

Genius Reserve : Mesic Oak Hammock

By Jeanne Lynn and Beth Ann Tucker

Objectives of summer research project include:

- Creating a nursery by propagating from native vegetation on site for future restoration planting.
- Identifying Florida native plant species.
- Identifying exotic and invasive species.
- Identifying keystone (vegetative and animal) species.
- Placement of donated materials.
- Analysis of quantitative data including; groundcover, under story, and canopy by means of band transect in nested plots through a range of designated land use areas.



Genius Preserve is:



- ❑ A national treasure surrounded by dense urbanization, representing an old Florida setting with a rich history of its own.
- ❑ Intermingled with Citrus, ornamental, and native flowering trees.
- ❑ A mixed Mesic hardwood forest that contains a healthy seed bank.
- ❑ A unique opportunity to preserve Mesic Oak and hardwood hammocks and restore a unique natural setting to its former splendor.

A natural setting with pastoral qualities that invites further investigation...



Humble Beginnings



- The former aviary designated as the nursery area.
- The outer perimeter is cleared and planted with native
- Coral honeysuckle will cover the structure.

Ground Preparation



- A shed is built to serve as a storage and potting area.
- Irrigation is provided to keep new cuttings moist.
- Weed mat is installed.
- Pine straw is used for mulch and pathways.

Taking shape



- Native plantings
Magnolia,
Coontie
Palms,
Chickasaw
Plum, Co
Honeysuc
and
Beautybe

New plantings starting to grow



Making Cuttings



Cutting procedure

- Select plant for propagation.
- Take a 4" cutting from selected plant.
- Strip lower leaves and cut remaining leaves by 50% to stop transpiration.
- Lightly coat base cut with rooting hormone.
- Insert cutting up to first node in light potting medium.
- Date and label cutting.
- Monitor growth and keep moist.

Cuttings propagated from Genius Preserve materials.



- Trays of Bougainvillea, Camellias, Coral honeysuckle, Wild Coffee, Anise, Simpson stopper, Dogwood and Chickasaw Plum have been started.
- For the purpose of reintroducing historical and restorative species to disturbed areas.



Butterfly Orchid Cuttings

Native Orchids are divided and attached to pieces of fallen Oak limbs covered in Resurrection Fern.



Hickory seedling in 15 gallon pot to accommodate root system.

Typically Hickory transplants are unsuccessful past the dormant season. This is an exception and shows signs of emerging growth.



Introducing the natives...



Live Oak

Quercus virginiana



- Live Oaks provide the backbone to the Genius proper vegetative collection.
- Majestic and lived, this is old Florida at its best.
- A home for epiphytes, ferns, orchids, birds, insects and mammals.

Southern Magnolia

Magnolia grandiflora



Magnolia grandiflora



- Large flowering tree found naturally in hammock soils and the border of river swamps along with hardwoods.
- Magnolias are being planted as a beautiful buffer by the Ward House which is an educational facility
- New Magnolias create a magnificent setting for Windsong, the primary residence on the property.

Longleaf Pine

Pinus palustris

- 12- 18 inch long needles.
- Can grow to 120' tall.
- Natural stands of the Longleaf Pine are becoming scarce.
- It resembles a large tuft of grass while establishing it's root system.
- Historically the Longleaf Pine was dense enough to harvest in this area.





Pignut Hickory

Carya glabra

Hickory is the second most abundant hardwood on the property

- Alternate compound leaves. Pleasantly scented. Top leaflets are the largest.
- Stump regeneration is important form of species perpetuity on site as many trees were felled during the 2004 hurricane season.
- Root is 300% bigger than leaves.



Red Cedar

Juniperus virginiana



- The Cedar grove is one of many sections receiving restoration plantings.
- The native red Cedar is used for buffer/screening planting between Genius property and the rest of the world.

Chickasaw Plum

Prunus angustifolia



- Deciduous tree that flowers white in the spring time and bears edible fruit in mid-summer.
- Located in several areas on-site. The Plum serves man and animal, aesthetically pleasing and a food source for wildlife.

Saw Palmetto

Serenoa repens



- Evergreen, providing food source for wildlife.
- Grows in widely varied habitats and creates a micro habitat.
- Saw Palmettos have been planted in Cedar grove and nursery area to create a transition between different habitat mosaics.

Beautyberry

Callicarpa americana



- Naturalizing shrub.
- Can reach 10' tall.
- Insignificant pink flower in summer that turn into purple berries in the fall
- Berries last into winter and are a food source for a variety of birds.

Wiregrass

Aristida stricta

- A favourite food of the Gopher Turtle - *Gopher polyphemus*, native Wiregrass is planted near the nursery and in the Cedar grove.





Coral Honeysuckle

Lonicera sempervirens

- Drought tolerant.
- Non-invasive vine with bright red blooms.
- Songbird, Butterfly and Hummingbird attractor.
- Cuttings readily grow and flower.



Coontie Palm

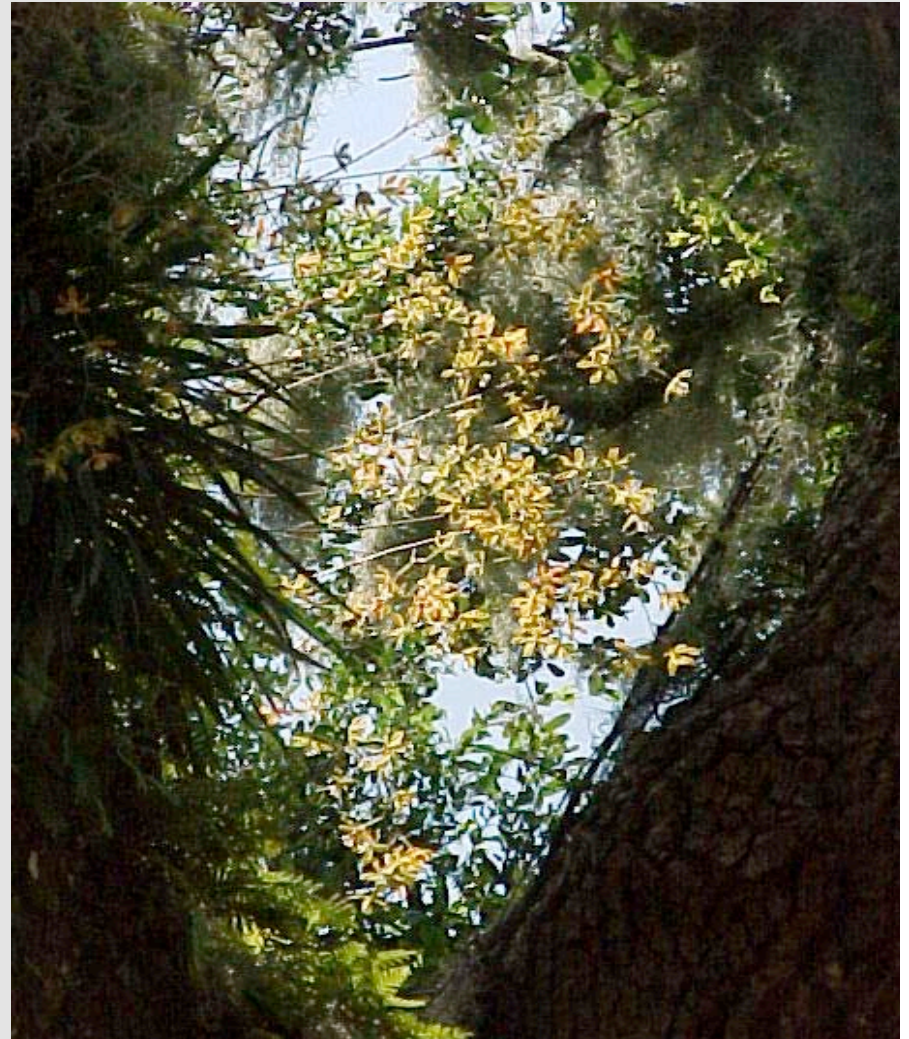
Zamia pulmia

- “Coonties belong to an ancient lineage of cone bearing plants that once were the dominant vegetation on earth... that might be called living fossils.”
(Osorio 229)



Florida Butterfly Orchid
Encyclia tampensis

- Producing fragrant flowers mostly in June and July, large plants were found flourishing in full bloom in Live Oak trees next to our native nursery.
- Found in swamps, hammocks and moist hardwood forests.





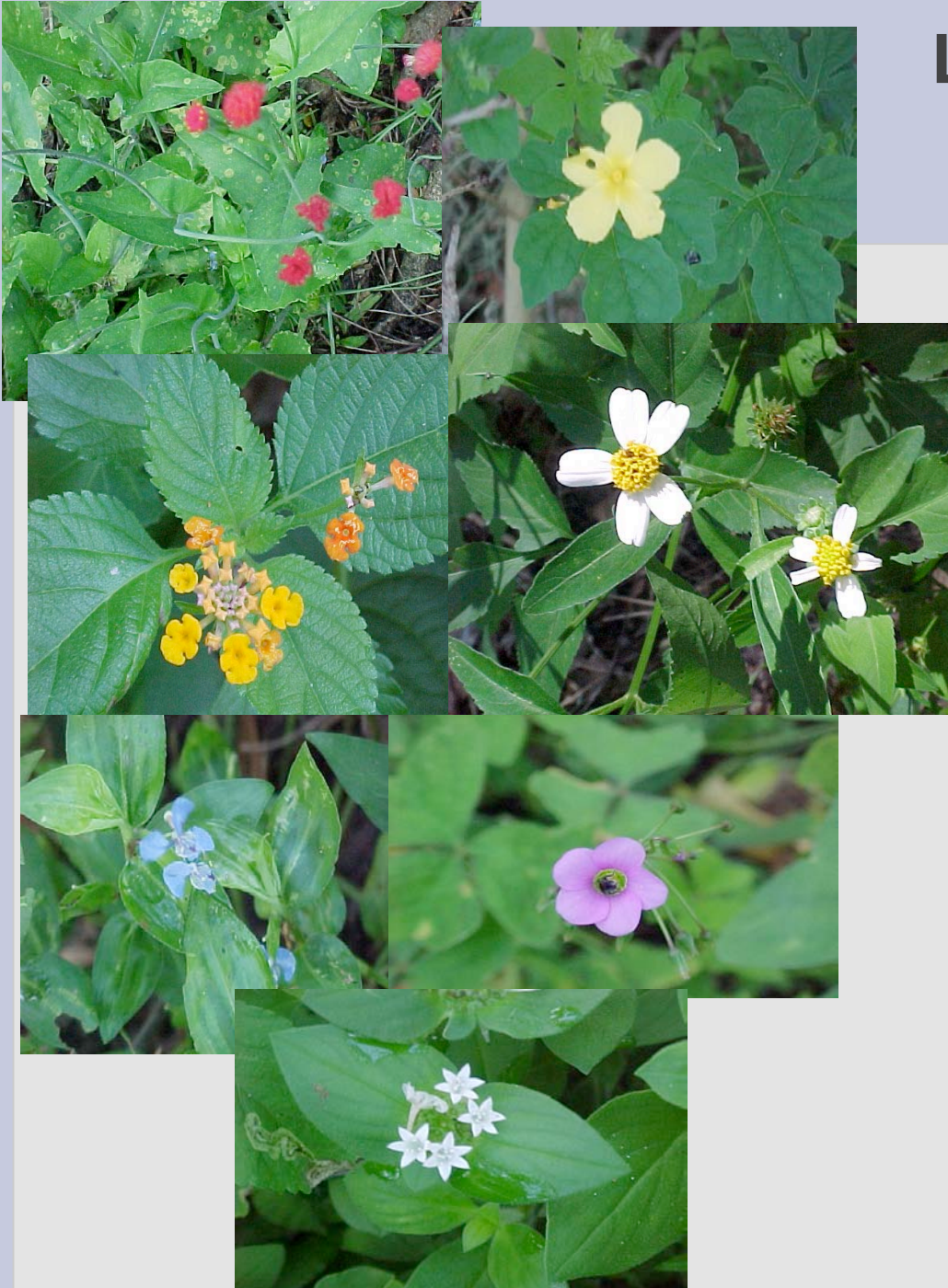
Wild Coffee

Psychotria nervosa

- The plant is utilized by many butterfly and bird species, including cardinals, mockingbirds, catbirds and spicebush swallowtail butterflies.
- Wild coffee grows in a variety of soils types, from wet to dry. It is found in near-coastal hammocks, pinelands and shell ridges.
- Information provided by Florida forest plants.



Long Lived Wildflowers



- “Florida has a vast assemblage of small, overlooked, often trodden upon little plants that are usually derisively dismissed as being only of botanical interest. However, many such plants turn out to be diminutive treasures that reward closer scrutiny and merit more extensive cultivation.” (Osorio 111)

Animal wildlife

- A variety of species are present on the property.
- Tortoise, Turtles, Fox, Raccoons, Rabbits, Hawks, Water birds, Hummingbirds, Woodpeckers, Snakes and introduced Peacocks to name few...
- This array of wildlife attests to healthy ecosystems capable of sustaining such diversity.

Yellow Rat Snake

Elaphe obsoleta

- Nursery Visitor.
- Identification provided by Florida Museum of Natural History- Herpetology keying online.
- 4 brown to black longitudinal stripes.
- “Weakly keeled” scales do not reflect light.
- 40-70” long.





Gopher Tortoise

Gopherus polyphemus

- Keystone species with several dens on the property.
- A large Gopher Tortoise and an active den is discovered on the west side of the packing plant under an uprooted Oak.
- The near proximity of the burrow to the native nursery promoted the Wire grass plantings to encourage this big fellow to stay in the vicinity.



Unidentified discovery...

- Located just outside of the native nursery, a clutch of eggs were discovered in a ground out tree stump. The grindings were hot and moist, the elevation was higher than the surrounding ground surface. Our theoretic identification leans towards a water turtle. The nest is being monitored.





Raccoon

Procyon lotor

- Three babies and their mother were seen in the trees by the packing plant
- Omnivorous, they eat nuts, grubs, some insects, and eggs.
- These little fellows were probably born in April or May.

Eastern cottontail

Sylvilagus floridanus



- Range is statewide
- Herbivore
- Nocturnal
- Some have been introduced on site to increase species diversity.

Grey Fox

Urocyon cinereoargenteus floridanus



- Two dens are located in the large citrus grove between the nursery and Windsong home.
- Nocturnal predator, but tracks were observed during summer project.
- Picture provided by Tallahassee Museum History and Natural Science.

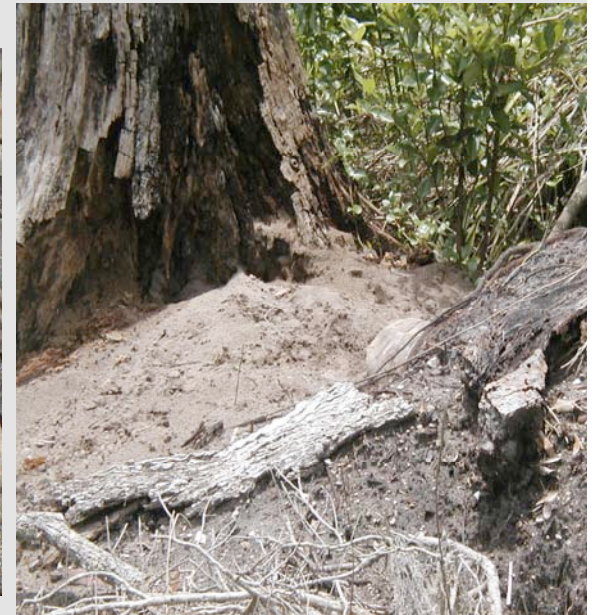
Red-tailed Hawk

Buteo jamaicensis

- Nesting begins in February and continues through June.
- Three young hawks were noted consistently in the disturbed Mesic hardwood hammock area.
- Enjoying the natural snags and tall trees, they provide the service of keeping mice and rats in check.



Dens, Burrows, Prints & Bones... new activity noted everyday



Natural Disturbance Area

2004 Hurricane – Mesic Hardwood Hammock



Restoration areas

- New Magnolias, Red Cedar, Live Oaks, Plums and Dogwoods are planted in the Oak hammock.



Live oak hammock (hammock is Indian for "shady place")— This is a unique land form and vegetation type restricted to the south-eastern portion of North America, especially Florida.



Mesic hammock assessment include identifying troublesome invasives to be removed

- **Air Potato** - *Dioscorea bulbifera* – can grow to 60 feet and take over canopy trees – aerial tubers look like potatoes.
- **Camphor** - *Cinnamomum camphora*
- trees produce numerous seeds and grow like weeds. They have few enemies or diseases.
- **African Ear Tree** – *Enterolobium* – vigorous re-sprouting below girdle line, ear shaped seed pods distribute with wild abandon.



Donations to Rollins include:

Live Oak -*Quercus virginiana* donated by J & W Tree Farms



- This Live Oak will help to create the canopy in the buffer area between the Genius Preserve and the new homes abutting the property
- This area lost several trees due to the 2004 hurricanes.

Laurel Oak- *Quercus laurifolia* donated by Beckle Tree Farms



- This tree is planted along a transition zone from the road to the Windsong home.
- Invasive materials have been extensively removed in this area. The disturbed sections have been planted with Oaks and Magnolias.

Pink Tabebuia

Tabebuia heterophylla
donated by Four B's
Nursery



- ***Pink Tabebuia* is an ideal choice for sensational seasonal color on the main drive.**
- **The pink spring blossoms are quite showy. The tree itself is non-invasive and has no pest or disease problems and is drought and cold tolerant.**



**Dogwood *Cornus florida*
and Live Oaks *Quercus
virginiana* donated by
Garden Palette**



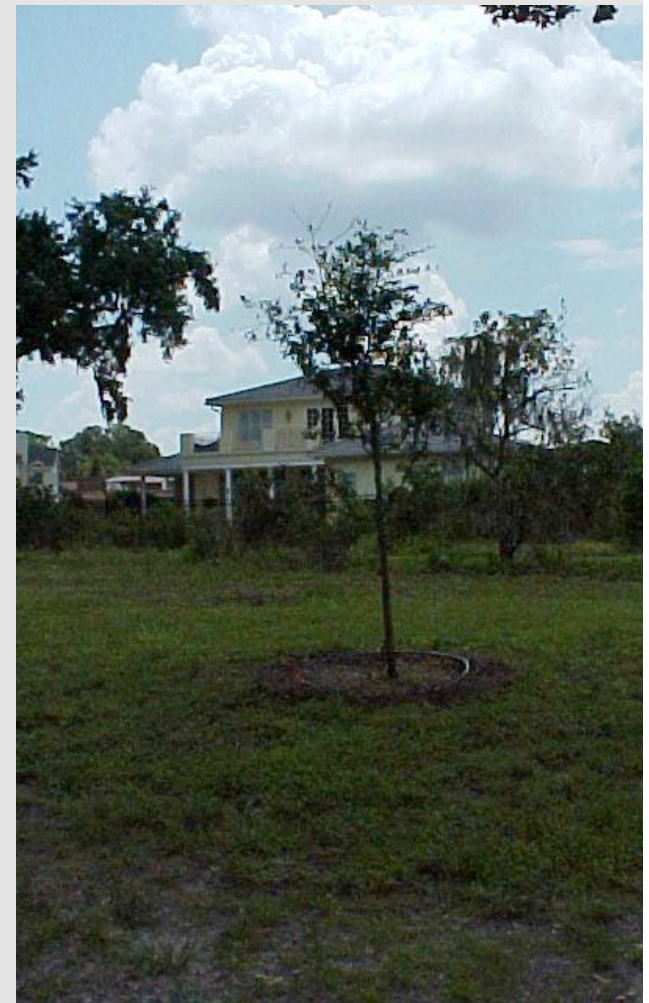
These trees are
all planted near
the new native
nursery.



Live Oaks donated by Cooks Tree Farm



Quercus virginiana are used in open areas and near the road to create future shade, ambiance and screening.



Stump grinding generously provided by Charlie Theurer of Arboricultural Services

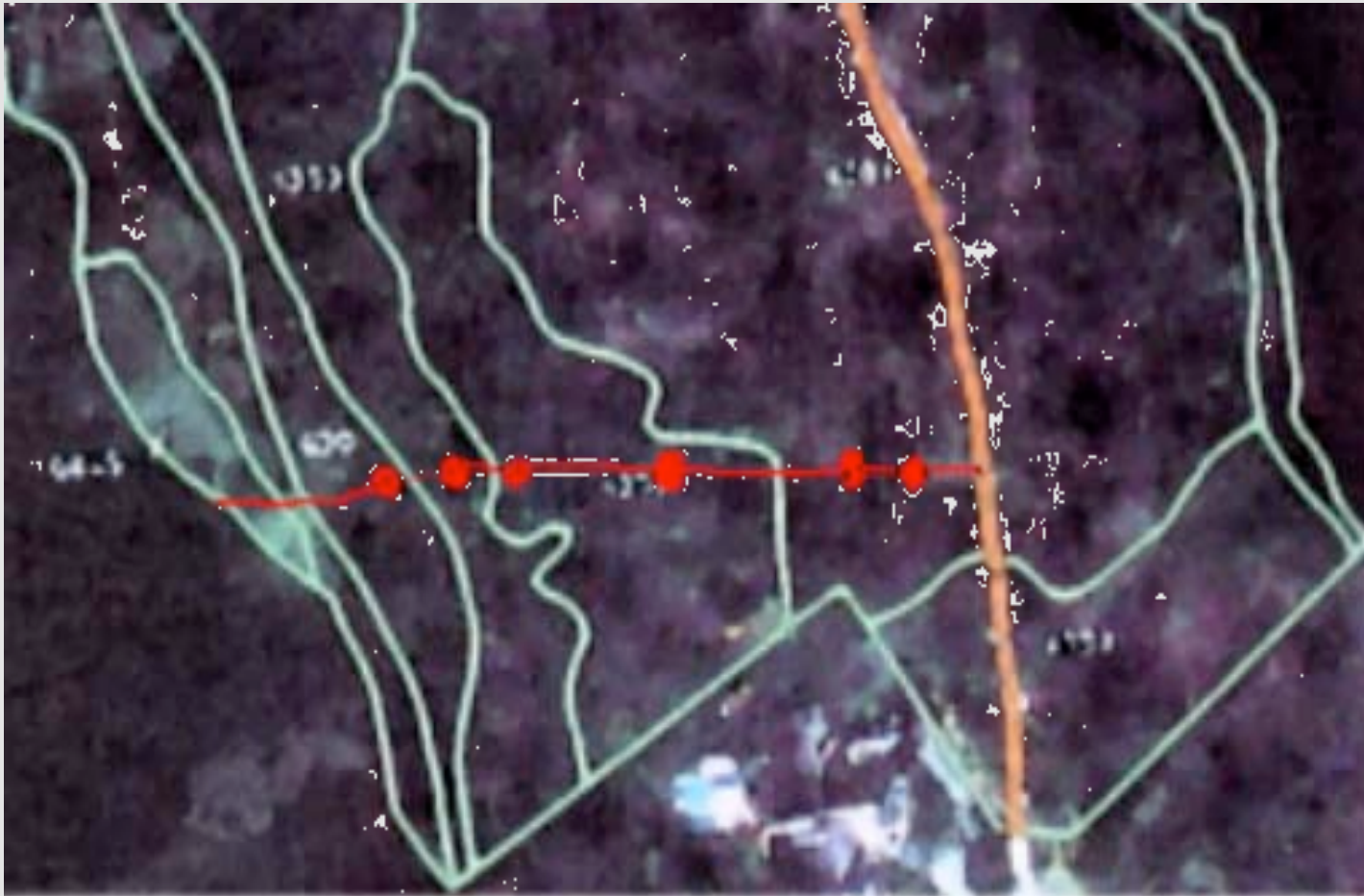


Creating a handshake over the fence

- Dr. Bruce Stephenson and Alan from the Rollins Greenhouse look at the buffer zone between the new homes in Windsong subdivision and the Genius property.
- The careful placement of Oaks, Cedars, and Magnolia trees creates a win-win situation for the homeowners and the Genius Preserve.



Band transect project: 250' from Glenridge gate to Lake Virginia



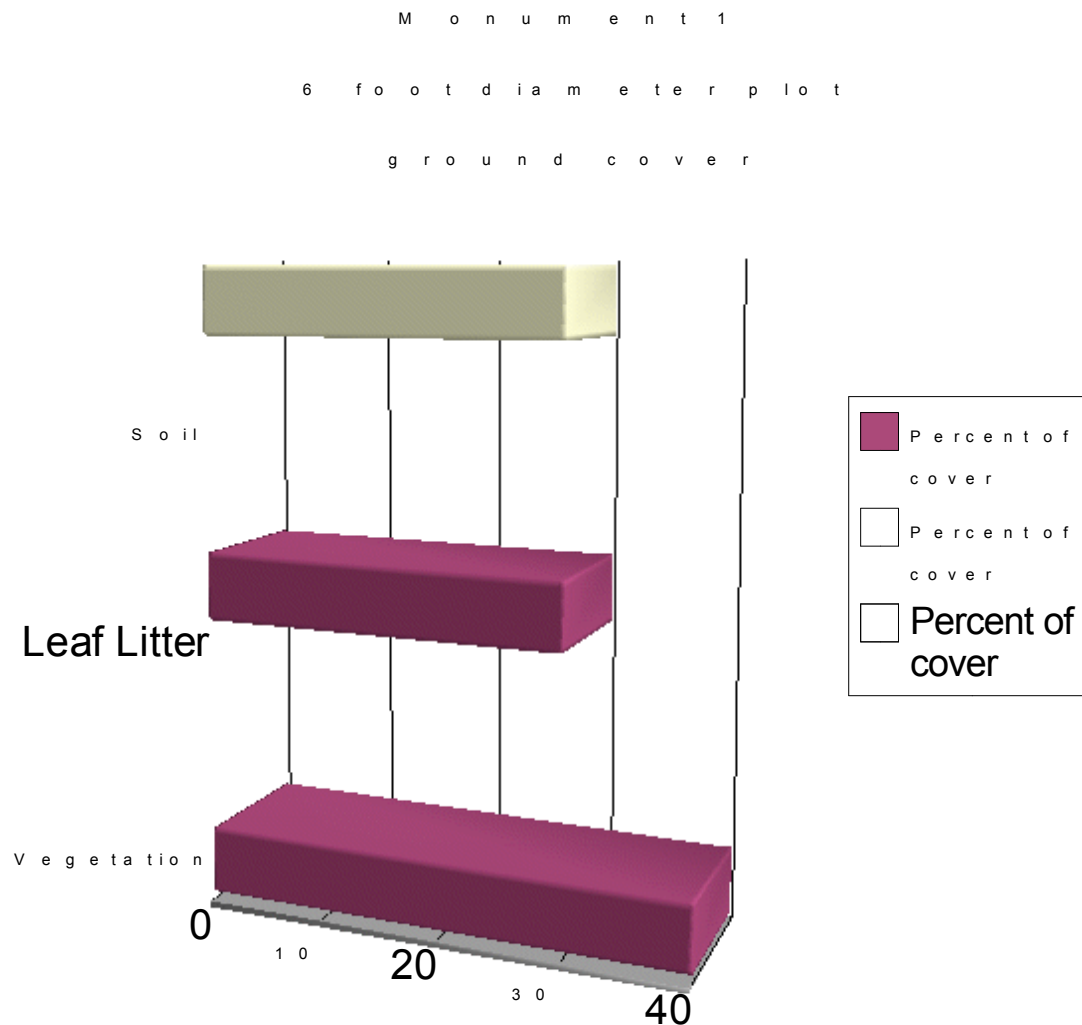
- Vegetative delineation based on aerial work with polygons designating specific land compiled by Bill Grey, Sp 2005
- At each monumer vegetative data gathered using nested plot sampling

Selected Study Area

- 4391- Mixed Hardwood Canopy with some Disturbed Groundcover
- 4392 – Mixed Hardwood Canopy with dense Native Under story
- 4393 – Mixed Hardwood Canopy with Fern Groundcover
- 630 - Wetland Forest – Mixed
- 641 – Freshwater Marsh – Cattail
- 6445 – Water Lily

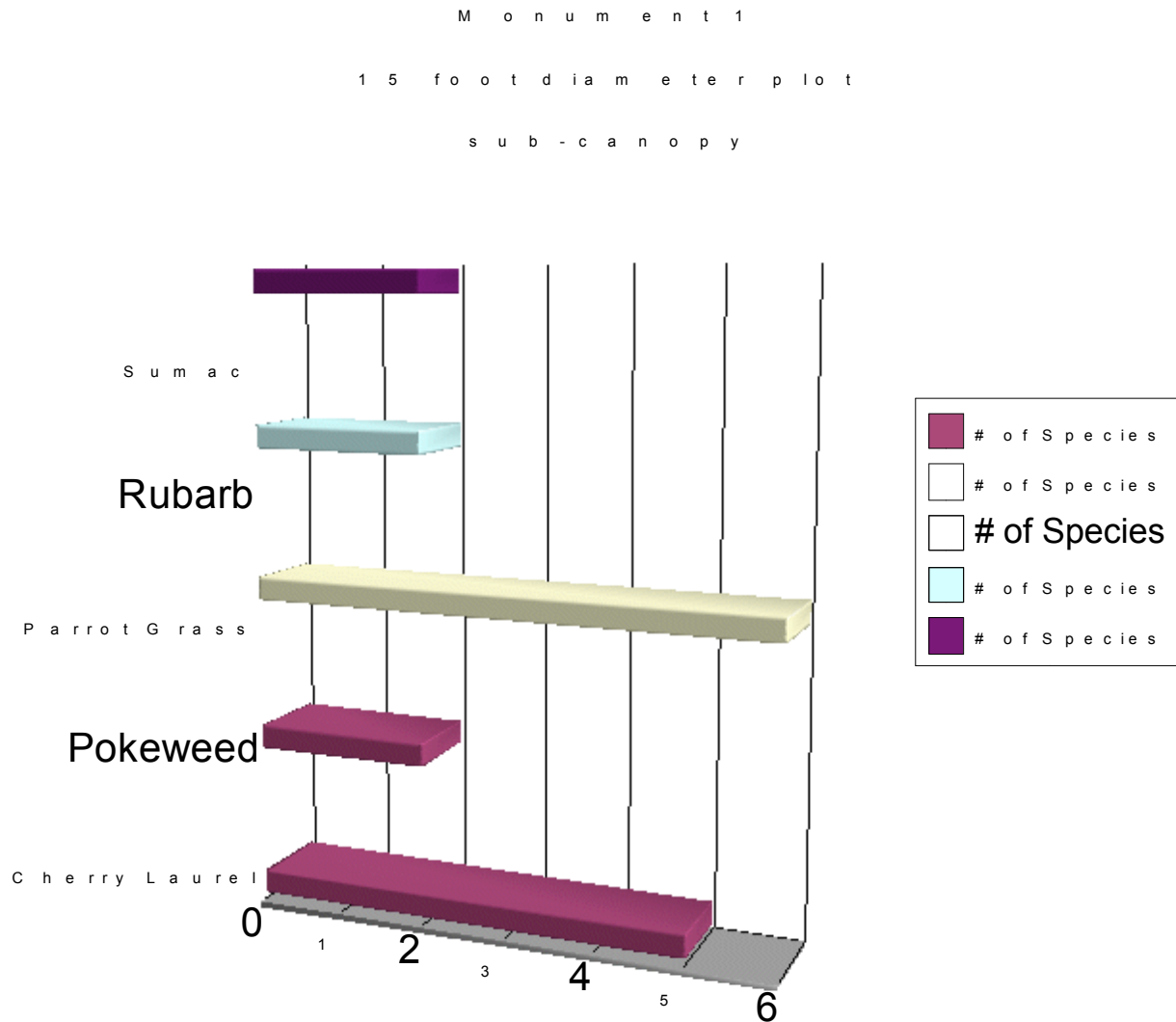


4391- Mixed Hardwood Canopy with Some Disturbed Groundcover



- Virginia creeper and Caesar weed are the predominant herbaceous ground covers.
- Common leaf litter and salt and pepper (50% sand and 50% organic matter) soil are equally distributed.

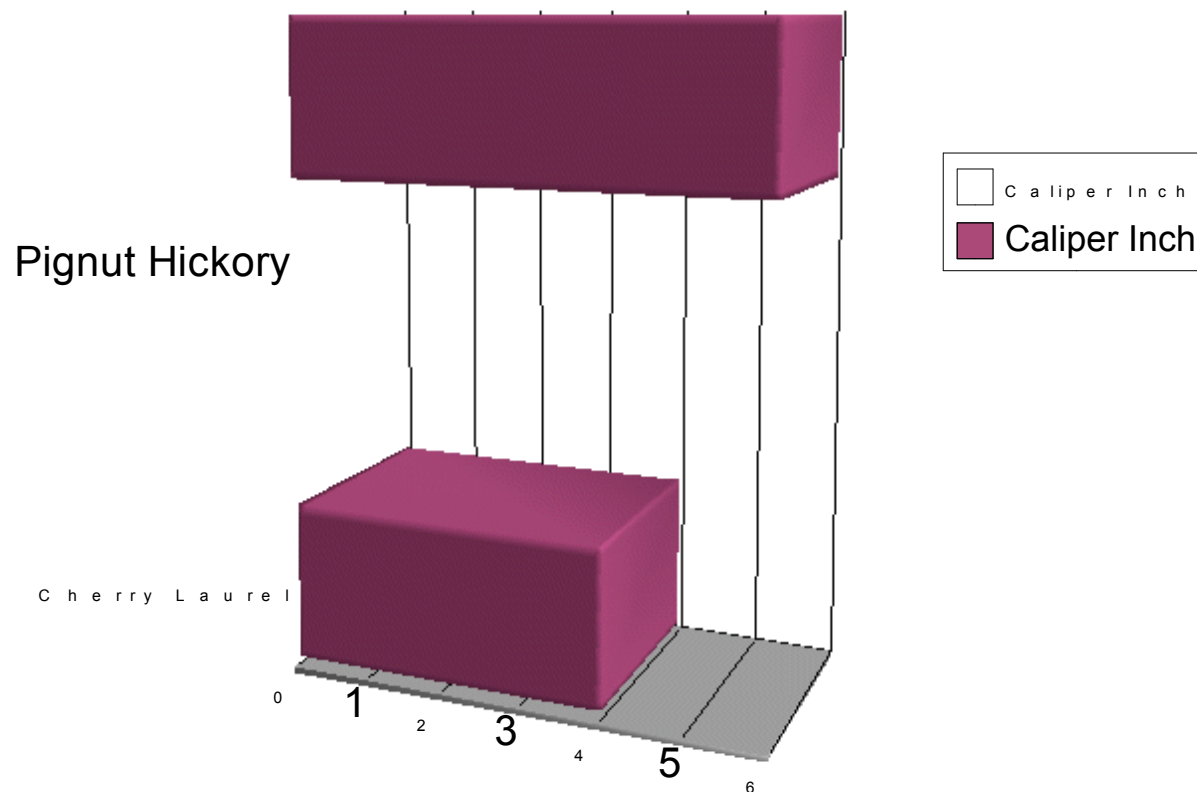
4391- Mixed Hardwood Canopy with some Disturbed Groundcover



- In this hurricane disturbed area of the property, succession plants such as sumac are present along with large weedy rhubarb and parrot grasses that grow unimpeded from lack of canopy or natives.

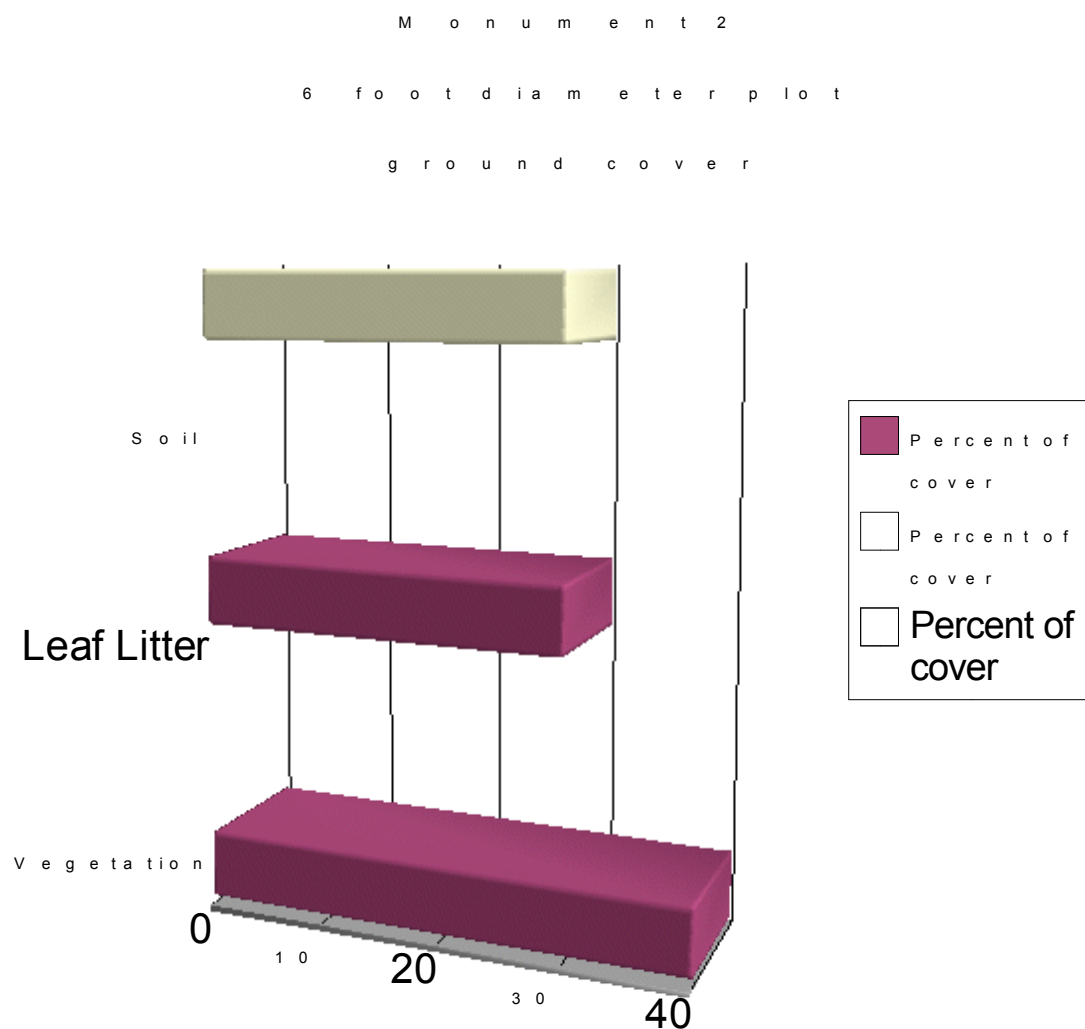
4391- Mixed Hardwood Canopy with Some Disturbed Groundcover

Monument 1 30 foot diameter plot canopy



- Two sapling trees were the sole canopy survivors in this data study area.
- These two species provide approximately 2% canopy density.
- Most common species in this plot is the Cherry laurel.

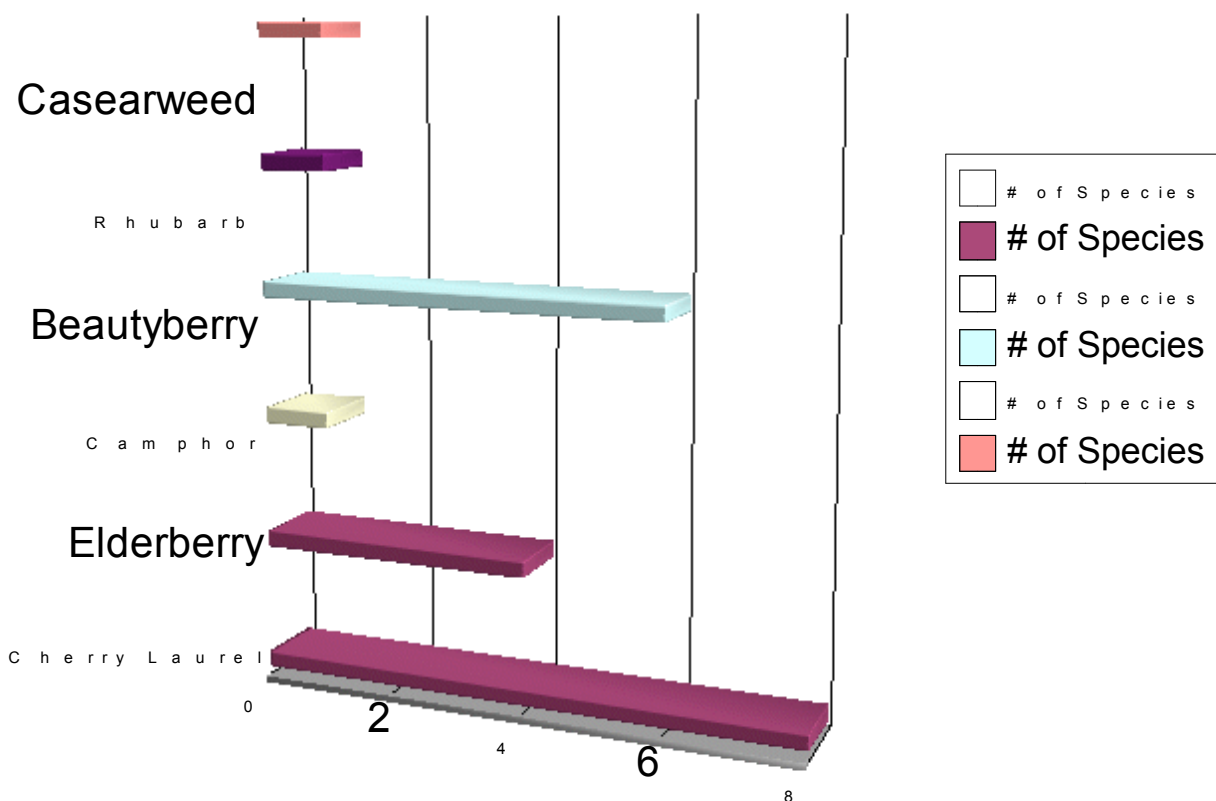
4391- Mixed Hardwood Canopy with Some Disturbed Groundcover



- Stink vine, grape vine grasses and assorted weeds make up the vegetation in this area.
- Highly disturbed area with ground fungus noted.
- Soil and Leaf litter were in equal distribution.

4391- Mixed Hardwood Canopy with Some Disturbed Groundcover

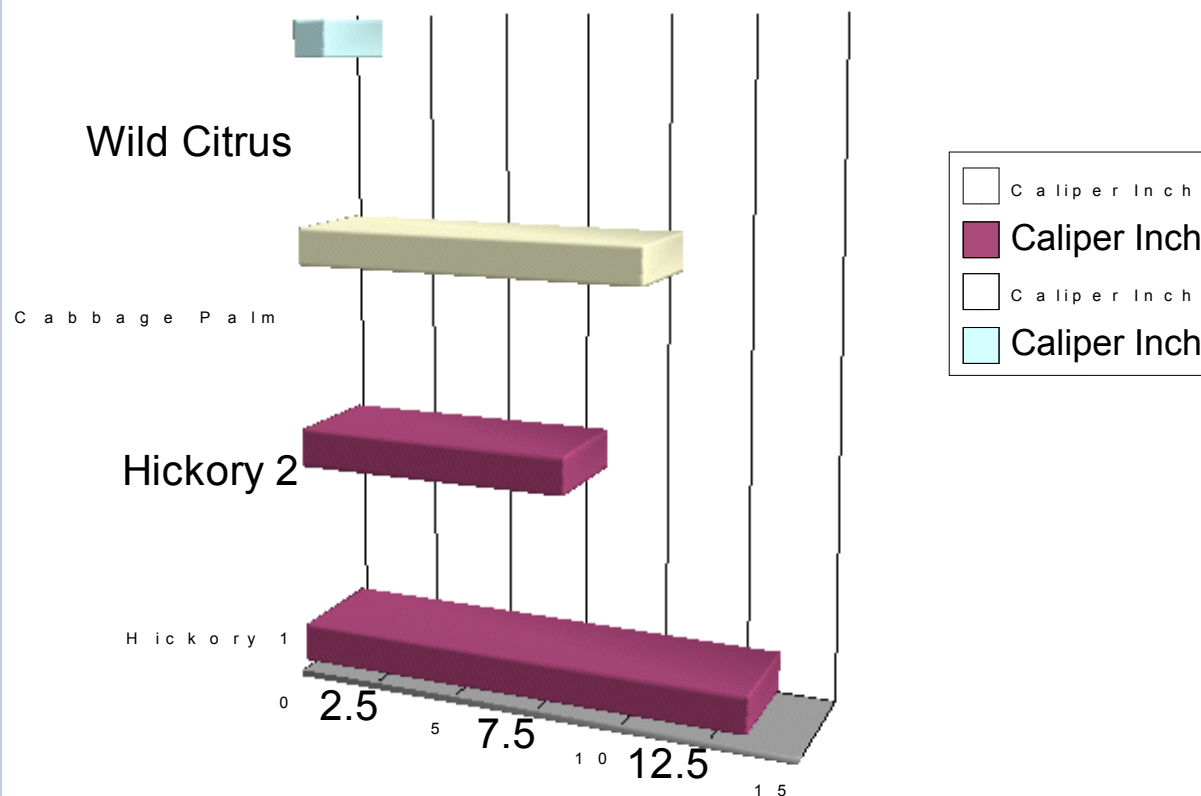
Monument 2 15 foot diameter plot sub-canopy



- We were encouraged to see Beautyberry competing with Cherry laurel for number of species in this data set.
- Nuisance weeds were present but not dominant.
- Part of the disturbance in this plot includes fallen logs and branches.

4391- Mixed Hardwood Canopy with Some Disturbed Groundcover

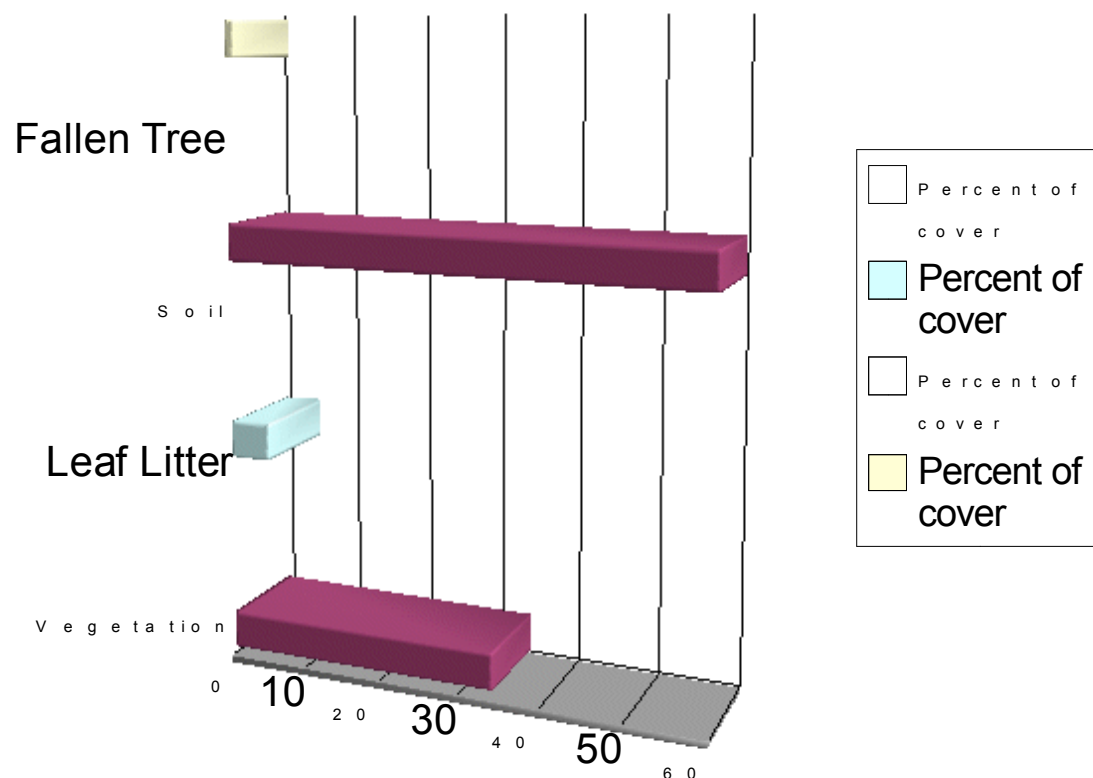
Monument 2 30 foot diameter plot canopy



- Citrus is in high subcanopy. Was not noting, not for caliper inch, but for contribution to canopy density.
- Density cover for the plot was 35%.
- Red, white and orange lichens as well as spanish moss were found on Hickory #2
- Three Juvenile Red Tailed Hawks were active in this plot.

4391- Mixed Hardwood Canopy with Some Disturbed Groundcover

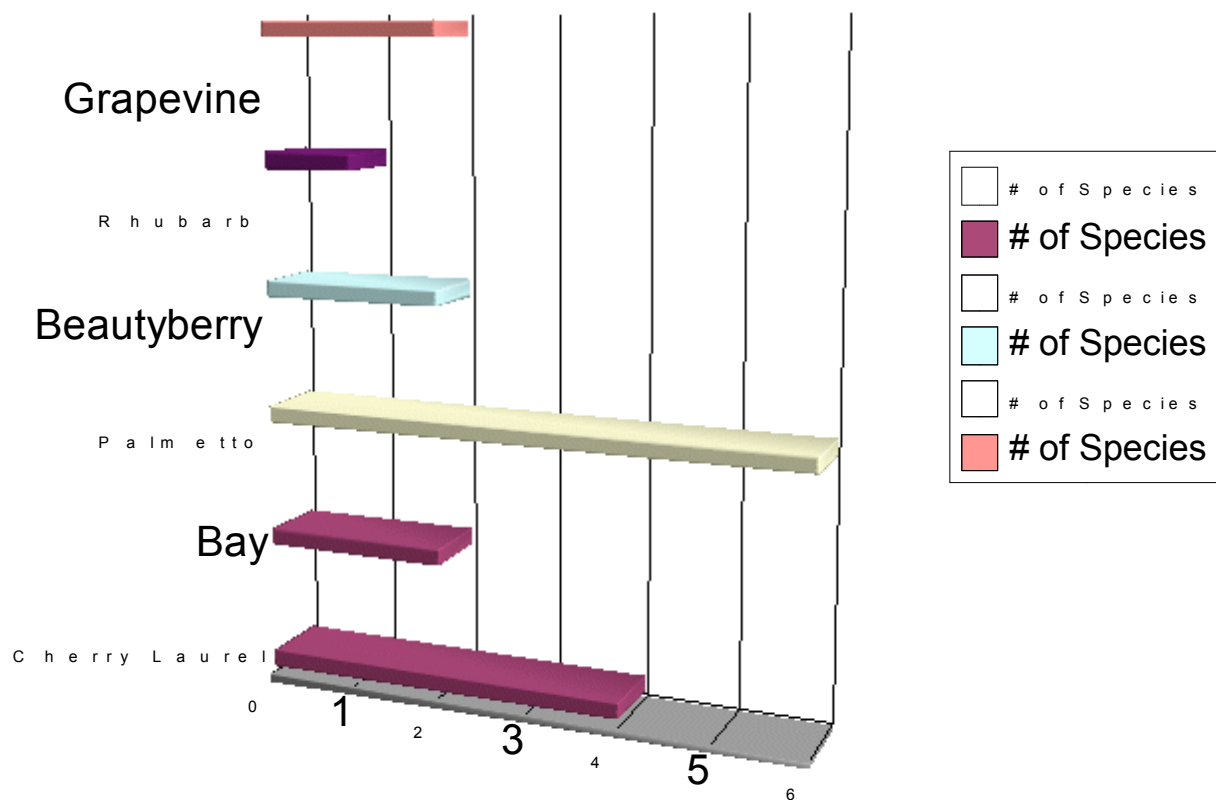
Monument 2A 6 foot diameter plot ground cover



- The distance between monuments 2 and 3 is so great that an edge was tangibly felt and it was decided to add a monument "2A" to document vegetation changes.
- A den was noted under the fallen tree that is part of the groundcover.
- Six inch soil sample revealed 50/50 salt and pepper composition.

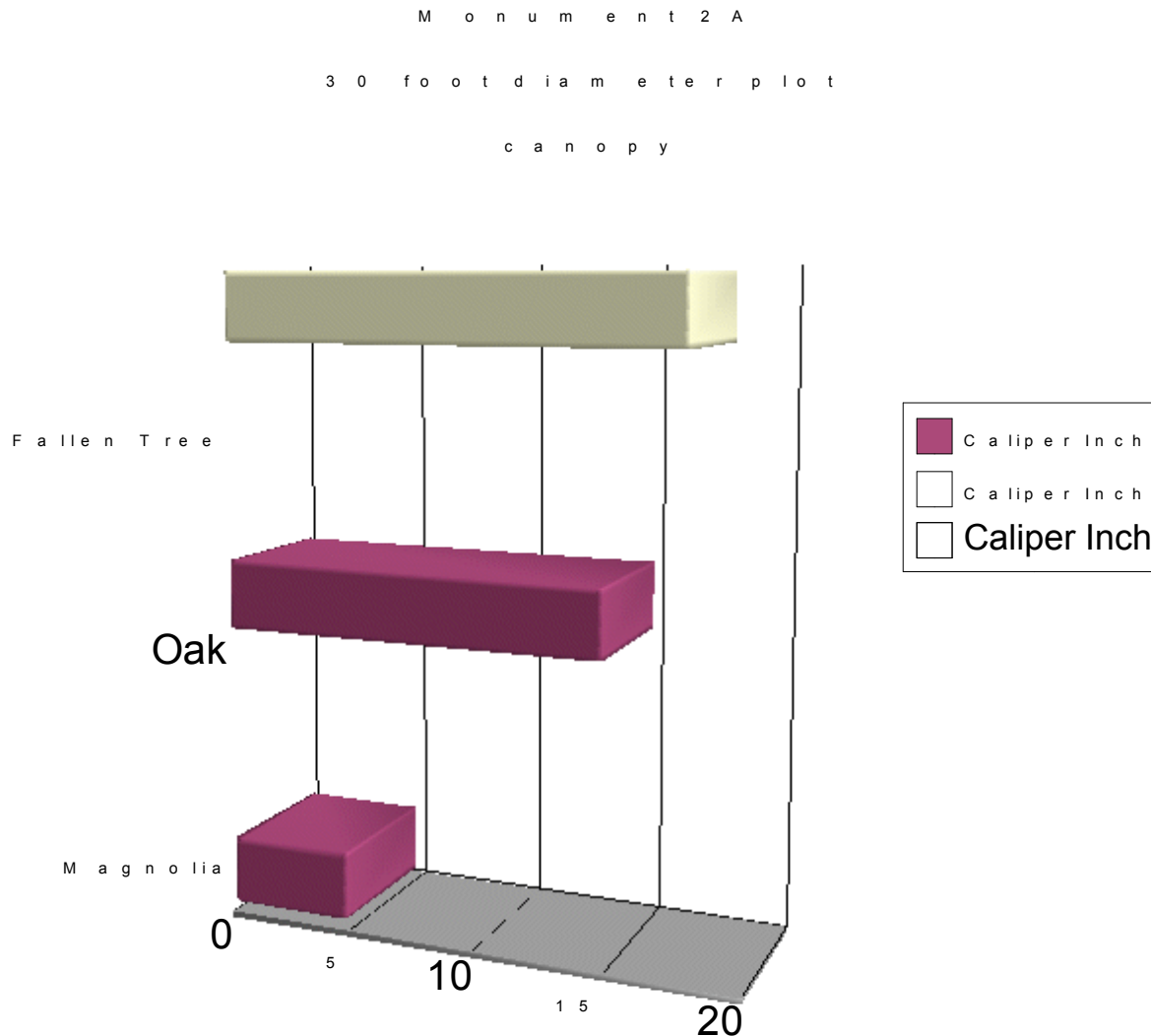
4391- Mixed Hardwood Canopy with Some Disturbed Groundcover

Monument 2A 15 foot diameter plot sub-canopy



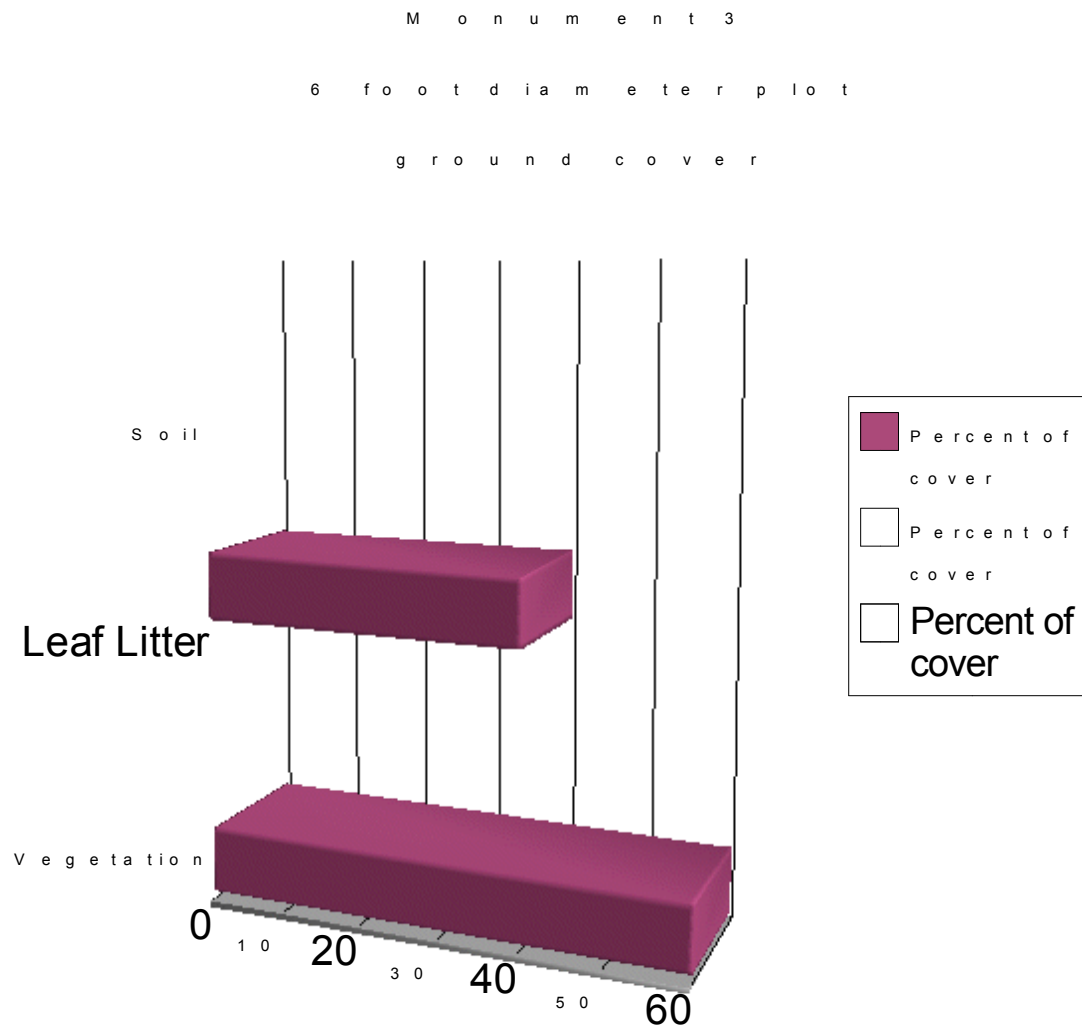
- Transition edge is noted from introduction of Palmetto and Bay
- Decrease in noxious weeds.
- Most of sub-canopy count is from sapling trees.
- None of the species in the sub-canopy were of any significant size.

4391- Mixed Hardwood Canopy with Some Disturbed Groundcover



- Estimated canopy density is 20%.
- The caliper inch of the trunk of the oak was not consistent with the canopy coverage. Oak had significant crown loss.
- Fallen tree is noted canopy loss comparison from natural disturbance, 2004 hurricane season.

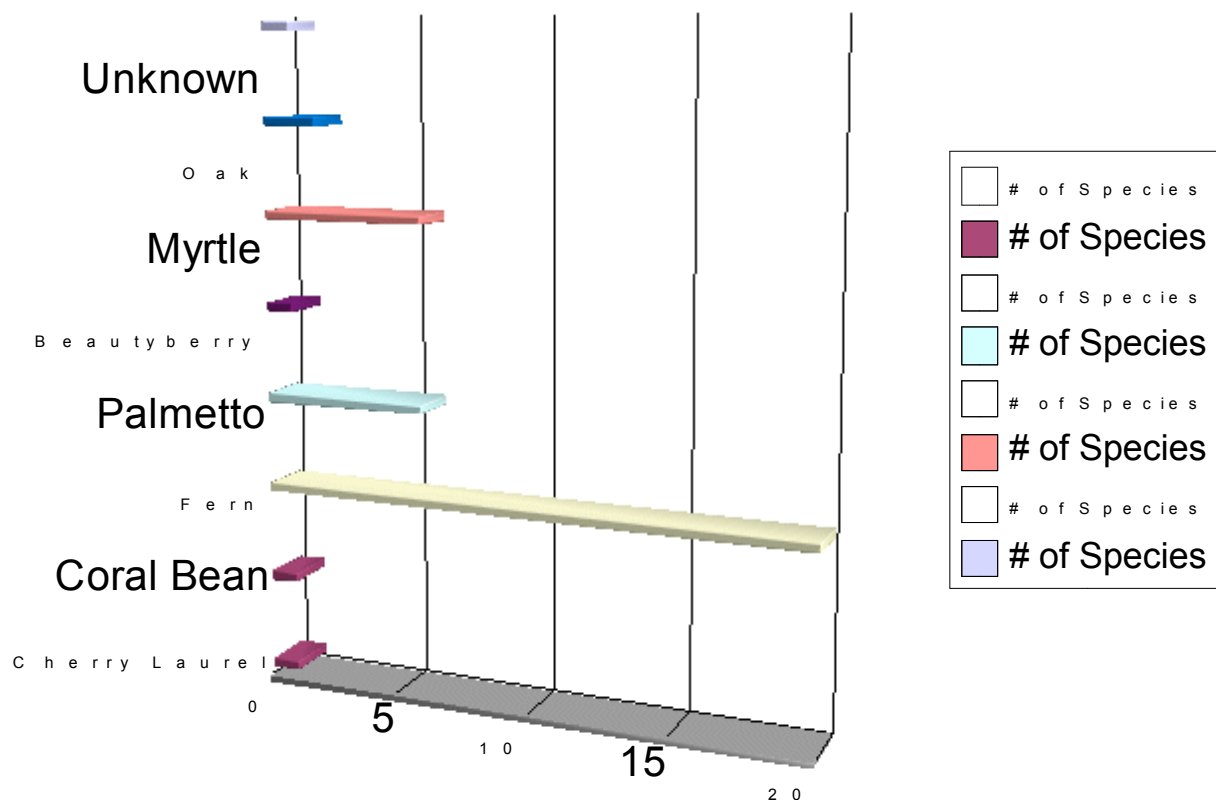
4392- Mixed Hardwood Canopy with Dense Native Understory



- No exposed soil in this data plot.
- Herbaceous species include various vines including grape.
- Surface condition is notably moist.

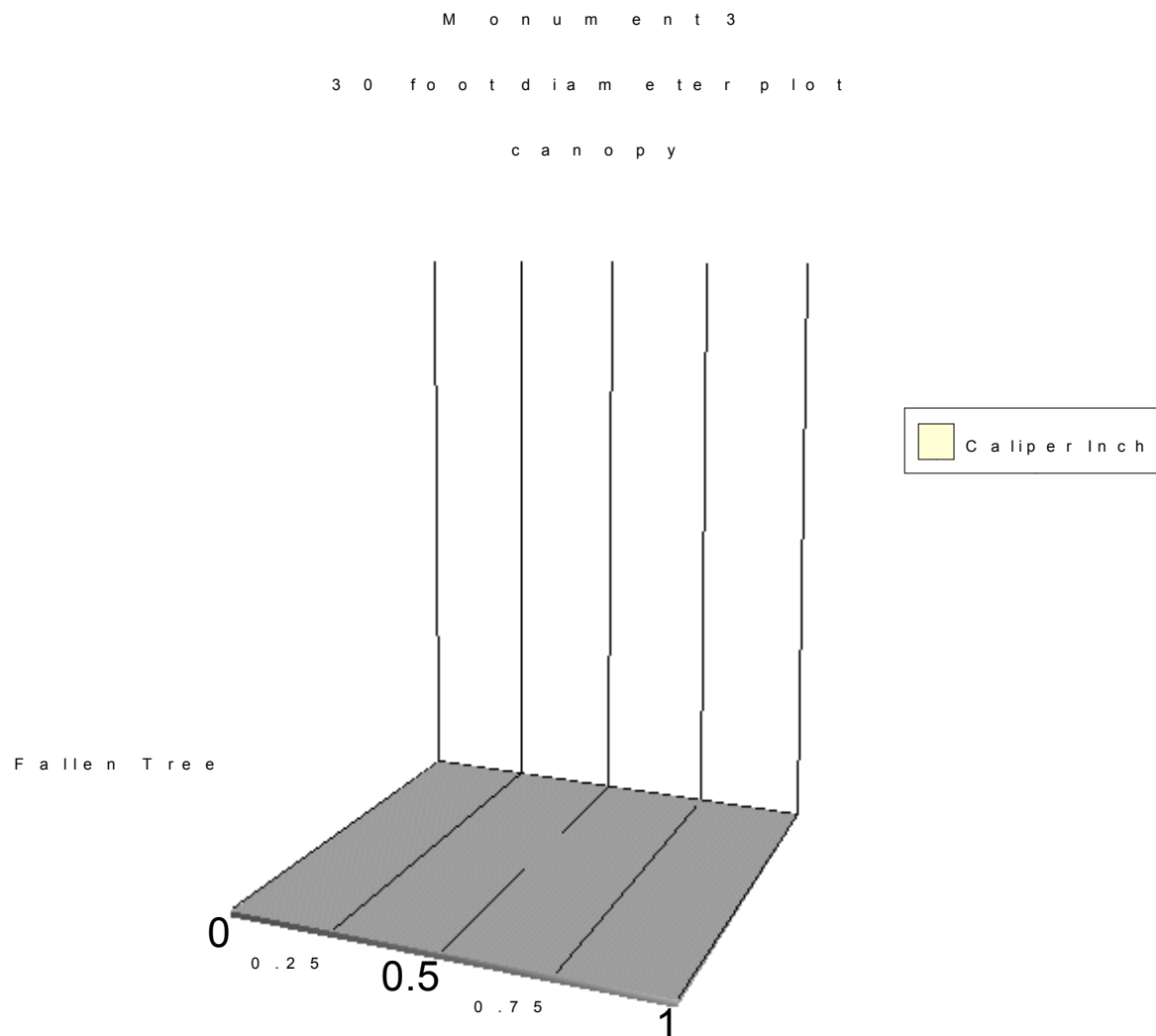
4392- Mixed Hardwood Canopy with Dense Native Understory

Monument 3 15 foot diameter plot sub-canopy



- Fern is the dominant understory species which is consistent with the soil moisture increase.
- White fungi or coral were noted attached to a large fallen tree trunk indicating the decomposition process taking place.
- Wildlife note: Eastern Cottontail Rabbit present.

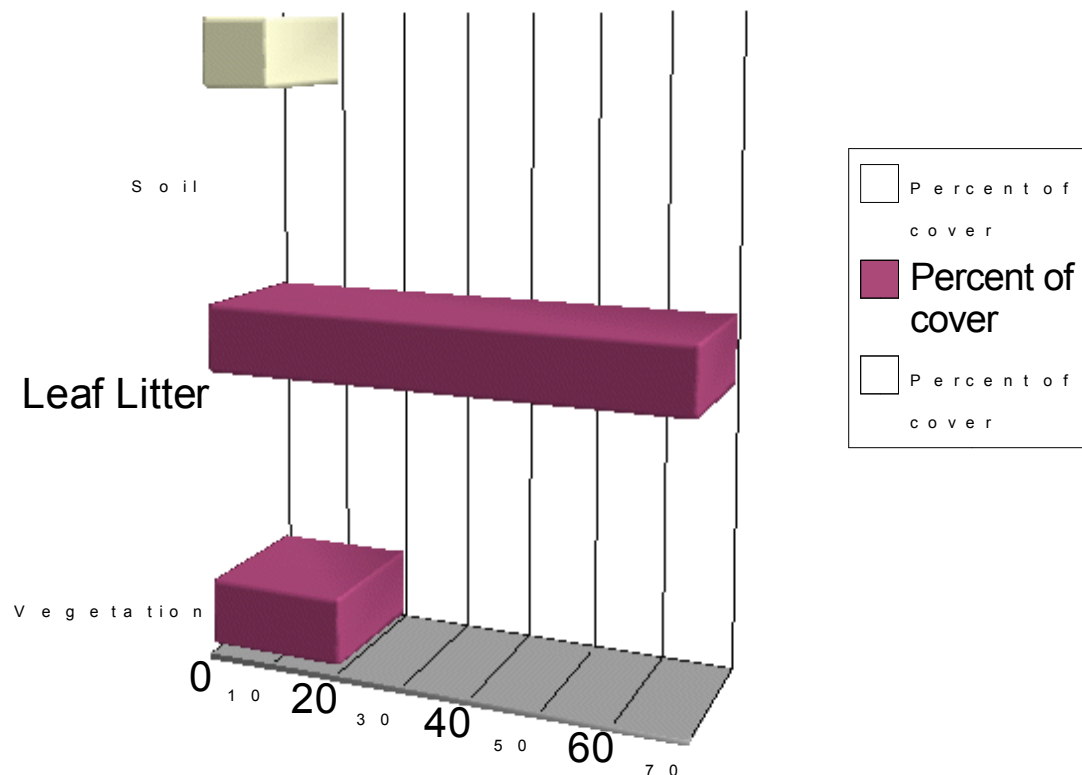
4392- Mixed Hardwood Canopy with Dense Native Understory



- Estimated canopy density is 0%.
- Inches from the perimeter of this plot is an 11.25 caliper inch Bay tree. This tree provides canopy cover for our plot, but cannot be included quantitatively as the trunk is outside the 30-foot diameter.

4393 – Mixed Hardwood / Fern Groundcover

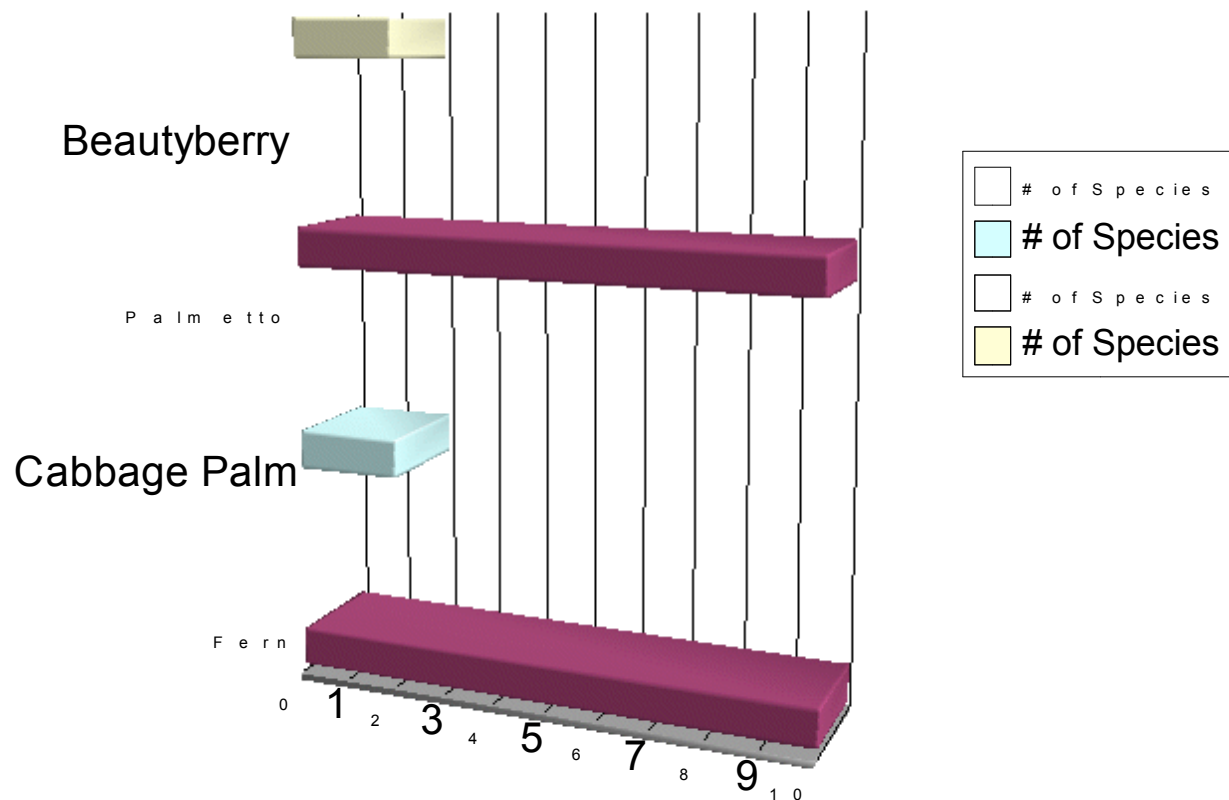
Monument 4 6 foot diameter plot ground cover



- 7" deep soil sample with top 1/2" is organic material. The balance of the sample was 60/40 salt/pepper, moist, muc texture.
- Surface of soil is moist to the touch.
- Herbaceous species in seedling form under 12 are Hickory, Oak, Bay, Cherry Laurel, Virginia Creeper, Fern, Poison Oak and weeds.

4393 – Mixed Hardwood / Fern Groundcover

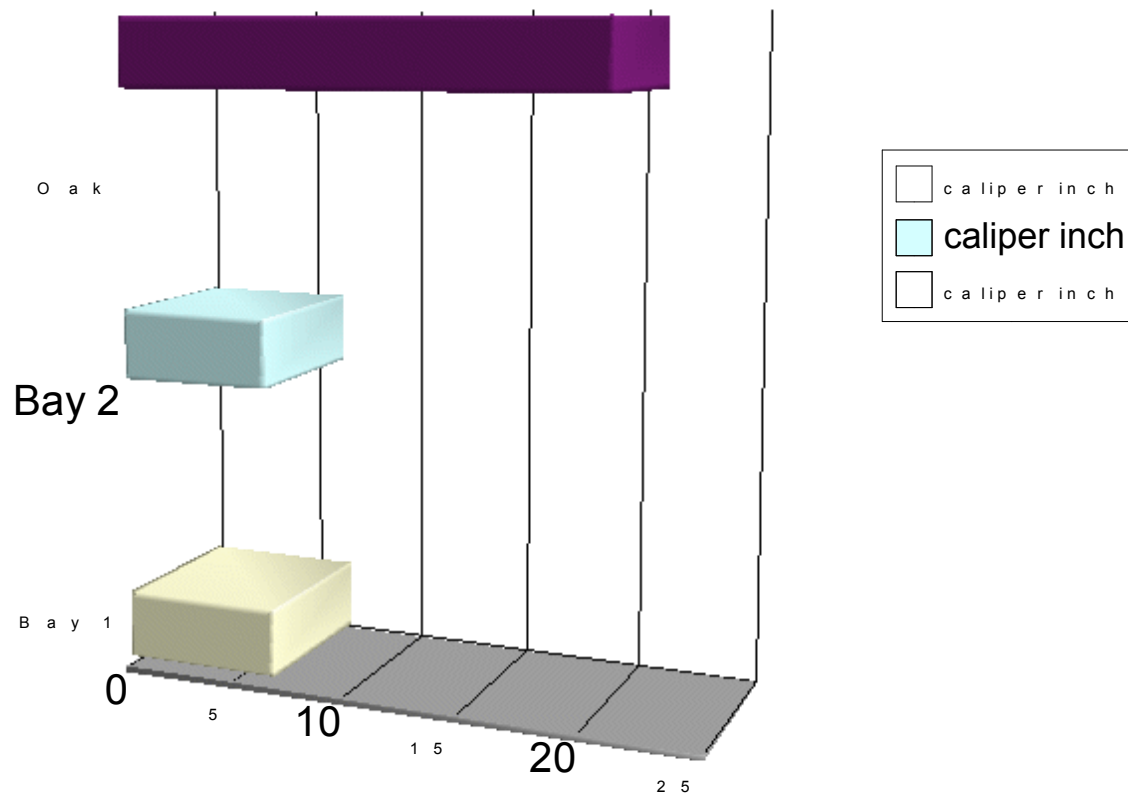
Monument 4 15 foot diameter plot sub-canopy



- Fern and Palmetto are the dominant understory species
- Numbers are greater than 10 for Fern and Palmetto counts and appear to be in even distribution.
- Elevation is dropped from the last monument, which is consistent with this vegetative species type.

4393 – Mixed Hardwood / Fern Groundcover

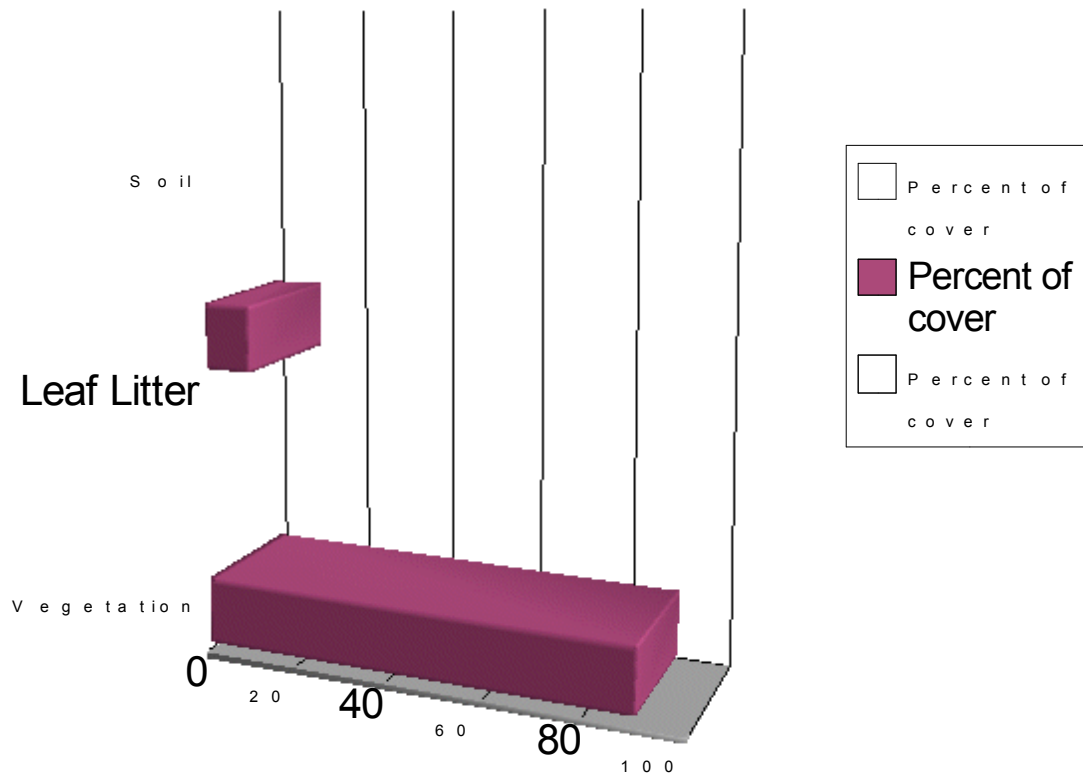
Monument 4 30 foot diameter plot canopy



- Cabbage palms were considered to be part sub-canopy as a caliper inch measurement (diameter at breast height) did not apply. Fronds from base of p were 9' tall, yet palms have not yet obtained diameter.
- Fronds are providing canopy coverage for f and groundcover.
- Top of Bay #1 has cro damage. Re-generatio present below the damage.

630 - Wetland Forest – Mixed

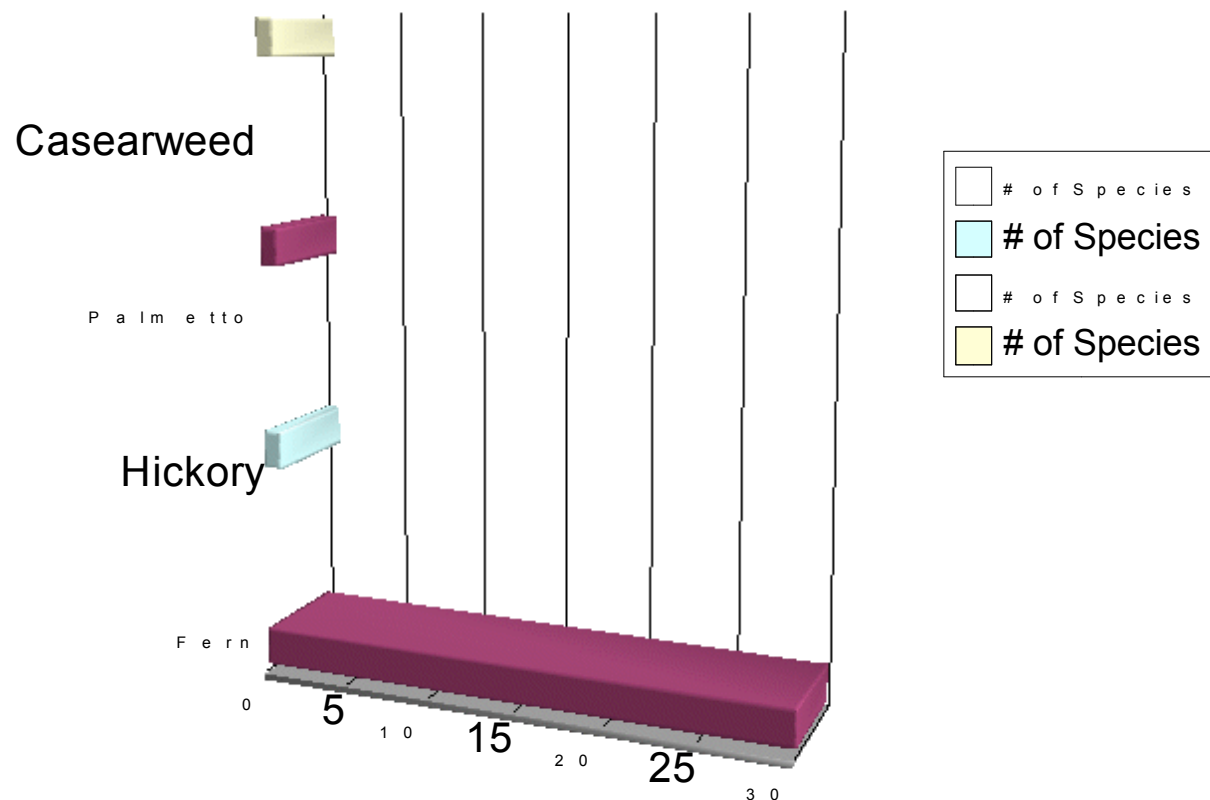
Monument 5 6 foot diameter plot ground cover



- **7" soil sample taken**
Top 1" = 50/50
salt/pepper. Balance
of sample = 80/20
salt/pepper with
mucky texture.
- **Herbaceous species**
include Fern,
Grapevine,
Casearweed and
unidentified vine
species.
- **Leaf litter included**
fallen branches

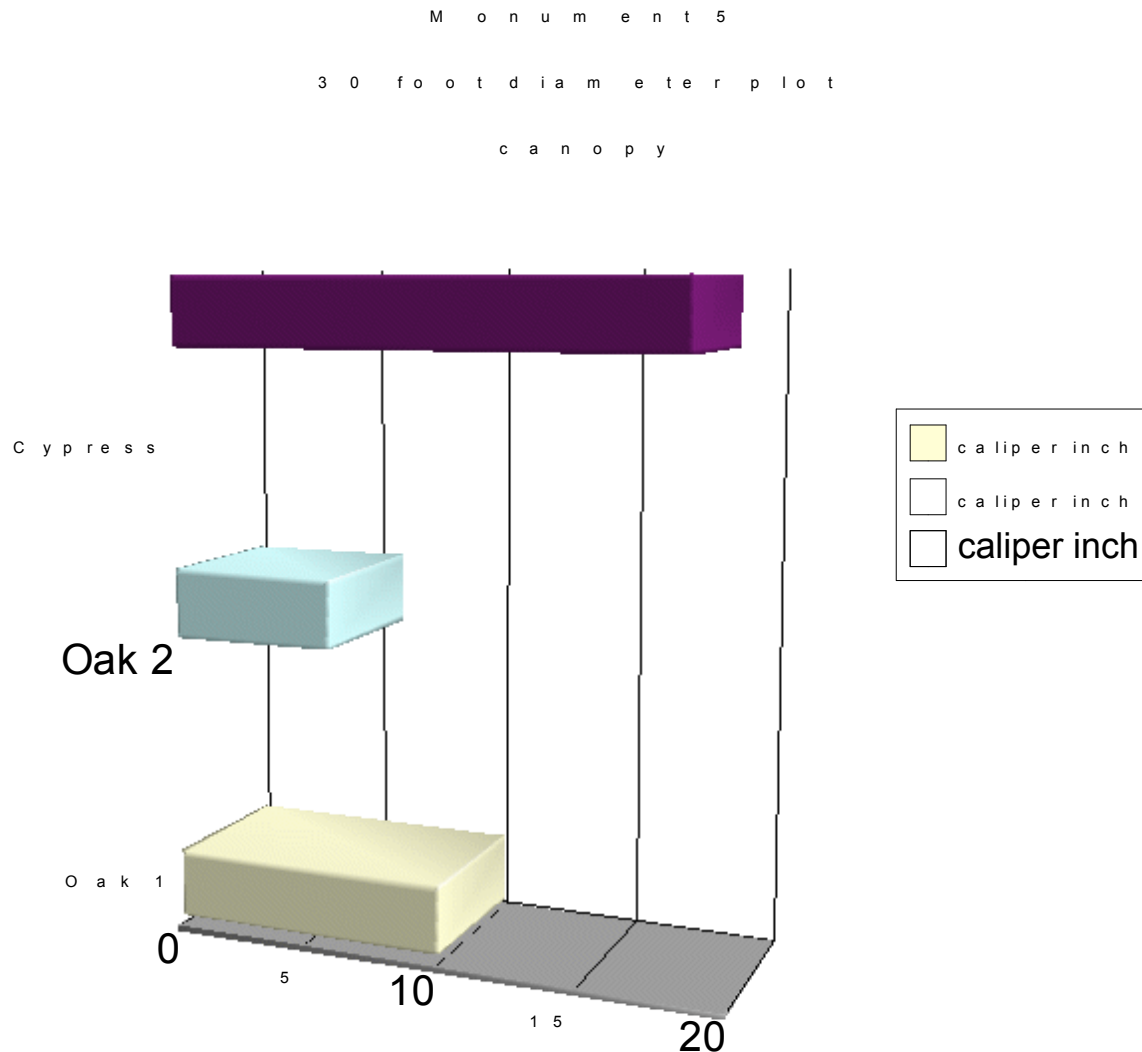
630 - Wetland Forest – Mixed

Monument 5 15 foot diameter plot sub-canopy



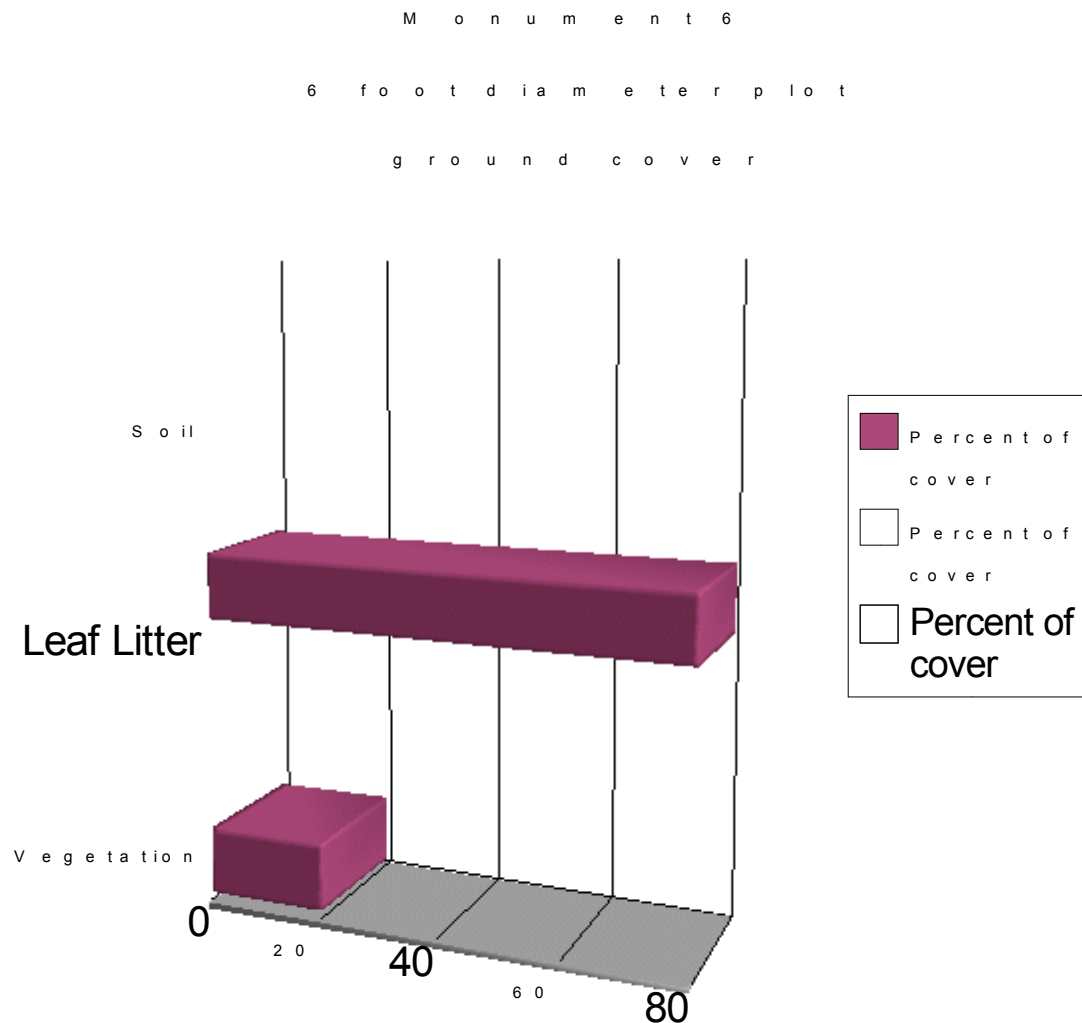
- Fern are numerous and count greater than 30.
- A trail edge is eastern perimeter this plot.
- In sub-canopy outside perimeter collection area, tu cap and beauty b are noted.

630 - Wetland Forest – Mixed



- Estimated canopy density is 75%.
- Both Oak trees have spatulate shaped leaves.
- Cypress is a new species and is consistent with moist soil conditions and proximity to lake edge.

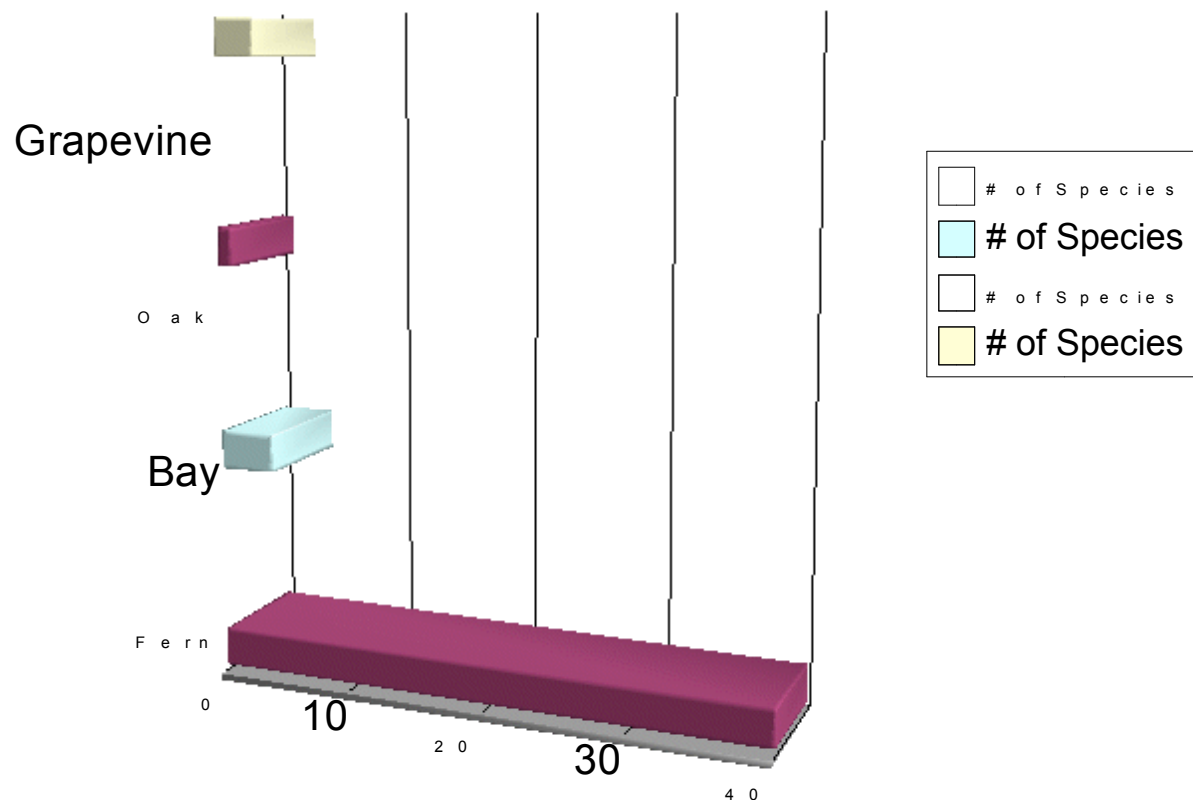
641 – Freshwater Marsh/ Cattail



- **7" soil sample taken 100% humus, to the unaided eye, with muck texture.**
- **Water edge is 9' from monument stake.**
- **Elevation continues to drop.**

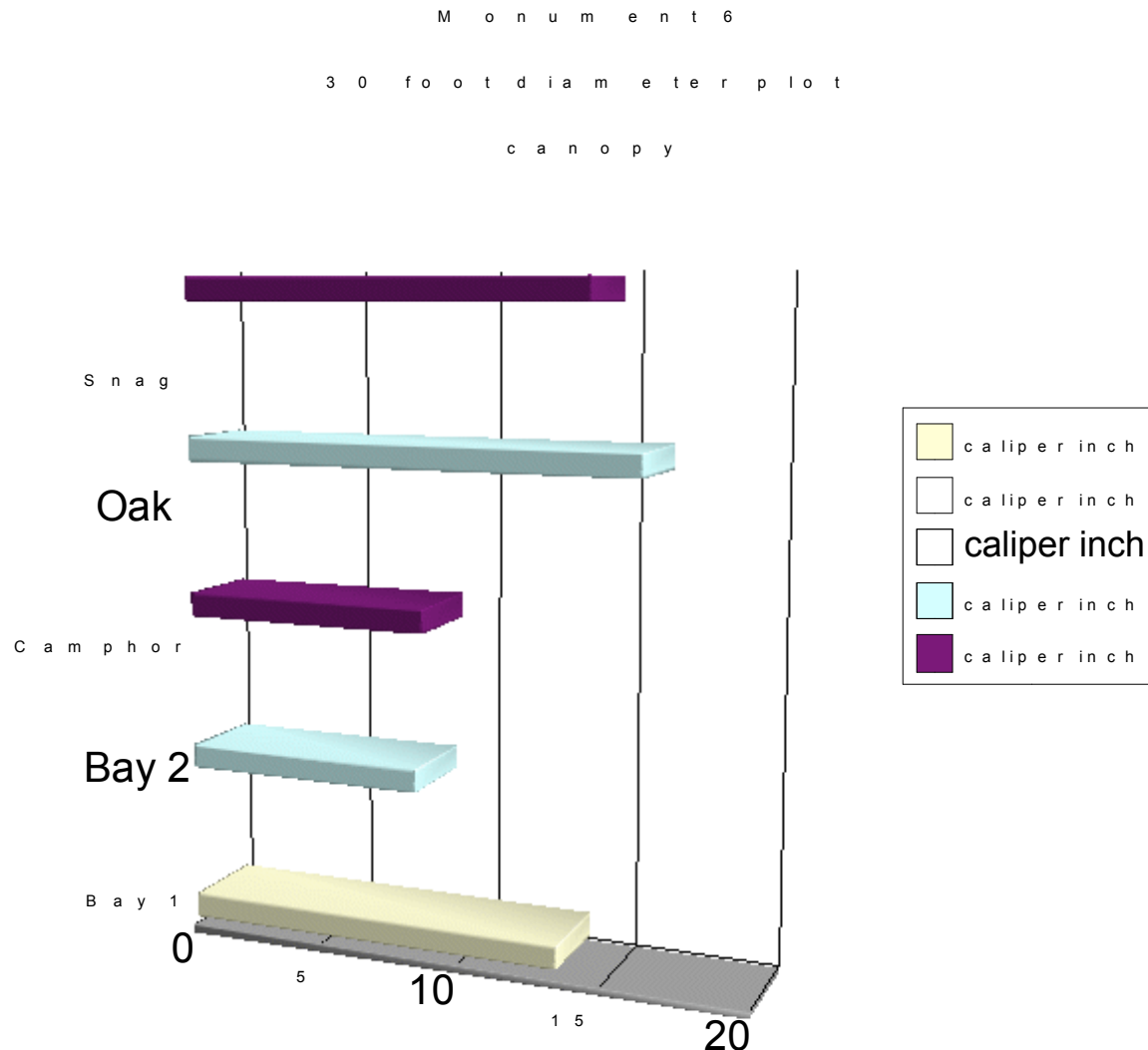
641 – Freshwater Marsh/ Cattail

Monument 6 15 foot diameter plot sub-canopy



- Hickory sapling were noted outside the perimeter of the data plot.
- Fern continues to be the dominant species with the numbers of plants in the community increasing.

641 – Freshwater Marsh/ Cattail



- Estimated canopy density is 80%.
- Snag is noted for significant size and potential wildlife habitat near water edge.
- Noted increase in Bay species.
- Littoral emergent vegetative species include Taro, Cattail, Pickerel and Grasses.

6445 – Water Lily



- Access to this pond was limited to photos only.
- The Bay tree in the background was marked for site identification.
- Photos obtained from jet ski. This is a narrow wake zone
- Water Lily not present at this site

Sumac

Rhus glabra

- Transition species that occurs in dry soil.
- Pioneer shrubs that invade disturbed areas.
- Sumac grows quickly and provides food and cover for a variety of wildlife.





A hip chain with biodegradable string used to measure distance between monuments

The dreaded pink string has knots tied in it's length to designate the 6', 15' & 30' diameter measurements for canopy assessment.



We spent a lot of time getting untangled. Our moods improved once out of the woods.

We have decided to add the Pink String to our graduation caps as a tassel.

2005 or 1905?



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The End

