



Gopher Tortoise Habitat Improvement

Alabama Guide Sheet No. AL645H



Description:

The gopher tortoise is a large, terrestrial turtle with a dome shaped shell and spade-like front legs, an adaptation for digging. The shell of the gopher tortoise can vary from brown to dark gray. Length averages 10 to 12 inches for adults; maximum length is approximately 15 inches. Adult tortoises can weigh up to 10 pounds. The head of a tortoise is square in profile with a flat, blunt nose.

They are a long-lived species, reaching 80 years in age. This species is believed to reach sexual maturity between 12 to 14 years of age and can be reproductively active until death. Tortoises mate in spring. Nesting occurs during April through July, with eggs generally laid in the sandy "apron" in front of the burrow. Clutch sizes typically number five to seven eggs.

Hatchlings, which emerge in late summer to early autumn, have a low survival rate. Predation plays a significant role in hatchling mortality. Raccoons, opossums, armadillos, foxes, dogs, fire ants and feral pigs are all major predators of nests and/or hatchlings. It is estimated that less than 5% of hatchlings survive to reach adulthood.

Habitat Requirements:

The gopher tortoise is a burrowing species that primarily inhabits dry longleaf pine sandhills in Alabama. The deep, droughty sands of such habitats provide the ideal location for the excavation of the tortoise's burrow. Adult tortoises may excavate a burrow from 10 to 30 feet in length; at its deepest point the burrow may be 10 feet underground.

Tortoise burrows are not just important to the tortoises but are also a critical resource for many species that are

found in sandhill habitats. Over 250 species of vertebrate and invertebrate animals have been documented to use tortoise burrows, whether active or abandoned.

Ideal gopher tortoise habitat consists of frequently burned, open stands of pine with a lush ground cover dominated by native grasses and forbs. Ground cover such as prickly pear cactus, blackberries, and many native grass species commonly occur in tortoise habitat.

Planning & Management Considerations:

GENERAL: Avoid using heavy equipment near burrows. Equipment may cause burrows to cave in, possibly trapping animals of a number of different species that could be using the burrow at the time.

Some invasive plant species can pose problems for gopher tortoises. Cogongrass, a non-native from Asia, can be a major problem for tortoises. This grass forms thick monocultures that are nearly impossible for them to move through. In addition, the leaves are full of silicates, making them useless as a food source.

FIRE: Prescribed burning is the most economical and effective tool to manage habitat for many species, including the gopher tortoise. When used correctly, fire will kill hardwood saplings back to ground level. They will often sprout back from energy stored in the roots.

Burning can be done on many different "cycles". Recent studies have shown that cycles longer than 3 years will not keep understory hardwoods under control. In some cases, even a 3 year burn cycle will not adequately control hardwoods.

Winter burns are the most commonly used type of burn, but growing season fires actually prove more beneficial

for many species of wildlife. This type of fire is done after hardwoods have broken dormancy and sprouted leaves. They can be done in spring or summer.

Growing season burns can be used to help control aggressive hardwood sprouts more than 2 feet tall. Growing season burns deplete energy used to form leaves in the spring, weakening the plant.

Regardless of the timing of the burn, it is best to stagger burns so that some fire is applied each year to a different part of the property. Do not burn all acres in a single year.

Before burning, be certain you have a prescribed burning plan completed by a Certified Prescribed Burn Manager and follow all applicable laws regarding the use of fire.

For more information, contact your local office of the Alabama Forestry Commission or go to the Alabama Prescribed Fire Council's website at <http://alpfc.org>.

HERBICIDES: When understory hardwoods reach a ground diameter of 3 inches or more, it is often difficult to remove them with fire. These hardwoods take up valuable sunlight that is necessary for native groundcover to thrive. They can be removed with an application of herbicide.

Some herbicides are selective, meaning that they kill only certain species and do not affect other species of plants. Imazapyr is an example of a selective herbicide that can be broadcast with skidder or helicopter to kill hardwoods without fear of damage to the overstory pine trees. Other herbicides may damage pines and must be applied cautiously to be certain they are specifically targeting the hardwoods to be removed. Methods of application for these herbicides could be direct foliar spray or basal bark treatment. Contact your local Alabama Forestry Commission or Extension office for information on forestry herbicides.

THINNING: Thinning pine trees can be done at most any age. A thinning that is to be done before the trees reach a size that is large enough to be sold is called a precommercial thinning. After trees reach a large enough size to be sold, the thinning is called a commercial thinning.

With either type of thinning, the number of trees to leave should be based on adding sufficient sunlight to the forest floor to stimulate ground-level plant growth. This increase in sunlight will promote growth of herbaceous ground cover, such as native grasses and forbs. Many of these plants are important foods of the gopher tortoise.

A good rule for precommercial thinning is to leave between 300 and 500 trees per acre. A good rule for commercial thinning is to leave between 50 and 60 square feet of basal area per acre.

As a general rule, choosing the best trees to remove (or leave) should be based on the condition of individual trees as related to insects and diseases, and the form and vigor of individual trees.

Trees showing signs of attack by pine beetles, fusiform rust, pitch canker, or littleleaf diseases should be removed when spacing limitations make it possible. Also, trees with excessive limbs, forks, broken tops or those that are crooked should be removed when possible.

Contact the Alabama Forestry Commission for more information on thinning your timber.

Operation and Maintenance:

- Prescribed burning must be carried out on a relatively short rotation of at least once every 3 years to maintain gopher tortoise habitat.
- Firebreaks should be maintained to keep woody brush from encroaching and blocking their future use.
- Pine timber will need periodic thinning to maintain timber stand health and wildlife habitat.