

ADVANCED Trail Guide to Hammock Nature Trail

Caution: If you wander from the trail through the hammock, you may encounter unfriendly plants. Most of these have thorns (catbrier, Devil's walking stick, Hercules club) but some have toxins (poison ivy).

Points of interest: Along the trail are numbered points of interest that are explained below. Each is marked with a white plastic stake with a YELLOW band near the top. Crowning the stake is a short cylinder that bears a black NUMBER keyed to the numbered explanations of this guide.

[All other stakes, white plastic or otherwise, are for other purposes! White stakes with RED bands topped with black LETTERS go with the BASIC guide for this trail.]

Tree quiz: If you wish, near the end of this trail you can test yourself to see if you can identify four common species of hammock trees.

HM 1. *Unrestored upland pine.* This part of the trail goes through an area that was once upland pine, as shown by the mature longleaf pines still to be seen (the nearest three have yellow tape around their trunks). However, exclusion of fire has enabled hammock species to invade and flourish. [For more about upland pine take the Upland Pine Nature Trail.]

HM 2. *Hurricane-felled tree.* Many trees in NATL's hammock ecosystem were felled by the two hurricanes of 2004. Unlike those that were more completely uprooted, this tree is still living, but its prospects for a long life in its near-horizontal position are doubtful.

HM 3. *Laurel oak* [*Quercus laurifolia*] (three trees of different sizes flagged with red tape). On the branches of the smallest flagged tree you can see that laurel oaks have smooth narrow leaves shiny on both sides. The species is common in hammocks and, as illustrated here, it readily invades upland pine when fire is suppressed. The species is commonly planted as a shade tree because of its fast growth and dense foliage. However, its life span is shorter and it is more subject to rot than live oak and several other oaks that are planted for shade.

HM 4. *Canopy breaks and undergrowth.* In the absence of disturbance, hammocks develop a continuous (that is, a *closed*) canopy. In the deep shade of a closed canopy, only shade-tolerant plants survive, and the undergrowth becomes sparse and easy-to-walk-through (like the area here to the left of the trail). When trees are felled in a hammock, whether by man or natural disturbance, more light reaches the ground and the undergrowth becomes dense and nearly impenetrable. The thickness of the undergrowth to the south is revealed by the straight pathway cut through it along the gridline from here to the pole with the fire-orange flagging. [The pathway is along a line in NATL's 50x50-meter grid system and was recently cleared to facilitate an update of a photographic record of NATL vegetation. Photos from 1997 and 2007 can be viewed at <http://natl.ifas.ufl.edu/gridphotos.htm>.]

HM 5. *A field neglected.* You are now entering the part of NATL's hammock that until about 63 years ago was an open field used for grazing livestock. In 1944, when the University acquired land that expanded the campus to the southwest, UF had no immediate plans for this portion of it and allowed the field to revert to trees. [Such a reversion is known as old-field succession. To learn more, take the Old-Field Nature Trail.]

HM 6. *Loblolly pines and southern pine beetles.* The first trees to dominate an abandoned field are usually loblolly pines. These form an even-aged stand that produce the shade that hammock trees (but not loblolly pines) are adapted to. Thus in 1994, when NATL began, this part of the hammock had many tall, 50-year-old loblollies with hammock species beneath. In spring of 2001, an outbreak of southern pine beetles killed the majority of the loblollies, and a logging company was hired to remove the dying pines before the beetles killed the remaining pines and spread to other areas. Logging left pine stumps [two are here marked with yellow flags], and the heavy equipment that was used to accomplish it severely damaged or killed many nontarget trees. The opening of the canopy caused by the beetle outbreak and the logging led to a dense undergrowth of vine-draped small trees.

(Continued on the back of this sheet)

HM 7. Vines. Vines that use trees for support are abundant in Florida's hammocks. Five of the common ones are here. (1) **Muscadine grape** [*Vitis rotundifolia*] (marked with white tape). The leaves are round with coarsely saw-toothed margins; vines may grow to be as thick as your wrist. (2) **Greenbrier** [*Smilax* spp.] (Marked with red tape). Five species of greenbrier occur in NATL's hammocks; all have straight, sharp spines; leaves are shiny and leathery and of various shapes. (3) **Yellow jessamine** [*Gelsemium sempervirens*] (marked with yellow tape) This slender vine, with its small, narrow, opposite leaves, is easy to miss though quite common. (4) and (5) **Poison ivy** and **Virginia creeper** [*Rhus radicans* and *Parthenocissus quinquefolia*]. (on the ground at the base of the stake). These vines have leaflets in groups of three and five respectively. Do NOT touch poison ivy--*leaves of three, don't touch me!!*

[Many persons develop itchy small blisters if they contact an oily chemical produced in abundance by poison ivy. Persons who believe they are immune to the chemical may painfully discover that they are not.]

HM 8. Water oak [*Quercus nigra*]. This oak can be recognized by its leaves, which are wider near their tips than at their middles. It grows fast but its wood is weaker than that of most other oaks. It is a common hammock species, especially on wetter sites.

HM 9. Sweetgum [*Liquidambar styraciflua*]. This species is easily identified by its star-shaped leaves that are aromatic when crushed and its woody, bur-like, spherical fruit (examples next to tree label and on the ground). The seeds from the fruit are dispersed by birds and other wildlife that feed on them. Sweetgums are among the first broadleaf trees to invade old fields. The wood is used for fine furniture and interior finishing.

HM 10. Winged elm [*Ulmus alata*]. This species can be recognized by the corky wings on opposite sides of its twigs and branches. Sweetgum twigs often have corky outgrowths but the leaves of sweetgum are star-shaped and aromatic. [Six feet farther along the trail is a patch of *Houstonia procumbens*, an early spring wildflower commonly know as "innocence" or "fairy footprints."]

HM 11. Damper area with larger trees. You are now entering the third and final sort of hammock that occurs along this trail. Aerial photographs show that in 1937 and 1949 the area had both large trees and open ground and was transitional between a well-developed hammock farther south and an open pasture to the north. The large trees were mostly loblolly pines, an indication that the area had been cleared and begun its reversion to hammock decades earlier than the area you just left (which was then a field). Grazing and browsing by livestock must have delayed or reversed the succession toward hammock until the University acquired the land in 1944.

HM 12. Eastern hophornbeam (*Ostrya virginiana*) This is a common understory tree in NATL's hammocks. The simple, alternately arranged leaves have doubly serrate margins (the teeth are toothed!). The bark on the trunks of older trees is shaggy and gray-brown. The wood is dense and strong, sustaining its use for tool handles and posts.

HM 13. Live oak [*Quercus virginiana*]. Almost dead! The spreading growth form of this tree shows that it once grew in the open, perhaps near the edge of the former open field you recently passed through. Its decline must have begun when grazing ended and vines and new trees invaded and eventually over topped and shaded it. A lightning strike (evidenced by the scar) has further stressed the tree. Now only a single branch, at the top of the tree, shows live foliage. Because live oak wood is dense and durable, the skeleton of this tree will stand for years. [Live oaks are adapted to growth in open areas, and home owners with prize live oaks must take care not to let competing trees shade and weaken them.]

HM 14. Black cherry [*Prunus serotina*]. Birds and other animals eat the small black fruits of this species and disperse the seeds along with a dose of organic fertilizer. Thus it is an early invader of old fields, where it grows rapidly. The bark on mature trunks of black cherry is a distinctive array of dark chips with upturned edges. Black cherry is a highly prized wood for furniture.

HM 15. Large sweetgums (four, encircled with yellow tape). The marked sweetgums on both sides of the trail began their lives about 75 years ago, according to cores bored from their trunks. The site must have been sunnier then because sweetgum seedlings are less tolerant of shade than most hammock trees. [While these trees are among the largest hardwoods in this part of NATL's hammock ecosystem, the part near the south border of NATL has many larger and older sweetgums with the two largest being 30 and 42 inches in diameter. (The largest here is 22 inches.)]

- HM 16.** *Bluestem palmetto* [*Sabal minor*]. The trunk of this hardy species of palm remains in the ground. It is a common understory plant in moist hammocks and is used as an ornamental as far north as Maryland.
- HM 17.** *Old loblolly pine* [*Pinus taeda*]. The large loblolly pines you will encounter along this section of trail are about 100 years old. This one is 24 inches in diameter. One further down the trail is 27 inches and the giant of the area is 36 inches (ca 35 feet north of **HM 11**). [The ages of a small number of these trees will soon be more accurately determined by counts of annual rings in bored cores.]
- HM 18.** *Pignut hickory* [*Carya glabra*]. This species has compound leaves with a smooth petiole and 5 to 7 leaflets. It is represented by many large trees in the older part of NATL's hammock ecosystem, with at least 17 having diameters of 18 inches or more. Here there are many small saplings but no mature trees. Seedlings of pignut hickory grow well in shade, whereas those of sweetgum do not. The dark brown growths on many of the leaflets of this tree are *galls* that are produced in response to the attacks of certain insects and mites and provide food and shelter to the attacker. In this case the galls are probably in response to aphids of the genus *Phylloxera*. [Galls produced by a given species of gall arthropod on a given plant species are generally similar, but the same plant species produces very different galls depending on the species of gall arthropod that it is responding to.]
- HM 19.** *Cabbage palm* [*Sabal palmetto*]. Young cabbage palms can be distinguished from bluestem palmettos by their large, keeled leaves (where the petiole joins the frond, the profile is like the keel of a boat). The bud of the cabbage palm is tasty and is the essential ingredient in "hearts-of-palm" salads sold by some Florida restaurants.
- HM 20.** *Sink*. The Gainesville area is underlain by limestone that is riddled with caverns. When the roof of a cavern collapses the soil above subsides producing a sink such as this.
[All streams in this area drain into the underground aquifer through sinkholes. A sinkhole in the southeast corner of NATL-west receives a small stream from NATL-east as well as substantial storm runoff from Archer Road.]
- HM 21.** *Devil's walkingstick* [*Aralia spinosa*] (marked with yellow tape). This small tree has a trunk you do not want to bump into. And even the much divided leaves are armed with prickles. Devil's walkingstick spreads by underground runners, producing small thickets such as this one.

You are now re-entering the younger, drier part of the hammock.

- HM 22.** *Southern magnolia* [*Magnolia grandiflora*]. The leaves of this tree are large, dark green, and leathery. Most leaves remain on the tree through the winter and are replaced by new ones in the spring. Southern magnolia is a popular ornamental tree throughout the South.
- HM 23.** *Lightning scar*. This small water oak was scarred by a lightning strike but survives (so far).
- HM 24.** *Cabbage palm*. When Florida's state tree reaches about this height its trunk sheds the rough bases of broken-off dead fronds that have clung to it for years and becomes smooth enough to hug.
[The transition is relatively speedy so there is the opportunity to wrongly guess that the many native palms with rough trunks are genetically different from the many with smooth trunks.]
- HM 25.** *Can you identify this tree and three other similarly labeled trees you will soon encounter?* Hints are given below and the answers are on the back of this sheet.

- Tree #1 The sun leaves of this tree have a distinctive shape.
Tree #2 No hint needed, you all!
Tree #3 No friend of upland pine.
Tree #4 Leaves have a distinctive shape.

You are again in the part of the public-area hammock that was once upland pine.

Other nearby hammocks to visit:

Harmonic Woods is a 10-acre mesic hammock north of Lake Alice on Museum Road, between Fraternity Drive and Village Drive. A kiosk for this UF Conservation Area is on Museum Road.

For more, go to http://www.facilities.ufl.edu//cp/clmp/harmonic/harmonic_woods.pdf.

San Felasco Hammock Preserve State Park is a 7,000 acre tract located northwest of Gainesville. It preserves one of the finest examples of climax mesic hammock remaining in Florida. The southern two-thirds of the park are designated for hiking only with trailheads four miles northwest of Gainesville on County Road 232.

For more, go to <http://www.floridastateparks.org/sanfelascohammock/>.

Answers to tree quiz:

- Tree #1 water oak
- Tree #2 southern magnolia
- Tree #3 laurel oak
- Tree #4 sweetgum