

Final

Threatened and Endangered Species Surveys:

**Joseph M. Farley Nuclear Plant and
Associated Transmission Line Corridors**

(2001-2002)

Prepared for Southern Nuclear Operating Company

by

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June 21, 2002

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1.0 INTRODUCTION

In preparing for renewal of its operating licenses, the Joseph M. Farley Nuclear Plant (FNP) is required to assess a wide variety of potential environmental impacts, including impacts to ecological resources. This report presents the results of field surveys conducted in 2001 and 2002 to update information on ecological resources in the vicinity of FNP, and focuses on threatened and endangered species on the FNP site and its transmission line corridors. The surveys were also intended to aid in the evaluation of potential impacts from continued operation of FNP beyond the current operating term by identifying sensitive populations that potentially could be affected.

FNP, owned by Alabama Power Company and operated by Southern Nuclear Operating Company (SNC), is located in Houston County in southeastern Alabama, on the west bank of the Chattahoochee River. It is approximately 5.5 miles north of Gordon, Alabama, 16.5 miles east of Dothan, Alabama, 100 miles southeast of Montgomery, Alabama, and 180 miles south-southwest of Atlanta, Georgia. The site is in a sparsely populated, largely rural area, with forests and small farms comprising the dominant land use. The Chattahoochee River flows in a northwest-southeast direction along the eastern boundary of the FNP property and serves as the boundary between Houston County, Alabama and Early County, Georgia.

SNC has prepared this report to update information on ecological resources, including endangered and threatened species that may occur on the FNP site and its transmission corridors and to provide input to the license renewal decision-making process. Additionally, data from these surveys are intended to support the environmental documentation required by NRC (10 CFR 51.53) to be submitted with the license renewal application. The purpose of the surveys is broader, however, than the satisfaction of NRC regulations, which require applicants to evaluate potential impacts to Federally-listed species. As explained in Section 4.0, state-listed species are also included in accordance with SNC's corporate commitment to environmental stewardship. The following sections describe the survey area, present "target lists" of species of interest, describe survey techniques, discuss the results of the surveys, and suggest some factors that may influence the distribution and abundance of special-status species on the FNP site and its transmission corridors. The "survey area" is defined as the FNP site and associated transmission line corridors from FNP to the first substation connecting FNP to the regional transmission system.

2.0 FNP SITE DESCRIPTION

The FNP site consists of an 1,850-acre tract of land on the west bank of the Chattahoochee River in Houston County, Alabama (Figure 1). Approximately 500 acres are used for generation and maintenance facilities, laydown areas, parking lots, and roads. Alabama Power Company maintains approximately 1,300 acres of the FNP site as a wildlife preserve. In 1999, the Wildlife Habitat Enhancement Council recognized FNP for its wildlife and land management efforts (APC 2000).

The developed areas are primarily located approximately one-half mile west of the river. The remaining portion of the site consists of forested areas, ponds, wetlands, and open fields. The FNP site is near the boundary of the Dougherty Plain and Southern Red Hills physiographic regions of the East Gulf Coastal Plain. There are two major topographical subdivisions at the site: (1) gently rolling upland west of the Chattahoochee River Valley and (2) the river terraces and floodplain of the Chattahoochee River. This contributes to a diverse distribution of plant species, habitats, and communities. The river is about 490 feet wide and is bordered by a mature floodplain forest.

Habitats at FNP consist of river bluff forests, ravine forests, floodplain forests, pine-mixed hardwood forests, pine forests, and non-forested, mechanically-maintained grassland environments. Detailed descriptions of these habitats are found in Section 5.1.

Historical descriptions of the site can be found in the *Final Environmental Statement Related to Construction of Joseph M. Farley Nuclear Plant Units 1 and 2* (USAEC 1972).

3.0 TRANSMISSION CORRIDORS

Six high-voltage (230- and 500-kilovolt [kV]) transmission lines originate at FNP (Figure 2). The survey area includes the transmission corridors from FNP to each corridor's first substation (Table 1).

Approximately 325 miles of transmission corridors are associated with FNP. The standard width of the 500-kV transmission corridors is 150 feet, while the 230-kV transmission corridors are 125 feet wide. Where corridors overlap, the widths can be added together minus 25 feet (e.g., a 150-foot-wide corridor plus a 125-foot-wide corridor minus 25 feet equals 250 feet) to approximate the overall width.

Two 230-kV lines carry power west from FNP to the Pinckard and Webb substations near Dothan, Alabama. The corridor lengths total approximately 45 miles, with total corridor areas of 906.5 acres. A 500-kV line from FNP to the Snowdown substation near Montgomery, Alabama, is about 105 miles long and consists of approximately 1,900 acres. The 500-kV FNP to the Raccoon Creek substation (Georgia) line is 62 miles long, covering 1,127 acres. The FNP to South Bainbridge (Georgia) 230-kV line is 46 miles long and covers 697 acres (USAEC 1972). The Raccoon Creek and South Bainbridge corridors overlap for the first seven miles east of FNP. Alabama counties crossed by the transmission corridors consist of Barbour, Dale, Geneva, Henry, Houston, Montgomery, and Pike. Georgia counties crossed by the transmission corridors consist of Baker, Decatur, Early, Miller, Mitchell, Seminole, Tift, and Worth. Alabama Power Company is currently completing the construction of the 230 kV FNP to Sinai Cemetery transmission line, which is approximately 48 miles long. It travels into the state of Florida and crosses only one Florida county, Jackson. This survey did not include this corridor but it summarizes the results of a separate Alabama Power Company survey of a portion of the corridor.

Alabama Power Company and Georgia Power Company perform maintenance activities to keep vegetation heights low enough to prevent interference with the transmission lines. Current practices incorporate the use of approved herbicides on dry ground, low-lying wet areas, and stream crossings and hand clearing in some wetland areas. Some portions of the transmission corridors are cultivated by local farmers, and therefore require no additional vegetation maintenance. Private interests that have agreed to perform vegetation maintenance are managing portions of the transmission corridors for wildlife enhancement.

Alabama Power Company participates with the U.S. Department of Agriculture Natural Resources Conservation Service and local soil and water conservation districts in a pilot project to enhance wildlife habitats along transmission corridors. During 2000, 24 applicants (representing 212.2 acres of transmission line corridors) entered into this program to enhance wildlife habitats (Heitschmidt, 2000).

Georgia Power Company participates in a wildlife management program with GDNR on FNP transmission line corridors. “The Wildlife Incentives for Non-Game and Game Species” (WINGS) program is designed to help land users convert Georgia Power transmission corridors into productive habitat for wildlife. WINGS offers grant money and land management expertise to landowners, hunting clubs, and conservation organizations who commit to participating in the program for 3 years. Georgia Power Company is one of two utilities funding the WINGS program in Georgia.

The transmission corridors are located primarily within the East Gulf Coastal Plain physiographic province. Sandy soils and flat to gently rolling terrain largely characterize the region. Undulating hills and broad shallow valleys can be found in the northern portion of the Snowdown corridor. The slope, aspect, and underlying substrate of the soils play a significant role in determining the assemblage of plants and animals that are likely to occur in a given area. Because of the substantial length of the transmission corridors and the different directions they take from FNP, they transect a wide array of geophysical conditions that occur in the East Gulf Coastal Plain.

Wetlands along transmission corridors provide habitats that appear suitable for several federally-listed and state-listed plant species. Wetlands also provide habitats for several listed animal species, and some species (e.g., the wood stork) are found only in wetlands. Many animal species, however, are highly mobile and utilize more than one habitat type. The transmission corridors provide an open canopy and offer an abundance of herbaceous ground cover. Thus, they can be natural avenues for movement and foraging by some animals.

4.0 METHODOLOGY

4.1 Species of Interest

Species of interest for this report consist of “listed species” as defined below:

- Species that the U.S. Fish and Wildlife Service (USFWS) has listed, or proposed for listing, as threatened or endangered in accordance with the Endangered Species Act. The current statuses of these species were taken from “Review of Plant and Animal Taxa that are Candidates or Proposed for Listing as Endangered or Threatened” (Federal Register, September 19, 1997; Volume 62, No. 182), and from lists of Federally-endangered plants and wildlife maintained at the USFWS Endangered Species Program (internet) Home Page (<http://www.endangered.fws.gov>).
- Species classified by the Alabama Department of Conservation and Natural Resources (ADCNR) as protected by the Nongame Species Regulation (Section 220-2.92) of the *Alabama Regulations for 1999-2000 on Game, Fish, and Fur Bearing Animals* (ADCNR, 2001).
- Species classified by the Georgia Department of Natural Resources (GDNR) as endangered, threatened, rare, or unusual in accordance with the Georgia Endangered Wildlife Act and Wildflower Preservation Act (GNHP, 2001a; b)

Species of interest did not include those species that are restricted to aquatic habitats (e.g., fish, mussels) as per the work plan (Tetra Tech NUS 2001). Surveys for fish and mollusks will not be conducted as part of this survey because sufficient data are already available to describe occurrences of these species in the area of concern. SNC intends to rely on the results of recent surveys and studies conducted by various organizations to identify and describe these aquatic organisms in the area of concern (Tetra Tech NUS 2001).

4.2 Survey Techniques

The primary objective of the surveys was to determine the presence or absence of federal- and state-listed plant and animal species at FNP and along associated transmission corridors. A literature search was conducted prior to the initial field survey to identify known occurrences of listed species at FNP and along associated transmission corridors, as well as updates of geographic ranges of listed species that may occur in the region. Several sources were consulted for known and possible occurrences of listed species. Known occurrences of Federally-listed and Alabama-protected species in Alabama counties crossed by the transmission corridors were provided by the ADCNR State Lands Division, Natural Heritage Section.

Known occurrences of Federally-listed and Georgia-listed species in Georgia counties crossed by the transmission corridors were taken from a data base maintained by the Georgia Natural Heritage Program at <http://www.dnr.state.ga.us/dnr/wild/natural/gnhpds.htm>. This inventory was further supplemented using standard ecological references, contacts with local and regional authorities, and discussions with Alabama Power Company and Georgia Power Company biologists and natural resource managers. Based on the literature search, lists of federally-listed and state-listed terrestrial species “targeted” during the surveys were generated (Tables 2-5).

The undeveloped portions of the FNP site were surveyed on foot. The transmission corridors, because of their size, were surveyed by concentrating efforts in areas offering the greatest potential for harboring listed species. These areas were identified during an aerial reconnaissance of the transmission corridors by helicopter on June 5, 2001, prior to conducting ground surveys. Each corridor was flown at low altitude while three biologists recorded land use and habitat information on 7.5-minute USGS topographic quadrangle maps. This aerial reconnaissance provided a significant advantage to the biologists by allowing them to rapidly eliminate from consideration cropland, pastures, and other areas of poor quality habitat for listed species. Following the low-altitude reconnaissance, biologists drove to areas of potential interest and conducted surveys on foot (Figures 3-8). Ground surveys of the entire lengths of all corridors would have required, at a minimum, several months of intensive field-work.

The FNP to Sinai Cemetery corridor includes approximately 15 miles of corridor constructed in 2001 and 2002 to connect FNP to an existing corridor formerly used for a Webb to Sinai Cemetery line. The connection is at a point that results in the new FNP to Sinai Cemetery corridor being 48 miles long. Alabama Power Company biologists walked the proposed 15-mile right-of-way prior to construction to identify major habitat types with a focus on locating and delineating wetlands. The staff encountered two gopher tortoise burrows. Gopher tortoises are state-protected in Alabama. No Federally listed threatened or endangered species were found.

4.2.1 PLANTS

Three seasonal surveys (Summer, Autumn, and Spring) were conducted to ensure that all target species, if present, would be readily visible and identifiable in the field while in flower and/or fruit. The Summer survey was conducted during June 3-8 and June 13-18, 2001, the Autumn survey during September 11-15, 2001, and the Spring survey during March 19-23 and May 9-11, 2002. Target lists of federal and state-listed species were developed for each survey event (Tables 2, 3, and 4). The target lists included all listed vascular plant species believed to have even a remote possibility of occurring at FNP or on the

associated transmission corridors. No species proposed for Federal listing was identified as being likely to occur.

The Summer target list (Table 2) contains 14 species, nearly all of which occur in Coastal Plain pine flatwoods wetlands. This habitat type occurs in several locations on the Raccoon Creek corridor, and to a lesser extent, on the South Bainbridge corridor. Summer fieldwork, after an initial inspection of the FNP site, was therefore concentrated in flatwoods habitats on the Raccoon Creek and South Bainbridge transmission corridors. There is almost no pine flatwoods habitat on the Webb, Pinckard, and Snowdoun corridors.

Numerous open, pond cypress (*Taxodium ascendens*) savannahs—prime habitat for the Federally-endangered Canby's cowbane (*Oxypolis canbyi*)—were observed along the Raccoon Creek transmission corridor during the helicopter reconnaissance. Canby's cowbane blooms in late August and September and is often impossible to identify in late Spring and early Summer. The Autumn survey (September 11-15, 2001) was therefore concentrated on the Raccoon Creek corridor. Most fieldwork during the Autumn survey was concentrated in wetland sinks and in pond cypress savannahs, both of which occur in numerous locations on the Raccoon Creek corridor and are relatively rare on the other four corridors.

Most of the species on the Spring target list (Table 4) occur on bluffs, in ravines, and in floodplain forests. These types of habitats occur primarily at FNP and on the Webb, Pinckard, and Snowdoun transmission corridors.

During each survey, 7.5 minute series topographic quadrangle maps developed by the United States Geological Survey (USGS) and a hand-held Global Positioning System (GPS) unit were used to record the locations of areas that were searched. Notes were taken at each area searched describing habitats and plant species present. GPS locations of listed species located during the surveys were recorded on data sheets provided by the Georgia Natural Heritage Program and the Alabama Natural Heritage Program (Appendix A).

Plant field-work was performed by Dr. L. L. Gaddy. Dr. Gaddy has a Ph. D. from the University of Georgia in biogeography and is currently president of terra incognita, an environmental consulting company. He has published widely in the fields of biogeography, botany, and invertebrate zoology.

4.2.2 ANIMALS

The surveys for birds, mammals, reptiles, and amphibians was designed to provide information on the occurrence and potential for occurrence of listed species at the FNP site and along the transmission

corridors. Biologists conducted the survey of the FNP site by systematic walkover within all natural habitats, such that each habitat type was thoroughly searched. Surveys conducted along the transmission corridors were performed using similar methodology except that, due to the openness of the corridors, a survey by vehicle was adequate in some areas.

Wildlife surveys were conducted during June 6-12, 2001, June 18-21, 2001, March 21-26, 2002, and April 30-May 2, 2002. During each survey, listed wildlife species were identified through actual observations, as well as from tracks, scat, and bird calls. Topographic maps and a hand-held GPS unit were used to record locations of listed species. Notes regarding listed species occurrences, as well as pertinent data regarding habitat quality, weather conditions, time of day, etc., were recorded in a field notebook. All occurrences of listed animal species observed during the surveys were recorded on data sheets provided by the Georgia Natural Heritage Program and the Alabama Natural Heritage Program (Appendix B). No trapping or other collection activities were conducted, except where slow-moving reptiles or amphibians were captured by hand and released after identification. Because many animal species are mobile and secretive, the absence of a species during a survey is not necessarily conclusive evidence that the species does not use the area in question. Therefore, the *potential* for use of the FNP site and transmission corridors by listed wildlife species was also evaluated, based on the quality of habitats observed.

Prior to the initiation of field activities, a target animal list was developed (Table 5). The species shown in Table 5 consist of state and Federally-listed species that occur (or could possibly occur based on habitat and known geographic range) in the area encompassed by the FNP site and associated transmission corridors. Listed species that occur only in coastal areas (e.g. sea turtles, manatees), mountainous regions (e.g., Appalachian cottontail), or in other geographical locations separate from the transmission corridors of interest, were excluded. A conservative approach was used in an effort to make the list as all-inclusive as possible. As mentioned earlier, however, fish, mussels, and other aquatic species were not included as target species as per the work plan (Tetra Tech NUS 2001).

Survey locations along the transmission line corridors were selected based primarily upon the aforementioned helicopter survey. Natural habitats observed during the helicopter survey, such as river and creek crossings, swamps, marshes, and mature forests adjacent to the transmission corridors, were targeted for ground surveys. In addition, areas on or near the transmission line corridors that have been previously identified by SNC as locations of listed species or significant natural communities were surveyed.

Animal field-work was performed by Mike Whitten. Mr. Whitten has 12 years of technical and managerial experience in wildlife ecology and toxicology. He currently serves as environmental scientist and conducts wildlife surveys, habitat evaluations, and ecological risk assessments for government, commercial, and utility clients. He has conducted and managed numerous projects that evaluated the ecological effects of proposed and operational electric generating plants, transmission lines, gas pipelines and other development projects on threatened and endangered wildlife species.

5.0 RESULTS

Results of the field surveys at the FNP site and associated transmission corridors are presented in Sections 5.1 and 5.2, respectively. Brief ecological descriptions of listed animal species that were observed, or that could occur at the FNP site and within the transmission corridors are presented in Section 5.3.

No areas designated by the USFWS as “critical habitat” for endangered species exist at the FNP site or adjacent to the transmission corridors.

5.1 FNP Site

5.1.1 PLANTS

As discussed below, the FNP site is rich in species and habitats. Nevertheless, no Federally-listed or state-listed plant species, or species proposed for Federal listing, were observed during the surveys of the FNP site, and none are known by SNC to occur at FNP.

Habitats at the site consist of river bluff forests, ravine forests, floodplain forests, pine-mixed hardwood forests, pine forests, non-floodplain wetlands, and non-forested mechanically-maintained grassland environments.

River Bluff Forests

Steep, forested river bluffs occur along the Chattahoochee River within the FNP site. Best developed near the northeastern corner of the site, some of the bluffs are nearly 50 feet in height above the river. The soils here are rich in calcium and magnesium and support a mixed hardwood community of white ash (*Fraxinus americana*), southern magnolia (*Magnolia grandiflora*), black walnut (*Juglans nigra*), water oak (*Quercus nigra*), cherrybark oak (*Quercus pagoda*), box elder (*Acer negundo*), and willow oak (*Quercus phellos*). Reminiscent of a high floodplain forest, the understory contains dwarf palmetto (*Sabal minor*), silverbell (*Diptera* sp.), American holly (*Ilex opaca*), black cherry (*Prunus serotina*), and buckthorn. The herbaceous layer is dominated by rich-soil floodplain species such as green dragon (*Arisaema dracontium*), Canada moonseed (*Menispermum canadense*), and southern pipevine (*Aristolochia tomentosa*).

Ravine Forests

Wilson Creek has eroded deeply into the local limestone (marl), forming several botanically interesting ravines. The largest and most well-developed ravine forest is on the northeastern edge of the FNP site, but ravine forests are also found on the western and southern margins of the site. The canopies of these ravine forests are dominated by beech (*Fagus grandifolia*), sweet gum (*Liquidambar styraciflua*), water oak, southern magnolia, tulip poplar (*Liriodendron tulipifera*), Florida maple (*Acer barbatum*), white oak (*Quercus alba*), and white ash. Some of the beeches and maples are over two feet in diameter. Florida maple, ironwood (*Ostrya virginiana*), and blue beech (*Carpinus caroliniana*) dominate the understory of these forests. Limestone bluffs and cliffs abound in the ravines. Large colonies of Venus/southern maidenhair fern (*Adiantum capillus-veneris*) and ovate maiden fern (*Thelypteris ovata*) occur on the moist limestone bluffs.

Floodplain Forests

Most of the floodplain forests of FNP are dominated by high floodplain or ridge floodplain species. On the highest ridges and in high floodplains, willow oak, Shumard oak (*Quercus shumardii*), bitternut hickory (*Carya cordiformis*), sweet gum, swamp chestnut oak (*Quercus michauxii*), and cherrybark oak are present. Along the river in early successional areas, sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*), and black willow (*Salix nigra*) dominate. In sloughs, backwaters, and poorly-drained areas, bald cypress (*Taxodium distichum*), water tupelo (*Nyssa aquatica*), red maple (*Acer rubrum*), and laurel oak (*Quercus laurifolia*) are commonly found.

Pine-Mixed Hardwood and Pine

The pine-mixed hardwood forests on FNP are primarily successional, recovering from past logging, and relatively nondescript. The dominant pine in most areas is loblolly pine (*Pinus taeda*). Hardwood species usually encountered include red maple, sweet gum, water oak (*Quercus nigra*), hickories (*Carya* spp.), and other upland oaks (*Quercus* spp.). Pine forests at FNP are dominated by loblolly pine and are second growth or planted pine forests. Prescribed burning does not appear to have been carried out in the pine forests at FNP.

Non-Floodplain Wetlands

Several non-floodplain wetlands occur on FNP. Most of these are generally weedy marsh areas with scattered red maple, sweet gum, black willow, and buttonbush (*Cephalanthus occidentalis*) as woody species. Plume grass (*Erianthus* sp.), woolgrass bulrush (*Scirpus cyperinus*), needlerushes (*Juncus* spp.),

and other wet sites emergent, nonwoody species are also found in these wetlands. One wetland has a broad expanse of open water dominated by water lilies (*Nuphar lutea* and *Nymphaea odorata*), water shield (*Brasenia schreberi*), and nonwoody marsh grasses such as woolgrass bulrush and common needlerush (*Juncus effusus*).

5.1.2 ANIMALS

Sixteen active gopher tortoise (*Gopherus polyphemus*) burrows were observed during the June 2001 survey in an “old field” habitat between the Chattahoochee River and the power production facilities at FNP. This area is occasionally mowed (“bush-hogged”). The gopher tortoise is listed as state-protected by ADCNR.

An osprey (*Pandion haliaetus*) nest constructed on a wooden platform erected for this purpose is located between the Chattahoochee River and the power production facilities. The nest contained two juveniles and was attended by two adult ospreys during the June 2001 survey. Two adult ospreys were observed at the nest during March 2002. An adult osprey was observed perched in a tree near the 108-acre Service Water Storage Pond at FNP during the June 2001 survey. The osprey is listed as state-protected by ADCNR.

An adult bald eagle (*Haliaeetus leucocephalus*) was observed perched in a tree directly across the Chattahoochee River from FNP during the June 2001 survey. The bald eagle is listed as threatened by USFWS, endangered by GDNR, and state-protected by ADCNR.

No other listed animal species, or any species proposed for Federal listing, were observed on the FNP site.

5.2 Transmission Line Corridors

Brief descriptions of survey locations on each transmission corridor are provided in Section 5.2.1. Section 5.2.2 discusses listed plants observed on the transmission corridors, while Section 5.2.3 discusses listed animals observed on the transmission corridors.

5.2.1 SURVEY LOCATIONS

This section provides brief descriptions of survey locations by corridor and Figures 3-8 note survey locations. Although some tree species exist in the corridors, there is no canopy or subcanopy since the corridors are mowed every three years. Vegetation generally consists of a low shrub layer and a herbaceous layer.

Webb 230-KV Transmission Line Corridor

Land use in the vicinity of the 10-mile Webb transmission corridor is largely agricultural and residential in character. Numerous homes are adjacent to the corridor, with hayfields, pastures, and row crops within or adjacent to the corridor. A few portions of the Webb corridor, however, traverse small isolated wetlands and forested areas.

- W1** The corridor traverses pines and pine/hardwood stands here.
- W3** Beaver pond at west edge of hill; hardwoods along edges of corridor.
- W4** Cypress pond 200-250 yards across, large cypress, bays, and various hardwoods; Scirpus around edge of pond and within corridor; large soybean and peanut fields on corridor to the west.

Pinckard 230-Kv Transmission Line Corridor

The Pinckard transmission corridor traverses land that is primarily agricultural and residential. This 35 mile-long corridor also crosses several streams, creeks, and wetlands, some of which are forested.

- P1** Pasture interspersed with pine/oak sandhill habitat.
- P3** Small stream wetland; weedy, some exotic vegetation.
- P4** Beaver ponds and weedy/shrubby wetlands at creek crossing.
- P5** Weedy wetland.
- P6** Small stream wetland crossing; bottomland hardwood forest along stream beyond corridor.
- P7** Cypress swamp along Mill Creek crossing; Cattail, Scirpus, Sagittaria, elderberry, and scattered cypress within corridor. Cattle pasture is at east edge of swamp.
- P8** Cypress pond; 100 yards wide along corridor, pond surrounded by large cypress. Yards of two homes are adjacent to pond on north shore.
- P9** Western portion is weedy along corridor; mature hardwood forest north of corridor; recently cleared land (apparently for sub-division development) south of corridor; eastern portion along Cooper Creek is second growth, thick deciduous shrub/forest.
- P11** Floodplain woods along small stream (Cypress Creek) with weedy/shrubby vegetation; primarily willow, bay, and elderberry. Upland mixed hardwoods on low slopes beyond floodplain.
- P12** Weedy stream wetland between pasture (along corridor to the west) and hill (along corridor to the east). Bottomland hardwood forest along stream beyond corridor.

P13 Extensive cattail marsh along corridor immediately northwest of Choctawhatchee River. Bottomland hardwood forest along river.

P14 Mixed hardwood bluffs with beech (*Fagus grandifolia*), southern magnolia (*Magnolia grandiflora*), and white oak (*Quercus alba*) in northern portion of site. On hillside descending to Choctawhatchee River floodplain is second-growth thick stand of young oaks on both sides of corridor.

Snowdoun 500-KV Transmission Line Corridor

Land use along the Snowdoun transmission corridor is dominated by row crops and pine plantations. However, several streams, creeks, and small rivers are crossed by the corridor on its 105-mile route to Montgomery. This terrain is more undulating and the soil is darker, more clayey, and less sandy than on the other four surveyed corridors.

M2 Agricultural land, hardwoods, pine forests, and shrubby wetland along Mill Creek.

M3 Agricultural land, scattered hardwood stands.

M4 Bottomland hardwood forest along East Fork of Choctawhatchee River.

M5 Agricultural land, planted pines, mixed young pines and hardwoods.

M6 Bottomland hardwood forest along West Fork of Choctawhatchee River.

M7 Bottomland hardwood forest along Pea River, planted pines and agricultural lands on gentle slopes beyond river floodplain.

M8 Bottomland hardwood forest along Conecuh River.

M9 Hardwood forested ravines and botanically rich bluffs overlooking a cypress swamp.

M10 A large floodplain/bluff complex along Ramer Creek; upland and lowland mixed hardwood species.

Raccoon Creek 500-KV Transmission Line Corridor

The 62-mile Raccoon Creek corridor traverses numerous pine plantations and agricultural tracts, but also crosses large expanses of natural habitats such as pine flatwoods, cypress ponds, swamps, wetland sinks, and pond cypress savannahs.

T1 Bottomland hardwood forest on both sides of corridor. Several Florida willows (*Salix floridana*) occur along the margin of the corridor here. The Florida willows are scattered over a three- to five- acre area of the transmission corridor in a low, wet area in the western portion of the floodplain. The willows overtop most of the other woody vegetation of the area, which includes wax myrtle (*Myrica cerifera*), sweet bay (*Magnolia virginiana*), and young tulip poplars (*Liriodendron tulipifera*). The nonwoody plants here include bluestems (*Andropogon* spp.), meadowbeauties (*Rhexia* spp.), cinnamon fern (*Osmunda cinnamomea*), and Virginia chain fern (*Woodwardia virginica*), along with weedy wetland species.

T1A Young pines (pine flatwoods) on both sides of corridor.

T2 Cypress swamp along south edge of corridor in first 1300 ft east of Hwy 370. Extensive Hypericum marsh within corridor east of Raccoon Creek tower # 18. Cypress swamp south of marsh beyond corridor, titi swamp north of marsh beyond corridor.

T5 Marsh is east of tower # 43; titi and cypress in swampy area beyond corridor. Open pine flatwoods (fire maintained) in dryer areas south of corridor.

T5A This site is a wetland depression forested by a dense stand of relatively even-aged pond cypress (*Taxodium ascendens*). The transmission corridor passes through the middle of the stand. Weedy wetland species such as giant plume grass (*Erianthus giganteus*), and woolgrass bulrush (*Scirpus cyperinus*) mix with typical herbaceous and graminaceous species here. Standing water is present; and there appears to be no sign of fire within the last decade or so. The wetland is too weedy to be ideal for Canby's cowbane (*Oxypolis canbyi*).

T5B This site contains two poorly-drained pond cypress-mixed hardwoods wetlands associated with Wamble Creek. Both wetlands are poorly-drained pond cypress-mixed hardwoods wetlands with dense understories. Weedy wetland species and standing water are present where the corridor passes through these wetlands.

T8 This site consists of two open, pond cypress wetlands. Both have been burned in the past few years and appeared to be excellent habitat for the endangered Canby's cowbane, which prefers open, wet savannahs. Although no cowbane was found, the state-listed Thorne's buckthorn (*Sideroxylon thornei*) was found along the northern and southern margins of the transmission corridor.

T9 and T9A These are pond cypress savannahs. The easternmost pond cypress wetland had recently been logged and was dominated by giant plumegrass (*Erianthus giganteus*) thickets and was poor habitat for listed species.

T9B Two disturbed pond cypress-mixed hardwood wetlands occur here.

T10 This site was dominated by open, pine (*Pinus palustris* and *Pinus elliottii*) flatwoods. Marginal habitat for pitcher plants (*Sarracenia* spp.) was present, but no plants were located.

T11 A pond cypress swamp here was checked out for possible Canby's cowbane habitat. No such habitat was present.

T13 Chickasawhatchee Creek crossing within Elmodel Wildlife Management Area. Agricultural lands west of creek, hardwood forest east of creek. Within corridor: agriculture in some portions, weedy in other portions.

T14 and T14A A series of open and partially-forested limesink ponds with well-defined sandy margins; are purportedly underlain by limestone or marl. Several of these ponds appeared to be excellent habitat for the endangered pondberry (*Lindera melissifolia*), which is known to occur within and on the margins of such limesinks; none were found. The low hills between the ponds are dry enough so that a few active gopher tortoise burrows were observed here.

T17, T17A, and T17B An extensive stretch of managed, open pine flatwoods is present here. The pines are middle-aged to mature and have been burned, creating the open understory flatwoods forest type preferred by pitcher plants (*Sarracenia* spp.) and other pine savannah species.

T17C Bottomland hardwood forest along Raccoon Creek. Hardwoods interspersed with areas of planted pines east of Raccoon Creek.

T18 This ravine appeared from the air to be a seepage bog. Field observation revealed that it was a cut-over ravine with no habitat for listed species.

T18A An open, pond cypress wetland; it appears to have previously been rich in species. Currently, it is heavily grazed by cattle and does not harbor habitat for any listed species.

T18B and T18C These two wetlands are deep-water pond cypress ponds. Standing water is present at the point where the corridor crosses these ponds.

T18D This site looked like a potential seepage bog from the air and on the topographic map. However, it is a highly-disturbed intermittent stream with poor habitat for listed plant species.

T23 Old (but active) beaver pond and swamp. Hardwood forest immediately north of corridor, with agricultural lands to the south of the corridor.

T24 An extensive stretch of mature rolling, open pine-dominated hills. Because there are scattered wetlands and the site is burned annually, excellent habitat for wet savannah species is present here. Three populations of pitcher plants were found within T24—two populations of hooded pitcher plant (*Sarracenia minor*) and one population of yellow pitcher plant (*Sarracenia flava*). The western population of hooded pitcher plant had 35 clumps, while the population to the east had less than 10 clumps of the plant. Only two clumps of the yellow pitcher plant were present.

T25 A blackwater creek dominated by mixed hardwoods.

T26, T27, T28, T29, T30, and T32 These sites were surveyed because they appeared to potentially contain open, acidic seepage bogs, which are habitat for pitcher plants and other listed species. Most of these sites, however, were cut-over mixed hardwood or cleared sites and were poor habitat for listed plant species.

T31 This site is a floodplain mixed hardwood site. Where the corridor crosses the floodplain, weedy species and woody shoots dominate.

South Bainbridge 230-KV Transmission Line Corridor

Land use in the vicinity of the 46-mile South Bainbridge transmission corridor is largely agricultural and rural, with large tracts of corn and hayfields. The corridor also traverses some moderately large areas of pine flatwoods.

B1 Bottomland hardwood forest along creek; pine and pine/hardwood forest beyond corridor.

B1A A small depression with mixed hardwoods.

B2 Primarily pine-mixed hardwoods with poor habitat for listed plant species.

B3 Swamp surrounding old beaver pond in floodplain of small stream. The swamp is dominated by open pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa biflora*), with buttonbush (*Cephalanthus occidentalis*) and herbaceous species in the transmission corridor itself. Young planted pines and pasture on low hill to the southeast along corridor.

B4 Swamp within the floodplain of a small intermittent stream that is part of the Dry Creek watershed.

B5 Xeric vegetation on hillside within corridor; young hardwoods beyond corridor.

B6 A cluster of sinkhole depressions east of Spring Creek. The sinks have been cleared for agriculture or are being used as cattle ponds and are devoid of natural vegetation.

- B7 to B7B** A 1.6-mile stretch of mature, gently undulating, longleaf pine-dominated forest. Some portions have been frequently burned, resulting in a dense ground cover of grasses and herbs with few understory shrubs. Less frequently burned portions are thick expanses of hardwoods mixed with pines.
- B8** Longleaf pine forest; controlled burning conducted here recently. Site appeared to be good habitat for pitcher plants. No pitcher plants or other listed plants, however, were found..
- B9** Gently rolling hills dominated by longleaf pines interspersed with swampy, hardwood-dominated areas in depressions and along stream bottoms.
- B10** Lake Seminole (Flint River) crossing.
- B11** Young planted pines
- B12** The corridor passes through mixed oak/pine forest, with agricultural land west of the corridor.
- B13** Marsh within corridor is a portion of extensive swamp to the southwest; area identified on USGS topographic maps as upstream extent of Fowlstown swamp.
- B14** Pine/hardwood forests in hilly terrain.
- B15** Planted pines, mixed pine/hardwood forest.

5.2.2 PLANTS

The survey for Federally- and state-listed plant species resulted in the discovery and documentation of one population of yellow pitcher-plant (*Sarracenia flava*) at site T24, two populations of hooded pitcher-plant (*S. minor*) at site T24, and one population of Thorne's buckthorne (*Sideroxylon thornei*) at Site T8 (Table 6). One population of Florida willow (*Salix floridana*), which was previously identified by Georgia Power Company biologists, was noted at site T1. There were no other Federally- or state-listed species, or any species proposed for Federal listing, observed on the transmission line corridors.

5.2.3 ANIMALS

Listed animal species discovered on the transmission corridors consisted of the gopher tortoise and Bachman's sparrow (*Aimophila aestivalis*) (Table 7). Bachman's sparrows were heard singing on the South Bainbridge corridor at Sites B7 and B9. Active gopher tortoise burrows were observed on all five corridors. Specifically, active gopher tortoise burrows were observed on the Webb corridor at Site W1, on the Pinckard corridor at Sites P1 and P14, on the Snowdown corridor at Sites M3 and M5, on the Raccoon Creek corridor at Sites T1A, T2, T5, T14A, T17, T17B, T17C, and T24, and on the South Bainbridge corridor at Sites B1, B3, B7A, B11, and B12 (Table 7).

Three dusky gopher frogs (*Rana capito sevosa*) were observed in a gopher tortoise burrow at B3 on the South Bainbridge corridor. Two Eastern coachwhip snakes (*Masticophis flagellum flagellum*) were observed near the Flint River on the Raccoon Creek corridor at Site T17B. An osprey was seen flying over the South Bainbridge corridor at the Lake Seminole (Flint River) crossing (Site B10). The dusky gopher frog, Eastern coachwhip, and osprey are not federally-listed and are not state-listed in Georgia (where they were observed). Each of these three species is classified in Alabama, however, as state-protected.

A wading bird rookery was discovered during the Spring 2002 survey in a cypress swamp immediately south of Site T18B (Raccoon Creek corridor); the rookery was approximately 300-400 feet south of the corridor. Seven active great egret (*Ardea alba*) nests and one active great blue heron (*Ardea herodias*) nest were observed, and several anhingas (*Anhinga anhinga*) were observed entering and exiting the cypress swamp in the vicinity of the rookery. The degree of vocalizations suggest that additional nests were present but were not observed in the tree canopy. The fully-vegetated tree canopy hindered a complete nest count. In addition, the rookery was observed only from a distance believed to be sufficient to avoid disturbing the birds. Furthermore, a complete nest count was not attempted since the rookery was not within the corridor. None of the three bird species observed in the rookery is state-or federally-listed; the rookery is reported herein for informational purposes only.

Although not definitely ascertained, evidence suggests that a wading bird rookery is present in the swamp north of the South Bainbridge corridor near B3. During the Spring 2002 survey, several great egrets and great blue herons were seen and heard in this vicinity. The observed activity patterns and types of vocalizations suggest an active rookery. Attempts were not made to search the area since it was not on the corridor. The possible rookery is reported herein for informational purposes only.

5.3 Potential Animal Occurrences

As mentioned earlier, many animal species are mobile and secretive, and thus, the absence of a species during a survey is not necessarily conclusive evidence that the species does not utilize the area in question. Therefore, the *potential* for occurrence of listed wildlife species was also evaluated. Brief ecological descriptions of listed animal species that were observed, or that could occur at the FNP site and within the transmission corridors are presented below.

5.3.1 MAMMALS

Gray Bat

The gray bat (*Myotis grisescens*) is listed as endangered by USFWS and GDNR, and as state-protected by ADCNR. The species is found mainly in Alabama, Tennessee, Kentucky, and Missouri. It inhabits moist

caves in limestone strata, and is almost exclusively a cave-dwelling species. Gray bats forage primarily over water, and are known to forage up to 25 miles from their cave roost. They show dietary preferences for flying aquatic insects such as stone flies, caddis flies, mayflies, beetles, and mosquitoes (Brown, 1997; Gore, 1992). Gray bats are not likely to occur at FNP or along the transmission corridors due to the absence of caves in the region.

Southeastern Bat

The Southeastern bat (*Myotis austroriparius*) is listed as state-protected by ADCNR. It inhabits caves, hollow trees, attics of buildings, crevices of buildings, concrete storm sewers, and other dark cavities. The species is adaptable to a variety of locations and physical conditions. Southeastern bats sometimes form large colonies, often with other bat species. They appear to prefer foraging over water, where they consume small beetles, moths, mosquitoes, and other flying insects (Brown, 1997; Belwood and Lefebvre, 1992). Southeastern bats might be present along the transmission corridors and could occur at the FNP site.

Indiana Bat

The Indiana bat (*Myotis sodalis*) is listed as endangered by USFWS and GDNR, and is listed as state-protected by ADCNR. This species hibernates in dense clusters in caves. The Indiana bat is a migratory species, travelling as far as 300 miles between Winter and Summer habitats (Humphrey, 1992). Summer records are scarce, but a few individuals have been found under bridges and in old buildings, and several maternity colonies have been found under loose bark and in the hollows of trees. Summer foraging by females and juveniles is limited to riparian and floodplain areas. Males forage over floodplain ridges and hillside forests and usually roost in caves. The species is apparently absent south of Tennessee during the Summer (USFWS, 1999). There are no recorded occurrence of this species in Georgia or Alabama counties crossed by the transmission corridors. Since no hibernation caves are known to occur within the area encompassed by the FNP site and associated transmission corridors, the potential for occurrence of this species at the FNP site and along the corridors is negligible. The species is included in this report only because some maps of the Indiana bat's geographic range (Brown, 1997; Humphrey, 1992) include the area encompassed by the FNP site and associated transmission corridors.

Rafinesque's Big-Eared Bat

Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) is listed as rare by GDNR and as state-protected by ADCNR. This bat is found in forested areas, especially in pine flatwoods and pine-oak woodlands. It roosts in hollow trees, under bark, in old cabins and barns, and in wells and culverts. These bats are capable of hovering, and their primary food item is moths (Belwood, 1992; Brown, 1997). Because of its

large geographic range (the entire southeastern United States), Rafinesque's big-eared bat might occur along the transmission corridors and at the FNP site.

Southeastern Pocket Gopher

The Southeastern pocket gopher (*Geomys pinetis*) is listed as state-protected by ADCNR. It prefers deep, sandy soils and is absent from hard clay, rocky soils, wet areas. The species is characteristically found in pine-oak woodlands, open pine flatwoods, and in weedy or grassy fields. Pocket gophers are fossorial (living underground), and build extensive tunnel systems, with portions constantly being added and abandoned in search of food. Common food items include a wide variety of roots, tubers, bulbs, and other plant parts. The tunnels are deep enough to be undetectable at the surface, but loose soil is pushed up sloping tunnels to the surface and piled in mounds 12-18 inches across and 4-8 inches high. The approximate course of the tunnels can usually be identified by the position of these mounds. Although rain and wind gradually erode the mounds, mound scars usually persist on the surface for a year or more. (Brown, 1997).

It is unlikely that Southeastern pocket gophers occur on the FNP site, since no surface mounds indicating pocket gopher tunnels were observed during the Spring and Summer wildlife surveys. No mounds were observed on the transmission corridors either, but the species probably occurs in areas crossed by the corridors, and thus, might occur occasionally within the corridors in appropriate habitats.

Long-Tailed Weasel

The long-tailed weasel (*Mustela frenata*) is listed as state-protected by ADCNR. It is found in forested and open habitats and appears to have no particular habitat preference among terrestrial communities. The long-tailed weasel preys primarily on rodents, birds, reptiles, and rabbits. It inhabits shallow ground burrows, or in crevices of logs or stumps. They hunt during both day and night, but tend to be more active at night (Brown, 1997). Because of their wide geographic range (throughout the United States) and unrestricted habitat preference, they may occur at FNP and along the transmission corridors.

5.3.2 BIRDS

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is listed as threatened by USFWS, endangered by GDNR, and state-protected by ADCNR. Bald eagles occur in a wide variety of habitats, but proximity to water is important. Preferred habitat includes a high amount of water-to-land edge where prey is concentrated. Thus, bald eagles are generally restricted to coastal areas, lakes, and rivers. They prey on fish near the surface but will eat dead fish or other carrion, as well as birds and mammals. The average foraging distance from roosts or nests is 2 to 4 miles. Some bald eagles in the southern United States migrate

northward in mid-Summer (after the nesting season) and return in early Autumn (Curnutt, 1996; Stalmaster, 1987).

There are no known bald eagle nests or roosting sites in the vicinity of the FNP site or along the transmission corridors. It is unlikely that any eagle nests occur on the FNP site, since the existence of a breeding pair would result in numerous sightings. A single bald eagle was observed perched in a tree directly across the Chattahoochee River from FNP during the Summer 2001 survey. Bald eagles presumably forage, at least occasionally, on the Chattahoochee River in the vicinity of FNP and at river crossings and lakes along the transmission corridors.

Osprey

The osprey (*Pandion haliaetus*) is listed as state-protected by ADCNR. Ospreys are found primarily along rivers, lakes, reservoirs, and seacoasts. They feed almost exclusively on fish caught by plunging feet-first into the water. Osprey populations were previously affected by organochlorine pesticides (especially DDT), which caused thinning of the egg shells, so that the eggs crushed during incubation by adult ospreys. Populations are now recovering in many areas. Ospreys usually nest near or above water bodies in dead snags, living trees, cliffs, utility poles, wooden platforms on poles, channel buoys, chimneys, windmills, etc. Nests are often used in successive years (Henny, 1988).

An osprey nest containing two juveniles was observed at FNP during the Summer 2001 survey. Two adult ospreys were observed at the nest during the Spring 2002 survey. The nest is located on a wooden platform erected for this purpose. The ospreys associated with this nest presumably forage on the Chattahoochee River in the vicinity of FNP, and in the 108-acre Storage Pond at FNP. An adult osprey was observed perched in a tree near the 108-acre Storage Pond at FNP during the Summer 2001 survey. An adult osprey was seen flying over the South Bainbridge corridor at the Lake Seminole (Flint River) crossing in Decatur County Georgia during the Spring 2002 survey. Ospreys probably forage at various river crossings and lakes along the transmission corridors.

Wood Stork

The wood stork (*Mycteria americana*) is listed as endangered by USFWS and GDNR, and state-protected by ADCNR. Wood stork habitats include cypress/gum ponds, river swamps, marshes, and bays. The wood stork is highly gregarious in its nesting and feeding behavior. They are tactile feeders (vision is not used to locate or catch prey) and usually forage in shallow water (6 to 20 inches). Small fish are the primary food items, but storks also consume crustaceans, salamanders, tadpoles, and insects. The distance between nesting colonies and feeding areas can range up to 60 miles or more (Ogden, 1996; USFWS, 1986).

There are no known stork rookeries in the vicinity of the FNP site or the transmission corridors. It is unlikely that any rookeries exist on the FNP site, since the gregarious behavior of this species would result in numerous sightings. Similarly, the existence of rookeries adjacent to the transmission corridors is unlikely. Wood storks might forage, at least occasionally, in suitable wetlands in or near the transmission corridors.

Bachman's Sparrow

Bachman's sparrow (*Aimophila aestivalis*) is listed by GDNR as rare. This species is primarily a resident of dry pine-dominated woodlands. It is sometimes found in abandoned fields with scattered shrubs, pines, or oaks, usually in dense ground cover. Foods include seeds and a variety of insects and other invertebrates. Georgia and Alabama are hosts to migratory Bachman's sparrows as well as permanent residents (Ehrlich et al., 1988; Kale and Maehr, 1990). Bachman's sparrows were heard singing on the South Bainbridge corridor at Sites B7 and B9 during the Spring 2002 survey. Bachman's sparrows are probably present at other locations along the transmission line corridors and at the FNP site.

Red-Cockaded Woodpecker

The red-cockaded woodpecker (*Picoides borealis*) is listed as endangered by USFWS and GDNR, and is listed as state-protected by ADCNR. The red-cockaded woodpecker is a cooperative breeder that lives in social units known as clans. The species is unique among North American woodpeckers because it excavates cavities in living pines. Cavity excavation usually requires from one to several years. Active clusters of cavities occur in open, mature pine stands with sparse midstory vegetation. When the hardwood midstory grows above 15 feet, cavity abandonment usually occurs. Cavities are rarely found in trees as young as 30 to 40 years old, and most cavity trees are at least 80 years old. Ideal foraging habitat consists of pine stands with trees ≥ 9 inches diameter at breast height (dbh). They also forage in pine stands of 4 to 9 inches dbh, and sometimes in pines scattered through hardwood stands. Food consists primarily of arthropods (Hooper et al, 1980).

Preferred habitat for this species does not exist at FNP. Some portions of the Raccoon Creek corridor traverse what appears to be suitable red-cockaded woodpecker habitat. These areas were searched during the Summer survey, but no red-cockaded woodpeckers or cavity trees were observed. The probability of this species occurring on the FNP site or along the transmission corridors is very low, due to the absence of suitable habitat at FNP and the absence of cavity trees in the limited suitable habitat along the transmission corridors.

5.3.3 REPTILES

Barbour's Map Turtle

Barbour's map turtle (*Graptemys barbouri*) is listed as threatened by GDNR and as state-protected by ADCNR. The species is confined to the Apalachicola drainage system. This includes the Flint River (Georgia), the Chattahoochee River, and streams that enter these two rivers. Rivers are the preferred habitat, especially those portions with strong current and areas of exposed limestone. Males and young females feed mostly on insects, especially caddisfly larvae. Adult females feed almost exclusively on mussels and snails (Mount, 1975; Sanderson, 1992). It could occur at the FNP site along the Chattahoochee River, and might also occur where the Chattahoochee and Flint Rivers, and their tributaries, cross the transmission corridors.

Alabama Map Turtle

The Alabama map turtle (*Graptemys pulchra*) is listed as rare by GDNR and as state-protected by ADCNR. It inhabits streams ranging in size from medium-sized creeks to large rivers. Sand bars and sandy beaches are required as nesting sites. Males and young females feed primarily on insects. Adult females feed almost exclusively on mussels and snails, and the species is absent where mollusks are not found (Mount, 1975; Shealey, 1992).

The Alabama map turtle does not inhabit the Chattahoochee River drainage and is not known to occur in Georgia Counties crossed by the FNP transmission corridors. It has been recorded in Montgomery County, Alabama, and its range also includes the Escambia River drainage in Pike County, Alabama. Thus, it could occur along the northern portion of the Snowdown corridor, but does not occur at FNP or along other FNP-associated transmission corridors.

American Alligator

The American alligator (*Alligator mississippiensis*) is common in extreme southern Georgia and Alabama, and thus, is not a state-listed species. The alligator is federally listed as threatened due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*). Alligator habitat consists of swamps, marshes, ponds, lakes, and slow-moving streams and rivers. Alligators are opportunistic feeders and food items include fish, turtles, birds, snakes, frogs, insects, and small mammals. Alligators often dig dens and small ponds ("gator holes") in swamps and marshes. In the dry season, these dens and ponds are often the last places deep enough to hold water, and are utilized by

numerous wetland animals (Mount, 1975; Van Meter, 1987). Alligators undoubtedly occur in suitable habitats along the transmission corridors.

Eastern Indigo Snake

The Eastern indigo snake (*Drymarchon corais couperi*) is listed as threatened by USFWS and GDNR, and as state-protected by ADCNR. It typically inhabits dry areas that are bordered by water. Prey includes fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals. Indigo snakes in southern Georgia and Alabama typically spend the winter in gopher tortoise burrows (Moler, 1992; Mount, 1975). Indigo snakes are diurnal and wide ranging, typically utilizing areas of 125-250 acres or more (Moler, 1992). Indigo snakes may occur along portions of the transmission corridors and could occur at FNP.

Florida Pine Snake

The Florida pine snake (*Pituophis melanoleucus mugitus*) is listed as state-protected by ADCNR. This snake is restricted to Florida and Coastal Plain areas of Alabama, Georgia, and South Carolina. Southern Georgia and extreme southeastern Alabama represent the northwestern extent of the Florida pine snake's geographic range. The Florida pine snake occupies xeric habitats such as longleaf pine/xerophytic sandhills, pine flatwoods on well drained soils, and old fields on former sandhill habitats. It is extremely fossorial, and seeks out burrows of rodents and gopher tortoises. Common prey items include ground nesting birds and their eggs, mice, pocket gophers, and immature rabbits (Franz, 1992).

Florida pine snakes are not likely to occur at FNP due to the absence of xeric habitats, but the species might occur in portions of the Webb, Pinckard, and South Bainbridge transmission corridors. Suitable habitats for this species are rare on the Raccoon Creek and Snowdown corridors, and most of the Snowdown corridor is outside the species' known geographic range.

Southern Hognose Snake

The Southern hognose snake (*Heterodon simus*) is listed as state-protected by ADCNR. It is found primarily in dry sandy habitats such as sandhills, pine/turkey oak woodlands, and scrub. It is semi-fossorial and its diet consists almost exclusively of frogs and toads (Mount, 1975; Tennent, 1997). The Southern hognose snake may occur along portions of the transmission corridors, but is less likely to occur at FNP due to the absence of its preferred habitat.

Eastern Coachwhip

The Eastern coachwhip (*Masticophis flagellum flagellum*) is listed as state-protected by ADCNR. It is found in a variety of dry, relatively open habitats, especially where open woods are interspersed with weedy fields. Common prey consists of insects, lizards, small mammals, birds, and other snakes (Mount,

1975). Two Eastern coachwhips were observed approximately 100 feet west of the Flint River on the Raccoon Creek corridor at Site T17B. The species probably occurs at other locations along the transmission corridors and could occur at the FNP site.

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is listed as threatened by GDNR and state-protected by ADCNR. Georgia populations and Alabama populations east of the Mobile and Tombigbee Rivers are not federally listed. The gopher tortoise inhabits sandy, well drained areas where adequate vegetation for foraging exists. Principal foods include grasses, legumes, sedges, and fruit. Gopher tortoises excavate burrows that are also utilized by numerous other species (Diemer, 1992).

Sixteen active gopher tortoise burrows were observed in an “old field” habitat at FNP. Gopher tortoise burrows were observed at numerous locations along the transmission line corridors. Specifically, active gopher tortoise burrows were observed on the Webb corridor at Site W1, on the Pinckard corridor at Sites P1 and P14, on the Snowdown corridor at Sites M3 and M5, on the Raccoon Creek corridor at Sites T1A, T2, T5, T14A, T17, T17B, 17C, and T24, and on the South Bainbridge corridor at Sites B1, B3, B7A, B11, and B12.

Alligator Snapping Turtle

The alligator snapping turtle (*Macroclmys temminckii*) is listed by GDNR as threatened. It inhabits rivers, oxbows, and sloughs. It is also found in lakes and swamps, especially those near rivers, but is almost never found in isolated ponds and lakes. The alligator snapping turtle is the world’s largest freshwater turtle, with recorded weights of over 220 pounds. Primary food items consist of fish and molluscs but this turtle will also consume crustaceans, waterfowl, carrion, and occasionally plant foods such as acorns and palmetto berries (Mount, 1975; Pritchard, 1992). The species might occur along the FNP-associated transmission corridors.

5.3.4 AMPHIBIANS

Pine Barrens Tree Frog

The pine barrens tree frog (*Hyla andersonii*) is listed as state-protected by ADCNR. This species is known from only three geographic locations: New Jersey, the Carolinas, and along the Florida-Alabama border. The Florida-Alabama population inhabits hillside seepage bogs. Adults forage in evergreen bog shrubbery and tadpoles develop in small pools of clear seepage water in the bogs (Means, 1992a).

This species is not known from Georgia and within Alabama, is known only from Escambia, Covington, and Geneva Counties (Means, 1992a). Approximately one mile of the Pinckard transmission corridor traverses Geneva County, but there is no seepage bog habitat in that portion of the corridor, or in other

nearby FNP-associated transmission corridors. Thus, the probability of the pine barrens tree frog occurring along the corridors or at FNP is negligible.

Dusky Gopher Frog

The dusky gopher frog (*Rana capito sevosa*) is listed as state-protected by ADCNR. Alabama and Georgia populations are not Federally-listed. It inhabits upland, xeric areas, especially longleaf pine/turkey oak sandhills. It takes shelter during the day in active and abandoned gopher tortoise burrows, crayfish burrows, and stump holes, but lays its eggs in seasonally flooded, grassy ponds and cypress ponds that lack fish populations. It is a nocturnal species but occasionally emerges to sit near the mouth of its burrow on overcast, damp days. Primary food items consist of invertebrates and smaller frogs and toads (Mount, 1975; Godley, 1992). Three dusky gopher frogs were observed by flashlight within a gopher tortoise burrow at B3 on the South Bainbridge corridor. The dusky gopher frog might occur within suitable habitats at other locations within some transmission corridors, but most of the Snowdown corridor is north of the geographic range of this species. The probability of this species at FNP is low, due to lack of appropriate habitat.

Striped Newt

The striped newt (*Notophthalmus perstriatus*) is listed by GDNR as rare. The species is known only from southern Georgia and northern Florida. It is restricted to sinkhole ponds in sandhill communities and cypress or bay ponds in pine flatwoods. The striped newt typically does not occur in permanent ponds, which usually contain predatory fishes. Adult newts feed on aquatic larvae and eggs as well as various aquatic invertebrates (Christman, 1992). Striped newts are not expected to occur at FNP site due to the absence of appropriate habitat. The probability of occurrence of this species in or near the transmission corridors is expected to be low, due to the scarcity of appropriate habitat and because the corridors are near or beyond the northern extent of the geographic range of the striped newt.

Seal Salamander

Coastal Plains populations of the seal salamander (*Desmognathus monticola*) are listed as state-protected by ADCNR. The seal salamander is basically a southern Appalachian species, ranging from southeastern Pennsylvania to northern Alabama. However, isolated populations occur in southern Alabama, primarily in the Red Hills region of southwestern Alabama. Seal salamanders in southern Alabama are associated with rocky, small streams and creeks, usually in mesic hardwood ravines containing crumbly sandstone or limestone. Primary food items are aquatic and terrestrial arthropods found in the leaf litter of banks and stream bottoms (Mount, 1972; Means, 1992b).

The habitat described above for this species does occur along Wilson Creek at FNP and in portions of the Snowdown corridor, but these areas are to the east of most known seal salamander occurrences in

Alabama. Thus, its existence is possible, but probably unlikely, at FNP and on the Snowdown corridor. It is not likely to occur on the other four transmission corridors, due to the lack of appropriate habitat and to the species' restricted geographic range.

Georgia Blind Salamander

The Georgia blind salamander (*Haideotriton wallacei*) is listed as threatened by GDNR. It is known from only a few locations in southern Georgia and northern Florida, where it is confined to subterranean waters in limestone sediments. Although it has been found mostly in caves, it may also occur in recharge areas around sinkholes. Crustaceans are its primary prey (Means, 1992c). It has not been recorded in Alabama and probably does not occur on FNP-associated transmission corridors in Georgia.

Flatwoods Salamander

The flatwoods salamander (*Ambystoma cingulatum*) is listed as threatened by USFWS and GDNR, and as state-protected by ADCNR. This salamander inhabits pine-flatwoods-wiregrass communities that adjoin cypress heads or ponds without large predatory fish. Adult salamanders feed on various invertebrates (Ashton, 1992). Because of the absence of this habitat type at the FNP site, flatwoods salamanders are not expected to occur there. The species is also not expected to occur within the transmission corridors, but there is a moderate possibility that it could occur in some areas adjacent to the corridors.

6.0 CONCLUSIONS

6.1 FNP Site

6.1.1 PLANTS

No federally-listed or state-listed plant species were observed during field surveys of the FNP site. The federally-endangered relict trillium (*Trillium reliquum*) has been recorded in Henry County, which lies immediately north of Houston County (where FNP is located). Although potential habitat for this species exists on the forested bluffs along Wilson Creek in the northeastern portion of FNP, careful searches did not reveal any relict trillium at FNP.

FNP was found to be a botanically rich and diverse site. Wilson Creek harbored two rich, relatively undisturbed stands of hardwood forest over calcareous soils. Here, forests dominated by mature beech (*Fagus grandifolia*), southern magnolia (*Magnolia grandiflora*) and white oak (*Quercus alba*) had rich understories of shrubs and herbs.

6.1.2 ANIMALS

The bald eagle was the only federally-listed wildlife species observed at FNP; a single adult eagle was observed along the Chattahoochee River opposite the FNP site during the Summer 2001 survey. It is unlikely that any eagle nests occur at the site, but bald eagles undoubtedly forage, at least occasionally, on the Chattahoochee River in the vicinity of FNP. The Eastern indigo snake has been recorded in Houston County, Alabama (USFWS, 2002), and habitat suitable for this species exists at FNP. Although not known from FNP, its existence there is possible. With the exception of the bald eagle and the Eastern indigo snake, it is unlikely that any other federally-listed wildlife species occur at FNP (See Section 5.3).

Two species listed by ACDNR as state-protected (but not federally listed) are known to occur at FNP, and a few other state-protected species might occur there. A population of gopher tortoises exists in an “old field” habitat at the FNP site. Vegetation management practices favorable for this state-listed species will benefit gopher tortoises, as well as other wildlife species that utilize gopher tortoise burrows. A breeding pair of ospreys has nested on a wooden nest platform at FNP for several years. The ospreys associated with this nest undoubtedly forage in the Chattahoochee River and in the Service Water Storage Pond at FNP. Forested areas of FNP, especially those in the southern portion of the site along the Chattahoochee River and streams that flow into the river, provide excellent habitat for numerous wildlife species. State listed wildlife species such as the long-tailed weasel and Eastern coachwhip probably occur there. In addition, the Southeastern bat and Rafinesque’s big-eared bat could forage, at least occasionally, at the site.

6.2 Transmission Line Corridors

6.2.1 PLANTS

Seasonal searches along the FNP-associated transmission corridors were conducted for federally-listed and state-listed plants. Particular attention was paid to the following federally-listed species: relict trillium (*Trillium reliquum*), pondberry (*Lindera melissifolia*), Canby’s cowbane (*Oxypolis canbyi*), harperella (*Ptilimnium nodosum*), American chaffseed (*Schwalbea americana*), fringed campion (*Silene polypetala*), Cooley’s meadowrue (*Thalictrum cooleyi*), and Florida torreyia (*Torreya taxifolia*). These species have been recorded in counties crossed by the transmission corridors or could occur in the corridors based on habitat and geographic range. No federally-listed plants were observed.

Four state-listed plant species were observed; all were on the Raccoon Creek corridor. One population of Florida willow (*Salix floridana*), one population of yellow pitcher plant (*Sarracenia flava*), two populations of hooded pitcher plant (*Sarracenia minor*), and one population of Thorne’s buckthorn

(*Sideroxylon thornei*) were observed. The Raccoon Creek corridor proved to be rich in habitats and plant species.

6.2.2 ANIMALS

No federally-listed wildlife species were observed during field surveys of the FNP-associated transmission corridors, and no occurrence records were discovered in the literature search. The gopher tortoise was the only wildlife species observed on transmission corridors in Alabama and listed by ADCNR as state-protected. Wildlife species observed along the transmission corridors in Georgia and state-listed by GDNR consisted of the gopher tortoise and Bachman's sparrow. The dusky gopher frog, Eastern coachwhip, and osprey were observed on transmission lines in Georgia. These species are not state-listed in Georgia but are state-listed in Alabama.

Although few listed species were observed along the transmission corridors, many animal species are mobile and secretive, and thus, the absence of a species during a few surveys is not necessarily evidence that the species does not utilize the area in question. For example, bat surveys require many nights of mist netting, while reptiles and amphibian censuses require massive numbers of funnel traps, nets, and/or other capturing devices. Therefore, unequivocal conclusions regarding the presence or absence of most listed species were beyond the scope of the surveys. The surveys, however, were adequate to determine the *potential* for occurrence of listed wildlife species based on habitats along the transmission corridors.

Federally-listed species that might utilize habitats along the transmission corridors, at least occasionally, include the bald eagle, wood stork, and Eastern indigo snake. There is a moderate to high probability that several state-listed wildlife species occur, at least occasionally, within or adjacent to the corridors (Table 5 and Section 5.3).

The activities required for vegetation maintenance in transmission corridors can actually provide habitat more favorable to the gopher tortoise than in areas outside the corridors. Specifically, the corridors often provide this state-listed species with food in the form of abundant herbaceous vegetation and open sunlit sites for nesting. In some areas, these conditions occur infrequently in habitat beyond the transmission corridor edges, especially in the prolonged absence of fires.

Swamps, marshes, and river and creek crossings provide foraging habitat for several listed wildlife species. Numerous marshes and beaver ponds were observed within the transmission corridors. These areas provide excellent foraging habitat for many wildlife species, some of which are listed species.

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TABLES AND FIGURES

Table 1. Transmission lines at FNP.

Transmission line	Voltage (kV)	Distance to first substation (mi.)
FNP – Pinckard (Alabama)	230	35
FNP – Webb (Alabama)	230	10
FNP – Montgomery (Alabama)	500	105
FNP – Raccoon Creek (Georgia)	500	62
FNP – South Bainbridge (Georgia)	230	46
FNP – Sinai Cemetery (Alabama and Florida)	230	48

Table 2. Target plant species – Summer (June 3-8, 2001 and June 13-18, 2001).

Common Name	Species	Federal status	State status ^a	Habitat type
Purple Honeycomb Head	<i>Balduina atropurpurea</i>	None	Rare	Wet savannahs, pitcherplant bogs
Harper Fimbry	<i>Fimbristylis perpusilla</i>	None	Endangered	Exposed muddy margins of pineland ponds
Pondberry	<i>Lindera melissifolia</i>	Endangered	Endangered	Pond margins and wet savannahs
Pondspice	<i>Litsea aestivalis</i>	None	Threatened	Cypress ponds; swamp margins
Canby Dropwort	<i>Oxypolis canbyi</i>	Endangered	Endangered	Pond cypress depressions
Clearwater Butterwort	<i>Pinguicula primuliflora</i>	None	Threatened	In shallow, sandy, clearwater streams and seeps; Atlantic whitecedar swamps
Florida Willow	<i>Salix floridana</i>	None	Endangered	Spring runs; seepy sphagnous wetlands with <i>Eleocharis tortilis</i> , <i>Itea</i> , <i>Alnus</i> , <i>Orontium</i> , <i>Arnoglossum sulcatum</i>
Yellow Flytrap	<i>Sarracenia flava</i>	None	Unusual	Wet savannahs, pitcherplant bogs
Whitetop Pitcherplant	<i>Sarracenia leucophylla</i>	None	Endangered	Wet savannahs
Hooded Pitcher Plant	<i>Sarracenia minor</i>	None	Unusual	Wet savannahs, pitcherplant bogs
Parrot Pitcherplant	<i>Sarracenia psittacina</i>	None	Threatened	Wet savannahs, pitcherplant bogs
Chaffseed	<i>Schwalbea americana</i>	Endangered	Endangered	Dry savannahs
Thorne's (Swamp) Buckthorn	<i>Sideroxylon thornei</i>	None	Endangered	Calcareous swamps
Silky Camellia	<i>Stewartia malacodendron</i>	None	Rare	Wetland margins

a. The Alabama Department of Conservation and Natural Resources does not provide special status designations for plants. Therefore, the state-listed designations in this column are those of the Georgia Department of Natural Resources.

Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 3. Target plant species – Autumn (September 11-15, 2001).

Common Name	Species	Federal status	State status ^a	Habitat type
Purple Honeycomb Head	<i>Balduina atropurpurea</i>	None	Rare	Wet savannahs, pitcherplant bogs
Harper Fimbry	<i>Fimbristylis perpusilla</i>	None	Endangered	Exposed muddy margins of pineland ponds
Pondberry	<i>Lindera melissifolia</i>	Endangered	Endangered	Pond margins and wet savannahs
Pondspice	<i>Litsea aestivalis</i>	None	Threatened	Cypress ponds; swamp margins
Canby Dropwort	<i>Oxypolis canbyi</i>	Endangered	Endangered	Pond cypress depressions
Clearwater Butterwort	<i>Pinguicula primuliflora</i>	None	Threatened	In shallow, sandy, clearwater streams and seeps; Atlantic whitecedar swamps
Florida Willow	<i>Salix floridana</i>	None	Endangered	Spring runs; seepy, sphagnum wetlands with <i>Eleocharis tortilis</i> , <i>Itea</i> , <i>Alnus</i> , <i>Orontium</i> , <i>Arnoglossum sulcatum</i>
Yellow Flytrap	<i>Sarracenia flava</i>	None	Unusual	Wet savannahs, pitcherplant bogs
Hooded Pitcher Plant	<i>Sarracenia minor</i>	None	Unusual	Wet savannahs, pitcherplant bogs
Parrot Pitcherplant	<i>Sarracenia psittacina</i>	None	Threatened	Wet savannahs, pitcherplant bogs
Thorne's (Swamp) Buckthorn	<i>Sideroxylon thornei</i>	None	Endangered	Calcareous swamps

a. The Alabama Department of Conservation and Natural Resources does not provide special status designations for plants. Therefore, the state-listed designations in this column are those of the Georgia Department of Natural Resources.

Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 4. Target plant species – Spring (March 19-23 and May 9-11, 2002).

Common Name	Species	Federal status	State status ^a	Habitat type
Wagner Spleenwort	<i>Asplenium heteroresiliens</i>	None	Threatened	Limestone and marl outcrops; tabby ruins
Baltzell Sedge	<i>Carex baltzellii</i>	None	Endangered	Beech-magnolia slope forests
Velvet Sedge	<i>Carex dasycarpa</i>	None	Rare	Evergreen hammocks; mesic hardwood forests
Green Fly Orchid	<i>Epidendrum conopseum</i>	None	Unusual	Epiphytic on limbs of evergreen hardwoods; also in crevices of Altamaha Grit outcrops
Florida Anise-tree	<i>Illicium floridanum</i>	None	Endangered	Steepheads, floodplain forests
Pondberry	<i>Lindera melissifolia</i>	Endangered	Endangered	Pond margins and wet savannahs
Alabama Milkvine	<i>Matelea alabamensis</i>	None	Threatened	Open bluff forests; mesic margins of longleaf pine sandridges
Canby's Cowbane (Dropwort)	<i>Oxypolis canbyi</i>	Endangered	Endangered	Cypress ponds and sloughs, wet savannahs
Harperella (Mock Bishopweed)	<i>Ptilimnium nodosum</i>	Endangered	Endangered	Limesinks and clay-based ponds
Plumleaf Azalea	<i>Rhododendron prunifolium</i>	None	Threatened	Mesic hardwood forests in ravines and on sandy, seepy streambanks
Florida Willow	<i>Salix floridana</i>	None	Endangered	Spring runs; seepy, sphagnous wetlands with <i>Eleocharis tortilis</i> , <i>Itea</i> , <i>Alnus</i> , <i>Orontium</i> , <i>Arnoglossum sulcatum</i>
Bay Starvine	<i>Schisandra glabra</i>	None	Threatened	Rich woods on stream terraces and lower slopes
Chaffseed	<i>Schwalbea americana</i>	Endangered	Endangered	Pond margins and wet savannahs, upland wet forests
Fringed Champion	<i>Silene polypetala</i>	Endangered	Endangered	Mesic deciduous forests
Cooley Meadowrue	<i>Thalictrum cooleyi</i>	Endangered	Endangered	Pond margins and wet savannahs
Florida Torreya	<i>Torreya taxifolia</i>	Endangered	Endangered	Rich ravines in extreme southwest Georgia
Relict Trillium	<i>Trillium reliquum</i>	Endangered	Endangered	Mesic hardwood forests; limesink forests

a. The Alabama Department of Conservation and Natural Resources does not provide special status designations for plants. Therefore, the state-listed designations in this column are those of the Georgia Department of Natural Resources.

Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 5. Listed animal species that occur or could possibly occur at FNP and along associated transmission lines.

Common name	Scientific name	Federal status ^a	State status ^a		Probability of occurrence ^b
			Georgia	Alabama	
Mammals					
Gray bat	<i>Myotis grisescens</i>	E	E	SP	L
Southeastern bat	<i>Myotis austroriparius</i>	-	-	SP	M
Indiana bat	<i>Myotis sodalis</i>	E	E	SP	L
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	-	R	SP	M
Southeastern pocket gopher	<i>Geomys pinetis</i>	-	-	SP	M
Long-tailed weasel	<i>Mustela frenata</i>	-	-	SP	M
Birds					
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	E	SP	P
Osprey	<i>Pandion haliaetus</i>	-	-	SP	P
Wood stork	<i>Mycteria americana</i>	E	E	SP	M
Bachman's sparrow	<i>Aimophila aestivalis</i>	-	R	-	P
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	E	SP	L
Reptiles					
Barbour's map turtle	<i>Graptemys barbouri</i>	-	T	SP	M
Alabama map turtle	<i>Graptemys pulchra</i>	-	R	SP	M
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	-	-	M
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	SP	M
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	-	-	SP	M
Southern hognose snake	<i>Heterodon simus</i>	-	-	SP	M
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>	-	-	SP	P
Gopher tortoise	<i>Gopherus polyphemus</i>	-	T	SP	P
Alligator snapping turtle	<i>Macroclemys temminckii</i>	-	T	SP	M

Table 5. Listed animal species that occur or could possibly occur at FNP and along associated transmission lines (continued).

Common name	Scientific name	Federal status ^a	State status ^a		Probability of occurrence ^b
			Georgia	Alabama	
Amphibians					
Pine barrens treefrog	<i>Hyla andersonii</i>	-	-	SP	L
Dusky gopher frog	<i>Rana capito sevosa</i>	-	-	SP	P
Striped newt	<i>Notophthalmus perstriatus</i>	-	R	-	L
Seal salamander	<i>Desmognathus monticola</i>	-	-	SP	L
Georgia blind salamander	<i>Haideotriton wallacei</i>	-	T	-	L
Flatwoods salamander	<i>Ambystoma cingulatum</i>	T	T	SP	L

- a. E = Endangered – A species which is in danger of extinction throughout all or part of its range.
 T = Threatened – A species which is likely to become an endangered species in the foreseeable future throughout all or part of its range.
 T(S/A) = Threatened due to similarity of appearance – A species which is protected because it is very similar in appearance to a listed species.
 R = Rare – A species which may not be endangered or threatened but which should be protected because of its scarcity.
 U = Unusual – An unusual species that deserves special consideration.
 SP = State Protected – A species which is protected by the Nongame Species Regulation of the Alabama Regulations for 1999-2000 on Game, Fish, and Fur Bearing Animals.
 – = Not Listed
- b. L = Low probability
 M = Moderate to high probability
 P = Present; observed during the wildlife surveys
 See Section 5.3 of text for a discussion of the probability of occurrence of these species.

Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 6. Listed plants observed during field surveys.

Species	Federal Status	State Status ^a	Location ^{a,b}	
			Corridor	Site
Florida willow (<i>Salix floridana</i>)	None	Endangered	Raccoon Creek	T1
Thorne's buckthorn (<i>Sideroxylon thornei</i>)	None	Endangered	Raccoon Creek	T8
Yellow pitcher plant (<i>Sarracenia flava</i>)	None	Unusual	Raccoon Creek	T24
Hooded pitcher plant (<i>Sarracenia minor</i>)	None	Unusual	Raccoon Creek	T24

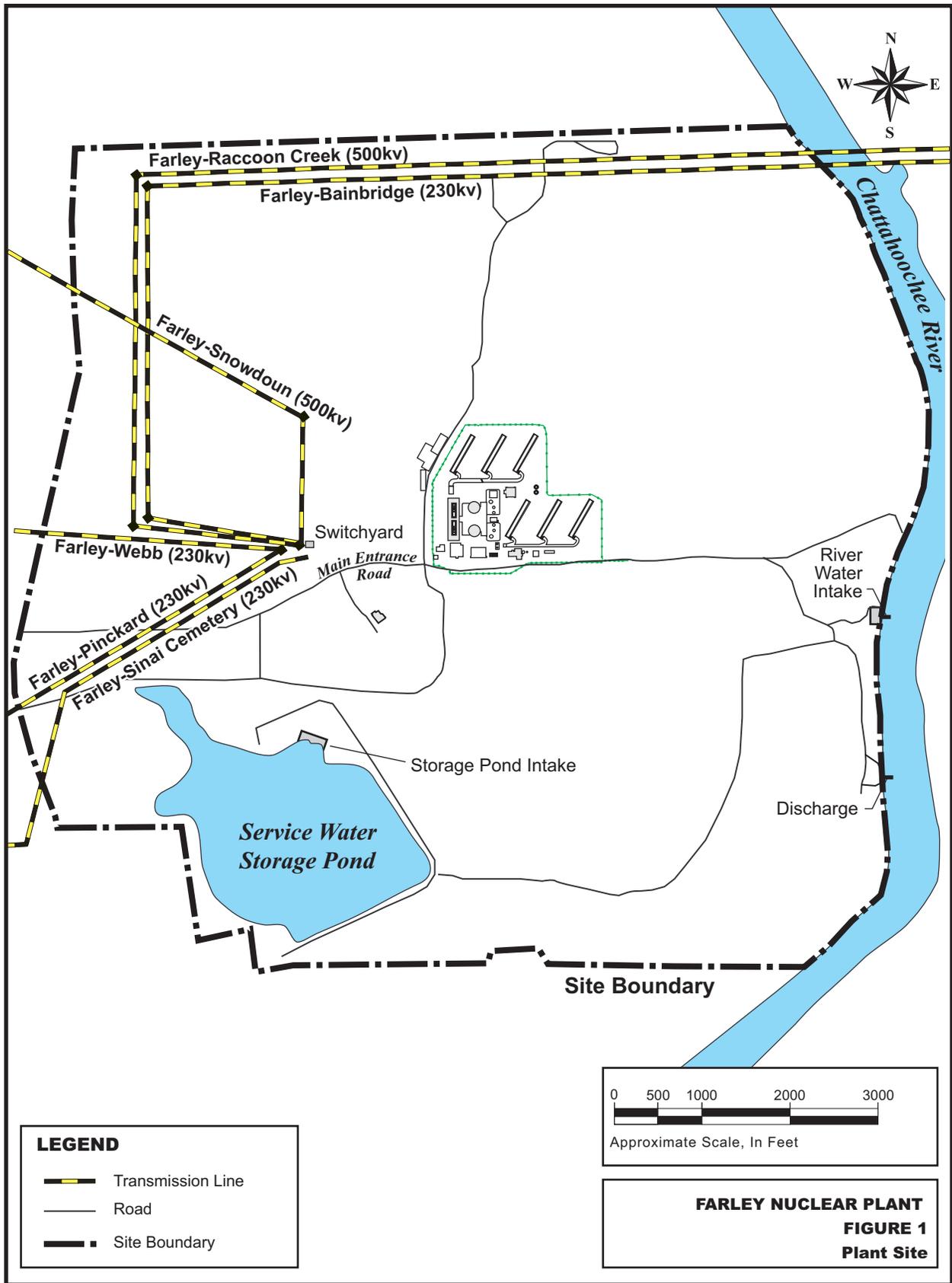
- a. The Alabama Department of Conservation and Natural Resources does not provide special status designations for plants. Therefore, the state-listed designations in this column are those of the Georgia Department of Natural Resources.
- b. See Figures 3-8 for locations relative to transmission corridors; see Appendix A for precise locations and data.

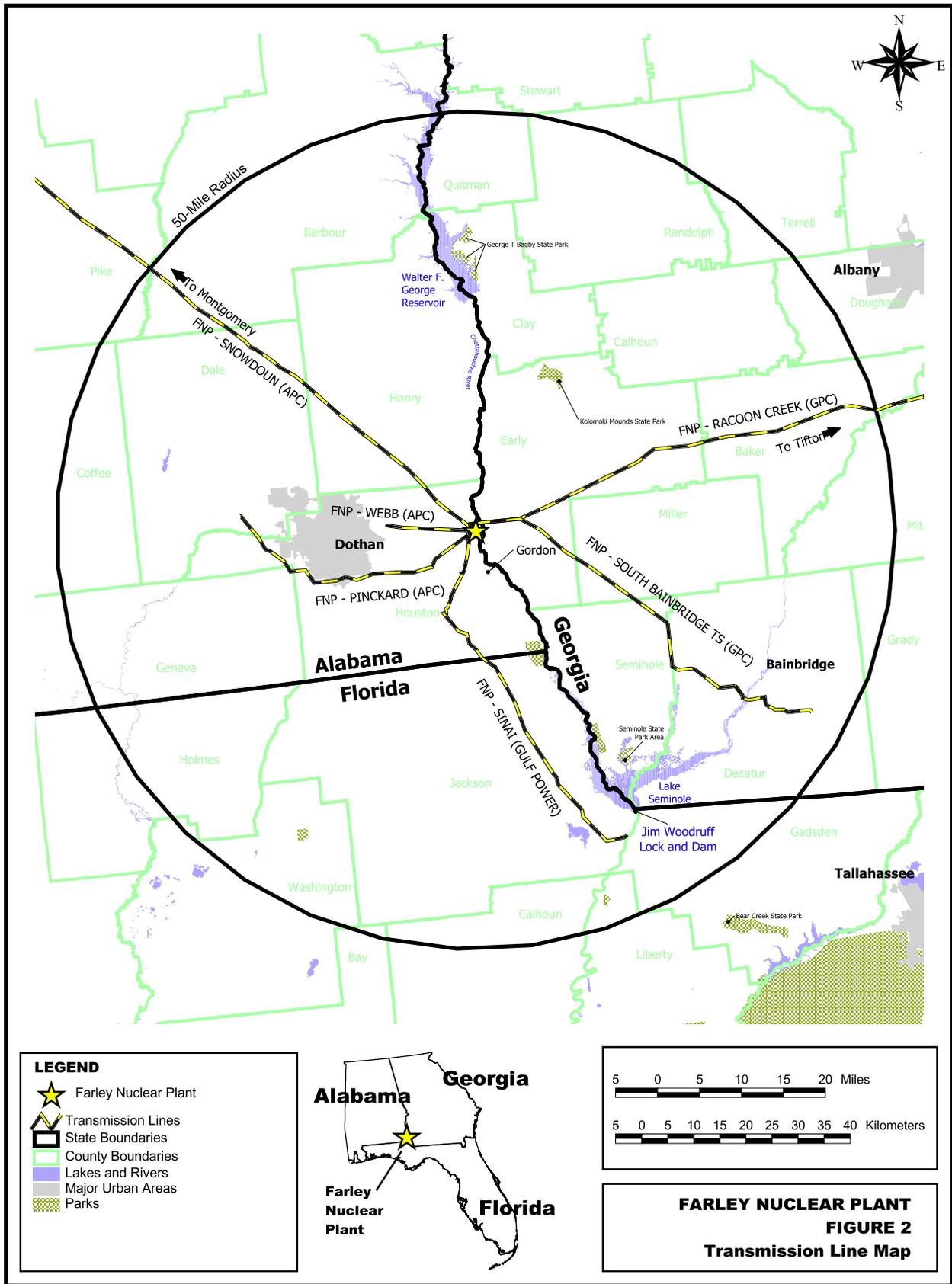
Table 7. Listed animals observed during field surveys.

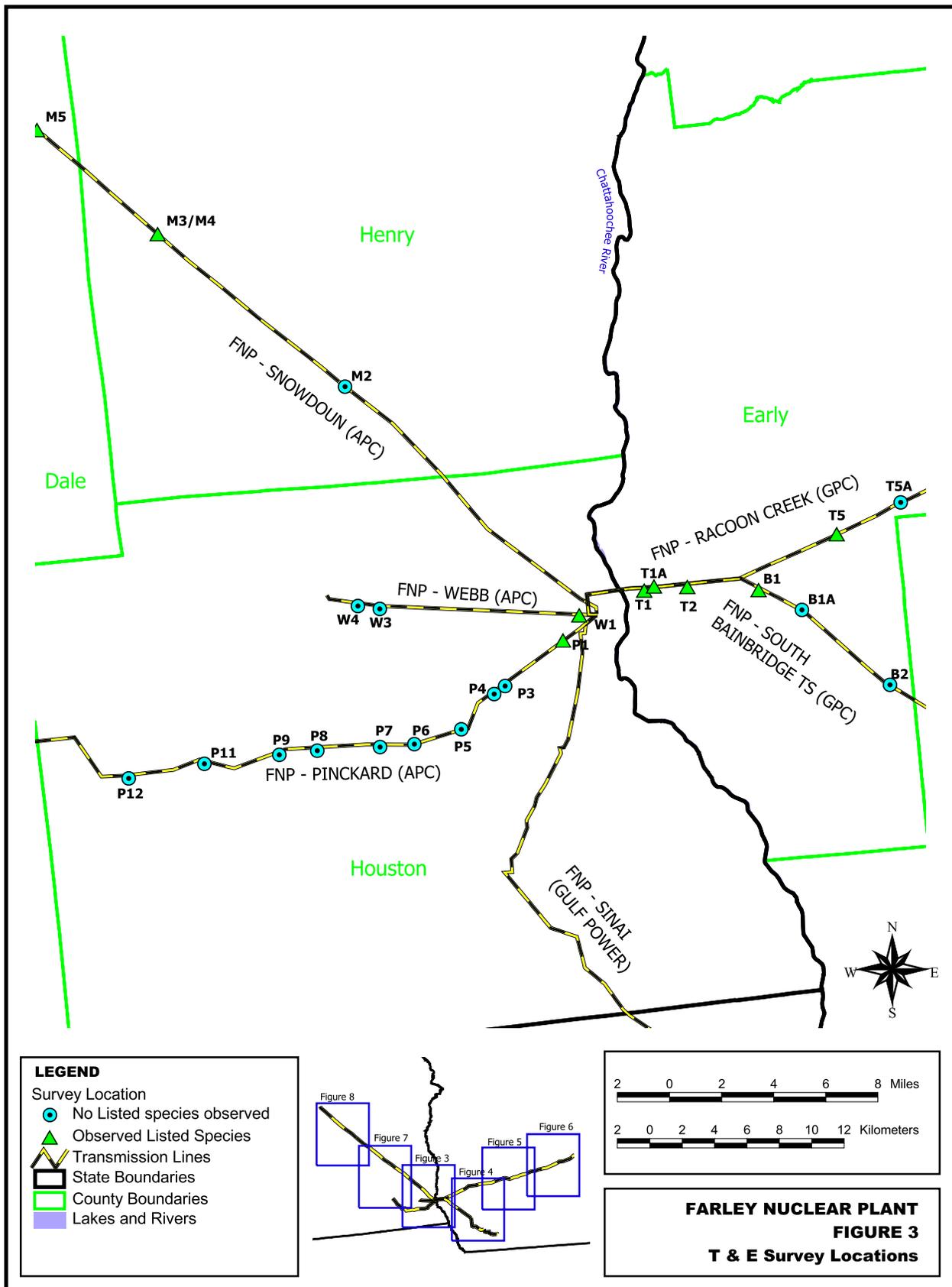
Species	Federal Status	State Status		Location ^a	
		Georgia	Alabama	Corridor	Site
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Threatened	Endangered	State Protected	FNP	
Osprey (active nest) (<i>Pandion haliaetus</i>)	None	None	State Protected	FNP	B10 ^b
Dusky gopher frog (<i>Rana capito sevosa</i>)	None	None	State Protected	South Bainbridge	B3 ^b
Eastern coachwhip (<i>Masticophis flagellum flagellum</i>)	None	None	State Protected	Raccoon Creek	T17B ^b
Bachman's sparrow (<i>Aimophila aestivalis</i>)	None	Rare	None	South Bainbridge	B7
Gopher tortoise (<i>Gopherus polyphemus</i>)	None	Threatened	State Protected	FNP	
				Webb	W1
				Pinchard	P1
				Pinckard	P14
				Snowdoun	M3
				Snowdoun	M5
				Raccoon Creek	T1A
				Raccoon Creek	T2
				Raccoon Creek	T5
				Raccoon Creek	T14A
				Raccoon Creek	T17
				Raccoon Creek	T17B
				Raccoon Creek	T17C
				Raccoon Creek	T24
South Bainbridge	B1				
South Bainbridge	B3				
South Bainbridge	B7A				
South Bainbridge	B11				
South Bainbridge	B12				

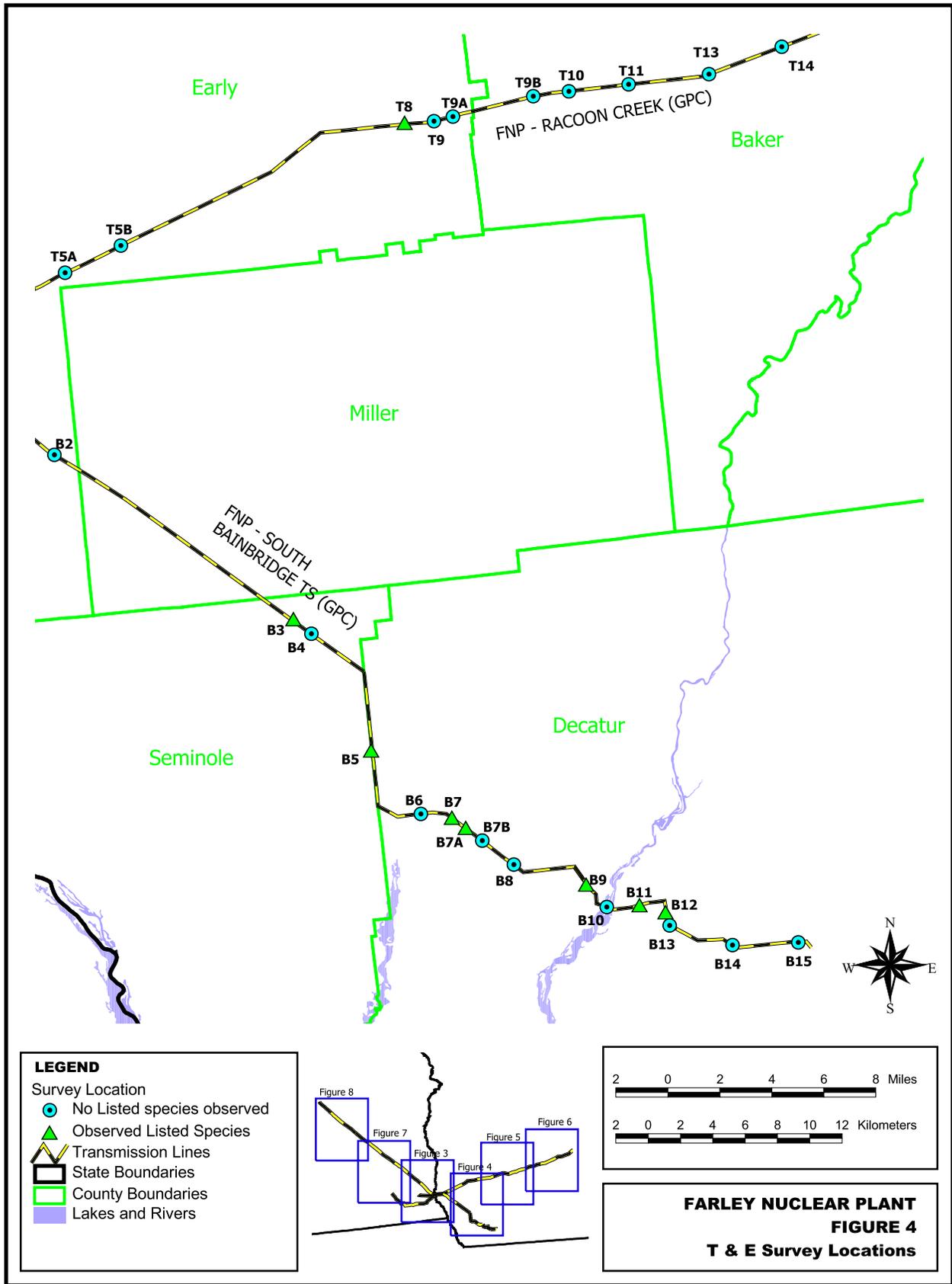
a. See Figures 3-8 for locations relative to transmission corridors. See Appendix B for precise locations and data.

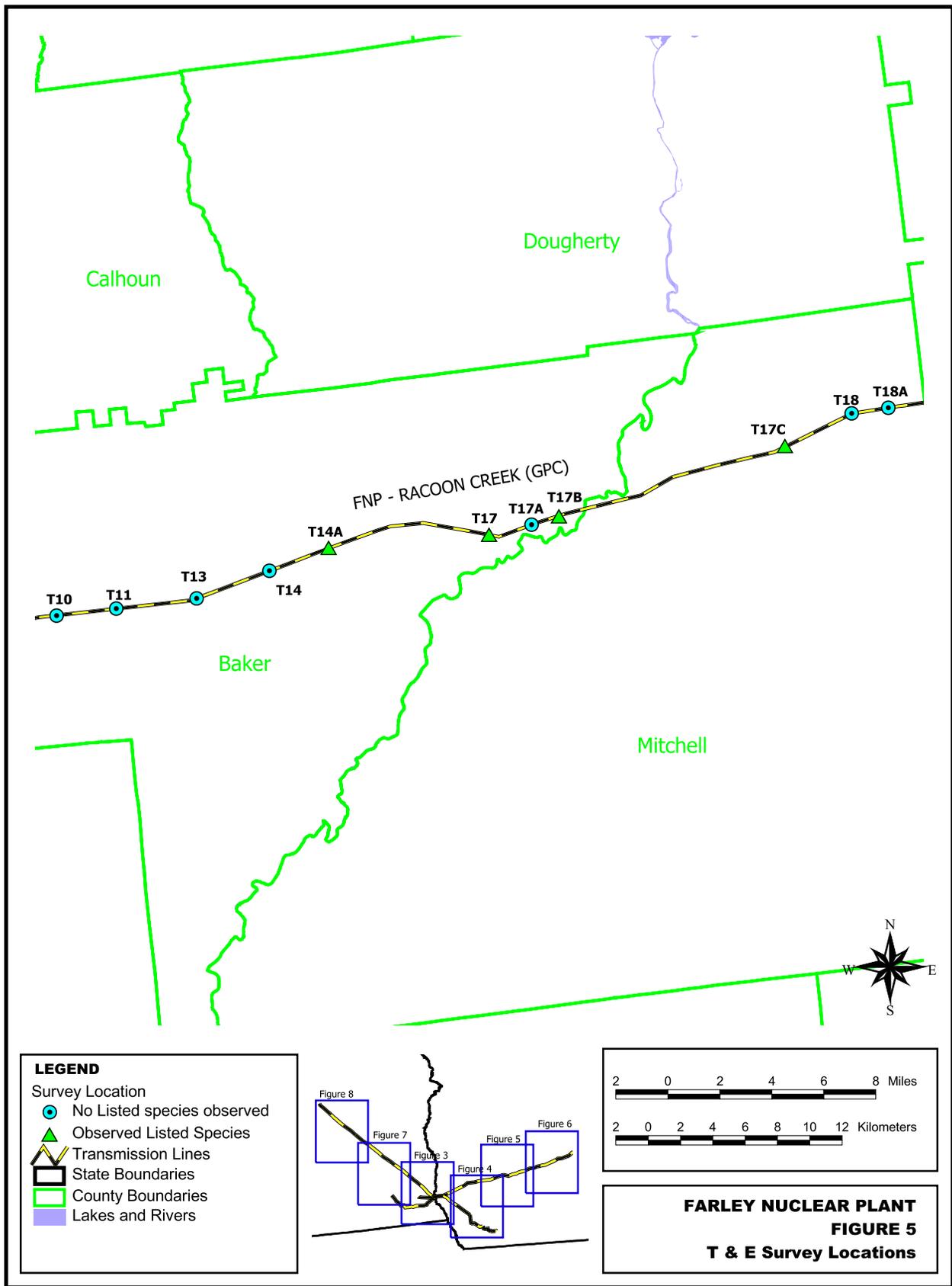
b. Species is not state-listed in Georgia (location where observed) but is classified as state-protected in Alabama.

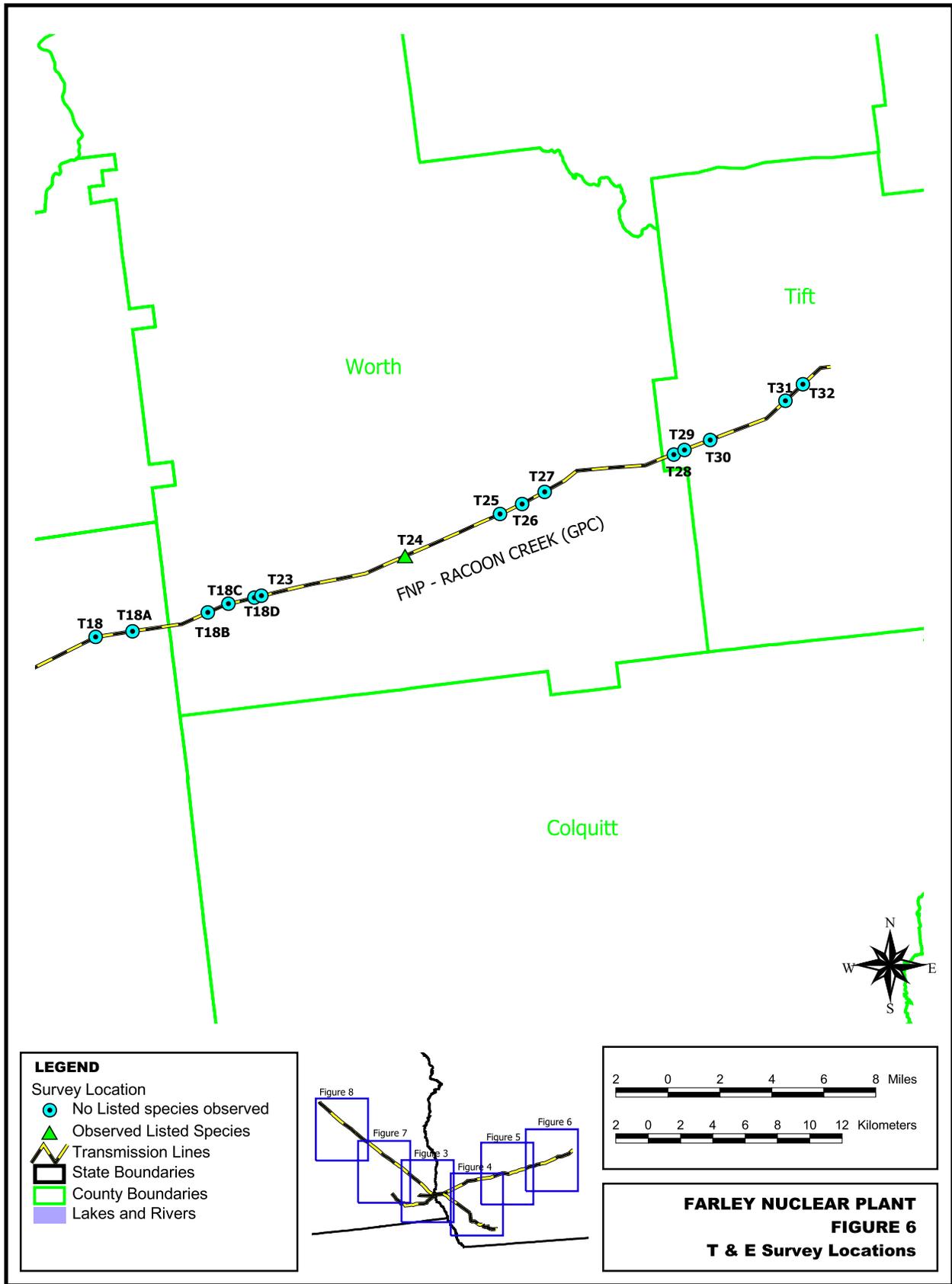


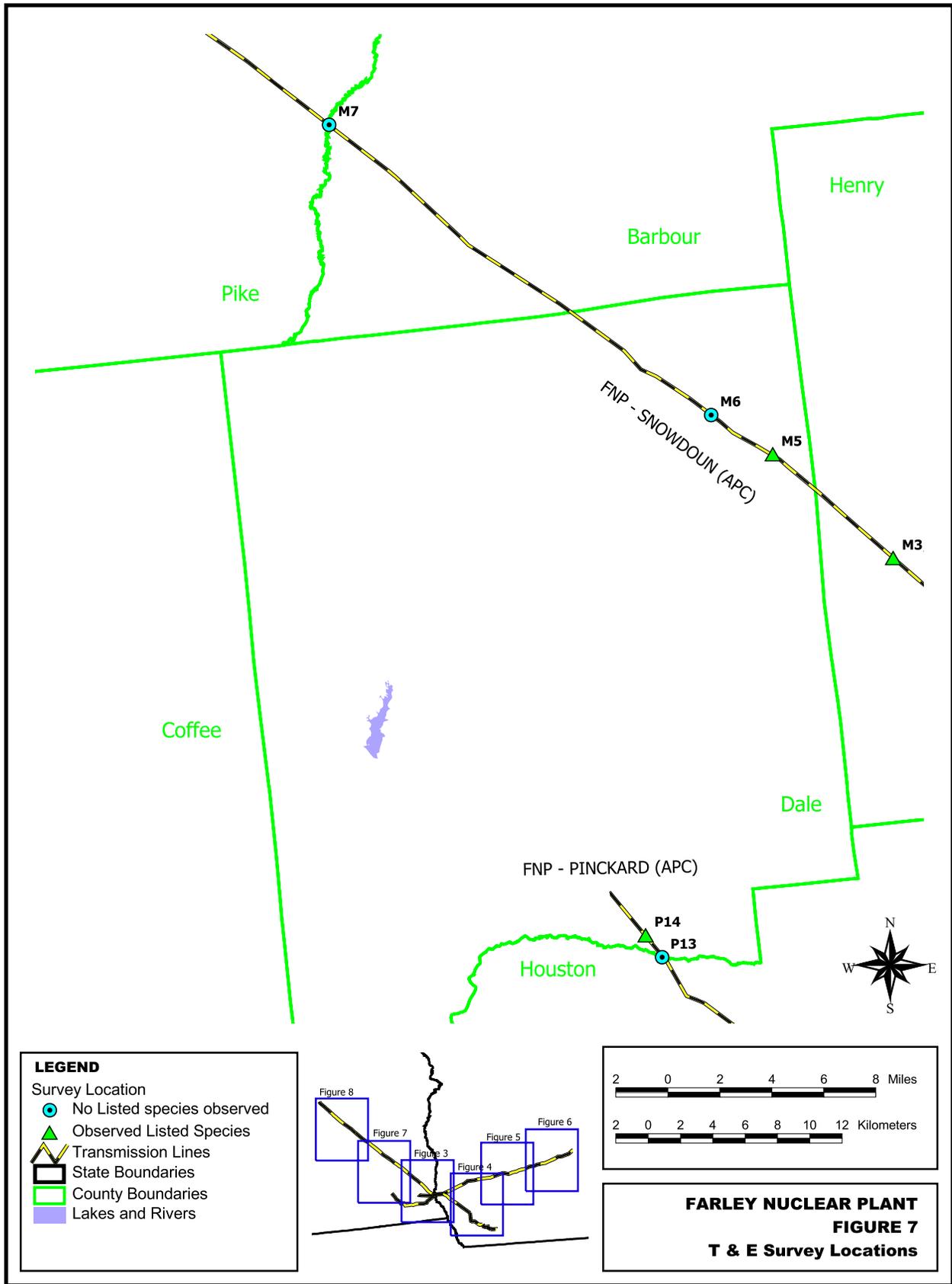


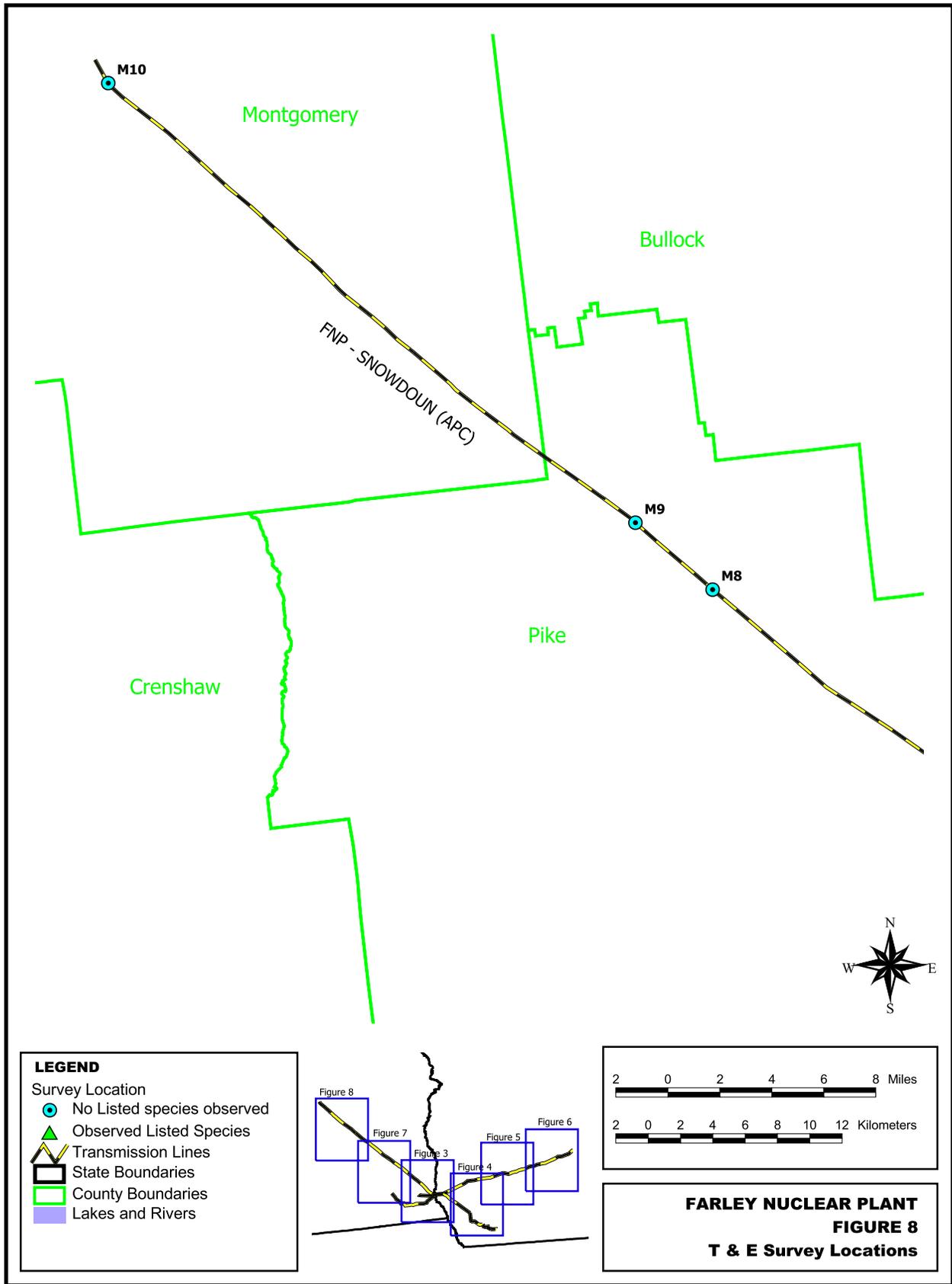












APPENDIX A

PLANT DATA SHEETS



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN PLANT DATA SHEET

Species Scientific Name: SARRACENIA FLAVA

Date Observed / Collected: 9/01 County: WORTH

Observer / Collector: L.L. GADDY 803-765-9976

Was a Voucher Specimen Collected? Yes _____ No X

Where Will Specimen Be Deposited?

Was a Photo Taken? Yes _____ No X

Where Will Photo Be Located?

Was live material collected? Yes _____ No X

Where will specimen be grown?

Site Name: T24

Topographic Quad: _____
GPS lat: 31.403524968
GPS long: -83.851348321

Directions To Site From Known Landmark:
800' WEST OF GA RD 93
ON TIFTON 500 KV LINE

General Description of Habitat:
OPEN, WET GRASSY SAVANNAH

Landowner information:

GA POWER R-O-W

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

2 clumps

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN PLANT DATA SHEET

Species Scientific Name: SARRACENIA MINOR

Date Observed / Collected: 6/16/01 County: WORTH

Observer / Collector: L. L. GADDY 803-765-9976

Was a Voucher Specimen Collected? Yes _____ No X

Where Will Specimen Be Deposited?

Was a Photo Taken? Yes _____ No X

Where Will Photo Be Located?

Was live material collected? Yes _____ No X

Where will specimen be grown?

Site Name: T24 WEST

Topographic Quad: _____

GPS lat: 31.403524968
GPS long: -83.851348321

Directions To Site From Known Landmark:

800' WEST OF GAR 93 ON TIFTON
500KV LINE.

General Description of Habitat: _____

OPEN, WET
GRASSY SAVANNAH

Landowner information:

GA POWER R-O-W

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

35 HEAVY CLUMPS

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN PLANT DATA SHEET

Species Scientific Name: SARRACENIA MINOR

Date Observed / Collected: 6/16/07 County: WORTH

Observer / Collector: L. L. GADBY 803-765-9976

Was a Voucher Specimen Collected? Yes _____ No X

Where Will Specimen Be Deposited?

Was a Photo Taken? Yes _____ No X

Where Will Photo Be Located?

Was live material collected? Yes _____ No X

Where will specimen be grown?

Site Name: T24 EAST

Topographic Quad: ✓

GPS lat: 31.407616941
GPS long: -83.837153994

Directions To Site From Known Landmark:

Ca 400' EAST OF GA RD 93
ON TIFTON 500KV R-O-W.

General Description of Habitat:

OPEN, GRASSY FLATWOODS

Landowner information:

GA POWER ROW

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

less than 10 clumps

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN PLANT DATA SHEET

Species Scientific Name: SIDEROPYLON THORNEI

Date Observed / Collected: 5/11/02 County: EARLY

Observer / Collector: L. L. GADDY for TIFNUS

Was a Voucher Specimen Collected? Yes _____ No X

Where Will Specimen Be Deposited?

Was a Photo Taken? Yes ✓ No _____

Where Will Photo Be Located? TETRTETCHANUS - AIGLEN, SC

Was live material collected? Yes _____ No X

Where will specimen be grown?

Site Name: T8 SOUTH

Topographic Quad: ?

Directions To Site From Known Landmark:

SITE IS CA. 1 MI. EAST OF GA RD 45
@ POINT WHERE R-O-W CROSSES DIRT RD.

General Description of Habitat:
OPEN, CUT-OVER POND CYPRESS
SAVANNAH

Landowner information: ?

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

Six clumps of sprouting trees/
shrubs immediately south of transmission corridor
and six clumps immediately north of transmission corridor.

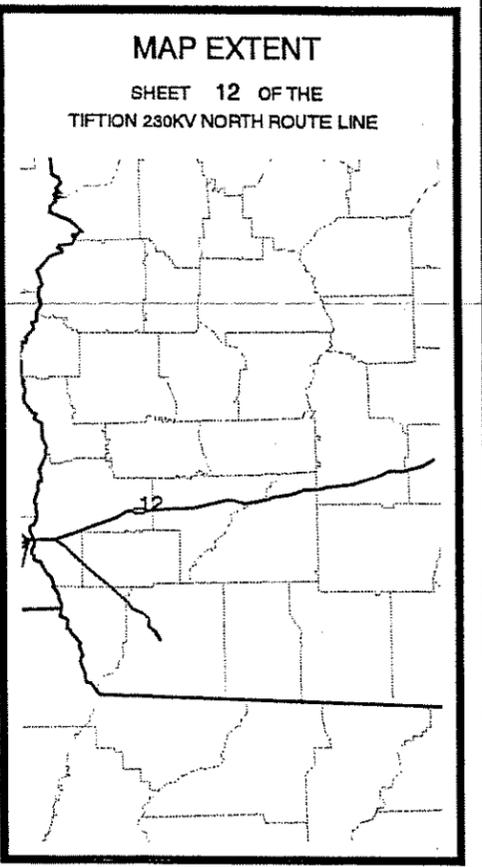
Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the precise location of the site.

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

GPS position
31 19 26
84 40 58

FARLEY NUCLEAR
POWER STATION

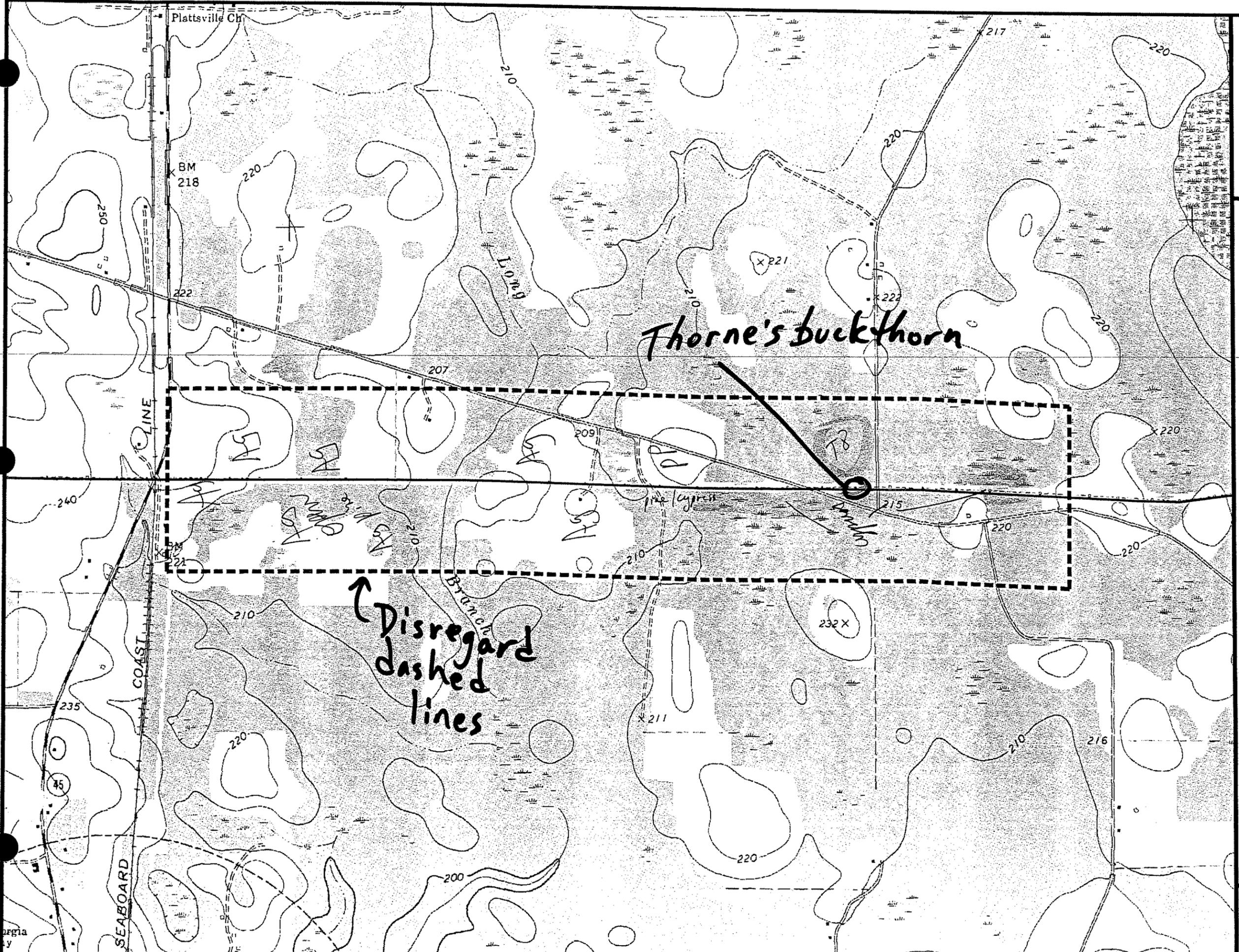
QUAD INDEX
OF TRANSMISSION LINES



- LEGEND
- TRANSMISSION LINE
 - INDEX POLYGON
 - - - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1" = 400'

N



Thorne's buckthorn

*Disregard
dashed
lines*

SEABOARD
COAST
LINE

BRANCH
CREEK

Plattsville Ch

BM
218

BM
221

45

Virginia

APPENDIX B

ANIMAL DATA SHEETS

Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: Gopher tortoise Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten (ph 803-649-7963) Date: 6/8/01 Time: 0900-1130

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.2145 N
GPS Longitude: 85.1037 W

Directions: State HWY 95 south from Columbia, Alabama to
Ferley Nuclear Plant. Burrows are ~~in~~ between energy
production facilities and Chatahoochee River.

Number observed: 16 active burrows + 3 inactive/abandoned burrows
Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: Burrows observed

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: "Old field" habitat on both sides of dirt road;
Grassy, prickly pear cactus, daisy fleabane, scattered pine saplings

Approximate area of habitat: 15 acres Proportion of habitat apparently occupied: 10 acres

Is owner aware of this occurrence? Yes Protecting it? Yes, as a result of this survey.
Alabama Power Company
Can this site sustain the species for more than a few years? Yes

Evidence of disturbance: open grassy field, periodic mowing

Threats: _____

Conservation and management needs: Periodic mowing or burning

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

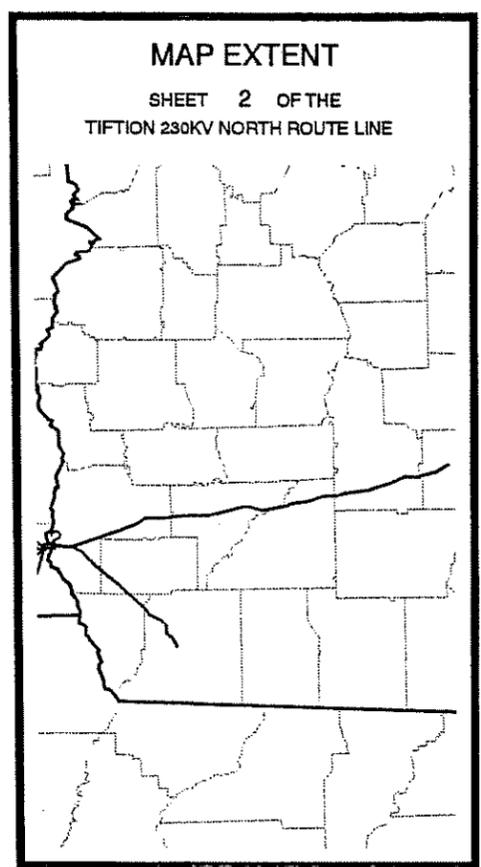
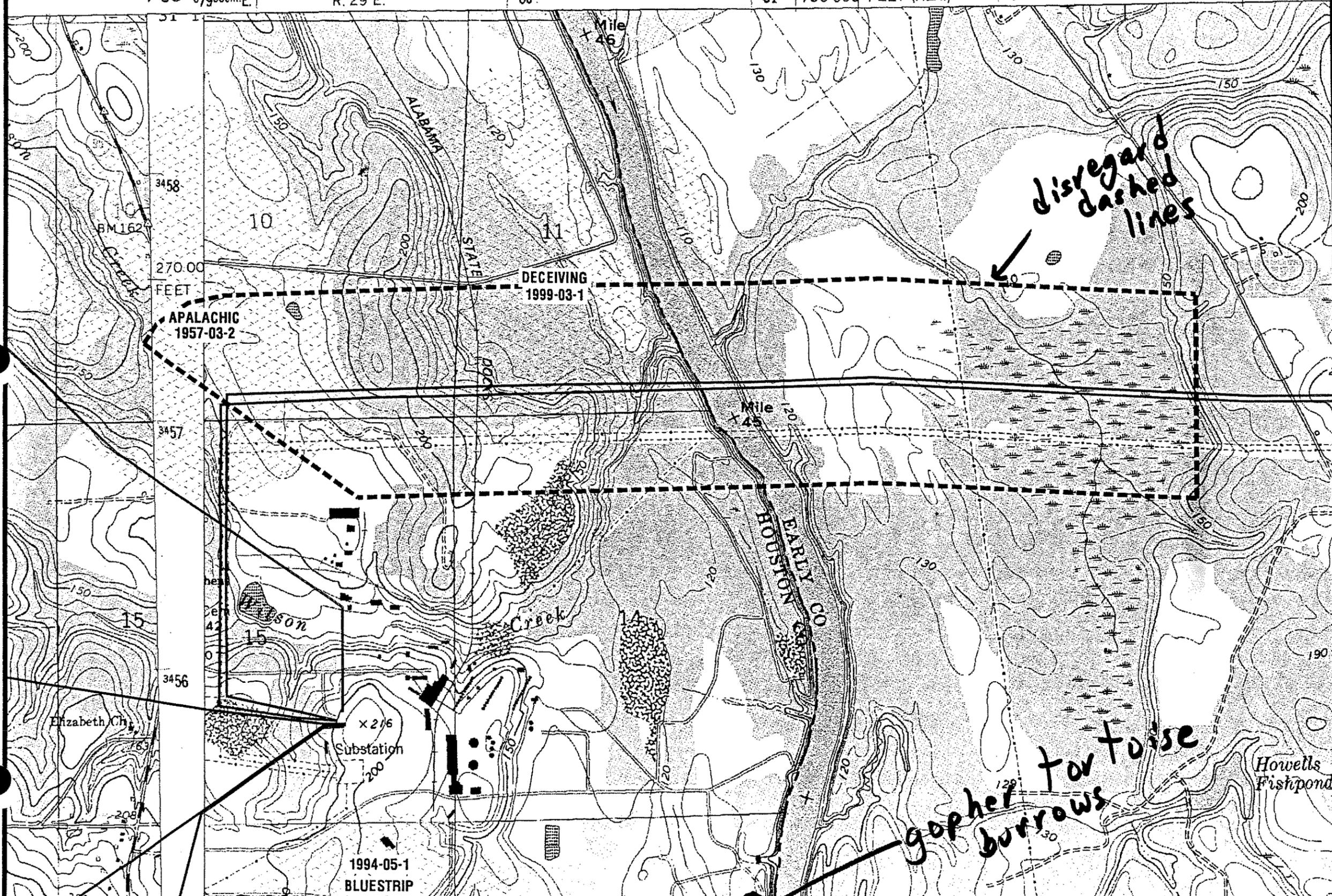
Slides taken? Yes No List and describe: _____

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

GEOLOGICAL SURVEY

7'30" 679000m.E. | R. 29 E. | 680. | 681 | 730 000 FEET (ALA.) | 682 | 5' | 683



- LEGEND
- TRANSMISSION LINE
 - ▬ INDEX POLYGON
 - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1" = 400'

1994-05-1
BLUESTRIP

Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: ^{nest} Osprey (Pandion haliaetus) Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten (Ph 803-649-7963) Date: 6/8/01 Time: 1320

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.221210612 N
GPS Longitude: 85.104313937 W

Directions: State HWY 95 south from Columbia, AL to
Farley Nuclear Plant. Nest is between energy production
facilities and Chatahochee River.

Number observed: 2 juveniles and 2 adults (juveniles on nest, adults nearby) Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: _____

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: Nest is on wooden nest platform

Approximate area of habitat: N/A Proportion of habitat apparently occupied: N/A

Is owner aware of this occurrence? Yes Protecting it? Yes

Can this site sustain the species for more than a few years? Yes

Evidence of disturbance: Nest platform is approx. 50 yards from dirt road

Threats:

Conservation and management needs:

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

GEOLOGICAL SURVEY

7'30" 679000m.E.

R. 29 E.

680

681 730 000 FEET (ALA.)

682

5'

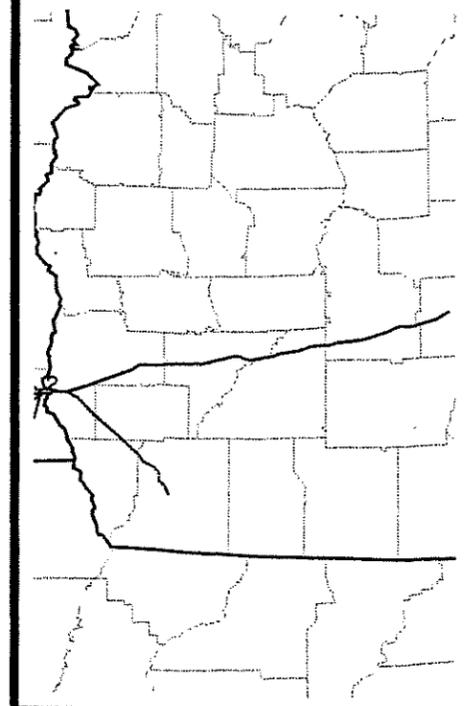
683

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

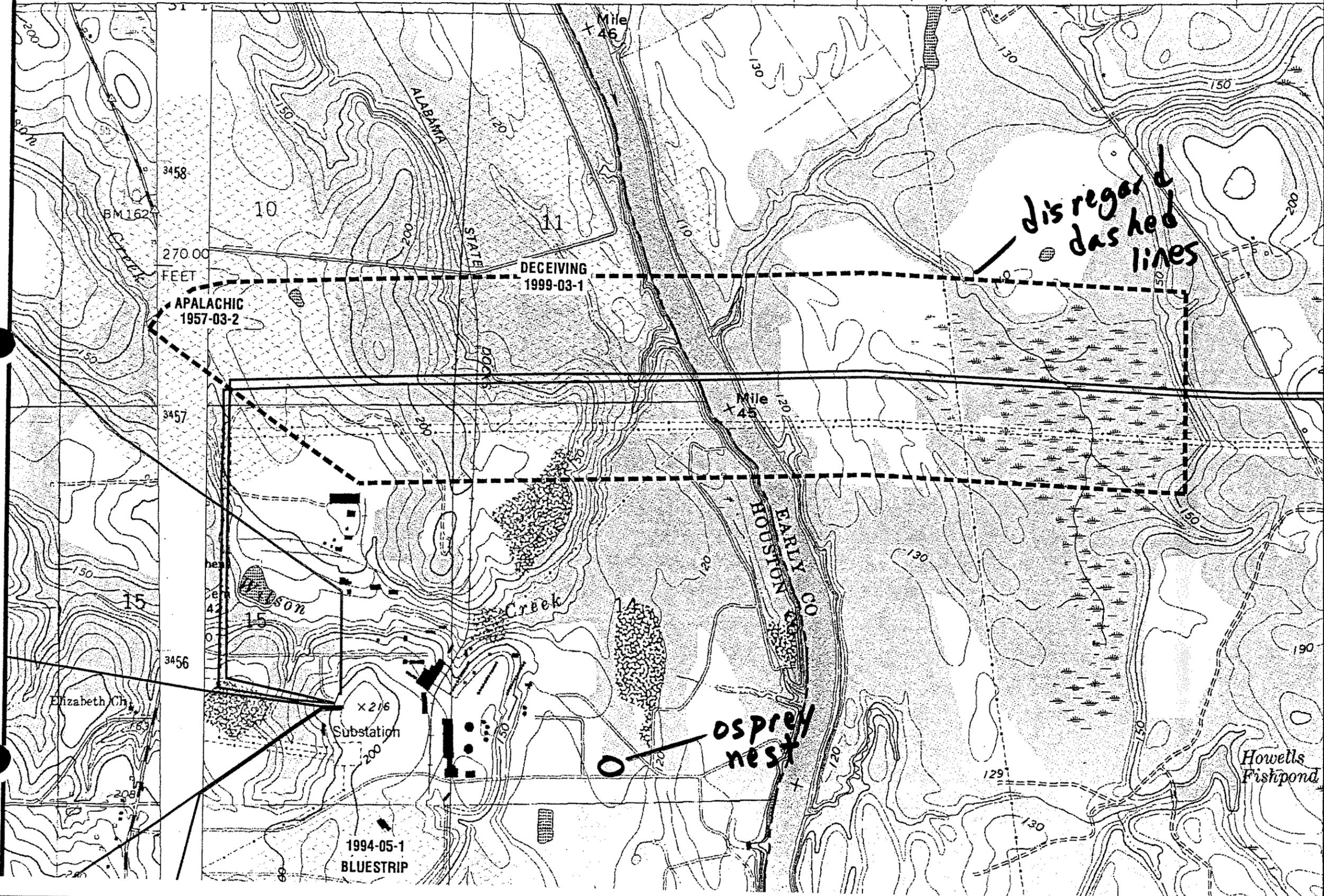
MAP EXTENT

SHEET 2 OF THE TIFTON 230KV NORTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES



APALACHIC 1957-03-2

DECEIVING 1999-03-1

1994-05-1 BLUESTRIP





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

6/11/01

County: Worth

Method of Observation/Capture:

active burrows observed on transmission R.O.W.

Observer / Collector:

Mike Whitten (ph 803-649-7963)

Field Collection Number:

Museum & Accession Number:

Site Name:

Topographic Quad:

Directions To Site From Known Landmark:

Transmission line R.O.W. crossing of GA Hwy 33
approximately 8.5 miles south of Sylvester, GA, and
approximately 2.5 miles north of Anderson City, GA.

General Description of Habitat:

Transmission line R.O.W, mature, open, pine-dominated
rolling hills on each side of R.O.W.

Specimen Data:

(over)

Weight: _____ Sex: _____

Additional Notes: Two clusters of active burrows: western cluster
is between transmission towers # 329-330 (7 active burrows)
with GPS coordinates: 31.407963357 N, 83.835119524 W;

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

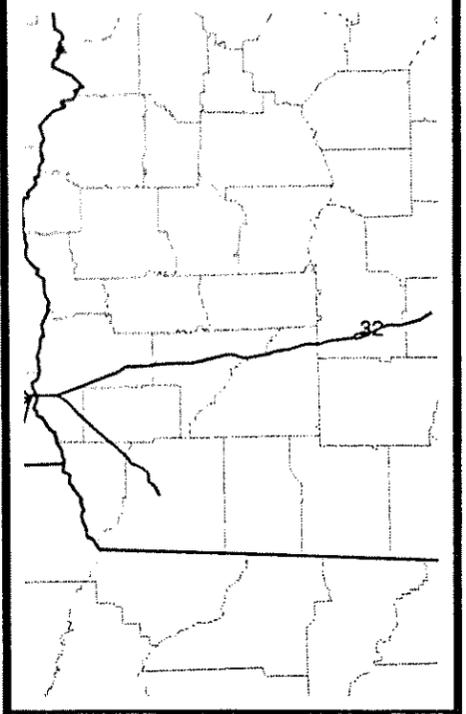
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

Eastern cluster: between towers # 326-327
10 active burrows. GPS coordinates:
31.405384035 N
83.846008269 W

FARLEY NUCLEAR
POWER STATION

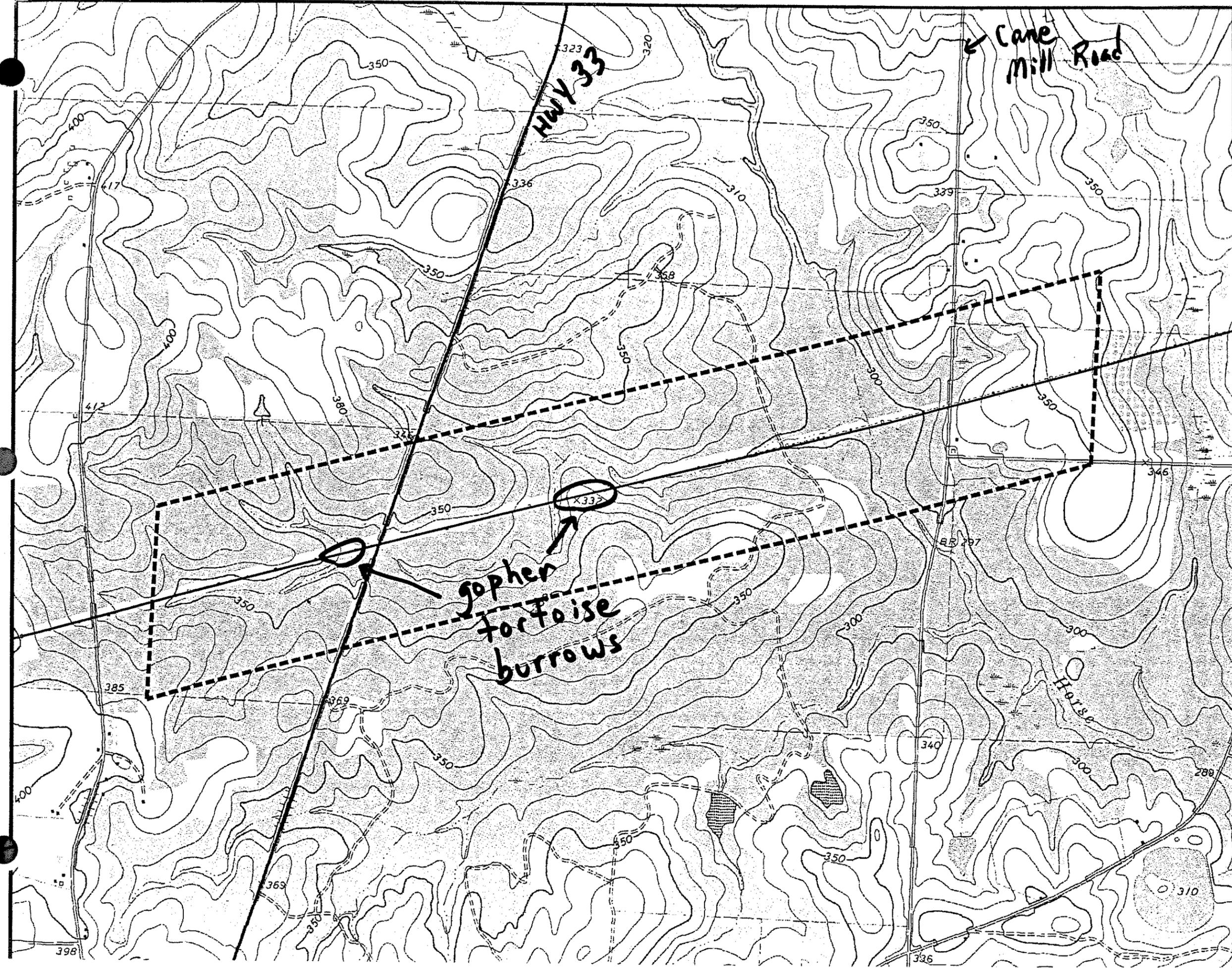
QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT
SHEET 32 OF THE
TIFTON 230KV NORTH ROUTE LINE



- LEGEND
- TRANSMISSION LINE
 - - - INDEX POLYGON
 - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1" = 400'
N





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

6/12/01 County: Early

Method of Observation/Capture:

Active burrows observed on R.O.W.

Observer / Collector:

Mike Whitten (ph 803-649-7963)

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

Proceed West on C.R. 47 from Lucile, GA; turn North
toward Bethlehem Church at approx 3 miles, go to transmission
R.O.W. crossing (approx 3/4 mile) then walk east on R.O.W. for
approx 600-yards.

General Description of Habitat:

transmission R.O.W.; pine flatwoods
on each side of ROW.

Specimen Data:

(over)

Weight: _____ Sex: _____

Additional Notes:

3 active gopher tortoise burrows 40-100 yards

west of tower # 43. GPS coordinates: 31.250796056 N

84-957070554 W

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

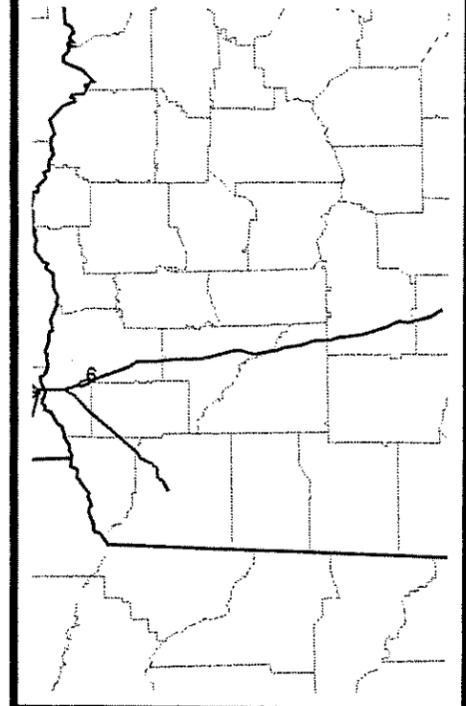
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

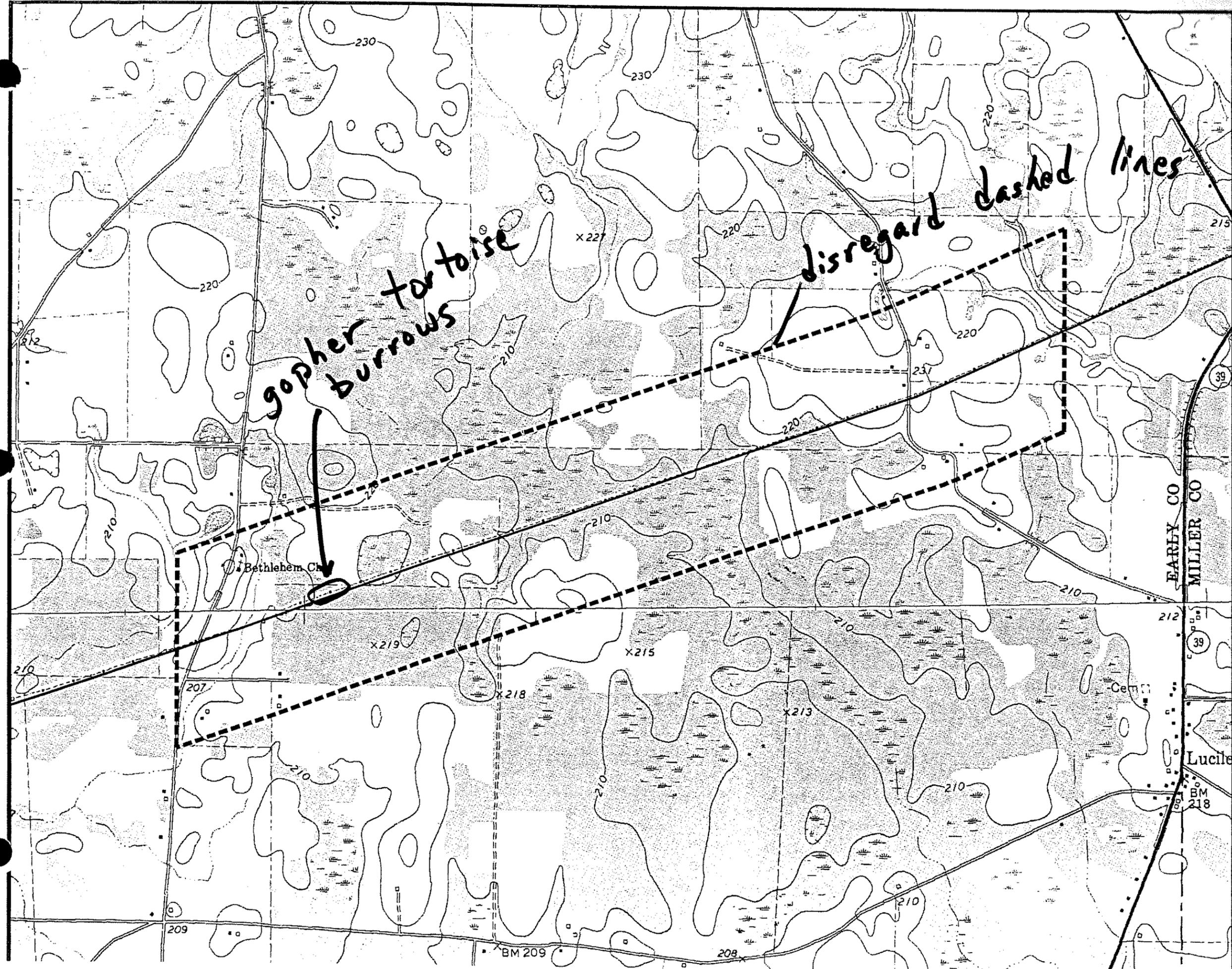
SHEET 6 OF THE
TIFTION 230KV NORTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- - - STATE BOUNDARIES

1" = 400'
N





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

6/12/01

County: Early

Method of Observation/Capture:

active burrows observed on R.O.W.

Observer / Collector:

Mike Whitten (ph 803-649-7963)

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

C.R. 363 from Cedar Springs GA, go approx. 3 1/2 miles

to 230-kV transmission ROW crossing; walk west on R.O.W. approx

General Description of Habitat:

4000 feet or approx 400 yards beyond creek crossing of ROW.

transmission line ROW; pine/hardwoods beyond R.O.W.

Specimen Data:

Weight: _____ Sex: _____

Additional Notes:

6 active Gopher tortoise burrows

GPS coordinates: 31.225163514 N

85.011443341 W

Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.

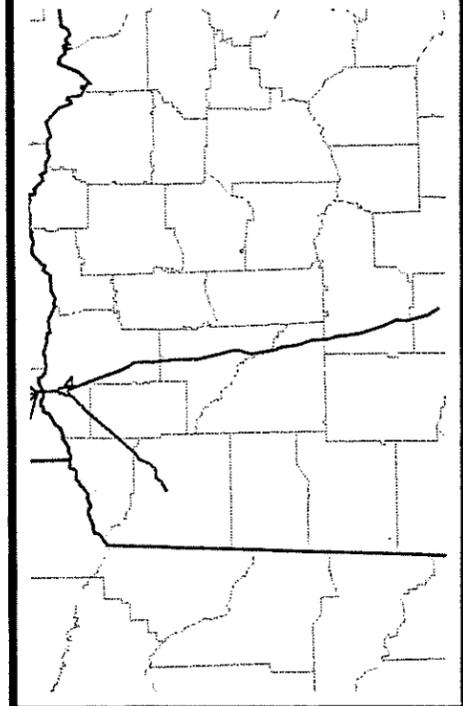
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

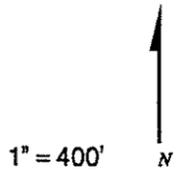
MAP EXTENT

SHEET 4 OF THE
TIFTON 230KV NORTH ROUTE LINE

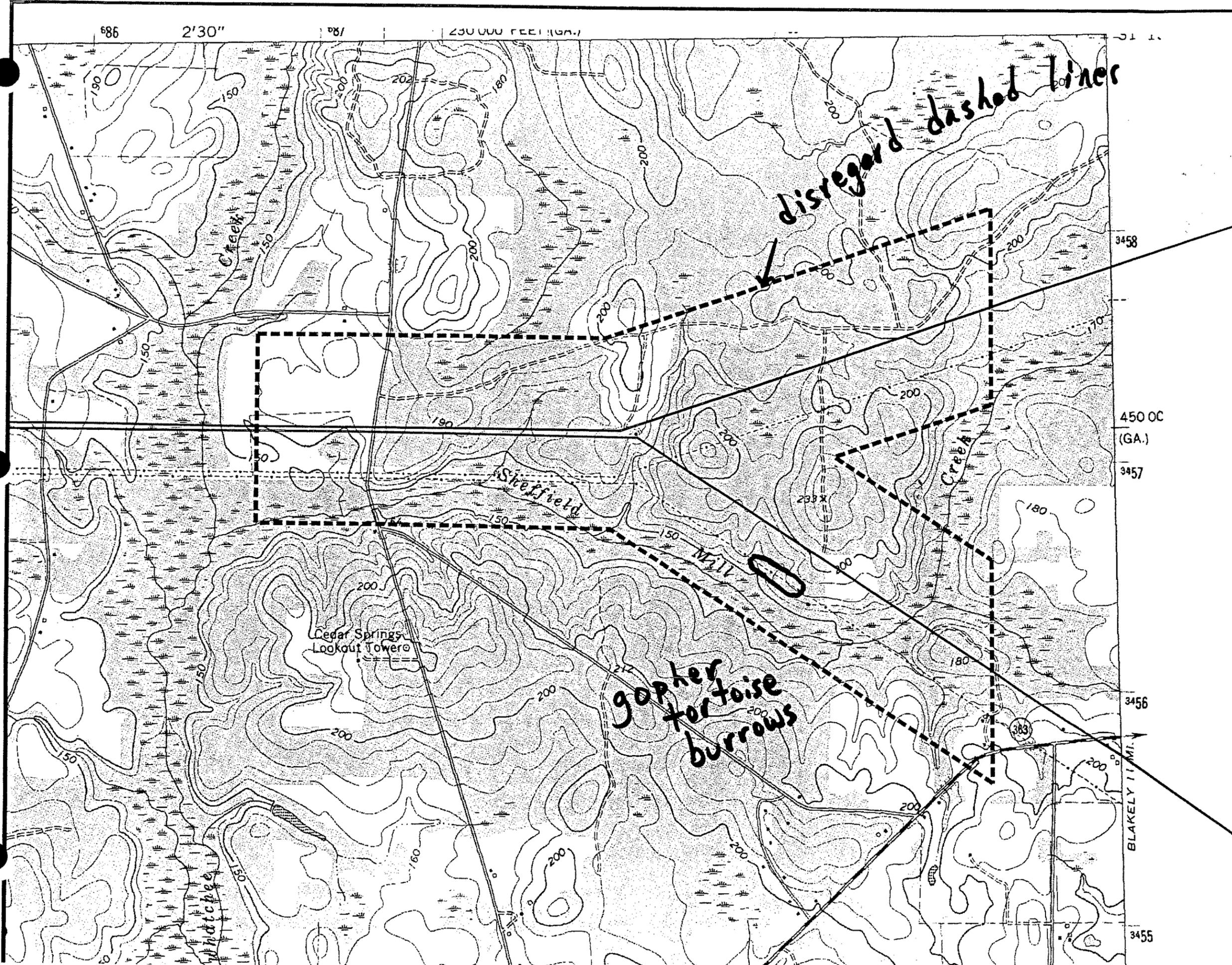


LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- STATE BOUNDARIES



TETRA TECH NUS, INC.
P.L.E. DESCRIPTIONS MANUFACTURES INC.
30 MAY 2007
AUTHOR: GJACKSON



686

2'30"

681

230 000 FEET (CON.)

31 1.

3458

450 OC
(GA.)

3457

3456

BLAKELY 11 MI.

3455

disregard dashed lines

gopher tortoise burrows

Cedar Springs
Lookout Tower

Steffield
Mill

Whatchee

Creek



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

6/12/01

County: Early

Method of Observation/Capture:

Active burrows observed on transmission line R.O.W.

Observer / Collector:

Mike Whitten (ph 803-649-7963)

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

GA Hwy 62 east from Chattahoochee River, turn south on GA Hwy 370, turn east on transmission line right-of-way (ROW) at approx. 3.8 miles south of Hwy 370.

General Description of Habitat:

Transmission line R.O.W.

Specimen Data:

(over)

Weight: _____ Sex: _____

Additional Notes:

Two parallel transmission lines here; the transmission tower numbers below refer to the towers on the northern line.

Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

Two clusters of active tortoise burrows on R.O.W.
Western cluster is on low hill separating 2 marshes.
7 active burrows 30-80 yards west of tower # 18 (see attached map) GPS coordinates: 85.060743044 W
31.231831931 N

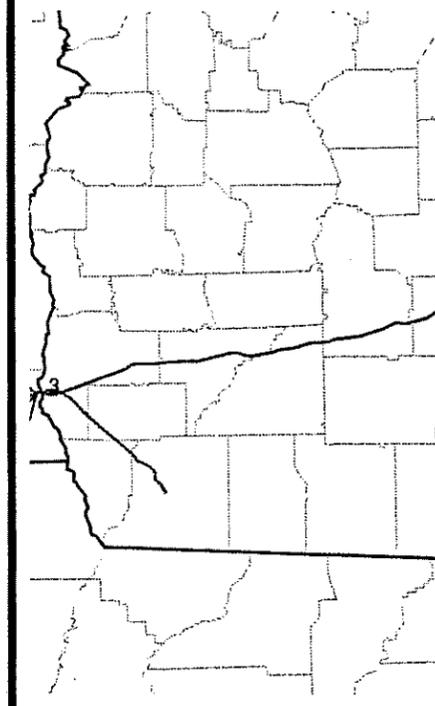
Eastern cluster can be accessed via Old Cedar Springs Road (see map). 20 active burrows between towers # 18-20. GPS coordinates: 31.231699771 N
85.052002206 W

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

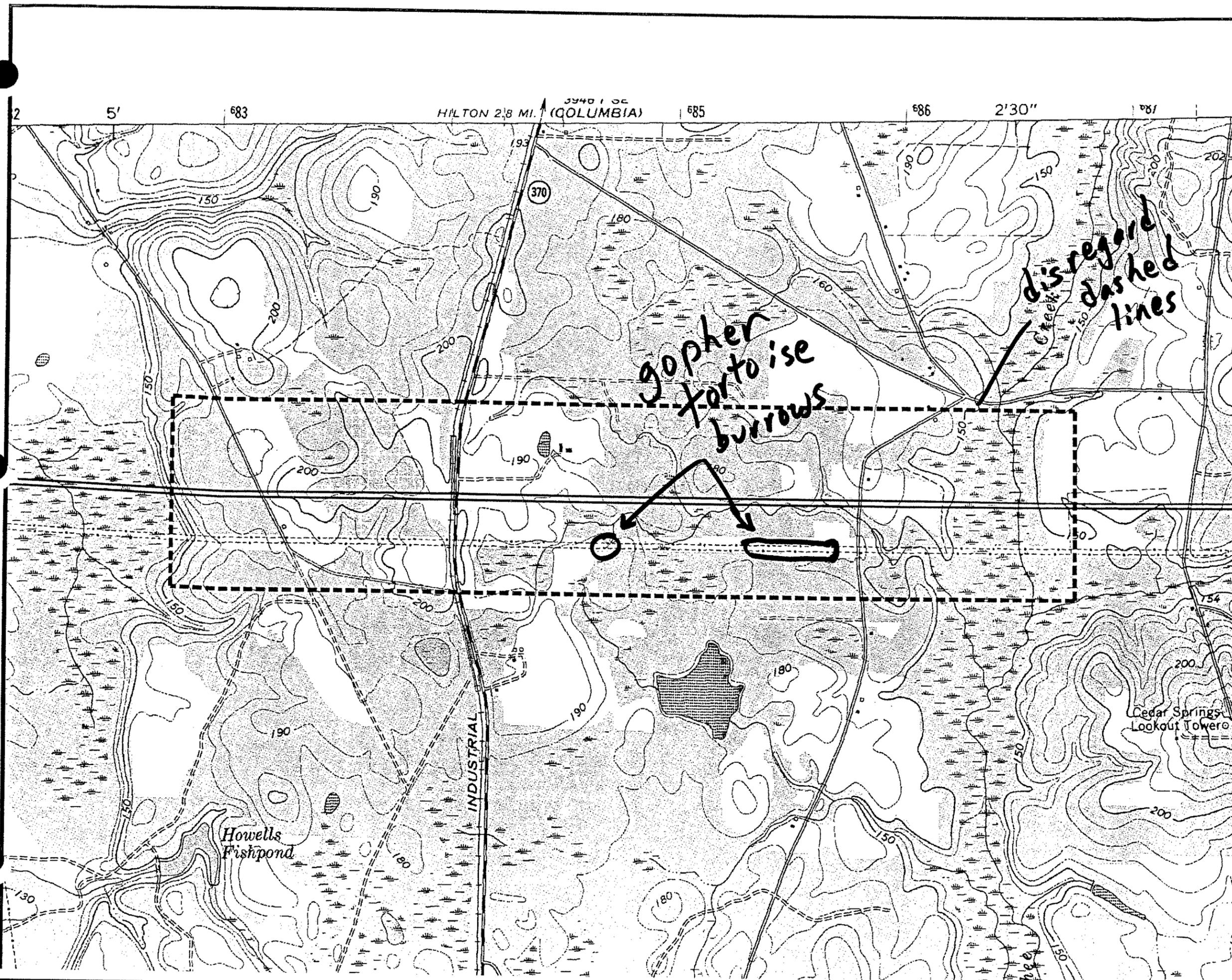
SHEET 3 OF THE
TIFTION 230KV NORTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400'



HILTON 2.8 MI. (COLUMBIA)

Gopher
Tortoise
burrows

disregard
dashed
lines

Howells
Fishpond

INDUSTRIAL

Cedar Springs
Lookout Tower



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

6/10/01

County: Early Co.

Method of Observation/Capture:

Active burrows observed on transmission R.O.W.

Observer / Collector:

Mike Whitten (ph 803-649-7963)

Field Collection Number:

Museum & Accession Number:

Site Name:

Topographic Quad:

Directions To Site From Known Landmark:

From Columbia, Alabama, proceed ~~west~~ east across Chattahoochee River on GA Hwy 62, turn right (south) on County Road 62 (first road east of River)

Go south on C.R. 62 ~~at~~ approx 3.5 miles to transmission corridor (two overhead transmission lines) - Turn left on transmission corridor

General Description of Habitat:

young second growth pine flatwoods on both sides of transmission corridor.

Specimen Data:

(over)

9 gopher tortoise burrows, all had fresh tortoise tracks at
mouth of burrow; tracks made since recent rain (3 hours ago); all
burrow entrances were quite large (≥ 10 inches wide).
Weight: _____ Sex: _____

Additional Notes:

GPS location of center of burrow cluster:

31.234149546 N

85.078239281 W

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

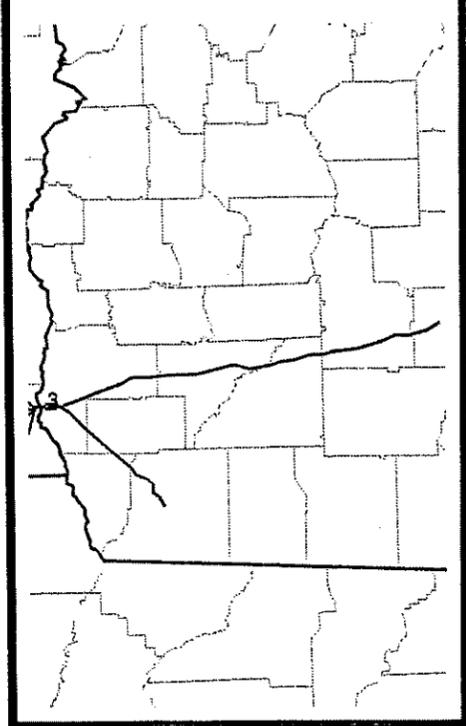
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

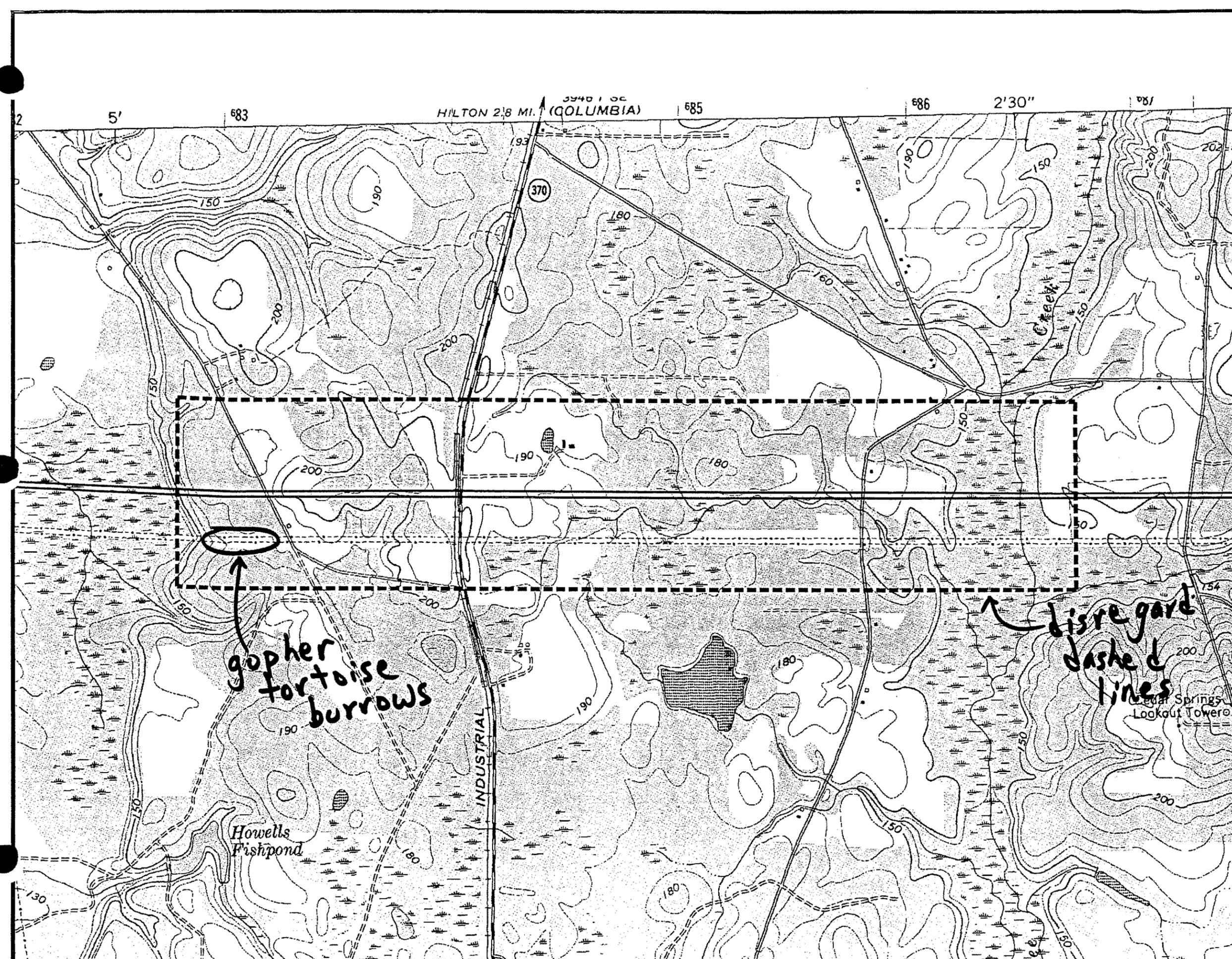
SHEET 3 OF THE
TIFTON 230KV NORTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400' N



14

Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten Ph: 803-649-7963 Date: 6/10/01 Time: 0930-1220

County: Dale USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.268371474 N
GPS Longitude: 85.557965021 W }
central location of }
11 burrows }

Directions: From US HWY 84, go north on C.R. 9, cross Choctawhatchee River, then turn right on C.R. 63. 230-KV transmission ROW crosses C.R. 63 at 1/2 mile. Proceed southeast along ROW past cottonfield. 11 active gopher tortoise burrows on ROW downslope of cotton field ~~to~~ toward Choctawhatchee R. floodplain

Number observed: 11 active gopher tortoise burrows, 4 abandoned tortoise burrows. Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: Thick oaks (25-30ft tall) on both sides of R.O.W. Burrows are on R.O.W.

Approximate area of habitat: 0.3 miles ~~to~~ along R.O.W. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? yes (Ala. Power Co) Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: periodically maintained R.O.W.

Threats: _____

Conservation and management needs: Periodic maintenance of R.O.W. should maintain habitat as it currently exists.

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

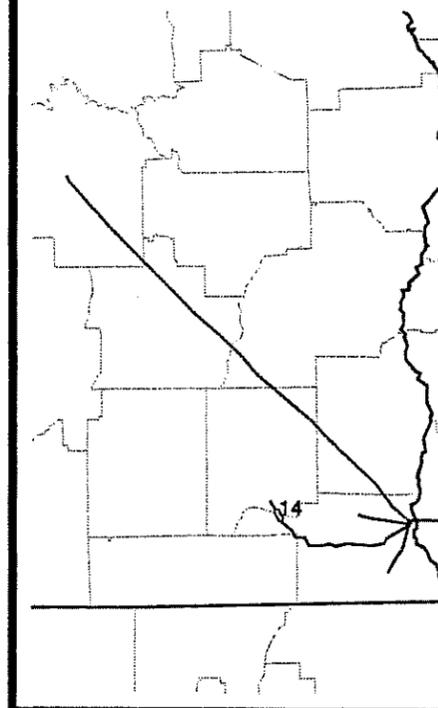
→ Habitat beyond R.O.W. is too thickly vegetated by overstory for tortoises (~~the~~ sparse understory.)

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

SHEET 14 OF THE
PINCKARD 230KV SOUTH ROUTE LINE



LEGEND

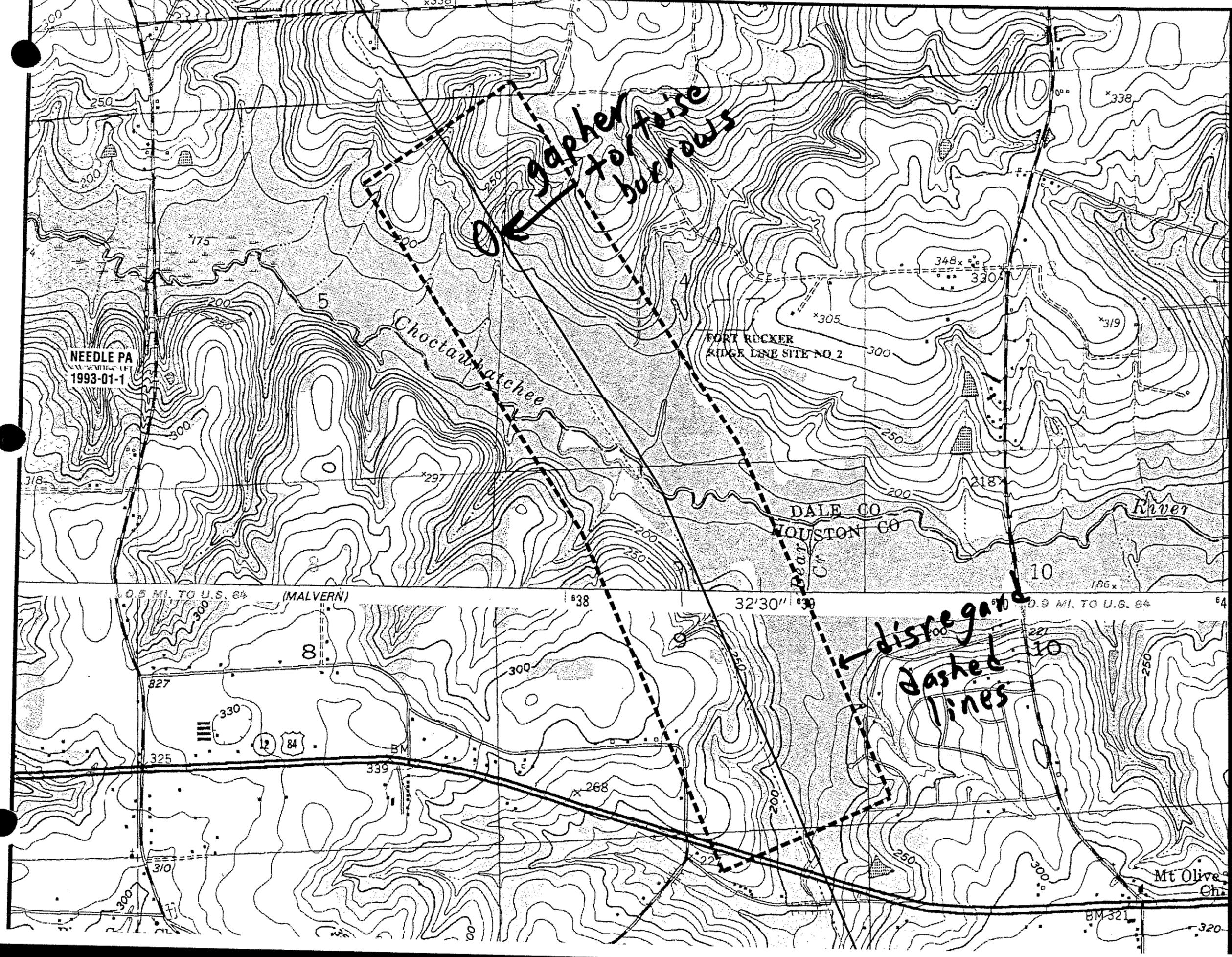
- TRANSMISSION LINE
- INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400'



TETRA TECH NUS, INC.

FILE: G:\PROJECTS\MALFARLEY\TUESLIM
21 MAY 2001
AUTHOR: DAKEMERD



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten (Ph: 803-649-7963) Date: 6/9/01 Time: 1125-1245

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.210489260 N

GPS Longitude: 85.140780555 W

} central location of 6 burrows.

Directions: State HWY 95 toward Farley Nuclear Plant; proceed on foot southwest along 230-kV transmission R.O.W. then runs SW of Farley Nuclear Plant. 2 active burrows along fence between transmission towers # 6 + 7; 1 active burrow between tower # 9 + 10; 3 active burrows on hillside further west. All observed burrows are within transmission R.O.W.

Number observed: 6 active burrows Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization Road Kill Collected Specimen Other: burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: pasture interspersed with wooded areas of generally pine/oak sandhills. - Burrows are on transmission R.O.W.

Approximate area of habitat: The observed burrows are in a 1/2 mile portion of R.O.W. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? yes (Ala. Power Co.) Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: pasture

Threats: _____

Conservation and management needs: Periodic maintenance of R.O.W. should sustain adequate habitat.

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

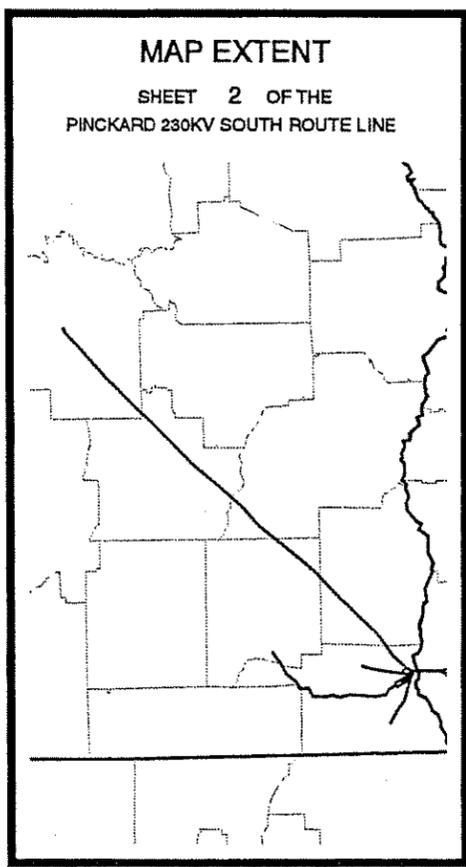
Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

FARLEY NUCLEAR
POWER STATION

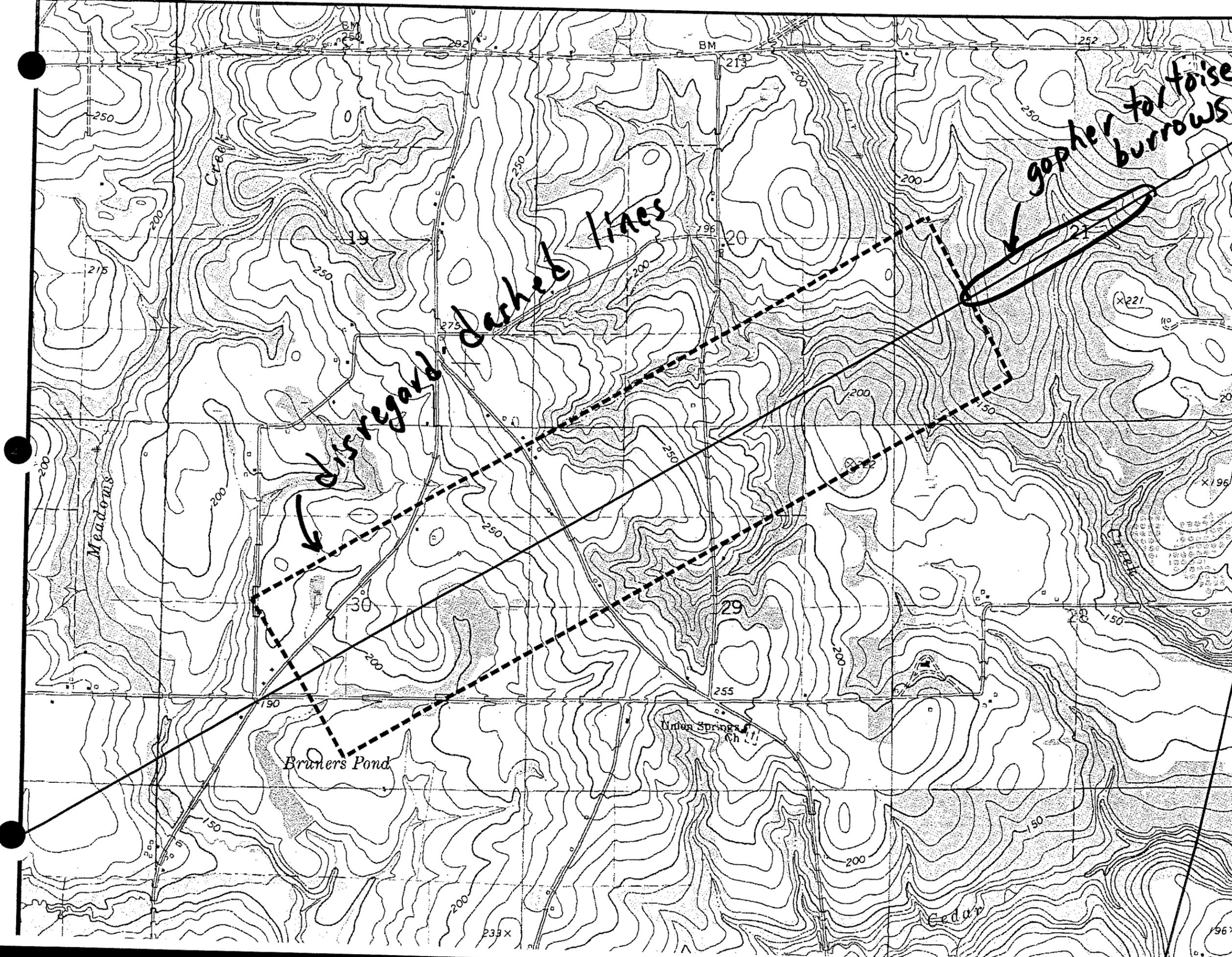
QUAD INDEX
OF TRANSMISSION LINES



- LEGEND
- TRANSMISSION LINE
 - - - INDEX POLYGON
 - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1" = 400'

N



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: Gopher tortoise Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten ⁸⁰³⁻⁶⁴⁹⁻⁷⁹⁶³ Date: 6/9/01 Time: 0950

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.223240902 N

GPS Longitude: 85.128354546 W

Directions: State HWY 95 to Farley Nuclear Plant, then west on Elizabeth Church Road (dirt road), then west on 230-KV transmission corridor to first hill top.
3 burrows slightly west of transmission tower # 4;
1 burrow approx. 150 ft east of tower # 4.

Number observed: 4 active burrows; Number estimated: _____ Basis for estimate: gopher tortoise seen inside two burrows

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: pinet + pine/hardwoods on both sides of transmission corridor.
4 active burrows on corridor.

Approximate area of habitat: 200 yards along transmission corridor. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? Yes (Alabama Power Co.) Protecting it? _____

Can this site sustain the species for more than a few years? Yes

Evidence of disturbance: Discarded trash/garbage in vicinity

Threats: possible poaching?

Conservation and management needs: Alabama Power Co. periodic maintenance of corridor should be sufficient.

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as sensitive in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

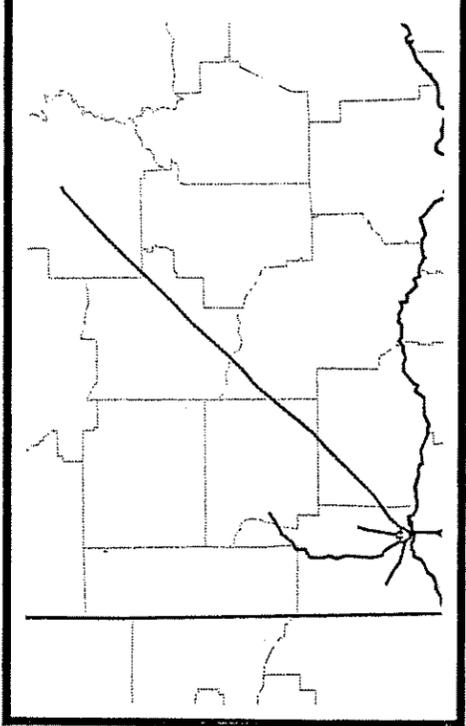
Habitat beyond R.O.W. corridor is gradually becoming too overgrown to support gopher tortoises. Thus, tortoise ~~habitat~~ habitat is limited to ROW, unless

FARLEY NUCLEAR POWER STATION

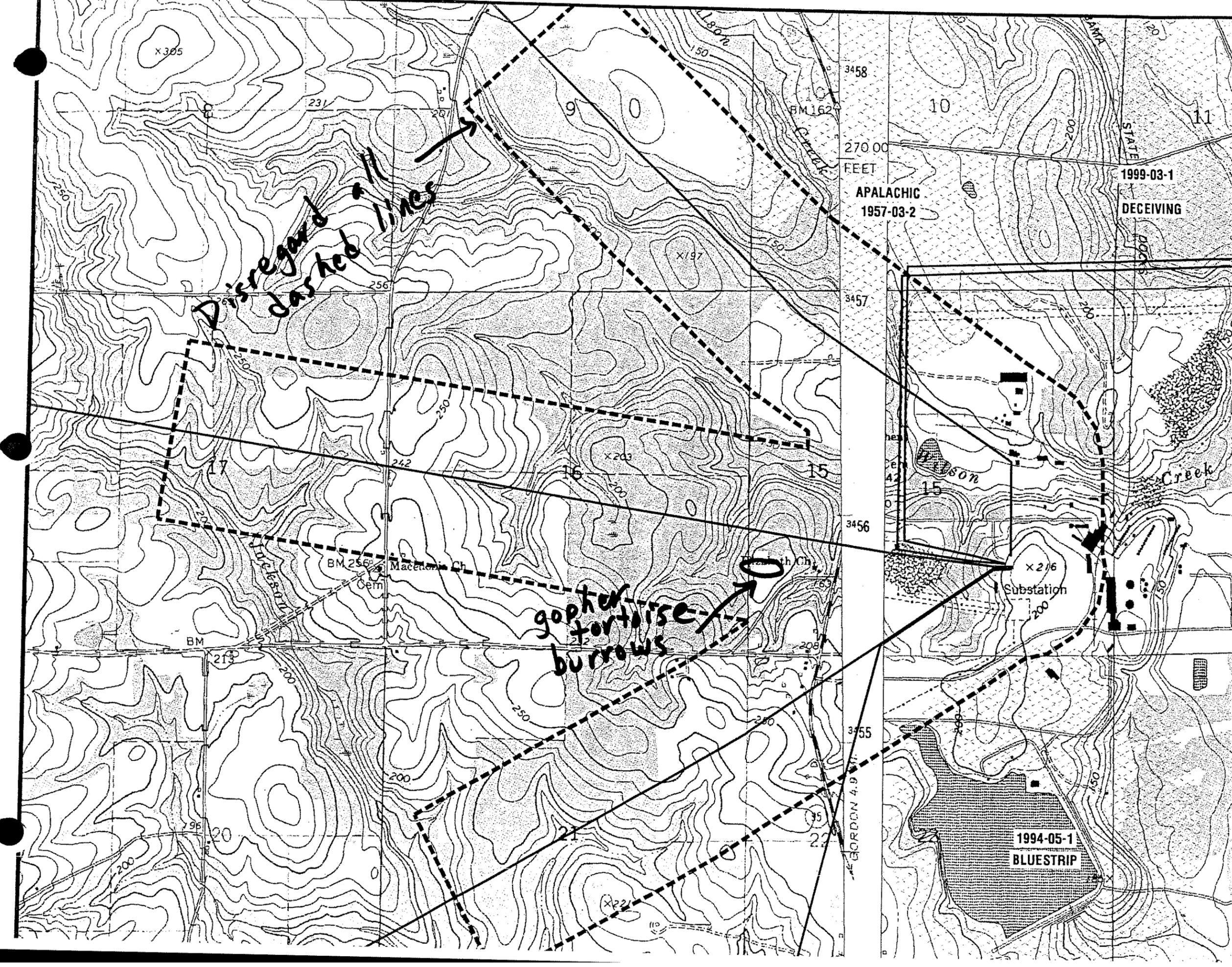
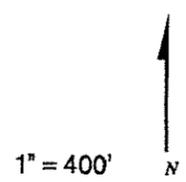
QUAD INDEX OF TRANSMISSION LINES

1999-03-1
DECEIVING

MAP EXTENT
SHEET 1 OF THE
SNOWDOWN 500KV LINE



- LEGEND**
- TRANSMISSION LINE
 - ▬ INDEX POLYGON
 - COUNTY BOUNDARIES
 - STATE BOUNDARIES



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise (Gopherus polyphemus) Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten (ph 803-649-7963) Date: 3/22/02 Time: 1145

County: Dale USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: see N

GPS Longitude: next page W

Directions: Hwy 27 South from Abbeville approx. 15 miles to C.R. 69; north on CR 69 to CR 54; west on CR 54 to 500 KV transmission line ROW. Walk NORTH on ROW to hilltop.

Number observed: 5 active burrows Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: active burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: "old field" within ROW; planted pines and young pine/hardwoods beyond ROW.

Approximate area of habitat: 300 yds along ROW. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? unknown Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: Mowing by Ala. Power Co. every 3 years

Threats: poaching?

Conservation and management needs: _____

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? ___ Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes ___ No ___ If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

EO Rank: Summarize factors listed above: ___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Documentation

Identification positive? Yes ___ No

Specimens taken? ___ Yes No Where deposited? _____ Collection No(s). _____

Slides taken? ___ Yes No List and describe: _____

3 burrows in the vicinity of N 31° 31' 44.1"
W 85° 26' 39.1"

2 burrows in the vicinity of N 31° 31' 38.4"
W 85° 26' 31.7"

Misc: One large Eastern kingsnake ~~sp~~ (Lampropeltis getulus) seen at this location.

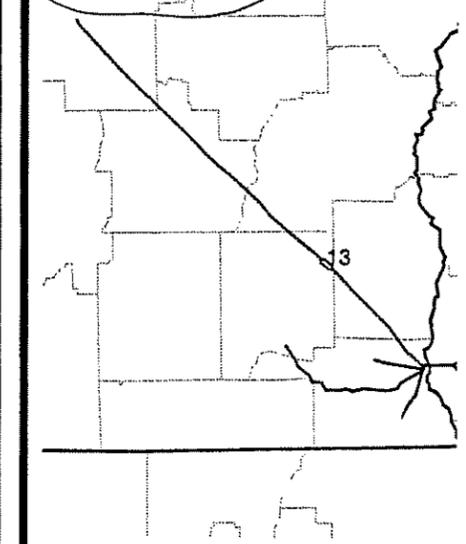
FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

SHEET 13 OF THE
SNOWDOWN 500KV LINE

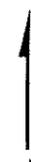
2 groups of GTBs
GAS both poss. its
3/22/02



LEGEND

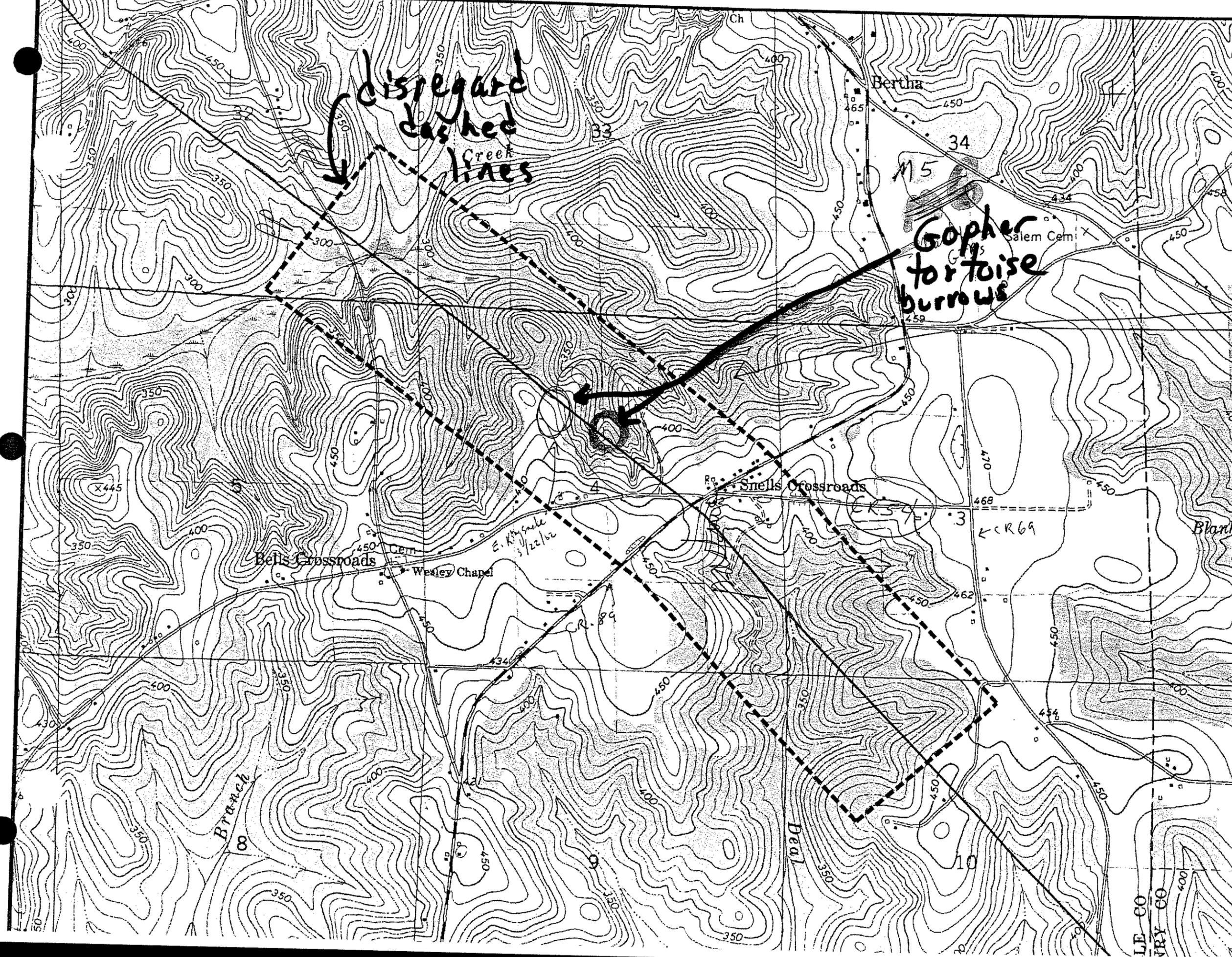
- TRANSMISSION LINE
- ▬ INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400'



TETRA TECH NUS, INC.

FILE: G:\EXPORTS\MAPS\FARLEY\TETRA
2 MAY 2001
AUTHOR: DASH/MSB/C



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise (Gopher polyphemus) Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten ph 803-649-7963 Date: 3/22/02 Time: 0930

County: Henry USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31.46116578° N
GPS Longitude: 85.370060147° W

Directions: From Newville, north on HWY 173 for approx 2 1/4 miles, turn west on CR 140, then north on CR 73, then west on CR 138, go to where 500 KV transmission line ~~is~~ corridor crosses road (CR 138). Walk to hilltop

Number observed: 4 active burrows Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: active burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: "old field" within R.O.W.; scattered hardwoods beyond R.O.W.

ROW = transmission corridor or "right-of-way"

Approximate area of habitat: 300 yds along ROW. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? Unknown Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: Mowing by Alabama Power every 3 years

Threats: poaching?

Conservation and management needs: _____

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? ___ Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes ___ No ___ If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

EO Rank: Summarize factors listed above: ___ A = Excellent B = Good ___ C = Marginal ___ D = Poor

Documentation

Identification positive? Yes ___ No

Specimens taken? ___ Yes No Where deposited? _____ Collection No(s). _____

Slides taken? ___ Yes No List and describe: _____

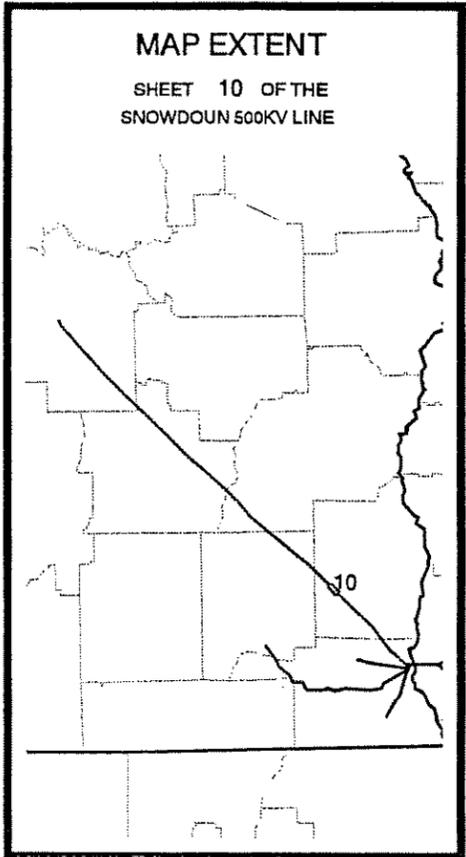
4 active burrows observed; there might be a few more that were not observed; thick blackberry patches were not thoroughly searched.

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

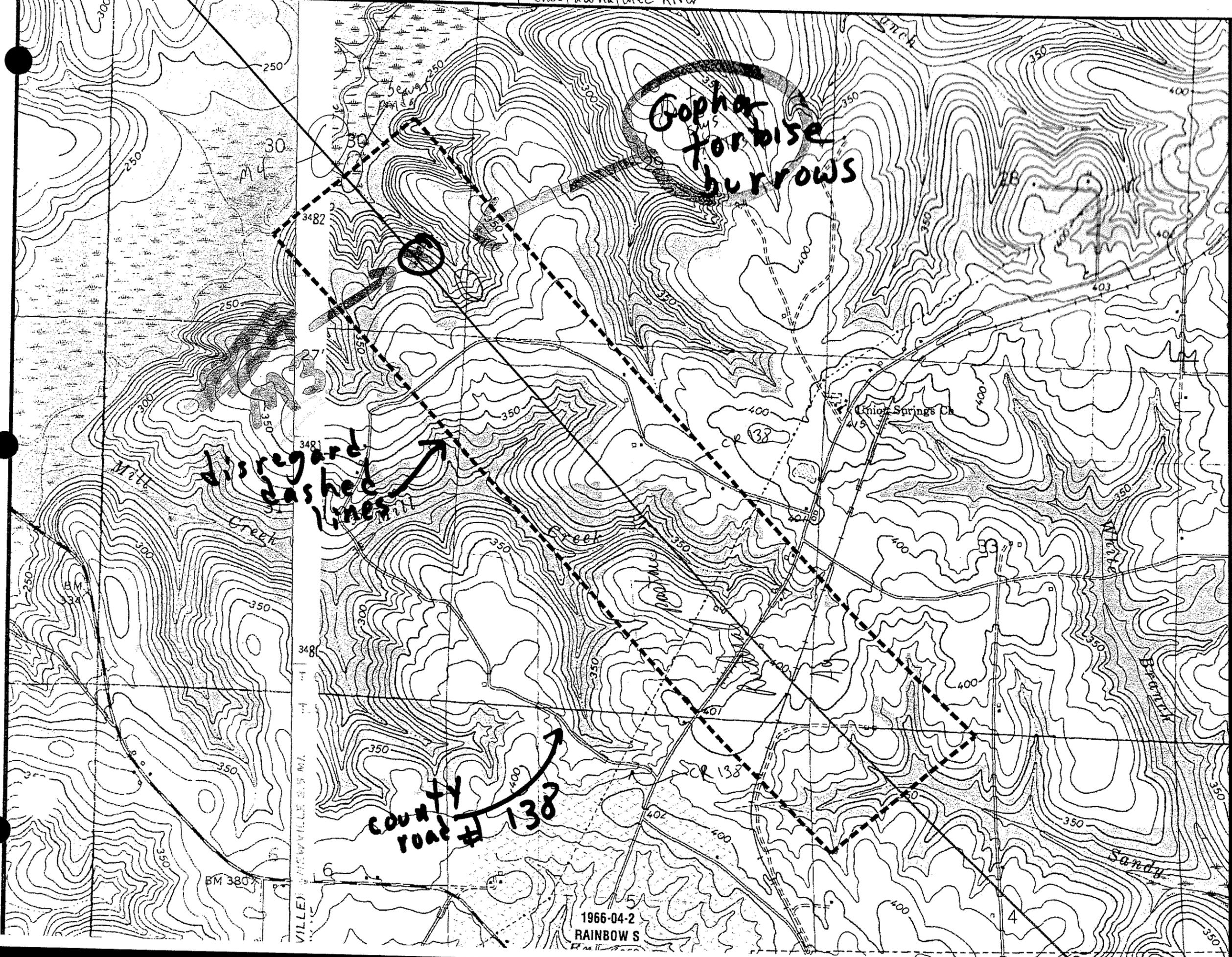
SHEET 10 OF THE
SNOWDOWN 500KV LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400' N



1966-04-2
RAINBOW S



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET

Species Scientific Name: gopher tortoise (Gopherus polyphemus)

Date Observed / Collected: Mike Whitten County: Decatur

Method of Observation/Capture: Two Active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

State Road 97 ~ 1 1/2 miles south of Bainbridge

Turn east along transmission line ROW where ROW crosses SR 97.

General Description of Habitat:

within ROW: grassy

Beyond ROW: young pine plantation

Specimen Data:

landowner information:

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

GPS position N 30°52.503' W 84°35.736' is approx. midway
between the two burrows and is between
transmission tower # 187 + 188.

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2000 U.S. Hwy. 278, SE
Suwanee Circle, Georgia 30025-4714



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name:

gopher tortoise (Gopherus polyphemus)

Date Observed / Collected:

3/26/02

County: Decatur

Method of Observation/Capture:

16 Active burrows observed

Observer / Collector:

Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

South on Hwy 309 ~ 1 1/2 miles from Bainbridge to

Country Club Road, turn west on Country Club Road, go

to 230 KV crossing (1/2 mile) then North along ROW.

General Description of Habitat:

within ROW: herbaceous + weedy

beyond ROW: Agriculture to west, pine/oaks to east

Specimen Data:

16 active burrows observed

Landowner information:

Additional Notes (size of population, vigor, flowering, fruiting, etc.):

16 active burrows between towers # 193 + 195.

Approx. midpoint of burrows: N 30° 52.168'; W 84° 34.778'

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

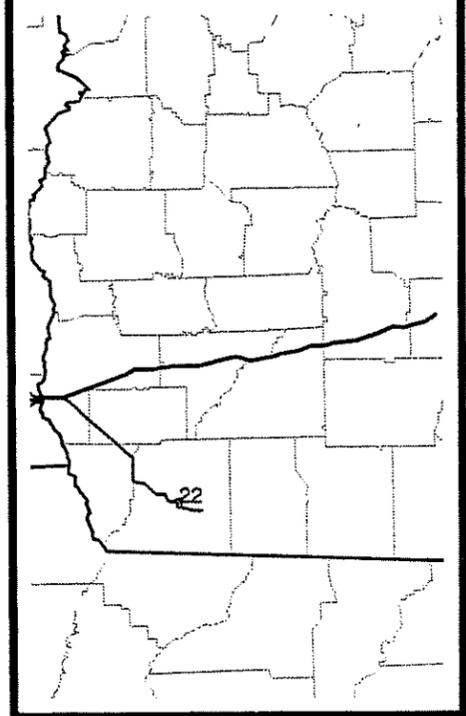
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
278 U.S. Hwy. 278, SE
Suwanee, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

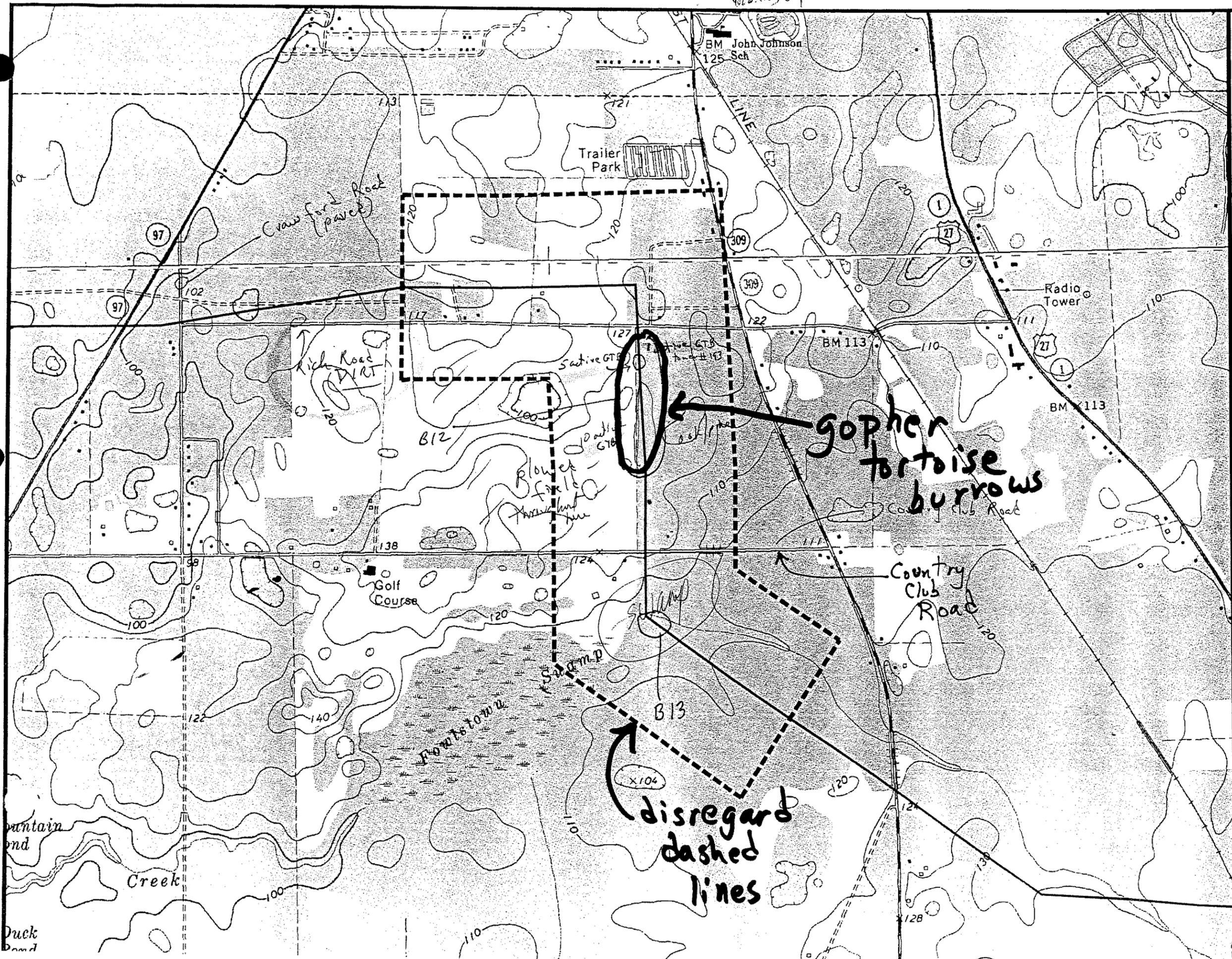
SHEET 22 OF THE
BAINBRIDGE 230KV SOUTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- - - STATE BOUNDARIES

1" = 400m
N





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name: gopher tortoise (Gopherus polyphemus)

Date Observed / Collected: 3/25/02 County: Seminole

Method of Observation/Capture: 3 Active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

From Colquitt, go south on Hwy 45 approx. 9 miles
to 230-KV transmission line ROW. Burrows are between
Hwy 45 and wetland to the NW along ROW.

General Description of Habitat:

beyond ROW: planted pine
within ROW: pasture

Specimen Data:

3 active burrows observed

Weight: _____ Sex: _____

Additional Notes:

GPS N 31.057084261°

W 84.794305138°

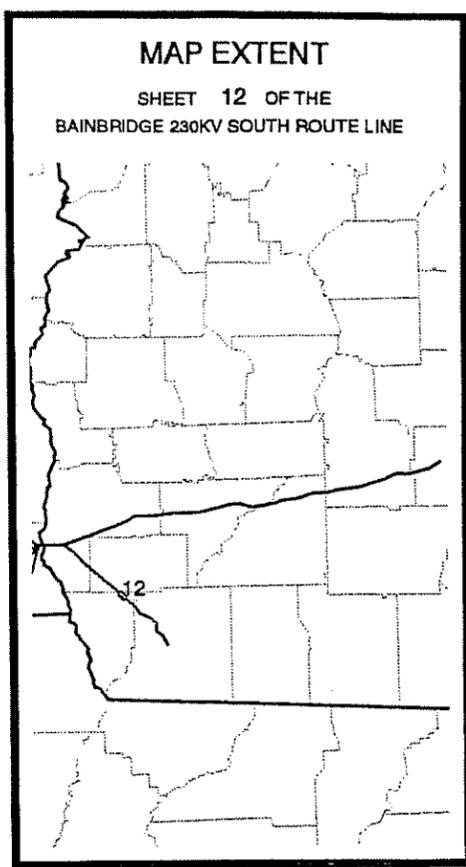
3 gopher frogs (*Rana capito sevosia*) seen in one burrow.

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

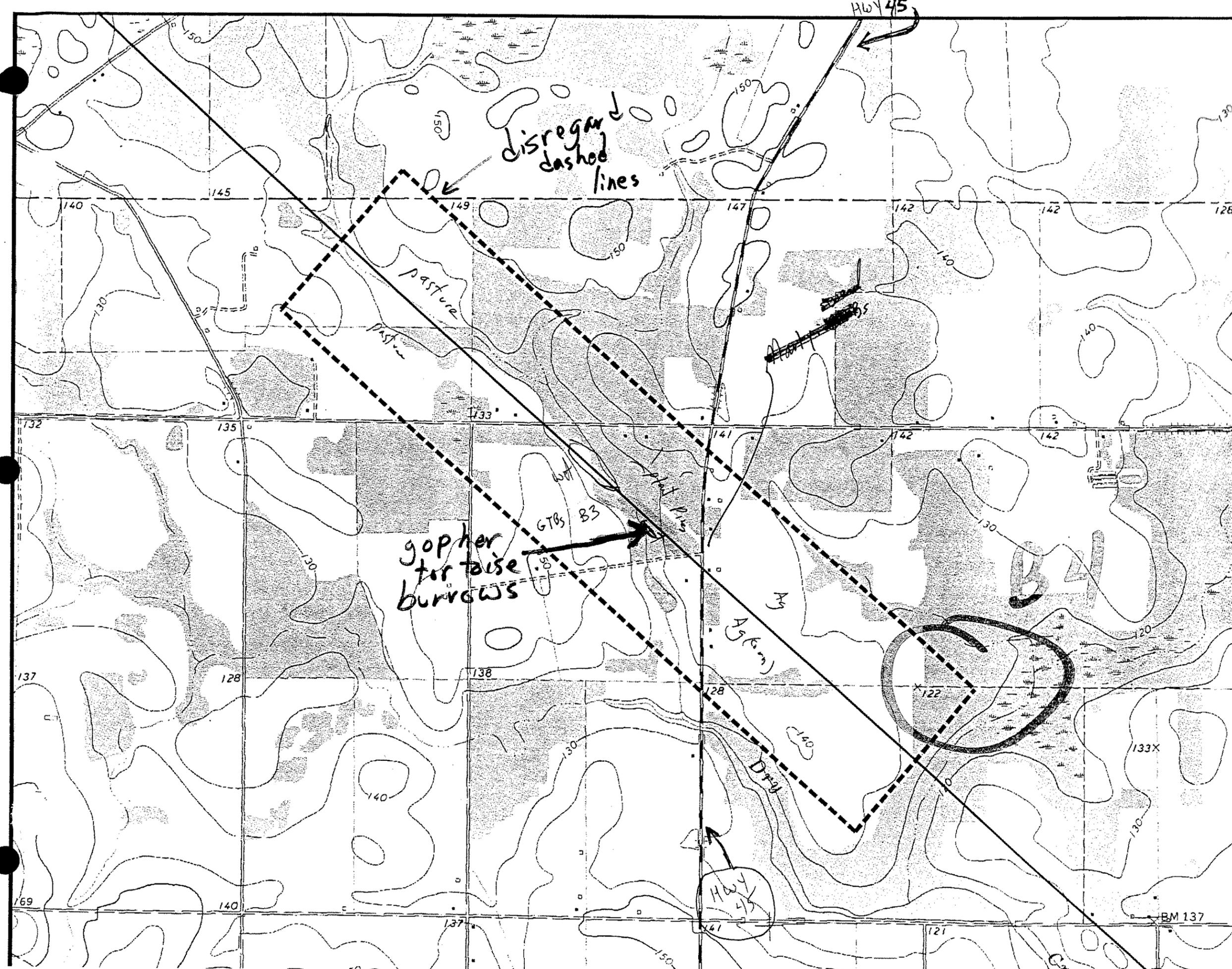
QUAD INDEX
OF TRANSMISSION LINES



- LEGEND
- TRANSMISSION LINE
 - - - INDEX POLYGON
 - - - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1" = 400'

N





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name: Bachman's sparrow (*Aimophila aestivalis*)

Date Observed / Collected: 3/25/02 County: Decatur

Method of Observation/Capture: Auditory (singing heard)

Observer / Collector: Mike Whitten (ph 803-649-7963)

Field Collection Number: _____

Museum & Accession Number: _____

Site Name: _____ Topographic Quad: _____

Directions To Site From Known Landmark:

~~Hwy 39 south from Donaldsonville~~

Hwy 310 south from Brinson, turn east onto Hwy 84/38,

go east approx. 1 1/2 miles, then south onto Carter's Mill Road, go south

General Description of Habitat: _____

approx 4/5 mile to 230 KV transmission line, then
300 yards SE on ROW.

→ pine flatwoods and "old field"

Specimen Data: _____

N/A

Weight: _____ Sex: _____

Additional Notes:

At least 2 birds heard in pines south of R.O.W.
near transmission tower # 147; GPS position: N 30° 56' 10.3"
W 84° 42' 31.9"

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

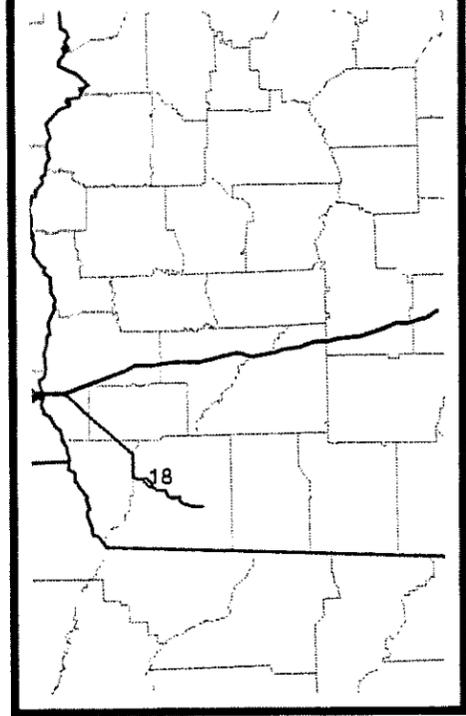
Carter's Mill Road

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

SHEET 18 OF THE
BAINBRIDGE 230KV SOUTH ROUTE LINE



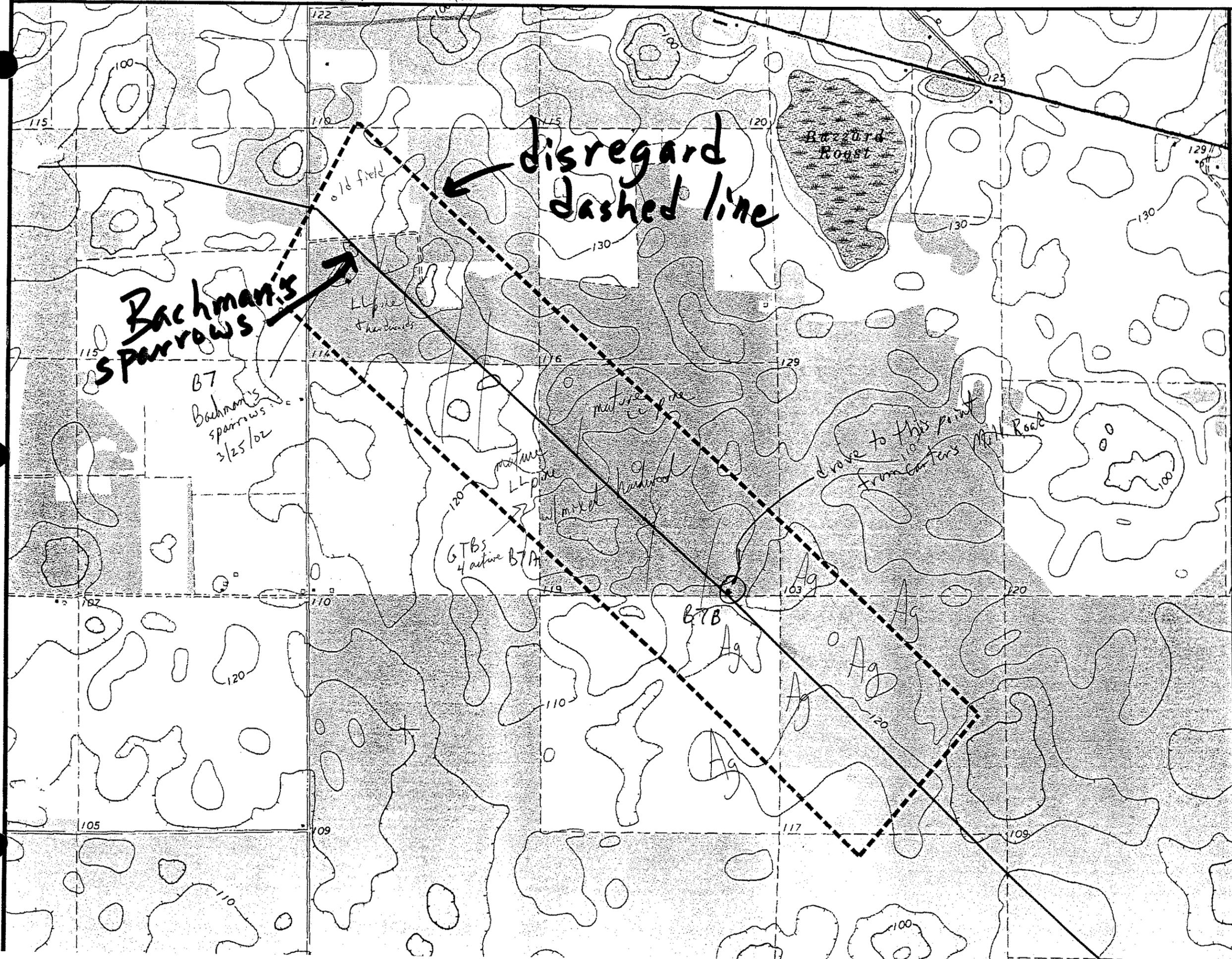
LEGEND

- TRANSMISSION LINE
- INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400m



TETRA TECH NUS, INC.
FILE DESCRIPTION: FARLEY NUCLEAR POWER STATION
DATE: 11/14/02
AUTHOR: DAVID MERRICK



Bachman's Sparrows

disregard dashed line

B7
Bachman's Sparrows
3/25/02

GTBs
4 active BTA

B7B

Ag



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name: gopher tortoise (Gopherus polyphemus)

Date Observed / Collected: Mike Whitten (ph 803-649-7963) County: Decatur

Method of Observation/Capture: 4 Active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:
West on Hwy 84/38 for ~8-9 miles from Bainbridge GA;
South on Carter's Mill Road (dirt road); drive south ~0.8 mile
to 230-kV transmission ROW, then SE along ROW for ~1 mile.

General Description of Habitat: within ROW: herbaceous
Beyond ROW: longleaf pine, hardwoods

Specimen Data: 4 active burrows observed.

Weight: _____ Sex: _____

Additional Notes:

2 active burrows 40 ft south of tower # 149 N $30^{\circ}55'52.6''$
W $84^{\circ}42'10.3''$

2 active burrows between towers # 150 & 151 N $30^{\circ}55'40.1''$
W $84^{\circ}41'54.6''$

Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714



Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name: Bachman's sparrow (*Aimophila aestivalis*)

Date Observed / Collected: 3/25/02 County: Decatur

Method of Observation/Capture: Auditory (singing heard)

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

From Bainbridge GA, go SW on Hwy 253 for
approx. 3 miles to 230 KV transmission line, approx
400-500 yards NW along transmission line R.O.W.

General Description of Habitat:

low rolling hills, pine-dominated

Specimen Data:

N/A

Weight: _____ Sex: _____

Additional Notes:

*One bird heard singing in woods NE of R.O.W.
between transmission towers # 174 + 175.
GPS posit: N 30° 53' 25.2", W 84° 37' 39.9"*

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

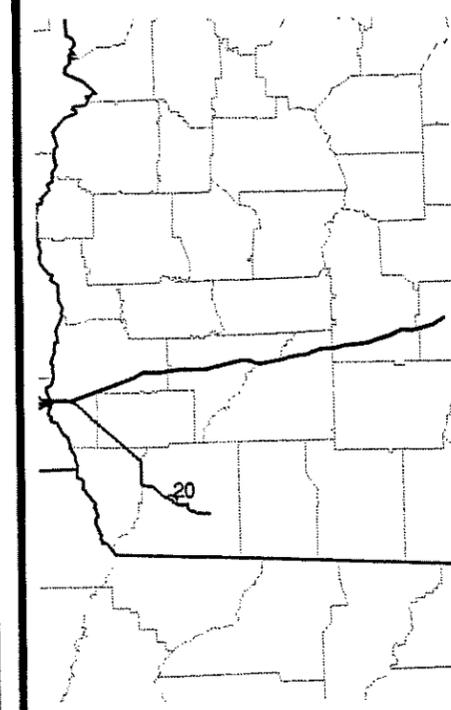
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

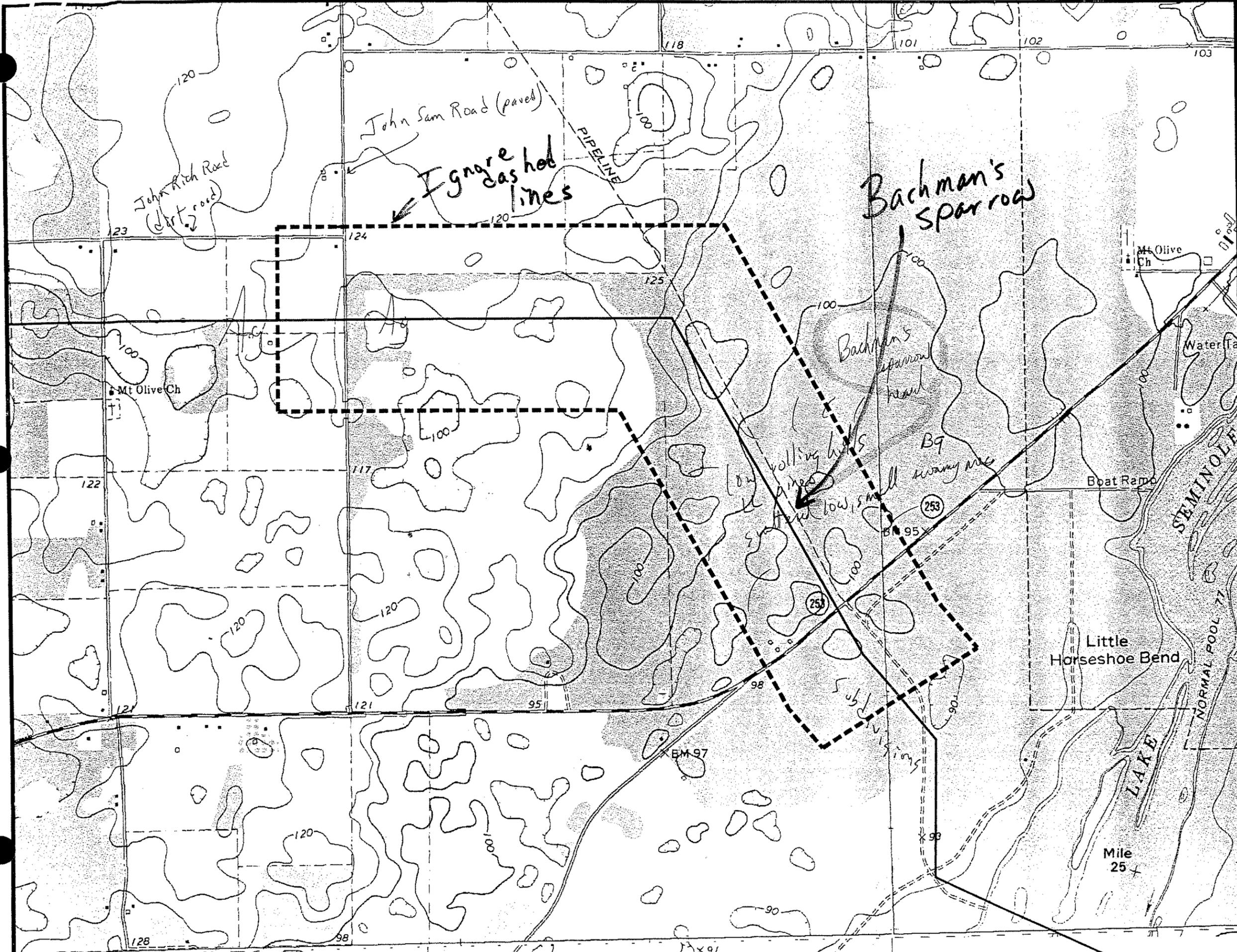
SHEET 20 OF THE
BAINBRIDGE 230KV SOUTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- - - STATE BOUNDARIES

1" = 400m





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

**SPECIAL CONCERN ANIMAL OBSERVATION/
COLLECTION DATA SHEET**

Species Scientific Name: gopher tortoise (*Gopherus polyphemus*)

Date Observed / Collected: 5/1/02 County: Baker

Method of Observation/Capture: Two Active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

From Newton, GA, drive north on Hwy 91 for 2 1/2 - 3 miles
to 500 KV transmission ROW, turn right ^(east) on access road in ROW.

General Description of Habitat:

beyond ROW: Rolling hills, frequently burned, open understory
with large pines + a few scattered hardwoods.

within ROW: herbaceous

Specimen Data:

Weight: _____ Sex: _____

Additional Notes:

GPS posit

One burrow between towers 215 + 216: N 31° 20.563' W 84° 17.151'

One burrow ~~between towers~~

↪ 50 ft NW of tower # 228: N 31° 21.047' W 84° 14.030'

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

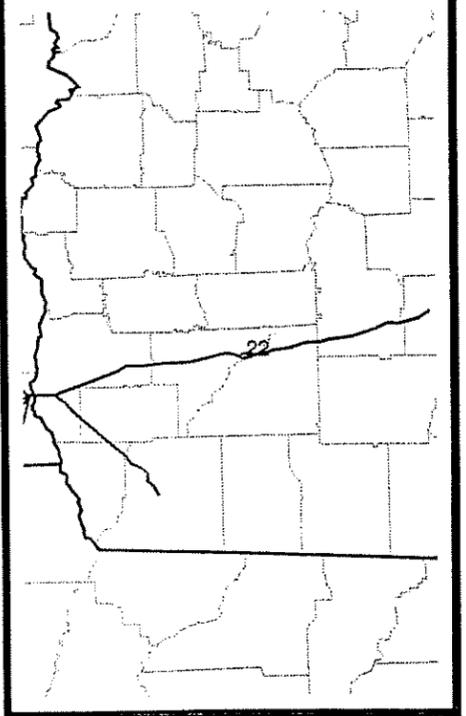
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

SHEET 22 OF THE
TIFTION 230KV NORTH ROUTE LINE



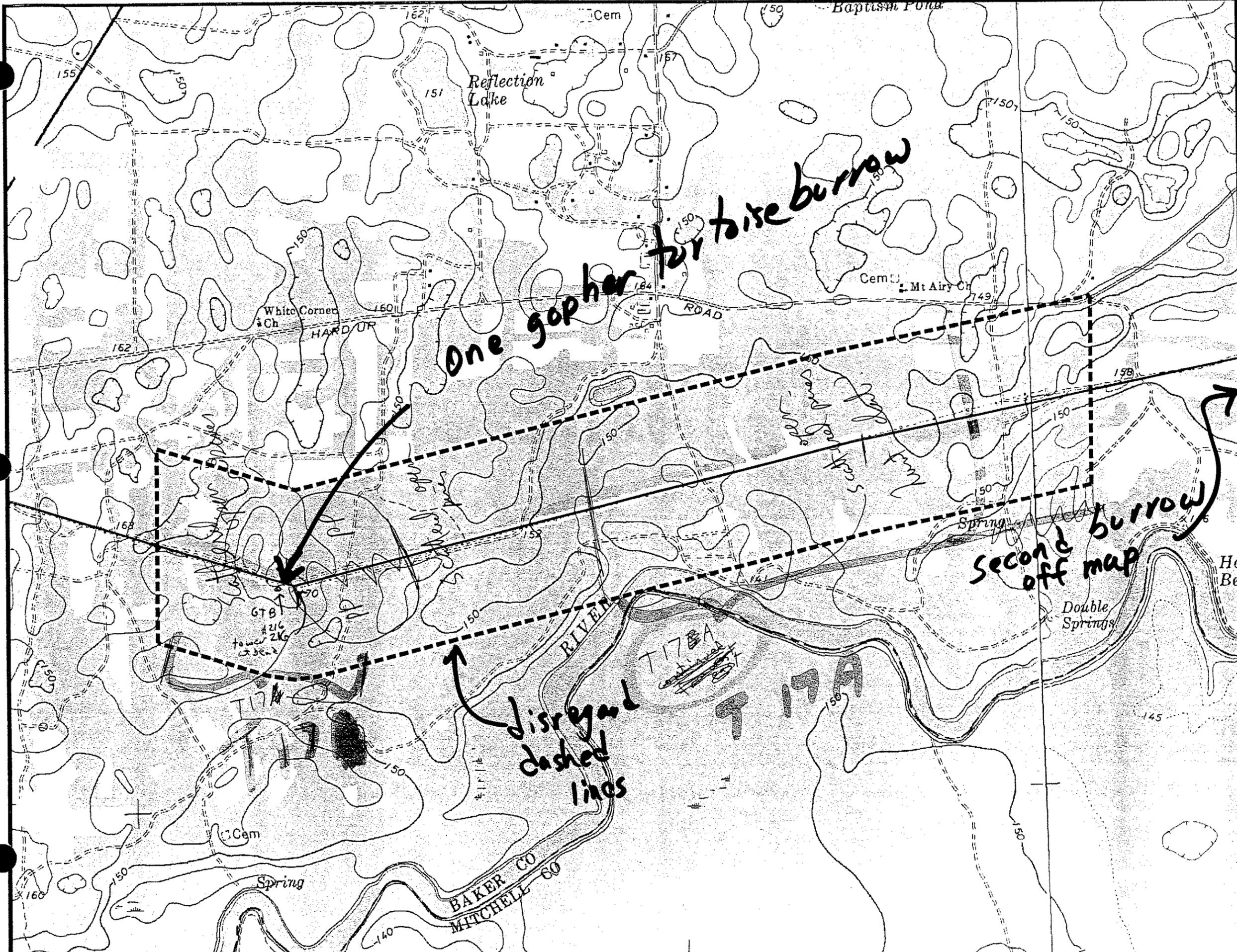
LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- · - · - COUNTY BOUNDARIES
- - - STATE BOUNDARIES

1" = 400' N



TETRATECH NUS, INC.
FILE DESCRIPTION: FARLEY NUCLEAR
DATE: 05/07
AUTHOR: DAVID HESS





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name: gopher tortoise (*Gopherus polyphemus*)

Date Observed / Collected: 5/1/02 County: Mitchell

Method of Observation/Capture: 9 Active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number: _____

Museum & Accession Number: _____

Site Name: _____ Topographic Quad: _____

Directions To Site From Known Landmark:
From Albany, drive south on Hwy 19/3/300 approx. 13 miles; turn ~~west~~
east on Hwy 93; after ~ 3 miles, turn south on Stagecoach Road;
go ~ 1 1/2 miles to 500 KV-transmission ROW. East on ROW to
first hill beyond Raccoon Creek.

General Description of Habitat: beyond ROW: pine / hardwoods

Specimen Data: 9 active burrows observed

Weight: _____ Sex: _____

Additional Notes: Eastern extent of burrows: N 31° 22.277' W 084° 05.530'
Western " " " N 31° 22.245' W 084° 05.650'

*****Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.*****

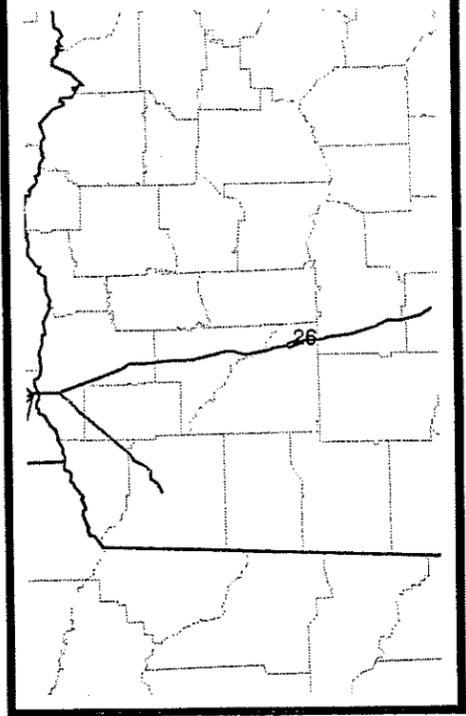
Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

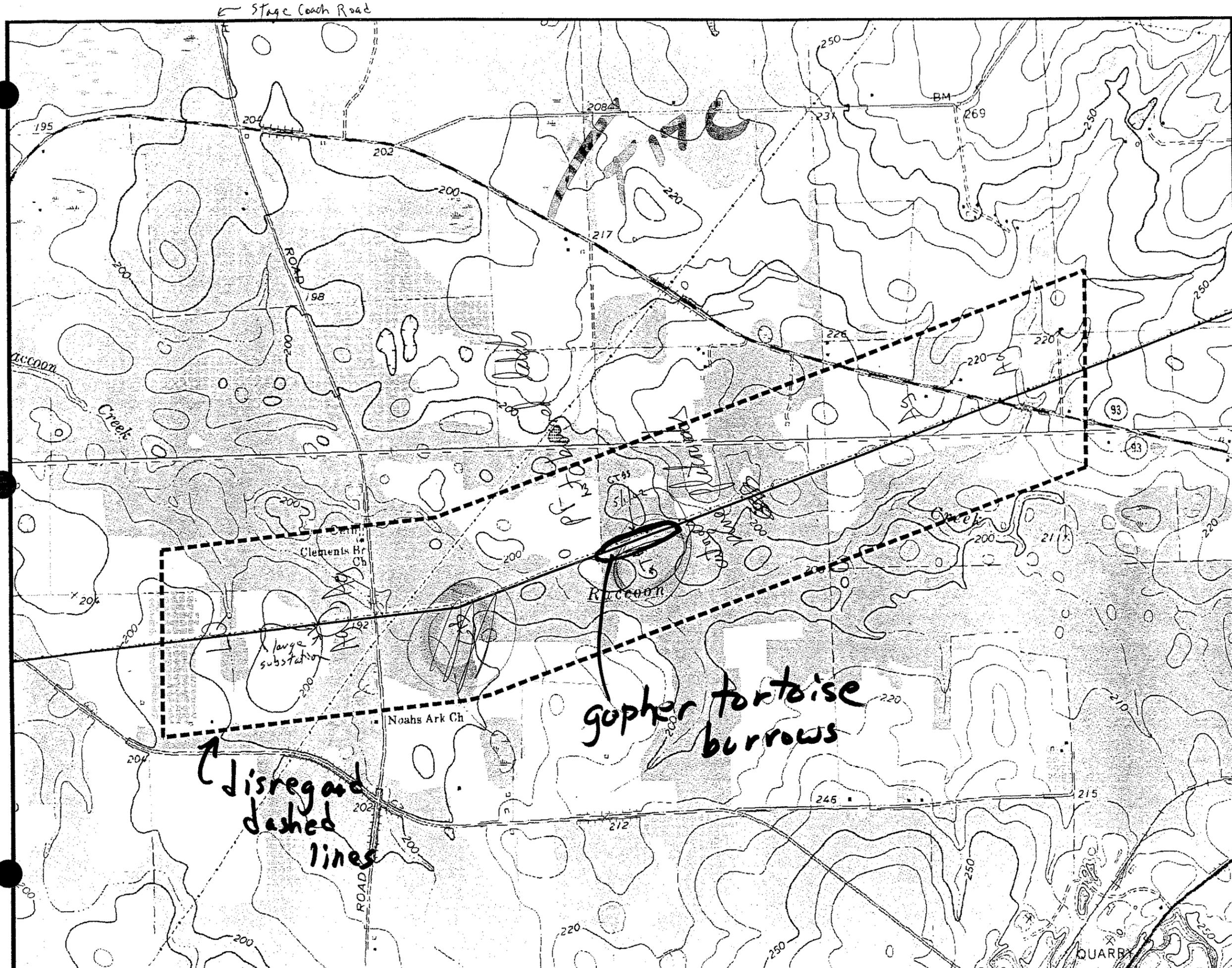
SHEET 26 OF THE
TIFTION 230KV NORTH ROUTE LINE



LEGEND

- TRANSMISSION LINE
- INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400' N





Georgia Natural Heritage Program
2117 US Hwy 278, SE
Social Circle, GA 30025
Phone: (770) 918-6411

SPECIAL CONCERN ANIMAL OBSERVATION/ COLLECTION DATA SHEET

Species Scientific Name: gopher tortoise (Gopherus polyphemus)

Date Observed / Collected: 5/1/02 County: Baker

Method of Observation / Capture: 7 active burrows observed

Observer / Collector: Mike Whitten ph 803-649-7963

Field Collection Number:

Museum & Accession Number:

Site Name: _____ Topographic Quad:

Directions To Site From Known Landmark:

From Newton GA, drive on Hwy 37 approx. 4 miles,
turn Right (North) onto dirt road at sign for Mt. Carmel Church.
Go north to 500 KV transmission line R.O.W.

General Description of Habitat:

within ROW: grassy

Beyond ROW: hardwoods (mostly oaks) with thick understory

Specimen Data: 7 active burrows observed

Weight: _____ Sex: _____

Additional Notes:

7 active burrows

Attach a photocopy from a 7.5-minute U.S.G.S. topographic map showing the location of the observation/collection site. Please mark the *precise* location of the site.

Send to: Greg Krakow, Data Manager
Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278, SE
Social Circle, Georgia 30025-4714

N $31^{\circ}20.777'$ 2 active burrows between transmission towers # 190 + 191.
W $84^{\circ}23.213'$

N $31^{\circ}20.895'$ 2 active burrows 50 yards west of tower # 189.
W $84^{\circ}23.592'$

N $31^{\circ}20.871'$ 1 active burrow 100 yards east of tower # 188
W $84^{\circ}23.720'$

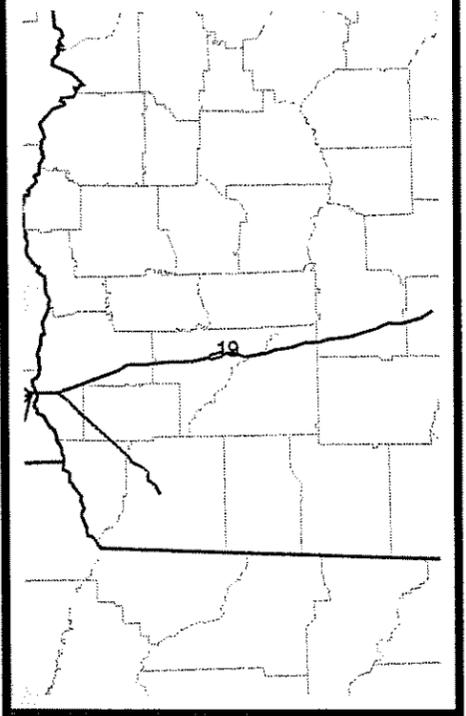
N $31^{\circ}20.849'$ 2 active burrows 30 yards west of tower # 188
W $84^{\circ}23.815'$

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

SHEET 19 OF THE
TIFTION 230KV NORTH ROUTE LINE



LEGEND

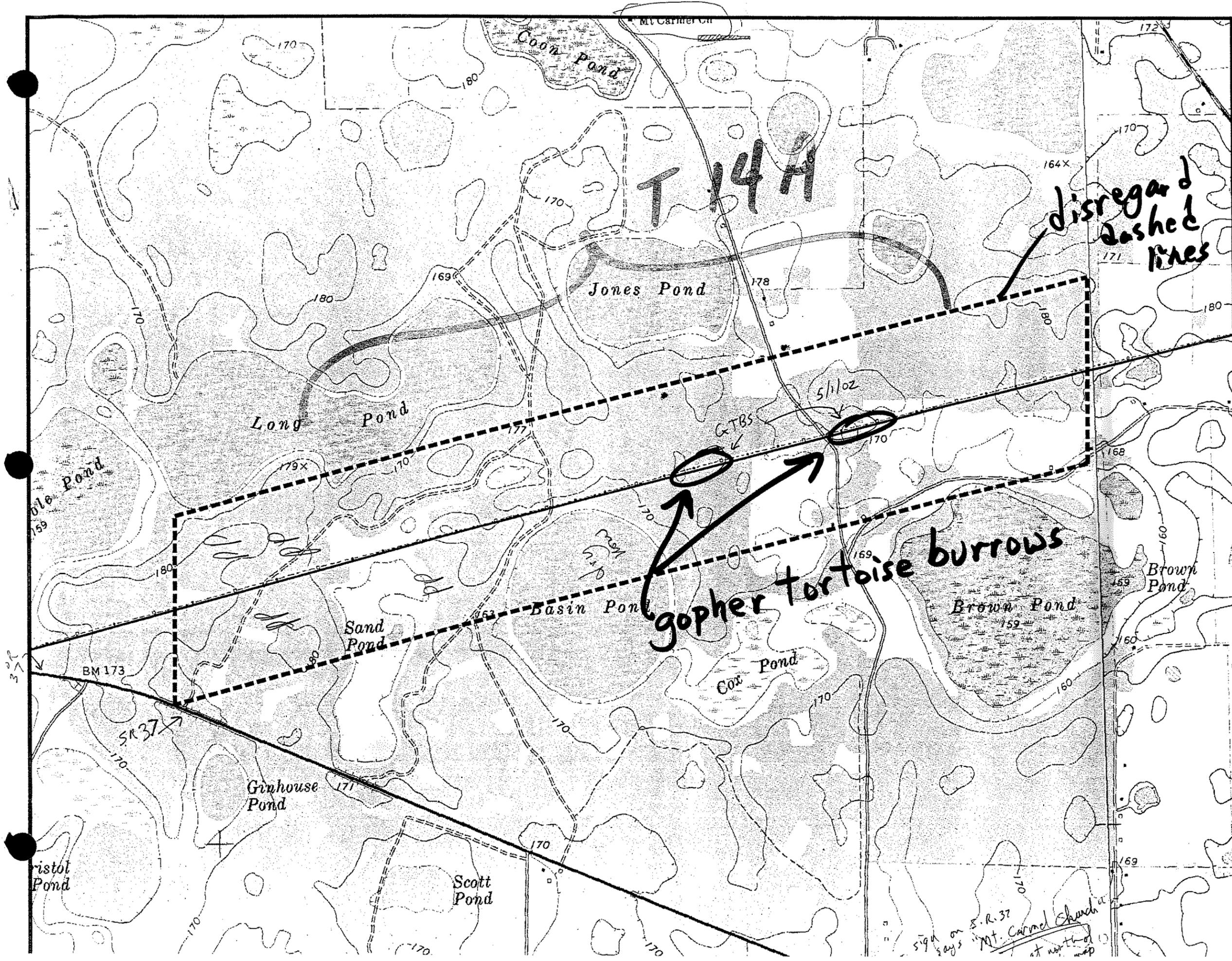
- TRANSMISSION LINE
- - - INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1" = 400'
N



TETRA TECH NUS, INC.

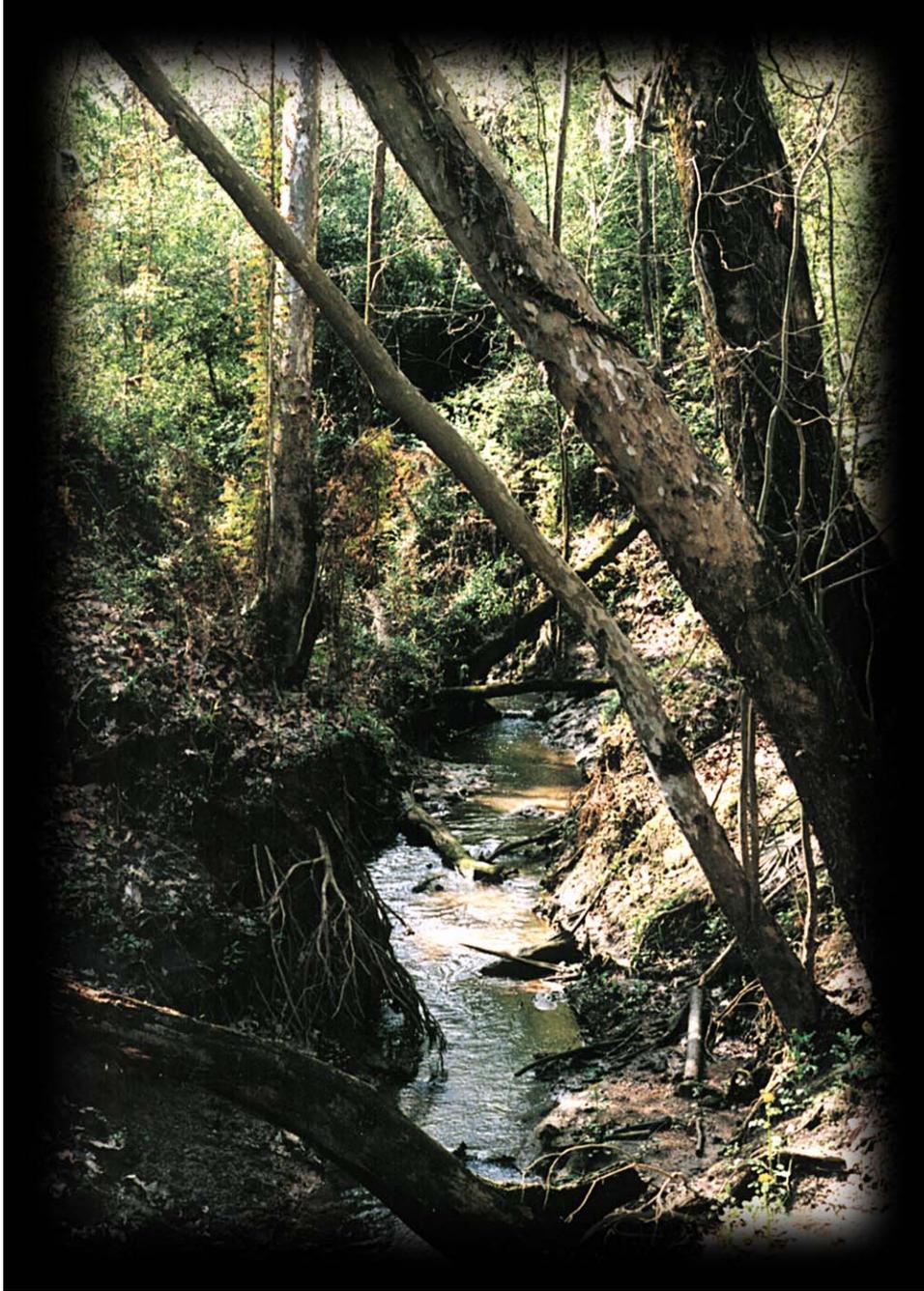
FILE: G:\SCRIPTS\FA\FARLEY\TUNELAM
3/24/2005
AUTHOR: GREGG B. BICK



sign on S.R. 37
says Mt. Carmel Church
at north of map

APPENDIX C

PHOTOGRAPHS OF SELECTED SURVEY LOCATIONS



Farley Nuclear Plant



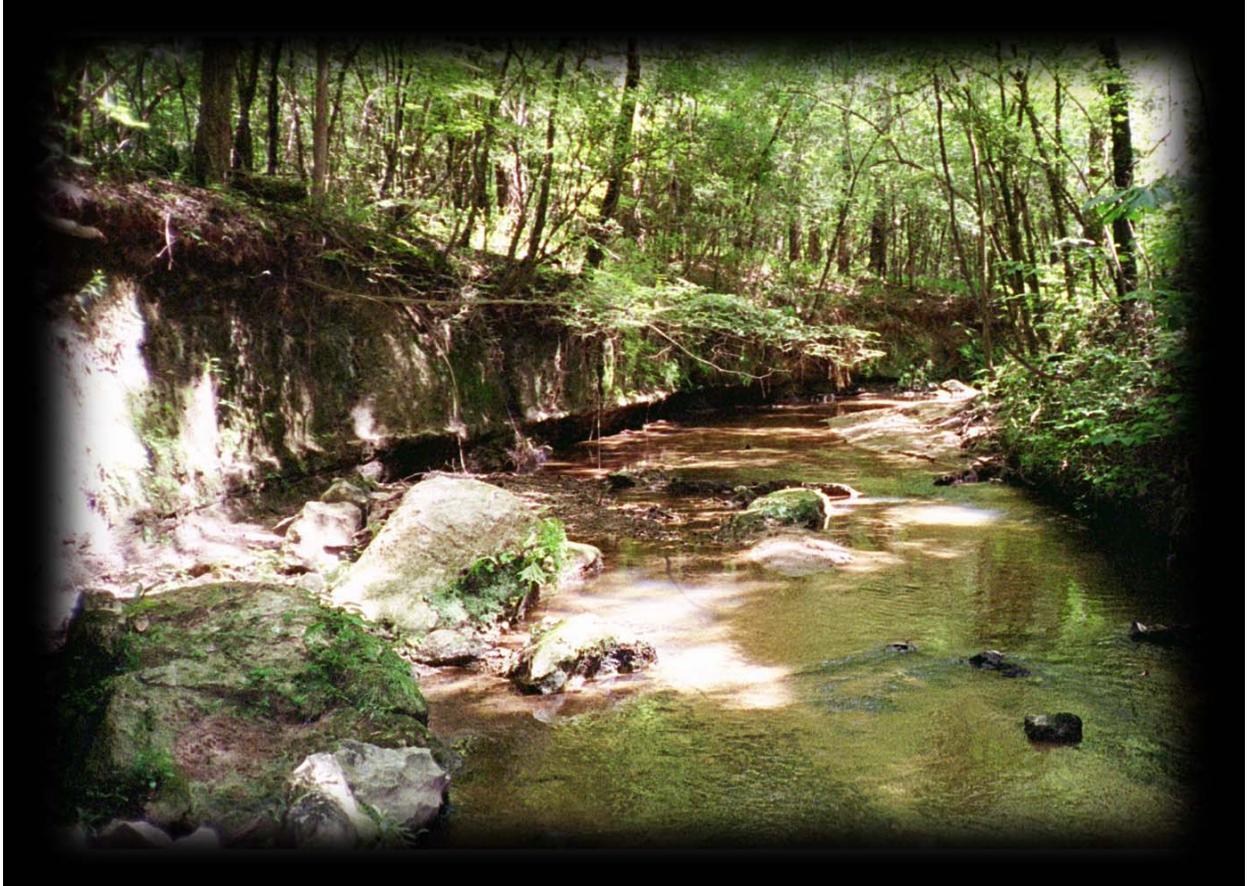
*Marsh,
Farley Nuclear Plant*



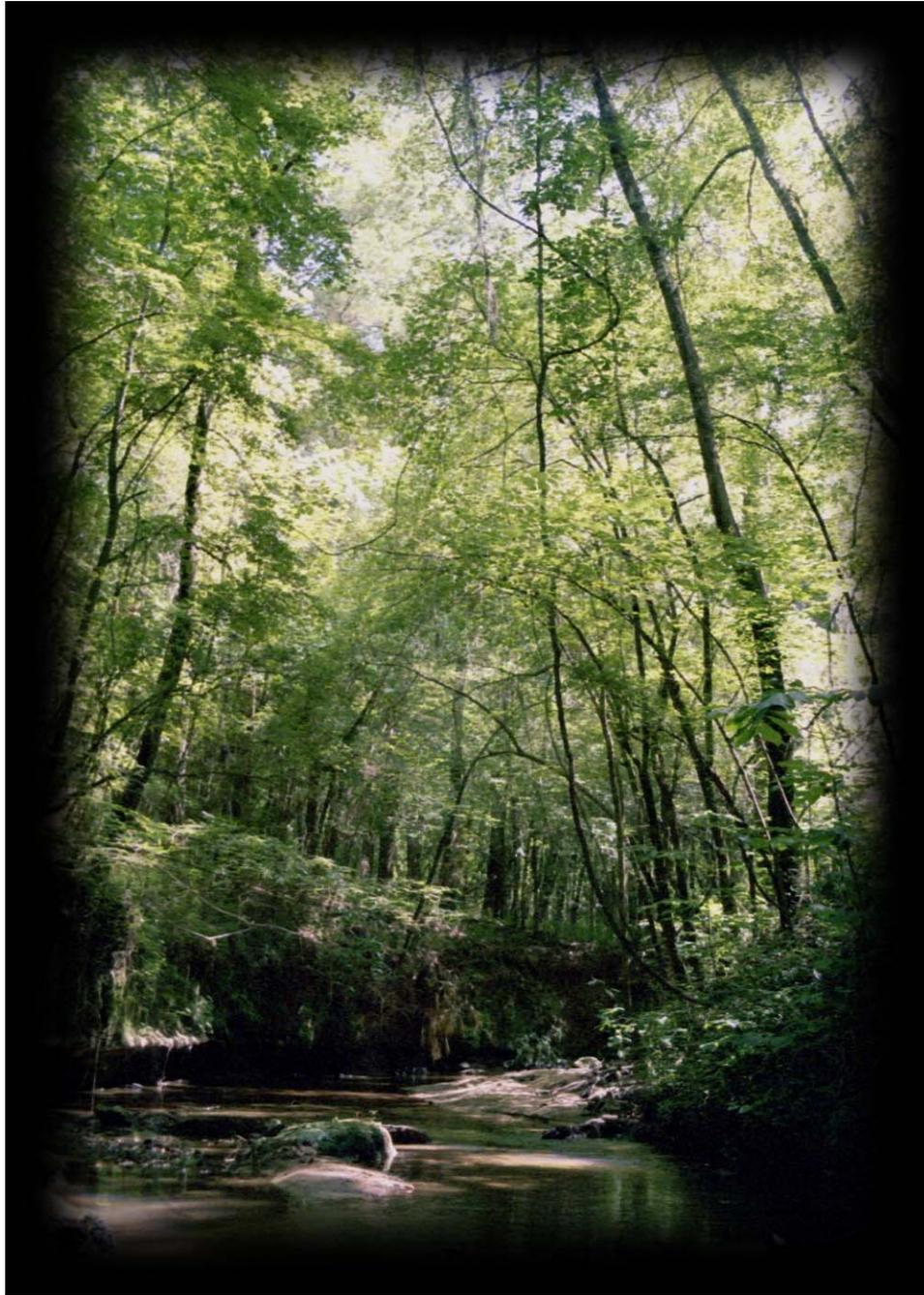
*Marsh,
Farley Nuclear Plant*



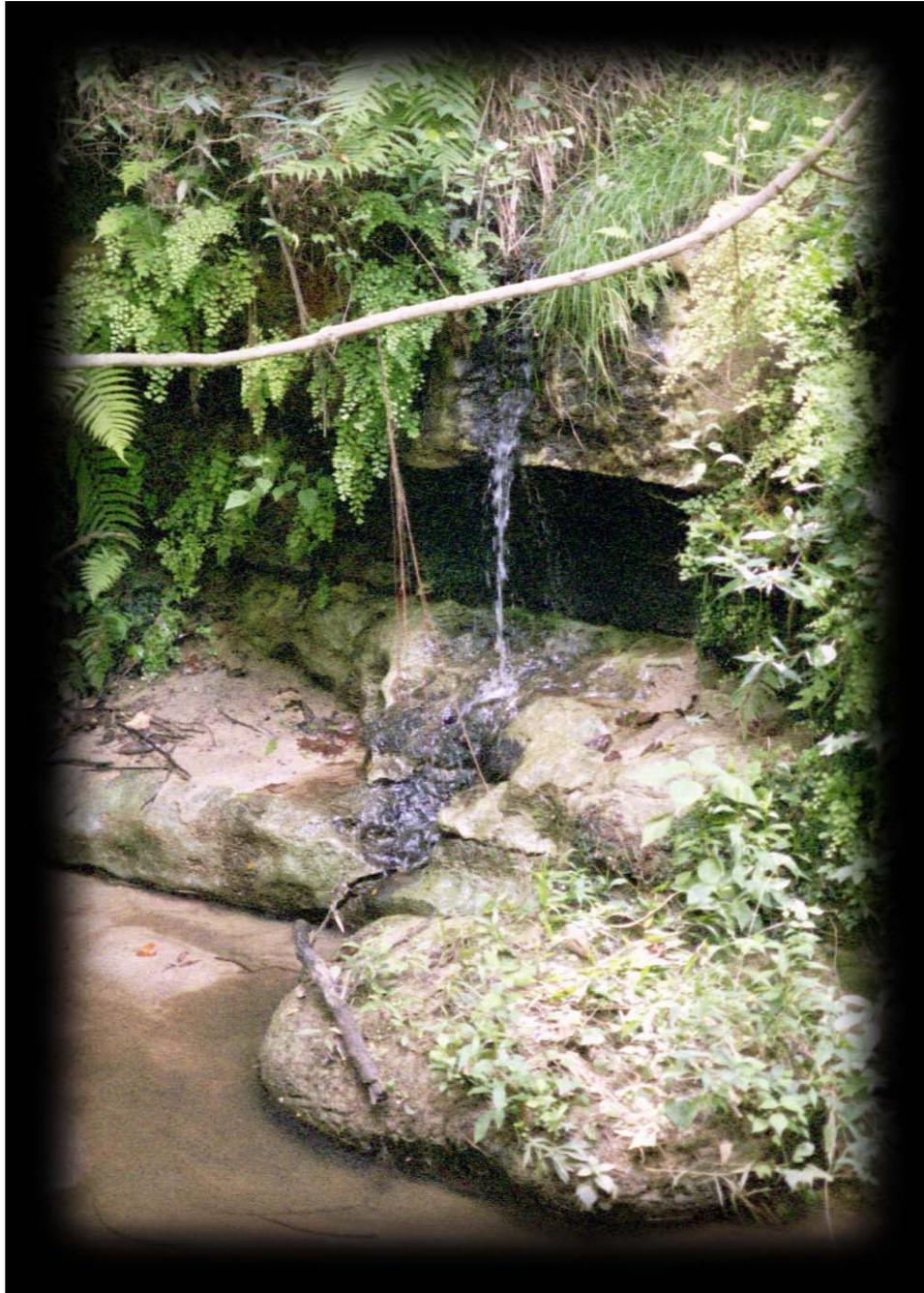
*Wilson Creek,
Farley Nuclear Plant*



*Wilson Creek,
Farley Nuclear Plant*



*Wilson Creek,
Farley Nuclear Plant*



*Wilson Creek,
Farley Nuclear Plant*



*Dwarf Palmetto (left) and Needle Palm (right),
Farley Nuclear Plant*



*Deceptive Trillium,
Farley Nuclear Plant*



*Ovate Maiden Fern,
Farley Nuclear Plant*



*Gopher Tortoise Burrow,
Farley Nuclear Plant*



*Osprey Nest,
Farley Nuclear Plant*



*Orb Spider (Araneus bicenttinarius),
Farley Nuclear Plant*



*Turkey Tracks,
Farley Nuclear Plant*



*Cypress Swamp, Site P8,
Pinckard Transmission Line*



*Black Racer, Site M5,
Snowdown Transmission Line*



*Site M9,
Snowdown Transmission Line*



*Near Site M9,
Snowdown Transmission Line*



*South Bainbridge Transmission Line (left) and
Raccoon Creek Transmission Line (right), North of Site B1*



*Wetland, Site B3,
South Bainbridge Transmission Line*



*Wading Birds, Site B3
South Bainbridge Transmission Line*



*Active Gopher Tortoise Burrow, Site B5,
South Bainbridge Transmission Line*



*Near Site B8,
South Bainbridge Transmission Line*



*Bachman's Sparrow identified here, Site B9,
Tower #174, South Bainbridge Transmission Line*



*Active Gopher Tortoise Burrow, Site B12,
Tower #194, South Bainbridge Transmission Line*



*Site B13,
Tower #196, South Bainbridge Transmission Line*



*Site B14,
South Bainbridge Transmission Line*



*Crab Apple Tree, Site B14,
South Bainbridge Transmission Line*



*Deer Antlers, Site B14,
South Bainbridge Transmission Line*



*Deer Tracks, Site B14,
South Bainbridge Transmission Line*



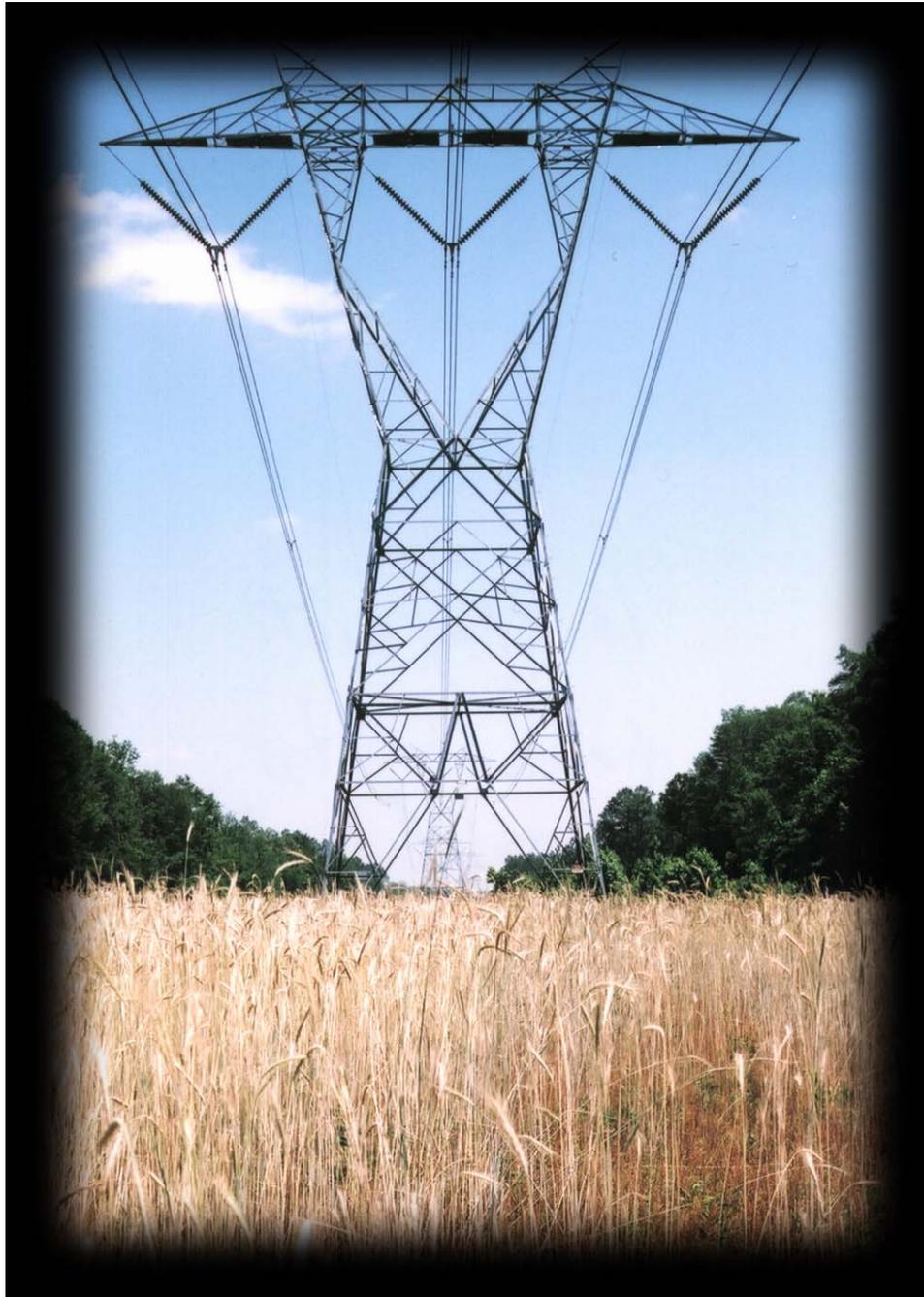
Raccoon Creek Transmission Line



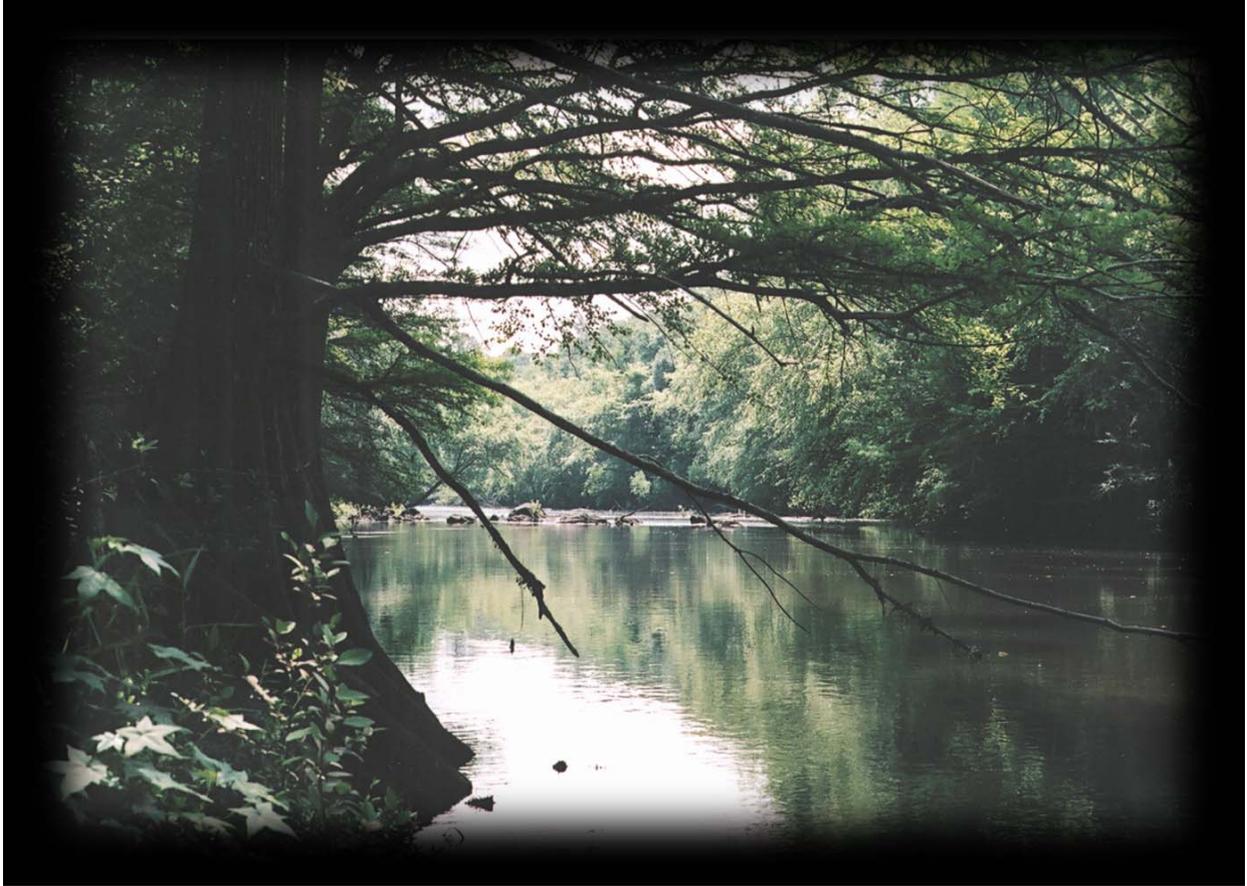
*Pond Cypress and Thorne's Buckthorn, Site T8
Raccoon Creek Transmission Line*



*Thorne's Buckthorn, Site T8
Raccoon Creek Transmission Line*



*West of T8
Raccoon Creek Transmission Line*



*Ichawaynochaway Creek, near Site 13
Raccoon Creek Transmission Line*



*Water Lilly, Site T14
Raccoon Creek Transmission Line*



*Prickly Pear Cactus, Site T17
Raccoon Creek Transmission Line*



*Flint River, Site T17B
Raccoon Creek Transmission Line*



*East of T18B
Raccoon Creek Transmission Line*



*Beaver Pond, Site T23
Raccoon Creek Transmission Line*



Site T24
Raccoon Creek Transmission Line



*Hooded Pitcher Plants, Site T24
Raccoon Creek Transmission Line*



*Cleistes (Orchid), Site T24,
Raccoon Creek Transmission Line*



*Yellow Pitcher Plants, Site T24
Raccoon Creek Transmission Line*

APPENDIX D

RESUMES

CURRICULUM VITAE: L. L. GADDY

EDUCATION

Ph.D., Geography (interdisciplinary in botany, geography, and entomology), University of Georgia, 1985.

Dissertation: "The ecology and spatial dynamics of ant-dispersed herbs in four southern Appalachian forest communities."

M. S., Geography (interdisciplinary in geography and botany), University of South Carolina, 1976.

Thesis: "The climax vegetation of Richland County, South Carolina: a geographic approach to forest ecosystems."

B. A., English, University of South Carolina, 1971.

UNIVERSITY EXPERIENCE/RESEARCH APPOINTMENTS

Adjunct Professor, School of the Environment, University of South Carolina, Columbia, South Carolina, 2001-

Research Associate, Missouri Botanical Garden, St. Louis, Missouri, 1992-

Adjunct Professor, Department of Biological Sciences, Clemson University, Clemson, South Carolina, 1987-

Hesler Visiting Lecturer in Floristic Botany, Department of Botany, The University of Tennessee, Knoxville, 1986.

Visiting Professor, Department of Geography and Political Science, Francis Marion University, Florence, SC, 1995.

Instructor, Department of Geography, University of New Orleans, 1984-1985.

Graduate Teaching/Research Assistant, Biogeography, University of Georgia, Athens, 1982-1984.

Graduate Teaching Assistant, Meteorology and Physical Geography, University of South Carolina, Columbia, 1973-1974.

EMPLOYMENT HISTORY

Biologist, South Carolina Wildlife and Marine Resources Department, Columbia and Charleston, 1975-1979.

Consulting Biologist, 1979-1981.

Ph.D. studies, University of Georgia, and Consulting Biologist, 1981-1984.

Instructor, Department of Geography, University of New Orleans, 1984-1985.

Consulting Biologist, Independent Scholar, 1985-present.

Temporary Instructor, Department of Geography and Political Science, Francis Marion University, Florence, SC, 1995.

President and Founder of terra incognita, a nonprofit environmental research and consulting firm, 1998-

TYPE OF WORK PERFORMED AS A CONSULTANT

Endangered species surveys, endangered species risk assessment, wetland delineations/mitigation plans, natural area surveys, Red-cockaded Woodpecker inventories, vegetation/forest mapping, accuracy assessment of manually- and digitally-generated vegetation maps, environmental impact statements and assessments, Habitat Evaluation Procedures (HEP), site evaluation/land use planning, survey team management, invertebrate surveys, and technical writing and editing.

EXAMPLES OF WORK PERFORMED

1. Wetlands of Hilton Head Island, South Carolina, 1981 (for South Carolina Coastal Council);
2. Endangered and threatened plants of the Nantahala and Pisgah National Forests, North Carolina, 1981-1982 (for the U. S. Forest Service);
3. Endangered and threatened plant inventory of Cape Hatteras National Seashore, 1984-1985 (for the National Park Service);
4. Wetlands of Fort McClellan, Alabama, 1983, U. S. Fish and Wildlife Service and the Department of the Army;
5. Environmental studies for "Developmental Strategy for the Lake Russell Site at Calhoun Falls, South Carolina," 1991 (for Edward Pinckney/Associates, Ltd. and the Savannah Valley Authority);
6. Natural Areas of the Highlands Region, 1991-1992 (for the Town of Highlands and the North Carolina Natural Heritage Foundation);
7. Status of the smooth coneflower (*Echinacea laevigata*), 1992 (for the U. S. Fish and Wildlife Service);
8. Natural Areas of Henderson County, North Carolina, 1992-1994 (for the Henderson County Natural Heritage Inventory Committee and the Conservation Trust of North Carolina);
9. Endangered species and wetland delineations—Cope Project, 1993 (for S. C. Electric and Gas and Duke/Fluor-Daniel);
10. Forest Inventory of Boise National Forest, Boise, Idaho, 1995 (for the U. S. Forest Service);
11. Environmental Assessment technical writing, 1997 (for Rust Environment and Infrastructure);
12. Wetland delineations in Maine, 1997 (for Duke Engineering and Services);
13. Endangered and threatened plants of Robins Air Force Base, 1997-1998 (for Rust Environment and Infrastructure);
14. Endangered and threatened plants of Congaree Swamp National Monument, 1998-1999 (for the National Park Service);
15. Endangered and threatened species of the Manning Tract, Congaree River floodplain, 1998-1999 (for Rust Environment and Infrastructure and Wetland and Environmental Services and Wetland and Environmental Services, Inc.);
16. Endangered and threatened plants, birds, reptiles and amphibians, and invertebrates of Wright Brothers National Memorial, 1998-1999 (for the National Park Service);
17. Endangered and threatened species of the upper Broad River, 1999 (for Duke Engineering and Services);
18. Endangered and threatened plants of the upper Catawba River, 1999 (for Duke Power Company);

19. Endangered species risk assessment, 1999 (for Milliken Forestry).
20. Environmental assessments for relicensing, McGuire and Catawba Nuclear Stations, 2000, (for Duke Power Company).
21. Wetland delineations and endangered species assessments, 2001 (for East Tennessee Natural Gas Company).

STATEMENT OF QUALIFICATIONS/EXPERIENCE

I have been a consulting biologist and independent scholar for over 20 years. I have managed a small company, written my own reports, carried out my own field work, and done most of my graphics during this period. I have led several field teams of biologists and have managed projects of from \$2000. to \$200,000. in value. I have been involved in environmental impact studies and environmental assessments on which I have teamed with landscape architects, engineers, economists, and other professionals. I have produced numerous published vegetation maps during the last 15 years. I have occasionally been hired as a technical writer/editor and have extensive experience writing and editing biological reports. During these years, I have published a book on the spiders of South Carolina, have a forthcoming book in press with the University of South Carolina, written numerous papers in several fields, described several species of plants, and participated in several conservation projects. Finally, I have participated on the committees of three master's level graduate students at Clemson University and recently served on a Ph.D. student's committee.

I have participated in research expeditions to China, southeastern Asia, and Australia and am currently working on two historical botany papers concerning western China. In 1998, I started a small nonprofit company, terra incognita, which carries out environmental consulting work in the United States.

PUBLICATIONS

Biogeography, Systematics, and Botany

Gaddy, L. L. 2000. A Naturalist's Guide to the Blue Ridge Front: from Linville Gorge to Tallulah Gorge. University of South Carolina Press. Columbia. 190 p.

Gaddy, L. L., J. B. Nelson, and A. B. Pittman. 2000. Endangered, threatened, and rare plants of Congaree Swamp National Monument, Richland County, South Carolina. Unpublished bound report for the National Park Service. Columbia, S.C. 18 pages, vascular plant checklist and maps.

Wu, J. L., J. M. Xu, F. X. Pen, and L. L. Gaddy. 2000. The type plants of Mount Emei, Sichuan, China. terra incognita publication number 1. Columbia, SC.

Whittemore, A. T. and L. L. Gaddy. 1997. Hexastylis, pp. 54-58 In Flora of North America. Oxford University Press, New York, London. 590 p.

Gaddy, L. L. 1995. *Carex radfordii*, a new species (Cyperaceae: Section Laxiflorae) from the southern Appalachians. *Novon* 5:259-261.

Tobe, J. D., J. E. Fairey, and L. L. Gaddy. 1992. Vascular flora of the Chauga River Gorge, Oconee County, S. C. *Castanea* 57:77-109.

Gaddy, L. L. 1990. Glade Fern Ravine, a rich fern site in the Southern Appalachians of South Carolina. *Castanea* 55:282-285.

Gaddy, L. L. 1987. A review of the taxonomy and biogeography of *Hexastylis*. *Castanea* 52:186-196.

Gaddy, L. L. 1987. *Hexastylis shuttleworthii* var. *harperi*, a new variety of heartleaf from Alabama and Georgia. *Sida* 12:51-55.

Gaddy, L. L. 1986. Twelve new ant-dispersed plants from the southern Appalachians of South Carolina. *Bulletin of the Torrey Botanical Club* 113:247-251.

Gaddy, L. L. 1986. A new *Hexastylis* (Aristolochiaceae) from Transylvania County, North Carolina. *Brittonia* 38:82-85.

Gaddy, L. L. 1985. Rare, endangered, threatened, and exotic plants of the Cape Hatteras National Seashore. National Park Service Cooperative Unit, Institute of Ecology, University of Georgia, Technical Report No. 18. Athens, Ga.

Gaddy, L. L. 1984. Guide to the wetland plant communities of Fort McClellan, Alabama. U. S. Department of Interior. Fish and Wildlife Service. National Wetlands Inventory. Atlanta. 60 pp.

Gaddy, L. L., C. C. Douglass, A. Hodge, and H. LeGrand. 1984. Plants new to South and North Carolina. *Castanea* 49: 97.

Gaddy, L. L. 1983. Notes on the Biltmore sedge (*Carex biltmoreana*). *Bulletin of the Torrey Botanical Club* 110:530-532.

Gaddy, L. L. 1982. The floristics of three South Carolina pine savannahs. *Castanea* 47: 393-402.

Gaddy, L. L. 1982. Vegetation studies, pp. 32-56 IN Gaddy, L. L., editor. Man's impact on the vegetation, avifauna, and herpetofauna of South Carolina's barrier islands: a habitat approach to carrying capacity. S. C. Wildlife and Marine Resources Study Completion Report. 167 pp.

Gaddy, L. L. 1981. Two carices new to South Carolina. *Castanea* 46: 237-238.

Gaddy, L. L. 1980. Vascular plant communities, IN An ecological characterization of the Sea Island region of South Carolina and Georgia. U. S. Department of Interior. Fish and Wildlife Service. Office of Biological Services Publication 79/42. Washington, D. C.

Gaddy, L. L. and D. A. Rayner. 1980. Rare or overlooked? Recent plant collections in the Coastal Plain of South Carolina. *Castanea* 45: 181-183.

Gaddy, L. L. and Garrett A. Smathers. 1980. The vegetation of Congaree Swamp National Monument, pp. 171-182 IN Contributions to the knowledge of the flora and vegetation of the Carolinas, Proceedings of the 16th International Phytogeographical Excursion (IPE) (1978). Veroff. Geobot. Institut. ETH, Stiftung Rubel, Zurich (Switz.).

Smathers, Garrett A. and L. L. Gaddy. 1980. Congaree Swamp National Monument: vegetation type map. Research/Resources Management Report No. 36. U. S. Department of Interior, National Park Service, Atlanta. 11 pp.

Gaddy, L. L. 1977. Notes on the flora of the Congaree River floodplain. *Castanea* 42: 103-106.

Bioclimatology

Gaddy, L. L., V. Meentemeyer, and P. J. Suckling. 1984. The relationship between winter minimum temperatures and spring phenology in a southern Appalachian cove. *Archives for Meteorology, Geophysics, and Bioclimatology* (Vienna) Ser. B 34: 155-162.

Invertebrate Biology

Gaddy, L. L. 1987. Orb-weaver abundance in three forested communities in the southern Appalachian mountains of South Carolina. *Journal of Arachnology* 15:273-275.

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PRESENT RESEARCH/RESEARCH INTERESTS

The ecology, taxonomy, and biogeography of the plant genus *Hexastylis* in southeastern U. S. A. and its related species of *Asarum* subgenus *Heterotropa* in Asia

Plant geography of the headwaters of the Savannah River drainage, South Carolina, Georgia, and North Carolina

Ecology of southeastern floodplain systems

Lianas and woody plant diversity in Congaree Swamp

Carex (sedges) of the southeastern United States

Endangered species ecology

Botanical explorers of western China and eastern Tibet

MICHAEL L. WHITTEN

EDUCATION: M.S.; Environmental Science; Western Washington University; 1990
B.S.; Mathematics; University of Montevallo; 1976

TRAINING: OSHA Health and Safety Training (8-Hr. Refresher Course), Tt NUS; 2002
OSHA Health and Safety Training (8-Hr. Refresher Course), KBN Engineering and Applied Sciences, Inc. (KBN); 1994
OSHA Health and Safety Training (8-Hr. Refresher Course), KBN; 1993
OSHA 40-Hour Health and Safety Training, KBN Engineering and Applied Sciences, Inc. (KBN); 1992

EXPERIENCE SUMMARY:

Mr. Whitten has 12 years of technical and managerial experience in toxicology and ecology. He currently serves as Environmental Scientist conducting ecological risk assessments and biological evaluations. He has conducted and managed ecological risk assessments at Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites and in the vicinity of proposed and operational waste incinerators. He has also designed and conducted biological monitoring programs for proposed and operational waste incinerators. His experience with pesticides includes full-scale field studies, simulated field pen studies, laboratory toxicity tests, and pesticide data evaluations. He has conducted over 300 pesticide data evaluation reviews for the U.S. Environmental Protection Agency's (EPA's) Ecological Effects Branch. These studies reviewed field and laboratory pesticide toxicity studies using a variety of avian and mammal species. He has directed field surveys and managed projects that evaluated the ecological effects of proposed and operational electric generating plants, transmission lines, gas pipelines and other development projects on threatened and endangered wildlife species such as bald eagles, wood storks, red-cockaded woodpeckers, Everglades snail kites, Florida scrub jays, sandhill cranes, bog turtles, and gopher tortoises. He has written management plans for a variety of threatened and endangered species. He has conducted many other habitat evaluations and wildlife surveys for government, commercial, and utility clients. The objective of these projects was to assess the likelihood of Federal and state listed threatened and endangered wildlife species and, if any listed species were present, to recommend appropriate mitigation actions to the client.

PROJECT EXPERIENCE:

Environmental Scientist/Toxicologist; Tt NUS; Aiken, South Carolina; 1995 to Present.

Mr. Whitten is the project biologist for environmental surveys of threatened and endangered species being conducted in support of operating license renewal efforts at Southern Nuclear Operating Company's Joseph

M. Farley Nuclear Plant (Plant Farley) in southeastern Alabama. He is responsible for seasonal field surveys of the 1,850-acre plant site and 350 miles of transmission line corridors in southeast Alabama and southwest Georgia. Results of the surveys will be used to evaluate the potential impacts from continued operation of Plant Farley on threatened and endangered species. The surveys of threatened and endangered species were conducted in 2001 and 2002, following a helicopter reconnaissance of transmission line corridors.

Mr. Whitten is managing ecological risk assessments of 12 RCRA and CERCLA sites at Naval Air Station (NAS) Key West, FL. The project is an investigation of environmental contamination and an evaluation of ecological risks from aviation-related activities. He is assessing the ecological impacts of contamination in groundwater, surface water, soil, and sediment, and is responsible for study design and the collection of fish, mollusk, crustacean, and plant samples. 1995-Present. Client: Naval Facilities Engineering Command (NAVFAC).

Mr. Whitten is managing ecological risk assessments and long term monitoring programs at several RCRA and CERCLA sites at NAS Cecil Field, FL. The project is an investigation of ecological risks from former military landfills and disposal areas. He is responsible for evaluating the ecological impacts of contamination in soil, groundwater, surface water, and sediment. He is also responsible for collecting environmental samples, writing work plans, and evaluating chemical data as part of long-term monitoring programs designed to evaluate ecological risks from a former landfill and a former skeet range. 1997-Present. Client: NAVFAC.

Mr. Whitten is managing ecological risk assessments at several RCRA and CERCLA sites at MCRD Parris Island SC. The project is an investigation of ecological risks from former military landfills and disposal areas. He is responsible for evaluating the ecological impacts of contamination in soil, groundwater, surface water, and sediment. 1998-Present. Client: NAVFAC.

Mr. Whitten is managing an ecological risk assessment being conducted at NAS Willow Grove, PA. The project is an investigation of environmental contamination and an evaluation of ecological risks from aviation-related landfill and fire-training activities. He is responsible for evaluating the ecological impacts of contamination in groundwater, surface water, soil, and sediment. 1997-Present. Client: NAVFAC.

Mr. Whitten is the project biologist for preparation of the license renewal report for Robinson Nuclear Power Station, near Hartsville, South Carolina. He is responsible for collecting data on natural resources and endangered and threatened terrestrial species at the plant and along associated transmission corridors. January 2001 to Present. Client: Progress Energy/Carolina Power and Light.

Mr. Whitten is the project biologist for preparation of the license renewal reports for Quad Cities and Dresden Nuclear Power Stations in Illinois. He is responsible for collecting data on natural resources and endangered and threatened terrestrial species at the plants and along associated transmission corridors. December 2000 to Present. Client: Exelon Corporation.

Mr. Whitten is the project biologist for preparation of the license renewal report for V.C. Summer Nuclear Station, near Jenkinsville, South Carolina. He is responsible for collecting data on natural resources and endangered and threatened terrestrial species at the plant and along associated transmission corridors. December 2000 to Present. Client: South Carolina Electric and Gas Company.

Mr. Whitten was the project biologist for preparation of the license renewal report for Peach Bottom Atomic Power Station, in southern Pennsylvania. He was responsible for collecting data on natural resources and endangered and threatened terrestrial species at the plant and along associated transmission corridors. He conducted a field survey for the federally threatened bog turtle along a 34-mile transmission corridor in Pennsylvania, Maryland, and Delaware. 2000. Client: PECO Energy.

Mr. Whitten was the project biologist for environmental surveys associated with preparation of the license renewal environmental report for the Edwin I. Hatch Nuclear Plant (HNP) located near Baxley, Georgia. He was responsible for writing the wildlife survey plan, which was subsequently approved by the U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and Georgia Department of Natural Resources. He was also responsible for seasonal field surveys of the 2,244-acre plant site and 365 miles of transmission line corridors. Results of the surveys were used to evaluate the potential impacts from continued operation of HNP on threatened and endangered species. 1998-1999. Client: Southern Nuclear Operating Company.

Mr. Whitten was the project biologist for preparation of the license renewal reports for Surry and North Anna Nuclear Stations in eastern Virginia. He was responsible for collecting data on natural resources and endangered and threatened terrestrial species at the plants and along associated transmission corridors. 1999-2000. Client: Virginia Power.

Mr. Whitten performed an ecological risk assessment conducted at the Marine Corps Air Station (MCAS) in Cherry Point, NC. The project was an investigation of environmental contamination and an evaluation of ecological risks from aviation-related landfill activities. He assessed the ecological impacts of contamination in groundwater, surface water, soil, and sediment. 1995-1996. Client: NAVFAC.

Mr. Whitten performed an ecological risk assessment at the Naval Surface Warfare Center at the Dahlgren Laboratory, MD. The project, conducted under CERCLA requirements, was an investigation of

environmental contamination and an evaluation of ecological risks from naval munitions testing and maintenance activities. He also assessed the ecological impacts of contamination in groundwater, surface water, soil, and sediment, and helped design further studies of contamination in a creek on the site. 1995. Client: NAVFAC.

CHRONOLOGICAL WORK HISTORY:

Environmental Scientist/Toxicologist; Tt NUS; Aiken, South Carolina; 1995 to Present.

Wildlife Biologist/Environmental Toxicologist/Project Manager; KBN; 1989 to 1995. Mr. Whitten was Project Manager for an investigation of the foraging territory of a pair of nesting bald eagles in Hillsborough County, FL. Over 6 weeks, he led a team of biologists who monitored the flight paths of the 2 adult eagles to and from their nest. After determining the eagles' foraging areas, he developed a management plan that preserved the eagles' foraging habitat while allowing the mining of phosphate in areas where the eagles would not be adversely impacted. In addition, a threatened and endangered wildlife survey was conducted in the same area and subsequent management plans were developed for the Florida sandhill crane and Southeastern American kestrel. 1994-1995. Client: IMC-Agrico, Inc.

Mr. Whitten conducted an investigation of the foraging territory of a pair of nesting bald eagles in Lee County, FL. He designed the study that monitored the flight paths of the 2 adult eagles to and from their nest. After determining the eagles' foraging areas, he designed a management plan that would permit suburban development activities in certain areas without adversely impacting the eagles. In addition, he conducted a threatened and endangered wildlife survey in the same area with particular emphasis on red-cockaded woodpeckers, Florida scrub jays, gopher tortoises, and wading birds. 1994-1995. Client: Atlantic Gulf Communities.

Mr. Whitten conducted endangered wildlife species surveys and habitat assessments and designed a mitigation plan for a powerplant expansion project in Manatee County, FL. During this period, he also conducted an endangered wildlife species survey along a proposed cable crossing in and near the Intracoastal Waterway in Flagler County, FL. 1994-1995. Client: Florida Power and Light Co. (FPL).

Mr. Whitten conducted an endangered wildlife survey along a proposed electrical transmission line in Seminole County, FL. 1993-1994. Client: Florida Power Corp. (FPC).

Mr. Whitten was Task Manager for habitat assessments and threatened and endangered wildlife species surveys in the area surrounding a proposed transmission line on the Cape Canaveral Air Force Station and

Kennedy Space Center in Brevard County, FL. He conducted field surveys with particular emphasis on bald eagles, wading birds, alligators, and gopher tortoises. 1993. Client: FPL.

Mr. Whitten was Task Manager for an investigation of endangered wildlife species in the area surrounding a proposed transmission line and electrical substation in Brevard County, FL. He conducted field surveys with particular emphasis on the endangered red-cockaded woodpecker. He determined the extent and quality of foraging resources and the home range of 2 red-cockaded woodpecker clans during breeding and nonbreeding seasons. He also conducted a nesting survey of threatened Florida scrub jays along a proposed electrical transmission line in Martin County, FL. 1993. Client: FPL.

Mr. Whitten was a Task Manager conducting a bald eagle survey at the site of a proposed electrical generating plant near Perryman, MD. 1993. Client: Baltimore Gas & Electric Co. (BG&E).

Mr. Whitten assisted in a retrospective study of the effects of mercury on the prey base of the endangered Florida panther. The study involved the collection of museum specimens and recently collected tissue from various mammals and birds utilized as prey for the Florida panther. 1992-1994. Client: EPA.

Mr. Whitten was the Task Manager for an investigation of the effects of transmission line collisions on endangered bird species in the Florida Everglades. The task included protocol development, field work, agency meetings, and reports. The investigation, conducted to satisfy requirements of the Endangered Species Act, resulted in an estimated mortality rate for birds along a 4-mile portion of existing transmission lines and recommended procedures for a study of avian mortality along a 40-mile proposed transmission line. The U.S. Fish and Wildlife Service subsequently approved these recommendations. 1992. Client: FPL.

Mr. Whitten conducted a habitat assessment on 5 CERCLA sites at Mayport Naval Station in Mayport, FL. This study determined the occurrence of threatened and endangered wildlife species at the sites and receptor species for further study. 1992. Client: ABB Environmental Services.

Mr. Whitten investigated the potential impacts on threatened and endangered wildlife species of a proposed urban development project in Martin County, FL. Particular species of interest included the red cockaded woodpecker, Florida scrub jay, gopher tortoise, manatee, and Florida sandhill crane. He also developed mitigation plans and recommended management strategies based on the results of his surveys. 1992. Client: Mobil Development Corp.

As a Project Manager, Mr. Whitten conducted surveys of osprey nests atop transmission towers in 5 central Florida counties. He recommended actions to reduce electrical hazards posed by the nests and minimize risks to nesting ospreys. 1992. Client: FPL.

Mr. Whitten was also a Project Manager for an endangered species survey and subsequent gopher tortoise relocation project associated with a proposed gas pipeline in Manatee County, FL. As a result of the survey, efforts were implemented that allowed the pipeline to be installed without adversely affecting an active bald eagle nest located near the pipeline route. In addition, he was responsible for a gopher tortoise relocation project in which tortoises were temporarily held in captivity and released on the site after construction activities were complete. 1991-1992. Client: Florida Gas & Transmission.

Mr. Whitten assisted in an ecological risk assessment for a proposed hazardous waste incinerator in Polk County, FL. As Task Manager for environmental sampling, he collected fish for subsequent mercury analyses. Based on the results of this sampling and on modeled air and soil concentrations of organic and inorganic constituents associated with the proposed incinerator, this study evaluated risks to wildlife (especially bald eagles) from direct and indirect exposure. 1991. Client: Florida First Processing, Inc.

Mr. Whitten was Project Manager for an endangered species survey and subsequent gopher tortoise relocation project associated with the construction of an electrical generation facility in Seminole County, FL. As a result of his efforts, the state granted permits that allowed the construction of the facility on schedule. 1991. Client: FPC.

Mr. Whitten was Project Manager for a 2-year environmental monitoring project that assessed the human health and ecological effects of an operational municipal waste incinerator in Lake County, FL. He managed the study design, field sampling, analysis, and risk assessment for the \$140,000 study. The risk assessment was based on concentrations of a variety of chemicals in soil, vegetation (Spanish moss, grass) and animal tissue (fish, earthworms, horse hair, birds). Samples were collected before the initial operation of the incinerator and at 6-month intervals during the 2-year period after the facility became operational. Results indicated that the facility posed no threat to humans or ecological receptors in the vicinity. 1990-1993. Client: Lake County Board of County Commissioners.

Mr. Whitten compiled a synthesis report on pesticides used in Florida and their potential effects on wildlife. The report included pesticide toxicity and usage data, pesticide regulations, risk assessment techniques, and case studies of fish and wildlife dieoffs. He revised this report in 1995. 1990; 1995. Client: Florida Game & Fresh Water Fish Commission.

Mr. Whitten assisted in an assessment of the toxicological impacts to aquatic species of a proposed electric generating plant. The assessment showed that effluent from the proposed facility would not adversely affect fish and other aquatic species. 1990. Client: BG&E.

Mr. Whitten reviewed more than 300 laboratory and field pesticide studies submitted by chemical manufacturers to the EPA as part of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) registration process. He determined whether the studies followed established FIFRA testing procedures and whether they were scientifically valid. These reviews were the basis for pesticide risk assessments. 1989-1994. Client: EPA.

Mr. Whitten evaluated the impacts of a proposed electric generating plant, gas pipeline, and transmission line on wildlife in central FL. He directed and conducted field surveys of wildlife and aquatic organisms. He coordinated mitigation activities associated with bald eagles, red-cockaded woodpeckers, indigo snakes, sandhill cranes, and other wading bird species. 1989-1991. Client: Seminole Electric Cooperative Inc.

Environmental Toxicologist; WWU; 1986 to 1988. Mr. Whitten designed and conducted a 2-year, \$120,000 study that assessed the effectiveness of nest boxes in the determination of pesticide impacts on avian reproduction. He prepared the study design and managed a team of biologists who monitored breeding success and survival of birds in 240 nest boxes through 2 breeding seasons in Whatcom County, WA. He also sampled and analyzed soil, invertebrates, and avian tissue in the study area after an aerial application of insecticide. In addition, he monitored the survival of European starling juveniles by the use of radio transmitters attached to the young birds. As a result of this study, standard protocol methodologies were incorporated into a guidance document published by the National Technical Information Service to be used in future nest box studies. 1987-1988.

Mr. Whitten assisted in field studies of the effects to wildlife of treating golf courses with pesticides. In this capacity, he assisted with behavioral observations of wild birds, carcass collection, and the determination of scavenger removal rates. 1987. Client: Ciba-Geigy Corp.

Mr. Whitten conducted a field pen study of the effects of a granular insecticide on bobwhite quail and house sparrows. He supervised the capture and husbandry of wild house sparrows to be used as test subjects and monitored the survival of the sparrows and quail placed in pens throughout a field in which 3 different insecticide application methods were used. 1986. Client: American Cyanamid Co.

U.S. Naval Reserves; 1984-1994. As a Lieutenant Commander in the U.S. Naval Reserve, Mr. Whitten conducted habitat evaluations, endangered species surveys, and preliminary risk assessments on 2 CERCLA

sites at NAS Cecil Field, FL. In addition, he developed wildlife management plans and provided assistance on an as-needed basis to the Natural Resources Manager at NAS Cecil Field. 1992-1994.

U.S. Navy; 1976-1984. Mr. Whitten spent 5 years as a jet navigator and electronics countermeasures officer. He logged nearly 1,000 flight-hours in the EA-6B Prowler aircraft. During his service on board the USS Independence and the USS Forrestal, he accumulated over 300 carrier-arrested landings and supervised 15 personnel. For a period of 3 years, he served as Curriculum Officer for the Navy's wilderness survival training of flight students. In that capacity, he supervised 12 instructors and was responsible for the survival training of over 3,000 students per year. He left active duty in 1984 as a Lieutenant. He then served as a drilling reservist in the Navy Reserve and retired from the reserves in 1994 as a Lieutenant Commander.

PROFESSIONAL AFFILIATIONS:

Member, Society of Environmental Toxicology & Chemistry, 1989-Present
Board of Directors, Regional Chapter, Society of Environmental Toxicology & Chemistry, 1992-1994
Regional Chapter President, Society of Environmental Toxicology & Chemistry, 1994

PUBLICATIONS:

The Use of Radio Telemetry to Investigate Postfledging Survival of European Starlings Following an Agricultural Spraying of Methyl Parathion (primary author), in *Radiotelemetry Applications for Wildlife Toxicology Field Studies*, Brewer, L.W., Fagerstone, K.A. (eds), Society of Environmental Toxicology and Chemistry, Pensacola, Florida, 1998.

"Handbook of Pesticide Use and Effects on Florida Wildlife" (co-author), Florida Game and Fresh Water Fish Commission, 1995.

"The Use of Starling Nest Boxes for Field Reproductive Studies: Provisional Guidance Document & Technical Support Document" (co-author), National Technical Information Service, Springfield, VA, NTIS PB89-195028, 1989.

Threatened and Endangered Species Survey:

**Sinai Cemetery
Transmission Line Corridor
2002**

**Supplement to Threatened and Endangered Species
Surveys:
Joseph M. Farley Nuclear Plant and Associated
Transmission Line Corridors
2001-2002**

Prepared for Southern Nuclear Operating Company

By

Tetra Tech NUS, Inc.

October 25, 2002

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1.0 INTRODUCTION

In preparing for renewal of its operating licenses, the Joseph M. Farley Nuclear Plant (FNP) is required to assess a wide variety of potential environmental impacts, including impacts to ecological resources. This report presents the results of field surveys conducted in August 2002 to update information on ecological resources (and particularly, threatened and endangered species) along the transmission line corridor from FNP to the Sinai Cemetery substation. The surveys were intended to aid in the evaluation of potential impacts from continued operation of FNP beyond the current operating term by identifying sensitive populations that potentially could be affected.

Southern Nuclear Operating Company (SNC) has prepared this report to update information on ecological resources that occur on the FNP-to-Sinai Cemetery transmission corridor, and to provide input for the license renewal decision-making process. In addition, data from the field surveys are intended to support the environmental documentation required by NRC (10 CFR 51.53) to be submitted with the license renewal application. The purpose of the surveys is broader, however, than the satisfaction of NRC regulations, which require applicants to evaluate potential impacts to federally-listed species. As explained in Section 3.1, state-listed species are also included in accordance with SNC's corporate commitment to environmental stewardship.

FNP, owned by Alabama Power Company and operated by SNC, is located in Houston County in southeastern Alabama, on the west bank of the Chattahoochee River. The FNP site is approximately 16.5 miles east of Dothan, Alabama, and 16 miles north of the Alabama-Florida border. Six high-voltage (230- and 500-kilovolt [kV]) transmission lines originate at FNP, and consist of approximately 325 miles of transmission corridors (Figure 1). Two 230-kV lines carry power west from FNP to the Pinckard and Webb substations near Dothan, Alabama. A 500-kV transmission line terminates at the Snowdown substation near Montgomery, Alabama. A second 500-kV transmission line extends into Georgia, terminating at the Raccoon Creek substation. A 230-kV line carries power to the South Bainbridge substation, near Bainbridge, Georgia. Field surveys were conducted at FNP and along the transmission line corridors to the Pinckard, Webb, Snowdown, Raccoon Creek, and South Bainbridge substations during 2001 and early 2002. Detailed habitat descriptions of the FNP site and these five corridors, and results of the field surveys, were provided in a report entitled *Threatened and Endangered Species Surveys: Joseph M. Farley Nuclear Plant and Associated Transmission Line Corridors (2001-2002)* (Tetra Tech NUS 2002).

Construction of the 230-kV FNP to Sinai Cemetery transmission line was not complete when the aforementioned field surveys were initiated, and thus, the surveys documented in the Tetra Tech NUS

(2002) report did not include this transmission line corridor. The current report provides the results of surveys along the FNP-to-Sinai Cemetery corridor, and does not include results of the previous (Tetra Tech NUS 2002) surveys.

The following sections describe the FNP-to-Sinai Cemetery transmission corridor, present “target lists” of plant and animal species, describe survey techniques, and discuss the results of the surveys.

2.0 THE TRANSMISSION CORRIDOR

The 230-kV FNP-to-Sinai Cemetery transmission line is approximately 48 miles long. Originating at FNP, the line runs in a southwestern direction for approximately 11 miles, then runs generally southeast to the Sinai Cemetery substation, near Sneads, Florida. The first 18 miles are within Houston County, Alabama, while the remaining portion (approximately 30 miles) is within Jackson County, Florida. The standard width of the transmission line corridor is 125 feet.

Alabama Power Company and Gulf Power Company perform maintenance activities to keep vegetation heights low enough to prevent interference with the transmission line. Current practices incorporate the use of approved herbicides on dry ground, low-lying wet areas, and stream crossings and hand clearing in some wetland areas. Many portions of the transmission corridor are cultivated by local farmers, and therefore require no additional vegetation maintenance. Private interests that have agreed to perform vegetation maintenance are managing portions of the transmission corridor for wildlife enhancement.

The transmission corridor is located primarily within the East Gulf Coastal Plain physiographic province. Sandy soils and flat to gently rolling terrain largely characterize the region. The slope, aspect, and underlying substrate of the soils play a significant role in determining the assemblage of plants and animals that are likely to occur in a given area.

3.0 METHODOLOGY

3.1 Species of Interest

Species of interest for this report consist of “listed species” as defined below:

- Species that the U.S. Fish and Wildlife Service (USFWS) has listed, or proposed for listing, as threatened or endangered in accordance with the Endangered Species Act. The current statuses of these species were taken from lists of federally-endangered plants and wildlife maintained at the USFWS Endangered Species Program (internet) Home Page (<http://endangered.fws.gov>).
- Animal species classified by the Alabama Department of Conservation and Natural Resources (ADCNR) as state-protected (ADCNR does not provide special status designations for plants).
- Animal species that the Florida Fish and Wildlife Conservation Commission (FFWCC) has listed, or proposed for listing, as endangered, threatened, or of special concern.
- Plant species that the Florida Department of Agriculture and Consumer Services has listed, or proposed for listing, as endangered or threatened.

The current statuses of Alabama-listed animals were taken from *Alabama Inventory List* (ANHP 2001). Current statuses of Florida-listed animal and plant species were taken from *Florida’s Endangered Species, Threatened Species, and Species of Special Concern, Official Lists* (FFWCC 1997), and subsequent updates.

Species of interest did not include those species that are restricted to aquatic habitats (e.g., fish, mussels). Surveys for fish and mollusks were not conducted as part of this survey because sufficient data are already available to describe occurrences of these species in the area of concern. SNC intends to rely on the results of recent surveys and studies conducted by various organizations to identify and describe these aquatic organisms in the area of concern.

3.2 Survey Techniques

The primary objective of the surveys was to determine the presence or absence of federal- and state-listed plant and animal species along the FNP-to-Sinai Cemetery transmission corridor. A literature search was conducted prior to the field surveys to identify known occurrences of listed species along the transmission corridor, as well as updates of geographic ranges of listed species that might occur in the region. Several

sources were consulted for known and possible occurrences of listed species. Known occurrences of federally-listed and Alabama-protected species in Houston County, Alabama, were provided by the ADCNR State Lands Division, Natural Heritage Section. Recorded locations of federally-listed and Florida-listed species within approximately 4 miles of the corridor in Jackson County, Florida, were provided by the Florida Natural Areas Inventory (FNAI 2002a). This inventory was further supplemented using standard ecological references, and contacts with local and regional authorities. Based on the literature search, lists of federally-listed and state-listed terrestrial species “targeted” during the surveys were generated (Tables 1 and 2).

The transmission corridor was surveyed by concentrating efforts in areas offering the greatest potential for harboring listed species. These areas were identified prior to conducting the field surveys by examining United States Geological Survey (USGS) aerial photographs taken in 1997 and 1999. The aerial photographs were downloaded from Terra Server at <http://terraserver.com>, and printed with the transmission corridor highlighted on the printouts. The aerial photography provided a significant advantage to the biologists by allowing them to rapidly eliminate from consideration areas of poor quality habitat for listed species, such as cropland and pastures. Areas noted as being poor quality habitat for listed species were generally confirmed as such in the field. Following the examination of the aerial photographs, biologists drove to areas of potential interest and conducted surveys on foot.

3.2.1 PLANTS

A late-summer survey of listed plant species was conducted during August 2-4, 2002. A table of known and potentially-occurring listed plant species in Houston County, Alabama and Jackson County, Florida was compiled prior to the survey (Table 1). This table provided a “target list” of species for the August field work, and consisted of all federal and state-listed vascular plant species believed to have even a remote possibility of occurring on the transmission corridor.

The aforementioned aerial photographs, 7.5 minute series topographic USGS quadrangle maps, and a hand-held Global Positioning System (GPS) unit were used to record the locations of areas that were searched during the plant survey. Notes were taken describing habitats and plant species present at each area searched.

The plant survey was performed by Dr. L.L. Gaddy. Dr. Gaddy has a Ph. D. from the University of Georgia in biogeography and is currently president of terra incognita, an environmental consulting company. He has published widely in the fields of biogeography, botany, and invertebrate zoology.

3.2.2 ANIMALS

The surveys for birds, mammals, reptiles, and amphibians was designed to provide information on the occurrence and potential for occurrence of listed species along the transmission corridor. The survey focused on areas along the transmission line corridor that were identified during examination of the aforementioned aerial photographs. Specifically, natural habitats such stream crossings, swamps, marshes, xeric uplands, and mature forests adjacent to the transmission corridors, were targeted for the field survey. These areas were generally searched on foot. Due to the openness of the corridor, however, a survey by vehicle was adequate in some areas.

The wildlife survey was conducted during August 12-14, 2002. Wildlife species were identified through actual observations, as well as from tracks, scat, and bird calls. Topographic maps, the aforementioned aerial photographs, and a hand-held GPS unit were used to record the locations of listed species and areas searched. Notes regarding listed species occurrences, habitats, etc. were recorded in a field notebook. Occurrences of listed animal species observed were recorded on data sheets provided by the Florida Natural Heritage Program and the Alabama Natural Heritage Program (Appendix A). No trapping or other collection activities were conducted. Because many animal species are mobile and secretive, the absence of a species during a survey is not necessarily conclusive evidence that the species does not use the area in question. Therefore, the *potential* for use of the transmission corridor by listed wildlife species was also evaluated, based on the quality of habitats observed.

Prior to the initiation of the field survey, a target animal list was developed (Table 2). The species shown in Table 2 consist of state- and federally-listed species that occur (or could possibly occur based on habitat and known geographic range) in the area encompassed by the transmission corridor. A conservative approach was used in an effort to make the list as all-inclusive as possible. As mentioned earlier, however, fish and mollusks were not included as target species.

The wildlife field survey was performed by Mr. Mike Whitten. Mr. Whitten has 13 years of technical and managerial experience in wildlife ecology and toxicology. He currently serves as a wildlife biologist, and eco-toxicologist, conducting wildlife surveys, habitat evaluations, and ecological risk assessments for government, commercial, and utility clients. He has conducted and managed numerous projects that evaluated the ecological effects of proposed and operational electric generating plants, transmission lines, gas pipelines and other development projects on threatened and endangered wildlife species.

4.0 RESULTS

Brief descriptions of survey locations on the transmission corridor are provided in Section 4.1. Section 4.2 discusses the results of the plant survey. Section 4.3 discusses the results of the wildlife survey. Brief ecological descriptions of listed animal species that were observed, or that could occur within the transmission corridor, are presented in Section 4.4.

No areas designated by the USFWS as “critical habitat” for endangered species exist within or adjacent to the transmission corridor.

4.1 Survey Locations

This section provides brief descriptions of survey locations, which are shown in Figure 2. Locations that were visited but were found to contain no natural habitats (i.e., croplands and pastures) are not described below and are not included in Figure 2.

S1A Jackson Creek crossing. The corridor crosses a mixed hardwood forest dominated by southern magnolia (*Magnolia grandiflora*), American beech (*Fagus grandifolia*), and Florida maple (*Acer barbatum*), with spruce pine (*Pinus glabra*) and hickories (*Carya* spp.) also present.

S1B Cedar Creek crossing. The vegetation here is similar to that at S1A.

S2 The corridor crosses a small tributary of Rocky Creek at this location. A 4-ft high beaver dam within the corridor has created a ponded area within the bottomland along the stream. Sweet gum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), river birch (*Betula nigra*), and black willow (*Salix nigra*) are dominant around the pond beyond the corridor.

S3 Here, the corridor crosses the margin of a pond cypress (*Taxodium ascendens*) wetland. Woolgrass bulrush (*Scirpus cyperinus*) is dominant within the corridor.

S4A Bruners Gin Creek crossing and hillside to the northwest. The corridor crosses a bald cypress (*Taxodium distichum*) and tupelo (*Nyssa biflora*) swamp along the creek. Woody plant saplings, grasses, sedges, and herbaceous species dominate the corridor near the creek. Upslope (northwest) from the creek, the corridor passes through mixed hardwoods/pines and planted pines. Grasses, sedges, and wildlife food plots occur within the corridor on the hillside to the northwest of the creek.

S4B The corridor traverses a mixed pine/hardwood forest for approximately ½-mile. The gently undulating terrain within the corridor is dominated by grasses and blackberry (*Rubus* spp) thickets.

S5A The corridor passes through a stand of dense, young, pond cypress. Weedy nonwoody species dominate the corridor.

S5B Old fields and planted pines.

S6A The corridor traverses pine flatwoods habitat for approximately one mile. The pine flatwoods have not been burned or thinned in many years, and are transitioning into a hardwood dominated forest with a closed canopy. Blackberry, various grasses, and weedy species dominate the corridor.

S6B A ½-mile stretch through mixed pine/hardwoods. Vegetation within the corridor is a mixture of herbaceous and shrubby species through slightly undulating terrain.

S7 The northern portion of this 1.3-mile segment passes through planted pines and areas of mixed pine/hardwoods. Some areas within the corridor are currently cultivated as wildlife food plots, while other portions are a mixture of low grasses and other herbaceous vegetation. The southern portion of this segment traverses a large area that has recently been clear-cut.

S8A This is a crossing of two sinks collectively called “Deer Pond.” Both sinks were dry and were being invaded by upland and weedy species. Dog fennel (*Eupatorium capillifolium*) and purple rattlebush (*Sesbania punicea*), a legume, were abundant in the corridor. The corridor crosses through planted pines along a low ridge to the southeast of the sinks.

S8B A series of low, wet areas are found along the corridor, which traverses a cypress swamp. Maidencane (*Panicum hemitomom*) and white Maryland meadowbeauty (*Rhexia mariana* var. *alba*) dominate the vegetation within the corridor in the southern portion of this location. The corridor is dominated by *Ludwigia* spp. in the northern portion of this location.

S9 Mixed pine/hardwoods lie to the east of the corridor, while old field habitat lies to the west. A wetland that is an outlier of Cow Pen Pond is also located slightly east of the corridor. Part of the wetland is open and grassy, the remainder is dominated by buttonbush (*Cephalanthus occidentalis*).

S10A A small, wet grassy meadow within the corridor. This area is dominated by meadowbeauties (*Rhexia* spp.), seedboxes (*Ludwigia* spp.), grasses, and sedges.

S10B The corridor crosses the margins of several sandy, pond cypress wetlands that are interspersed between drier areas.

S11 The corridor passes through a disturbed, shallow, swamp tupelo-pond cypress depression.

S12 This 1.7-mile segment of the corridor is located on a series of low rolling hills. Habitats adjacent to the corridor are characterized as hardwood forest, mixed pine/hardwood forest, planted pines, and pastures.

S13 Grasses and shrubs within the corridor, hardwood stands interspersed with planted pines outside the corridor.

S14 The corridor crosses several small sink-hole ponds. All of the ponds were dry during the field survey, and were becoming overgrown by weedy vegetation. Dog fennel (*Eupatorium capillifolium*) and purple rattle-bush (*Sesbania punicea*) were the dominant species along the corridor, with wetland species such as black willow and buttonbush also present.

S15 The corridor crosses the shallow, upstream end of a 6-acre pond formed by a dam across a small stream. The portion of the pond within the corridor is essentially a marsh, and numerous wetland species such as *Scirpus* spp. and water lily (*Nymphaea* spp.) are present.

Vegetation within the corridor generally consists of a low shrub layer and a herbaceous layer. Although some tree species exist within the corridor, there is no canopy or subcanopy since the corridor is mowed every three years.

4.2 Plants

No state- or federally-listed plant species were found within the Farley-to-Sinai Cemetery corridor.

Most of the land crossed by the corridor is agricultural, with soybeans, cotton, peanuts, and hay being the most commonly-encountered crops. At two locations in Alabama (Sites S1A and S1B), the corridor crosses rolling hills underlain by calcareous rocks (limestone and marl), which are drained by deeply-cut creeks that flow into the Chattahoochee River. The banks, bluffs, and ravines of these creeks harbor a rich flora dominated by southern magnolia, American beech, Florida maple, and various species of ferns and herbaceous plant species that grow on calcium-rich soils. Along the Alabama-Florida boundary and southward into Florida, the landscape is underlain by limestone or marl deposits. Here, creek drainage is often absent, with large and small ponds and sinks dominating the landscape. Many of these sinks are shallow and have been incorporated into agricultural usage as cattle ponds or simply wet spots in the

fields. Other sinks, however, are still wet and appear to provide potential habitat for state- and federally-listed plant species. However, the extensive withdrawal of ground water by central-pivot irrigation and the current decade-long drought has dramatically reduced the water level in most of the sinks. The most common wetland species found in these sinks include pond cypress, black willow, buttonbush, woolgrass bulrush, plume grass (*Erianthus* sp.), and needlerushes (*Juncus* spp.).

4.3 Animals

Listed animal species discovered on the transmission corridors consisted of the gopher tortoise (*Gopherus polyphemus*), alligator (*Alligator mississippiensis*), and little blue heron (*Egretta caerulea*) (Table 3).

Active gopher tortoise burrows were observed at Sites S4A, S4B, S6A, S6B, S7, S8A, S9, and S12, and slightly southwest of S2 (Figure 2). Alligator tracks were observed near an alligator den at Site S8B. A little blue heron was observed at Site S15.

Southeastern pocket gopher (*Geomys pinetis*) mounds were observed at Sites S6A, S6B, S7, and S12. An Eastern coachwhip snake (*Masticophis flagellum flagellum*) was observed at S12. The Southeastern pocket gopher and Eastern coachwhip are not federally-listed and are not state-listed in Florida (where they were observed). These two species are classified in Alabama, however, as state-protected.

4.4 Potential Animal Occurrences

As mentioned earlier, many animal species are mobile and secretive, and thus, the absence of a species during a survey is not necessarily conclusive evidence that the species does not utilize the area in question. Therefore, the *potential* for occurrence of listed wildlife species was also evaluated. Brief ecological descriptions of listed animal species that were observed, or that could occur within the transmission corridors, are presented below.

4.4.1 MAMMALS

Gray Bat

The gray bat (*Myotis grisescens*) is listed as endangered by USFWS and FFWCC, and as state-protected by ADCNR. The species is found mainly in Alabama, Tennessee, Kentucky, and Missouri (Gore 1992). In Florida, the gray bat is found only in a few caves near Marianna, in Jackson County (Brown 1997a, Gore 1987). It inhabits moist caves in limestone strata, and is almost exclusively a cave-dwelling species. Gray bats forage primarily over water, especially over streams bordered by forests, and are known to forage up to 25 km (15 miles) from their cave roost. They show dietary preferences for flying aquatic insects such as stoneflies, caddisflies, mayflies, beetles, and mosquitoes (Brown 1997a, b; Gore 1992).

Jackson County, Florida, is underlain by a layer of limestone which has been partially dissolved by percolating water, resulting in one of the highest concentrations of caves in Florida (Gore 1987). As mentioned in Section 2.0, approximately 30 miles of the Sinai transmission corridor are within Jackson County. Large colonies of gray bats occur in Florida Caverns State Park, approximately 10 miles from the Sinai Cemetery transmission corridor. The FNAI (2002a) database did not contain any records of this species in the vicinity of the transmission corridor. Because of the scarcity of open water bodies along the corridor, gray bats probably do not forage within the corridor. However, they might cross the corridor while traveling to and from foraging areas.

Southeastern Bat

The Southeastern bat (*Myotis austroriparius*) is listed as state-protected by ADCNR. It inhabits caves, hollow trees, attics of buildings, crevices of buildings, concrete storm sewers, and other dark cavities. The species is adaptable to a variety of locations and physical conditions and is found in southern Alabama and in the northern two-thirds of Florida. Southeastern bats sometimes form large colonies, often with other bat species. (Brown 1997a, b; Belwood and Lefebvre 1992). Tens of thousands of Southeastern bats have been recorded in Jackson County caves (Gore 1987). These bats appear to prefer foraging over water, where they consume small beetles, moths, mosquitoes, and other flying insects (Brown 1997a, b; Belwood and Lefebvre 1992). Southeastern bats are probably present along the transmission corridor.

Indiana Bat

The Indiana bat (*Myotis sodalis*) is listed as endangered by USFWS and FFWCC, and is listed as state-protected by ADCNR. This species hibernates in dense clusters in caves. The Indiana bat is a migratory species, traveling as far as 300 miles between Winter and Summer habitats (Humphrey 1992). Summer records are scarce, but a few individuals have been found under bridges and in old buildings, and several maternity colonies have been found under loose bark and in the hollows of trees. Summer foraging by females and juveniles is limited to riparian and floodplain areas. Males forage over floodplain ridges and hillside forests and usually roost in caves (Brown 1997a, b; Humphrey 1992). The species is apparently absent south of Tennessee during the Summer (USFWS 1999). There are no recorded occurrences of this species in Houston County, Alabama.

Humphrey (1992) reported that the Indiana bat is known in Florida from only one specimen collected in 1955 within the Florida Caverns State Park. Brown (1997a) stated that the species has been recorded in Florida “only in a few caves in the Panhandle.” FNAI (2002b) data indicate that Indiana bats have been confirmed in Jackson County, but the FNAI (2002a) database did not contain any records of this species

in the vicinity of the transmission corridor. In summary, northern Florida and southern Alabama represent the periphery of the range of this species. Furthermore, recorded occurrences are sparse in northern Florida and southern Alabama, and no hibernation caves are known to occur in the vicinity of the transmission corridor. Therefore, the potential for Indiana bats along the corridor is low.

Rafinesque's Big-Eared Bat

Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) is listed as state-protected by ADCNR. This bat is found in forested areas, especially in pine flatwoods and pine-oak woodlands. It roosts in hollow trees, under bark, in old cabins and barns, and in wells and culverts. These bats are capable of hovering, and their primary food item is moths (Belwood 1992; Brown 1997b). Because of its large geographic range (the entire southeastern United States), Rafinesque's big-eared bat might occur along the transmission corridor.

Southeastern Pocket Gopher

The Southeastern pocket gopher (*Geomys pinetis*) is listed as state-protected by ADCNR. It prefers deep, sandy soils and is absent from hard clay, rocky soils, and wet areas. The species is characteristically found in pine-oak woodlands, open pine flatwoods, and in weedy or grassy fields. Pocket gophers are fossorial (living underground), and build extensive tunnel systems, with portions constantly being added and abandoned in search of food. Common food items include a wide variety of roots, tubers, bulbs, and other plant parts. The tunnels are deep enough to be undetectable at the surface, but loose soil is pushed up sloping tunnels to the surface and piled in mounds 12-18 inches across and 4-8 inches high. The approximate course of the tunnels can usually be identified by the position of these mounds. Although rain and wind gradually erode the mounds, mound scars usually persist on the surface for a year or more. (Brown 1997b).

Pocket gopher mounds were observed on the transmission corridor in Florida at Sites S6A, S6B, S7, and S12. Although no mounds were observed on the corridor in Alabama (where they are listed as state-protected), the species is known to occur in Houston County (ADCNR 2002) and probably occurs along some portions of the corridor in Alabama.

Long-Tailed Weasel

The long-tailed weasel (*Mustela frenata*) is listed as state-protected by ADCNR. It is found in forested and open habitats and appears to have no particular habitat preference among terrestrial communities. Long-tailed weasels prey primarily on rodents, birds, reptiles, and rabbits. They typically inhabit shallow

ground burrows, or crevices of logs or stumps. They hunt during both day and night, but tend to be more active at night (Brown 1997b). Because of their wide geographic range (throughout the United States) and unrestricted habitat preference, they might occur along the transmission corridor.

Sherman's Fox Squirrel

Sherman's fox squirrel (*Sciurus niger shermani*) is listed as a species of special concern by FFWCC. It is one of several subspecies of fox squirrels in the eastern United States, where it occurs in southern Georgia, the eastern portion of the Florida panhandle, and central Florida. Sherman's fox squirrels inhabit open woodlands, and especially in pine flatwoods and longleaf pine-turkey oak sandhills. Their primary food items are acorns and longleaf pine seeds, but nuts, fungi, bulbs, vegetative buds, and insects are also eaten (Brown 1997b; Kantola 1992).

Sherman's fox squirrels have been recorded in Jackson County (FNAI 2002b) and some portions of the corridor pass through woodlands that are presumably inhabited by these squirrels. In such areas, Sherman's fox squirrels probably forage along the edges of the corridor, and sometimes cross the corridor.

4.4.2 BIRDS

Peregrine Falcon

The peregrine falcon (*Falco peregrinus*) is listed by FFWCC as endangered, and by ADCNR as state-protected. USFWS formerly listed the American peregrine falcon (*F. p. anatum*) as endangered. Because of the similar appearance among subspecies, USFWS also listed the general species (*Falco peregrinus*) as endangered. The peregrine falcon (including all subspecies) was removed from the federal list on August 25, 1999.

Peregrine falcons formerly nested throughout most of the U.S., but there have been no reports of nesting in the southeastern U.S. in many years. Wintering peregrine falcons are sometimes observed in the southeastern U.S., usually in coastal areas. Typical winter habitats consist of coastal shorelines, as well as lake and river margins, ponds, sloughs, and marshes near the coast. Peregrine falcons prey primarily on birds (Meyer and Smallwood 1996). Because there have been no reports of nesting in the southeastern U.S. in many years, and since wintering falcons are essentially coastal, the possibility of peregrine falcons nesting or foraging along the transmission corridor is very low.

Southeastern American Kestrel

The Southeastern American kestrel (*Falco sparverius paulus*) is listed as threatened by FFWCC and is one of two subspecies of the American kestrel that occur in Florida and southern Alabama. The northern subspecies (*F. s. paulus*) is a winter resident only, and is not federally- or state-listed in Alabama or Florida. The southeastern subspecies is a year-round resident. It is found in a variety of open habitats, most frequently in sandhills, sand pine scrub, and pastures. Southeastern American kestrels nest in cavities excavated by woodpeckers. They consume a variety of prey items, especially insects and small reptiles. Grasshoppers, dragonflies, lizards, and worms are typical prey items, but they also prey on frogs and small birds. Perch hunting from powerlines and fence posts is the most common foraging method.

The Southeastern American kestrel potentially nests in Jackson County (FNAI 2002b), and probably forages along some portions of the corridor.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is listed as threatened by USFWS and FFWCC, and state-protected by ADCNR. Bald eagles occur in a wide variety of habitats, but proximity to water is important. Preferred habitat includes a high amount of water-to-land edge where prey is concentrated. Thus, bald eagles are generally restricted to coastal areas, lakes, and rivers. They prey on fish near the surface but will eat dead fish or other carrion, as well as birds and mammals. The average foraging distance from roosts or nests is 2 to 4 miles. Some bald eagles in the southern United States migrate northward in mid-Summer (after the nesting season) and return in early Autumn (Curnutt 1996; Stalmaster 1987).

There are no known bald eagle nests or roosting sites along the transmission corridor. It is unlikely that any eagle nests occur in the immediate vicinity of the corridor, since the existence of a breeding pair would probably result in numerous sightings. In addition, the absence of lakes and rivers along the corridor largely precludes the possibility of eagles foraging within the corridor.

Osprey

The osprey (*Pandion haliaetus*) is listed as state-protected by ADCNR. Ospreys are found primarily along rivers, lakes, reservoirs, and seacoasts. They feed almost exclusively on fish caught by plunging feet-first into the water. Osprey populations were previously affected by organochlorine pesticides (especially DDT), which caused thinning of the egg shells, so that the eggs crushed during incubation by adult ospreys. Populations are now recovering in many areas. Ospreys usually nest near or above water

bodies in dead snags, living trees, cliffs, utility poles, wooden platforms on poles, channel buoys, chimneys, windmills, etc. Nests are often used in successive years (Henny 1988).

The absence of lakes and rivers along the corridor largely precludes the possibility of ospreys foraging within the corridor.

Red-Cockaded Woodpecker

The red-cockaded woodpecker (*Picoides borealis*) is listed as endangered by USFWS and FFWCC, and state-protected by ADCNR. The red-cockaded woodpecker is a cooperative breeder that lives in social units known as clans. The species is unique among North American woodpeckers because it excavates cavities in living pines. Cavity excavation usually requires from one to several years. Active clusters of cavities occur in open, mature pine stands with sparse midstory vegetation. When the hardwood midstory grows above 15 feet, cavity abandonment usually occurs. Cavities are rarely found in trees as young as 30 to 40 years old, and most cavity trees are at least 80 years old. Ideal foraging habitat consists of pine stands with trees ≥ 9 inches diameter at breast height (dbh). They also forage in pine stands of 4 to 9 inches dbh, and sometimes in pines scattered through hardwood stands. Food consists primarily of arthropods (Hooper et al. 1980).

There are no recorded red-cockaded woodpecker colonies in Houston County or Jackson County. Preferred habitat for this species does not exist along the corridor. Since red-cockaded woodpeckers are very habitat-specific, the probability of this species occurring along the transmission corridor is very low.

Wood Stork

The wood stork (*Mycteria americana*) is listed as endangered by USFWS and FFWCC, and state-protected by ADCNR. Wood stork habitats include cypress/gum ponds, river swamps, marshes, and bays. The wood stork is highly gregarious in its nesting and feeding behavior. They are tactile feeders (vision is not used to locate or catch prey) and usually forage in shallow water (6 to 20 inches). Small fish are the primary food items, but storks also consume crustaceans, salamanders, tadpoles, and insects. The distance between nesting colonies and feeding areas can range up to 60 miles or more (Ogden 1996; USFWS 1986).

FNAI (2002a) records indicate a possible wood stork rookery approximately one mile southwest of the corridor in Jackson County near Ocheesee Pond. This "pond" is actually several hundred acres of open water and several thousand acres of cypress swamp. It is unlikely that any rookeries exist along the

corridor due to the almost complete absence of preferred wetland habitats that are crossed by the corridor. Similarly, it is unlikely that wood storks forage within the corridor.

Limpkin

The limpkin (*Aramus guarauna*) is listed as a species of special concern by FFWCC. The limpkin is primarily a bird of Central America. Within North America, limpkins are occasionally seen in the southeastern U.S., but breeding is known only in southeastern Georgia and peninsular Florida.

Tallahassee represents the westward extent of breeding records for this species. Apple snails (*Pomacea paludosa*) are the primary food item, but limpkins also consume mussels and other species of aquatic snails. Limpkins are found along freshwater swamps and marshes, streams, and lake margins. Nests made of aquatic vegetation are often near the water level in marshes or shrubs, but are occasionally in the tops of sabal palms (*Sabal palmetto*) (Bryan 1992).

Limpkins are not known from Alabama. FNAI (2002b) data indicate that this species potentially occurs (but has not been confirmed) in Jackson County. Because Jackson County lies west of what is typically thought of as the geographic range of this species, and since preferred habitat along the corridor is almost totally absent, the probability of limpkins along the corridor is low.

White Ibis

The white ibis (*Eudocimus albus*) is listed as a species of special concern by FFWCC. This medium sized wading bird nests and forages in freshwater, brackish, and saline environments. White ibises prefer shallow water (2-6 inches) when feeding, although they often forage on lawns and pastures. Aquatic arthropods (especially crayfish and insects) are primary food items, but small amphibians and reptiles are commonly taken. Ibises nest in colonies, which are usually surrounded by water. Nests tend to be in shrubby vegetation, but nests are sometimes in trees up to 50 feet (Frederick 1996).

FNAI (2002a) records indicate a white ibis rookery approximately one mile southwest of the corridor in the swamp system associated with Ocheesee Pond in Jackson County. The corridor does not cross preferred nesting habitat for this species, but white ibises probably forage in drainage ditches and pastures along the corridor.

Other Wading Birds

The tricolored heron (*Egretta tricolor*), little blue heron (*Egretta caerulea*), and snowy egret (*Egretta thula*), are each listed as a species of special concern by FFWCC. They are discussed here as a group because they are closely related and share similar foraging and breeding characteristics. These wading

birds nest in multi-species colonies, which are usually located in swamps or on islands. Small fish and aquatic invertebrates comprise most of the diet. These herons and egrets forage in a wide variety of habitats such as marshes, swamps, lake and stream shorelines, canals, and agricultural and roadside ditches (Kale and Maehr 1990).

A single little blue heron was seen foraging along the shoreline of a shallow pond at Site 15 during the survey. This species, as well as tricolored herons and snowy egrets, probably forages occasionally at Site 15. These species also probably forage in various ditches and wet pastures crossed by the corridor. Little blue herons and snowy egrets have been reported to nest approximately one mile southwest of the corridor in the swamp system associated with Ocheese Pond. Little blue herons have also been reported as nesting approximately two miles from the corridor at a second location in Jackson County. Nesting colonies at locations adjacent to the corridor are not likely.

4.4.3 REPTILES

American Alligator

The American alligator (*Alligator mississippiensis*) is federally-listed as threatened due to its similarity in appearance to the endangered American crocodile (*Crocodylus acutus*), and is listed by FFWCC as a species of special concern. Alligator habitat consists of swamps, marshes, ponds, lakes, and slow-moving streams and rivers. Alligators are opportunistic feeders and food items include fish, turtles, birds, snakes, frogs, insects, and small mammals. Alligators often dig dens and small ponds (“gator holes”) in swamps and marshes. In the dry season, these dens and ponds are often the last places deep enough to hold water, and are utilized by numerous wetland animals (Mount 1975; Van Meter 1987).

Alligator tracks were observed in the vicinity of an alligator den at Site S8B. The den was in a marshy area between towers # 88 and 89, in the middle of the corridor (see photograph in Appendix B). Because of drought conditions at the time of the survey, the only surface water in the vicinity was at the mouth of the den. Water marks 4 feet above the ground on trees in the cypress swamp adjacent to the corridor at this location attest to normally wetter conditions. Alligators undoubtedly occur in suitable habitats along other portions of the corridor.

Eastern Indigo Snake

The Eastern indigo snake (*Drymarchon corais couperi*) is listed as threatened by USFWS and FFWCC, and as state-protected by ADCNR. It typically inhabits dry areas that are bordered by water. Prey includes fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals. Indigo snakes in

southern Alabama and northern Florida typically spend the winter in gopher tortoise burrows (Moler 1992; Mount 1975). Indigo snakes are diurnal and wide ranging, typically utilizing areas of 125-250 acres or more (Moler 1992). Indigo snakes are known to occur in Houston County (ADCNR 2002) and Jackson County (FNAI 2002b) and could occur along portions of the transmission corridor in Alabama or Florida.

Southern Hognose Snake

The Southern hognose snake (*Heterodon simus*) is listed as state-protected by ADCNR. It is found primarily in dry sandy habitats such as sandhills, pine/turkey oak woodlands, and scrub. It is semi-fossorial and its diet consists almost exclusively of frogs and toads (Mount 1975; Tennent 1997). The Southern hognose snake might occur, at least occasionally, along portions of the transmission corridor.

Eastern Coachwhip

The Eastern coachwhip (*Masticophis flagellum flagellum*) is listed as state-protected by ADCNR. This snake is found in a variety of dry, relatively open habitats, especially where open woods are interspersed with weedy fields. Common prey consists of insects, lizards, small mammals, birds, and other snakes (Mount 1975).

An Eastern coachwhip was observed in Florida at S12. Although not observed on the corridor in Alabama (where it listed as state-protected), the species probably occurs in areas crossed by the corridor in Alabama.

Florida Pine Snake

The Florida pine snake (*Pituophis melanoleucus mugitus*) is listed as and is listed by FFWCC as a species of special concern, and by ADCNR as state-protected. This snake is restricted to Florida and Coastal Plain areas of Alabama, Georgia, and South Carolina. The Florida pine snake occupies xeric habitats such as sandhills, pine flatwoods on well drained soils, and old fields on former sandhill habitats. It is extremely fossorial, and seeks out burrows of rodents and gopher tortoises. Common prey items include ground nesting birds and their eggs, mice, pocket gophers, and immature rabbits (Franz 1992). Florida pine snakes might occur within the transmission corridor where the corridor crosses suitable habitats.

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is listed as a species of special concern by FFWCC and as state-protected by ADCNR. Populations east of the Mobile and Tombigbee Rivers are not federally-

listed. The gopher tortoise inhabits sandy, well drained areas where adequate vegetation for foraging exists. Principal foods include grasses, legumes, sedges, and fruit. Gopher tortoises excavate burrows that are also utilized by numerous other species (Diemer 1992). Active gopher tortoise burrows were observed in Alabama at Sites S4A, S4B, and at the edge of a pasture southwest of S2. Active gopher tortoise burrows were observed in Florida at Sites S6A, S6B, S7, S8A, S9, and S12.

Barbour's Map Turtle

Barbour's map turtle (*Graptemys barbouri*) is listed as a species of special concern by FFWCC and as state-protected by ADCNR. The species is confined to the Apalachicola drainage system. This includes the Chattahoochee River and streams that enter the Chattahoochee. Rivers are the preferred habitat for this species, especially portions of rivers with strong currents and exposed limestone. Males and young females feed mostly on insects, especially caddisfly larvae. Adult females feed almost exclusively on mussels and snails (Mount 1975; Sanderson 1992). Although Barbour's map turtles have been recorded in Houston County (ADCNR 2002) and Jackson County (FNAI 2002b), the transmission corridor does not cross any habitat preferred by these turtles. Therefore, the species is probably absent from the corridor.

Alligator Snapping Turtle

The alligator snapping turtle (*Macrolemys temminckii*) is listed as a species of special concern by FFWCC and as state-protected by ADCNR. It inhabits rivers, oxbows, and sloughs, and is also found in lakes and swamps, especially those near rivers. Unlike the common snapping turtle (*Chelydra serpentina*), the alligator snapper rarely leaves the water, and is almost never found in isolated ponds and lakes. The alligator snapping turtle is the world's largest freshwater turtle, with recorded weights of over 220 pounds. Primary food items consist of fish and molluscs, but this turtle will also consume crustaceans, waterfowl, carrion, and occasionally plant foods such as acorns and palmetto berries (Ashton and Ashton 1985; Mount 1975; Pritchard 1992). Alligator snapping turtles are probably absent from the corridor, since the corridor does not pass over deep water bodies that are connected to rivers.

Suwannee Cooter

The Suwannee cooter (*Pseudemys concinna suwanniensis*) is listed as a species of special concern by FFWCC. This subspecies is found from Tampa to the Appalachian River basin. It is primarily restricted to rivers, spring runs, impoundments, and backwaters. The Suwannee cooter is herbivorous, feeding primarily on submergent aquatic vegetation (Jackson 1992). The Suwannee cooter probably does not occur long the corridor due to the absence of preferred habitat.

4.4.4 AMPHIBIANS

Flatwoods Salamander

The flatwoods salamander (*Ambystoma cingulatum*) is listed as threatened by USFWS and as state-protected by ADCNR. This salamander inhabits pine-flatwoods-wiregrass communities that adjoin cypress heads or ponds without large predatory fish. Adult salamanders feed on various invertebrates (Ashton 1992). Flatwoods salamanders have been confirmed in Houston County (ADCNR 2002) and Jackson County (FNAI 2002b), but the transmission corridor does not pass through habitat suitable for this species. Thus, flatwoods salamanders probably do not occur along the corridor.

Georgia Blind Salamander

The Georgia blind salamander (*Haideotriton wallacei*) is listed as a species of special concern by FFWCC. It is known primarily from a few caves in Jackson County, Florida, but it has been recorded in a few caves in other counties within northern Florida and southern Georgia. It is confined to subterranean waters in limestone sediments. It has been found mostly in caves, but it might also occur in recharge areas around sinkholes. Crustaceans are its primary prey (Means 1992a). It has not been recorded in Alabama. It has not been recorded near the transmission corridor (FNAI 2002a), although it is known to occur in Jackson County (FNAI 2002b).

The probability of Georgia blind salamanders along the corridor is unclear, since the species is entirely subterranean. The corridor does cross a few sinkholes in Jackson County. Since Jackson County is apparently the center of this salamander's population, it might occur in some underground portions of the corridor.

Pine Barrens Tree Frog

The pine barrens tree frog (*Hyla andersonii*) is listed as a species of special concern by FFWCC and state-protected by ADCNR. This species is known from only three geographic locations: New Jersey, the Carolinas, and along the Florida-Alabama border. The Florida-Alabama population is located west of the FNP to Sinai Cemetery transmission corridor. Specifically, the species is known in Alabama from Escambia, Covington, and Geneva counties, and in Florida from Santa Rosa, Okaloosa, Walton, and Holmes counties. The Florida-Alabama population inhabits hillside seepage bogs. Adults forage in evergreen bog shrubbery and tadpoles develop in small pools of clear seepage water in the bogs (Means 1992b).

No seepage bog habitat was observed on the corridor, and the species has not been recorded in either of the two counties crossed by the corridor. Thus, the probability of the pine barrens tree frog occurring along the corridor is negligible.

Gopher Frog

The gopher frog (*Rana capito*) is listed as a species of special concern by FFWCC. The subspecies *R. c. sevosa*, known as the dusky gopher frog or crawfish frog, is listed as state-protected by ADCNR.

Alabama and Florida populations are not federally-listed. The gopher frog inhabits upland, xeric areas, especially longleaf pine/turkey oak sandhills. It takes shelter during the day in active and abandoned gopher tortoise burrows, crayfish burrows, and stump holes, but lays its eggs in seasonally flooded, grassy ponds and cypress ponds that lack fish populations. It is a nocturnal species but occasionally emerges to sit near the mouth of its burrow on overcast, damp days. Primary food items consist of invertebrates and smaller frogs and toads (Mount 1975; Godley 1992). The dusky gopher frog probably occurs within suitable habitats along the transmission corridor.

5.0 CONCLUSIONS

5.1 Plants

The survey along the Sinai Cemetery corridor was conducted for federally-listed and state-listed plants. Particular attention was directed to the federally-listed pondberry (*Lindera melissifolia*), Canby's cowbane (*Oxypolis canbyi*), fringed campion (*Silene polypetala*), gentian pinkroot (*Spigelia gentianoides*), and Florida torreyia (*Torreya taxifolia*). These species have either been recorded in counties crossed by the transmission corridor or could occur along the corridors based on habitat and geographic range. No federally-listed or state-listed plants were found during the survey.

5.2 Animals

The American alligator was the only federally-listed wildlife species observed during the survey. The gopher tortoise was the only state-protected wildlife species observed on the transmission corridor in Alabama. Wildlife species observed along the transmission corridor in Florida and state-listed by FFWCC consisted of the gopher tortoise, alligator, and little blue heron. The Southeastern pocket gopher and Eastern coachwhip were observed on transmission lines in Florida; these two species are not state-listed in Florida but are state-listed in Alabama.

Although few listed species were observed along the transmission corridors, many animal species are mobile and secretive, and thus, the absence of a species during a few surveys is not necessarily evidence that the species does not utilize the area in question. For example, bat surveys require many nights of mist netting, while reptiles and amphibian censuses require massive numbers of funnel traps, nets, and/or other capturing devices. Therefore, unequivocal conclusions regarding the presence or absence of most listed animal species were beyond the scope of the survey. The survey, however, was adequate to determine the *potential* for occurrence of listed wildlife species based on habitats along the transmission corridor.

Based on habitats along the corridor, indigo snakes (federally-listed as threatened) probably occur, at least occasionally, along the transmission corridor. With the exception of the indigo snake and alligator, federally-listed species probably do not occur within or adjacent to the corridor. A few federally-listed bat and bird species, however, might fly over the transmission corridor while traveling to and from foraging areas.

Most of the land crossed by the transmission line corridor is used for agricultural purposes, particularly row crops, hayfields, and pasture. The corridor crosses few wetlands. Woodland habitats crossed by the corridor tend to be small isolated tracts rather than long stretches of forest. Because of these conditions, use of the corridor by most listed wildlife species is probably limited primarily to occasional foraging.

The activities required for vegetation maintenance in transmission line corridors can actually result in habitat more favorable to the gopher tortoise than in areas outside the corridors. Specifically, the open canopy often provides this state-listed species with food in the form of abundant herbaceous vegetation, and open sunlit sites for nesting. In many areas, these conditions occur infrequently in habitat beyond the transmission corridor edges, especially in the prolonged absence of fires. These circumstances were noted in several areas along the FNP-to-Sinai Cemetery corridor.

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TABLES AND FIGURES

Table 1. Target plant species: Sinai Cemetery transmission line corridor, August, 2002.

Species	Common Name	Federal status	State status ^a	Habitat type
<i>Arabis canadensis</i>	Sicklepod	None	Endangered	Upland mixed forest, limestone outcrops
<i>Arnoglossum diversifolium</i>	Variable-leaved Indian-plantain	None	Threatened	Calcareous swamps
<i>Baptisia megacarpa</i>	Apalachicola wild indigo	None	Endangered	Floodplains and bluffs
<i>Brickellia cordifolia</i>	Flyr's brickell-bush	None	Endangered	Shaded disturbed areas
<i>Callirhoe papaver</i>	Poppy mallow	None	Endangered	Woodland edges
<i>Calycanthus floridus</i>	Sweet shrub	None	Endangered	Floodplains, slope forest, bluffs, upland hardwood forest
<i>Calystegia catesbiana</i>	Trailing Catesby's bindweed	None	Endangered	Open, calcareous woodlands
<i>Cryptotaenia canadensis</i>	Canada honewort	None	Endangered	Bluffs and floodplains
<i>Forestiera godfreyi</i>	Godfrey's privet	None	Endangered	Calcareous hammocks
<i>Hepatica nobilis</i>	Liverleaf	None	Endangered	Moist calcareous hammocks
<i>Illicium floridanum</i>	Florida anisetree	None	Threatened	Calcareous bluffs
<i>Kalmia latifolia</i>	Mountain laurel	None	Threatened	Bluffs, acidic swamps
<i>Linum westii</i>	West's flax	None	Endangered	Bogs, pond margins
<i>Lindera melissifolia</i>	Pondberry	Endangered	Endangered	Margins of calcareous sinkholes
<i>Macranthera flammea</i>	Hummingbird flower	None	Endangered	Bogs, creekbanks
<i>Magnolia ashei</i>	Ashe's magnolia	None	Endangered	Bluffs, hammocks
<i>Magnolia pyramidata</i>	Pyramid magnolia	None	Endangered	Bluffs
<i>Malaxis unifolia</i>	Green adder's mouth	None	Endangered	Floodplains, slope forest, upland mixed forest
<i>Marshallia obovata</i>	Barbara's buttons	None	Endangered	Pinelands
<i>Matalea baldwyneana</i>	Baldwyn's spinypod	None	Endangered	Bluffs
<i>Matalea floridana</i>	Florida spinypod	None	Endangered	Bluffs, woods
<i>Pachysandra procumbens</i>	Allegheny spurge	None	Endangered	Calcareous woods
<i>Pinguicula planifolia</i>	Chapman's butterwort	None	Threatened	Bogs and swamps
<i>Pinguicula primuliflora</i>	Clearwater butterwort	None	Endangered	Shallow, sandy clear water streams and seeps
<i>Platanthera integra</i>	Yellow fringeless orchid	None	Endangered	Wet pinelands
<i>Oxypolis canbyi</i>	Canby's cowbane	Endangered	Endangered	Pond cypress savannahs
<i>Ruellia noctiflora</i>	White-flowered wild petunia	None	Endangered	Bogs, wet flatwoods
<i>Rhododendron austrinum</i>	Orange azalea	None	Endangered	Floodplains, slopes, upland mixed forests
<i>Salix eriocephala</i>	Heart-leaved willow	None	Endangered	Wetlands
<i>Salix floridana</i>	Florida willow	None	Endangered	acidic, open swamps
<i>Salvia urticifolia</i>	Nettle-leaved sedge	None	Endangered	Calcareous woods
<i>Schisandra coccinea</i>	Scarlet magnoliavine	None	Endangered	Calcareous woods
<i>Sideroxylon thornei</i>	Thorne's buckthorn	None	Endangered	Margins of calcareous wetlands

Table 1. Target plant species: Sinai Cemetery transmission line corridor, August, 2002 (continued).

<i>Sideroxylon lycioides</i>	Silky buckthorn	None	Endangered	Bluffs
<i>Silene polypetala</i>	Fringed campion	Endangered	Endangered	Bluffs
<i>Spigelia gentianoides</i>	Gentian pinkroot	Endangered	Endangered	Sandhills
<i>Torreya taxifolia</i>	Florida torreyia	Endangered	Endangered	Bluffs
<i>Trillium lancifolium</i>	Narrow-leaved trillium	None	Endangered	Bottomlands, slopes, upland mixed forest
<i>Xyris scabrifolia</i>	Harper's yellow-eyed grass	None	Threatened	Bogs

- a. The Alabama Department of Conservation and Natural Resources does not provide special status designations for plants. Therefore, the state-listed designations in this column are those of the Florida Department of Agriculture and Consumer Services

Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 2. Target animal species: Sinai Cemetery transmission line corridor, August, 2002.

Common name	Scientific name	Federal status ^a	State status ^b		Probability of occurrence ^c
			Florida	Alabama	
Mammals					
Gray bat	<i>Myotis grisescens</i>	E	E	SP	L
Southeastern bat	<i>Myotis austroriparius</i>	-	-	SP	M
Indiana bat	<i>Myotis sodalis</i>	E	E	SP	L
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	-	-	SP	M
Southeastern pocket gopher	<i>Geomys pinetis</i>	-	-	SP	P
Long-tailed weasel	<i>Mustela frenata</i>	-	-	SP	M
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	-	SSC	-	M
Birds					
Limpkin	<i>Aramus guaranauna</i>	-	SSC	-	L
Little blue heron	<i>Egretta caerulea</i>	-	SSC	-	P
Snowy egret	<i>Egretta thula</i>	-	SSC	-	M
Tricolored heron	<i>Egretta tricolor</i>	-	SSC	-	M
White ibis	<i>Eudocimus albus</i>	-	SSC	-	M
Peregrine falcon	<i>Falco peregrinus</i>	-	E	SP	L
Southeastern American kestrel	<i>Falco sparverius paulus</i>	-	T	-	M
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	T	SP	L
Osprey	<i>Pandion haliaetus</i>	-	-	SP	L
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	E	SP	L
Wood stork	<i>Mycteria americana</i>	E	E	SP	L
Reptiles					
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	SSC	-	P
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	SP	M
Gopher tortoise	<i>Gopherus polyphemus</i>	-	SSC	SP	P
Barbour's map turtle	<i>Graptemys barbouri</i>	-	SSC	SP	L
Southern hognose snake	<i>Heterodon simus</i>	-	-	SP	M
Alligator snapping turtle	<i>Macrolemys temminckii</i>	-	SSC	SP	L
Eastern coachwhip	<i>Masticophis flagellum flagellum</i>	-	-	SP	P
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	-	SSC	SP	M
Suwannee cooter	<i>Pseudemys concinna suwanniensis</i>	-	SSC	-	L

Table 2. Target animal species: FNP to Sinai Cemetery transmission line, August, 2002 (continued).

Common name	Scientific name	Federal status ^a	State status ^b		Probability of occurrence ^c
			Florida	Alabama	
Amphibians					
Flatwoods salamander	<i>Ambystoma cingulatum</i>	T	-	SP	L
Georgia blind salamander	<i>Haideotriton wallacei</i>	-	SSC	-	M
Pine barrens treefrog	<i>Hyla andersonii</i>	-	SSC	SP	L
Dusky gopher frog	<i>Rana capito sevosa</i>	-	SSC	SP	M

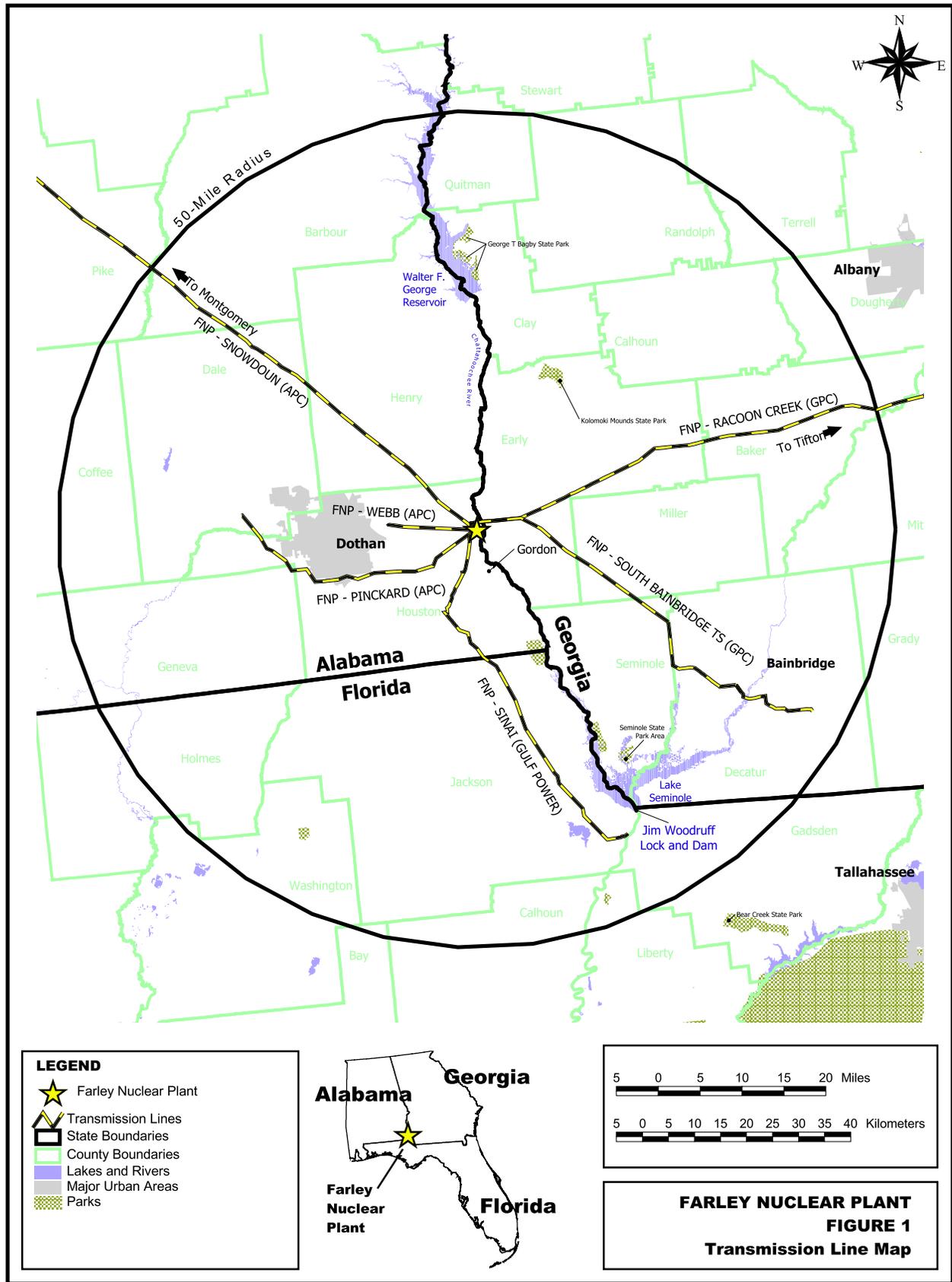
- a. E = Endangered – A species which is in danger of extinction throughout all or part of its range.
 T = Threatened – A species which is likely to become an endangered species in the foreseeable future throughout all or part of its range.
 T(S/A) = Threatened due to similarity of appearance – A species which is protected because it is very similar in appearance to a listed species.
- b. Florida
 Endangered – A species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.
 Threatened – A species, subspecies, or isolated population facing a very high risk of extinction in the future.
 SSC – A species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
 – = Not Listed
- Alabama
 SP = State-Protected – A species which is protected by the Nongame Species Regulation of the Alabama Regulations for 1999-2000 on Game, Fish, and Fur Bearing Animals.
 – = Not Listed
- c. L = Low probability
 M = Moderate to high probability
 P = Present; observed during the wildlife surveys
 See Section 4.4 of text for a discussion of the probability of occurrence of these species.

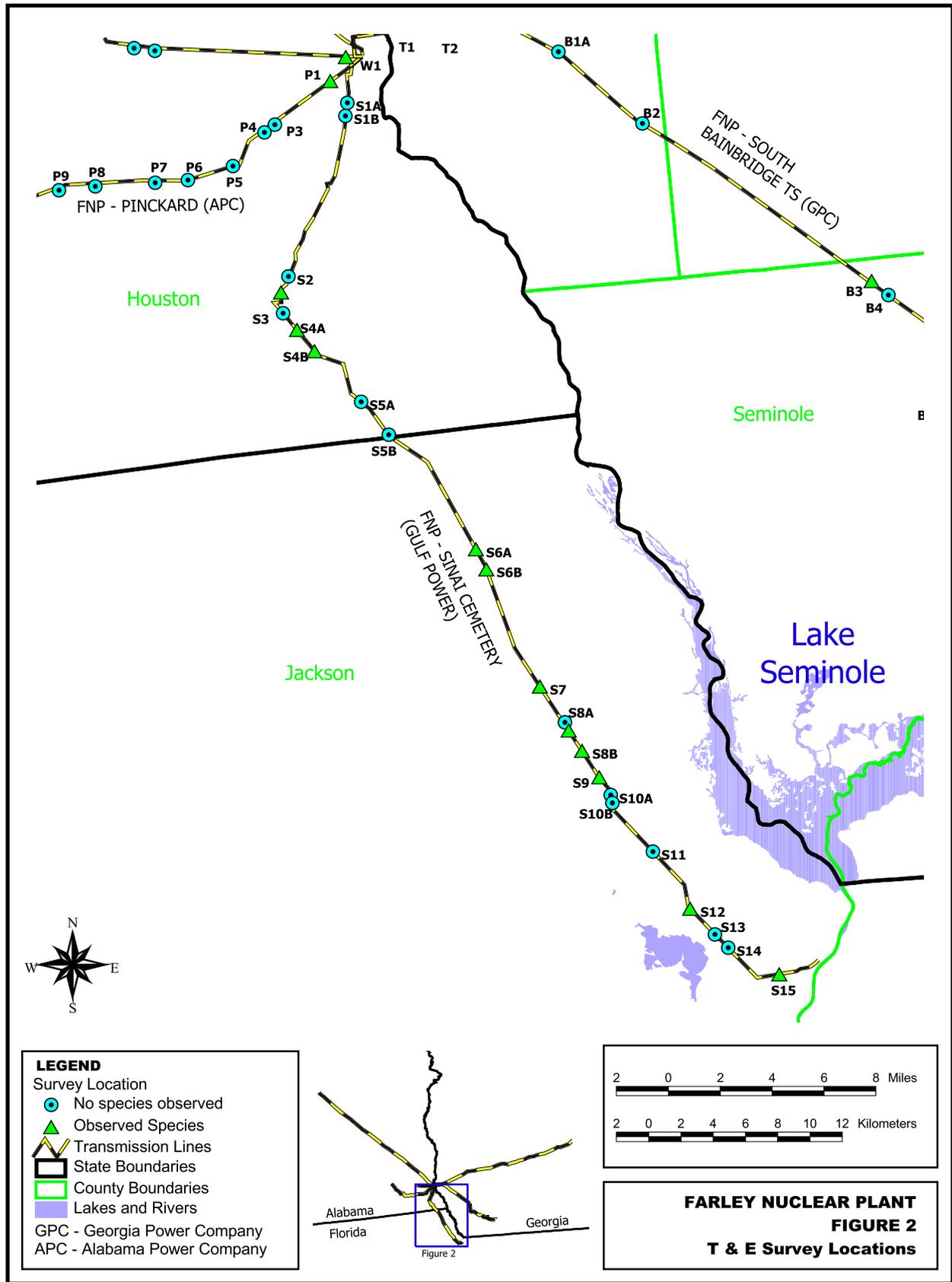
Note: There were no proposed or candidate species whose geographic ranges included the study area.

Table 3. Listed animals observed during field surveys.

Species	Federal Status	State Status		Location (Site) ^a
		Florida	Alabama	
American alligator (<i>Alligator mississippiensis</i>)	Threatened due to similarity of appearance	Species of Special Concern	None	S8B
Little blue heron (<i>Egretta caerulea</i>)	None	Species of Special Concern	None	S15
Southeastern pocket gopher (<i>Geomys pinetis</i>)	None	None	State-Protected	S6A ^b , S6B ^b , S7 ^b , S12 ^b
Eastern coachwhip (<i>Masticophis flagellum flagellum</i>)	None	None	State-Protected	S12 ^b
Gopher tortoise (<i>Gopherus polyphemus</i>)	None	Species of Special Concern	State-Protected	S2, S4A, S4B, S6A, S6B, S7, S8A, S9, S12

- a. See Figure 2 for locations relative to transmission corridor. See Appendix A for precise locations and data.
b. Species is not state-listed in Florida (location where observed) but is classified as state-protected in Alabama.





APPENDIX A
ANIMAL DATA SHEETS

12
FLORIDA NATURAL AREAS INVENTORY // // // // // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
(please fill in available information at each asterisk; leave blank if no data)
(italicizing or underscoring your information would be helpful)
(please include any additional information on the back of this sheet)

Field Investigator or Observer: *

Scientific Name: *Gopherus polyphemus*
Common Name: Gopher tortoise

County: Jackson
Date observed: * 8/13/02

Basis for Identification: * visual ID of active tortoise burrows.

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 ^{attached} minute topo map or draw detailed map on back of this page): * From Sneads, FL, travel SW on McKeown Mill Road approx. 2 miles to powerline, then walk north on powerline corridor

Describe habitat/plant community, list dominant species: *
powerline corridor.

Extent of this habitat at site that may support animal (e.g., acres, miles) * 1/2 mile along powerline

Number of individuals (or nests, burrows, etc.) seen: * 8 active burrows

Estimated no. of individuals in population: * unknown

Age/population structure (adults, young, etc.): * adults

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * unknown

Have you seen this species at the same location in the past? Yes No * N/A

If yes, please give date(s): * N/A Previous condition: * N/A

Is there evidence of disturbance at the site? (Yes) * No *

If yes, please describe: * Mowing by Gulf Power.

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * Periodic mowing by Gulf Power should be sufficient.

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * 2 active burrows near Railroad at N 30° 41.875' W 84° 57.496'

6 active burrows between powerline towers #31 + 33, between these two positions:
N 30° 42.136' W 84° 57.715'
N 30° 42.286' W 84° 57.860'

Please send completed field report forms to:

Submitted by:

Florida Natural Areas Inventory
1018 Thomasville Rd., Ste. 200-C
Tallahassee, FL 32303

tel: 850-224-0626

fax: 850-681-9364

email: djackson@fnai.org

Name: Mike Whitten
Affiliation: Tetra Tech NUS, Inc.
Address: 900 Trail Ridge Road
Aiken, SC 29803

tel: 803-649-7963

fax: 803-642-8454

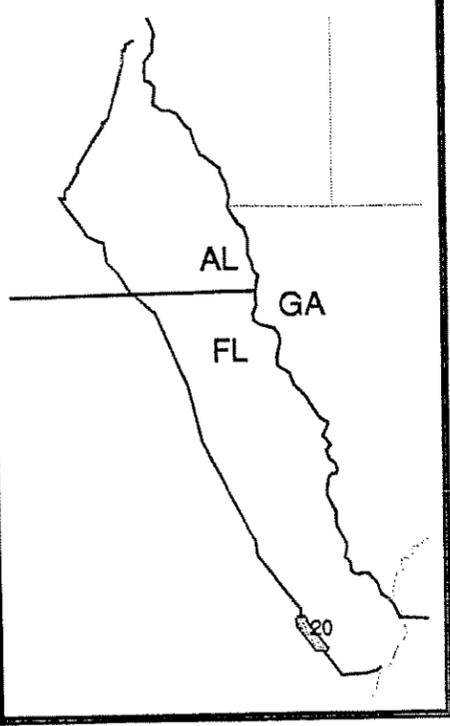
email: whittenm@ttnus.com

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

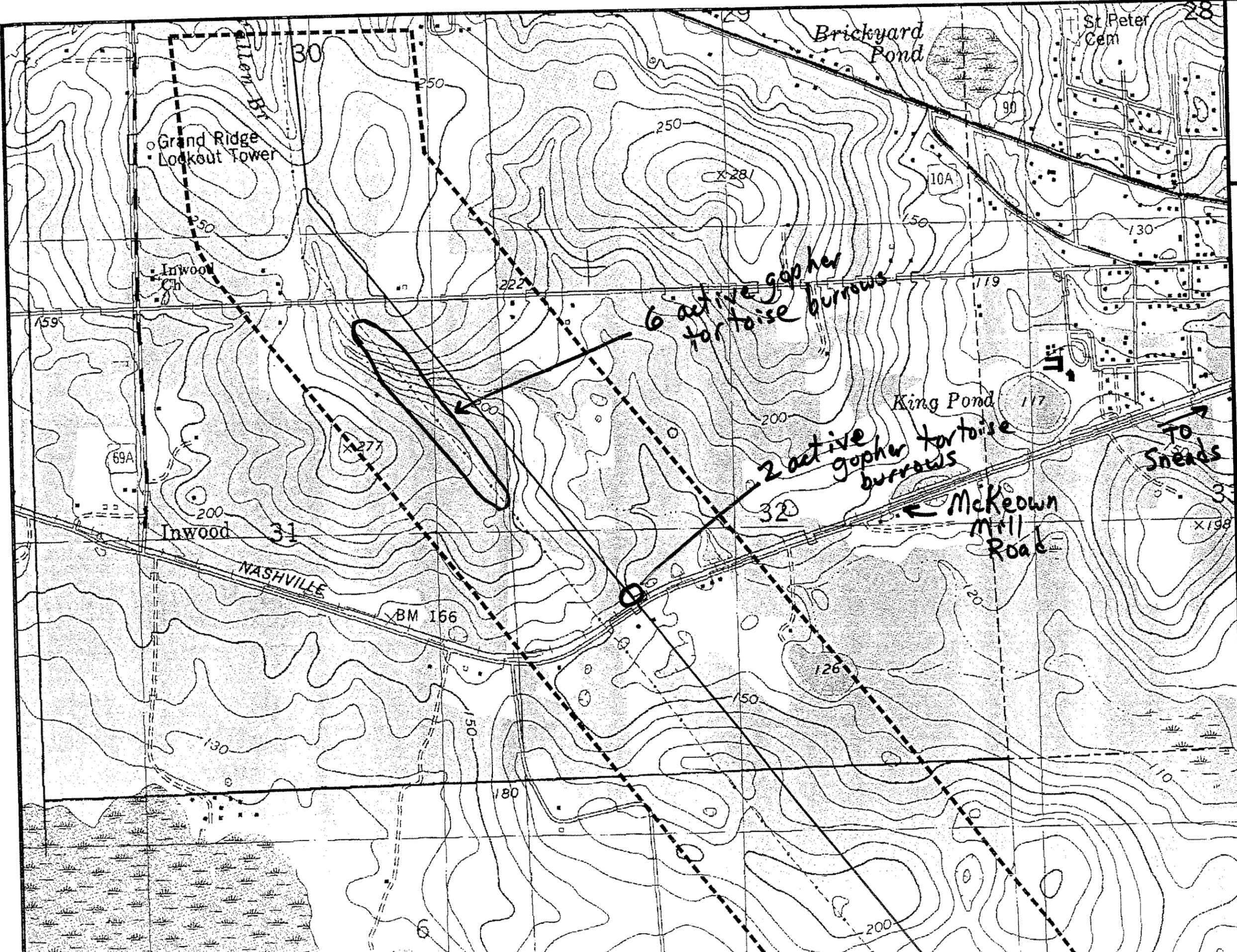
SHEET 20 OF THE
SINAI 230KV LINE



LEGEND

- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- STATE BOUNDARIES

1in = 1000ft



FLORIDA NATURAL AREAS INVENTORY // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
 (please fill in available information at each asterisk; leave blank if no data)
 (italicizing or underscoring your information would be helpful)
 (please include any additional information on the back of this sheet)

Field Investigator or Observer: * Mike Whitten ph: 803-649-7963

Scientific Name: *Gopherus polyphemus*
 Common Name: Gopher tortoise

County: Jackson
 Date observed: * 8/14/02

Basis for Identification: * Active burrows observed on powerline corridor.

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 minute topo map or draw detailed map on back of this page): * 5 miles west of Sneads, FL, take C.R. 69 North 4.5 miles to bend (see map) then right on dirt road to powerline. ^{attached}

Describe habitat/plant community, list dominant species: *
 powerline corridor

Extent of this habitat at site that may support animal (e.g., acres, miles) * approx 1/4 mile along powerline

Number of individuals (or nests, burrows, etc.) seen: * 3 active, 1 inactive, 3 abandoned burrows.

Estimated no. of individuals in population: * unknown

Age/population structure (adults, young, etc.): * adult + juvenile burrows.

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * unknown

Have you seen this species at the same location in the past? Yes No * N/A

If yes, please give date(s): * N/A Previous condition: * N/A

Is there evidence of disturbance at the site? Yes No *

If yes, please describe: * Mowing by Gulf Power

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * Periodic mowing by Gulf Power should be sufficient

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * Burrows between powerline towers

81 + 83. North burrow at
 N 30° 47.534', W 85° 01.104'
 South burrow at N 30° 47.348'
 W 85° 01.019'

Please send completed field report forms to:

Submitted by:

Florida Natural Areas Inventory
 1018 Thomasville Rd., Ste. 200-C
 Tallahassee, FL 32303
 tel: 850-224-0626
 fax: 850-681-9364
 email: djackson@fnai.org

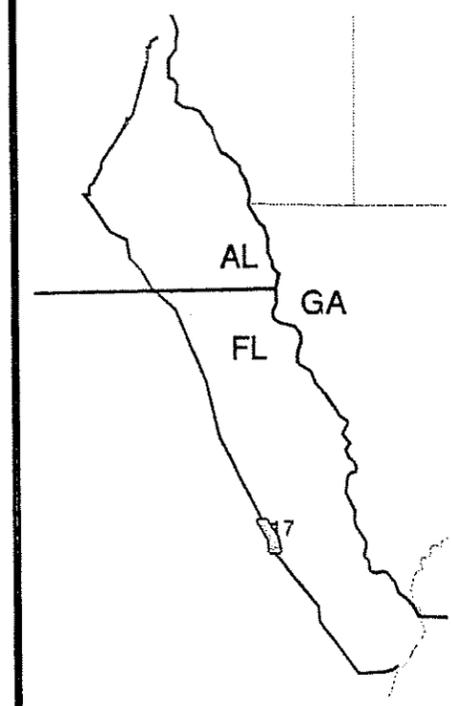
Name: Mike Whitten
 Affiliation: Tetra Tech NUS, Inc.
 Address: 900 Trail Ridge Road
 Aiken, SC 29803
 tel: 803-649-7963
 fax: 803-642-8454
 email: whittenm@ttnus.com

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

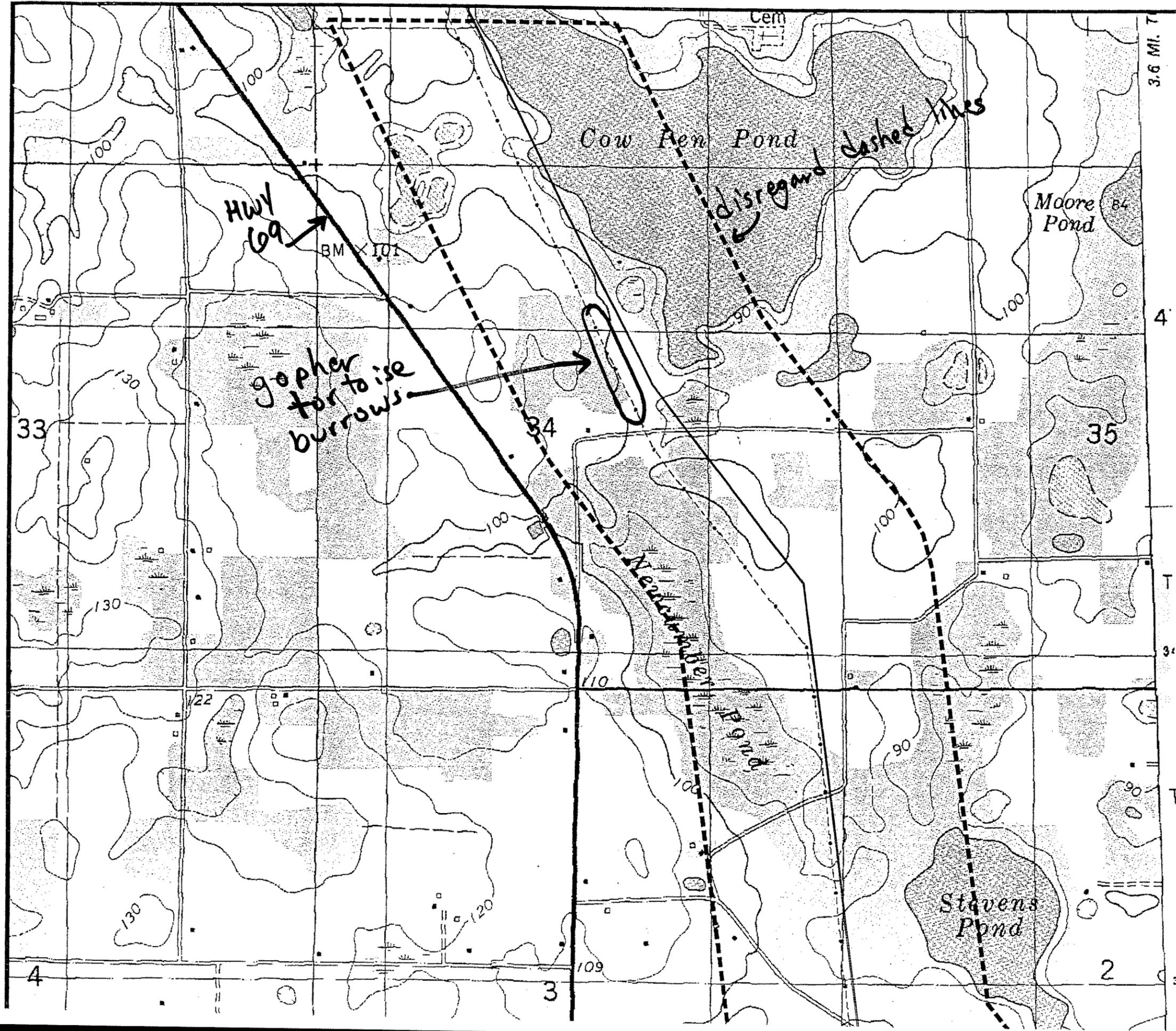
SHEET 17 OF THE
SINAI 230KV LINE



LEGEND

- TRANSMISSION LINE
- ▬ INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1in = 1000ft



FLORIDA NATURAL AREAS INVENTORY // // // // // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
 (please fill in available information at each asterisk; leave blank if no data)
 (italicizing or underscoring your information would be helpful)
 (please include any additional information on the back of this sheet)

Field Investigator or Observer: *

Scientific Name: * *Alligator mississippiensis* County: * Jackson
 Common Name: * alligator Date observed: * 8/14/02

Basis for Identification: * Den, "gator hole", and fresh tracks in mud at den.

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 minute topo map or draw detailed map on back of this page): * From Dellwood, go approx. 1 mile east ^{attached} on Bateau Pond Road, turn south on Head Pond Road, then for 1 mile to intersection, then east to powerline, then north on powerline

Describe habitat/plant community, list dominant species: * powerline corridor

Extent of this habitat at site that may support animal (e.g., acres, miles) *

Due to drought conditions, wetlands in vicinity are dry and standing water was limited to a small ponded area on 8/14/02.

Number of individuals (or nests, burrows, etc.) seen: * 1 den

Estimated no. of individuals in population: * 1

Age/population structure (adults, young, etc.): * adult tracks

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * unknown

Have you seen this species at the same location in the past? Yes * No * N/A

If yes, please give date(s): * N/A Previous condition: * N/A

Is there evidence of disturbance at the site? Yes * No *

If yes, please describe: * Mowing of corridor by Gulf Power.

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * unknown

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * Den is in "gator hole" in the middle of powerline corridor between towers # 88 & 89 at N 30° 48. 406' W 85° 01. 598'

Please send completed field report forms to:

Submitted by:

Florida Natural Areas Inventory
 1018 Thomasville Rd., Ste. 200-C
 Tallahassee, FL 32303
 tel: 850-224-0626
 fax: 850-681-9364
 email: djackson@fnai.org

Name: Mike Whitten
 Affiliation: Tetra Tech NUS, Inc.
 Address: 900 Trail Ridge Road
 Aiken, SC 29803
 tel: 803-649-7963
 fax: 803-642-8454
 email: whittenm@ttnus.com

FLORIDA NATURAL AREAS INVENTORY // // // // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
 (please fill in available information at each asterisk; leave blank if no data)
 (italicizing or underscoring your information would be helpful)
 (please include any additional information on the back of this sheet)

Field Investigator or Observer: * Mike Whitten

Scientific Name: *Gopherus polyphemus*
 Common Name: Gopher tortoise

County: Jackson
 Date observed: * 8/14/02

Basis for Identification: * observed active burrow within powerline corridor.

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 minute topo map or draw detailed map on back of this page): * From Dellwood, FL (11 miles NE of Marianna), go east on Bateau Road approx 1.2 miles to powerline, north of road at ^{attached}

Describe habitat/plant community, list dominant species: * powerline corridor
 N 30° 48.406'
 W 85° 01.598'

Extent of this habitat at site that may support animal (e.g., acres, miles) * 1/4 mile along powerline

Number of individuals (or nests, burrows, etc.) seen: * one burrow

Estimated no. of individuals in population: * unknown

Age/population structure (adults, young, etc.): * adult

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * unknown

Have you seen this species at the same location in the past? Yes No * N/A

If yes, please give date(s): * N/A Previous condition: * N/A

Is there evidence of disturbance at the site? Yes * No *

If yes, please describe: * Mowing by Gulf Power

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * Periodic mowing of corridor by Gulf Power should be sufficient

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * burrow at 15 ft SE of gate, (= 40 yds SE of tower # 94)

Please send completed field report forms to:

Submitted by:

Florida Natural Areas Inventory
 1018 Thomasville Rd., Ste. 200-C
 Tallahassee, FL 32303
 tel: 850-224-0626
 fax: 850-681-9364
 email: djackson@fnai.org

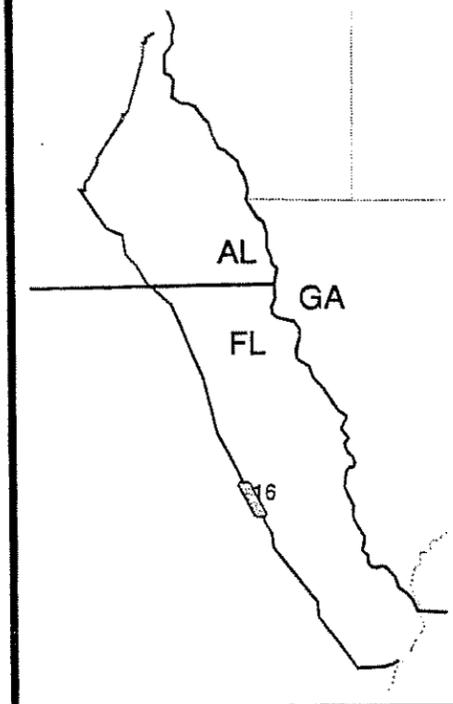
Name: Mike Whitten
 Affiliation: Tetra Tech NUS, Inc.
 Address: 900 Trail Ridge Road
 Aiken, SC 29803
 tel: 803-649-7963
 fax: 803-642-8454
 email: whittenm@ttnus.com

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

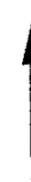
SHEET 16 OF THE
SINAL 230KV LINE



LEGEND

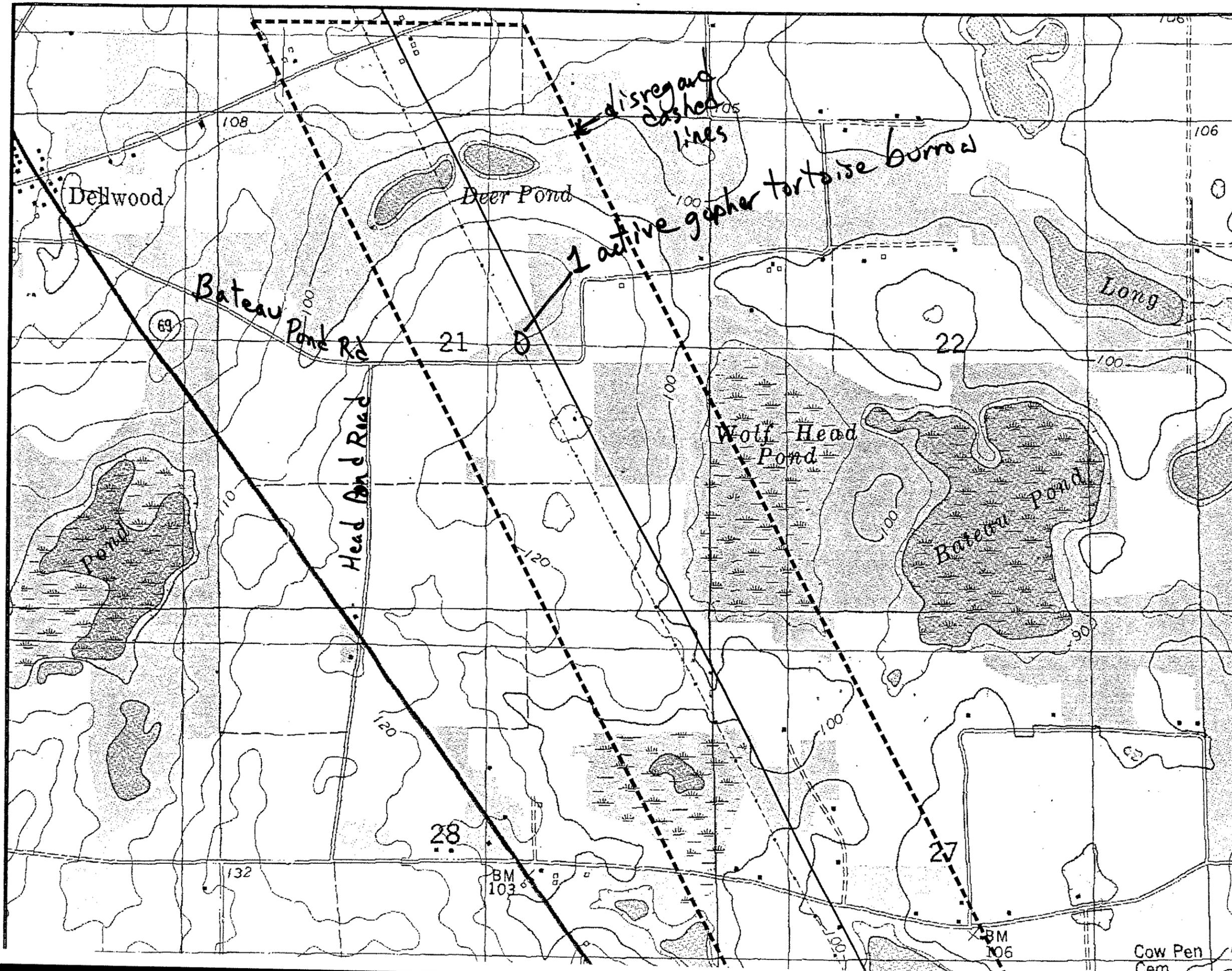
- TRANSMISSION LINE
- ▬ INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1 in = 1000ft



TETRA TECH NUS, INC.

PLS. OVERPRINT/STAMP/DATE/SCALE
BY DATE 2002
AUTHOR: DRUCKER/GENCO



FLORIDA NATURAL AREAS INVENTORY // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
 (please fill in available information at each asterisk; leave blank if no data)
 (italicizing or underscoring your information would be helpful)
 (please include any additional information on the back of this sheet)

Field Investigator or Observer: * Mike Whitten ^{Ph:} 803-649-7963

Scientific Name: *Gopherus polyphemus*
 Common Name: Gopher tortoise

County: Jackson
 Date observed: * 8/14/02

Basis for Identification: * Visual observation of active burrows on transmission line corridor.

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 minute topo map or draw detailed map on back of this page): * Travel 7 miles from Marianna on S.R. 71, then turn right on C.R. 69 approx 4 1/2 miles to Two Egg. Then take Green Road or Grimsley Road to power line corridor. ^{attached}

Describe habitat/plant community, list dominant species: * Transmission line corridor

Extent of this habitat at site that may support animal (e.g., acres, miles) * 7 active burrows along 1.3-mile portion of powerline corridor.

Number of individuals (or nests, burrows, etc.) seen: * 7 active burrows

Estimated no. of individuals in population: * unknown

Age/population structure (adults, young, etc.): * burrow sizes indicate adult tortoises.

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * unknown

Have you seen this species at the same location in the past? Yes No * N/A

If yes, please give date(s): * N/A Previous condition: *

Is there evidence of disturbance at the site? Yes * No *

If yes, please describe: * Mowing by Gulf Power

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * Periodic mowing of powerline corridor should be sufficient.

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * 1 active burrow between powerline towers #103+10
 3 active burrows: 10-70 yds SE of tower # 113
 3 active burrows between towers # 106 + 112.

Please send completed field report forms to:

Submitted by:

Florida Natural Areas Inventory
 1018 Thomasville Rd., Ste. 200-C
 Tallahassee, FL 32303
 tel: 850-224-0626
 fax: 850-681-9364
 email: djackson@fnai.org

Name: Mike Whitten
 Affiliation: Tetra Tech NUS, Inc.
 Address: 900 Trail Ridge Road
 Aiken, SC 29803
 tel: 803-649-7963
 fax: 803-642-8454
 email: whittenm@ttnus.com

FLORIDA NATURAL AREAS INVENTORY // FIELD REPORT FORM - OCCURRENCES OF SPECIAL ANIMALS

Instructions: (note: each form should include only one species, one locality, and one date)
(please fill in available information at each asterisk; leave blank if no data)
(italicizing or underscoring your information would be helpful)
(please include any additional information on the back of this sheet)

Field Investigator or Observer: * Mike Whitten ph 803-649-7963

Scientific Name: Gopherus polyphemus
Common Name: Gopher tortoise

County: Jackson
Date observed: * 8/12/02

Basis for Identification: * visual observation of active burrows within transmission line corridor

Location of Animal (please attach map and give specific directions; if possible, mark site on copy of USGS 7.5 minute topo map or draw detailed map on back of this page): * topo map attached; directions: Travel 5.5 miles west on S.R. 2 from GA/FL state line to power line crossing, then approx 3.5 miles SSW on power line corridor

Describe habitat/plant community, list dominant species: * transmission line corridor

Extent of this habitat at site that may support animal (e.g., acres, miles) * scattered burrows along 1-mile of transmission corridor

Number of individuals (or nests, burrows, etc.) seen: * 7 active burrows

Estimated no. of individuals in population: * unknown

Age/population structure (adults, young, etc.): * unknown

Ecological/behavioral notes (e.g., reproductive stage, activity type, feeding, flying, nesting): * burrow sizes indicate adult tortoises

Have you seen this species at the same location in the past? Yes No * N/A

If yes, please give date(s): * N/A Previous condition: *

Is there evidence of disturbance at the site? Yes * No *

If yes, please describe: * Mowing every 3 years by Gulf Power

Owner(s) of site: * unknown

Is owner protecting this animal? Yes * No * unknown

Conservation/Management Needs: * Periodic mowing of transmission line corridor should be sufficient.

Comments (other useful information concerning this animal and site - e.g., names and addresses of individuals who might be helpful, publications, museum specimen numbers, etc.): * 1 burrow 150 ft SE of tower # 145
1 burrow midway between tower # 147 & 148.
1 burrow 80 yards NW of tower # 141

Please send completed field report forms to: Submitted by: 4 burrows between towers # 141-144.

Florida Natural Areas Inventory
1018 Thomasville Rd., Ste. 200-C
Tallahassee, FL 32303
tel: 850-224-0626
fax: 850-681-9364
email: djackson@fnai.org

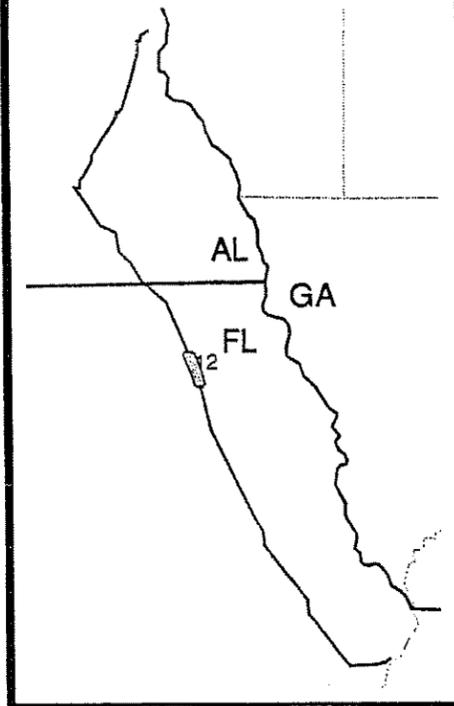
Name: Mike Whitten
Affiliation: Tetra Tech NUS, Inc.
Address: 900 Trail Ridge Road
Aiken, SC 29803
tel: 803-649-7963
fax: 803-642-8454
email: whittenm@ttnus.com

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

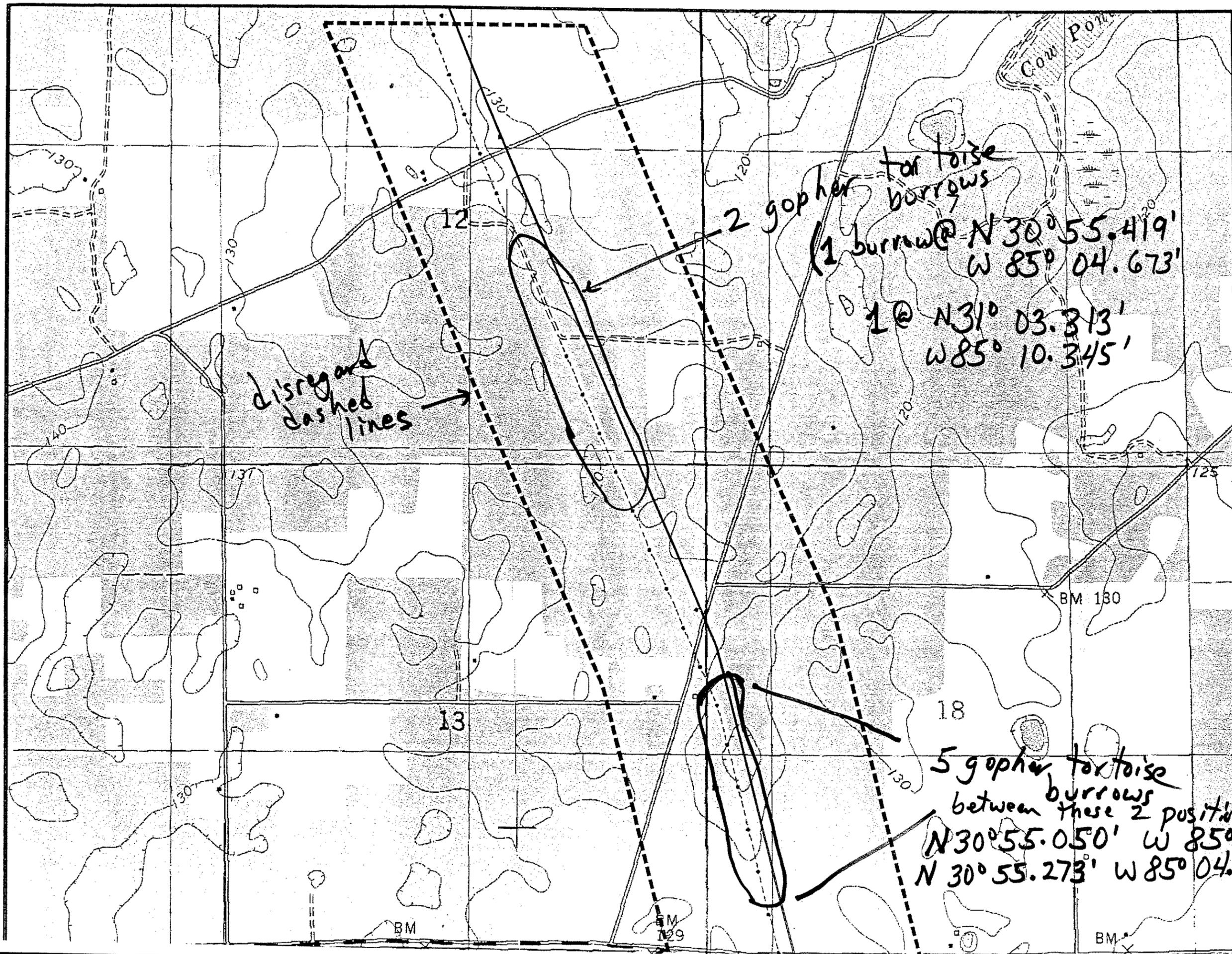
SHEET 12 OF THE
SINAI 230KV LINE



LEGEND

- TRANSMISSION LINE
- INDEX POLYGON
- - - COUNTY BOUNDARIES
- STATE BOUNDARIES

1 in = 1000ft



52

Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise
(Gopherus polyphemus) Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten Date: 8/12/02 Time: 0945

County: Houston USGS Quad(s): _____
Ph 803-649-7463

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: 31°05.513' N

GPS Longitude: 85°11.044' W

Directions: US Hwy 84 approx. 12 miles east of Dethan; turn south on
C.R. 75, after approx 4-5 miles turn west on CR 8 to
powerline crossing (1/4 mile). - walk north from road to Transmission
Tower # 51.

NEAR TOWER # 51

Number observed: 1 active burrow Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: BURROW

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: Burrow is at edge of soybean field
and pasture, along barbed wire fence

Approximate area of habitat: _____ Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? Unknown Protecting it? _____

Can this site sustain the species for more than a few years? probably

Evidence of disturbance: Agriculture (soybean + pasture)

Threats: Agricultural operations

Conservation and management needs: _____

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? ___Yes No If yes, how often? _____

Flag as sensitive in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes ___ No ___ If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
___ A = Excellent ___ B = Good C = Marginal ___ D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
___ A = Excellent ___ B = Good ___ C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
___ A = Excellent ___ B = Good C = Marginal ___ D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
___ A = Excellent ___ B = Good ___ C = Marginal D = Poor

EO Rank: Summarize factors listed above: ___ A = Excellent ___ B = Good C = Marginal ___ D = Poor

Documentation

Identification positive? ___Yes ___No

Specimens taken? ___Yes ___No Where deposited? _____ Collection No(s). _____

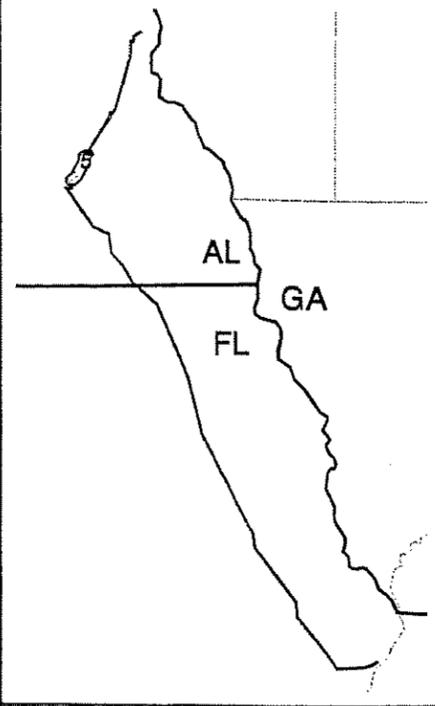
Slides taken? ___Yes ___No List and describe: _____

FARLEY NUCLEAR POWER STATION

QUAD INDEX OF TRANSMISSION LINES

MAP EXTENT

SHEET 5 OF THE
SINAI 230KV LINE



LEGEND

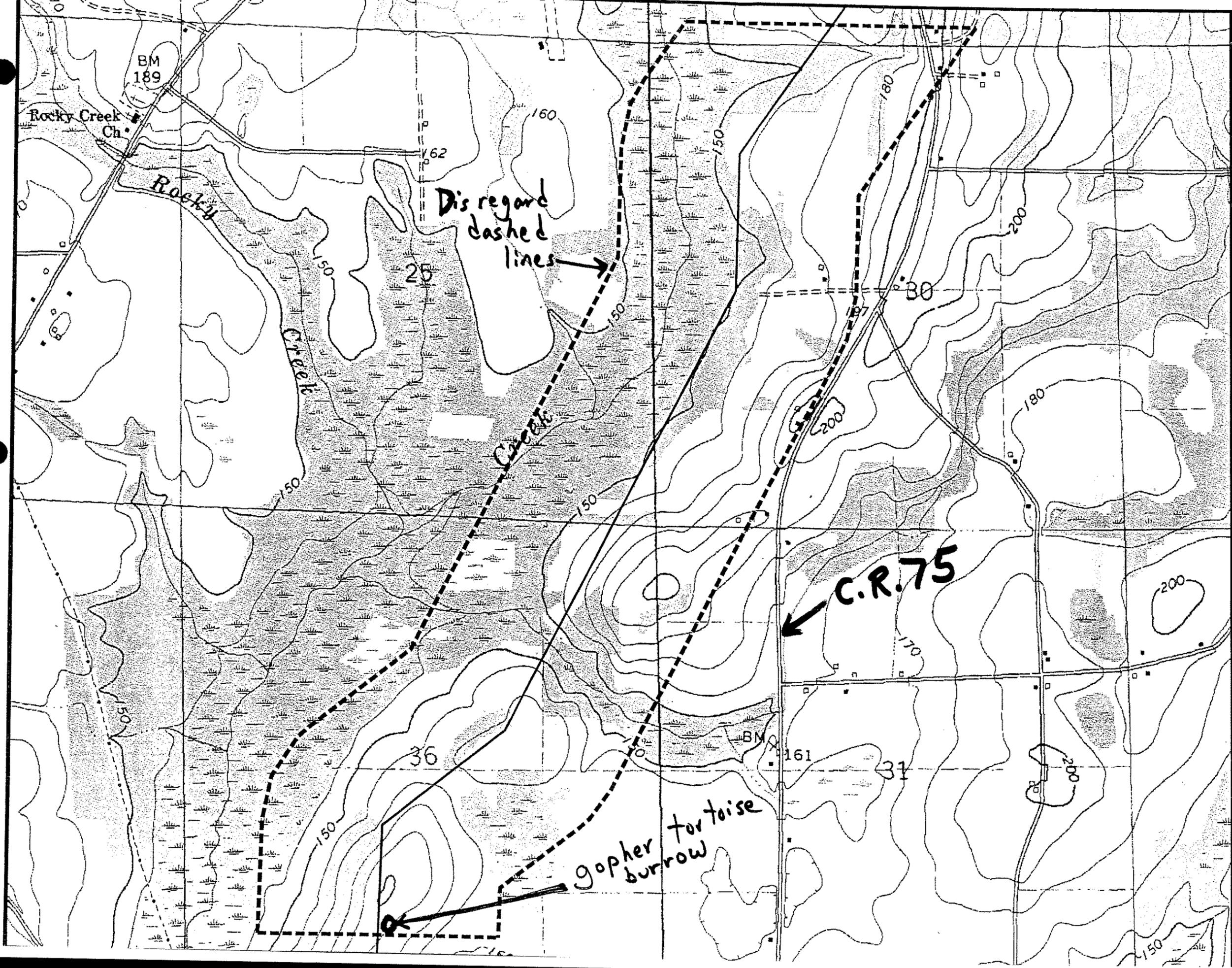
- TRANSMISSION LINE
- ▬ INDEX POLYGON
- COUNTY BOUNDARIES
- STATE BOUNDARIES

1in = 1000ft



TETRA TECH NUS, INC.

FILE DESCRIPTION: SINAI/IN/INDEX/INDEX.MXD
18 MAY 2005
AUTHOR: DUCKWORTH



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten ^{ph: 803-649-7963} Date: 8/12/02 Time: 1045

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: _____ N
GPS Longitude: _____ W

Directions: US Hwy 84 approx. 12 miles east of Dothan, turn south on C.R. 75 to powerline crossing at approx 7 miles. Then walk SE from road down powerline to vicinity of transmission tower # 37. near tower # 37

Number observed: 3 active burrows: size indicates 2 juveniles, 1 adult. Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: Burrows observed

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: planted pines and pine/hardwoods beyond transmission corridor. within corridor = wildlife food plot.

Approximate area of habitat: 40 yards along transmission corridor. Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? unknown Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: transmission line right-of-way (corridor).

Threats: unknown

Conservation and management needs: _____

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

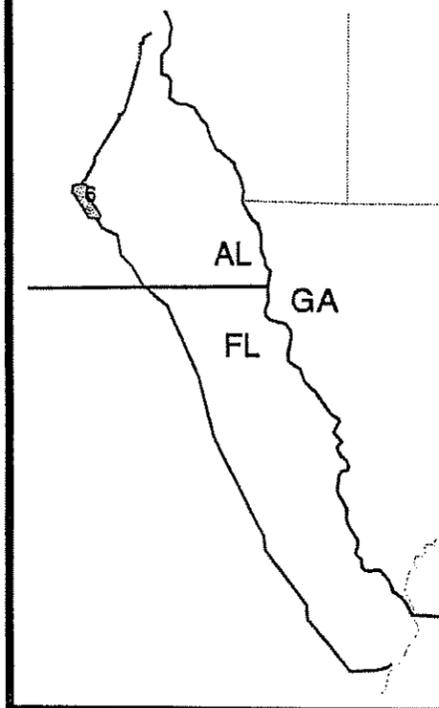
Habitat beyond transmission corridor
is generally too thickly overgrown
for gopher tortoises. Thus, tortoise
habitat is limited to corridor.

FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

MAP EXTENT

SHEET 6 OF THE
SINAI 230KV LINE



LEGEND

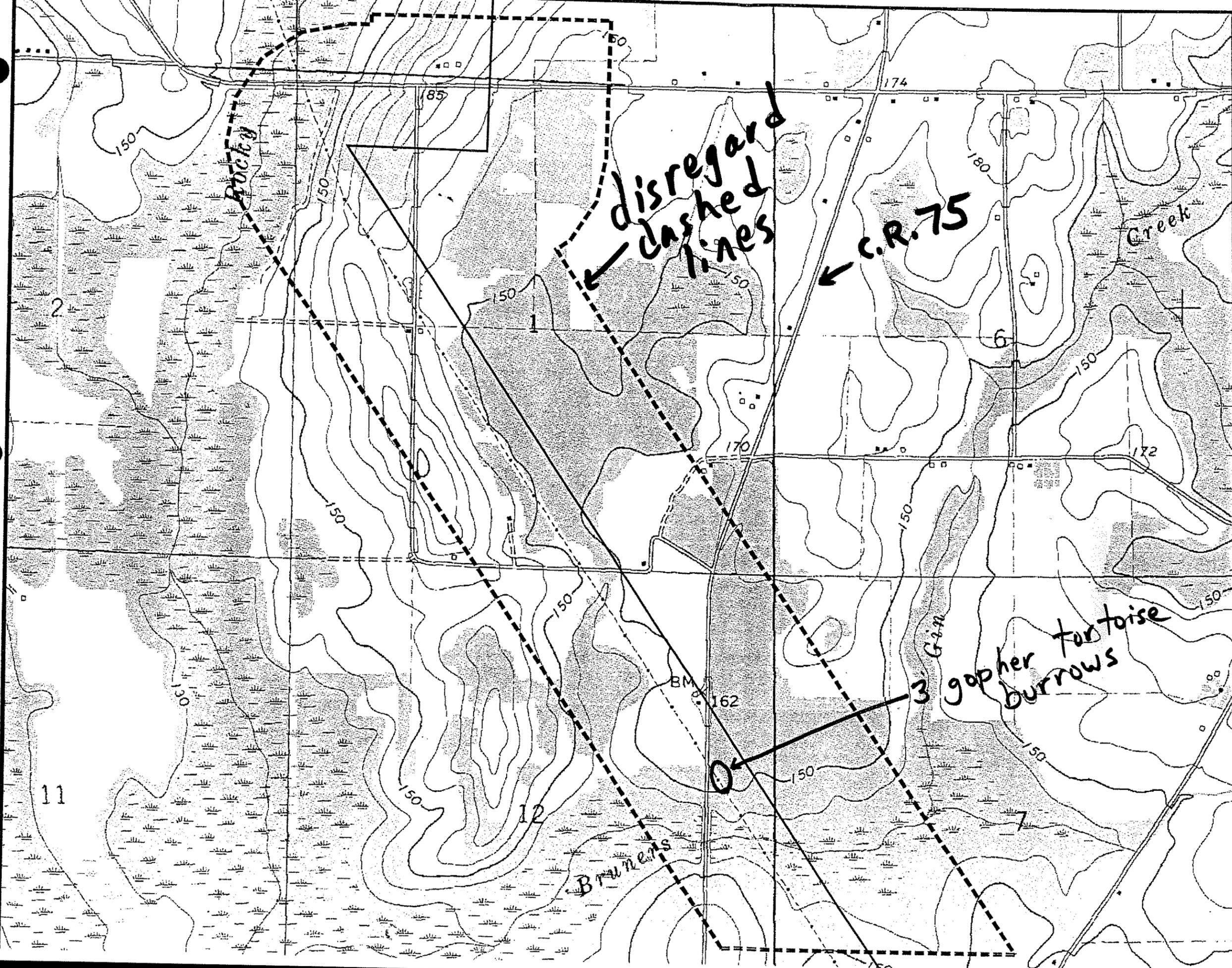
- TRANSMISSION LINE
- - - INDEX POLYGON
- - - COUNTY BOUNDARIES
- STATE BOUNDARIES

1in = 1000ft



TETRA TECH NUS, INC.

P.L. GREEN/TRANSMISSIONS
MAY 2001
AUTHOR/PLANNING



Terrestrial Animal Field Survey Form

Return to Alabama Natural Heritage Program, 1500 East Fairview Ave., Montgomery, AL 36106

Species: gopher tortoise
(Gopherus polyphemus) Office use: Element Code: _____ EO Num: _____

Surveyor(s) Mike Whitten ph 803-649-7963 Date: 8/12/02 Time: 1120

County: Houston USGS Quad(s): _____

Township _____ Range _____ Section _____ 1/4 Sec: _____ GPS Latitude: see next N
GPS Longitude: page W

Directions: US Hwy 84 approx. 16 miles to C.R. 81, turn south
on C.R. 81 for approx 0.6-1/2 miles to powerline crossing,
then follow powerline SE of CR 81 to towers #30 + #31.

BURROWS BETWEEN TOWER # 30 + # 31

Number observed: 14 active burrows Number estimated: _____ Basis for estimate: _____

Nature of observation: Sight record Tracks Vocalization
 Road Kill Collected Specimen Other: burrows

Is this a repeat visit? Yes No Is a repeat visit needed? Yes No

If a repeat visit, estimate population trend from last visit: more same fewer can't tell

General habitat description: MIXED HARDWOOD/PINE BEYOND CORRIDOR
GRASSES + BLACKBERRY THICKETS WITHIN CORRIDOR

Approximate area of habitat: 400 yards along corridor Proportion of habitat apparently occupied: _____

Is owner aware of this occurrence? unknown Protecting it? _____

Can this site sustain the species for more than a few years? yes

Evidence of disturbance: Mowing by Ala. Power Co. every 3 years

Threats: unknown

Conservation and management needs: Periodic mowing by Ala. Power Co. should
be sufficient.

Terrestrial Animal Survey Page 2

Should this site be monitored for this species on a regular basis? Yes No If yes, how often? _____

Flag as *sensitive* in the database (at risk if known to collectors, or if landowner/data provider requests confidentiality)?
Yes No If yes, explain: _____

Element Occurrence (EO) Rank Determination

EO Quality: How representative is the occurrence? Consider population size, age structure, health of individuals, etc.
 A = Excellent B = Good C = Marginal D = Poor

Condition: Habitat quality. Consider whether pristine or degraded, and potential for habitat recovery.
 A = Excellent B = Good C = Marginal D = Poor

Viability: What are long-term prospects for continued existence of this occurrence at the above level of quality?
 A = Excellent B = Good C = Marginal D = Poor

Defensibility: How well can this occurrence be protected from extrinsic factors?
 A = Excellent B = Good C = Marginal D = Poor

EO Rank: Summarize factors listed above: A = Excellent B = Good C = Marginal D = Poor

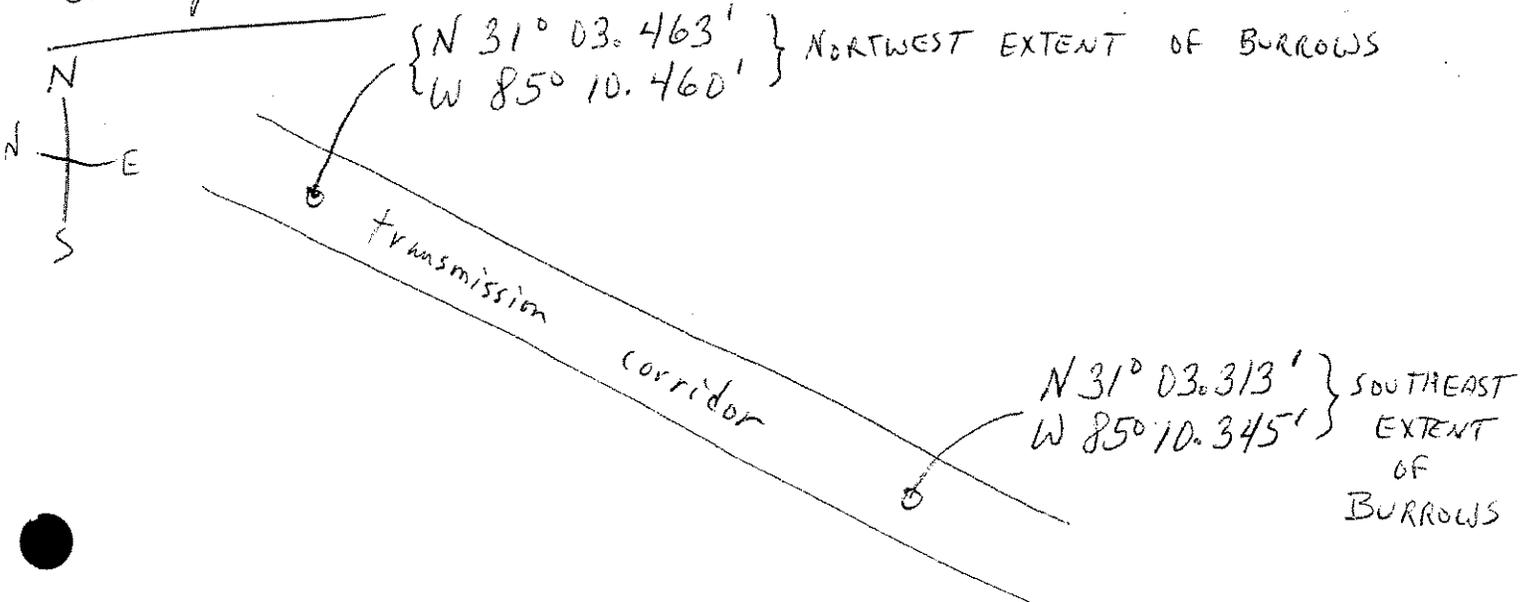
Documentation

Identification positive? Yes No

Specimens taken? Yes No Where deposited? _____ Collection No(s). _____

Slides taken? Yes No List and describe: _____

GPS positions:

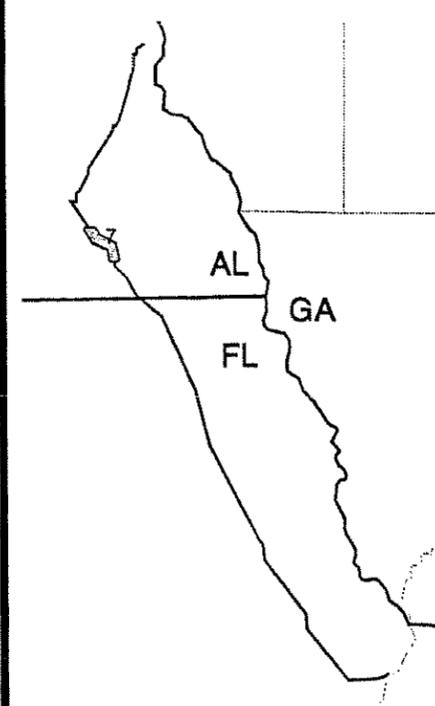


FARLEY NUCLEAR
POWER STATION

QUAD INDEX
OF TRANSMISSION LINES

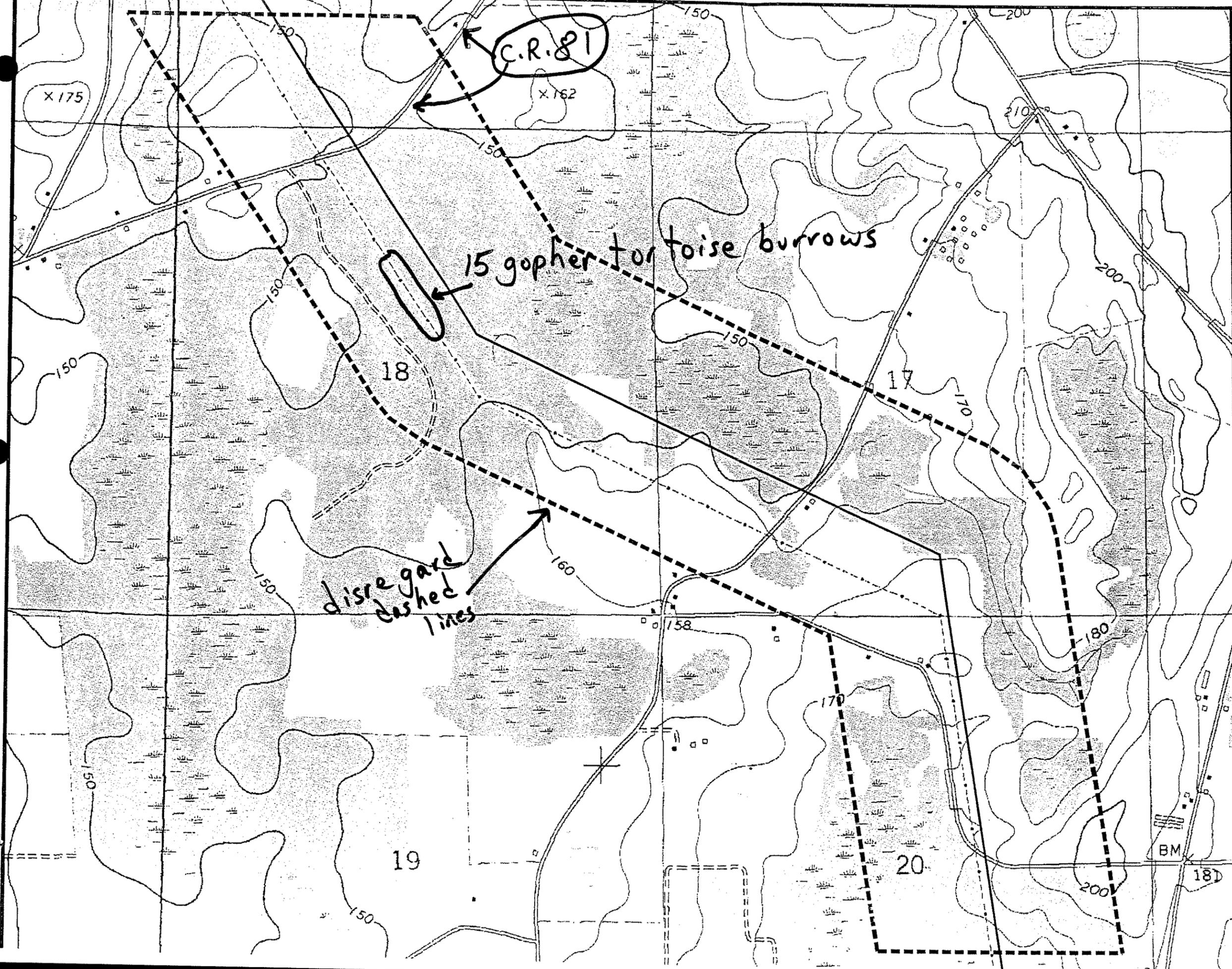
MAP EXTENT

SHEET 7 OF THE
SINAI 230KV LINE



- LEGEND
- TRANSMISSION LINE
 - - - INDEX POLYGON
 - - - COUNTY BOUNDARIES
 - STATE BOUNDARIES

1in = 1000ft
N



APPENDIX B

PHOTOGRAPHS OF SELECTED SURVEY LOCATIONS



Jackson Creek, Site S1A



Hairy Blue Clustervine, Site S1A



Pocket Gopher Mound, Site 6A



Cropland, Site S8A



Alligator Den, Site S8B



Meadow Beauty, Site S10A



Elliott's Croton, Site S10B



Active Gopher Tortoise Burrow, Site S12



Armadillo Burrow, Site S13



Cypress Vine, South of S14



Marsh, Site S15



Copperhead, Near Sinai Cemetery Substation



Thunderstorm in Vicinity