



August 16, 2010

Alliance Consulting Engineers  
Post Office Box 8147  
Columbia, South Carolina 29202-8147

Attention: Ms. Rebecca Murrell

**Reference:** **Protected Species Assessment**  
Hunter Industrial Park – 380 Acres  
Laurens, Laurens County, South Carolina  
S&ME Project No. 1614-10-270

Dear Ms. Murrell:

S&ME, Inc. (S&ME) is pleased to submit our Protected Species Assessment for the above-referenced site located in Laurens County, South Carolina. This work was performed in general accordance with S&ME Proposal No. 1614-7410-10, dated March 11, 2010 and the Master Services Agreement between Alliance Consulting Engineers and S&ME dated January 15, 2007.

## **1.0 PROJECT BACKGROUND**

The site consists of an approximately 380-acre tract located south of the intersection of Interstate 385 and U.S. Highway 221 near Laurens, Laurens County, South Carolina (Figure 1 in Appendix A). The site is identified on a portion of the Laurens North, SC USGS 7.5-minute topographic quadrangle map, dated 1983 (Figure 2 in Appendix A). This Protected Species Assessment has been conducted to assess the potential for the presence of protected species within or adjacent to the site in preparation for proposed future industrial or light-industrial developments.

## **2.0 SITE/HABITAT DESCRIPTIONS**

The site is located in north-central Laurens County within the Southern Outer Piedmont ecoregion of South Carolina. The undeveloped portions of the site are primarily used for silvicultural purposes. The properties adjacent to the site consist of forestland, light industrial facilities with the industrial park (Kimura, Fukoku, Koerber, and Unifor) as well as Box USA Group and a Wal-Mart Distribution Center.

The site primarily consists of three habitat types: cut-over/secondary growth forestland, riparian hardwood buffers, and water features (wetlands and streams). Refer to the Aerial Map (Figure 3) and site photographs in Appendix A for the locations and depictions of the various habitats.

### **Cut-over/Secondary Growth Forestland (Photographs 1-3)**

Cut-over/secondary growth forestland comprised a majority of the site. The site has been timbered in the last five to ten years. A very sparse canopy consisting of white oak (*Quercus alba*), southern red oak (*Q. falcata*), sweetgum (*Liquidambar styraciflua*), eastern red cedar (*Juniperus virginiana*), and hickory (*Carya* spp.) was observed. Other species observed included saplings of the canopy dominants as well as persimmon (*Diospyros americana*), red maple (*Acer rubrum*), flowering dogwood (*Cornus florida*), winged sumac (*Rhus copallina*), dogfennel (*Eupatorium capillifolium*), and Virginia creeper (*Parthenocissus quinquefolia*).

### **Riparian Hardwood Buffers (Photographs 4-5)**

Riparian hardwood buffers (50-100 feet wide) were observed adjacent to the on-site streams. Species observed included American beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*), eastern red cedar, hickory, white oak, southern red oak, post oak (*Q. stellata*), sourwood (*Oxydendron arboreum*), eastern hophornbeam (*Ostrya virginiana*), ironwood (*Carpinus caroliniana*), American holly (*Ilex opaca*), muscadine (*Vitis rotundifolia*), Christmas fern (*Polystichum acrostichoides*), and ebony spleenwort (*Asplenium platyneuron*).

### **Water Features (Wetlands and Streams) (Photographs 6-12)**

Seven small, riparian wetlands and one isolated, depressional wetland were observed on the site. Species observed with the riparian wetlands included American elm (*Ulmus americana*), red maple, ironwood, muscadine, microstegium grass (*Microstegium vimineum*), jack-in-the pulpit (*Arisaema triphyllum*), and Christmas fern. The depressional wetland consisted of black willow (*Salix nigra*) saplings, sedge (*Carex* spp.), and cat-tails (*Typha latifolia*).

Several minor drainages with ephemeral flow were observed throughout the site. Six streams with perennial flow and three streams with intermittent/seasonal flow were also observed. Stream substrates varied and consisted of sand, silt, gravel, cobble, boulders, and bedrock.

## **3.0 METHODOLOGY**

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened, and Endangered Species Inventory and the U.S. Fish and Wildlife Service (USFWS) websites were reviewed. The purpose of the database search was to identify current and historic documented occurrences of federally protected species located within Laurens County. Additionally, S&ME personnel reviewed available supporting information including the USGS Laurens North topographic quadrangle map and applicable soil survey sheets. The purpose of reviewing this supporting information was to identify drainage features and soil types in the study area. During the field reconnaissance, S&ME personnel integrated the information obtained from this supporting documentation with the field evaluation for the presence of protected species or potential protected species habitat. Portions of the site that matched descriptions of preferred habitat for protected species listed in Table 1 were considered to be potential habitat for the respective protected species. These areas were subsequently field reviewed to confirm the presence/absence of the respective species.

The SCDNR database records did not identify the presence of known federally protected species (threatened or endangered) occurrences on or immediately adjacent to the site. A field survey was performed for the protected species in suitable habitats within the site on July 22, 29 and 30, 2010. Biologist Chris Daves of S&ME performed the field survey.

#### 4.0 PROTECTED SPECIES

Descriptions of the species and their respective federal and state status are identified in Table 1 and in Appendix B. The SCDNR and USFWS websites identified the following federal and state listed species for Laurens County:

TABLE 1: PROTECTED FLORA & FAUNA SUMMARY HUNTER INDUSTRIAL PARK – LAURENS COUNTY		
Species	Federal Status	Habitat Description
Red-Cockaded Woodpecker <i>Picoides borealis</i>	E	Open pine stands with minimum age of 60 years; Nests in live pines with red-heart disease.
Carolina Heelsplitter <i>Lasmigona decorata</i>	E	Cool, slow-moving, small to medium sized streams & rivers; Usually found in mud, muddy sand, or muddy gravel substrates along stable, well shaded stream banks.

T = Threatened

E = Endangered

Red-Cockaded Woodpecker – Federally Listed Endangered, State Listed Endangered  
BIOLOGICAL OPINION: NO EFFECT

The red-cockaded woodpecker is a black and white bird measuring approximately seven inches long. The bird displays black and white horizontal stripes on its back. The cheeks and underparts are white and the sides are streaked in black. The cap and stripe on the throat and neck of the bird are black. Male individuals of the species have a small red spot on each side of the black cap and display a red crown patch after the first post-fledgling molt.

The red-cockaded woodpecker's range is closely linked to the distribution of southern pines. Loblolly and longleaf pines that are 60-plus years old are generally selected for nesting sites. However, other species of southern pines are occasionally used for nesting. The woodpecker usually excavates nest cavities in trees infected with a fungus that produces red-heart disease. Preferred nesting sites generally include relatively open, mature pine stands with an undeveloped or low understory layer. Foraging habitat is frequently limited to pine or pine-hardwood stands that are 30 years or older, with a preference for pine trees with a diameter of 10 inches or larger. The USFWS indicates that the maximum foraging range for the red-cockaded woodpecker is approximately one-half mile.

The site does not contain suitable nesting habitat for the red-cockaded woodpecker. A majority of the site has been timbered, and there are no relatively open pine stands of proper age to be considered suitable habitat for the red-cockaded woodpecker. Accordingly, potential future development of the site is not expected to impact this species.

Carolina Heelsplitter – Federally Listed Endangered, State Listed Endangered  
BIOLOGICAL OPINION: NO EFFECT

The Carolina heelsplitter is a medium-sized freshwater mussel with an ovate, trapezoid-shaped shell. The shell is yellowish, greenish-brown to dark brown in color. The inside of the shell (nacre) is pearly-white to bluish-white. The umbo area is orange or a mottled-orange. The heelsplitter has been documented in Catawba, Pee Dee, and Savannah River basins in South Carolina. The Saluda River basin is listed as a possible location for the heelsplitter. The Carolina heelsplitter has been recorded in a variety of substrates, including mud, clay, sand, gravel, and cobble/boulder/bedrock. Slate belt geology is also associated with the species. A majority of these areas are without significant silt accumulations and are along stable, well-shaded stream banks. Habitat is severely affected by siltation.

Based on their perennial flow regime, six streams may have potential habitat for the Carolina heelsplitter. The intermittent/seasonal streams and the ephemeral drainages had no flowing water at the time of our site reconnaissance, and therefore offer minimal potential habitat for the Carolina heelsplitter. Discarded shells or shell fragments were not observed.

S&ME contacted Ms. Morgan Wolfe, the USFWS species lead biologist in South Carolina for the Carolina heelsplitter, on August 13, 2010 to discuss the species in Laurens County. Ms. Wolfe stated there are no current documented elements of occurrence for the Carolina heelsplitter in Laurens County despite its listing on the most recent USFWS species list (March 2010). She mentioned the current listing may be due to the species' historical presence in watersheds in the general region of Laurens County.

Accordingly, future development of the site is not expected to impact this species. Please note that an official mussel survey was not conducted as part of this assessment.

## **5.0 QUALIFICATIONS**

The field survey was lead by Chris Daves of S&ME. Mr. Daves is a biologist and natural resources project manager with over nine years experience in environmental consulting. Mr. Daves is proficient in conducting wetland delineations, environmental permitting activities, and habitat assessments, including protected species surveys. He is a Professional Wetland Scientist (PWS) and holds a B.S. degree in Biology from Wofford College and a Master's degree in Earth & Environmental Resources Management from the University of South Carolina.

## **6.0 REFERENCES CITED**

Cummings, Candace J. and G.K. Yarrow. 1996. A Guide to South Carolina's Endangered and Threatened Species – EC 693. Clemson Extension Service.

South Carolina Department of Natural Resources. 2010. Rare, Threatened, and Endangered Species Inventory, Species Found in Chester County -  
[https://www.dnr.sc.gov/pls/heritage/county\\_species.list?pcounty=Laurens.](https://www.dnr.sc.gov/pls/heritage/county_species.list?pcounty=Laurens)



South Carolina Heritage Trust. 2006. Geographic Database of Rare and Endangered Species. Current On-Line Edition - <https://www.dnr.sc.gov:4443/pls/heritage/species.login>.

USFWS. 2010. Listed Endangered Species in South Carolina - <http://www.fws.gov/charleston/countyLists.html#Listed%20Species%20in%20Laurens%20County>

USFWS. March 2010. South Carolina List of Endangered, Threatened & Candidate Species. <http://www.fws.gov/charleston/pdf/endangeredSpeciescountylist.pdf>.

U.S. Department of Agriculture – National Resources Conservation Service Web Soil Survey. 2010. <http://websoilsurvey.nrcs.usda.gov/app/>.

## 7.0 SUMMARY AND CONCLUSIONS


Based on the literature review, habitat assessment, and pedestrian field review of the site, it is our opinion that the site does not provide suitable habitat for red-cockaded woodpecker. Six perennial streams on the site may provide potential habitat for the Carolina heelsplitter; however, recent communication with the USFWS indicated there no current documented elements of occurrence for the Carolina heelsplitter in Laurens County. In summary, the proposed development of the site will have “no effect” on these species.


No further action is recommended at this time. This Protected Species Assessment will be forwarded to the USFWS for review and comment. The comments will be provided to you as soon as S&ME receives them.

S&ME appreciates the opportunity to be of service to you by performing this Protected Species Assessment for the site. Please contact us at (803) 561-9024 with questions regarding this report or if you require additional information.

Sincerely,

**S&ME, Inc.**

  
Amanda White  
Biologist

  
Chris Daves, P.W.S.  
Biologist

Senior Reviewed by Tom Behnke, P.G. – Environmental Department Manager

### Appendix A

Figures, Site Photographs

### Appendix B

County Species Lists from USFWS and SCDNR

# **APPENDIX A**

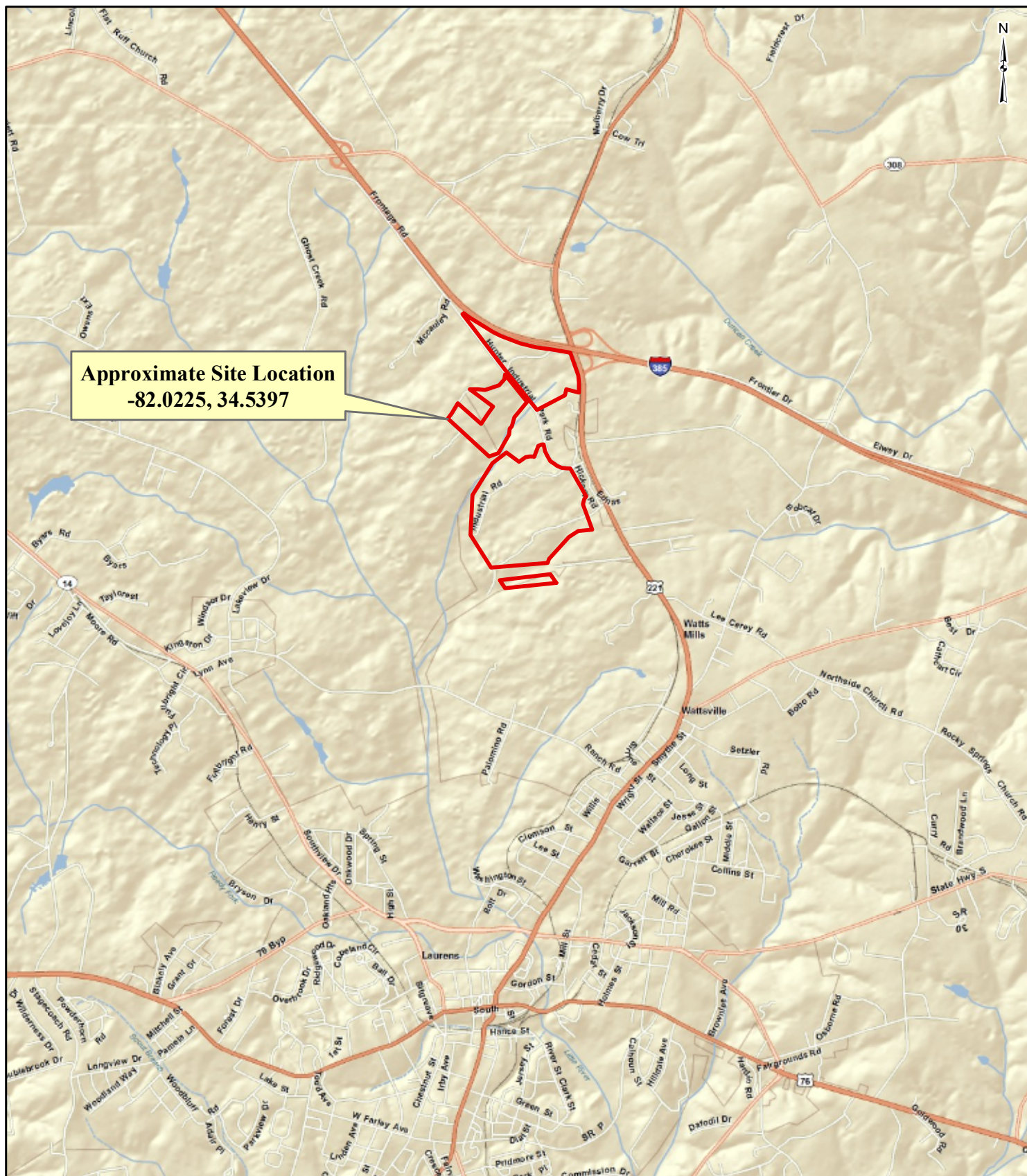
**Figure 1 – Vicinity Map**

**Figure 2 – USGS Topographic Map**

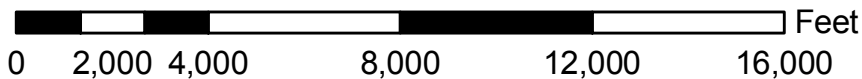
**Figure 3 – Aerial Map**

**Site Photographs**





Source: ESRI Resource Center

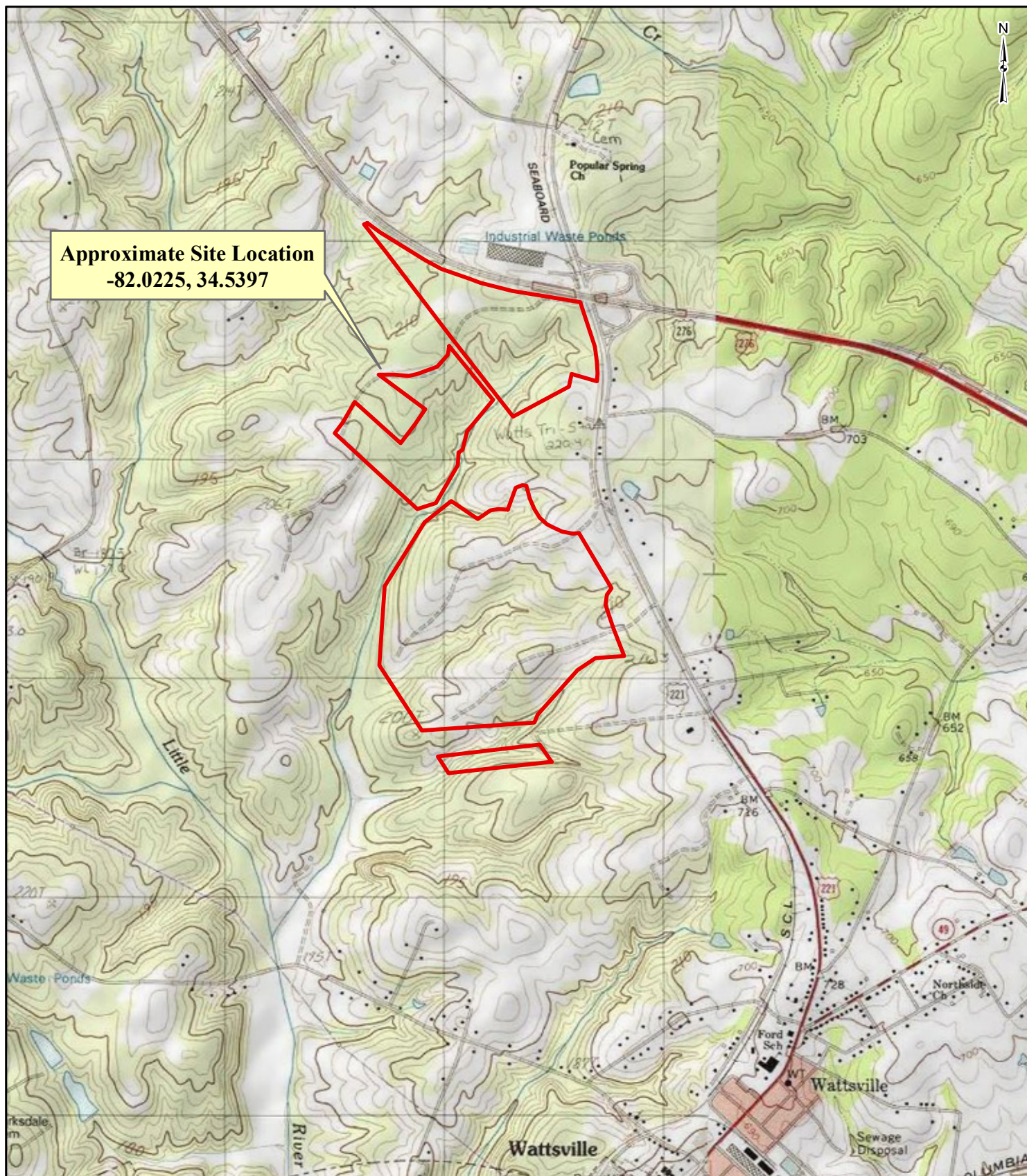


SCALE:	1 in = 4,000 ft
CHECKED BY:	WCD
DRAWN BY:	ADW
DATE:	8/13/2010



<b>VICINITY MAP</b> Hunter Industrial Park ~ 380 acres Laurens, Laurens County, South Carolina		FIGURE NO.  <b>1</b>
S&ME PROJECT NO.	1614-10-270	





Source: 7.5 - Minute USGS Quarter Quadrangle Map  
Laurens North, 1983

0 1,000 2,000 4,000 6,000 Feet

SCALE: 1 in = 2,000 ft  
CHECKED BY: WCD  
DRAWN BY: ADW  
DATE: 8/13/2010



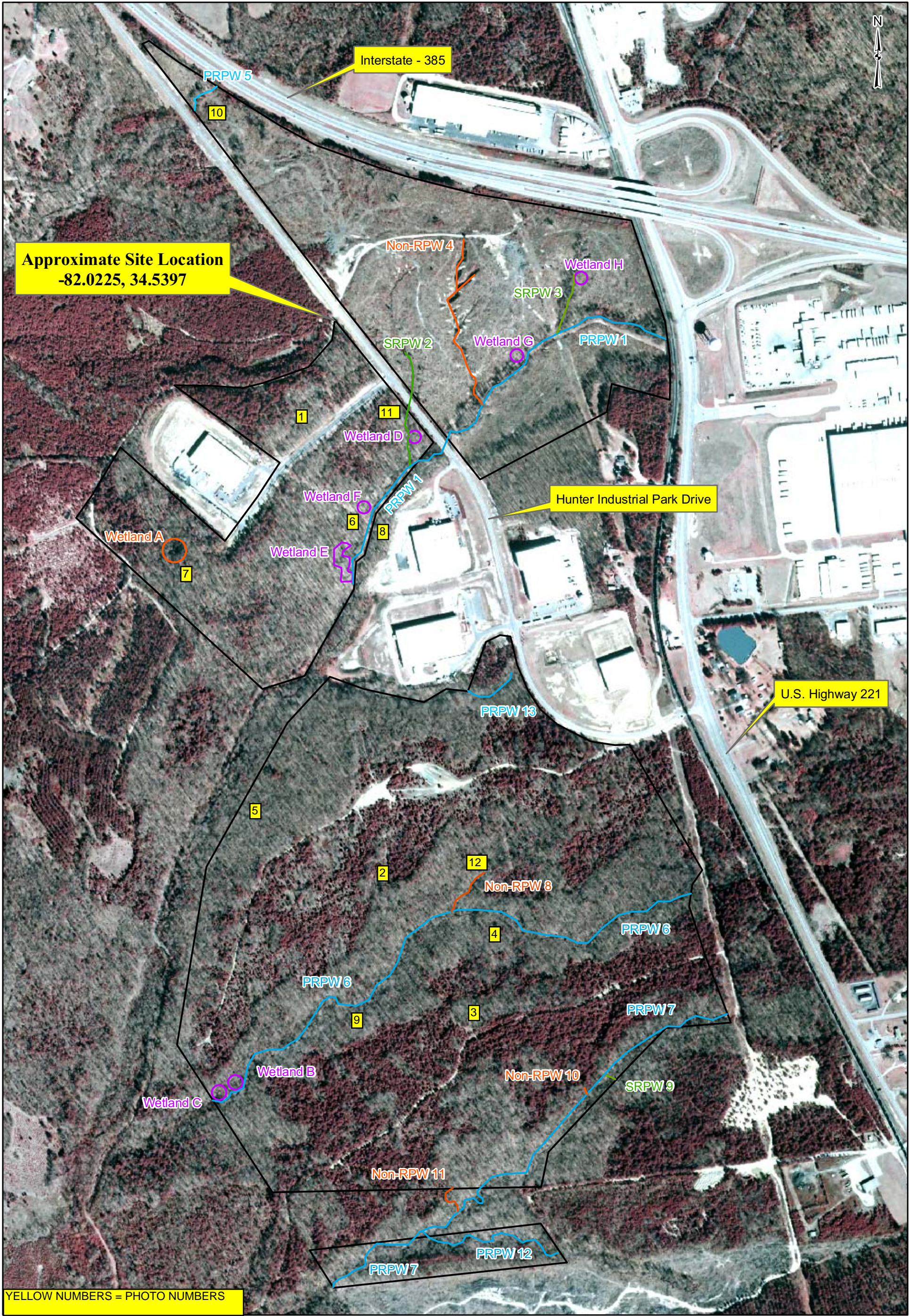
**TOPOGRAPHIC MAP**  
Hunter Industrial Park ~ 380 acres  
Laurens, Laurens County, South Carolina

S&ME PROJECT NO. 1614-10-270

FIGURE NO.

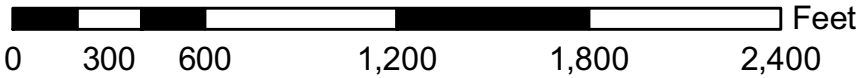
2





YELLOW NUMBERS = PHOTO NUMBERS

Source: NAPP Aerial Photograph - 2006



SCALE:	1 inch = 600 feet
CHECKED BY:	WCD
DRAWN BY:	ADW
DATE:	8/13/2010



<b>AERIAL MAP</b> Hunter Industrial Park ~ 380 acres Laurens, Laurens County, South Carolina	
S&ME PROJECT NO.	1614-10-270

FIGURE NO.  
**3**





**Photo #1** Cutover/ secondary growth forestland on the northern portion of the site.



**Photo #2** Cutover/ secondary growth forestland on the central portion of the site.



**Photo #3** Cutover/ secondary growth forestland on the southern portion of the site.



**Photo #4** Riparian hardwood buffers on the southern portion of the site.



**Photo #5** Riparian hardwood buffers on the western portion of the site.



**Photo #6** Riparian wetland located on northern portion of site.





**Photo #7** Isolated, depression wetland located on western portion of site.



**Photo #8** Perennial stream central portion of site.



**Photo #9** Perennial stream southern portion of site.



**Photo #10** Perennial stream northwestern portion of site.



**Photo #11** Intermittent/seasonal stream on central portion of site.



**Photo #12** Ephemeral drainage on southern portion of site.



## **APPENDIX B**

### **County Species Lists from USFWS and SCDNR For Laurens County**

**South Carolina List of Endangered, Threatened and Candidate Species  
March 2010**

E	Federally endangered
T	Federally threatened
P	Proposed in the Federal Register
CH	Critical Habitat
C	The U.S. Fish and Wildlife Service or the National Marine Fisheries Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species
S/A	Federally protected due to similarity of appearance to a listed species
*	Contact the National Marine Fisheries Service for more information on this species
**	The U.S. Fish and Wildlife Service and the National Marine Fisheries Service share jurisdiction of this species
BGEPA	Federally protected under the Bald and Golden Eagle Protection Act

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated continually and may be different from the following. For a list of state endangered, threatened, and species of concern go to <http://www.dnr.sc.gov/species/index.html>.

<u>COUNTY</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
<b>Abbeville</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E
	Georgia aster	<i>Aster georgianus</i>	C
<b>Aiken</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Piedmont bishop-weed	<i>Ptilimnium nodosum</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Relict trillium	<i>Trillium reliquum</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
	Wood stork	<i>Mycteria americana</i>	E
<b>Allendale</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
	Wood stork	<i>Mycteria americana</i>	E

<u>COUNTY</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
<b>Lancaster</b>	Black-spored quillwort	<i>Isoetes melanospora</i>	E
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E, CH
	Little amphianthus	<i>Amphianthus pusillus</i>	T
	Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
<b>Laurens</b>	Carolina heelsplitter	<i>Lasmigona decorata</i>	E
	Georgia aster	<i>Aster georgianus</i>	C
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
<b>Lee</b>	American chaffseed	<i>Schwalbea americana</i>	E
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
<b>Lexington</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
<b>Marion</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
	Wood stork	<i>Mycteria americana</i>	E
<b>Marlboro</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
<b>McCormick</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E, CH
	Georgia aster	<i>Aster georgianus</i>	C
	Miccosukee gooseberry	<i>Ribes echinellum</i>	T
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Wood stork	<i>Mycteria americana</i>	E
<b>Newberry</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA

**SCDNR Rare, Threatened, & Endangered Species Inventory**  
**Species Found In Laurens County**  
**Data Last Updated January 17th, 2006**

<b>SCIENTIFIC NAME</b>	<b>COMMON NAME</b>	<b><u>GLOBAL RANK</u></b>	<b><u>STATE RANK</u></b>	<b><u>LEGAL STATUS</u></b>
ASTER GEORGIANUS	GEORGIA ASTER	G2G3	S?	SC
COLONIAL WATERBIRD		G?	S?	SC
DIRCA PALUSTRIS	EASTERN LEATHERWOOD	G4	S?	SC
ELLIPTIO LANCEOLATA	YELLOW LANCE	G2G3	S?	SC
FRASERA CAROLINIENSIS	CUMBO	G5	S1	RC
HETERANTHERA RENIFORMIS	KIDNEYLEAF MUD-PLANTAIN	G5	S?	SC
LONICERA FLAVA	YELLOW HONEYSUCKLE	G5?	S2	SC
MICROTUS PENNSYLVANICUS	MEADOW VOLE	G5	S?	SC
MINUARTIA UNIFLORA	ONE-FLOWER STITCHWORT	G4	S?	SC
OROBANCHE UNIFLORA	ONE-FLOWERED BROOMRAPE	G5	S?	SC
PANAX QUINQUEFOLIUS	AMERICAN GINSENG	G3G4	S2S3	RC
RHODODENDRON EASTMANII	MAY WHITE	G2	S2	SC
TRILLIUM RUGELII	SOUTHERN NODDING TRILLIUM	G3	S?	SC
TYTO ALBA	BARN-OWL	G5	S4	SC
VIOLA TRIPARTITA VAR TRIPARTITA	THREE-PARTED VIOLET	G5T3?	S?	SC

**Source:** [https://www.dnr.sc.gov/pls/heritage/county\\_species.list?pcounty=laurens](https://www.dnr.sc.gov/pls/heritage/county_species.list?pcounty=laurens)