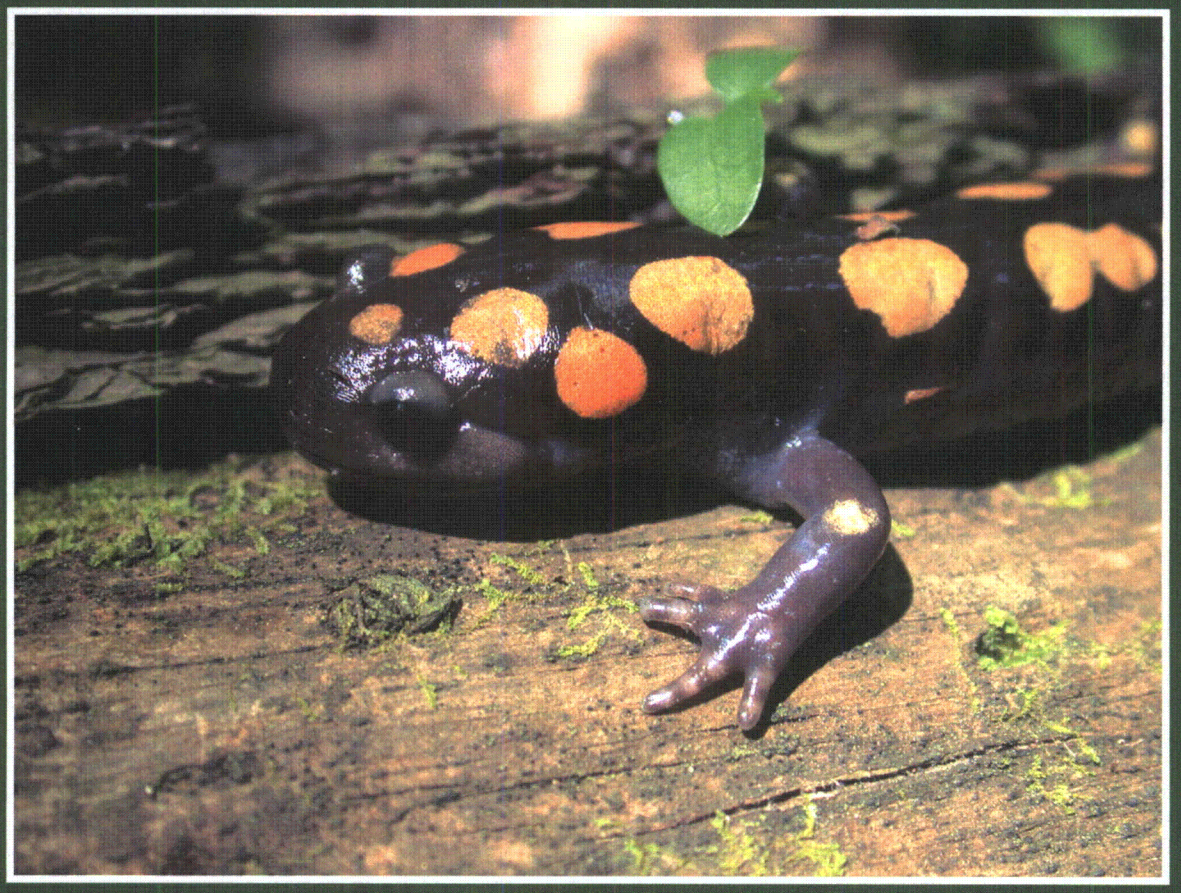
Herpetological Survey of the W.S. Lee III Nuclear Station, South Carolina



by Michael E. Dorcas

24 August 2009

Herpetology Laboratory
Department of Biology Davidson College

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DAVIDSON

Purpose

This report describes the results of field activities conducted 7 November 2007 and from February to July 2009 to survey for amphibians and reptiles that inhabit the environs of the W.S. Lee III Nuclear Station near Gaffney, South Carolina.

Suggested Citation

Dorcas, M. E. 2009. *Herpetological Survey of the W.S. Lee III Nuclear Station, South Carolina.* Final Report to Duke Power Company.

Cover Photograph

Spotted salamander (*Ambystoma maculatum*) photographed by John D. Willson. This species was found inhabiting several wetlands and other aquatic habitats at the W.S. Lee III Nuclear Station.

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EXECUTIVE SUMMARY

This report describes research to inventory the amphibians and reptiles inhabiting aquatic habitats of the W.S. Lee III Nuclear Station site in South Carolina. Aquatic habitats were exclusively searched manually on 7 November 2007 for amphibians and reptiles and for potential habitat where they likely occur. Between February and July 2009, extensive trapping and manual sampling was conducted at aquatic habitats combined with less intensive sampling in terrestrial habitats. We documented a total of 31 species of amphibians and reptiles, including 12 species of anurans, 6 species of salamanders, 7 turtle species, 3 lizards, and 3 snakes. Two Species of Special Concern in South Carolina (Northern Cricket Frog, *Acris crepitans* and Pickerel Frog, *Rana palustris*) were both found to be abundant. We found ephemeral wetlands, ponds, and limited stream habitats that support a high-diversity and abundant amphibians and semi-aquatic reptiles. Overall, the species documented during our study at Lee Nuclear Station are typical for Piedmont habitat. We did not find any species we thought unlikely to occur at the nuclear station and no species we expected to be able to easily find were absent. As development of the site proceeds, special consideration should be given to preserving as many wetland and ephemeral pond habitats as possible to protect the uniquely high diversity of semi-aquatic herpetofauna at the site.

INTRODUCTION

The diversity of herpetofauna (amphibians and reptiles) in the Southeast is unmatched anywhere in the United States. More than 450 species occur in the United States and approximately half occur in the Southeast (20% are endemic; Gibbons 1993, Palmer and Braswell 1995, Conant and Collins 1998). Amphibians and reptiles are an important part of the native biodiversity in nearly all southeastern habitats and are especially vital components of aquatic systems (Burton and Likens 1975; Congdon and Gibbons 1989). Consequently, the status of herpetofauna can be used as an indicator of the integrity of a habitat as well as the consequences of habitat destruction or other forms of environmental degradation (Gibbons 1988; Gibbons et al. 2000; Knutson et al. 1999; Vitt et al. 1990). Inventories at prescribed locations for particular taxonomic groups are vital to assessment of an area's ecological integrity and are essential for future mitigation. Unfortunately, knowledge of the herpetofaunal diversity and distribution in many areas of the Southeast is still lacking. One such region is the majority of the state of South Carolina. Except for intensive, long-term surveys of a few areas (e.g., the Savannah River Site), little documentation of the distribution of herpetofauna in South Carolina is available (Dorcas et al. 2006). Nevertheless, many areas are likely to harbor high herpetofaunal diversities and abundances. It is important to document species inhabiting an area because such knowledge allows predictions of how anthropogenic alteration of habitats will affect amphibian and reptiles inhabiting the site of interest.

Habitat, like this at Lee Nuclear Station, harbors high biodiversities of amphibians and reptiles.

The proposed W.S. Lee III Nuclear Station (hereafter referred to as the Lee Nuclear Station) would be operated by Duke Energy Carolinas LLC and is located in Cherokee County approximately 8 miles southeast of Gaffney, South Carolina. Development and operation of the Lee Nuclear Station site may require the periodic altering of water levels in the two make-up ponds located on the property and the potential destruction of other wetland/ephemeral pond habitat. The purpose of this report is to provide information that will help to evaluate the potential impacts of anthropogenic activities related to construction and operation of the station on amphibians and reptiles inhabiting the property. Specifically, our objectives include:

1. Provide documentation of amphibians and reptiles, with added emphasis on rare, threatened, or endangered (RTE) species, that potentially occur at the W. S. Lee III Nuclear Station and its vicinity, Cherokee County, SC, and adjacent counties.
2. Document amphibian and reptile species inhabiting W. S. Lee III Nuclear Station, Cherokee County, SC, including any RTE species.
3. Estimate relative abundances of species and groups of species inhabiting the project boundary.

METHODS

Study Site

The proposed Lee Nuclear Station is on the west side of the Broad River and the site boundary encompasses approximately 1900 acres of property in the Piedmont physiographic province of the Appalachian Mountain system. Duke Power Company conducted partial construction of the proposed Cherokee Nuclear Station on this site from 1977 to1982 and as a result the site consists of graded, open, and partially developed land

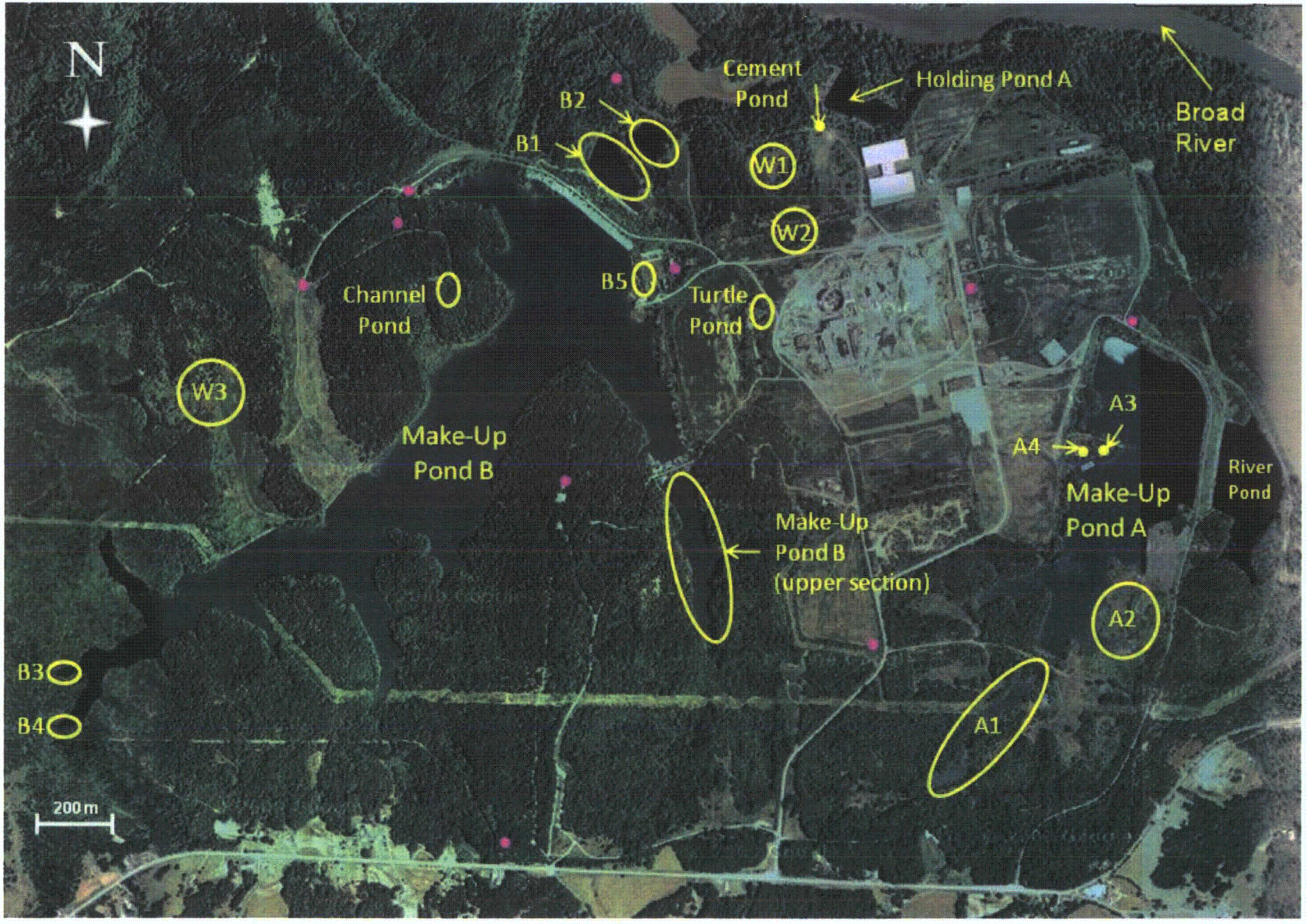


Figure 1. Map of the Lee Nuclear Station with all study sites indicated in yellow. Pink dots represent an amphibian and/or reptile observation that was recorded outside of one of the study sites.

with low groundcover vegetation, scattered hardwood forest, small streams, several ponds, and two large reservoirs.

The two large reservoirs are Make-Up Pond A which has a surface area of 68 ac (27.5 ha) and the 154 ac (62.3 ha) Make-Up Pond B (Fig. 1).

Potential Species Lists

A list of within-range species for the study area was generated based on geographic distribution maps published by Conant and Collins (1998), Petranka (1998), and Lannoo (2005). Unfortunately, there are no publications or documents that provide detailed distribution records for amphibians and reptiles in South Carolina. Consequently, we obtained all amphibian and reptile records for Cherokee County, South Carolina by querying 47 museums, universities, and other appropriate organizations (Appendix 1) to assist in developing a more accurate potential species list. Based on known geographic ranges and available habitat within or near the study areas, we determined if each species potentially occurred at the Lee Nuclear Station study area.

Sampling Methods

On 7 November 2007 we made a one day, late fall visit to the site and searched the edges of both Make-Up Pond A and Make-Up Pond B from a boat for habitats that might harbor amphibians and reptiles. We paid particular attention to areas delineated as wetlands within the reservoirs. Shorelines of both reservoirs were scanned using binoculars for suitable habitat and we used previously delineated wetland maps to make decisions on places to sample. Sampling consisted of searching from the boat for

Lee Nuclear Station houses several excellent aquatic habitats, which is vital habitat for numerous species.

basking turtles and snakes, turning cover objects on land and in shallow water, and dipnetting streams and small pools (Dorcas 2007).

In 2009, we initiated an intensive sampling of all aquatic habitats using a variety of techniques, including those mentioned above as well as setting turtle and/or minnow traps on numerous occasions. Additionally, we conducted limited manual sampling of terrestrial habitats. We sampled Make-Up Ponds A and B, Make-Up Pond B (upper section), Channel Pond, B1, B2, and A1 using turtle traps baited with sardines on two occasions each and the Cement Pond, Holding Pond A, B5, the Turtle Pond, and the River Pond on one occasion in June or July. Turtle traps were set in relatively shallow areas and in areas likely to harbor turtles. We sampled W3, B1, B2, B3, B4, B5, W1, W2, A1, and A2 using minnow traps on at least one occasion each. We conducted night-time calling surveys on several occasions and visited most significant amphibian breeding sites. Additionally, during the early spring, we deployed automated recording systems at some sites to record vocalizing anurans (Bridges and Dorcas 2000). However, because sites were easily visited via calling surveys, all species recorded using ARS were detected using manual surveys. All sampling effort during 2007 and 2009 resulted in 104 total person days (Table 1).

Table 1. Total herpetological sampling effort from November 2007 through July of 2009 for the Lee Nuclear Station.

Month	Total Days	Total Person Days
Nov-07	1	3
Feb-09	2.5	12
Mar-09	2.5	20
Apr-09	4	15
May-09	3	13
Jun-09	3	25
Jul-09	2.5	16
Total Sampling Effort	**18.5**	**104**

For each species encountered, we recorded the species name, sampling technique used, GPS coordinates (NAD 1983 UTM Zone 17N), number of individuals, and sampling location. Additionally, we recorded comments such as behavior, size, reproductive condition, etc. We recorded basic weather conditions for each day sampled. All data were entered into a database and incorporated into a GIS (ArcGIS 9.3 ERSI, Redlands, CA) to evaluate distributions in relation to geographic features. We considered species abundant if 8 or more observations were recorded, common if 3-7 observations were recorded, somewhat rare if the species was documented only twice and rare if only one observation was made.

When possible, we documented all species using digital photography in order to allow for identification to species. For calling anurans, digital recordings were made on some occasions.

RESULTS AND DISCUSSION

Based on published distributions, 25 amphibian and 41 reptile species potentially occurred within the study area (Fig. 2; Table 2 and 3). Because our sampling during 2007 was limited to a single day during early November and the southeastern United States was experiencing a multi-year drought at that time, animal activity, and thus detectability, was low. Consequently, we documented only 4 species of reptiles and 5 amphibian species during 2007. However, during 2009, as a result of our intensive aquatic and less intensive terrestrial sampling on the Lee Nuclear Station, we were able to document a high number of amphibians and reptiles, especially those that are semi-aquatic (i.e., amphibians and turtles). Our total numbers of documented amphibians and

reptiles included 12 species of anurans, 6 species of salamanders, 7 species of turtles, 3 lizards, and 3 species of snakes (Fig.2).

Table 2. List of potentially occurring and recorded amphibian species at the Lee Nuclear Station. For details of which species were found at which locations, see electronic version of table.

Scientific Name	Common Name	Status
Acris crepitans	Northern cricket frog	Recorded*
Bufo americanus	American toad	Recorded
Bufo fowleri	Fowler's toad	Recorded
Gastrophryne carolinensis	Eastern narrowmouth toad	Recorded
Hyla chrysoscelis	Cope's gray treefrog	Recorded
Hyla cinerea	Green treefrog	Recorded
Hyla versicolor	Gray treefrog	Potential
Pseudacris crucifer	Spring peeper	Recorded
Pseudacris feriarum	Upland chorus frog	Recorded
Rana catesbeiana	Bullfrog	Recorded
Rana clamitans	Green frog	Recorded
Rana palustris	Pickerel frog	Recorded*
Rana sphenocephala	Southern leopard frog	Recorded
Scaphiopus holbrookii	Eastern spadefoot toad	Potential
Ambystoma maculatum	Spotted salamander	Recorded
Ambystoma opacum	Marbled salamander	Recorded
Desmognathus fuscus	Northern dusky salamander	Recorded
Eurycea cirrigera	Southern two-lined salamander	Potential
Eurycea guttolineata	Three-lined salamander	Recorded
Gyrinophilus porphryticus	Spring salamander	Potential
Hemidactylium scutatum	Four-toed salamander	Potential
Notophthalmus viridescens	Red spotted newt	Recorded
Plethodon chlorobryonis	Atlantic coast slimy salamander	Recorded
Pseudotriton montanus	Mud salamander	Potential
Pseudotriton ruber	Red salamander	Potential

***Denotes a species of special concern in South Carolina**

Table 3. List of potentially occurring and recorded reptile species at the Lee Nuclear Station. For details of which species were found at which locations, see electronic version of table.

Scientific Name	Common Name	Status
Apalone spinifera	Spiny softshell turtle	Potential
Chelydra serpentina	Common snapping turtle	Recorded
Chrysemys picta	Painted turtle	Recorded
Kinosternon subrubrum	Eastern mud turtle	Recorded
Pseudemys concinna	Eastern river cooter	Recorded
Sternotherus odoratus	Common musk turtle	Recorded
Terrapene carolina	Eastern box turtle	Recorded
Trachemys scripta	Yellow-bellied slider	Recorded
Anolis carolinensis	Green anole	Recorded
Aspidoscelis sexlineatus	Six-lined racerunner	Potential
Eumeces fasciatus	Five-lined skink	Potential
Eumeces inexpectatus	Southeastern five-lined skink	Potential
Eumeces laticeps	Broadhead skink	Potential
Ophisaurus attenuatus	Slender glass lizard	Potential
Sceloporus undulatus	Fence lizard	Recorded
Scincella lateralis	Ground skink	Recorded
Agkistrodon contortrix	Copperhead	Potential
Carphophis amoenus	Worm snake	Potential
Cemophora coccinea	Scarlet snake	Potential
Coluber constrictor	Black racer	Recorded
Crotalus horridus	Canebrake rattlesnake	Potential*
Diadophis punctatus	Ringneck snake	Potential
Elaphe guttata	Corn snake	Potential
Elaphe obsoleta	Rat snake	Recorded
Heterodon platirhinos	Eastern hognose snake	Potential
Lampropeltis calligaster	Mole kingsnake	Potential
Lampropeltis getula	Eastern kingsnake	Potential
Lampropeltis triangulum	Scarlet kingsnake-milksnake	Potential*
Masticophis flagellum	Coachwhip	Potential
Nerodia sipedon	Northern watersnake	Recorded
Opheodrys aestivus	Rough green snake	Potential
Pituophis melanoleucus	Pine snake	Potential*
Regina septemvittata	Queen snake	Potential
Sistrurus miliarius	Pigmy rattlesnake	Potential*
Storeria dekayi	Brown snake	Potential

Storeria occipitomaculata	Redbelly snake	Potential
Tantilla coronata	Southeastern crowned snake	Potential
Thamnophis sauritus	Ribbon snake	Potential
Thamnophis sirtalis	Garter snake	Potential
Virginia valeriae	Smooth earth snake	Potential
Virginia striatula	Rough earth snake	Potential

***Denotes a species of special concern in South Carolina**

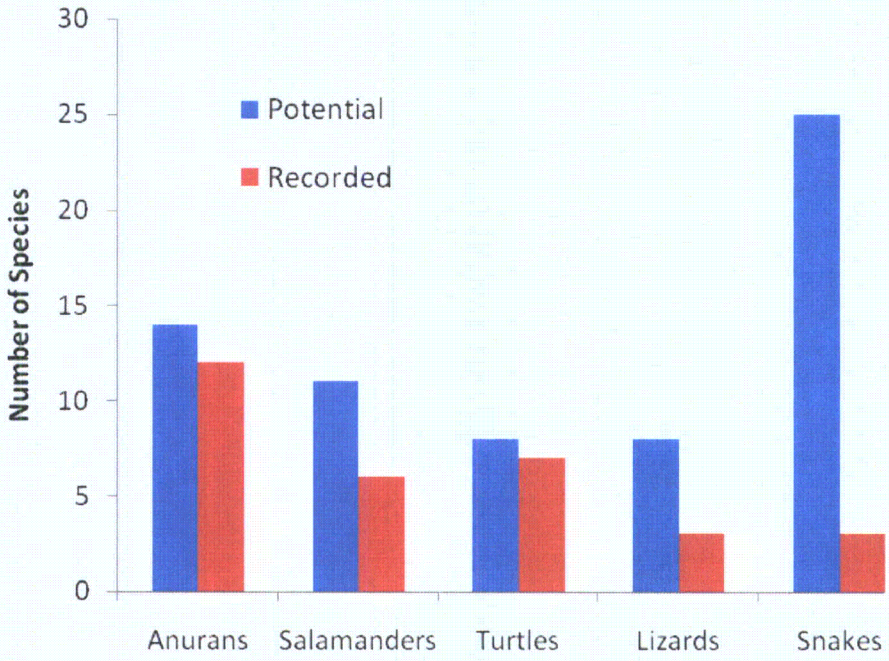
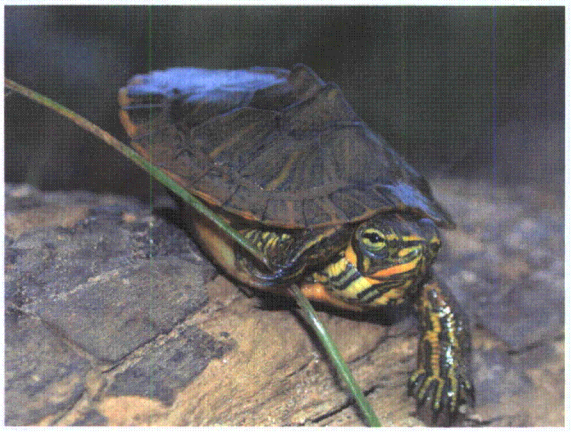


Figure 2. Number of potential and recorded species for herpetofaunal groups at the Lee Nuclear Station.

The abundance of a variety of lentic wetlands and ephemeral ponds found on the Lee Nuclear Station provides ideal habitats for many species of semi-aquatic amphibians and reptiles, especially turtles. We found numerous turtles at several ponds including Make-Up Pond A and the River Pond (Table 3). Overall, we found 7 of the 8 potentially-occurring species of turtles inhabiting the Lee Nuclear Station. The only species we did



Yellow-bellied slider (*Trachemys scripta)*. Photo taken by J.D. Willson.

not find was the spiny softshell (*Apalone spinifera*). Softshell turtles are typically more abundant in large reservoirs and rivers and thus, the smaller reservoirs, ponds, ephemeral ponds, and wetlands on the Lee Nuclear Station did not provide ideal habitat for this species. We found yellow-bellied sliders (*Trachemys scripta*) to be abundant in nearly all the ponds in which we sampled. River cooters (*Pseudemys concinna*) were most abundant in the River Pond, likely because this species is typically most abundant in riverine habitats and the River Pond is in close proximity to the Broad River (Table 4).

Table 4. Overall turtle abundances at the Lee Nuclear ponds (all species combined). A trap day equals the number of traps multiplied by the number of days deployed.

	Make- Up PondA	A1	Holding Pond A	Make-Up Pond B	Make-Up Pond B (upper section	Channel Pond	B1	B2	Turtle Pond	River Pond
# Trap Days	80	12	6	115	120	48	75	35	8	12
# Turtles	65	34	5	23	10	15	46	14	1	30
Pond Acreage (ha)	68 (27.50)	5.28 (2.14)	4.20 (1.70)	154 (62.30)	8.89 (3.60)	0.72 (0.29)	3.87 (1.57)	3 (1.21)	0.25 (0.10)	14.18 (5.74)
Turtles/Trap Day	0.81	2.83	0.83	0.20	0.08	0.31	0.61	0.40	0.13	2.50
Turtles per Trap Day/Acre (ha)	0.01 (0.03)	0.54 (1.32)	0.20 (0.49)	0.001 (0.003)	0.01 (0.02)	0.43 (1.07)	0.16 (0.39)	0.13 (0.33)	0.52 (1.3)	0.18 (0.44)

The abundance of aquatic habitats on the site provide abundant, quality habitat for many species of amphibians. The diversity of anurans included every species of anuran potentially occurring on site except for the eastern spadefoot (*Scaphiopus holbrookii*) and the common gray treefrog (*Hyla versicolor*; Table 2). However, spadefoots are unpredictable and explosive breeders that may remain dormant for years (Dorcas and Gibbons, 2008), making them difficult to detect during short-term surveys. Marbled salamanders (*Ambystoma opacum*) and spotted salamanders (*A. maculatum*) were both found during our surveys at several wetland sites and the ephemeral pond W1. Both of these species typically rely on ephemeral ponds or wetlands, habitats that are disappearing from much of the southeastern United States, for reproduction (Petranka 1998). These species appear to be relatively abundant because such habitats are relatively common on the Lee Nuclear Station.

Site W1, an ephemeral pond, harbored a high abundance and diversity of amphibians as evidenced by the catch in this minnow trap.

Many of the wetlands were associated with larger ponds containing fish which are often detrimental to amphibian populations. However, because of large areas of shallow water often containing dense aquatic vegetation, amphibians are able to persist in high numbers. For example, Wetland A1 is connected to Make-Up Pond A (Fig. 1), but because shallow water and thick vegetation limit the number and size of fish that remain in the wetland, numerous species of amphibians use this wetland as a breeding site. Site W1 appears to be the only classic isolated, ephemeral pond unassociated with a larger

aquatic system that likely dries every year and contains no fish. We found a high abundance of many species of anurans and salamanders that thrive in ephemeral aquatic habitats at W1.

Two amphibian and 4 reptile species occurred or potentially occurred at the Lee Nuclear Station that are considered Species of Special Concern by the state of South Carolina. Amphibians included the northern cricket frog (*Acris crepitans*) and the pickerel frog (*Rana palustris).* Reptiles included the timber/canebrake rattlesnake (*Crotalus horridus*), the milksnake (*Lampropeltis triangulum*), the pine snake (*Pituophis melanoleucus)*, and the pigmy rattlesnake *(Sistrurus miliarius)*. We documented the presence of both amphibians but none of the four reptiles on the Lee Nuclear Station. We found northern cricket frogs to be abundant at all main sampling locations (Table 5). This species can be found in any aquatic habitat, but is most abundant along open edges of non-forested wetlands. Pickerel frogs were found at numerous locations on the Lee Nuclear Station as well (Table 5). Of the four reptiles considered of Special Concern in South Carolina, timber rattlesnakes are probably the species most likely to occur on site. However, because of

Pickerel frogs were also found to be abundant at the Lee Nuclear Station sites. Photo taken by Richard Bartlett

The Northern cricket frog was abundant at Lee Nuclear Station. Photo taken by Aubrey Heupel.

their secretive nature and lack of effective methods to target most snake species, they were not detected during our surveys. Additionally, although we sampled terrestrial environments where rattlesnakes could be found, we focused our sampling more heavily on aquatic habitats.

Table 5. Qualitative relative abundances of amphibians and reptiles recorded at the Lee Nuclear Station.

Scientific Name	Common Name	Abundances
Anurans		
Acris crepitans	Northern cricket frog	Abundant
Bufo americanus	American toad	Common
Bufo fowleri	Fowler's toad	Abundant
Gastrophryne carolinensis	Eastern narrowmouth toad	Common
Hyla chrysoscelis	Cope's gray treefrog	Abundant
Hyla cinerea	Green treefrog	Abundant
Pseudacris crucifer	Spring peeper	Abundant
Pseudacris feriarum	Upland chorus frog	Abundant
Rana catesbeiana	Bullfrog	Abundant
Rana clamitans	Green frog	Abundant
Rana palustris	Pickerel frog	Common
Rana sphenocephala	Southern leopard frog	Abundant
Salamanders		
Ambystoma maculatum	Spotted salamander	Common
Ambystoma opacum	Marbled salamander	Somewhat Rare
Desmognathus fuscus	Northern dusky salamander	Rare
Eurycea guttolineata	Three-lined salamander	Rare
Notophthalmus viridescens	Red spotted newt	Common
Plethodon chlorobryonis	Atlantic coast slimy salamander	Rare
Turtles		
Chelydra serpentina	Common snapping turtle	Somewhat Rare
Chrysemys picta	Painted turtle	Common
Kinosternon subrubrum	Eastern mud turtle	Common
Pseudemys concinna	Eastern river cooter	Somewhat Rare
Sternotherus odoratus	Common musk turtle	Rare
Terrapene carolina	Eastern box turtle	Common
Trachemys scripta	Yellow-bellied slider	Abundant

Lizards		
Anolis carolinensis	Green anole	Common
Sceloporus undulatus	Fence lizard	Rare
Scincella lateralis	Ground skink	Rare
Snakes		
Coluber constrictor	Black racer	Somewhat Rare
Elaphe obsoleta	Rat snake	Somewhat Rare
Nerodia sipedon	Northern watersnake	Somewhat Rare

Rare = 1 Observation
Somewhat Rare = 2 Observations
Common = 3-7 Observations
Abundant = 8 or more Observations

Although we did not focus heavily on sampling terrestrial environments, we did spend limited time surveying forested and open areas likely to harbor many species of terrestrial reptiles (e.g., lizards and snakes). We failed to detect any five-lined skinks (*Eumeces fasciatus*). This species is usually ubiquitous throughout the Piedmont of the eastern United States and is easily observed during warm weather. Failure to find five-lined skinks is perplexing (Rice et al. 2001). Additionally, we only found limited numbers (< 5) northern watersnakes (*Nerodia sipedon)* despite spending substantial time sampling aquatic habitats.

Conclusions

Based on the results of our survey, we found the herpetofaunal of the Lee Nuclear Station and its environs to be very similar to herpetofaunal found throughout the Piedmont of the Carolinas (Brown 1992; Rice et al. 2001). We did not find any species we thought unlikely to occur at Lee Nuclear Station and no species we expected to be easy to find were absent. Like most of the Piedmont of South Carolina, the number of herpetofaunal species considered rare, threatened, or endangered is relatively low but the

two species that were detected, northern cricket frogs and pickerel frogs were relatively abundant and found in a number of aquatic habitats.

The aquatic habitats on the Lee Nuclear Station warrant special consideration during construction and operation of the facility. Anthropogenic impacts such as construction and fluctuation of water levels will likely detrimentally impact many of the aquatic habitats and result in reductions in numbers and the diversity of amphibians and reptiles inhabiting the site. Important aquatic habitats with particularly high amphibian diversity and abundances include A2, W1, and W3. Special consideration should be paid to isolated ephemeral ponds, notably W1, because these habitats are rare in the Piedmont and their importance to fish-sensitive amphibians is high. If at all possible, construction should be planned to preserve ephemeral ponds and shallow wetlands and the critical upland habitats surrounding them.

Wetland site "W1" is a true ephemeral pond on site.

Likewise, larger aquatic systems with permanent water provide habitat critical to many species of turtles. Make-Up ponds A and B harbor a high diversity turtles and if water levels were lowered substantially for extended periods of time, turtles that currently inhabit the make-up ponds would likely either perish or leave the area in search for other suitable habitats (e.g., nearby Broad River).

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Appendix 1: Museums, universities, and other organizations from which geographic distribution records were requested for Cherokee County, South Carolina.

Academy of Natural Sciences
Arctos - UAM Herpetology Specimens
Auburn University Museum
Borror Laboratory of Bioacoustics
California Academy of Sciences
Carolina Herp Atlas
Carnegie Museum of Natural History
Chengdu Institute of Biology, Chinese Academy of Sciences
Cornell University Museum of Vertebrates
Field Museum
Florida Museum of Natural History
Georgia Museum of Natural History
Harvard University Provider
Illinois Natural History Survey
James R. Slater Museum
Los Angeles County Museum of Natural History
Michigan State University
Milwaukee Public Museum
Museum of Natural Science
Museum of Southwestern Biology at The University of New Mexico
Museum of Vertebrate Zoology
National Museum of Natural History, Smithsonian Institution
North Carolina State Museum of Natural Sciences
Online Zoological Collections of Australian Museums
Raffles Museum of Biodiversity Research
Royal Museum For Central Africa
Royal Ontario Museum
Sam Noble Oklahoma Museum of Natural History
San Diego Natural History Museum
Santa Barbara Museum of Natural History
Staatliches Museum für Naturkunde Stuttgart
Sternberg Museum of Natural History
Texas Cooperative Wildlife Collection
Universidad Nacional Autonoma de Mexico
University of Alabama, Alabama Museum of Natural History
University of Alberta
University of Arizona Museum of Natural History
University of Colorado Museum of Natural History
University of Kansas Biodiversity Research Center
University of Louisiana at Monroe
University of Nebraska State Museum
University of Nevada, Reno

University of Texas at El Paso
University of Texas-Austin
Utah Museum of Natural History
Yale University Peabody Museum
Zoological Institute RAS

Enclosure No. 1
Duke Letter Dated: November 2, 2009

Attachment 89S-2

Dorcas, M.E., 2009, *Herpetological Surveys of the Railroad Corridor between Gaffney and the W.S. Lee III Nuclear Station, Cherokee County, SC*