory closure ranged from 40-60%. The age classes found within this habitat type ranged from new growth to approximately 50 years old. No old growth was found within or adjacent to the corridor within this habitat type. The midstory (10-25% cover) consisted of pignut hickory, sweetgum, red oak, red maple (*Acer rubrum*), American hornbeam (*Carpinus caroliniana*), and American holly (*Ilex opaca*). Shrub layers were sparse (0-10% cover), and consisted of redbay (*Persea borbonia*) and wax myrtle. The herbaceous layer was

sparse, approximately 0-10% cover, and was composed primarily of bracken fern, cinnamon fern (*Osmunda cinnamomea*), broomstraw, and longleaf woodoats.

The **planted pine forest** habitat was characterized by an overstory composed primarily of loblolly pine. These areas were intensively managed for silviculture with a first thinning occurring typically at ages 12-15 years old, followed by a clearcut at 25-30 years old. Age classes along the corridor spanned from new growth to approximately 30 years old. These areas were bedded and extensively ditched. The planted pine forest habitat covered 70-80% of the corridor. The corridor spans multiple stands of pines, ranging from open thinned (70-80 Basal Area [BA]) stands to dense, pre-merchantable stands (140 BA). As a result of recent clearcut harvests on site there were areas with no overstory or midstory present. In the thinned pine areas (70-80 BA), there was a midstory of sweet gum and red maple with approximately 10-20% cover. In the denser pine areas (140 BA) there was no midstory or shrub layer due to 90-100% overstory cover. In the open thinned pine stands the shrub layer consisted of wax myrtle, redbay, fetterbush (*Lyonia lucida*), and *Vaccinium*, with 10-30% cover. The herbaceous layer was also somewhat sparse, approximately 0-10% cover, and was composed primarily of dwarf palmetto (*Sabal minor*), longleaf woodoats, plumegrass (*Saccharum giganteum*), switchcane (*Arundinaria tecta*), Virginia chain fern (*Woodwardia virginiana*), cinnamon fern, and netted chain fern (*Woodwardia areolata*). Sphagnum moss (*Sphagnum sp.*) was also present within some of the wetland areas.

Several depressional **gum pond** wetlands were interspersed along the corridor. These wetlands are seasonally inundated and characterized by age classes ranging from new growth to approximately 30 years old. No old growth was found within this habitat type. The overstory was composed of black gum (*Nyssa sylvatica*), laurel oak (*Q. laurifolia*), willow oak (*Q. phellos*), sweet gum, red maple, and in larger gum ponds that were semi-permanently flooded, pond cypress (*Taxodium ascendens*), was found. The overstory cover ranged from 20-40% in the overstory. The midstory was sparse, approximately 10% cover, consisted of black gum, sweet gum, and red maple. The shrub stratum was composed of sweet gallberry (*I. coriacea*), fetterbush, and redbay. The understory cover was variable, ranging from open water to 100% cover. Species in this stratum included smartweed (*Polygonum spp.*), arrowhead (*Sagittaria lancifolia*), soft rush (*Juncus effusus*), switchcane, netted chain fern as well as various other grasses and sedges. Few vines occurred within the gum pond habitat due to periods of inundation, but around the margins some vine species were identified including poison ivy (*Toxicodendron radicans*) and laurel leaf smilax (*Smilax laurifolia*).

A few **Carolina bay** depression wetlands were located within the project corridor. These wetlands are seasonally to perennially inundated based upon their size. The genesis of this depressional habitat has been debated, although Piovan and Hodgeson (2016) found nine distinct qualities were common to all Carolina bays: 1) oval shaped; 2) oriented northwest to southeast; 3) parallelism of the long axis; 4) sand rims above general elevation; 5) interior surface below the general elevation; 6) different soils within sand rim and outside of sand rim; 7) shallow; 8) flat sandy bottom; 9) naturally isolated features. Within the corridor there were five Carolina bays, four of which are named, including Bulltown Bay, Skeleton Bay, Todd Bay, and Beech Island Bay. Much of these areas were ditched and either partially or entirely planted in loblolly pine, which are now approximately 10 to 30 years old. Within the remnant habitat, red maple, swamp tupelo, and pond cypress dominated the overstory at 30-40% cover with the oldest reaching approximately 50 years of age. No areas within this habitat type are considered old growth. The midstory was sparse, consisting of the same species found in the overstory. Within more seasonally wet Carolina bays, a shrub and herbaceous layer was present consisting of redbay, dwarf palmetto, and fetterbush in the shrub layer, with various grasses and sedges making up the herbaceous layer. Perennial flooded bays had no shrub or herbaceous vegetation present.

The **bottomland hardwood forested wetland** habitat was characterized by having an overstory composed of bald cypress (*Taxodium distichum*), water oak, swamp tupelo (*Nyssa biflora*) and swamp chestnut oak (*Quercus michauxii*). Overstory closure ranged from 30-50%, characterized by an age class from 10 to 50 years old. No old growth was found within or immediately adjacent to the project area. The midstory was composed of bald cypress, black gum, sweetgum, and swamp tupelo characterized by having a cover ranging from 10-20%. The shrub and herbaceous layer were also somewhat sparse, approximately 0-10% cover, and was composed primarily of dwarf palmetto, switchcane, sphagnum moss, Virginia chain fern, and cinnamon fern. Standing water was present within most of the bottomland hardwood forest habitats. Defined stream channels occurred in several areas within this habitat. Flow was characterized as relatively permanent, or perennial, flow.

The project corridor crosses **open water** across the diversion canal between the Santee-Cooper lakes. This body of water was excavated in 1941. The canal is 7.5 miles long, approximately 500 feet wide, and approximately 12 feet deep. The bottom consists of sand and clay, with some sediments washed downstream from the Santee River. There is very little organic material or vegetation in this part of the canal and it was last dredged in 2014 to remove accumulated silt and sediments on the Lake Moultrie side of the canal.

The diversion canal was once an important access for inland maritime trade, but today is used primarily for recreational access between the lakes.

Several small **agricultural fields** existed within the project corridor, primarily as wildlife food plots. Common planted vegetation included chufa, wheat, peas and soybeans. In areas that were not planted, a variety of native grasses dominated, including: broomstraw, chalky bluestem (*Andropogon capillipes*), dog fennel, switchgrass (*Panicum virgatum*), and tapered rosette grass (*Dichanthelium acuminatum*). These areas are routinely disked and cultivated.

LISTED SPECIES AND HABITAT REQUIREMENTS

Prior to field investigations, we consulted multiple sources including: March 30, 2017 update of the South Carolina List of Endangered, Threatened and Candidate Species for Berkeley County provided to us by the USFWS, the South Carolina Department of Natural Resources (SCDNR) Rare, Threatened & Endangered Species Inventory, the SCDNR Heritage Trust Program, Information Planning and Conservation tool ((IPaC) (Consultation Code: 04ES1000-2017-SLI-0523, Event Code: 04ES1000-2017-E-01064)) and the SCDNR Eagle Nest Survey. Julie Holling, Kathy Boyle, and Caroline Causey of SCDNR were also contacted to determine what protected species may occur on the project site and approximate locations of any red-cockaded woodpecker occurrences nearby. Based on the list for Berkeley County, and multiple site visits dating between April 20, 2016 and June 1, 2017, the list of potentially occurring species was narrowed as follows:

Common Name	Scientific Name	Listing Status
American chaffseed	<i>Schwalbea americana</i>	Federally Endangered
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Federally Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	B&GEPA
Canby's dropwort	<i>Oxypolis canbyi</i>	Federally Endangered
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	Federally Threatened
Pondberry	<i>Lindera melissifolia</i>	Federally Endangered
Red-cockaded woodpecker	<i>Picoides borealis</i>	Federally Endangered
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Federally Endangered
West Indian manatee	<i>Trichechus manatus</i>	Federally Threatened
Wood stork	<i>Mycteria americana</i>	Federally Threatened

American chaffseed – American chaffseed (*Schwalbea americana*) occurs in sandy, acidic, seasonally moist to dry soils. Habitats where it most commonly occurs include open, moist pine flatwoods, fire-maintained savannas, ecotones between peaty wetlands and xeric sandy soils, and other open grass-sedge systems. American chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables that maintain the open, early successional conditions that it requires (USFWS 1995). Often associated with chaffseed habitat are quail and red-cockaded woodpeckers. The land management necessary to maintain these species benefits chaffseed as well. American chaffseed is not capable of long-term dormancy within the soil which reflects its need for early successional habitat and periodic disturbance that is mimicked by prescribed fire (USFWS 2008).

Atlantic sturgeon – The Atlantic sturgeon (*Acipenser oxyrinchus*) is an anadromous species of fish found on the Atlantic coast of North America. It inhabits marine, estuarine, and freshwater reaches of the major river basins along the Atlantic coast from North Florida to New Brunswick, Canada. Atlantic sturgeons are similar in appearance to shortnose sturgeons; however, differences lie in the larger body size, smaller mouth, and different snout shape of the Atlantic sturgeon. They are bluish-black to olive on the back and white or pale brown underneath. Atlantic sturgeon spawn in moderately flowing water, typically in deep rivers. Preferred spawning habitats include high-gradient rapids-complex river sections with cobble, bedrock, gravel and coarse sand substrates. When not spawning, adults frequent coastal waters and estuaries (NOAA 2012).

Bald eagle - The bald eagle (*Haliaeetus leucocephalus*) was once endangered throughout the 48 contiguous states except for the populations in Washington, Oregon, Minnesota, Wisconsin and Michigan, which were classified as threatened. In 2007, the U.S. Fish and Wildlife Service published a notice of delisting of the bald eagle from the endangered species list. Despite its delisting, the bald eagle remains protected under the Bald and Golden Eagle Protection Act (B&GEPA) and the Migratory Bird Treaty Act. The (B&GEPA) dates to 1940 and provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof". Further, the Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or

3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

(16 U.S.C. 668-668d, 54 Stat. 250).

The bald eagle is primarily associated with coasts, rivers and lakes, usually nesting near bodies of water where it feeds. An opportunistic predator, the bald eagle feeds primarily on fish but also takes a variety of birds, mammals and turtles (both live and as carrion) when fish are not readily available (USFWS 1989).

Canby's dropwort – Canby's dropwort (*Oxypolis canbyi*) is a perennial herb, which grows 0.8 to 1.2 meters tall. The "quill-like" leaves are slender, terete, hollow and septate. The compound umbels of small five parted flowers appear from mid-August to October with white petals and pale green sepals (USFWS 1990). The plant resembles a mature Queen Anne's lace and has a slight dill fragrance.

Typical habitat for Canby's dropwort includes wet meadows, wet pineland savannas, ditches, sloughs, and around the edges of cypress ponds (USFWS 2006). The largest and most vigorous populations have been found to occur in open bays or ponds that are wet throughout most of the year but which have little or no canopy cover. Canby's dropwort occupies sandy loams or acidic peat-mucks, followed by an underlying layer of clay, which results in water retentive habitat. Also, these soils usually contain high organic matter, are poorly drained, and contain a high water table. Water requirements for the plant are very narrow, with too much or too little being detrimental to the plant. Plants seem to be most successful in shallow inundation, with depths from 2 to 12 inches (USFWS 1990).

Frosted flatwoods salamander – The frosted flatwoods salamander (*Ambystoma cingulatum*) is a small (9-13.5 cm total length), elongate species in the mole salamander family (Ambystomatidae), which are characterized as having a biphasic life history. It has a small indistinct head, short legs, and a long, rounded tail. Typical coloration consists of a background of brownish black to purplish black overlaid with narrow gray or silvery white reticulations (net-like markings), bands, or diffuse spotting. The aquatic larvae are distinctly colored, having a series of bold brown and yellow longitudinal stripes (USFWS 2009).

The frosted flatwoods salamander is fossorial, where it spends the majority of its life in refuge underground. Optimum habitat for the frosted flatwoods salamander is open, mesic longleaf/slash pine flatwoods maintained by frequent fires. Breeding sites are ephemeral isolated wetlands, typically composed of pond cypress and/or black tupelo and a diverse understory of native grasses and herbaceous vegetation (USFWS 2009).

Pondberry – Pondberry (*Lindera melissifolia*) is a deciduous, aromatic shrub growing 0.5 to 1.8 meters in height with thin, drooping glabrous or pubescent leaves that smell like sassafras when crushed. Pondberry is a dioecious species, having both male and female plants, and is capable of producing abundant fruits which remain viable for 1-2 years. Pale yellow flowers appear in the spring before the leaves. The bright red 12-millimeter long oval-shaped fruits mature in the fall. However, pondberry is a colonial plant, achieving reproduction primarily through vegetative, asexual production of new shoots. Most of the shrubs in any pondberry population are clones or genets of a much smaller number of genetically unique individuals rather than primarily seed production (USFWS 2010).

Pondberry is primarily found in association with wetland habitats (USFWS 1992). In South Carolina, pondberry is associated with the margins of seasonally flooded sinks, ponds, and depression in pinelands (USFWS 1993). Fire and flooding reduce pondberry's competition, allowing it to reproduce from rhizospheres in the soil.

Red-cockaded woodpecker – The red-cockaded woodpecker (RCW) (*Picoides borealis*) is a black and white woodpecker approximately 18 centimeters long. The bird displays black and white horizontal stripes on its back. The cheeks and underparts are white and the sides are streaked with black. The cap and stripe on the throat and neck are black. The male has a small red spot on each side of the black cap. The males also display a red crown patch after the first post-fledgling molt.

Typical nesting habitat for red-cockaded woodpeckers consists of open stand of pines with an age of 80 to 120 years (USFWS 1992), although nesting occasionally occurs in younger trees. Nests may be found in many species of pine. Stands that are primarily hardwood or that have a dense hardwood understory are usually avoided. Foraging habitat usually consists of pine or pine-hardwood stands at least 30 years old (USFWS 2003).

Shortnose sturgeon – The shortnose sturgeon (*Acipenser brevirostrum*) is an anadromous fish approximately 41 to 91 centimeters long, inhabiting marine, estuarine, and freshwater reaches of the major river basins along the Atlantic coast from North Florida to New Brunswick, Canada. The fish is brown to gray or black on the back, turning gold or yellow on the sides, and to white underneath. The blunt snout and 11 dorsal plates are distinctive characteristics of this sturgeon (NOAA 2010).

Shortnose sturgeon ascend rivers to spawn in late winter to early spring, historically migrating inland through the fall line zone to the Piedmont prior to construction of dams. Preferred spawning habitats include high-gradient rapids-complex river sections with cobble,

bedrock, gravel and coarse sand substrates. In most Atlantic Coast river basins, rapids-complex habitats are no longer accessible due to blockage, restricting sturgeon to coastal plain river reaches. Coastal plain spawning habitats include gravel bars and bedrock outcrops, and woody debris in accessible main-stem and tributary rivers. Shortnose sturgeon egg and larval stages are highly susceptible to turbidity and sedimentation effects. Adults and juveniles congregate during summer months in lower river areas but may move upstream during all months of the year. Upstream movements to cooler water refuge areas may occur during summer (NOAA 1998).

West Indian manatee – The West Indian manatee (*Trichechus manatus*) is a large marine mammal with no rear flippers and a flattened rounded tail. The manatee is normally associated with brackish water estuaries, shallow lagoons and coastal rivers. Manatees have been reported to occur along the southeastern coastline with the greatest number of individuals inhabiting the coastal water of Florida (USFWS 1980). A subpopulation of manatees frequents the South Carolina and Georgia coasts, with occurrences up to Rhode Island documented. The primary habitat for manatees includes shallow grass beds with ready access to deep water and fresh water sources near the mouths of coastal river systems, particularly estuarine systems (Deutsch et al. 2008).

American Wood stork – The American wood stork (*Mycteria americana*) is a large wading bird approximately 127 centimeters tall, with a wingspan of 1 to 1.5 meters. The wood stork was downlisted from Endangered to Threatened in 2014 (USFWS 2014). Wood storks are highly colonial, usually nesting in large rookeries and feeding in flocks. Their plumage is generally white, with black primary and secondary wing feathers and a short black tail. The head displays a prominent bill that is slightly decurved, thick at the base and black.

Wood storks are typically associated with freshwater and brackish wetlands. Most nesting colonies in the southeast are located in woody vegetation, such as bald cypress, over standing water, or on islands surrounded by open water. Foraging habitat may include freshwater marshes, flooded pastures and flooded ditches (USFWS 1992). Foraging sites are often in areas of fish concentrations due to either local reproduction or drying.

EVALUATION CRITERIA AND RESULTS

An examination of the SCDNR Rare, Threatened and Endangered Species Inventory, SCDNR Heritage Trust Program, and SCDNR Bald Eagle Nest Locator indicated that there are no documented occurrences of any federally listed or protected species within or immediately adjacent to the proposed project area. On April 20 - June 3, 2016, September 16 – 29, 2016, and April 28 - May 3, 2017, field investigations were conducted and consisted of pedestrian surveys

with the purpose of identifying potential habitat for the species referenced above. USFWS identifies optimal survey windows for each species, however, the due diligence window to conduct field work for the proposed action did not allow for surveying all species at their optimal times. The goal of the protected species assessment is to identify potential habitat that could support threatened or endangered species in order to determine the likelihood of the occurrence of the identified species within the project area. Due to access constraints, the only observations outside the corridor on adjacent properties were within line of sight and any vocalizations observed. Our investigations led to the following conclusions regarding habitat suitability for the species referenced above:

American chaffseed – Due to past use of prescribed fire on the landscape, habitat requirements for American chaffseed were marginal within the Cross Generating Station WMA; however, it had been some time since a prescribed burn was conducted as evidenced by the presence of the extensive shrub layer and woody cover. In addition, only faint evidence of burn scars was present on larger pine trees. Other areas of the corridor were comprised of industrial timberland that were extensively ditched and disturbed. Early successional habitat was not present except for within clear cut areas, ditch banks, and roadsides. The clearcut areas were treated with herbicide during site preparation to reduce competition and promote the survivability of the loblolly pine seedlings. Herbicide was applied to roadways to maintain the right of ways. Ditches appeared to be routinely cleaned out, placing new spoil material on the banks. Due to the history of industrial forestry within the corridor and infrequent burning on the Cross WMA, and lack of suitable quality habitat, it is our opinion that the project may effect, but is not likely to adversely affect American chaffseed. There are no documented occurrences of American chaffseed within the project area. Coordination with SCDNR and USFWS did not identify any populations near the project area.

Atlantic sturgeon – The habitat requirements for Atlantic sturgeon are met within the diversion canal connecting the Santee-Cooper lakes; however, due to the construction of dams built in conjunction with the re-diversion project, the sturgeon can no longer migrate to historic spawning grounds in the upper Santee River. The shortnose sturgeon has been known to migrate into the lakes through the fish lift and dam locks, but Atlantic sturgeon have not been documented to navigate the dams, nor have they been documented occupying the Santee-Cooper lakes. There are few documentations of tagged Atlantic sturgeon reaching the dam in a presumptive spawning run, and turning around or attempting to spawn at the dam itself. Atlantic sturgeons are known to spend much of their time in brackish and saline systems, and migrate to the inland freshwater reaches for spawning. The proposed rail line will bridge the diversion canal and will likely require supports to be built in the canal. Due to the fragmentation of historic spawning routes through the construction of dams and the re-diversion project, the proposed

action will have no effect on the Atlantic sturgeon. The Atlantic sturgeon are accustomed to navigation traffic and primarily use deep channel habitats. If Atlantic sturgeon are in the Santee-Cooper Lakes, it is unlikely they will enter and reside in and around the waters of the project construction site. If they do enter the area, the noise caused by pile-driving during construction is expected to discourage sturgeon from approaching the construction site. In addition, there are no documented occurrences of Atlantic sturgeon within the project area.

Bald eagle – Areas within the railroad corridor could provide potential foraging and nesting habitat for bald eagles. SCDNR’s Bald Eagle nest location database was used to identify documented nests in proximity to the corridor, with the closest nest being over 1/3 mile away within a large wetland area (see attached map), outside of the 660-foot secondary zone outlined in the National Bald Eagle Management Plan (USFWS 2007). Intensive silviculture is practiced throughout the project corridor, preventing timber from growing to the size required for nest trees. The past mechanical disturbance associated with silvicultural practices could have acted as a deterrent to bald eagles nesting along the project corridor. Adjacent properties that were not as intensively managed for silviculture could provide nesting and foraging habitat. The corridor crosses the diversion canal between the Santee-Cooper Lakes, which are known foraging habitat for bald eagles. The bridge could potentially provide roost or nesting habitat to bald eagles or other birds of prey. Due to past and present land uses and management, the proposed action may affect, but is not likely to “disturb” bald eagles as defined within the B&GEPA. There are no documented occurrences of bald eagles within the project area, or within 660 feet of the project area.

Canby’s dropwort - Due to the extensive ditching and water management on industrial forestlands, the narrow wetland parameters Canby’s dropwort requires are likely non-existent within the project corridor. Any open shallow wetland areas were previously ditched and loblolly pine was planted immediately adjacent to the wetland areas. Besides the Cross Generating Station WMA, which had evidence of a past prescribed fire, there were no other areas with a history of prescribed fire within the project area. There is a historic documented occurrence (last observed in 1987) outside the project limits (approximately 700 feet outside project limits) within a power line right of way (see attached map). However, there are no documented occurrences of Canby’s dropwort within the project corridor. Due to the lack of suitable quality habitat, the proposed activity may affect, but is not likely to adversely affect Canby’s dropwort.

Frosted flatwoods salamander – Habitat for the frosted flatwoods salamander was not observed within the project corridor. Frosted flatwoods salamanders require fire maintained ephemeral wetlands for breeding and fire maintained open pine forests during the remainder of their life cycle. The gum ponds and Carolina bays observed within the project corridor are

ditched, altering the hydrology of the system. The adjacent habitat to these areas are commercial timberlands, with high levels of soil disturbance from logging and bedding practices and no observed prescribed burning regimen. A historic population exists within the designated critical habitat south of Huger within the Francis Marion National Forest, approximately 25 miles away from the corridor, with the last documented occurrence of the species being documented in 2010. Due to the lack of suitable quality habitat, the proposed action will have no effect on frosted flatwoods salamanders. Also, there are no documented occurrences of frosted flatwoods salamanders within the project corridor.

Pondberry - Due to the extensive ditching and water management on industrial forestlands, the wetland parameters pondberry requires are likely absent within the project corridor. Any open shallow wetland areas were previously ditched and the loblolly pine was planted immediately adjacent to the wetland areas, leaving little transition zone or intact undisturbed wetlands. Prescribed fire has been removed from the landscape through a majority of the corridor, which historically would have maintained an open understory allowing for pondberry to grow. Pondberry is not likely to occur within the project corridor due to the degraded wetlands, extensive ditching and disturbance, as well as lack of fire on the landscape. Due to the lack of suitable quality habitat, the proposed action will have no effect on pondberry. There are no documented occurrences of pondberry within the project corridor, and only five populations exist within Berkeley County, all within the Francis Marion National Forest (USFWS 2010). Coordination with SCDNR and USFWS did not identify any populations near the project area.

Red-cockaded woodpecker - No nesting or foraging habitat for red-cockaded woodpeckers (RCW) occurred within the project corridor. Due to the industrial forest management practices along the corridor, final harvest of planted loblolly occurs at 25-30 years old. This does not allow for the trees to grow old enough (60+ years) in order to develop heart rot or other characteristics making trees suitable for RCW nesting. Not only are the trees not reaching the age class to be suitable habitat, but the BA of the planted pine forest are also much greater at 80-140 BA compared to suitable habitat at 40-70 BA. The planted pine forest habitat covered 70-80% of the corridor, with the other corridor areas being composed of wetlands and natural pine stands of unsuitable habitat due to heavy midstory and lack of prescribed fire. There are few documented populations of RCWs nearby, with the closest population to the corridor over two miles away on Oakland Plantation, and other populations in Orangeburg County approximately five miles away (see attached map). Adjacent property habitat management and site conditions were observed when visible from the corridor and staff listened for vocalizations during field work. Otherwise these areas were remotely assessed due to project and access issues. One adjacent area was observed to have suitable foraging habitat, but not nesting habitat. During

a site visit, a single potential RCW vocalization was heard from this adjacent property but was not confirmed. Multiple site visits back to this area did not identify (audible or visual) evidence of RCWs, indicating that either the field biologist did not hear a RCW on the single occasion or it was a foraging RCW. The proposed action will have no effect on RCWs because of the absence of suitable foraging or nesting habitat within the corridor, and the absence of documented occurrences of RCW within or immediately adjacent to the project area.

Shortnose sturgeon – The habitat requirements for shortnose sturgeon are met within the diversion canal connecting the Santee-Cooper lakes. The shortnose sturgeon has occasionally been reported in the reservoirs themselves, and in fact there is a known historical occurrence of shortnose sturgeon in Lake Moultrie (see attached map). An isolated population of shortnose sturgeon has been reported to occur within Lake Marion and its tributaries, yet there is little evidence of their migration downstream into the lower reservoir (Collins et al 2003). Shortnose sturgeon are known to spend more time in freshwater or brackish systems than Atlantic sturgeon. The area below the dam in the Tailrace Canal and near the head of the West Branch of the Cooper River is a known breeding area for shortnose sturgeon that cannot migrate through the fish lift and locks. The proposed rail line will bridge the diversion canal and will likely require supports to be built in the canal. Best management practices (BMP's) for avoidance and minimization of listed species for in-water construction are attached in Appendix A (see attached). Shortnose sturgeon are accustomed to navigation traffic and primarily use deep channel habitats; therefore, it is unlikely they will enter and reside in and around the waters of the project construction site. If they do enter the area, the noise caused by pile-driving during construction is expected to discourage sturgeon from approaching the construction site. With BMP's for avoidance and minimization as well as the fragmentation of historic spawning routes through the construction of dams and the re-diversion project, and other reasons listed above, the proposed action will have no effect on shortnose sturgeon. There are no documented occurrences of shortnose sturgeon within the project area.

West Indian manatee - West Indian manatees have rarely made their way through the locks into the Santee-Cooper Lakes. When they are identified, they are captured and removed as the manatees often become trapped and cannot survive winters in the lake as the water temperatures become too cold. West Indian manatees are a seasonal visitor to the lowcountry of South Carolina, where they can be found in many of the estuaries where freshwater rivers meet the Atlantic Ocean. Migration into interior reaches of freshwater rivers has been documented, but is not common. The proposed rail line will bridge the diversion canal and will likely require supports to be built in the canal following best management practices (Appendix A). Due to the rarity of West Indian manatees successfully navigating the locks and entering the Santee-Cooper

lakes, the proposed action will have no effect on West Indian manatees. There are no documented occurrences of West Indian manatees within the project area.

American Wood stork – Potential foraging or nesting habitat for American wood storks exists within some of the wetland areas within the project corridor, specifically the larger gum and cypress ponds as well as bottomland hardwood forests. The corridor will span the diversion canal between the Santee-Cooper Lakes, which are potential foraging and nesting habitat for American wood storks. Due to the availability of alternative foraging and nesting habitat outside of the corridor and on adjacent properties, the proposed action may affect, but is not likely to adversely affect wood storks. No wood storks or wood stork rookeries were observed within or immediately adjacent to the project corridor. Coordination with SCDNR and USFWS did not identify any rookeries near the project area.

DETERMINATION OF EFFECT

Based on our findings, we believe that the proposed action (1) “may affect, but is not likely to adversely affect” American chaffseed, Canby’s dropwort, and American wood stork, (2) will have no effect on Atlantic sturgeon, flatwoods salamanders, pondberry, red-cockaded woodpeckers, Shortnose sturgeon and West Indian manatees, and (3) will not likely disturb bald eagles. Direct and indirect impacts from past silviculture activity, ditching, dam construction and a lack of prescribed fire within the project area are the primary factors that likely negate the presence of any of the above listed species. The impacted area of the proposed action will be an approximately 50-foot wide right of way that will be located within the 200-foot wide study area, plus some expanded areas where minor alternatives in the original alignment may be considered.

We request your written concurrence with these findings. If you have questions or comments, please contact me at (843) 871-5383. Thank you for your assistance.

Sincerely,

Robert C. Strange
Sabine & Waters, Inc.

Enclosures

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APPENDIX A

BMPs for Avoiding and/or Minimization of Impacts on Listed Species for the in-water work associated with the proposed Palmetto Railways bridge at the Santee Cooper Diversion Canal

General Considerations

- Structures over water and/or other benthic resources have been aligned so as to minimize the over-water footprint as much as practicable

Construction Methodology

The following Best Management Practices (BMPs) will be implemented during construction by the contractor responsible for the execution of the work. These will be required in addition to conditions set forth in regulatory permit(s).

General

- Prior to construction, the Contractor shall be required to submit a Work Plan describing their proposed construction approach, methodology, and equipment to be used. This plan will be reviewed by the Owner and/or their representative(s) to ensure compliance with applicable regulatory conditions and BMPs. The contractor shall also be required to attend and document his/her attendance at the Pre-Construction Conference meeting.
- Once construction is initiated, the Contractor shall be required to complete the project in an expeditious manner in order to minimize the period of disturbance to environmental resources.
- Land disturbing activities shall not encroach into any wetland areas outside of the permitted impact area.
- The Contractor will be required to implement BMPs that will minimize erosion and migration of sediments on and off the upland project site, including reclaimed lands, during and after construction. The contractor will also be required to conduct inspections at a minimum of at least once every calendar week or within 24 hours of the end of a storm event of 0.5 inches or greater, until final stabilization is reached on all areas of the construction site.
- Contractor shall be required to ensure that oil, tar, trash, debris, and other pollutants do not enter the adjacent waters or wetlands during construction.
- All construction personnel shall be instructed on the potential presence of protected species in the construction area as described in the Protected Species Biological Assessment and the need to prevent entrapment, harm, or other impacts to these animals.
- All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing protected species.
- All in-water construction activities shall be completed during daylight hours.

- Upon completion of construction activities, permanent manatee signs shall be posted at locations prominently visible to persons engaged in water-related activities within and around the bridge. The signs should include contact information for reporting manatee collisions and/or injury, as well as any sightings, to the U.S. Fish and Wildlife Service at their Charleston Field Office at (843) 727-4707.

Pile Driving/Caissons/Drilled Shaft Foundations

- Contractor shall be required to implement measures to control and/or contain suspended sediments resulting from construction activities.
- Siltation barriers, if required, shall be made of material in which a Protected Species cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid entrapment of protected species.
- Contractor shall use a vibratory hammer to the maximum extent practicable.
- Contractor shall use cushion blocks or other noise attenuation devices when using an impact hammer.
- Pile driving activities shall be limited to no more than 12 hours per day (February – March, sturgeon; May – September, manatee).
- Contractor shall use a “soft start” for a pile driving activities (i.e. - driving does not occur at full power at first).

Vessel Operations

- Shallow draft vessels that maximize the navigational clearance between the vessel and the river bottom (e.g. – “jon boats”, flat-bottomed barges, etc.) should be used where possible.
- All vessels associated with the construction project shall operate at “no wake/idle” speeds whenever possible while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom.
- If a Protected Species is seen within 300 feet of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a Protected Species. Operation of any mechanical construction equipment shall cease immediately if a Protected Species is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition. Contact the USFWS immediately at (843) 727-4707.
- Any collision with and/or injury to a West Indian manatee shall be reported immediately to the USFWS, Charleston Field Office, (843) 727-4707