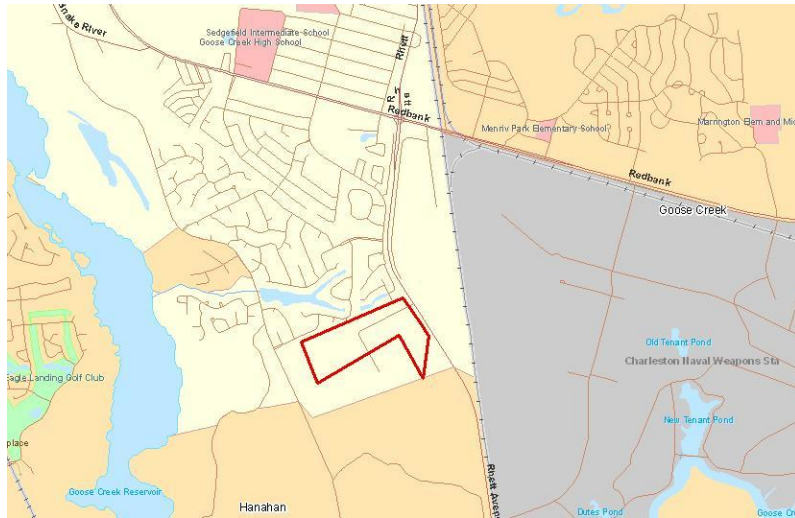


**Threatened and Endangered Species Assessment
for
North Pointe Commerce Park
Berkeley County, South Carolina
April 16, 2012**

1.0 INTRODUCTION:

The following report details methodology and an assessment of survey results for a threatened and endangered species survey completed on November 7, 2011 on the North Pointe Commerce Park in Berkeley County, South Carolina. The endangered species survey was conducted to determine the occurrence of, or potential for, animal and plant species federally listed as endangered or threatened to exist within the referenced site. Completion of this survey was directed by and complies with current state and federal regulations [Federal Endangered Species Act of 1973 (16 USC 1531-1543), the South Carolina Non-Game and Endangered Species Conservation Act of 1974 (58-2384), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (16 U.S.C. 703-712)].



2.0 METHODOLOGY:

The following threatened and endangered species are listed by the US Fish & Wildlife Service as occurring in or potentially occurring in Berkeley County, South Carolina:

Common Name	Scientific Name	Federal Status
West Indian manatee	<i>Trichechus manatus</i>	Federally Endangered
Wood stork	<i>Mycteria americana</i>	Federally Endangered
Red-cockaded woodpecker	<i>Picoides borealis</i>	Federally Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Federally Threatened
Flatwoods salamander	<i>Ambystoma cingulatum</i>	Federally Threatened
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Federally Endangered
Canby's dropwort	<i>Oxypolis canbyi</i>	Federally Endangered
Pondberry	<i>Lindera melissifolia</i>	Federally Endangered
American chaffseed	<i>Schwalbea Americana</i>	Federally Endangered
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Protected**

**Protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (16 U.S.C. 703-712).

Existing data from the South Carolina Department of Natural Resources (DNR) was reviewed to locate recorded occurrences of threatened and endangered species within or near the subject site. At the time of this report, there is no documentation of any rare, threatened or endangered species within referenced tract. DNR has documented the occurrence of Red-Cockaded Woodpeckers on the adjoining tract. As noted by DNR, their records are not assumed to be complete and they should not be assumed to be comprehensive; therefore, field surveys should be conducted for thorough evaluations.

As noted, field surveys to identify suitable habitat were initially conducted on November 7, 2011. During the field surveys, plant communities and habitats were observed and noted to determine if they match habitat types where the listed species have the potential to occur. If potential habitat was identified at the site, all species observed were, at a minimum, identified to the genus taxonomic level.

A survey for Red-Cockaded Woodpecker (RCW) was conducted using the “Guidelines for the Preparation of Biological Assessments and Evaluation for the Red-Cockaded Woodpecker”, V. Gary Henry. These guidelines include methods for identifying areas to survey as well as actual survey methods for determining the presence of the Red-Cockaded Woodpecker. The guidelines state that timber stands exhibiting any of the following criteria should be surveyed when making a determination for the occurrence of Red-Cockaded Woodpeckers. The criteria are:

- * mixed pine hardwood stands over 60 years of age
- * mixed pine and hardwood stands under 60 years of age that contain clumps of pine trees over 60 years of age
- * stands containing pine saw timber, including stands thought to be less than 60 years of age but containing scattered or clumped trees over 60 years of age
- * hardwood-pine over 60 years of age adjacent to pine and pine-hardwood over 30 years in age

3.0 HABITAT CLASSIFICATIONS:

The following is a description and classification of major habitat/community types identified within the site. Also noted is an assessment of suitability for federally listed threatened and endangered species.

3.1 Pine Forest with Scattered Hardwoods

The upland area within the site is a pine forest community that covers a majority of the tract. The dense overstory of this community is dominated by loblolly (*Pinus taeda*) and longleaf pine (*Pinus palustris*). The midstory was interspersed with a light to moderate

stocking of white oak (*Quercus alba*), water oak (*Quercus nigra*), laurel oak (*Quercus laurifolia*), black cherry (*Prunus serotina*), sweetgum (*Liquidamber styraciflua*) and loblolly and longleaf pine saplings. The understory contains wax myrtle (*Myrica cerifera*), beauty berry (*Callicarpa americana*), and bracken fern (*Pteridium aquilinum*). This upland community is not recognized as preferred or suitable habitat for any of the species, listed as potentially occurring in Berkeley County, nor was any of the federally listed species observed in this community during field surveys.



3.2 Bottomland Hardwoods

The bottomland hardwood community bisects the largest portion of the site. This area has a natural channel that runs through the center of a hardwood wetland floodplain community. The overstory is dominated by yellow poplar (*Liriodendron tulipifera*), sweet gum, and red maple (*Acer rubrum*). The understory is fairly open with the occurrence of wax myrtle in the shrub layer and Virginia chain-fern (*Woodwardia virginica*) in the herbaceous layer. This wetland community does not provide suitable habitat for any of the species listed as potentially occurring in Berkeley County nor were any of the federally listed species observed in this community during field surveys.



3.3 Utility Right-of-Way

A very small portion of this site is maintained in power line right of way. This community is dominated by herbaceous vegetation that is maintained by frequent mowing. The herbaceous vegetation varies throughout this community, depending on the adjacent communities, due to frequent maintenance. The power line right of way does not offer suitable habitat for any of the species listed as occurring in Berkeley County nor were any of the federally listed species observed in this community during field surveys.



4.0 LISTED SPECIES AND ACKNOWLEDGED HABITATS:

The following is a brief description of each listed species included in the survey, its recognized habitat and comments regarding survey results for that species.

- 4.1** The **West Indian Manatee** is a large brown or gray aquatic mammal found in both saltwater and freshwater habitats along the Atlantic and Gulf coasts of the United States. The West Indian Manatee confines itself primarily to the southern coasts of Florida and the Gulf of Mexico during the winter months, but can be found as far north as the coast of Virginia and as far east as the coastal regions of Louisiana during migration. As adults, these animals reach an average length of approximately 10 feet and weigh 1,000 pounds.

Occurrences of manatees within the coastal waters of South Carolina are limited to the warmer months (July – October) and are, in general, rare. The project site is well inland and outside of the potential habitat range of the West Indian Manatee.

4.2 The **Bald Eagle** was delisted from the Endangered Species Act on June 28, 2007. However, the bald eagle remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Both federal laws prohibit the “taking” –killing, selling, or otherwise harming eagles, their nests or eggs. As a result, Newkirk Environmental, Inc. has included this species in our report as any federal actions will likely require coordination with the US Fish and Wildlife Service and/or SCDNR.

The eagle is a very large raptor with wingspread of nearly seven (7) feet. This bird is normally associated with coasts, rivers and lakes with adjacent suitable nesting habitat. Comprehensive tree-by-tree surveys for eagle nests were not conducted during this survey, however, based upon SCDNR records, no eagles are known to nest within or immediately adjacent to the project site.

4.3 The **Wood Stork** is a large wading bird characterized by its featherless head and black and white markings. This species nest in colonies known as rookeries and roosts and feeds in flocks, often in association with other species of long-legged water birds. Wood storks utilize freshwater and estuarine wetlands for feeding, nesting and roosting. These sites area utilized for many years and are characterized by woody vegetation, primary cypress or swamp hummocks over open water (USFWS Ogden).

Only a few nesting sites (rookeries) are known in South Carolina, none of which are within or near the site. However, because this species covers vast areas during active foraging, it may occur over a broad region. Wood storks commonly feed throughout the estuarine marshes along the coast and are frequently observed in the surrounding areas during the summer months. Estuarine marshes and impoundments tend to be preferred foraging habitat, however, this species will also use open mature forested wetlands. The onsite wetlands do not provide suitable foraging habitat for wood storks. Furthermore no rookeries are known to be nearby nor were any wood storks observed during our field investigations.

4.4 **Red-Cockaded Woodpeckers** are small birds requiring old growth pine forest for cavity excavation, foraging and nesting. The particular habitat associated with this species requires many years to develop and is fire dependant to maintain open mid-story conditions.

Colonies of RCWs have been known to occur on the adjoining property (Charleston Naval Weapons Station). Burst Ecological Services conducted surveys of the Charleston Naval Weapons Station's known RCW clusters in 2010. It was noted in this report that the areas west of North Rhett and adjacent to the North Pointe Commerce Park had no active trees. This was confirmed by Mr. Terrence Larimer, Natural Resource Manager for the Joint Base Charleston Natural Resource Program, on April 16, 2012. The wooded area within the project site was damaged by Hurricane Hugo in 1989 and is not recognized as suitable habitat for red-cockaded woodpeckers. However, because of historic occurrences nearby, confirmation of current status on adjacent properties should be obtained.

- 4.5** The **loggerhead sea turtles** federally listed in Berkeley County as threatened are, for the most part, open water reptiles that prefer open undisturbed beaches for nesting and deeper waters for feeding. Besides commercial fishing, pollution and trash, the major decline of the sea turtles is attributed to loss of nesting habitat. This site is well inland of any potential habitat for this species
- 4.6** The **Flatwoods Salamander** requires open, mesic woodland of longleaf pine (*Pinus palustris*) and slash pine (*Pinus elliottii*) maintained by frequent fire. Pine flatwoods are typically flat, low-lying open woodlands that lie between the drier sandhill community up slope and the wetlands down slope. Wiregrasses (*Aristida spp.*), especially *Aristida beyrichiana*, are often the dominate grasses in the herbaceous layer. Adult flatwoods salamanders move to their wetland breeding site during the rainy weather from October to December. The breeding sites are isolated pond cypress (*Taxodium ascendens*), swamp gum (*Nyssa biflora*), or slash pine dominated depressions which dry up completely on a cyclic basis. These wetlands are generally shallow and relatively small and have a marsh-like appearance with sedges (*Carex spp.*) growing throughout; wiregrasses, panic grasses (*Panicum spp.*) and other herbaceous species concentrated in shallow water edges. A relatively open canopy is necessary to maintain the herbaceous species component which serves as cover for the flatwoods salamander larvae. The site does not provide suitable habitat for the flatwoods salamander.
- 4.7** The **Shortnose Sturgeon** is a fish that reaches a maximum length of about one meter and has a heterocercal tail, short shovel-shaped snout, large fleshy barbells, ventral mouth and is dark brown to black on top and light brown to yellow on the

bottom. Shortnose sturgeons in southern waters tend to exhibit limited distributions during the summer within habitats at the saltwater/freshwater interface, therefore estuarine habitat at the saltwater/freshwater interface constitutes critical habitat in southern river systems. In South Carolina, spawning areas include flooded swamps along rivers. Juveniles are found in the saltwater/freshwater interface of a river in deep, cool channels with sand silt substrates. They occur in the lower salinity waters of this interface in the summer (NatureServe. 2003). The site does not provide suitable habitat for the shortnose sturgeon.

- 4.8 Canby's dropwort** is a medium sized shrub found in the coastal plain of South Carolina where it occupies pond savannahs, the shallow edges of cypress/pond pine sloughs and wet pine savannahs. These sites are characterized by open conditions with savannah like herbaceous layers and are almost always associated with a sandy loam or loam soil underlain with a clay layer. Additionally, these sites require that the groundwater regime remain stable and that the sites must be protected from adverse alterations such as ditching, dams, etc.

The white flower of this species is noted as occurring from May through August, although past surveys indicate blooming in this region occurs during late July-October. There are no wetlands onsite that provide suitable habitat for Canby's dropwort.

- 4.9 Pondberry** is a small fragrant shrub also found in and around small depressional wetlands and sinks with a semi-open canopy. Surveys for this species and its habitat were completed in concert with the surveys for Canby's dropwort. This site does not provide suitable wetland habitat for pondberry.

- 4.10 Chaffseed** is an upland herbaceous species indigenous to open fire maintained pine forest that also typically contain blackjack oak (*Quercus marilandica*) and goat's rue (*Tephrosia virginiana*) as dominates and indicator species. Due to natural fire suppression and canopy density onsite there is no suitable habitat for chaffseed.

5.0 CONCLUSION

No threatened and endangered species were observed during this survey and the current habitat is not ideal for any of the listed species. It is the opinion of Newkirk Environmental, Inc. that the proposed activities on this tract are not likely to cause adverse effects to overall populations of any threatened or endangered species.

It should be noted that because of the transitory nature of some of the listed threatened and endangered plants and animals, it is possible that threatened and endangered species populations and locations may change over time. Therefore, any potential findings at a later date should be fully investigated. Should significant time lapse between the issuance of this report and development of the property or any other type of legal reliance, it is strongly recommended that an update of this report be completed. The definition of significant time is not absolute but would include passing of annual breeding or migratory seasons.