Genius Reserve

Guide Book

"I poked around in the jungle clearing,
thoroughly enjoying myself and hating to leave...
I had discovered Cross Creek,
romantic old Florida, ancient trees, jungle quietude."

—Jim Forsyth,
"Morse Traditions Live On In Winter Park."
February 22, 1953

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All photos by Stacey Matrazzo and Craig Mazer except:

Cover postcard image "W.P.3—Genius Drive, Winter Park, Fla." courtesy of Winter Park Public Library Archives Department.

p. 49 Red-tailed hawk by Jeanne Lynn

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Vegetation and Land Use Map of Genius Reserve

Vegetation and land use delineations are based on Florida Land Use, Cover and Forms Classification System Handbook; Department of Transportation, Surveying and Mapping, Thematic Mapping Section, 1999.*

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*Recreated from a GPS-based delineation conducted by Dr. Bill Grey, Spring 2005, overlaid on a 2003 aerial photograph of the Genius Reserve.

A Remnant of "Old Florida"

The Genius Reserve in Winter Park is an historical landscape, a remaining tie to the romantic "Old Florida" Marjorie Rawlings revealed in *Cross Creek*. To stroll through the Genius Reserve is to take a step back in time.

In 1921, Charles Hosmer Morse purchased 200 acres of mesic oak habitat in the heart of Winter Park between lakes Virginia, Mizell and Berry. His intention was to preserve a piece of the natural beauty that had attracted him to Florida, the only alterations being the meandering dirt road, a citrus grove and ornamental flowering shrubs.

Today, the Genius Reserve remains an historical artifact of the 19th century. Tucked away from the bustle of urban activity, Charles Morse's vision of natural and cultivated beauty offers a

living link to our natural past. Morse understood the therapeutic value of nature to humans—that it can provide a sanitary experience that will restore and inspire the observer; that it offers a valuable escape from the push of urban existence.

The Genius Reserve is an historic gem. Passing through the Ward Gate, the visitor is transported to an era long forgotten. A serpentine dirt road meanders through the Reserve, helping the observer take in the surroundings at a relaxed pace. Several young oaks and a 20-foot purple tabebuia stand to the left, while a flourishing citrus grove appears on the right. Just pass the citrus grove, flowering shoots of white and pink burst from a dense mass of shell ginger. This wall of fragrant vegetation masks the newly restored Cedar Grove, an area where ancient oaks, magnolias and hickories blend with planted cedar, hickory, longleaf pine, live oak and beautyberry to complete this sublime setting. Flowering porterweed and Chickasaw plum attract birds, butterflies and bees. Coontie, with their deep green leaves and vibrant pink and orange seeds, mark a subtle trail—the path culminating in a magnificent view of Lake Mizell. Along the lake, large cypress trees stand among

cattail, elderberry, iris and swamp mallow. Ginger and bay trees line the old Dinky Rail bed where a trail now follows the edge of the lake.

Beyond the grove, a pastoral scene unfolds—a large open area of grass and wildflowers, shaded under a canopy of magnolia, live oak and hickory, and dotted with citrus trees. Deliberate turns in the dirt road impose a sense of anticipation of what lies ahead. A hedge of turk's cap and azalea flaunts brilliant blossoms of red and pink. Century-old live oaks line the road; their fern-covered branches bend and bow overhead, dripping with Spanish moss. The haunting call of a distant peacock severs the silence.

An opening in the hedge reveals a landscape bathed in full sunlight. The intoxicatingly sweet scent of citrus blossoms is carried on a breeze that gently floats across the landscape from nearby Lake Berry. A small grove boasting bright oranges, grapefruit, lemon and kumquat barely conceals the Ward House, a fully-restored 19th-century Florida vernacular house. A buffer of cedar, magnolia, cypress and pine screens this "Old Florida" experience from nearby development; the buffer is textured with layers of cabbage palm, camellia, anise, bird of paradise, ginger and coontie.

An open pastoral area to the south of the Ward House along Lake Berry grants the visitor another impressive lakefront vista.

From here, the visitor can embark on two distinctly different journeys: one can return to Genius Drive where, just down the road, blooming orchid trees and bougainvillea dot the landscape with splashes of magenta, lavender and white. Or one may continue along the lakeshore, past the old citrus-packing house, to a path known as Jeannette's Walk. The path is lined with a dense canopy of hickory and oak. Behind the trees, the shore is bordered by cattail and saw palmetto and draped with muscadine grape. Breaks in the shoreline vegetation present the visitor with more stunning vistas. Jeannette's Walk, so-named because Jeannette McKean often strolled along this path, winds it way through this lush hardwood hammock until it reaches a structure that was the old aviary. Hugh McKean once raised parakeets here, but, now restored, it serves as a nursery for the Reserve.

Further south, a stable and corral still stand, a reminder of the McKeans' equestrian interests. It sits in an open field, bordered to the south by an old growth oak hammock. Its dense canopy consists of oak, hickory, bay and magnolia. To the north, on either side of the winding road, the original citrus grove still produces aromatic blossoms and succulent fruit. Behind the grove, old banana trees with their distinctive foliage, along with palm, turk's cap and shell ginger transform the vista of Lake Virginia into a tropical jungle.

Another turn in the road reveals a more cultivated landscape of azalea, camellia and turk's cap. An open field between Genius Drive and Lake Virginia is sprinkled with large oaks and hickories, providing constant shade. Here, exotic peacocks strut their spectacular plumage as they prance along the road approaching Wind Song, the home built in 1936 by Jeannette's father, Dr. Richard Genius, in the Spanish-renaissance style. Hidden from plain view by a dense wall of foliage, it stands today as it did when the McKeans first resided there in 1951. A rose garden still adorns the circular driveway.

Although this is the northern edge of the Genius Reserve, one can still experience more of the natural scenery. The path around Lake Mizell that was the Dinky Rail bed is accessible from the northwest edge and offers a pleasant walk through budding hickories, elderberry and turk's cap. Along this path, there is a constant view of the lake through thin stands of cattail and elderberry. It is shaded by a canopy of oak and hickory, and is lined with thick patches of ferns and flowering spiderwort.

Another path runs along Lake Virginia and takes the visitor through the Banana Grove and ancient oak hammock along the southern edge of the Reserve where the path eventually meets up with Genius Drive.

Here among the shady groves and botanical elegance, a visitor is transported to an era long forgotten. Perhaps the last unspoiled landscape amidst unrestrained development, the Genius Reserve bears a timeless vision of "Old Florida."

Charles Hosmer Morse


Charles Hosmer Morse

Charles Hosmer Morse was a wealthy industrialist and philanthropist. He first visited Winter Park in the early 1880s and was enamored by its natural beauty. He purchased property on Lake Osceola and soon became involved in the development of the city of Winter Park. By 1904, he had become the largest landowner in the area. His land donations to the city, many of them made anonymously, are sites of such prominent city facilities as City Hall, the Woman's Club, the municipal golf course and Central Park.

By 1915, Charles Hosmer Morse had retired to Winter Park permanently. In 1920, just one year before he passed away, he acquired land situated between lakes Virginia, Berry and Mizell. On this site, he planted citrus groves and carved a scenic road that would later become a local attraction: Winter Park's treasured Genius Drive.

Jeannette Genius McKean

Jeannette Genius McKean is the granddaughter of Charles Hosmer Morse. She was born in 1909 into an atmosphere of refined tastes and talents. Both the Morse and Genius families were collectors of fine art. Jeannette's mother, Elizabeth Morse Genius, loved to paint, and passed this artistic bent onto her daughter. In college, Jeannette studied art and interior design. She had an affinity for designing "vignettes," or themed rooms. As well, she was an acclaimed painter, heavily influenced by the natural world.

Tabebuia.
Jeannette Genius, 1975,
pastel on paper, 34" x 24"

In 1936, Jeannette's parents, Elizabeth Morse and Richard Genius, built a Spanish renaissance-style home on Lake Virginia in Winter Park across from Rollins College. Eventually, Jeannette and her husband, Dr. Hugh McKean, inherited Wind Song and the surrounding land. Here, they created an oasis where natural beauty flourished.

Dr. Hugh McKean

Hugh McKean was still an undergraduate at Rollins College when he met his future wife, Jeannette Genius. Like Jeannette, Hugh McKean was also an artist; for nearly 70 years, he painted the cultural and natural aesthetic of central Florida. His early paintings won him an invitation to study with a group in the home of Louis Comfort Tiffany. He returned to Orlando as an artist, an art journalist and professor of art at Rollins. He became the director of the Morse Gallery of Art upon its opening in 1942. Hugh McKean and Jeannette Genius were married in 1945, and in 1952, he became President of Rollins.

Hugh's most memorable contribution to the Wind Song estate is the introduction of the peacock. He became enamored with these ornate birds when he first encountered them on a trip to Asia. Upon return to the U.S., he imported several to reside on their estate. This tradition continues today.

Jeannette Genius McKean and Dr. Hugh McKean with Dora, one of many animals that freely roamed the Wind Song estate

Native Species


Southern magnolia

Native species are generally defined as those species that are indigenous to or naturally occurring in a particular geographic region, ecosystem or habitat without human assistance or intervention. The Florida Department of Environmental Protection further designates native species as ones that "occurred in Florida at the time of European contact or 1500s." This period marks a significant change to the Florida landscape with both the removal of many native habitats for settlement purposes and the introduction of species from Europe and elsewhere around the world. Although this delineation is considered arbitrary by many and remains somewhat controversial, it is generally agreed upon by most Florida botanists.


American beautyberry

Native plants are better suited for the ecological conditions of their particular habitats than non-native species. They fill ecological niches such as food sources and shelter for particular organisms. Over time, native species have evolved mechanisms that help them survive the harsh conditions of Florida's environment such as

coralbean

hurricane-force winds and rain, sustained periods of drought and seasonal climate fluctuations. These conditions also act as natural controls that may instigate succession, maintain plant populations within the habitat and allow other habitat-specific plants to flourish. Other natural controls include healthy competition with other native plants, native (naturally-occurring) diseases and predatory insects and animals. Natural controls help maintain a balance among native species and allow for more diversity in both the flora and fauna that utilize them.

Genius Reserve Dominant Native Vegetation

American beautyberry *(Callicarpa americana)*

bald cypress *(Taxodium distichum)*

black gum *(Nyssa sylvatica v. biflora)*

cabbage palm *(Sabal palmetto)*

Carolina cherry laurel *(Prunus caroliniana)*

coralbean *(Erythrina herbacea)*

elderberry *(Sambucus canadensis)*

laurel oak *(Quercus laurifolia)*

live oak *(Quercus virginiana)*

muscadine grape *(Vitis rotundifola)*

pignut hickory *(Carya glabra)*

red maple *(Acer rubrum)*

resurrection fern *(Polypodium polypodioides)*

saw palmetto *(Serenoa repens)*

Southern magnolia *(Magnolia grandiflora)*

Southern red cedar *(Juniperus silicicola)*

Spanish moss *(Tillandsia usneoides)*

swamp fern *(Blechnum serrulatum)*

sweet bay *(Magnolia virginiana)*

wild coffee *(Psychotria nervosa)*

Exotic & Invasive Species

An exotic plant is defined as one that has been either intentionally or accidentally introduced to an area outside of its native range. They can occur as all habits of plants—as trees, shrubs, grasses, ferns and vines. Exotic species can be further categorized as invasive exotics and naturalized exotics.

Invasive exotics not only survive outside their native range, their populations tend to expand aggressively due to the absence of natural controls. This can eventually displace or eliminate native plant communities and result in a monoculture of the invasive plant species. Invasive exotic plants tend to impair the quality and usefulness of the habitat to wildlife; they contribute to the destruction of biodiversity. Invasive exotics do not fill the same ecological niche as the native plant it displaces, thus those species of both plant and animal that rely on the native plants do not gain the same benefit from the invasive exotic and often must relocate as a result. The number of plant species that exist in Florida is estimated at approximately 4,000; of those, 1,000 are considered exotic and over 100 are considered invasive.


arrowhead vine

Several of the invasive exotics that have become problematic to the Reserve were initially brought in for their ornamental value. These include earpod and Chinaberry trees. Over time, and without human

control, these trees began to spread and infringe upon other native species. Intense removal of these trees has been applied on the Reserve. While seedlings still sprout up (and are subsequently removed when spotted), the overall population of earpod and Chinaberry trees has largely been eradicated on the Reserve.

Genius Reserve Exotic Vegetation

- air potato vine *(Dioscorea bulbifera)*
- arrowhead vine *(Syngonium podophyllum)*
- caesarweed *(Urena lobata)*
- camphor tree *(Cinnamomum camphora)*
- catbrier *(Smilax bona-nox)*
- Chinaberry tree *(Melia azedarach)*
- earpod tree *(Enterolobium contortisiliquum)*
- Mexican flame vine *(Senecio confusus)*
- turk's cap *(Malvaviscus arboreus)*
- wild balsam apple *(Momordica charantia)*

Naturalized exotics refer to species with an ability to survive outside of their native range without human cultivation. They differ from invasive exotics in that they do not typically interfere with the ability of neighboring species to thrive.

Naturalized also refers to those plants that have become a part of the native landscape. Turk's cap, which is historically present on the Reserve, is considered naturalized in some parts of Florida.

Sometimes native species can exhibit invasive behavior. Often, a natural or human-induced disturbance—one that drastically changes the structure of the natural environment such as a hurricane or construction activity—can cause a plant to become aggressive in its growth. Cattail, which is found in the littoral zones of all three of the Genius Reserve lakes, is widely considered a native invasive due to its tendency to out-compete other species and establish itself as a monoculture under certain circumstances. Cattail can be managed, however, and it has not yet become problematic on the Reserve lakeshores.

Ornamental Species


shell ginger

Not all exotic species are considered invasive; some were introduced specifically for ornamental purposes. If these plants are properly maintained, the risk they might otherwise impose on native plant communities can be significantly reduced or even eliminated. Some of the ornamentals used on the Reserve are considered benign; this means that they do not typically spread on their own or cause problems for native species. Others will not succeed at all without human maintenance.

There are many ornamental exotics in use on the Genius Reserve. Genius Drive is lined with an array of showy and aromatic flowering trees and shrubs originally planted by Charles Morse. He wanted to incorporate a variety of colors and fragrances to enhance the natural beauty of the oak hammock. The most prominent historic ornamentals are shell ginger, Formosa azalea and turk's cap. Unfortunately, turk's cap requires human intervention to keep its population in check. As a result of several years of neglect, turk's cap became problematic in areas of the Reserve. Much has subsequently been removed, and the remaining stands are being managed.


turk's cap

Other ornamental exotics, including lantana, camellia and a variety of roses, were planted to adorn the Wind Song house when it was built in 1936. More recently,

camellia

orchid tree

the creation of a buffer along the northern edge of the Wind Song lawn included gardenia; its showy white blossoms emit a sweet, perfumed fragrance that would waft through the warm Florida breeze and into the house. Other ornamentals used historically or in recent restorations include orchid tree, tabebuia and bird of paradise.

In addition to these flowering ornamental species, many non-native fruiting plants were cultivated on the Reserve, including banana, Japanese plum, Surinam cherry and several types of citrus.

Genius Reserve Ornamental Vegetation

banana *(Musa sp.)*

bird of paradise *(Strelitzia reginae)*

bougainvillea *(Bougainvillea spectabilis)*

camellia *(Camellia japonica)*

citrus *(Citrus sp.)*

firespike *(Odontonema strictum)*

Formosa azalea *(Rhododendron simsii)*

gardenia *(Gardenia augusta)*

heliconia *(Heliconia sp.)*

hibiscus *(Hibiscus sp.)*

Japanese plum *(Eryobotrya japonica)*

lantana *(Lantana sp.)*

orchid tree *(Bauhinia variegata)*

shell ginger *(Alpinia zerumbet)*

Surinam cherry *(Eugenia uniflora)*

trumpet tree *(Tabebuia sp.)*

turk's cap *(Malvaviscus arboreus)*

Mesic Oak Habitat

Habitats are often classified by the predominant canopy species and/or a measure of soil moisture. By definition, a mesic oak habitat is one that has mesic soil conditions with a predominantly oak canopy.

Mesic soil conditions, in contrast to xeric (dry) and hydric (mostly saturated/inundated) soils, typically maintain a moderate level of moisture, but are neither distinctly wet nor dry. Mesic soils contain more organic matter and moisture and are more acidic than adjacent upland, well-drained soils.

The canopy of the Florida mesic oak habitat consists of both deciduous and evergreen species, but the predominant species is, as the name suggests, oak—specifically live oak. Other species characteristic of this habitat include cabbage palm, Southern magnolia, pignut hickory, red maple and other broad-leaved trees.

mesic oak habitat

Oak Hammock

A hammock is a slightly more specific habitat. A hammock is an "island" of hardwoods and associated vegetation that is usually surrounded by other habitats—namely sandhill (upland) or bottomland habitats such as lakefront or floodplain forests. These islands usually develop in areas where the natural elevation of the land aids in the prevention of seasonal flooding.

dense canopy and sparse understory of oak hammock

The canopy of the mature oak hammock is typically dense or closed, resulting in low light penetration. As a result, the understory is sparse and restricted to shade-tolerant species such as beautyberry and cabbage palm.

Spanish moss

Air movement through this dense-canopy habitat is generally low or restricted. This helps to maintain a fairly constant level of humidity within the habitat. Epiphytic plants such as Spanish moss and resurrection fern that draw moisture and nutrients from dew depend on this constancy for survival.

Oak hammocks are typically less diverse in plant species than hydric or upland xeric

habitats due to the conditions of a dense or closed canopy and the prolonged absence of fire. Unlike other distinctive Florida forest communities, fire is rare in the oak hammock due to steady humidity levels, a moist layer of leaf litter and a sparse and shaded understory. These conditions insulate the hammock from fire and help regulate the temperature within the habitat, cooling it by several degrees in the summer heat.

The floor of the typical oak hammock is covered by a thick layer of humus, formed by decaying leaves and twigs. This provides protection from erosion for the rich soils and is a rich source of nutrients for the oaks and understory vegetation. The humus layer also absorbs and retains water so that it is available to the trees and other plants during dry winter months.

Genius Reserve Mesic Habitat Prevalent Native Vegetation

American beautyberry *(Callicarpa americana)*
butterfly orchid *(Encyclia tampensis)*
cabbage palm *(Sabal palmetto)*
Carolina cherry laurel *(Prunus caroliniana)*
coralbean *(Erythrina herbacea)*
elderberry *(Sambucus canadensis)*
laurel oak *(Quercus laurifolia)*
live oak *(Quercus virginiana)*
muscadine grape *(Vitis rotundifola)*
pignut hickory *(Carya glabra)*
red maple *(Acer rubrum)*
resurrection fern *(Polypodium polypodioides)*
saw palmetto *(Serenoa repens)*
Southern magnolia *(Magnolia grandiflora)*
Southern red cedar *(Juniperus silicicola)*
Spanish moss *(Tillandsia usneoides)*
sweet bay *(Magnolia virginiana)*
wild coffee *(Psychotria nervosa)*

Succession is rare in the hardwood hammock; it occurs only when a gap in the canopy is created, for example, by a fallen tree. The shade from the dense canopy prevents many saplings from reaching maturity. An opening in the canopy will change the ecological conditions by allowing more sunlight

hurricane damage in the Genius Reserve mesic oak hammock

to reach the forest floor and by creating a fluctuation in the humidity levels. This change to otherwise constant conditions is necessary for new species to occur.

In Florida, hurricanes and tropical storms are an accelerator of hardwood hammock succession. The root systems of oaks and other hardwoods are shallow and wide, causing instability against high velocity winds. Fallen branches and downed trees, and subsequently forest succession, are often the result of Florida's seasonal hurricanes and tropical storms.

Despite the limited diversity, the mesic oak hammock is still an important habitat for wildlife. Live oaks and hickories are among the top food plants. Their annual acorn and nut masts provide food for many species of birds and small mammals. Fruits and flowers from such understory species as beautyberry and muscadine grape also provide food for hammock wildlife.

Littoral & Shoreline Habitat

The littoral zone is the vegetated area of shallow water along the shoreline where sunlight penetrates to the bottom. It usually supports a community of rooted emergent, submerged, floating and floating-leaved plants. The littoral zone is an ecotone—an area of transition between two distinct ecological communities. It is generally one of the most diverse and productive areas because it attracts members from both adjacent communities, as well as species of its own. This zone provides food, shelter, breeding areas and hiding places for wildlife. The native littoral vegetation stabilizes the shoreline and helps prevent erosion; it also takes up nutrients, filtering out runoff from fertilizers, pesticides and storm-water. Cypress knees that extend along the shoreline also serve as a natural seawall that helps protect the integrity of the shoreline.

The shoreline zone is the terrestrial area adjacent to the littoral zone; because of its location, it is prone to periods of inundation or saturation, based on lake water levels. The vegetative community supported by the shoreline is a mix of terrestrial and emergent plants. It provides many of the same benefits to organisms as the littoral zone. The Genius Reserve has a total of over 5000 feet of shoreline.

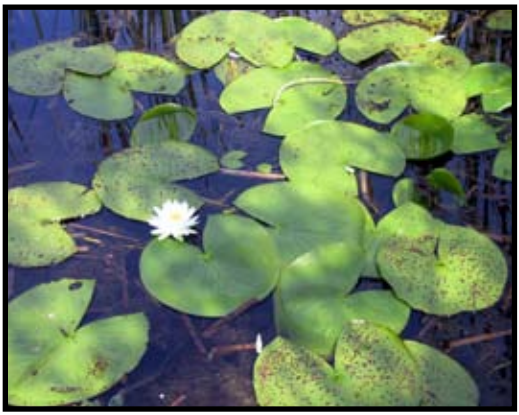
The many coves and lobes along the Genius Reserve shorelines create increased structural diversity. This results in greater habitat diversity which encourages greater species diversity of both plants and animals.

cove along Lake Mizell shoreline

The Genius Reserve has three distinct and varied littoral and shoreline zones, however, much of the vegetation is the same along each of the lakes. Native emergents found within each lake's littoral zone include duck potato, pickerelweed and cattail as well as lemon bacopa and dollarweed, which are often submerged. Floating vegetation includes water lily, spatterdock and giant duckweed. Virginia willow is also present. Several exotic emergents are found in each of the littoral zones; they include: torpedo grass, primrose willow and wild taro. Another invasive exotic, arrowhead vine, is found along each shoreline, growing aggressively on the ground and spiraling up many of the cypress and black gum trees.


cattail

In addition to those species listed above, lakes Virginia, Berry and Mizell also have varied vegetative. The littoral zone of Lake Virginia, upon which the Wind Song estate overlooks, is graced with flowering and ornamental species including native golden canna and blue flag iris. North of the estate, the shoreline vegetation becomes dense with swamp ferns, water oak, cypress and red maple. Lake Berry's littoral zone is narrow, but the shoreline vegetation is dense and mesic. There is a canopy of hickory, cabbage palm, magnolia and oak and a dense understory of saw palmetto, cherry laurel and muscadine grape.


water lily and spatterdock

The lakeshore in front of the Ward House is without a canopy and has a large presence of mock bishop weed, maidencane, torpedo grass and primrose willow. The shoreline of Lake Mizell also varies; the Dinky Rail bed that runs the along the perimeter of the lake is covered by a canopy of cypress, palm, hickory or oak, with an understory that varies from ferns to ginger to saw palmetto.

The littoral zones of the Genius Reserve lakes are home to a variety of macro-invertebrates that provide food for many small mammals such as raccoons and Northern river otters as well as many wading birds. These species of macroinvertebrates include a variety of crustacea (such as shrimp and crayfish), aquatic insects (such as mayflies, dragonflies, damselflies, and caddisflies), a native mussel (*Elliptio sp.*), the exotic Asiatic clam and the apple snail, which is the primary food source for the limpkin, a wading bird endemic to Florida that utilizes the Genius Reserve littoral zones. Other birds known to use the Reserve littoral zones for feeding and nesting include the red-winged blackbird, great blue heron, white ibis, great egret, mallard, anhinga and double-crested cormorant.

Genius Reserve Littoral & Shoreline Native Vegetation

alligator flag *(Thalia geniculata)*
bald cypress *(Taxodium distichum)*
black gum *(Nyssa sylvatica v. biflora)*
cabbage palm *(Sabal palmetto)*
cattail *(Typha sp.)*
cyperus sedge *(Cyperus sp.)*
dollarweed *(Hydrocotyle sp.)*
duck potato *(Sagittaria lancifolia)*
elderberry *(Sambucus canadensis)*
giant duckweed *(Spirodela polyrhiza)*
lemon bacopa *(Bacopa caroliniana)*
maidencane *(Panicum hemitomon)*
pickerelweed *(Pontederia cordata)*
saw palmetto *(Serenoa repens)*
Southern naiad *(Najas guadalupensis)*
spatterdock *(Nuphar sp.)*
swamp fern *(Blechnum serrulatum)*
tape grass *(Vallisneria americana)*
Virginia willow *(Itea virginica)*
water lily *(Nymphea sp.)*
water oak *(Quercus nigra)*

Comprehensive Management

The Genius Reserve is an exercise in native and historical landscape restoration. The Genius Reserve Comprehensive Management Plan identifies strategies to protect and restore the cultural aesthetic of "Old Florida." In addition to providing a working laboratory in landscape restoration, the value of this landscape will become more precious as development persists in neighboring properties.

A successful restoration project not only restores ecological health to a site, it also fosters landscape coherence. A coherent landscape is one that is organized, not chaotic; one that implies a natural order and legibility that can easily be understood by the observer, allowing the full restorative potential of the land to be taken in.

The Genius Reserve will serve as a living model of sustainability, bridging the gap between civilization and the natural environment. It also holds an amazing historical legacy beyond its natural beauty. In order to preserve this legacy and to unlock the site's natural

potential, a comprehensive and systematic management plan is necessary. This plan establishes a guiding vision that will serve to protect the site's natural and cultural qualities. It also provides a guideline for Rollins College faculty and student involvement.

The challenge of this plan is to make sure that this remnant of "Old Florida" is not just a vague notion, but a realized vision.

The long-term restoration process of the Genius Reserve is ongoing. The following goals have been established for the first ten-year period of restoration:

Detailed inventory of site using field research and aerial maps
Detailed historical analysis of site based on photo records (i.e. postcards and photos including aerials, private and public)
Documentation of major historical landscape changes
Concept design for Genius Drive restoration
Concept design for Cedar Grove restoration
Concept design for Banana Grove restoration
Concept design for Lake Mizell shoreline restoration
Concept design for Wind Song border planting
Concept design for Ward House border planting
Potential management project goals

In 2002, an initial inventory of the Genius Reserve divided the site into 11 units:

- Buffers
- Ecological
- Gardens
- Genius Drive
- Grove
- Nursery
- Pastoral
- Paths
- Restoration
- Ward House
- Wind Song

A subsequent detailed inventory was conducted using the Florida Land Use Cover and Forms Classification System criteria to determine specific habitat structure and management needs. The FLUCFCS criteria help determine specific ecological needs of a particular habitat.

Buffers

An ecological buffer is essentially a vegetative barrier. In this case, native and ornamental shrubs and trees were planted along the fence that separates the Ward Gate and Ward House from the neighboring homes that are out of scale with the Genius Reserve. Trees such as bald cypress, Southern red cedar, Southern magnolia, longleaf pine and cabbage palm, understory species such as Chickasaw plum, Florida anise, redbud and camellia, and shrubs and groundcover species such as coontie, ginger, bird of paradise and saw palmetto will, in three to five years, provide an effective buffer with little maintenance beyond initial watering throughout the first winter.

buffer between Ward House and neighboring development

A buffer is also necessary along the fence that borders the north edge of the Reserve beyond Wind Song. In addition to those plants listed above, this palette includes many flowering species such as scarlet milkweed, gardenia and spiderwort, as well as coffee and silver saw palmetto.

Ecological

Ecological units are areas determined to have relatively healthy, native habitats. Using the Florida Land Use, Cover and Forms Classification System, the following ecological units were located on the south side of the Genius Reserve:

4382 Mixed Upland Hardwoods with Native/
Undisturbed Groundcover
4383 Mixed Upland Hardwoods with Dense Fern Groundcover

These habitats are primarily hardwood with a palmetto understory. Canopy species identified in these habitats include live oak, pignut hickory and laurel oak with a second tier canopy of Southern magnolia. Species identified in the understory, in addition to saw palmetto, include beautyberry, coralbean and a wide mix of ferns.

Gardens

Gardens, specific to the Genius Reserve, are defined as areas that either were flowering at the time of the survey or are identified as potential sites for enhancing historic flowering gardens.

hibiscus

The buffer plantings indicated earlier are here identified as gardens. The intention of these plantings is to integrate a series of native and ornamental plantings that provide flowering gardens that reflect the nature of the existing landscape. The flowering plants chosen to buffer the Wind Song house include ornamental exotics such as gardenia, camellia, hibiscus, scarlet milkweed and bird of paradise and such native flowering species as blue flag iris and spiderwort. These selections reflect the more formal landscape of the Wind Song home.

blue flag iris

By contrast, the flowering plants selected for the Ward House buffer were chosen for their potential to attract pollinators and for their low maintenance require-

ments. These plants include Chickasaw plum, ginger and Southern magnolia. In addition, many of the plants reseed themselves, offering an opportunity to cultivate new plants for planting elsewhere on the Reserve. Seedlings will be carefully transplanted to the nursery where they can be tended to until they are ready for use in a later restoration.

Genius Drive

Charles Morse's desire to create a true "winter park" is revealed along the graceful curves of Genius Drive. Morse's vision captured the natural beauty of the region in an alluring manner by placing turns every 50 feet along the drive, obliging visitors to take in the scenery at a close and careful pace. To complement the majestic oaks, Morse lined the drive with many ornamental flowering shrubs and trees including azalea, bougainvillea, shell ginger, camellia, lantana, orchid trees and turk's cap.

bougainvillea planted along Genius Drive

Today, these remnant historic plantings are a testament to the Morse vision, however, freezes have left them in need of care and replacement. The management plan for Genius Drive necessitates their maintenance; it allows native flowering plants to be interspersed among the ornamental species to enhance the sustainable quality of this historic drive. In addition, exotic trees such as Chinaberry and earpod infringed on the native canopy and aesthetic view and have since been removed.

Groves

Groves are remnants of a historical working landscape that once defined Winter Park and Florida. The largest remaining citrus grove within the Winter Park city limits exists within the Genius Reserve. This grove both centers and defines the Reserve. It has been classified under the Florida Land Use, Cover and Forms Classification System:

221 Active Citrus Grove
2211 Remnant or Demonstration Citrus Crop

Its restoration will serve as an ideal centerpiece for the Genius Reserve.

Additional citrus groves are being created or restored elsewhere on the Reserve, including at the north edge of the Cedar Grove just east of the Ward Gate entrance to the Reserve, and in the yard north of the Ward House.


the Ward House—a home in the grove

Historically, banana groves were also established on the Reserve. They are located along Lake Virginia in the southwest area of the Reserve and near the north edge of the Reserve at Lake Mizell. Intense exotic removal was necessary to return the groves to a healthy state. The restoration plan for the most degraded banana plantation was implemented in the spring of 2006. It is discussed in more detail in the Restoration section of the Comprehensive Management Plan.

Nursery

As many native plants are not readily available and can be expensive to purchase, a nursery of native and historic Reserve plants has been established in the shell of the old aviary. Here, students employ various propagation methods such as cuttings, air-layering, division, seed propagation and found seedling transplantation. Students tend to the progeny until they are ready to be replanted at a restoration site.

a thriving nursery

The presence of an active nursery will ensure the availability of desired plants for future restoration efforts. As well, the historic ornamental vegetation is a better quality and more desirable than that of the same species that can be purchased in today's commercial nurseries. Continued propagation of these historic specimens will most likely produce similarly more desirable progeny.

Nursery Creation

The nursery is centrally located within the reserve. In the summer of 2005, all that remained of the aviary was a deteriorating chain link fence, overgrown with weeds and vines. At that time, the fence was repaired and the vegetation cleared. An irrigation system was installed, and a weed mat was laid over most of the nursery floor. A structure was created within the nursery for storage of tools and supplies; it also serves as a workspace.

The area surrounding the nursery was landscaped with native plants that would blend the nursery into the nearby mesic oak habitat and also provide continuity with restoration areas. Native plants utilized

in the landscaping include coontie, Southern magnolia, Simpson's stopper, swamp dogwood, saw palmetto and beautyberry. For color, and to attract pollinators such as butterflies, bees and birds, scarlet milkweed, coral honeysuckle vines and portwerweed were planted along the front of the nursery along with existing lantana. Gopher apple and wiregrass were later planted at the edge of the landscaping as foraging for gopher tortoises. A canopy of large, existing oak and hickory provide periodic shade for the nursery.

Nursery Propagation Method: Cuttings

Plants such as Florida anise, Formosa azalea, beautyberry, bougainvillea, camellia, wild coffee, coral honeysuckle, Simpson's stopper and Southern magnolia can be propagated by a method known as cutting. This involves removing a young and active branch from the parent plant, stripping off the lower leaves and placing it in a small pot of healthy soil. The branch tip is often coated with a root hormone to stimulate root growth prior to placing it in the soil.

camellia cuttings

Nursery Propagation Method: Air-Layering

Air-layering is similar to the cutting method in that its intention is to force root growth on an existing branch. The difference, however, is that root development takes place while the branch is still attached to the parent plant. As well, the resulting progeny will be much larger than that from a cutting and should be ready for transplantation once it establishes a healthy root system. This method is suitable for most woody shrubs including swamp dogwood and Simpson's stopper.

The air-layering method begins by selecting a healthy branch with a significant amount of foliage. It is preferable to choose a branch

with a clean, straight stalk and little to no small branches to hinder the process. The supply of nutrients is severed by stripping about one inch of the cambium layer from the branch. The bare stalk is immediately coated with root hormone, covered with moist sphagnum, and wrapped tightly in plastic cling wrap and again with aluminum foil to ensure that no moisture can escape.


air-layered Simpson's stopper

After approximately four to six weeks, roots should become visible. When a significant amount of roots are visible, the progeny can be cut just below the root ball and planted with the sphagnum still intact.

Nursery Propagation Method: Division

Division is one of the easiest propagation methods. Many plants, such as ginger, produce side shoots that eventually begin to root and clump on their own despite their attachment to the parent plant. Grasses such as wiregrass and Elliott's love grass also tend to clump. Division involves either severing the side shoot along with its root system or simply breaking up clumps and transplanting them to a new pot. Once the progeny has re-established itself and appears healthy, the new plant can be transplanted to a new location.

Nursery Propagation Method: Seed Propagation

Although many plants provide an abundance of seeds, growing these and other plants from seed is one of the more difficult methods of plant propagation. It is also one of the most prolonged methods as it may take months or even years, depending on the type of plant to grow a specimen that is ready to be transplanted into the wild. Conditions required for seeds to produce vary considerably: some have specific dormancy periods that, if not met, will cause the seed to die before germinating; some have a

protective seed coat that must be broken down before the seed can receive water and nutrients necessary for growth; others have even more specific requirements such as exposure to fire or cold temperatures. These conditions make seed propagation somewhat tricky, however, students are experimenting with growing pignut hickory, live oak and coontie from seed in the Reserve nursery.

coontie seeds

Nursery Propagation
Method: Seedling Transplantation

Trees such as Southern red cedar, pignut hickory, bald cypress and live oak are good candidates for seedling transplantation. Because these trees are difficult to propagate from seed, naturally occurring seedlings are a good way to grow them successfully. Careful inspection of the Cedar Grove and Lakefront Restoration area floors and other Reserve areas have turned up many seedlings that have been transplanted to pots in the nursery where they can be protected and nurtured until they are ready to be replanted in a restoration site. These delicate seedlings are likely to be trampled, mowed or sprayed with herbicide if they sprout in restoration areas where constant maintenance is necessary. Transplanting them to the nursery will help insure their successful growth.

cedar seedlings

Pastoral

A pastoral landscape is a one that offers a pleasant mix of open space and a canopy of trees, providing a park-like setting. Approximately one quarter of the Genius Reserve is considered pastoral, receiving a Florida Land Use, Cover and Forms Classification System designation of 427 (as having a canopy dominated by live oak with modified understory conditions).

pastoral landscape

The best model of the Genius Reserve's pastoral landscape is an area that runs from the Cedar Grove south to the Ward House, bordered on the east by Genius Drive, and the West by Lake Mizell. Where once exotics such as earpod, Chinaberry and camphor trees dominated the canopy, is now a gently rolling meadow under a shaded canopy of live oak and Southern magnolia, dotted with citrus and various wild-flowers, creating an idyllic aesthetic. This setting provides one of the most beautiful and coherent vistas in Winter Park.

Paths

A system of paths or foot trails that connect various points within the Genius Reserve already exists, however many of these paths have not been maintained and have become overgrown and overrun with exotics. Jeannette's Walk, so-named because Jeannette Genius McKean frequented this path that runs along Lake Berry between the Ward House and the central orange grove, is lined with native pignut hickories and laurel and live oak. It was also once overrun with the exotic air potato vine.

The removal of this highly invasive species has restored this path to a healthy hardwood hammock. This path also represents an important transition between ecological and restoration sites.

Dinky Rail path along Lake Mizell

Other paths that exist throughout the reserve include a path running along Lake Virginia through the old banana grove and a path around Lake Mizell that follows the old Dinky Rail bed. A circulation plan that maps these interconnected foot trails is intended.

Restoration

Areas on the Genius Reserve that were largely overrun with exotic species are defined as restoration areas. These areas have been categorized under the Florida Land Use, Cover and Forms Classification System as 9101 or having a dense exotic canopy dominated by Chinaberry and earpod trees. Hardwood habitats overrun with exotic understory species such as air potato vine, arrowhead vine, Mexican flame vine and turk's cap have also been identified as areas in need of restoration.

Restoration is not only necessary for the health of native plants; it is also vital to wildlife populations. Flowering plants provide food and nutrients to birds, butterflies and pollinating insects. Their fruits, along with nuts and acorns, are an abundant source of food for many species of bird and small mammal. Shelter for myriad species can be found in the larger trees as well as under low-lying shrubs. Many native plant species fill specific ecological niches specific to

the needs of wildlife; their health, along with the removal of those invasive exotic species is essential to the success of the habitat and its wildlife population.

Restoration plans for the Genius Reserve have included the Cedar Grove, Lake Mizell shoreline and Banana Grove.

Cedar Grove Restoration

The Cedar Grove is a vision of aesthetic and restorative nature that will create a coherent, ecologically natural landscape. It is located in the northeast sector of the Reserve. The restoration plan for the Cedar Grove was determined through a combined effort of students and professionals. It incorporates the existing citrus grove, and utilizes species that would create a coherent transition between the two groves and would preserve the open aesthetic created by the citrus trees. The vegetation palette selected for populating the Cedar Grove is based primarily on characteristics of the mesic habitat that historically existed in the Genius Reserve. The native stand of Southern red cedar that once thrived here was literally choked out by a tangled mix of Chinaberry, earpod and camphor trees. The restoration plan integrates remnant natives already found on the site with other native and ornamental plants that will provide an aesthetically pleasing landscape. Soil and moisture conditions are also considered in determining vegetation type and location.

flowering porterweed in the Cedar Grove

A path running from the citrus grove through the Cedar Grove was designed to provide a meandering stroll through the grove, pausing in the open "outdoor classroom" and continuing down

Cedar Grove Planting Legend

Symbol	Quantity	Generic Name	Common Name
TREES			
JS	18	Juniperus silicicola	Southern Red Cedar
MG	12	Magnolia grandiflora	Southern Magnolia
PP	10	Pinus palustris	Southern Longleaf Pine
TD	6	Taxodium distichum	Bald Cypress
PB	5	Persea borbonia	Red Bay
SHRUBS & GROUNDCOVER			
AF	15	Azalea indica 'Formosa'	Formosa Azalea
SR	225	Serenoa repens	Palmetto
SR	15	Serenoa repens "Silver"	Silver Palmetto

Note: Stake as necessary

NE Area Planting Legend

Symbol	Quantity	Generic Name	Common Name
TREES			
JS	7	Juniperus silicicola	Southern Red Cedar
MG	6	Magnolia grandiflora	Southern Magnolia
PP	6	Pinus palustris	Southern Longleaf Pine
	1	Quercus virginiana	Live Oak
TD	3	Taxodium distichum	Bald Cypress
PB	4	Persea borbonia	Red Bay
	50	Bananas	Bananas
SHRUBS & GROUNDCOVER			
SR	41	Serenoa repens	Palmetto
SR	16	Serenoa repens "Silver"	Silver Palmetto
IA	26	Illicium floridanum	Florida Anise

Note: Stake as necessary

N W E S

0' 10' 20' 30'
Scale: 1" = 20'

Michael Design Associates
Community & Park Planning, Landscape Architecture
130 North Center Street, Winter Park, FL 32789
Telephone 407 645-3777, Fax 407 645-3768 Lc0000322

Drawn by: F. Michael, P. Blomquist
Checked by: F. Michael, P. Blomquist
Project number: 02-69-D Date:

Genius Reserve ~ Cedar Grove & NE Area
Elizabeth Morse Genius Foundation, Winter Park, Florida

4

Planting Plan and Details
Completed 03.09.04

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the sloping terrain, across the Dinky Rail path toward a lakeshore vista. The initial path was lined with coontie, a native ground-cover plant selected for its dark color and low-lying profile, which will guide the observer without impeding his or her view of shrub and understory strata plants. Saw palmetto was also placed along the path, although due to the sharpness of its leaf blades, it was set back from the path slightly. It has a tendency to grow taller than the coontie and its placement allows for this.

The native Chickasaw plum tree was selected for use in the grove to complement the open aesthetic established by the citrus trees. In early spring, this deciduous tree is covered in showy white blooms. As the tree matures, it will create a canopy of flowers over the path. Other flowering and fruit-bearing plants selected for this section of the grove include beautyberry and porterweed. These larger shrubs will attract butterflies and other pollinating insects to the area. They also provide a pleasing splash of color.

The path was designed with numerous bends and turns, allowing the visitor to stroll at a leisurely pace, taking in the flora and fauna along the way. Taller-growing plants such as beauty-berry were placed at turning points along the path to conceal the ultimate destination from the visitor, implying a sense of natural mystery of what is to come. Existing cedar and magnolia were also incorporated in the path's design.

The path empties into the outdoor classroom, an open area within the grove where large oak and magnolia provide shade and cut and fallen tree trunks serve as seating for quiet contemplation.

outdoor classroom in the Cedar Grove

Leaving the outdoor classroom, the path continues down through the Cedar Grove extension, toward the lake. This extension was planted in the fall of 2005. The path through the extension is lined with Elliott's love grass, a species of low, clumping native grass that flowers throughout the year. Because it is a self-sowing seed, this plant should propagate and spread on its own. It may also provide seedlings that can be transplanted to the nursery and propagated for use in future restoration projects.

Throughout this extension where several cedars and magnolia previously existed, additional hickory, magnolia and beautyberry were planted with sporadic uniformity. Along the Dinky Rail path, hickory and saw palmetto were added to existing cedar, laurel oak and hickory to line the trail.

Lakefront Restoration

The path from the Cedar Grove crosses the Dinky Rail path and empties into one of three access points to the Lake Mizell shoreline restoration area. This particular section was once heavily overrun with invasive trees and vines. The canopy included native bald cypress and hickory as well as ornamental palm, but it was obscured by the presence of several camphor trees, a large earpod tree and many dead limbs that resulted from the 2004 hurricanes. In preparation for the restoration, the exotic trees were removed and the dead limbs were cut back, revealing a beautiful vista. The understory was cleared of much of the aggressive air potato and arrowhead vines that once smothered the large trees, and of wild taro that littered the shoreline. A healthy, open canopy of native bald cypress, hickory, black gum and red maple remains.

arrowhead vine creeping up cypress trunk

Snags of dead cedar and pine were intentionally left. These structures provide habitat for many small animals; they also offer a striking image in contrast to the surrounding lush vegetation.

The littoral and shoreline zones consist mainly of cattail, pickerelweed, elderberry, Virginia willow and ginger. Both the ginger and cattail populations were thinned to allow for greater diversity along the shore; this will also encourage more levels of ecological interaction. Total shoreline clearing was discouraged as the thick vegetation prevents access of boat and foot traffic from the lake into the Reserve. Several clumps of ginger were relocated along the Dinky Rail path and supplemented with native grasses to provide a guiding buffer into and out of the lakefront area.


swamp mallow

Because this area is typically moist and is prone to seasonal flooding, the plants chosen for the restoration would have to be able tolerate saturated and sometimes inundated soils. As the restoration area slopes up toward the Cedar Grove, more mesic species could be considered. Wetland-adapted trees, including red maple, loblolly bay, sweet bay, bald cypress, swamp dogwood and weeping willow were planted closer to the shoreline, while species such as pignut hickory, fringe tree, sparkleberry, and serviceberry that can tolerate more mesic conditions were planted closer to the Dinky Rail path. A variety of flowering plants such as pink and red swamp mallow, blue flag iris, golden canna, scarlet milkweed and coreopsis were incorporated to bring color to the area and to attract birds and butterflies. Bay trees were planted within the large clumps of relocated ginger; as the bay trees mature, they will extend above the height of the ginger, providing a variation in the contour of the lakefront vista.

Planting Legend for Banana Area

Symbol	Quantity	Generic Name	Common Name	Specifications
TREES				
JS	3	*Juniperus silicicola*	**Southern Red Cedar**	5 gal. 4' to 5' ht. single trunk
MG	15	*Magnolia grandiflora*	**Southern Magnolia**	5 gal. 4' to 5' ht. single trunk
	19	*Musa sp. (Bananas)*	**1/2 Ladyfin. 1/2 Caven.**	3 gal. 30"x24" full w/ multiple trunks
QV	24	*Quercus virginiana*	**Live Oak (selective)**	5 gal. 4' to 5' ht. single trunk
TD	17	*Taxodium distichum*	**Bald Cypress**	5 gal. 4' to 5' ht. single trunk
PB	17	*Persea borbonia*	**Red Bay**	5 gal. 4' to 5' ht. single trunk
PA	9	*Prunus angustifolia*	**Chickasaw Plum**	5 gal. 4' to 5' ht. single trunk
SP	10	*Sabal palmetto*	**Sabal Palm (w/Boots)**	8 to16'ct varied distribution
	6	*Diospyros virginiana*	**Native Percimmon**	5 gal. 4' to 5' ht. single trunk
	3		**Native Mulberry**	5 gal. 4' to 5' ht. single trunk
SHRUBS & GROUNDCOVER				
EH	6	*Erythrina herbacea*	**Coral Bean**	3 gal. 30"x24" full w/ multiple trunks
PN	64	*Psychotria nervosa*	**Wild Coffee**	3 gal. 24"x24" full w/ multiple trunks
RH	17	*Rhapidophyllum hystrix*	**Needle Palm**	3 gal. 24"x24" full w/ multiple trunks
SR	255	*Serenoa repens*	**Palmetto**	3 gal. 24"x24" full w/ multiple trunks

Notes: Stake trees as necessary
All items to be positioned in field by Landscape Architect

The lakefront extension integrates the control and removal of invasive exotic species with the re-establishment of native plants and the incorporation of manageable ornamental species. Not only does this improve the aesthetic quality of an otherwise

obstructed vista, the restoration improves the quality of nesting and foraging habitat for many animal species.

Banana Grove Restoration

On the western edge of the Reserve, along the shoreline of Lake Virginia, an historic banana grove was restored in the spring of 2006. This area had been overrun with exotics such as camphor, turk's cap, flame vine and arrowhead vine for many years. Intense removal of these species, as well as other natives that were damaged in the 2004 hurricanes was necessary before the restoration could begin.

Due to the location of this restoration area, the vegetation was purposefully selected to integrate the nearby mesic oak habitat with the existing shoreline vegetation. Live oak, Southern red cedar, red bay and hickory were chosen to transition from the mesic habitat. Native bald cypress, Southern magnolia and cabbage palm, as well as several banana trees, remain in the floodplain; additional bald cypress, sweet bay and magnolia were planted closer to the lakefront to transition into the more hydric habitat. Chickasaw plum was also incorporated into this restoration; their spring blossoms will add color and fragrance to the canopy.

banana trees remain in the Banana Plantation

The restored banana grove can be accessed from the open area south of the Wind Song house. Existing stands of ornamental ginger and turk's cap form a barrier between the restoration area and Genius Drive. Healthy banana trees also remain to the south of this patch as well as interspersed along the shore. A path entering the restoration begins with two majestic young magnolias. The path is lined with saw pal-

metto, scarlet milkweed, beautyberry, cedar, magnolia, hickory, red bay and oak. The path winds through the restoration and meets up with an existing path in two additional locations.


planted Southern magnolia

This restoration was the first to incorporate plants from the nursery; scarlet milkweed, native iris and swamp mallow are flowering plants taken from the nursery and planted as ornamental groundcover. Southern red cedar, Southern magnolia, hickory and wild coffee were relocated from other plantings on the Reserve.

Restoration Maintenance

The initial ground-clearing that is necessary in preparation for each restoration results in a disturbance which exposes the seeds and seedlings of many of the removed invasive and weedy species. As a result, the restoration area can quickly become overrun with these unwanted species. In order to effectively reduce the amount of weed growth while promoting natural succession, careful and intense maintenance of the newly restored area is necessary for approximately the first two years.

Herbicides applied directly to the unwanted plant can be an effective method of controlling weeds, however, this results in an increased amount of unwanted biomass produced by the dead weeds. This biomass is not necessarily harmful or helpful to the restored area, but the dead and dying plants do not contribute to the aesthetic and therefore should ultimately be removed. Weeding by hand is also an effective method of reducing the amount of weeds and it does not result in excessive biomass.

Another method employed to control unwanted weed growth is to cover the restoration area in mulch, particularly pine

straw mulch. Pine straw mulch was chosen for several reasons:

- Pine straw is an inexpensive renewable resource; unlike mulches, pine straw can be obtained without killing the tree.
- Pine straw does not encourage weed growth; other groundcovers can form a seedbed for weeds, but those seeds tend to fall through the pine needle cover rather than germinating. A thick layer of pine straw can, however, smother some weed seedlings.
- Pine straw decomposes slowly; as a result, it should require less frequent applications than other groundcover options.
- Pine straw is durable; it acts like a shield, aiding in erosion prevention, insulating roots, and retaining soil moisture.
- As it breaks down, pine straw releases organic matter and natural acids into the soil.
- Pine straw is a more stable groundcover; the leaves interlock, providing a more secure groundcover that won't easily wash or blow away during heavy rains or strong winds.
- Pine straw is resistant to fire and a variety of pests.

Ward House

Relocated to the Genius Reserve from the location that now houses the Wind Song subdivision clubhouse, the Ward House represents "Old Florida" vernacular architecture. Its integration into the landscape is part of the larger vision of transforming the Genius Reserve into a tended garden that incorporates a variety of naturally wild and cultivated landscapes.

The initial design concept for the Ward House was to create "a home in the grove, an estate in the garden." The area chosen for the relocation was initially bare. Through a functional beautification plan, a much more prominent setting for the Ward House is now being established. Much of the exotics have been removed from the area, although the existing turk's cap has been manicured to line the access road leading from Genius Drive to the Ward House. A border planting of native and ornamental species along the eastern boundary of the Reserve imparts

a pleasant look while serving as a buffer between the Ward House and the neighboring development. A small citrus grove has been planted in the open field on the north side of the house, and a plan to landscape the border of the house with a mix of native and ornamental species will complement the transition from the surrounding grove and border. The shore of Lake Berry on the south side of the Ward House has remained open and offers another spectacular vista.

Wind Song

The area that lies to the south of the Wind Song house was once a pastoral setting under a live oak canopy. Recent hurricanes, however, caused severe damage to the landscape, marring it with gaps, fallen branches and uprooted trunks. Several large oaks remain, as do hickory, magnolia and cabbage palm, but in order to re-establish this "Old Florida" vista, restoration of the live oak canopy is necessary. Live oaks will be planted in an effort to restore the natural canopy and understory.

pastoral setting near Wind Song house

Genius Reserve Fauna

The Genius Reserve is active with myriad species of animal despite the limiting factor of its small size. The Reserve functions as primary habitat for several small species of animal and as an ecological Stepping Stone for migrating and moving species. The lakeshores provide habitat for aquatic mammals as well as many wading birds.

Mammals identified on the Reserve include nine-banded armadillos, gray squirrels, raccoons, marsh rabbits and river otters, who most likely nest along the. A family of red foxes—including four kits in the spring of 2006—inhabit the remnant citrus grove.

Many reptiles have been sighted on the Reserve and lakeshores: American alligators, common cooters, Florida softshell turtles, black racers, yellow rat snakes, Eastern garter snakes, cottonmouth snakes, and a variety of lizards. There is also a gopher tortoise population on the Reserve; at least three active burrows have been identified, indicating that other burrowing animals might also be present.

The number and variety of birds that utilize the Reserve is extensive. Predatory birds such as the bald eagle, red-shouldered hawk, red-tailed hawk, osprey and barred owl regularly perch in tall

trees and snags, scanning the Reserve for prey. Wading and diving birds including the great blue heron, great egret, anhinga, double-crested cormorant, white ibis and limpkin use the littoral habitat for feeding and nesting. Other birds that reside permanently on the Reserve include the Carolina wren, Northern mockingbird, blue jay, fish crow, Northern cardinal, red-winged blackbird, common grackle and three types of woodpeckers—pileated, red-bellied and downy. Migratory birds like the gray catbird, cedar waxwing, indigo bunting and American redstart also utilize the Reserve for food or temporary shelter.

red fox *(Vulpes vulpes)*

red fox

size at maturity: The red fox typically reaches a length of about 3 feet from nose to tail and weighs only about 10 to 15 pounds.

habitat: The habitat of the red fox varies; they prefer open areas of oak habitat as well as neglected or abandoned citrus groves. The den is usually between 20 and 40 feet long and is used primarily for breeding. Sometimes the fox will take over an abandoned burrow from another animal such as an armadillo, but the fox will add tunnels and exits to make it easier to thwart a predator if necessary. Once the breeding season ends (usually in late August), the den is abandoned until the following breeding season.

diet: The red fox subsists mainly on a diet of small mammals, however, they will also eat birds, reptiles, amphibians, insects and fruits. Red foxes are predators, however, they are also opportunistic and will eat whatever is available.

description: The red fox's back and top of head are rusty; the underparts are white, as are the neck, throat and the tip of the tail. The ears are distinctly pointed and outlined in black. The feet and front legs are also typically black. The coat is very fluffy, giving the fox the appearance of being much heavier.

Red foxes are solitary creatures, however they tend to mate with the same partner for life, returning to the same den for each breeding season. They are difficult animals to observe in the wild as they are shy, cautious and nocturnal, resting during the day and prowling for food at dusk, dawn or throughout the night.

Northern river otter *(Lutra canadensis)*

size at maturity: Male river otters typically grow to about 4 feet in length from nose to tail, and weigh up to 40 pounds; the female otter is slightly smaller.

habitat: River otters live along clean, forested rivers and lakes. They create permanent nests in banks with entrances above ground and underwater.

diet: River otters eats a variety of aquatic and terrestrial organisms including fish, crustaceans, amphibians, small reptiles, birds, insects and occasionally small mammals.

description: River otters have thick dark brown to blackish fur; their bellies are lighter—usually yellowish, but also can be silvery or grayish brown. The tail is long and pointed at the tip. They are mammals, however, much of their life is spent in the water. They have special adaptations—a streamlined body, webbed feet, a rudder-like tail, eyes and ears that form a seal to keep out water, and the ability to hold their breath for up to four minutes—that allow them to thrive in the aquatic environment. They are also proficient divers and swimmers; the young are borne on land and therefore must be taught to swim by their mothers. River otters are often seen swimming or floating with their heads upright and above water. They are known for their engaging playfulness.

pileated woodpecker *(Dryocopus pileatus)*

size at maturity: At 15 to 18 inches, this is the largest of Florida's woodpeckers and one of the largest in North America.

habitat: This bird is adaptable to various habitats. Pileated woodpeckers prefer large tracts of old growth trees but can easily adapt to secondary or regenerating forests. The cavities they create are used by other species.

diet: The diet consists mainly of insects such as ants and beetles as well as fruits and nuts.

description: The very distinctive male is easily spotted by its bright red crest and mustache; the female's crest and mustache are black. The face is white with black stripes, the outer body is black and the underside is white and visible while the bird is in flight.

pileated woodpecker

barred owl *(Strix varia)*

size at maturity: The barred owl can reach a height of between 16 to 25 inches; its wingspan can reach up to 4 feet in width.

habitat: The preferred habitat of the barred owl is mesic to hydric woodlands and hammocks as well as riparian areas. The barred owl nests in cavities it finds in large, tall trees but it has also been known to nest in abandoned red-shouldered hawk nests.

diet: The diet is extremely diverse and includes insects, crabs, fish, snakes, frogs, mice, rabbits and even other birds.

description: The barred owl has brownish-white or -gray coloring with barring (hence the name) on its chest and belly and spots on its back. It is likely the most common of the Florida owls because of its highly vocal and distinctive call ("Who cooks for you? Who cooks for you all?") and because it is the only Florida owl to perch and call by day.

barred owl

red-tailed hawk *(Buteo jamaicensis)*

red-tailed hawk

size at maturity: The average adult red-tailed hawk reaches a height of 18 to 22 inches, with a wingspan averaging 4 feet.

habitat: This hawk can tolerate a wide range of habitats, prefering those that offer higher perch sites for nesting and hunting.

diet: The diet of the red-tailed hawk consists mainly of rodents and other small mammals, small reptiles, insects and sometimes other birds.

description: The coloring of the adult red-tailed hawk can vary as there are many variations and subspecies. The adult is typically a darker brown altough there are morphs that are lighter in color. A distinguishing characteristic is the hawk's small yet striking red tail. The body is generally stocky with broad, rounded wings.

bald eagle *(Haliaeetus leucocephalus)*

size at maturity: Bald eagles can grow as large as 30 to 40 inches with a wingspan of up to seven feet.

habitat: Bald eagles can tolerate a variety of habitat as long as there are trees or other tall objects available for nesting and open water sources.

bald eagle

diet: The diet of the bald eagle consists mainly of fish, however, small mammals, reptiles and other birds as well as the occasional carrion are consumed.

description: The bald eagle is probably the most recognizable raptor in the United States. Its distinguishing white hooded head, bright yellow and strongly hooked beak and dark brown body is not easily confused with other birds of its size.

Florida's bald eagle population is greater than that of any of the contiguous United States; Central Florida has the highest concentration of bald eagles in the world.

Indian peafowl *(Pavo cristatus)*

IMPORTED; NATIVE TO INDIA AND SRI LANKA

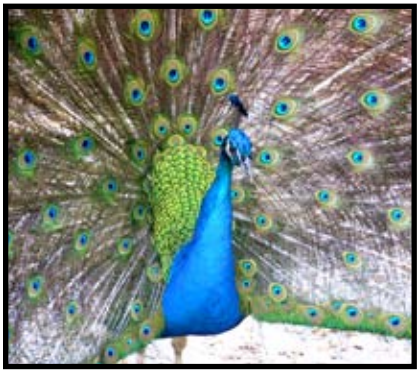
size at maturity: Males can reach an average of 6 to 7 feet from the tip of their beak to the tip of their train. Females, which lack the long, ornamental train, grow to an average of 3 feet from beak to tip of tail feather.

habitat: The natural habitat of the peafowl is the tropical rainforest, however, in captivity, peafowl simply prefer large areas with plenty of shrubbery. Peafowl nest and forage on the ground, but they roost in trees.

diet: Wild peafowl are mostly scavengers, surviving on the remains of food left

behind by other animals as well as insects, worms, small amphibians and reptiles. In captivity, and here on the Reserve, the peafowl are fed a diet of seeds and grain.

description: The male peafowl (peacock) is one of the most stunning birds; his neck is a striking iridescent blue. His long, ornate feathers have a distinctive eye-like marking. In breeding season, the peacock displays this plumage like a fan. The female, or peahen, lacks the ornamental train as well as the brilliant colorization. The peahen feathers are brownish, with minimal iridescence.



peacock

The peafowl were originally brought to the Reserve by Hugh McKean, after becoming fascinated by them on a trip to Asia. Today, they are still imported to the Reserve for the purpose of historical preservation.

gopher tortoise *(Gopherus polyphemus)* SPECIES OF SPECIAL CONCERN

size at maturity: On average, the gopher tortoise reaches about 12 to 24 inches in length, with a width of about half the length.

habitat: The gopher tortoise is a terrestrial tortoise, preferring to excavate burrows in sunny areas of well-drained, sandy soils where the water table is not an issue. These burrows offer the tortoises a place to sleep, hibernate and remain protected from predators and harsh weather. The burrows extend up to 20 feet down and 40 feet long. Active burrows are elliptically shaped with an apron clear of debris; often, there are visible tracks going into the entrance. Abandoned burrows are usually covered with debris such as leaves and twigs and are sometimes caved in. Inactive burrows have an appearance somewhere in between active and abandoned, depending on how recent the gopher tortoise residence. The gopher tortoise typically lays its eggs in a hole within the burrow, but sometimes will lay its eggs away from the burrow or deep within.

diet: Gopher tortoises mainly eat low-growing vegetation such as wiregrass, gopher apple and soft-leaved forbs; they also prefer prickly pear cactus, saw palmetto berries and other fruits and have been known to eat insects as well.

description: The carapace of the mature gopher tortoise shell is grayish to light brown and elliptical to oval with grooved geometric rings. The plastron is flat and pale yellow. Their front legs are flat like shovels, but their hind legs are short, round and stocky. Gopher tortoises can live to an age of over 60 years.

The gopher tortoise is considered a keystone species because so many other animals utilize its burrows. It is estimated that between 250 and 350 species of animal utilize the burrows in addition to the tortoise; some actually share the burrow with the tortoise while others move into abandoned burrows. Gopher tortoises are also helpful in disseminating seeds through their excrement.

Three gopher tortoise burrows have been identified on site.

Native Species

American beautyberry
(Callicarpa americana)
habit: deciduous (sometimes evergreen) woody shrub
size: 4 to 6 feet tall; equally as wide
growing conditions: full sun to partial shade; moist to dry well-drained soils but is adaptable to variable conditions
flower: clusters of small, delicate pink to lavender flowers appear in late spring to early summer
fruit: tight clusters of bright purple or magenta berries, with an occasional white variant; showy (plant is often selected for this ornamental feature); fruit is attractive to wildlife—bees and butterflies, in particular—and is edible to humans
vegetative features: branches are long and leggy, forming an open shrub structure; leaves are large, textured and opposite with bright yellow-green coloring; underside of leaf typically has soft pubescence

bald cypress *(Taxodium distichum)*
habit: large deciduous tree
size: 50 to 100 feet tall
growing conditions: full sun to partial shade; moist to wet or inundated soils
fruit: small, green cone; turns rusty brown at maturity
vegetative features: featherlike with lanceolate to acerose leaf blades and entire margins; young leaves are bright yellow-green but turn rusty orange or brown before falling; trunk is tall and straight and distinctively buttressed at the base; bark is slightly furrowed; outgrowth of roots appear as "knees" that emerge from below the ground or water

black gum *(Nyssa sylvatica v. biflora)*
habit: deciduous, large tree
size: 75 to 100 feet tall
growing conditions: generally prefers moist to wet or inundated soil and partial to full sun
flower: inconspicuous and greenish, borne in small clusters
fruit: mature fruit is bluish black drupe; eaten by many waterfowl
vegetative features: leaves are simple, elliptically shaped with entire margins, alternately arranged and varying in color from bright green at new growth to a mature reddish or purple; trunk is often buttressed and swollen if submerged; branches extend at a 90º angle from trunk and occasionally begin low

blue porterweed
(Stachytarpheta jamaicensis)
habit: evergreen herbaceous or woody shrub
size: 3 to 4 feet tall; equally as wide
growing conditions: does best in full sun and mesic to xeric soil conditions, however, can tolerate partial shade and relative soil moisture
flower: spike of small blue sessile flowers with white "eye" in center; often described as "rat tail"-like; blooms year-round and attracts butterflies
vegetative features: simple, ovate to lanceolate leaves are oppositely arranged with toothed margins; plant can spread if not controlled

butterfly orchid *(Encyclia tampensis)*
habit: evergreen epiphyte grows on the bark of oaks
size: 6 to 12 inches
growing conditions: prefers areas of high humidity such as swamps and hammocks; can tolerate nearly full sun to nearly full shade
flower: fragrant, small but very showy; has yellowish-green base extending into whitish petals with purple marking, although colors can vary slightly; more exposure to sunlight usually yields more flowers
fruit: small capsule that turns brown and splits at maturity
vegetative features: leaves are long, linear and greenish-yellow with entire margins; they tend to grow longer in shaded →

environment; seeds are dispersed primarily by the wind
Although the butterfly orchid is Florida's most common and widespread epiphyte, it is protected by law against collection from the wild.

cabbage palm *(Sabal palmetto)*
habit: branchless evergreen tree
size: 30 to 45 feet tall
growing conditions: robust and versatile; most common in areas of moist soil and partial shade, but can tolerate dry as well as inundated soils and exposure to full sun
fruit: drooping clusters of small, shiny black berries
vegetative features: leaves are fan-shaped and palmately compound; distinctively V- shaped with thread-like filaments on entire margins; trunk tends to grow down below ground before turning and growing up above ground

Carolina cherry laurel *(Prunus caroliniana)*
habit: evergreen shrub or small tree
size: 20 to 30 feet tall
growing conditions: does well in full to partial sun; prefers moist soil conditions
flower: small, white and fragrant flowers borne on racemes and appearing in late winter or early spring
fruit: small, dull black drupe, commonly eaten by birds
vegetative features: leaves are simple, leathery, elliptic and alternately arranged; upper surface is glossy dark green while underside is dull green; margins can be entire or serrate; young leaves have distinctive reddish petiole

cattail *(Typha sp.)*
habit: semi-aquatic to aquatic, emergent, herbaceous perennial
growing conditions: prefers moist to inundated or saturated soils
flower: tiny brown flowers borne as one dense, compacted, seemingly solid and cylindrical spike
fruit: miniscule seeds are dispersed by both water and wind
vegetative features: leaves are tall, linear, simple and erect with entire margins; base is sheathing; color is dark grayish green

Chickasaw plum *(Prunus angustifolia)*
habit: deciduous shrub or small tree
size: 20 feet tall
growing conditions: prefers partial to full sun and dry or well-drained soils and is drought-resistant.
flower: clusters of small white fragrant flowers; bloom in early spring before new leaf growth appears
fruit: small, juicy red or yellow berry that attracts birds and small mammals; is edible to humans and is sometimes used to make jelly
vegetative features: leaves are alternately arranged, small, simple and lanceolate in shape with serrate margins; can form thickets if not controlled
Chickasaw plum is thought to be so-named because it was a favorite fruit source for the Chickasaw Indians.

coontie *(Zamia pumila)*
habit: low-growing, evergreen, herbaceous shrub
size: 1 to 4 feet tall; as wide or wider
growing conditions: hardy; adaptable to a variety of soil moisture conditions (dry to moist, but not inundated); thrives in areas of full sun to full shade
fruit: woody cone—male cone is lanceolate; female cone is broadly elliptic and contains many large, bright red or orange flesh-covered seeds
vegetative features: distinctive and unusual cycad resembling a stemless palm or fern; leaves are pinnately compound; mature, oblong leaflets are glossy dark green; is slow-growing but requires little maintenance and, under the right conditions, is self-sown
Historically, this plant was a staple of the Seminole Indians. They chopped the rootlike stem and ground it into a flour, using it as their primary source of starch. It is also known as arrowroot.

coralbean *(Erythrina herbacea)*
habit: deciduous shrub or small tree
size: 10 to 15 feet.
growing conditions: most successful in partial shade but also does well in full sun and full shade; prefers moist but well-drained soils
flower: showy and distinctive spike of long red or coral colored tubular flowers, appearing in late spring and

summer; attractive to hummingbirds
fruit: hard, bright red, poisonous seed, borne in dark reddish brown to black pod (legume)
vegetative features: distinguishing compound, trifoliate leaf; individual leaflets are arranged 3 to a leaf, each shaped like an arrowhead with bulging, rounded or cordate base; leaf color is soft, dull green to yellowish-green; stem is armored with herbaceous thorns

coral honeysuckle *(Lonicera sempervirens)*
habit: deciduous, trailing vine; typically herbaceous but can become woody
growing conditions: thrives in a variety of conditions—from moist, well-drained soil to poor or dry soil and in full sun to partial shade
flower: cluster of delicate, red tubular flowers that, upon opening, reveal yellow center; attracts hummingbirds
fruit: bright red oval to round berry; attractive to birds and small mammals
vegetative features: leaves are oppositely arranged, simple, elliptic to ovate with entire margins; young leaves have soft, dull pale to yellowish-green upper while mature leaves are glossy and dark green with whitish underside

elderberry *(Sambucus canadensis)*
habit: deciduous small tree to large shrub
size: 10 to 15 feet tall
growing conditions: prefers moist soils and full sun but can tolerate drought conditions and partial shade
flower: tiny, white and star-shaped; borne in dense clusters
fruit: small, juicy, purplish-black berrylike drupes borne in clusters; often cooked for use in wines and jellies; seeds are eaten and dispersed by many birds
vegetative features: leaf is pinnately compound; leaflets are elliptical to lanceolate with serrated margins; bark is distinguished by having many lenticels

Elliott's love grass *(Eragrostic elliottii)*
habit: low, clumping evergreen grass
size: 1 to 2 feet tall and equally wide
growing conditions: grows best in sandy, well-drained soils, but can adapt to a wide range of moisture levels from very wet to very dry; tolerates full sun to light shade
flower: tiny spikes of whitish-silver buds
vegetative features: leaves are fine with a silvery-blue tint

Florida anise *(Illicium floridanum)*
habit: evergreen large shrub or small tree
size: up to 15 feet tall
growing conditions: tolerates sun, but grows best in partial to full shade and in moist, well-drained to saturated soils
flower: deep maroon to red and showy
fruit: star-shaped capsule
vegetative features: leaves are thick, elliptic to ovate with pointed ends that have distinct, pungent anise-scented odor when bruised or crushed; leaf surface is somewhat glossy with deep, grayish green color

laurel oak *(Quercus laurifolia)*
habit: deciduous tree; evergreen in certain conditions
size: up to 100 feet tall
growing conditions: prefers moist (but not inundated) to mesic soil conditions under full sun to partial shade
fruit: annually produces large number of small acorns that provide food for many small mammals
vegetative features: trunk is tall, straight-growing with dark bark that is fissured and sometimes scaly; crown is broad and rounded; young leaves are tender and pale green and elliptically shaped; mature leaves are dark green and leathery with dull underside

live oak *(Quercus virginiana)*
habit: large evergreen tree
size: up to 80 feet tall with 100 foot wide crown
growing conditions: versatile; full sun or light shade and in both moist and dry soil conditions
fruit: large number of small acorns produced annually, providing food for many small mammals
vegetative features: mature leaves are simple with leathery elliptic or oblong blades; color is typically dark green with pubescent underside, entire and often revolute margins; bark is dark →

and furrowed; crown is broad; distinctive outreaching and descending branches can extend as far as 100 feet from the trunk and often bend to ground level

Many species depend on the live oak for survival in the form of food, shelter, oxygen and as an anchor for soil and nutrients; its presence is an indicator of good habitat health.

loblolly bay *(Gordonia lasianthus)*
habit: medium-sized evergreen tree
size: 60 to 80 feet
growing conditions: thrives in both full sun and partial shade; soil preference is moist to saturated and acidic
flower: large white flower is fragrant and showy; silky petals and a prominent center cluster of yellow
vegetative features: crown is dense and narrow with broad, leathery, dark green leaves that are simple, alternately arranged with crenate to serrate margins

longleaf pine *(Pinus palustris)*
habit: evergreen tree
size: 80 to 100 feet tall; largest of the Florida pines
growing conditions: prefers exposure to full sun and dry soil conditions, but can tolerate moist, well-drained soils
fruit: seeds are housed in cones of 6 to 10 inches long and several inches wide, distinguishing them from other pines
vegetative features: leaves are acerose, up to 12 inches and form in bunches of 3; bark is dark brown and furrowed; developing stems grow terminal buds that appear silvery-white

Seedling longleaf pines are often mistaken as bunches of deep green grass; they remain in this trunkless stage for 3 to 10 years while their long taproot develops underground. Once the trunk develops, it grows straight and remains narrow.

This species of pine is fire-adapted.

muscadine grape *(Vitis munsoniana)*
habit: herbaceous to woody vine
size: up to 100 feet in length
growing conditions: prefers full sun and rich, moist soils, but can tolerate well-drained as well as saturated soils
fruit: cluster of berries that range in color from golden to pink to a purplish-black; food for many small mammals; also edible to humans
flower: panicles of tiny, green flowers
vegetative features: leaves are broadly ovate and lobed with serrated margins; darker green upper with greenish-yellow underside

Muscadine is hardy and resistant to many diseases and pests.

pignut hickory *(Carya glabra)*
habit: deciduous tree
size: 60 to 90 feet tall; one of the smallest species of hickory
growing conditions: full to partial sun and in dry to moist soil conditions
flower: male flowers borne in long, hanging clusters; female flowers borne in clusters at the tips of branches
fruit: large nut borne in dark brown husk that splits open only partially at maturity
vegetative features: leaves are pinnately compound and alternately arranged; leaflets are yellowish-green and elliptic to lanceolate with serrate margins; distinctive bark bears diamond- or rhombus-shaped fissures

red maple *(Acer rubrum)*
habit: deciduous medium to large tree
size: up to 80 feet tall
growing conditions: prefers moist to inundated soils but will grow in drier conditions; does well in full sun as well as shade
flower: inconspicuous red or yellow flower that appears before new leaf growth
fruit: tiny winged seed (samara)
vegetative features: leaves are simple, palmately lobed with crenate margins and red veins and petioles; leaf color in spring and summer is rich grayish green, with a paler, glaucous underside; in fall, leaf color changes to vibrant shades of red, orange and yellow prior to dropping

resurrection fern
(Polypodium polypodioides)
habit: epiphytic evergreen found primarily on the branches of rough-barked trees and decaying trees, stumps or logs
size: about 6 inches long by 1 to 2 inches wide
growing conditions: full sunlight to deep shade; requires a significant amount of moisture but can withstand drought conditions due

to their ability to conserve water and to survive up to a 97 percent moisture loss
vegetative features: fronds are oblong to lanceolate and deeply divided with linear to oblong pinna
A distinctive characteristic of the resurrection fern, and the secret behind its name, is the ability of its fronds to curl up during extended dry periods in an effort to conserve water. Although the fronds appear dead, they will "resurrect" or open back up with rain or humidity.

saw palmetto *(Serenoa repens)*
habit: typically encountered as a shrub however, is actually a tree with a subterranean trunk
size: 2 to 6 feet of above ground vegetation; with terrestrial trunk, up to 20 feet tall
growing conditions: highly adaptable; does well in full sun to full shade and almost any soil condition as long as it is not too rich; has high tolerance for salt and drought
flower: clusters of small, greenish-white buds; presence is sporadic and most commonly associated with occurrence of fire
fruit: orange or yellow drupe that turns black as it matures; edible put not palatable
vegetative features: leaves are fan-shaped and deeply divided with greenish-yellow, spiny leaflets and armed petioles
Saw palmetto is one of the most abundant and pervasive of the Florida natives.

Simpson's stopper *(Myrcianthes fragrans)*
habit: evergreen shrub to medium-sized tree
size: 4 to 20 feet tall
growing conditions: full or partial sun; prefers relatively moist soils but can also tolerate dry, sandy conditions
flower: borne in stalked clusters of fragrant, white blooms
fruit: small round reddish-orange berry; attractive to birds
vegetative features: leaves are small, with dark green, glossy upper, pale, dull underside and entire margin; oppositely arranged; tips of leaves are typically pointed and can be sharp; characteristic bark has rusty tint and is smooth, yet flaky

Southern magnolia *(Magnolia grandiflora)*
habit: large, broad-leafed evergreen
size: up to 65 feet tall
growing conditions: does best in full sun to light shade, but has been known to do well in partially closed canopies; prefers rich, moist soil but can tolerate surprisingly dry as well as periodically inundated soils
flower: magnificent, large, white flowers that are very fragrant
fruit: small, bright red seeds borne in a cone-like aggregation; eaten by birds and small mammals
vegetative features: leaves are large, thick, and leathery with entire margins; upper is glossy dark green while underside is rusty and pubescent; bark is distinctively smooth.
This striking and noble tree is often cultivated for its ornamental value.

Southern red cedar *(Juniperus silicicola)*
habit: medium to large evergreen tree
size: up to 60 feet tall
growing conditions: prefers full sun to partial shade and moist to dry, well-drained, sandy soils
fruit: glaucous, light blue berry-like fruit borne in cones
vegetative features: young leaves are small, short and acerose, offering protection for the seedlings from animals; mature leaves remain small but are scale-like and deep green; crown is typically cone-shaped

Spanish moss *(Tillandsia usneoides)*
habit: not a true moss; epiphytic member of pineapple family
size: forms 3 to 20 foot long clumps
growing conditions: can grow in a variety of conditions, but does best full to partial sun and constantly high humidity
flower: spikes of tiny, greenish or bluish, inconspicuous flowers
fruit: tiny seeds are typically dispersed via wind but also can be spread by birds who use the moss as nesting material
vegetative features: pale silvery green in color; bears hardly noticeable stems and leaves that are covered in scales that capture moisture and nutrients from passing dust particles; has no roots, however, anchors itself to its host tree and allows its bulk to hang freely from the tree branches; lives primarily in hammock hardwoods

sweet bay *(Magnolia virginiana)*
habit: medium, broad-leafed evergreen tree
size: 20 to 30 feet tall
growing conditions: moist to inundated acidic soil and partial shade to full sun
flower: similar to the Southern magnolia; large, white, showy and fragrant blossom
fruit: resembles that of the Southern magnolia; it is a soft, hairy, cone-like aggregation of bright red seeds
vegetative features: leaves are alternately arranged and elliptic with entire margins; top is leathery, dark green and shiny; underside is silvery white and glaucous
The color variation between upper and underside is a distinguishing characteristic of this tree that is most noticeable when the wind blows, causing the crown to appear to shimmer. The leaves are aromatic when crushed—another characteristic that distinguishes the sweet bay from Southern magnolia.

tickseed *(Coreopsis leavenworthii)*
habit: perennial herbaceous species
size: 1 to 4 feet tall
growing conditions: ideal conditions are moist, sandy soils and full sun
flower: delicate, bright yellow ray surrounding a maroon to black disk
vegetative features: leaves are oppositely arranged, linear to oblanceolate with entire margins; self-sown and clump-forming if not maintained
This species of *Coreopsis*, as well as the Florida coreopsis (*Coreopsis floridana*), are endemic to Florida.
Florida's state wildflower is the genus *Coreopsis*.

wild coffee *(Psychotria nervosa)*
habit: dense, evergreen shrub
size: 3 to 9 feet tall
growing conditions: partial to full shade and in dry to moist soils
flower: small, greenish white and born in clusters
fruit: large, dull, red berry-like drupes
vegetative features: leaves are rich dark green, very glossy, and textured due to the deeply impressed veins.
Wild coffee is a distant relative of the familiar coffee that we drink.

wiregrass *(Aristida berychiana)*
habit: herbaceous, clumping evergreen grass
size: about 2 feet tall
growing conditions: prefers xeric conditions such as full to partial sun and dry or well-drained soils; can handle even the poorest of soil conditions; drought-tolerant but can survive seasonal flooding
flower: inconspicuous and borne on spike-like shoots; sporadic, appearing primarily after a fire or other disturbance such as mowing
vegetative features: leaves are thin, stiff and rolled tightly inward resembling wire
Wiregrass provides habitat for small mammals; it also the primary food of the gopher tortoise.

Exotic & Invasive Species

air potato vine *(Dioscorea bulbifera)*
NATIVE TO AFRICA
habit: herbaceous, climbing vine
size: 65 feet or more in length
growing conditions: can tolerate full sun to partial shade; can survive in most soil conditions, including inundation
flower: small, green to white and slightly fragrant, appearing in small but long, spike-like clusters; not a noticeable feature
fruit: smooth, potato-like tubers that spread underground and sprout above ground stems; vine also produces tubers that can drop to the ground and sprout new plants
vegetative features: leaf is alternately arranged, cordate, deep green and glossy with entire margins; dormant in winter, but able to cover small trees within one life cycle

arrowhead vine *(Syngonium podophyllum)*
NATIVE TO MEXICO AND CENTRAL AMERICA
habit: pervasive herbaceous perennial vine
growing conditions: tolerates a wide range of moisture conditions (including the ability to grow in water) as well as varying degrees of sun exposure
flower: greenish spathe housing a whitish compacted, cone-like inflorescence; typically not appearing until plant is mature
vegetative features: young leaves are simple and arrowhead-shaped (hence the name) and vary in color from yellowish-brown to bright green and may also be variegated; mature leaves are compound with an average of 3 to 5 leaflets that are typically deep green in color; the stem produces a milky sap that can be irritating to skin
Arrowhead vine is very aggressive. Its roots are strong and extensive, allowing it to spread along the ground, quickly forming large, somewhat impenetrable mats; it also has the ability to climb up and around tree trunks, eventually taking over the structure. Because the roots take such a strong hold, arrowhead vine is difficult to remove. The young sprouts are weak and break easily, but new growth will occur from the broken sprouts.

caesarweed *(Urena lobata)*
NATIVE TO SOUTHEAST ASIA
habit: small woody shrub
size: 3 to 6 feet tall
growing conditions: can thrive in a variety of dry and moist soil conditions, but cannot tolerate saturated soils; requires partial to full sunlight and does not do well under closed canopies
flower: small and pink; blooms year-round
fruit: tiny, multi-segmented capsule; each segment contains a seed and is armored with tiny barbs; segments that have separated attach themselves to passing clothes, fur and hair, allowing for effective dispersal by animals and humans
vegetative features: leaves are alternately arranged, ovate with shallow lobes and serrate margins; upper and underside are pubescent, giving the leaf a grayish-green color
Caesarweed grows and colonizes rapidly and takes advantage of disturbed, open areas.

camphor tree *(Cinnamomum camphora)*
NATURALIZED; NATIVE TO ASIA
habit: medium evergreen tree
size: 50 feet tall (remains much shorter in central Florida)
growing conditions: full sun to partial shade with mesic to xeric soil conditions; can't tolerate extended periods of moisture well but are very drought-resistant
flower: clusters of small, whitish flowers
fruit: small, black berry-like drupe that are often eaten by birds
vegetative features: easily recognizable by its strong aromatic leaves, stems and fruit when bruised or crushed; leaves are simple and ovate with shiny, dark green upper surface, pale green to glaucous underside and entire yet undulating margin; young leaves often have rusty hue before turning green.
Camphor trees are allelopathic; they release a natural "herbicide" that prevents other species from growing in nearby soil. This tree spreads aggressively and can quickly out-compete other native species for resources. It is also fire- and wind-resistant.

Chinaberry tree *(Melia azedarach)*
NATIVE TO ASIA
habit: deciduous tree
size: 50 feet
growing conditions: can tolerate a variety of soil and light conditions
flower: panicles of fragrant pink or lavender flowers.
fruit: borne in large clusters of berrylike drupes; poisonous to humans and livestock but eaten and readily dispersed by birds
vegetative features: leaves are bipinnately compound; leaflets are glossy, green and lanceolate with varying margins; bark is dark and fissured
Chinaberry is typically used as an ornamental plant, however, it spreads aggressively and tends to choke out native trees.

earpod tree *(Enterolobium contortisiliquum)*
NATIVE TO CENTRAL AND SOUTH AMERICA
habit: deciduous tree
size: averages 30 to 60 feet
growing conditions: fast-growing; adaptable to various levels of moisture and is drought-tolerant; prefers full sun
flower: small and white, appearing in tuft-like heads
fruit: large brown to black ear-shaped seed pod; can be toxic if ingested by cattle
vegetative features: feather-like leaves are bipinnately compound; leaflets are opposite and grow in numbers of 20 to 30 on each leaf
The large crown of the earpod tree tends to shade out other species; it also sheds an excessive amount of biomass. Its root system is large and shallow, sometimes becoming terrestrial which can be problematic for neighboring species.

Mexican flame vine *(Senecio confusus)*
NATIVE TO MEXICO AND CENTRAL AMERICA
habit: persistent evergreen vine; appears herbaceous but has woody base
growing conditions: It thrives in a variety of soil conditions, but prefers periodic moisture; does well full sun to partial shade
flower: clusters of reddish-orange rays surrounding yellow to orange disks; blooms primarily in summer but known to bloom throughout year; attracts butterflies
vegetative features: leaves are deep green, ovate with dentate margins, alternately arranged
This is an aggressive, fast-spreading vine. It has a tendency to drape trees and eventually smother their crown, killing them.

wild balsam apple *(Momordica charantia)*
NATIVE TO SOUTHEAST ASIA
habit: tender, herbaceous climbing vine
growing conditions:
flower: small, yellow and solitary, growing from leaf axil
fruit: young fruit is small, green, and cucumber-like; mature fruit grows to about 5 inches long, is yellow-orange and spiny or bumpy; when ripe, it splits to release many small, bright red seeds; internal flesh of fruit is sticky
vegetative features: long-stalked leaves are alternate and very distinct with deep lobes and toothed margins; leaves are soft and often pubescent; vine climbs with help of tendrils that arise from leaf axil

Ornamental Species

banana *(Musa spp.)*
NATIVE TO SOUTHEAST ASIA
habit: fast-growing, herbaceous perennial
size: 15 or 20 feet tall
growing conditions: constantly moist but not saturated soil; full sun
flower: showy flower begins as a large, ovate bud in a purple sheath that opens to reveal cluster of tubular white flowers that are hooded in purplish-red bracts
fruit: borne in clusters of oblong, bowed, deep green berries that turn yellow or red when ripe; flesh is whitish yellow and edible
vegetative features: leaves are large and bright yellowish-green, often with maroon to purple markings; leaves can reach lengths of up to 9 feet; "trunk" is actually a thick, fleshy stalk that grows from an underground corm; approximately one year will pass before new flower appears and an additional 6 months for fruit to ripen

bougainvillea *(Bougainvillea spectabilis)*
NATIVE TO SOUTH AMERICA
habit: woody vine or shrub-like structure; evergreen, but may drop leaves briefly in winter
size: 5 to 30 feet tall
growing conditions: adaptable to many soil types, but prefers full sun and well-drained soils; resistant to short periods of drought; not resistant to frost
flower: small, white flower hidden inside showy, purple, pink or red papery bracts; bracts often mistaken for flower
vegetative features: stalks are armored with thorns; leaves are cordate and deep green

camellia *(Camellia japonica)*
NATIVE TO CHINA
habit: large, evergreen shrub
size: 10 or more feet tall
growing conditions: prefers soils with moderate levels of moisture and high acidity.
flower: large, showy and deep pinkish red with a rose-like appearance.
vegetative features: leaves are shiny deep green and elliptic with serrated margins

citrus *(Citrus spp.)*
NATURALIZED; NATIVE TO SOUTHEAST ASIA
habit: evergreen large shrub or small tree
size: about 15 feet, although varies among different types of citrus, with grapefruit growing largest and lime generally smallest
growing conditions: varies greatly; typically dry and sandy soils, however, can sustain moist, organic soil conditions; cannot tolerate inundated or saturated soils for extended periods of time; most types are also adaptable to varying levels of salt and acid
flower: usually clusters of small, white, fragrant blossoms; lemon blossoms have purplish tint
fruit: typically a medium to large berry with thick, leathery, often dimpled skin; oil glands located within the skin produce a distinct fragrance
vegetative features: compound leaves, often mistaken for simple leaves as all but one terminal leaf drops from tree; sizes and shapes vary among different species with grapefruit producing the widest leaves; all are typically ovate to elliptic with entire or crenulate margins; leaves also contain oil glands that, when crushed, are distinctly aromatic; young branches and stems are often armed with long, green thorns

Citrus were first brought to America by such New World explorers as Christopher Columbus and Juan Ponce de Leon in the late 1400s to early 1500s.

The Genius Reserve is home to the last remaining citrus grove within the Winter Park city limits. The central grove was originally planted by Charles Hosmer Morse in 1920.

The Citrus genus is typically divided into five species, each with a number of cultivars: *C. sinensis* (sweet oranges such as navel, temple and blood); *C. reticulata* (includes tangerine and mandarin); *C. paradisi* (grapefruit); *C. limon* (lemon); and *C. aurantifolia* (lime). In both the central grove and the Ward House grove, various orange cultivars are growing as well as lemon, grapefruit, and kumquat *(Fortunella spp.)*, a citrus relative.

Formosa azalea *(Rhododendron simsii)*
NATIVE TO INDIA AND SOUTHEAST ASIA
habit: woody shrub
size: 4 to 5 feet tall
growing conditions: must have moist, acidic soil, however, can adapt to conditions of full sun to full shade
flower: showy and abundant, blooming in variety of pinks, magenta and white
vegetative features: leaves are dark green, elliptic to ovate with an entire margin

orchid tree *(Bauhinia variegata)*
NATIVE TO SOUTHEAST ASIA
habit: showy deciduous tree
size: 20 to 40 feet tall
growing conditions: must have full sun to light shade; cannot survive under closed canopy; does best in acidic soils; can tolerate periodic levels of moisture
flower: orchid-like appearance in various shades of purple; blooms in late winter to early spring before new leaf growth; blooms persist for several months
The candida variety, also present on the Genius Reserve, bears a white blossom.
fruit: long, flat, brown bean pod
vegetative features: distinctive leaf is wide, rounded and dual-lobed with cordate base; often appears as if it has folded itself in half

scarlet milkweed *(Asclepias curassavica)*
NATURALIZED; NATIVE TO SOUTH AMERICA
habit: evergreen, perennial shrub
size: 3 to 4 feet tall
growing conditions: full sun to partial shade; tolerates dry, moist and even inundated soils
flower: small, star-shaped and vividly colored in bright red and orange, borne in clusters
fruit: spindle-shaped pod houses little flat seeds that are released into the air on "silky parachutes" when the pod breaks open
vegetative features: dark green leaves are arranged opposite and narrowly elliptic to linear with entire margins
Scarlet milkweed contains a milky sap (hence the name) that can cause skin irritation and is toxic if ingested. Butterflies—monarchs in particular—lay their eggs on the leaves of this and other milkweed plants; their caterpillars then feed on these plants. Both the butterflies and caterpillars contain the same the toxin as the milkweed.

shell ginger *(Alpinia zerumbet)*
NATIVE TO INDIA AND SOUTHEAST ASIA
habit: perennial herbaceous plant
size: usually 3 to 7 feet tall, but can reach up to 12 feet
growing conditions: grows best in partial shade to full sun and moist, well-drained soils but hardy enough to tolerate variable conditions
flower: waxy, white to pinkish, shell-like buds (hence the name), grow in long pendants; buds open to reveal bright yellow- and deep red-throated blossoms
vegetative features: leaves are simple, long and broadly elliptic to lanceolate growing in ranks on upright, green stalks; that grow from underground, clump-forming rhizomes

turk's cap *(Malvaviscus arboreus)*
NATURALIZED; NATIVE TO MEXICO
habit: evergreen vine-like shrub
size: up to 10 feet tall
growing conditions: full sun to partial and even full shade; can tolerate moist soils but is also drought resistant
flower: bright red, bell-like blossoms that hang down and do not fully open; bloom throughout the year and are attractive to both hummingbirds and butterflies
vegetative features: large, tender leaves are dark green, elliptic to ovate with cordate base and serrate margins

Index

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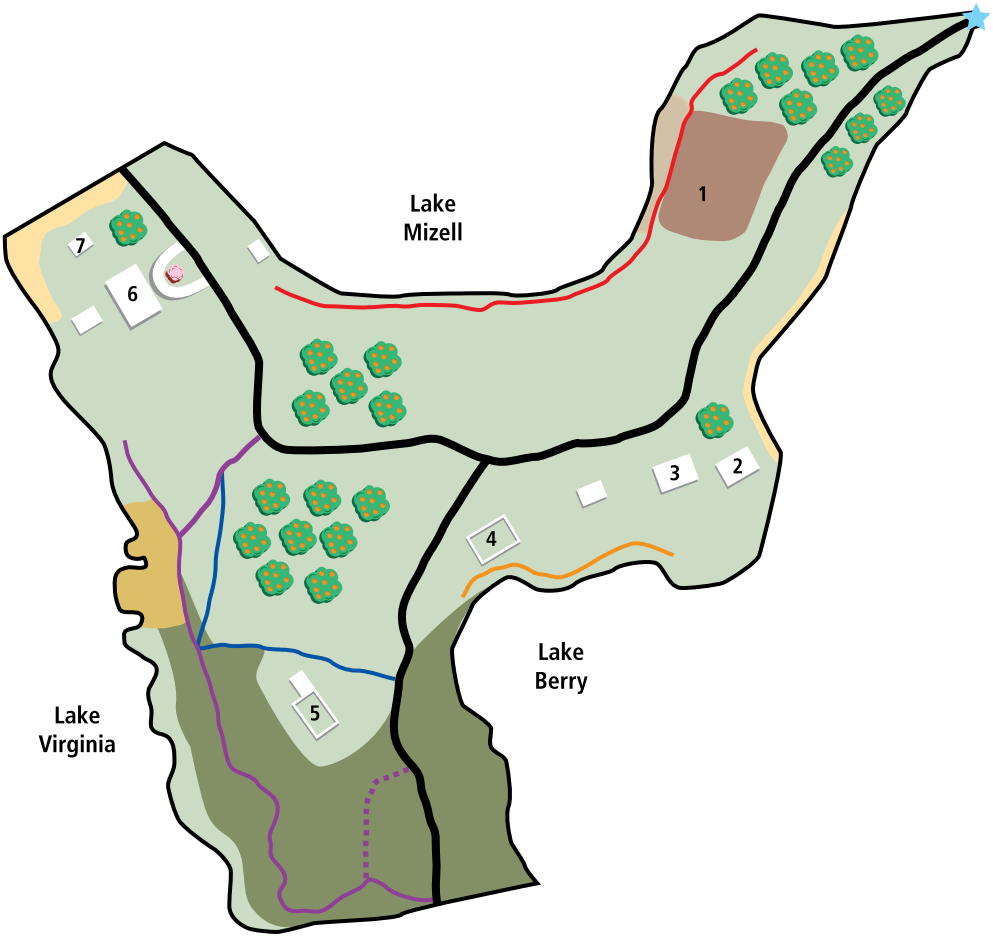
Walking Map of Genius Reserve



Legend

- Entrance / Ward Gate
- 1 Outdoor Classroom
- 2 Ward House
- 3 Citrus-Packing House
- 4 Nursery
- 5 Stable and Corral
- 6 Wind Song
- 7 Old Peacock Aviary
- Citrus
- Rose Garden
- Border Planting / Buffer
- Cedar Grove Restoration
- Lakefront Restoration
- Mesic Oak Hammock
- Banana Grove Restoration
- Genius Drive
- Dinky Rail
- Jeannette's Walk
- Paths