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FARLEY NUCLEAR PLANT
ENVIRONMENTAL PROCEDURE
FNP-0-ENV-23

LAND AND WILDLIFE MANAGEMENT PROGRAM

PROCEDURE USAGE REQUIREMENTS PER FNP-0-AP-6	SECTIONS
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Approved:

ROBERT A. LIVINGSTON
Chemistry Superintendent

Date Issued 02/11/04

LAND AND WILDLIFE MANAGEMENT PROGRAM

1.0 Purpose

To provide guidance for activities conducted to implement the Joseph M. Farley Nuclear Plant Land Management Plan.

2.0 References

- 2.1 Environmental Protection Plan, Appendix B of FNP Technical Specifications Units 1 and 2
- 2.2 NT-87-0486, Letter from K. W. McCracken to W. L. Bowers, November 16, 1987; Subject: Land Management Program
- 2.3 Letter from K. W. McCracken to D. N. Morey, November 9, 1988; Subject: Land Management Program
- 2.4 FNP-88-0968, Letter from D. N. Morey to K. W. McCracken, December 20, 1988; Subject: Land Management Program
- 2.5 ENV-89-214, Letter from K. W. McCracken to B. D. McKinney, Jr., October 4, 1989; Subject: Land Management Plan-Planting of Winter Food Plots
- 2.6 ENV-90-039, Letter from K. W. McCracken to J. E. Garlington, February 12, 1990; Subject: FNP Land Management Plan
- 2.7 Joseph M. Farley Nuclear Plant Land Management Plan
- 2.8 Guidelines for Performing Powerline Construction and Maintenance in areas of Gopher Tortoise Habitat, Alabama Power Co.

3.0 General

- 3.1 The Farley Nuclear Plant Site has been certified by the Wildlife Habitat Enhancement Council (WHEC) as a Corporate Wildlife Habitat under two categories:
 - 3.1.1 Restoration and Creation of Wildlife Habitat: Reforestation
 - 3.1.2 Maintenance, Protection and Enhancement of Existing Wildlife Habitats: Wildlife Food, Cover and Nesting Cavity Management and Wetlands Management Programs
- 3.2 The land and wildlife management program requires management support, employee involvement and close cooperation and coordination between the

Visitors' Center, Environmental Group, and Facilities Group to be visible and successful.

- 3.3 Technical assistance may be obtained from Alabama Power Company Environmental Field Services and from Environmental Services, as needed.
- 3.4 Nest box monitoring is essential to determine the number of boxes being used, the types of birds using them, and to identify and correct problems such as predation, parasites or undesirable bird species. With management approval, non-FNP organizations such as the Wiregrass Audobon Club may perform nest box monitoring. Such organizations use data sheets and procedural guidance provided by the FNP Environmental group. A copy of the results of their monitoring activities will be retained by the FNP Environmental group to track the progress of this portion of the Land and Wildlife Management Program. A site coordinator appointed by the Chemistry and Environmental Superintendent will act as point of contact and ensure that non-FNP personnel are briefed on safety, emergency procedures, and security concerns, that permits to drive privately owned vehicles on the plant site are obtained and that camera passes, if needed, are obtained (See Attachment 2 for a listing of items which must be covered.).
- 3.5 The Wildlife Program depends on assistance from volunteer employees as well as occasional offsite personnel. Instructions for wildlife management program and monitoring are provided based upon periodic review and consideration of implementation of recommendations from an individual with expertise in the area of land and wildlife management. The instructions of this procedures will be updated as this is done.

4.0 Procedure

NOTE: Planting of food plots and placement of mineral blocks may be discontinued during times of overpopulation (As of the date of this procedure, an overpopulation situation is deemed to exist.).

4.1 Wildlife Management

- 4.1.1 Coordinate placement of salt and mineral blocks in selected wooded areas semi-annually at the approximate locations shown on an uncontrolled map maintained by the Environmental Group unless an overpopulation condition exists.
- 4.1.2 Coordinate planting of winter food crops between the approximate dates of September 15 and October 15 as weather permits at the approximate locations shown on an uncontrolled map maintained by the Environmental Group unless an overpopulation condition exists.
 - 4.1.2.1 Obtain soil samples prior to planting a new plot to determine what seed and fertilizer to use for yielding the best growth.

NOTE: ENV Technician will coordinate with Facilities (FAC) for the preparation of the ground for planting.

- 4.1.2.2 Prepare the ground for planting by turning the soil with a disk harrow or equivalent.
- 4.1.2.3 Spread lime (if needed) to adjust pH. (A rate of \approx 2 tons per acre may be used as the "normal" distribution rate unless another rate is deemed necessary per discussions with consultant personnel).
- 4.1.2.4 Spread fertilizer (if needed) over each plot. (A rate of \approx 700 pounds per acre may be used as the "normal" distribution rate unless another rate is deemed necessary per discussions with consultant personnel).

NOTE: The clover seeds will need to be replanted approximately every 4 - 5 years.

- 4.1.2.5 Broadcast seed mixture at the following approximate rate as needed (with consideration for the results determined in step 4.1.2.1):

Wheat	2 bushels/acre
Abruzzi rye	1/2 bushel/acre
Oats	1/2 bushel/acre
Crimson clover	10 lbs/acre
Ladino clover	10 lbs/acre
Regal clover	4 lbs/acre

- 4.1.3 Manage vegetation in open areas by mowing which creates and maintains edge effect and habitat diversity.
- 4.1.4 Post "No Hunting" signs on the north and south boundaries to prevent inadvertent trespassing by hunters, thus preserving the wildlife population.
- 4.1.5 Bow hunting by plant employees may be used to thin the deer population to prevent overgrazing and overpopulation, thus ensuring a stronger deer herd.
- 4.1.6 Gopher Tortoise Habitat Protection – See Attachment 4.

4.2 Timber Management

NOTE: The objective of any tree thinning program is to leave well-formed pine trees in addition to the residual hardwood component that are free of disease and defect and have good genetic characteristics. This will insure good seed stock for resulting natural regeneration.

- 4.2.1 Leave hardwood and pine sites in natural state unless thinning of the pine sites is determined to be necessary to enhance the overall health of the trees in the area per discussions with consultant personnel and with the approval of plant management.

NOTE 1: These plantings create more edge in this open area and provide cover and food for the wildlife when the pine canopy is closed and the oaks begin acorn production.

NOTE 2: Seedlings should be planted by March 1 if possible.

- 4.2.2 Coordinate planting of loblolly pines and sawtoothed oaks as needed with the Facilities Group for re-forestation as determined necessary per discussions with consultant personnel and with the approval of plant management.

4.2.2.1 Note the approximate location of any planting on an uncontrolled plant site map (to be maintained by the Environmental Group).

4.2.2.2 Use no fertilizer on the seedlings during the first year of growth.

4.3 Songbird Management

4.3.1 Installation of Nest Boxes

NOTE: These boxes entice birds to nest thus increasing the existing songbird population.

4.3.1.1 Ensure boxes are numbered or otherwise identifiable such that trending of box activity can be performed if deemed necessary and practical.

4.3.1.2 Place boxes in the edges of open areas with entrance facing open area.

- 4.3.1.3 Attach boxes at a height of 4 1/2 - 5 feet above the ground on fence or light posts using wire, nails or other hardware as appropriate.
- 4.3.1.4 Space boxes so that the approximate minimum distance between them is in the range of 100 yards.
- 4.3.1.5 Note the approximate location of each box on an uncontrolled copy of a map of the plant site or in a ledger indicating the approximate box location (and a listing of the global positioning system coordinates if being used).

4.3.2 Inspection and Cleaning of Nest Boxes

NOTE: The Environmental Technician should coordinate with Facilities (FAC) and/or the Wildlife Team for the cleaning of the nest boxes.

CAUTION: Exercise caution when opening nest boxes as they are often occupied by wasps.

Inventory, inspection and cleaning the nest boxes is most appropriately done during the winter months but it may be done at other times, if necessary. Record findings on a data sheet such as Attachment 3.

- 4.3.2.1 Ensure that each box is numbered or otherwise identified.
- 4.3.2.2 Confirm the location of the box on an uncontrolled map of the plant site maintained by the Environmental Group or in a ledger indicating the approximate box location (and a listing of the global positioning system coordinates if being used). The map or ledger of the nest box locations will be maintained by the Environmental Group and/or the Wildlife Team; additions to or deletions from the map or ledger may be made as necessary.
- 4.3.2.3 Inspect the box for damage.
 - a. Perform any needed repairs at the site if possible.
 - b. Return the box to the environmental lab for repairs if necessary.
 - c. Replace boxes that are removed for repair or too badly damaged to repair.
- 4.3.2.4 Clean debris and old nesting material from the boxes.

- 4.3.2.5 Use nesting material, feathers, eggs or egg shells to identify, if possible, the species that nested in the box.
- 4.3.2.6 Place the nest in a plastic bag or other suitable container, label it and take it to the environmental lab for later identification if unable to identify the species from the material in the box and if thought necessary.
- 4.3.3 Nest Box Monitoring
 - 4.3.3.1 Check nest boxes periodically (normally weekly) during the nesting season (usually starting in March).
 - 4.3.3.2 Initially make a soft noise when approaching the box to give the female a chance to fly away.

CAUTION: Exercise caution when opening nest boxes as they are often occupied by wasps.

- 4.3.3.3 Tap gently on the box before opening.
 - 4.3.3.4 Open the box slightly before opening completely.
 - 4.3.3.5 Make final egg count only after the female has begun to incubate.
 - 4.3.3.6 Remove the old nest from the box shortly after the young have left to allow the adults to use the box for another brood.
 - 4.3.3.7 Inspect and clean the nest boxes each year per section 4.3.2.
 - 4.3.3.8 Record information and observations on a data sheet and retain (Attachment 3 or a similar form may be used.).
- 4.4 Wood Duck Management
 - 4.4.1 Installation of Wood Duck Nest Boxes
 - 4.4.1.1 Ensure boxes are numbered or otherwise identifiable such that trending of box activity can be performed if deemed necessary and practical.
 - 4.4.1.2 Place wood chips (oak or any hardwood) inside boxes.
 - 4.4.1.3 Place boxes 30 to 50 yards apart.

- 4.4.1.4 Place all boxes at the bank of or near the vicinity of a pool of water.
- 4.4.1.5 Clear the area of brush six to ten feet around the location of the box.
- 4.4.1.6 Drive a ten foot length pole into the ground about 3 to 4 feet.
- 4.4.1.7 Place one or two (if practical) wood duck boxes back-to-back (preferably facing north and south) at the top of the pole and the predator shield under the box(es).
- 4.4.1.8 Note the approximate location of each box on an uncontrolled copy of a map of the plant site or in a ledger indicating the approximate box location (and a listing of the global positioning system coordinates if being used).

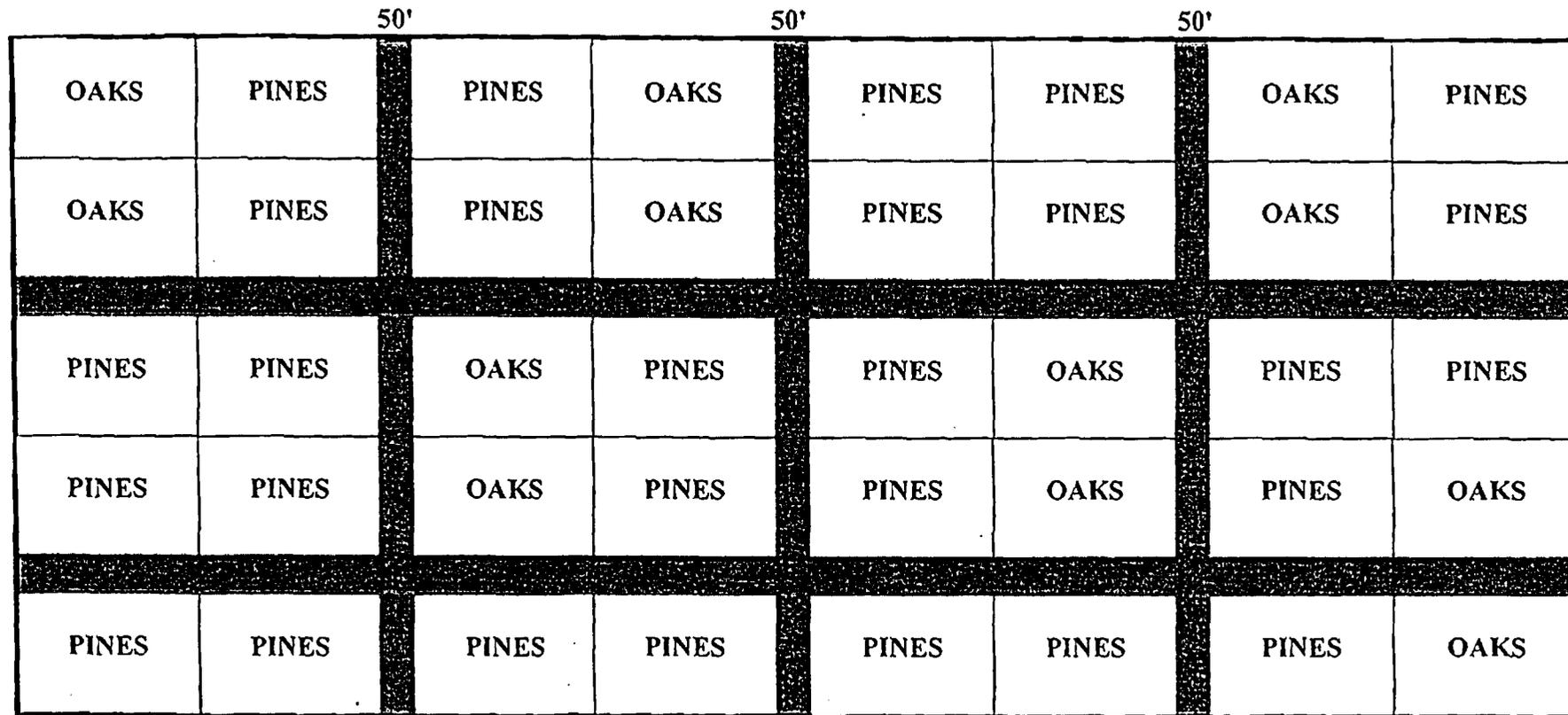
4.4.2 Maintenance of Wood Duck Nest Boxes

NOTE: The ENV Technician should coordinate with Facilities (FAC) and/or the Wildlife Team for the cleaning of the nest boxes.

CAUTION: Exercise caution when opening nest boxes as they are often occupied by wasps.

- 4.4.2.1 Nest boxes should be checked for old nest material sometime from late November through end of January of each year.
- 4.4.2.2 Remove old nest material.
- 4.4.2.3 Remove old wood chips if necessary.
- 4.4.2.4 Repair/replace or eliminate any damaged boxes.

**ATTACHMENT ONE
FNP LAND MANAGEMENT PLAN
Recommended Pattern for Tree Planting**



— One Acre —
(Approx.)

— 375' —

- NOTES:**
1. Shaded areas represent unplanted openings.
 2. Oaks planted on 15' X 15' spacing.
 3. Pines planted on 6' X 10' spacing.
 4. Rows of trees should not be staggered (to allow mowing).

ATTACHMENT ONE

FOREST MANAGEMENT PLAN FOR PLANT FARLEY LANDS

DATE: Feb/2000

I. GENERAL INFORMATION

The Farley Plant Lands are located on the Chattahoochee River in Houston County, Alabama and in Early County, Georgia. They consist of 1806 acres in Alabama, which are immediately around Southern Nuclear's Farley Nuclear Electric Generating Plant. The portion of land in Georgia lies in the Chattahoochee River and therefore there is no practical use of the Georgia property for forestry activities. The Farley Plant land is fee ownership property held by Alabama Power Company.

II. FACTORS AFFECTING FOREST PRODUCTIVITY

The Farley tract is located in the Coastal Plain Region. The topography is generally flat to gently rolling. However, along the streams some slopes approach 12 percent. Much of the flats along the Chattahoochee River are subjected to flooding. The soils associated with this tract range from the silt and fine sandy loam of the Bibb, Bladen, and Cowarts soil series to the loamy sand Alaga series. The Alaga series lying along the stream and river terraces are good sites for mixed pine hardwood stands. The Bibb and Bladen series lie along the banks of the river and major streams. These are primarily excellent sites for hardwood stands. The Cowarts series lie along undulating ridgetops and side-slopes. These sites support average to good stands of pines such as those along Highway 95 near the contractor entrance to the Plant. Most of the old field areas consist of the sandy loam Dothan series, which is well suited to pine growth. Some of the most productive pine sites occur in the stream flats north and east of the firing range where the Flint series predominates. The other dominant series are the Red Bay series and the Maxton series. The Red Bay series occurs mostly north of the Plant on the uplands and gentle side slopes. These are generally good pine-hardwood sites. The Maxton series produce good stands of pine timber and this series is found in the second and third terraces of the river.

III. TIMBER TYPE

Most of the pine stands of the Farley tract are stocked primarily with loblolly pine. There is some occurrence of shortleaf and spruce pine within these areas. The hardwood bottoms in the vicinity of the river are respectably stocked with water oak, cherrybark oak, white oak, poplar, and miscellaneous species. The hardwood areas and mixed pine-hardwood areas along the streams and in the upland areas consist of miscellaneous oaks, sweetgum, and poplar. Very little regeneration is present due to crown closure in the overstory. However, in the recently harvested areas, natural pine regeneration is flourishing where sunlight can reach the forest floor.

ATTACHMENT ONE

IV. COMPARTMENTAL BREAKDOWN

NOTE: Please refer to the accompanying set of Farley Plant Lands Maps for visual reference of the areas described herein. The Farley Plant Lands are divided into two forest compartments to facilitate timber management objectives. The two compartments are generally divided on the ground by the main Plant entrance road and the secondary Plant road leading to the fresh-water intake at

the river's edge. The Plant acres in Georgia are river acres and are not included in the timber management plan.

- A. Plant Area - 860 acres. The Plant area in the context of this plan is made up of buildings, facilities, and maintained open areas. This is represented as facility and open land types on the accompanying *Land Type and Use Planning Map*. This area also includes all transmission rights of way and the cooling tower emergency reservoir. The Plant area has very little timber volume associated with it and is not considered manageable for timber. The acreage of this area remains fairly stable over time with some occasional change when selected open areas are planted in trees or when areas are cleared and included for Plant construction or maintenance needs. Approximately 428 acres of the Plant area are located within Compartment P01 and the remaining 432 acres are located in Compartment P02.
- B. Compartment P01 - 535 acres. In general, the natural timber stands in the western half of this compartment are pine type. The pine-hardwood areas and the hardwood areas are found more consistently in the eastern half of the compartment. Other than the re-clearing of the roadside of the contractor entrance, no harvesting has occurred in this compartment. However, five harvest areas have been identified for cutting over the next four years. These areas are depicted on the accompanying *Harvest Priority Schedule Map*. These sites are in areas of natural timber stands and will consist of single tree selective cutting from the pine component. No hardwood is scheduled for harvest initially other than a small amount of pulpwood to facilitate the pine harvest. There may, however, be a need to harvest some hardwood sawtimber 15 - 20 years from now to promote hardwood regeneration. As shown on the accompanying *Tree Plantations Map*, approximately 52 acres of previously open land have been planted to pine and some hardwood over the years. Ten acres of the plantations are ready for first thinning and this should occur in the next few years. Some addition areas have been identified for planting in the next several years.

Compartment P02 - 411 acres. The natural timber stands of this compartment are productive sites composed of mostly pine and pine-hardwood areas. The true hardwood areas are in the very southeast corner of the compartment and along the first terrace of the river. Two harvests of selectively cut pine have occurred in recent years. In 1998 a sale was conducted in the general vicinity of the target range. Pine sawtimber totaling 335,126 board feet (Scribner scale) was selectively harvested from this 97-acre area. In addition, 143.59 cords of pine pulpwood and 24.87 cords of hardwood pulpwood were selectively harvested to produce total revenue from the sale of \$100,608.14 or \$1,037 per acre. The harvest in 1999 was conducted on 72 acres in the eastern one third of the compartment in an area between the 1998-harvest area and the river. This sale produced a selectively cut pine sawtimber volume of 271,735 board feet (Scribner scale) and selectively cut

ATTACHMENT ONE

volume of 355.55 cords of pine pulpwood and 42.02 cords of hardwood pulpwood. The revenue from this harvest totaled \$105,766.88 or \$1469 per acre. The residual stand of pine and hardwood in both of these harvest areas is such that similar harvests will again be possible at the next 20-year cutting cycle. As shown on the accompanying Tree Plantations Map, approximately 94 acres of previously open land have been planted to pine and some hardwood over the years. Thirty-eight acres of the plantations are ready for first thinning and this should also occur in the next few years. In addition, there are few areas of pine sawtimber that will come of age in the next 10-15 years. Areas for additional planting may come available from time to time in this compartment as well.

V. SUMMARY AND RECOMMENDATIONS

The active management of the timber on the Plant Farley property represents responsible stewardship of the land and the wise discretion of Plant Farley's management team. Timber management will insure the long-term health of this forest. The management of the timber can not only work in concert with, but also can enhance primary Plant objectives of sound wildlife management and Plant aesthetics.

Current needs of the tract include the thinning of the merchantable pulpwood size pine stands as well as the selective harvest of mature pine and pine-hardwood stands. This is to be accomplished following the noted harvest priority schedule. Variance from this schedule may be dictated by changing timber market conditions or unforeseen silvicultural needs. Property boundary lines are marked at present with large property signs placed at varying distances along the boundary. These lines could be enhanced in the future using standard Alabama Power Co. red boundary paint on trees inline between these existing signs. Road access is generally not a problem as an adequate road system is well maintained by plant personnel.

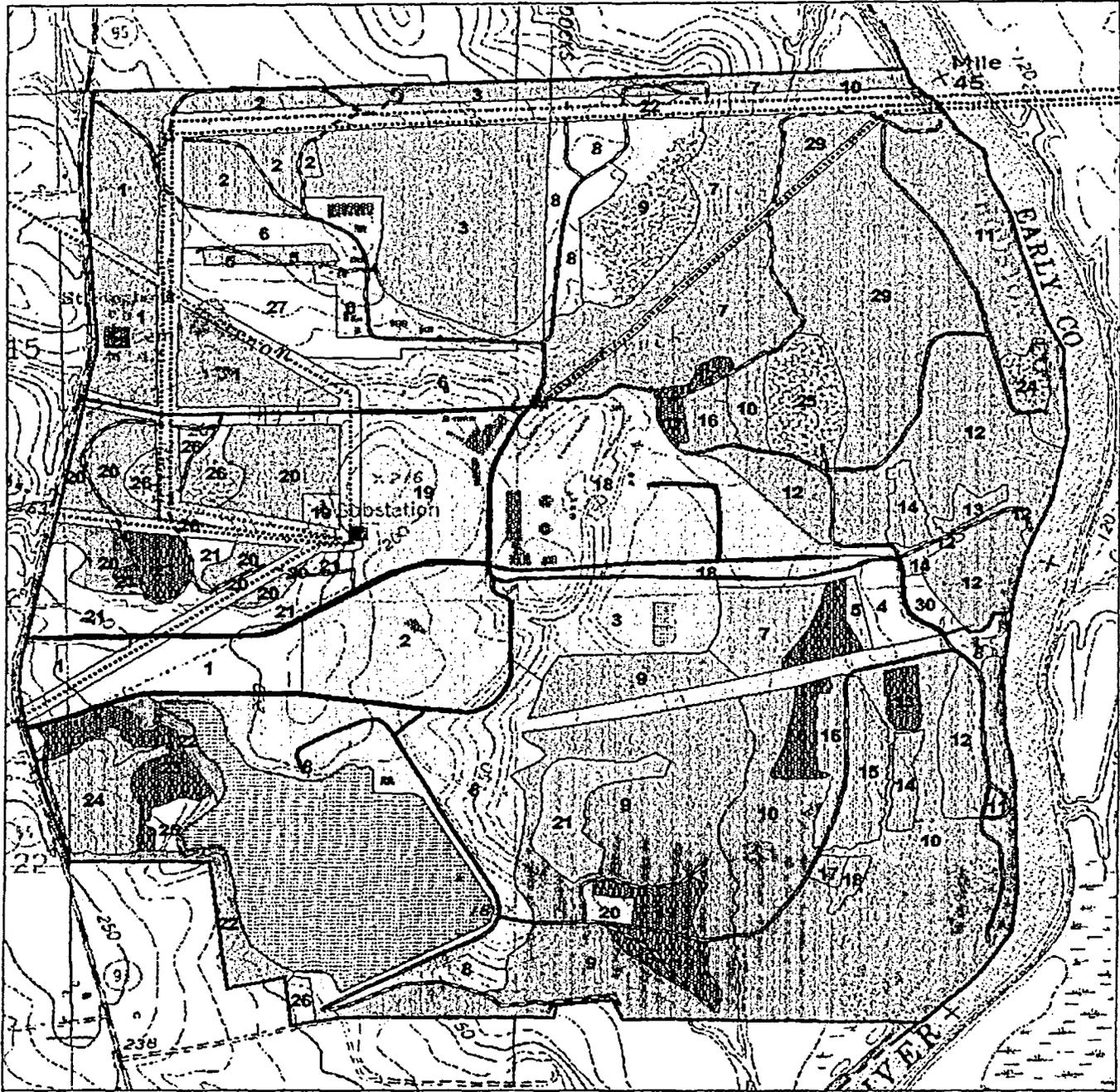
Future needs include thinning of unmerchantable plantations as they reach merchantability. Also, future selective group cuttings of mature hardwood may be necessary to promote the natural regeneration of some hardwood areas.

Farley Plant Lands

Land Type and Use Planning

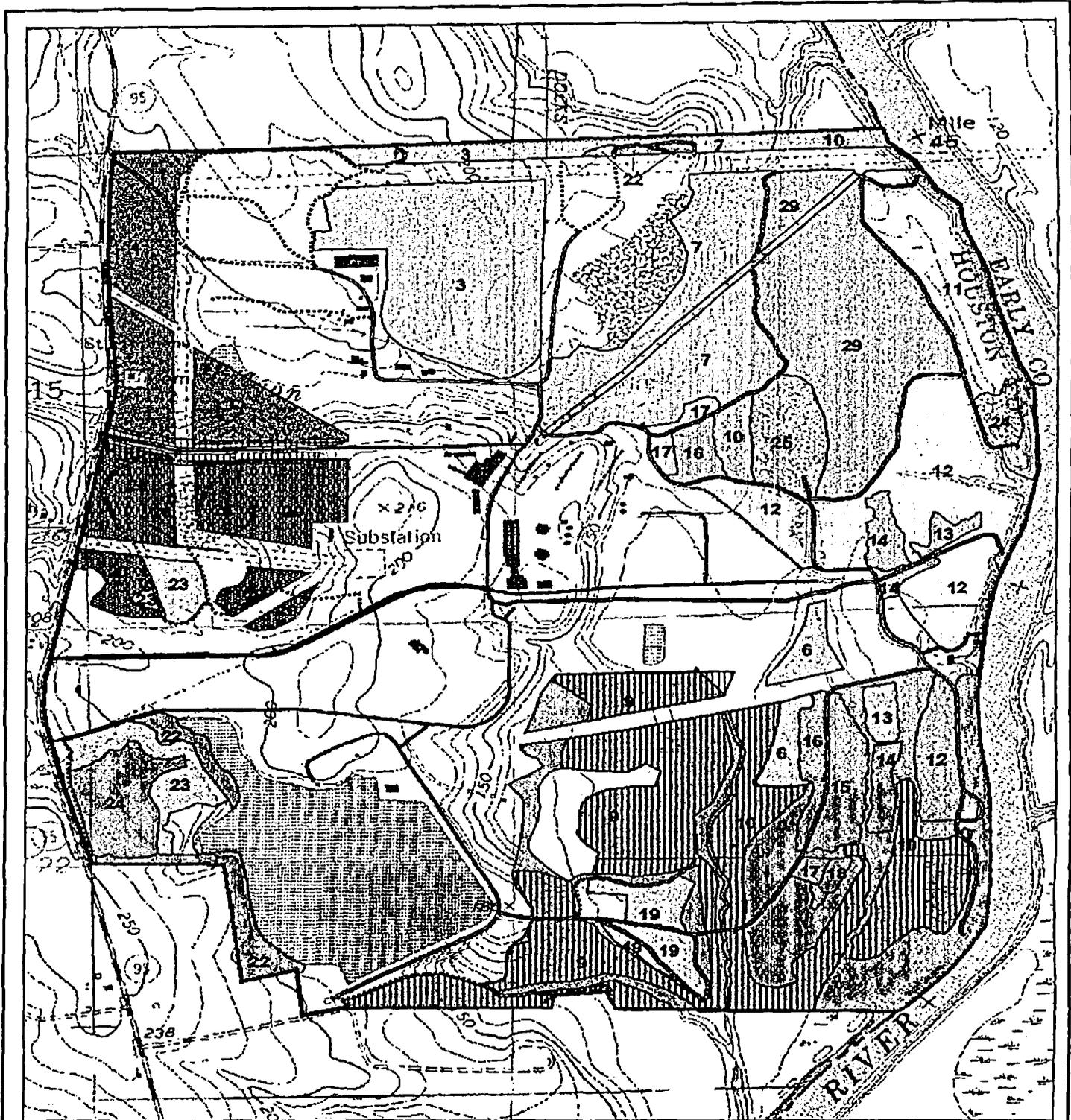
CLARK WEAVER
POWER

Corporate Real Estate - Farley Division



Land Type	Number of Stands	Total Acres	Average Acre
Facility	15	431.6	28.7
Open	11	95.2	8.6
Merchantable Plantation	9	48.0	5.3
Unmerchantable Plantation	17	97.9	5.7
Protected Sites	1	1.0	1.0
Natural Timber Stands	29	810.3	27.9
Wetlands	3	32.0	10.6

<p>Transmission Line</p> <ul style="list-style-type: none"> 12 48 115 161 230 500 	<p>Tract Roads</p> <ul style="list-style-type: none"> Unclassified Improved Rd Unimproved Rd Woods Rd <p> <input type="checkbox"/> Compartments <input type="checkbox"/> Substation </p>	<p>Land Classes</p> <ul style="list-style-type: none"> Facility Open Merchantable Pine Plantation Pre-merchantable Pine Plantation Protected Site Natural Timber Stands Wetlands
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Farley Plant Lands

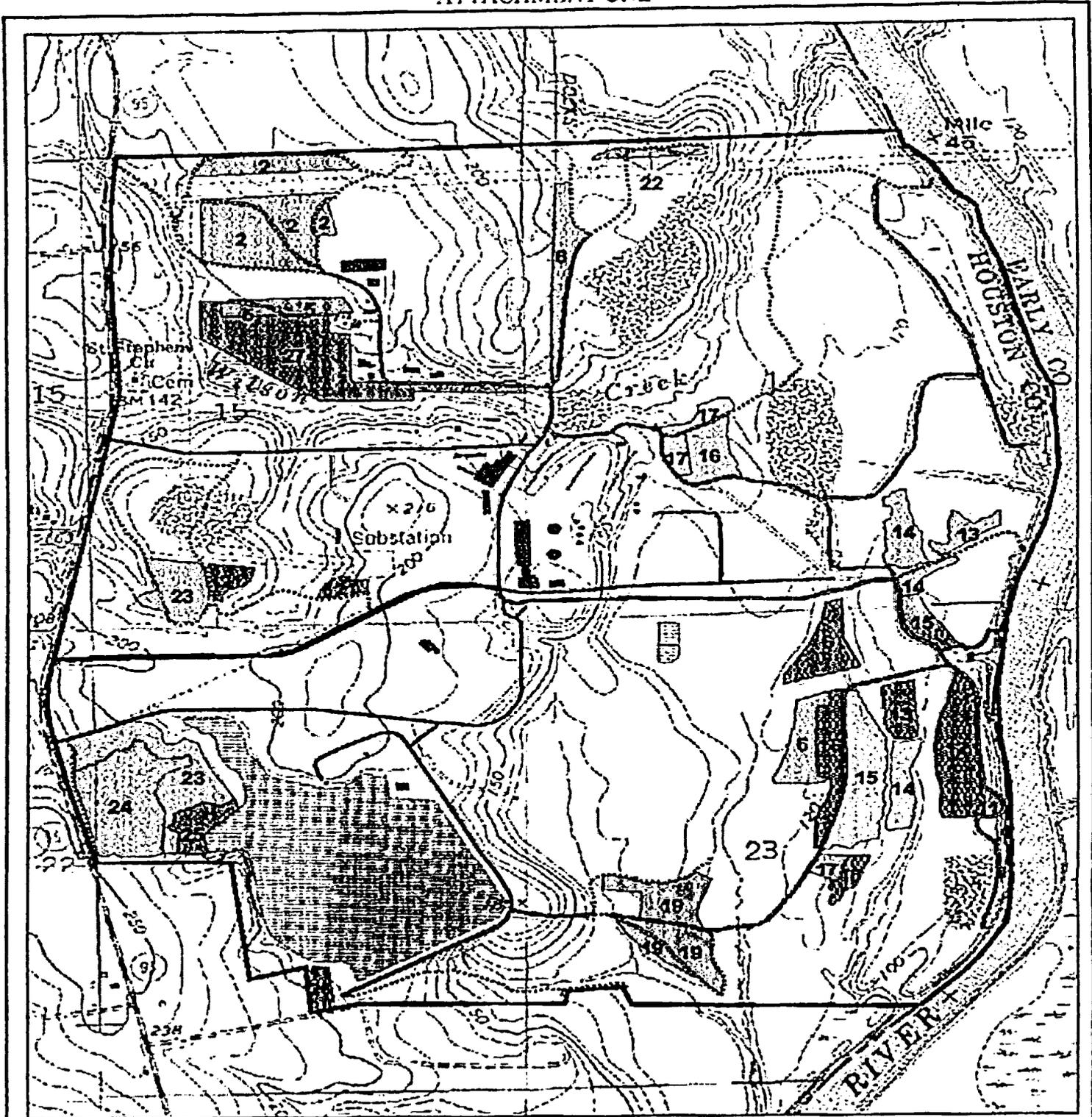
Harvest Priority Schedule

	Tract Roads		Priorities
	Unclassified		2000
	Improved Rd		2001
	Unimproved Rd		2001-2002
	Woods Rd		2002
	Compartments		2003
			2004
			Future Harvest
			Past Timber Sales



Corporation's Forest Resources - Farley Section

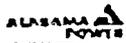
3 February 2000 - DLM



Farley Plant Lands

Tree Plantations

Tract Roads		Date Planted	
	Unclassified		1981
	Improved Rd		1982
	Unimproved Rd		1983
	Woods Rd		1984
	Compartments		1989
			1990
			1994
			1995
			1996
			2000
			2001



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**ATTACHMENT TWO
SONGBIRD NESTBOX MONITORING BY NON-FNP ORGANIZATIONS**

1. Security Concerns:

- Do not enter fenced areas (RWIS, MPBPA, SW).
- Remain at least 20 feet from fenced areas.
- Report to security in event plant emergency alarm sounds.
- Do not cross plant boundary fences.
- NO alcohol or firearms allowed on site.
- No camera use allowed on site without camera pass.

2. Safety Concerns:

- Work in pairs at all times.
- Check out with security prior to leaving site.
- Report any accident or injury.
- Contact security if first aid is needed.
- Review site map of areas to be visited.

3. Site Coordinator Responsibilities:

- Inform security of visit in advance.
- Arrange for use of private vehicles on plant site.
- Arrange for camera passes if needed.
- Ensure each member of group understands safety and security concerns.
- Inform shift supervisor and security of arrival and departure of group.
- Render any assistance needed.

**GUIDELINES FOR PERFORMING POWERLINE
CONSTRUCTION AND MAINTENANCE
IN AREAS OF
GOPHER TORTOISE HABITAT**



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- Figure 6. Gopher Tortoise Burrow - Burrow and Apical Sides

Attachment 4

GENERAL INFORMATION REGARDING THE GOPHER TORTOISE
(*Gopherus polyphemus*)

The gopher tortoise is listed by the U. S. Fish and Wildlife Service as a federally "threatened" species west of the Tombigbee and Mobile Rivers in Alabama. The protected western population extends from Alabama across southern Mississippi to extreme southeastern Louisiana. The tortoise is listed as a threatened species in three Alabama counties: Mobile, Choctaw, and Washington.

The adult gopher tortoise has a large shell (carapace), 6-14.5 inches long. It is a dark-brown to grayish-black terrestrial turtle with elephantine hind feet and shovel-like forefeet (Figure 1). The yellowish, hingeless plastron (undershell) is characterized by a prominent gular projection beneath the head (Ernst and Barbour 1972). The front limbs are flattened for digging and they have large, thick scales and prominent toenails. Gopher tortoise hatchlings are yellowish-orange, have a soft shell, and are 1.5 to 2 inches long at hatching. Gopher tortoises are shy, harmless turtles that escape humans when possible. They cannot be provoked to bite, but will usually retract the head and appendages when disturbed or handled.

The species is found on elevated, well-drained, deep sandy ridges which are frequently characterized by longleaf pine and patches of scrub oak along the coastal plains of the southeastern United States. Controlled burning of these areas encourages herbaceous growth and increases the carrying capacity of the habitat for the tortoise. In Alabama, tortoise habitat is generally characterized by rolling hills capped with dry, sandy, terrace soils and dominated by longleaf pine, turkey oak, saw palmetto, reindeer moss, prickly pear, slender yucca, and wiregrass. Other habitat features that are conducive to the tortoises are an abundance of herbaceous ground cover and a generally-open canopy which allows sunlight to reach the forest floor. Grasses and legumes are reported to be the tortoise's most important food plants (Garner and Landers 1981). Tortoises are also found in ruderal habitats such as fence rows, pastures, field edges, and utility right-of-ways (U. S. Fish and Wildlife Service 1990).

Since the secretive tortoises escape into their burrows when disturbed, they are not frequently encountered in the field. Therefore, the conspicuous tortoise burrow is the main recognizable feature that confirms the presence of tortoises in the field. Most burrows have a single entrance and adult burrows average about 15 feet in length, with a depth of approximately 6 feet (Hansen 1963). Burrow tunnels slope downward from the surface and then usually level off underground (Conant and Collins 1991). Burrows are wide enough for the tortoise to turn around at some point along its length. Some burrows have been noted to extend to more than 20 feet horizontally. The burrow provides shelter from extreme heat and cold. Jackson and Milstrey (1989) have reported more than 60 vertebrate and 302 invertebrate species using gopher tortoise burrows. Some of the more commonly known burrow associates include the Eastern diamondback rattlesnake, the dusky gopher frog, and the Eastern indigo snake.

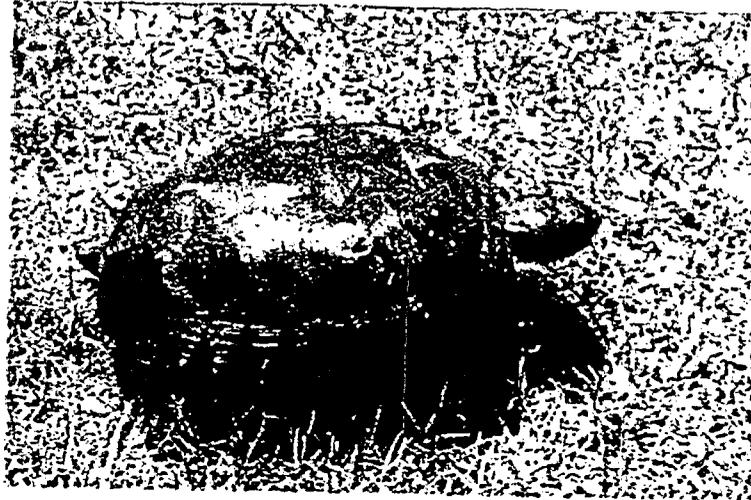


Figure 1. Adult Gopher Tortoise

Attachment 4

Research in Georgia has indicated that males reach sexual maturity at 16-18 years of age and females mature slightly later when they are 19-21 years old. Females lay an average of four to six eggs per clutch. Breeding periods may begin as early as February and extend into September, depending on location. The period of maximum reproductive activity is from May through July. In some populations it is estimated that over 90 percent of the clutches are destroyed by predators prior to hatching (Mississippi Department of Wildlife, Fisheries & Parks 1992).

Biologists have discovered that the activity of the tortoises is greatly restricted during winter months. In warm weather, the tortoises usually emerge daily from their burrows in the morning before the heat is too great. They forage on grasses, leaves, and such wild fruits or berries as they can find (Conant and Collins 1991). Activity is very rare during extremely hot periods in the summer months.

Additional information regarding the gopher tortoise can be found in the Gopher Tortoise Recovery Plan (Exhibit A) prepared by the U. S. Fish and Wildlife Service in 1990. Additional natural history information on the gopher tortoise (Mount 1975) is also provided in Exhibit B. This latter publication includes a map that shows the range of the gopher tortoise in Alabama.

Attachment 4

GUIDELINES FOR PERFORMING POWERLINE CONSTRUCTION AND MAINTENANCE
IN AREAS OF GOPHER TORTOISE HABITAT

- 2) A survey should be performed prior to Company crews entering rights-of-ways (ROW) with heavy equipment in areas of suspected gopher tortoise colonies to determine if active gopher tortoise burrows are present. An active burrow will have a mound of sand or soil thrown in front of the burrow with an absence of vegetation near the mouth of the burrow (See Figures 2 and 3). In the Fall of the year, leaves may cover an active burrow entrance, thereby giving it an appearance of being uninhabited (Figure 4). Also, gopher tortoise burrows have a characteristic oval or "half-moon" shape at the burrow entrance as shown in Figures 2 and 3. Armadillo burrows typically have a characteristic rounded opening (See photos in Figure 5) and should not be confused with gopher tortoise burrows. Armadillo burrows may occur in low, wet areas near dense vegetation. They do not typically manifest a conspicuous sandy mound near the entrance. However, armadillos may occasionally occupy abandoned tortoise burrows. Active gopher tortoise burrows should be identified with conspicuous flagging tape or brightly-painted wooden stakes near (but not obstructing) the burrow entrance.
- 2) The direction of an active burrow should be determined prior to traversing the ROW with heavy vehicles or equipment. Heavy equipment can cause the burrows to collapse. These vehicles and equipment may approach a gopher tortoise burrow entrance by remaining at least 25 feet from the entrance on the burrow side and at least 15 feet from the entrance on the apron side (See Figure 6). However, heavy equipment may travel along ROWs on well established vehicular routes. Jack Fuqua of Environmental Affairs should be contacted in the following instances:
- 1) where there are problems with performing maintenance or construction activities along the ROW due to the location(s) of gopher tortoise burrows,
 - 2) where digging or excavation will occur within 25 feet of an active burrow, and
 - 3) where new guy anchors will be installed within 25 feet of an active burrow.
- 2) No heavy equipment should be used within 25 feet of an active burrow entrance while performing ROW clearing or bush hogging. Brush within the 25-foot radius should be hand cut or otherwise removed without the use of heavy equipment. Tortoise burrows must not be covered with debris.
- 4) No danger tree that is outside of a 25-foot radius of an active burrow entrance should be cut so that it falls within the 25-foot radius of the entrance. All danger trees that are cut within the 25-foot radius should be felled away from the entrance. Fallen trees and brush should not impede movement of the tortoise's exit and entry to the burrow. Topping or trimming the tree should be

Attachment 4

performed in those cases where cutting the tree would adversely impact an active burrow.

NOTE 1: During emergency conditions it may be impractical to follow the recommendations described above. Any adverse impacts to tortoises or tortoise burrows following emergencies should be reported to Jack Fuqua.

NOTE 2: Questions regarding these guidelines should be addressed to either Jack Fuqua (205-250-4175), Malcolm Pierson (205-664-6177) or Johnny Dyess (334-285-2416 or 334-412-0050).

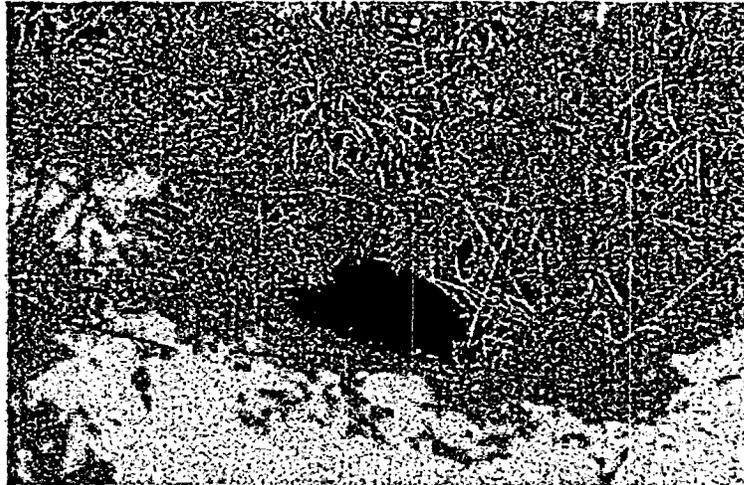


Figure 2. Active tortoise burrow



Figure 3. Active juvenile tortoise burrow

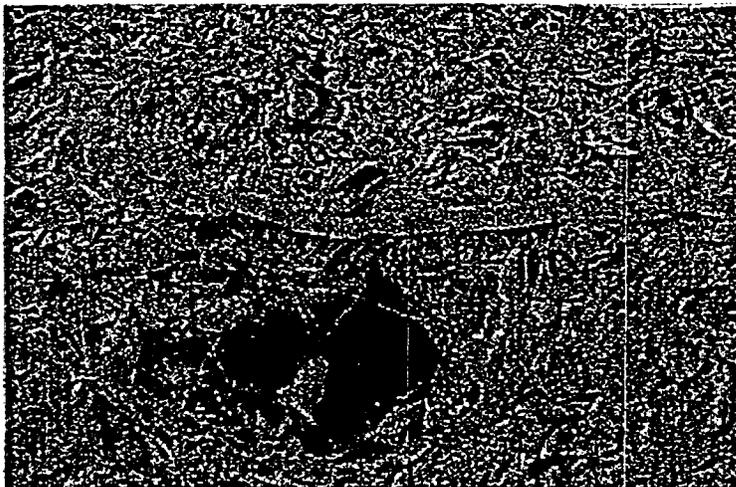


Figure 4. Entrance of active burrow covered in leaves.
Fresh soil appears under leaves.



Figure 5. Active Armadillo burrows

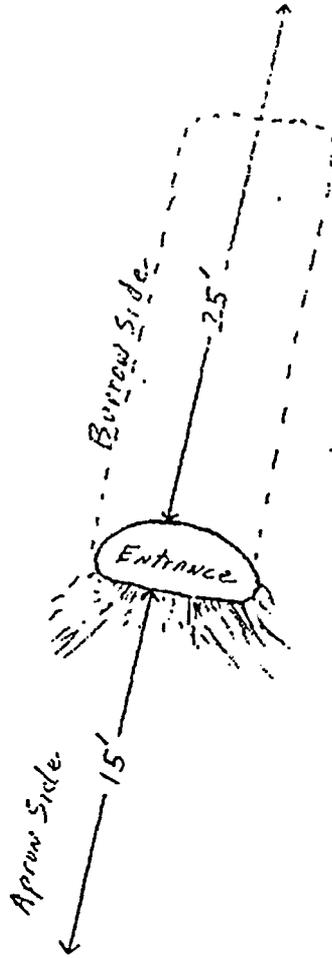


FIGURE 6