

Native plant ? Wildflower? Endemic? Exotic? Invasive? Rare? Endangered?¹

Nancy C. Coile²

The purpose of this circular is to explain some terms which are in common usage, but which are not used consistently, nor accurately, in many instances. For more detailed information, you may wish to consult a standard botany text such as Raven *et al.* (1999), or others in this Internet list: <http://www.biology.lsa.umich.edu/courses/bio461/GenREF.html>

NATIVE PLANT: Many Floridians are transplanted from other places, but still consider ourselves Floridians even though not born in Florida. Being “native” is a badge of honor reserved for those who were born in Florida. Being a **Florida native plant** species is also a badge of honor, because the native plant has a lineage which arose in Florida, and was not transported by man into the state from elsewhere. A native plant species has adapted and interacted through long periods of time to local conditions (including weather, soil, water, nematodes, fungi, bacteria, viruses, insects, mites, birds, reptiles, mammals, fire, etc.). Therefore, since the native plant interacts with all these factors, a native plant is rarely weedy because it is in balance and under control.

There are many definitions for “native plant” or “indigenous plant” and some of these have a historical element. For instance, Minnesota’s definition of a native plant would include that the plant was present in the area prior to the 1850s when Europeans began to settle there. A Florida native plant would be present in Florida before 1513, when the first contact by Spanish explorers began. Most definitions ignore that Amerindians were transporting plants from place to place before 1492. See the Florida Native Plant Society’s website [www.fnps.org] for further information about Florida plants.

Unfortunately, there is no complete record of which species were actually present before European settlement. This means that nativity is assumed from many factors. If the species was indicated as natural in the environment by one of the early explorers (see Wunderlin and Hansen 2000 for the best recounting of Florida plant explorers), then it can be listed as a bona fide native. However, what if the species were present but not listed by the early explorers? Even the easily recognizable plant species were seldom mentioned by the general explorers; and the treatises on plants are not complete listings. Are there other methods to discern a species’ history? One pattern to look for is the associated organisms (especially insects): if these organisms are sparse, it indicates that the species was removed (often as seed) from its original native habitat and moved into the current one. Given enough time, a species will attract other organisms; therefore, if a species has no associated others, it indicates the species is young in the environment. If the plants are weedy, or if they are found only in disturbed habitats, this is also an indication that the species is not part of the original scheme and not an integral link in the web of life. Conversely, some native plant species utilize the disturbed sites that occur in nature, such as the sites created by tree falls, wind or flood damage, fire, animal trampling, etc., but these pioneer species will have associations with other species.

How did the plants arrive to the geologically young Florida? As Florida began to arise from the sea, plants from surrounding areas colonized these new substrates, arriving by many methods such as by water, by wind, by animal, or by slow dispersal of a few inches from the parent plant over the millennia, allowing the adaption mentioned above. Florida land submersed and rose and submersed and rose several times in the last 50 million years (Myers 2000). At the height of glaciation when the water level was 300 feet lower than present, the continental shelf was exposed to give

¹ Contribution No 482, Bureau of Entomology, Nematology, Plant Pathology - Botany Section.

² Botanist, FDACS, Division of Plant Industry, P.O. Box 147100, Gainesville, FL 32614-7100.

a corridor across the northern part of the present Gulf of Mexico (Randazzo and Jones 1997). This land exposure allowed easier migration of plant species from what is present day Texas, while in South Florida there was a closer connection to the islands of the Caribbean. South Florida therefore hosts many native plant species in common with the Caribbean and northern South America. The greatest diversity of native plant species for Florida is in the Panhandle area where the interface with adjacent uplands is greatest and where many surviving plant species were pushed southward during the glaciation periods. [See this web site on Florida geology: http://www.fiu.edu/~whitmand/Courses/Fl_geo_notes.html.]

ENDEMIC PLANT: The Central Ridge (in the area of Lake Wales, Avon Park and Sebring) is one of the oldest areas of Florida, originally appearing as islands. This ancient area contains several **endemic** plant and animal species. An endemic is a species which is confined to a particular region, having been isolated long enough to amass a number of unique characteristics. The rare “pygmy fringe tree” (*Chionanthus pygmaeus* Small) is a Florida endemic which is found in several counties in Central Florida. This is a sister species to the more common “fringe tree” (*Chionanthus virginicus* L.) which is found throughout the Southeast U.S. The “Chinese fringe tree” (*C. retusus* Lindl. & Paxt.) is cultivated in Florida and its origin is not on this continent.

The Chinese fringe tree is an example of the **disjunct** distributions of genera and species in East Asia and eastern North America. This “disjunction phenomenon” had been noticed by Linnaeus. [see the class notes: <http://geology.uvm.edu/morphwww/classes/gradsem/1998/ward.html> and <http://biodiversity.uno.edu/~gophtax/gophtax.97/0484.html>.] You could say that the common fringe tree is both native to and endemic to Southeast U.S. while the pygmy fringe tree is native and endemic to Florida and the Chinese fringe tree is exotic. Usually the term endemic refers to a small area, and the Southeast U. S. would barely fit into the category. Some native species naturally occur over a wide area. For example, red maple (*Acer rubrum* L.) occurs naturally from Canada to Mexico. It would therefore be a native tree in any of part of that large region, but not endemic to Virginia, for example. The Endangered Plant Advisory Council defines endemic to Florida as “over 95% of all known occurrences being in Florida.”

CULTIVAR: Yaupon holly (*Ilex vomitoria* Ait.), the native shrub used by the Creek Indians in the a ceremonial “black drink” (Hudson 1976), has several cultivars, including ‘Schilling’s Dwarf’ and ‘Pendula.’ A **cultivar** refers to a plant which has been selected by man for particular characteristics or has been hybridized or otherwise manipulated to enhance certain desired characteristics. While many of our cultivars are not native plants, we consider ‘Schilling’s Dwarf’ (which is a short male plant with a rounded shape) and ‘Pendula’ (which is a tall female plant with drooping branches supporting beautifully translucent red fruits) to be native species since these cultivars were discovered in the wild and occurred without interference by man. The naturally occurring hybrid hollies, ‘East Palatka’ holly and ‘Savannah’ holly (*Ilex x attenuata* Ashe) were also observed in nature and brought into cultivation. Those are two of the many hybrid cultivars which resulted from naturally occurring crosses between American holly (*Ilex opaca* Ait.) and dahoon holly (*Ilex cassine* L.).

WILDFLOWER: Although the woody shrubs/trees mentioned above do not have showy flowers, the fruits are showy and counterbalance the tiny, insignificant flowers. These plants would not be called wildflowers by any stretch, but they definitely are attractive native plants. A **wildflower** is usually considered to be a herbaceous (not woody) species with showy flowers and the plants occur naturally (grow “wild”) and reproduce without interference by man (Duncan and Foote 1975). This definition would include annuals which must be reseeded yearly, biennials which complete their life cycles in two years, and herbaceous perennials which can survive for many years because of their overwintering rootstock. The term wildflower can sometimes (as in Bell and Taylor 1982; Taylor 1992) also refer to native woody plants which grow in the wild and have showy flowers. There is even disagreement about whether to use one or two words: wild flower or wildflower. Even if cultivated, the native wildflower (no longer so wild) may still be called a native plant. We still refer to these cultivated native plants as wildflowers because of their heritage.

Stephen Brueggerhoff, Native Plant Information Specialist with the Lady Bird Johnson Wildflower Center at Austin, Texas, in a personal communication provides the following definitions: “A native plant exists in a given region through non-human introduction; should be used with a qualifying location (*i.e.*, native to the Hill Country of Texas). A

wildflower is a plant (associated with flower production) that is capable of growing without the assistance of humans, and not necessarily native to a given area.”

A beautiful native wildflower of the Southern Appalachians is *Trillium undulatum* Willd., painted trillium. Just because painted trillium is native to the U.S., does this mean we can refer to it as a native species for Florida? No. But what about a plant species which is native to South Florida, but not to the northern part of Florida? One species which fits into that category is firebush, the beautiful shrub of South Florida, *Hamelia patens* Jacq.

What about the western side of central Florida, with its *Harrisia aboriginum* Small ex Britton & Rose, the prickly-apple cactus; while the eastern side of central Florida has its *Harrisia fragrans* Small ex Britton & Rose, Caribbean apple cactus? These cactus species have a natural range in certain small regions of central Florida, but not to the entire state.

Should a native plant species continue to be called “native” when it is transplanted out of its range? This is a hotly debated question. Some believe that specimens of a plant species should not be considered native if transplanted more than 30 to 50 miles from the origin.

EXOTIC PLANT SPECIES: Are plants which have been imported (introduced) from other areas, countries, or continents. Many of the exotics are useful, for example, corn (*Zea mays* L., originally from Mexico) and sweet orange (*Citrus sinensis* (L.) Osbeck, presumed originally from China) or beautiful ornamentals such as camellia (*Camellia japonica* L., guess where!), and do not reproduce in the wild. Some exotics such as sour orange, *Citrus aurantium* L., occasionally will reproduce in the wild in Florida.

NATURALIZED: Exotic plant species sometimes become naturalized in Florida. Naturalized means that the species reproduce on their own and have established populations in the natural environments of Florida, often with drastic impacts on native species. Wunderlin (1998, page 663) indicates that ca. 31 per cent of the species reproducing in the wild in Florida are exotic. Some exotic plants have integrated into their new environment in such a manner that they do not seem to be invasive. These plants have **naturalized**, but do not excessively reproduce and do not crowd out native species. One example of a fairly harmless naturalized plant species in Florida is the Easter lily, *Lilium longiflorum* Thunb., a Japanese native which has escaped cultivation in the Panhandle and Pinellas County.

WEEDS: Many of these exotic plant species are **weeds** in agricultural row crops (*Amaranthus hybridus* L., pigweed, from SW U.S. and tropical America) and in pastures (*Solanum viarum* Dunal, tropical soda-apple, from Brazil and Argentina, see Coile 1973) and lawns (*Cyperus esculentus* L., yellow nut-sedge, an Old World species). Because most weeds are unattractive, one definition of a weed is “a flower in disguise.”

When exotic plant species aggressively reproduce so that they crowd native plants in the natural areas, then these plants are termed **pest plants**. The Florida Exotic Pest Plant Council, a private organization of concerned individuals, has developed categorized lists of plants which are pest plants in Florida. This group arose in response to the threat of melaleuca on natural areas of the Everglades. You may wish to view the website: <http://www.fleppc.org>

NOXIOUS WEEDS: Is a particular category of exotic pest plants which was produced by the United States Department of Agriculture/Animal and Plant Health Inspection Service/Plant Protection and Quarantine (USDA/APHIS/PPQ). The intent of that list was to halt the introduction of pest plants into this country by excluding the plants at the ports of entry. The **Noxious Weed List** was divided into three groups: parasitic, aquatic and terrestrial. Originally, the list was not meant to prohibit interstate movement of the noxious weeds. If a plant species were widespread already in the U.S. (for example, kudzu, *Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & S.M. Almeida), the species was not put onto the list. However, kudzu growth has proved to be such a problem in the Southeastern U. S. that the U.S. Congress in 1998 made a special rule to include kudzu onto the federal list, over-riding the intent of the Noxious Weed List. For a short period (1998-2000), kudzu was a Federal Noxious Weed. When the Plant Protection Act of 2000 was passed into law, kudzu was not included as a Federal Noxious Weed and again is merely a pest exotic plant species which is plaguing the Southeastern U.S. (Polly P. Lehtonen, USDA, personal communication).

PROHIBITED AQUATIC PLANTS: Since the federal list did not address interstate movement of these weeds, several states developed their own weed lists. In 1986, Florida Department of Natural Resources (now Florida Department of Environment Protection) developed a list of **prohibited aquatic plants** and included several which were a problem in Florida. [See <http://www.dep.state.fl.us/legal/legaldocuments/rules/aquatic/62c-52.pdf>.] *Hydrilla verticillata* (L.f.)

Royale is one of the prohibited plant species which continues to afflict the waters of Florida. USDA does include hydrilla on its list even if hydrilla is widespread in the warm parts of the Southeastern U.S.

Florida Noxious Weed List: Florida Department of Agriculture and Consumer Service's noxious weed list came into effect July 1993 as part of Rule 5B-57.007, and may be seen at this web site: <http://doacs.state.fl.us/~pi/rules.html>. Rule 5B-57.007 includes the parasitic and terrestrial plants from the USDA Noxious Weed List and also several other exotic pest species. It is illegal to grow these weeds in the nursery trade or to sell or move these noxious weeds.

RARE: A **rare** plant is not one that is uncooked in the middle! Rather, a rare native is a species that is uncommonly encountered in the wild. Some plants are just naturally uncommon and rare; however, many plants are rare because of the disruptive actions of mankind. *Silene polypetala* (Walter) Fernald & Schubert, the beautiful fringed pink, is a rare plant species, occurring sparingly in Gadsden and Jackson counties in Florida and in also a few counties in Georgia (Coile 1992). The U. S. Department of the Interior's Endangered and Threatened Wildlife and Plants judged that *Silene polypetala* belonged in their endangered category. The Florida Endangered Plant Advisory Council (EPAC) which makes decisions about rarity of Florida plants, recommended *S. polypetala* be placed onto the endangered list for Florida. [See Regulated Plant Index, part of Rule 5B-40 (Preservation of native flora of Florida): <http://www.doacs.state.fl.us/~pi/5b-40.htm#.0055>]

ENDANGERED: The category "endangered" is defined in Rule 5B-40 to include "...species native to the state that are in imminent danger of extinction within the state..." One of the very rare endangered species is *Ziziphus celata* Judd & Hall, the scrub ziziphus, which was thought to be extinct when named by Judd and Hall (1984), but has since been located in Highlands and Polk counties. This species seems to have difficulty with its breeding systems and may be a species that is on its way to extinction. Another species which catches our attention for its slip down the extinction slope is *Torreya taxifolia* Arn., the Florida torreya. According to the fossil record, this magnificent gymnosperm tree was once widespread over eastern North America. It is now known to occur naturally only from three counties along the Apalachicola River ravines (Chafin 2000; Coile 2000). When transplanted out of current region, but into the prehistoric region, the plants often thrive and very large healthy trees have been observed in Columbus, GA and Asheville, NC. Many theories are put forward as to why this species is declining in its remaining native area, including that a fungal disease is the culprit (Alfieri *et al.* 1967).

Some plants on the Florida Endangered Plant Species List are quite common elsewhere, but considered rare in Florida, for example, *Aquilegia canadensis* L., wild columbine. This species is at the end of its range in Florida, extending northward to Nova Scotia and Saskatchewan and west to Texas. Why then is this species listed as Endangered in Florida? The criteria for listing are defined as: number of confirmed populations in Florida, number of individuals in Florida, number of counties in which the species occurs in Florida, sites on federal, state or protected lands with management plans, fragility of species (degree of threat), and special considerations such as biology, reproduction, or unusual circumstances. If the numerical score (judged by the EPAC's established criteria) is a value less than 9.0, then the species is justified as Endangered in Florida. Biologically, these end-of-range specimens are very important and often lead to new species given enough time and separation from the larger gene pool.

THREATENED: Another rare category is **threatened**, which Rule 5B-40 defines as "...species native to the state that are in rapid decline in number of plants within the state, but which have not decreased in such number as to cause them to be endangered." *Chrysophyllum oliviforme* L., satin leaf, is listed as a Florida threatened species because in the wild it meets the criteria for inclusion into this category. This species is widely cultivated and recognized by many persons, who might not even know its name, as the small tree from southern Florida which has glossy leaves coppery-brown underneath. Its rarity in the wild and its numerical score places it within the Threatened category.

One very troubling problem with relying on cultivated plants for salvaging the rare species: there is usually very little genetic variability in the thousands of individuals in cultivation. These cultivated plants often were taken originally from a single population or even a single plant.

Florida native plants have adapted to the humid conditions of Florida, to the cyclic drought problems, and the temporary overabundance of water after hurricanes. They have developed resistance to local diseases and pests, sometimes have

specialized pollinators, and have methods of dealing with our soils. When native plants are transplanted into appropriate environments of the home landscape, they do not usually require as much care and attention (fertilizers, pesticides, water, etc.) as do the non-natives. Plants from dry areas (such as the scrub) are usually good candidates for **xeriscaping** because they are adapted to low water conditions. Obviously, a plant from a wet area (example, *Pontederia cordata* L., pickerelweed with its showy blue flowers) would not be a good xeriscape plant even though it is native.

EVENTS: The Florida Native Plant Society has an annual meeting which takes place at a different location in Florida each spring. In addition to excellent talks, there are field trips to fascinating natural areas. Two annual out-of-state events might also be of interest to Florida wildflower enthusiasts. The Wildflower Pilgrimage is co-sponsored by the University of Tennessee in the springtime with guided walks into the Great Smoky Mountains National Park and with evening talks at Gatlinburg, TN. This experience will thrill those who enjoy getting out into nature and experiencing wildflowers because one will find myriads of fascinating wildflowers. [<http://www.wildflowrepilgrimage.org>] The other annual event is a conference begun in 1982 and taking place at Cullowhee, NC. This event concentrates on wildflower production in the nursery. [<http://cess.wcu.edu/np/sessions.html>]

CONCLUSION: Native plants will add to the life of the Florida landscape, attracting birds, butterflies and other animals. Native plants belong. Native plants define the “real Florida.”

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