

Standard Operating Procedure for Gopher Tortoise Burrow Surveys

November 2009

All persons surveying upland habitat for gopher tortoise presence/absence should be familiar with the appearance of this species and its associated burrow. For additional information regarding the gopher tortoise, visit the Fish and Wildlife Service's website, http://ecos.fws.gov/docs/recovery_plans/1990/901226.pdf.

The survey procedures described below are designed to avoid any adverse effects to the gopher tortoise. Thus, a recovery permit is not needed to survey (unless burrow scoping is involved) for the tortoise or its habitat.

Survey Protocol

Areas of suitable gopher tortoise habitat, as described in the following section, as well as areas considered to be of marginal quality will be "100 percent" surveyed for the presence of tortoise burrows. Survey sites will be divided into consecutive "site distance" strip transects, each of which will be traversed, on foot, by a member of the survey team. The width of each transect will be determined by ground visibility within the site. In other words, a site composed of pasture, recent timber clear-cut, or other forms of open land will have a greater transect width than that of a very thick timber stand with reduced sight distance. Transect widths may range from 10 to 50 feet, depending on ground visibility within the site.

If a tortoise burrow is found, then the following steps will be taken.

1. Flag burrow with plastic flagging tape and/or GPS burrow
2. Take photo of burrow if unsure whether hole is for tortoises or some other animal (i.e. fox, armadillo)
3. Determine burrow status as active, inactive, or old (see burrow descriptions below)
4. Determine if burrow is part of tortoise colony. For each burrow found, a 600 foot radius around that burrow will be surveyed for additional burrows. This process will be continued for each new burrow until no new burrows are found. This process will determine the extent of the colony (on and off property)

Description

Individual

The gopher tortoise is a medium-sized turtle with a broad, muscular head and relatively short tail. It is distinguished from other MS turtles by its lack of webbed feet (characteristic of aquatic turtles), its distinct sub-maxillary gular glands, and its unhinged shell. The forelimbs of tortoises are flattened and greatly stiffened by a special set of ligaments.

Adult tortoises average 9-11 inches in length and weigh from 8-10 pounds. The concavity of the plastron (lower shell) is usually greater in males than in females.

A tortoise colony is defined as two or more active burrows within 600 feet of each other. (US Fish and Wildlife Service, 2005)

Burrow

The burrow opening is semicircular or “half-moon” in shape and will have a low mound of bare soil immediately in front of the mouth of an active burrow. The burrow’s angle of descent is typically around 30 degrees. Burrows can be up to 30 feet in length and 12 feet in depth. The burrows of young tortoise are often difficult to locate, as they tend to be under brush, against logs, or in some other secluded place.

All tortoise burrows encountered will be categorized according to the following scheme:

1. Active – most likely occupied by a tortoise; as evidenced by presence of tortoise, freshly dug sand, tortoise tracks, or tortoise scat.
2. Inactive – most likely not currently occupied by a tortoise; as evidenced by absence of above signs, debris in burrow entrance. Inactive burrows are sometimes used for future use by tortoises.
3. Old – most likely not occupied by a tortoise for many years; as evidenced by deteriorated nature of burrow entrance, (i.e. collapsed, growth of vegetation, sand washed in, etc.) Old burrows are in such a condition that they are not considered to be good candidates for future use by tortoises.

Suitable Habitat

Gopher tortoises occupy a wide range of upland habitat types. The general physical and biotic features thought to characterize suitable adult tortoise habitat are:

1. presence of well-drained, sandy soils, which allow easy burrowing;
2. an abundance of herbaceous ground cover; and

3. generally open canopy and sparse shrub cover, which allows sunlight to reach the ground floor (Cox et al., 1987).

Soils

Soil conditions are responsible for the xerophytic nature of habitats preferred by tortoises. The Fish and Wildlife Service has assigned each soil series as either a priority, suitable, marginal, or unsuitable type for the gopher tortoise. USDA-NRCS county soil survey maps can be obtained either from the NRCS website (if available) or from the local NRCS office.

1. Priority soils are humus poor, excessively well-drained, relatively deep to deep sandy soils, without fragipans. These soils typically occur on the highest upland positions and adjacent side slopes. Priority soils include Lakeland, Alaga, Eustis, and Troup/Waldey.
2. Suitable soils consist of deep, well drained, loamy sands, without fragipans. Suitable soils, in comparison to priority soils, have horizons with a greater portion of clay. Suitable soils usually occupy topographically adjacent and lower positions when associated with priority soils. Suitable soils include Benndale, McLaurin, Smithdale, and Ruston.
3. Marginal soils are deep, moderately well drained soils, with a greater amount of clay or plinthite, which may include fragipans. Marginal soils are not classified as hydric or wetland soils. Marginal soils include Poarch, Saucier, Susquehanna, Freest, and Lucy types.

All other soil series are considered unsuitable soils. These soils frequently are classified as hydric, or they occur on stream terraces and floodplains.

Vegetation

The vegetation characterizing gopher tortoise habitats varies with geography, soil type, and past and present land use. Long-leaf pine (*Pinus palustris*) is often the dominant large tree species, although other pines (loblolly) and hardwood trees (i.e. turkey oak, blackjack oak, wax myrtle, etc) can often be found. Herbaceous vegetation tends to be composed of species tolerant of dry conditions (i.e. wiregrass, prickly pear, reindeer moss, gopher apple, blackberry, and several grasses of the genera *Andropogon* and *Panicum*).

Tortoise burrows also can be found along powerline and pipeline ROW's, road ROW's, and Ruderal habitats; including fence rows, orchard edges, golf course roughs and edges, old fields, and pasturelands. Tortoises are often pushed into these areas due to adjacent habitat becoming unsuitable (i.e. thick under and mid story canopy, residential and commercial development, etc).

Contact Information:

For more information regarding survey protocols, contact the local Fish and Wildlife Service office

Mississippi Field Office
6578 Dogwood View Parkway
Jackson, MS 39213
601-965-1940

Gopher Tortoise Burrow (summer)



Gopher Tortoise Burrow (winter)

