



Goldenmane tickseed — native to Florida or Texas native naturalized in Florida? by Jeff Norcini

I thank the Florida Wildflower Foundation for providing a forum to present my views about this issue. My views do not represent the official position of the Foundation.

Large, spectacular displays of goldenmane tickseed (*Coreopsis basalis*) adorn Florida roadsides in the spring, mainly in the north half of Florida. It is one of Florida's most reliable wildflowers in terms of sustainability, showiness and stand density. In years of drought, they look good; in normal to rainy years, the stands are outstanding. This year has been awe-inspiring based on reports of colleagues as well as those who simply appreciate beauty.

When I started my native wildflower program while a faculty member at the UF/IFAS North Florida Research and Education Center in Quincy, one of the genera I focused on was *Coreopsis* because it was the

state wildflower and the Florida Department of Transportation had a strong interest in using it on roadsides. I became very interested in *C. basalis* because of the impressive roadside and meadow displays I had seen in the Big Bend region.

In this article, I contend that *C. basalis* is native to Florida because there is insufficient scientific evidence to show beyond a reasonable doubt that it is non-native. In other words: Innocent until proven guilty.

Coreopsis basalis occurs mainly in the lower south from Texas to North Carolina. It is not considered native to Florida because it was not mentioned as occurring here by 19th century botanists. Botanists in the 20th century refer to it as being native to Texas and being only recently introduced, having escaped cultivation in the eastern part of its range. Native plant definitions reference European settlement, which in Florida's case is 1513:

Florida Administrative Code Rule 5B-40.001 (11) Native plant. A plant species that is presumed to have been present in

Florida before European contact."

However, the Florida Native Plant Society further refines that definition:

A 'Florida native plant' refers to a species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. Florida native plants include those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.



Coreopsis basalis along Interstate 10, May 2013.
Photo/Bill Randolph

The gap between 1513 and 19th century botanical exploration concerned me so that I sought a second opinion. I contacted Andy Clewell, first in the summer of 2002 (Clewell, 2002), and again this May (Clewell, 2013). Andy, who authored *Guide to the Vascular*

Plants of the Florida Panhandle (University Press of Florida, 1988), was a botanist at FSU before becoming a restoration ecologist, both professions for which he is internationally recognized.

Richard Wunderlin considers it possible that *C. basalis* may have migrated into an



Enriching lives with
Florida's native wildflowers

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extreme northwest county of Florida in the 1500s, maybe assisted by Native Americans; he was not certain whether prior to or after the 1530s. As well, Clewell (2002) commented:

...Was someone watching when the first population of Coreopsis basalis arrived in Florida? The timing of introduction is critical. The year 1492 is often used as the threshold year. Species that were previously introduced are considered to be native. Plant collection did not begin in Florida for another 300 years and not in earnest for 400 years. That temporal gap is disconcerting when it comes to deciding if a species is native or not. Native Americans were known to move around numerous (continued on page 5)

Gov. Rick Scott vetoes wildflower bill

A bill that would have provided more funds for Florida wildflowers was vetoed in June by Gov. Rick Scott. The legislation, unanimously approved by the House and Senate, would have increased the State Wildflower license plate user fee from \$15 to \$25.

The change would have brought the fee in line with those of most other Florida specialty plates.

"I'm stunned," said Foundation Executive Director Lisa Roberts. "It doesn't make sense. Gov. Scott just signed into law four new plates with \$25 user fees. Why is the State

Wildflower plate being treated differently?"

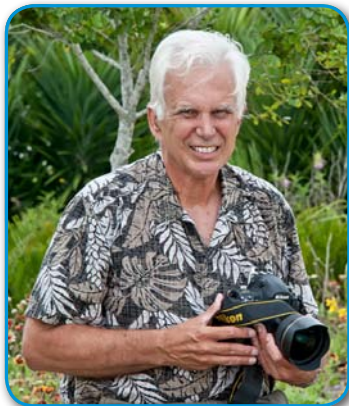
In his veto letter, Scott wrote, "Although buying a specialty license plate is voluntary, Floridians wishing to demonstrate their support for our State's natural beauty would be subjected to the cost increases sought by this bill."

Explained Roberts, "Having a specialty license plate is totally elective — no one pays the fee unless they choose to have the tag."

The Florida Wildflower plate has raised \$3 million for wildflower and native plant education, research and planting projects.

Wildflower photography: Vince Lamb helps you get the picture

Vince Lamb is a Florida native and a true activist who champions our Florida environment through his participation in numerous groups and committees. But his talent truly shines as a nature photographer documenting Florida plants, places and wildlife. He enjoys finding rare and endangered species that most people are unlikely to see, and his artistic images help heighten public awareness for conservation.



The Florida Wildflower Foundation is fortunate to have Vince as a board member who helps set goals and plan programs and events throughout the year. His photography workshops have helped others to hone their skills. We asked Claudia Larsen to talk with Vince to get pointers on how to take that perfect wildflower photo.

Fresh new flowers emerging in spring encourage us to capture their beauty through photography. What are some of your favorite places for photographing Florida wildflowers?

Wildflowers are wonderfully easy to find in Florida during most of the year. I enjoy searching any conservation land or state park to see what is blooming. Finding rare and unusual plants requires more effort. I love to visit the Fakahatchee Strand Preserve State Park for orchids and bromeliads. I recently visited the Apalachicola National Forest in the Eastern Panhandle and found breathtaking wildflowers.

Do you use more than one camera?

I often want to capture close-up images of one flower and also show flowers with the surrounding environment. I usually carry one camera with a macro lens and another with a wide-angle zoom lens to be ready for both kinds of shots.

Do you use tripods a lot?

I should use my tripod more than I do. Some of my best images were taken with the camera on a tripod. However, I like to take shots from a variety of angles, including low ones that are hard to get with a tripod. Using a tripod, you are less likely to move as much and get the variety of angles that you will shoot without a tripod.

What do you find to be the biggest challenges of shooting wildflowers?

A big challenge is avoiding cluttered backgrounds. A stem or dead leaf behind a beautiful flower creates an ugly distraction in your image. A cloth backdrop is one option but it takes some of the natural appearance



Swamp tickseed (*Coreopsis nudata*)
Photo/Vince Lamb

away from your image. Try different angles to avoid distracting backgrounds.

Why is it hard to capture the true colors of blue or pink flowers?

Color shifts are common in photography — including digital. The flower that you remember as pink can appear lavender in an image. The good news is that you can adjust the hue and saturation in Photoshop or other image editors to correct the colors. Another common

issue is that the colors often shift when images are printed. What you saw on the screen can be quite different in print. Again, adjustments in Photoshop or other software may be needed to yield the colors you recall seeing.

What are the advantages of shooting in the morning or late afternoons?

The lower light intensity early or late in the day produces a higher dynamic range. In bright light, details are lost in either the whites or the blacks, depending upon your camera settings. With lower light, textures and other details are preserved across the range of light.

Do you ever shoot black and white?

Most digital cameras always record images in color. Photoshop and other tools allow images to be easily converted to black and white. Sliders are provided to allow the blues, reds or greens to be darkened or lightened in the black and white image. Wildflower images need a lot of drama in black and white to offset the loss of color. I have processed some wildflower images in black and white that I like, but I usually prefer to use the color version.

Can you share any tips on shooting an overview of a garden? Sometimes the picture doesn't capture the beauty that the eye sees.

Most of us like images that reflect simplicity, and many garden shots are far from simple. Images that feature a subject are often appealing. The subject could be a garden gate or even a single

flower. Leading lines, like a curving path, can add interest to a garden shot.

Do you prefer shooting wildflowers on a cloudy day or a sunny day?

Close up shots of wildflowers show more details and often have better color under the diffused light of a cloudy sky. Landscape shots under cloudy skies are usually disappointing.

After shooting wildflowers throughout spring, summer and fall, is there a good way to organize all the dozens (or maybe hundreds) of pictures you have so you can conveniently store them on your computer?

I wish I could find the time to catalog all of my images in Adobe Lightroom or a similar product. I have partially completed that task several times. When I download images from my camera, I organize the images by date using folder names like "20130415 Apalachicola National Forest

Wildflowers" to indicate the location and subject. When I edit any image, I will name the saved file to append the subject name. When I want to find an image of a Swamp Coreopsis, I just try to recall when and where I took the shot.

Do you like to enhance your photos with Photoshop or make artistic

versions with different color variations?

I use Photoshop on every image to make adjustments, usually small, to exposure, blacks, sharpness and color saturation. After spending many hours experimenting with artistic effects, I was unable to find any effects that I prefer to images that reflect nature.

Is there anything I forgot to ask that you would like to include for our FWF readers?

Improving our nature photography skills can be a lifelong quest. Closely examine the work of other nature photographers to see why their images have strong impact. Critically examine your photos to get ideas for improvement. Digital "film" is free, so take lots of shots from varying angles and light directions. Enjoy every minute that you spend capturing images of beautiful wildflowers.

Come photograph wildflowers with Vince Lamb!

He will lead a photography workshop at the Sept. 28 Florida Wildflower Symposium in Titusville. Join our e-news list to be notified when registration opens. See more of Vince's work on his website, www.vincelamb.com.

Let the sun shine in to eliminate weed problems before you plant

by Jeff Norcini

Have a small area where you want to plant wildflowers? Concerned about weeds? You should be, even in planting sites where weeds don't seem like they will interfere with establishing and managing your wildflower garden. An abundance of weed seeds can lurk in the top few inches of soil just waiting for some sort of disturbance. And from the weeds' point of view, disturbance can range from tilling the soil to eradicating existing vegetation with an herbicide.

For small wildflower gardens, soil solarization is a very effective means of obtaining a weed-free planting site. But it takes time and patience. Soil solarization is most effective when done from June to mid-August. The sun is high in the sky, days are long, and the temperature is highest. Soil solarization works by heating slightly moistened soil to as much as 140°F near the surface according to a University of California publication. Moist heat is very effective at killing seeds and often even tubers and rhizomes of noxious weeds like nutgrasses (*Cyperus* species) that are close to the surface.

Basic steps:

1. Eradicate vegetation and debris from the area to be solarized.
2. Till the soil 12-18 inches deep; break up clods of soil, the finer the texture the better. Remove any sticks, roots, stones, and other debris brought up to the surface a result of tilling.
3. Rake the area so that the surface of the tilled area is smooth.
4. Irrigate so that the entire soil profile is slightly moist (but not soggy). Moist soil is much better



USDA Researcher Dan Chellemi & organic farmer Kevin O'Dare inspect a raised vegetable bed that is being solarized in Vero Beach. Photo/Randall Smith, USDA/ARS.

than dry soil at conducting heat. Also, moist heat is very effective at killing seeds.

5. Cover the site with 3-6 mil clear plastic. Bury the edges of the plastic about 8 -12 inches so the plastic cover is snug; the plastic needs to be snug and buried around the perimeter to prevent wind from lifting it up.
6. The soil solarization process takes about six weeks. You can leave the plastic in place until you are ready to plant.

For more information:

Robert McSorley and K.G. Harsimran. *Introduction to soil solarization*. ENY-062, Entomology and Nematology Department, Florida Cooperative Extension Service, IFAS, University of Florida, Gainesville, FL.

Stapleton, J.J., A. Wilen, and R. H. Molinar. 2008. *Pest notes: Soil solarization for gardens & landscapes management*. UC Statewide IPM Program, University of California, Davis, CA 95616.

Welcome new board member Dena Wild

Dena Wild's career as city planner and urban designer spanned 35 years. She worked in cities throughout the country maintaining through design the character of traditional neighborhoods and commercial districts that were being affected by redevelopment. During her tenure with the City of Orlando, she was Chief Planner for Urban Design, which included overseeing the public art and historic preservation programs. She also taught urban design as a University of Central Florida adjunct professor.



Upon retirement, Dena's focus shifted from urban design to urban horticulture. She is actively involved in educating people about all aspects of home horticulture through the Orange County Master Gardening program, speaking engagements, classes, and writing for *Florida Gardening*. Her civic involvement also includes being a docent for the Orlando Museum

of Art, member of City of Orlando's Historic Preservation Board, and education chair for the Central Florida Herb Society.

Dena holds a master's degree in Urban and Regional Planning from the University of Oregon. Her urban horticulture education includes "hands-in-the-dirt" experience, post-

graduate studies in landscape architecture at the University of Colorado, the Boulder and Orange County Master Gardener programs, and the University of Florida's Best Management Practices for the Green Industry. Dena's free time is spent in her lawn-free yard, traveling and reading.

Plant Profile

Fleabane (*Erigeron* spp.)

They float along the ground in large patches, like reflections of the white clouds overhead. Looking at them up close, fleabane seems to be just another tiny white daisy, but it's tougher than it looks. Blooming time starts in early March and continues into summer. On roadsides, the flowers mingle beautifully with blue lyreleaf sage, phlox and yellow *Coreopsis*, and often return for a repeat performance after mowing.

There are 3 common species of *Erigeron*:

- Oakleaf fleabane (*E. quericifolius*) — Found in peninsular Florida in moist hammocks.
- Prairie fleabane (*E. strigosus*) — Frequently seen wildflower in North and Central Florida.
- Early whitetop fleabane (*E. vernus*) — Found throughout Florida in flatwoods.

Fleabane is not commonly for sale in nurseries, but in the garden they are nice fillers, especially when massed. They are drought-resistant and tolerant of a wide range of soils. Bright yellow central disc flowers are surrounded by 100 to 200 fine linear outer white or light lavender ray flowers.



Photo/Claudia Larsen

Family: Aster (Asteraceae)

Habitat: Sandy disturbed sites, open pinewoods, open hammocks

Range: Throughout Florida

Blooming season: Spring and summer

Growth habit: Upright, 12-18 inches

Flowers: Terminal heads on loose branches of upper stems

Soil: Moderate to dry

Exposure: Sunny

Donations needed

FWF is in immediate need of office equipment, including personal computers (Windows Vista or 7) and printers. The Foundation is a 501(c)3 not-for-profit corporation, and your donation may be tax deductible; we will gladly furnish a letter acknowledging your donation. If you can help, please contact Lisa Roberts at 407-353-6164 or L.Roberts@FlaWildflowers.org. Rather give a monetary donation? Visit www.FlaWildflowers.org/donate.php.

Ethnobotany of Wildflowers ~ A Growing Part of Florida History *by Claudia Larsen*

Imagine yourself as a native Indian or early explorer 500 hundred years ago trying to survive in Florida. The better part of your day was probably spent hunting or gathering for daily sustenance, making tools and building shelters. Although artifacts are recovered by archeologists, the list of plants used for food, medicine and spiritual purposes was generally passed down by word of mouth through generations of early Floridians. There is quite a compendium of knowledge about early uses of native trees and shrubs, but what about wildflowers?

Ethnobotany may be described as the historical use of plants by different cultures of people for religious, medicinal and practical purposes. This science is actually a marriage of anthropology and botany as researchers search the past and try to identify plants important to each culture of peoples. Our ancestors had a complex relationship with the land they depended on for survival. (For those interested in a major compilation of these uses, refer to *Florida Ethnobotany* by Daniel F. Austin.)

Florida's indigenous Glades Indians traded goods and shared information on plant use, but much of that information was lost when Indian populations declined. Food from native plants included fruits, nuts and leaves that were available throughout the year. According to the Florida Public Archeology Network (www.Flpublicarchaeology.org), Timucuan Indians and early Florida settlers observed nature, like watching what animals ate, to determine uses for plants: spines were removed from prickly pear (*Opuntia* sp.) fruit, and passionflower (*Passiflora incarnata*) stems and leaves made a relaxing tea. Greenbrier tips (*Smilax* sp.) and young pokeweed (*Phytolacca americana*) leaves were boiled in stews, while the starchy roots of greenbrier and coontie (*Zamia pumila*) were dried and ground with grains to form flour. Some plants produced colorful dyes that were used for beautifying pottery, clothing and ceremonial face-paint. Cloth was spun from fibers that were processed by boiling Spanish moss to remove its tough outer core. Wiregrass (*Aristida* sp.) and little bluestem (*Schizachyrium* sp.) were sources of fiber for baskets, as well as Indian hemp (*Apocynum cannabinum*), a plant from open hammocks in North and Central Florida.

To keep mosquitoes at bay, all you had to do was eat wild garlic, lots of it, so a bad odor would emit from your breath, sweat and urine. Thank goodness it was also discovered that simply rubbing wild garlic directly on skin leaves a pleasant odor and still repels bugs. (If garlic is out of season, beautyberry [*Callicarpa americana*] leaves purportedly also work.)

The University of Florida EDIS publication No. 1439, "50 Common Native Plants Important

in Florida's Ethnobotanical History," offers information on how plants have been used by Floridians and lists Florida wildflowers that were thought to have value, including American groundnut (*Apios americana*), white waterlily (*Nymphaea odorata*), prickly pear cactus, purple passionflower, black-eyed Susan (*Rudbeckia hirta*), elderberry (*Sambucus canadensis*) and pickerelweed (*Pondetaria cordata*).

Many common and scientific plant names reflect local uses for plants. Our state wildflower, *Coreopsis*, is called tickseed because the seeds

are small and black like ticks. Some settlers used *Coreopsis* in their mattresses to help repel ticks and bedbugs. Plant fiber and dyes from flowers and leaves were used for textiles, while baskets were created with leaves, stems, grasses and vines like hempvine (*Mikania* sp.). Some of the remedies were used in traditional religious rituals.

Although ethnobotany is steeped in the past, it is still relevant today as we grow more wary of processed and chemically laced foods in our diets. The forward to *Florida's Incredible Wild Edibles* states,

"Florida's varying habitats are blessed with a wide variety of native plant species with roots, stems, leaves, flowers, fruit and seeds that provide good and interesting food for people." This is one of my favorite little books, in which Dick Deurling and Peggy Lantz list dozens of Florida plants that can be used in salads, stews (potherbs) and beverages.

Want to diversify that lettuce in your bowl? Add a sprinkling of tender young leaves from meadowbeauty (*Rhoxia virginica*), pickerelweed, and Spanish needle (*Bidens alba*).

Don't forget the garnish – sliced tubers of Florida betony and partridgeberries (*Mitchella repens*) will add a nice crunch. Decorating a cake? Sprinkle it with flowers of violet (*Viola* sp.), swamp rose (*Rosa palustris*) or spiderwort (*Tradescantia ohiensis*), which are all edible. If you are interested in sustainable farming, spiderwort also provides an endless supply of young shoots that can be steamed and buttered like asparagus – yummy!

If you live on a lake, you will be glad to know that three species of waterlily are edible: American lotus (*Nelumbo lutea*), fragrant or white waterlily, and yellow pond lily (*Nuphar lutea*). Unopened flowers and uncurled leaves can be boiled and buttered, unripe seeds from the pods can be boiled or roasted. And if you don't mind wading, the roots can be harvested in

winter and eaten like sweet potatoes. Please refer to the book for specific recipes!

In the 1920s and '30s, folk medicine played a large role in treating common ailments and plant foods were valued for cleaning and building blood, cleansing the bowels, and as a source for vitamins and minerals. A definition of herbal remedies states they are "therapeutic compounds that occur naturally in plants." Plant parts contain many chemicals that were thought to relieve certain ailments, although some remedies were based more on folklore than medical research.

There are seven categories of medicinal compounds in plants: alkaloids, glycosides, phenols, organic acids, resins and gums, saponins and essential oils. Traditional herbal remedies could include several types of plants that were carefully combined for specific dosage. Several wildflowers were used as treatments for snakebite, fevers, bronchial problems and skin infections. Leaves were made into fresh tea or mixed with other ingredients to form syrups or healing tinctures. Roots and plant barks from Pleurisy root (*Asclepias tuberosa*) were used for internal problems. The shape of plant parts that resembled human organs may also have dictated the specific uses for many native plants.

Unfortunately, the need for wild-crafted remedies, especially in the Appalachians, resulted in harvests that decimated wild plant populations.

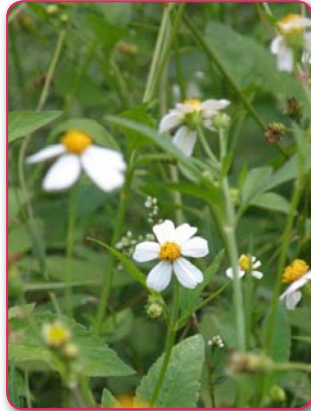
By the 1940s, the University of Florida School of Pharmacy was receiving many requests for information on methods of collecting native medicinal plants and preparing them for market. University of Florida Bulletin No. 14, "Collection and Cultivation of Medicinal Plants in Florida," states, "This work can be done by farmers during their spare time and much of it can be done by

women and children. There are some instances where families in the State have tided over crucial financial situations by collecting plant drugs for market."

The school maintained a 10-acre medicinal plant garden, three acres of which were kept in a natural state. Research was conducted to determine if wild plants could be maintained under cultivation, with concurring yield and quality measurements.

Bulletin no. 14 also describes how to dry, clean and pack plants, including a treatment in a tight barrel with a few drops of chloroform to kill insects. Growers could then ship to crude drug dealers like the Lahomach Seed Co. in St Augustine, Mr. O.C. Bauman in Deland, or R.C. Burns in Canaveral, Florida. Collectors were warned to never send an entire lot of drugs to dealers without previous correspondence that discussed quality of the drug and pricing.

Deertongue or vanillaleaf (*Carphephorus odoratissima*) was collected (continued on page 5)



Both the flowers and young leaves of Spanish needle are edible.



Try spiderwort blossoms for an interesting cake decoration.

Medicinal properties of native plants currently under evaluation include:

- False indigo (*Amorpha fruticosa*): insecticidal properties
- Common boneset (*Eupatorium perfoliatum*): cytotoxic/antibacterial activity of leaf extract
- Elephants foot (*Elephantopus elatus*): chemistry of two tumor inhibiting structures
- Honeycombhead (*Balduina angustifolia*): use of compounds as cancer cell inhibitors
- Railroad vine (*Ipomoea pes-caprae*): analgesic effects of leaves to treat colic and rheumatism
- Mayapple (*Podophyllum peltatum*): use of compounds in cancer chemotherapy
- Comfortroot (*Hibiscus aculeatus*): gastroprotective and antioxidant activities of roots
- Sensitive pea (*Chamaecrista nictatins*): antiviral activity against herpes simplex virus
- Chapman's gayfeather (*Liatris chapmanii*): use of chemical extract as tumor inhibitor

(Ethnobotany continued from page 4)

in many Central Florida counties, especially in Sanford. The leaves contain coumarin, which was used for flavoring. Leaves were stripped and prepared for market like tobacco, and Florida plants were preferred for their finer aroma and color. Two hundred- to 400-pound bales were prepared by machines and some drug dealers sold 40 to 50 tons a year.

Roots of wild indigo were used as a dye and also had medicinal value as a stimulant. Flowers and berries of elderberry and pokeweed had “diaphoretic and alterative” powers. Yellow jessamine rhizomes and roots were dried and cut into pieces and later prepared as a “nervine.”

Queen's root was found in Alachua and Marion counties where roots were dug in the fall after tops had died.

Orange milkweed, also known as Pluerisy root, was commonly found throughout Florida and sold a diaphoretic and expectorant.

Scientists today are evaluating compounds found in Florida wildflowers and other plants throughout the world for potential cures of diseases. In the United States, of the top 150 prescription drugs, at least 118 are based on natural sources. According to the National Cancer Institute, at least 70 percent of new drugs introduced in the United States in the last 25 years are derived from natural sources, and plant

derived anti-cancer drugs save at least 30,000 lives per year in the U.S. alone.

As you can see, loss of our Florida habitat is not only a conservation issue; it may also limit potential opportunities for medical and other rare finds. Don't worry about over-harvesting. After identifying chemical compounds in plants, scientists can usually synthesize them for pharmaceutical production. This includes calliicarpene and intermedeol — synthesized in 2006 by the U.S. Department of Agriculture, these chemicals are apparently a great mosquito deterrent. Yea, I won't have to smear that wild garlic all over me after all!

Please note: This article is not intended to advise readers on wildflowers for uses other than gardening, since historical information on ethnobotany is mostly untested by science.

Resources

- 50 Common Native Plants Important in Florida's Ethnobotanical History, University of Florida EDIS Publication 1439, Ginger M Allen, Michael D. Bond and Martin B. Main
- Florida Public Archeology Network, Pensacola, FL www.FIpublicarchaeology.org
- Florida's Incredible Wild Edibles, Deuerling, R.J. and Lantz, P.S., Florida Native Plant Society, 2000.
- Florida Ethnobotany, Daniel F. Austin. 2004, CRC Press, Boca Raton, FL

(Goldenmane tickseed continued from page 1)

plant species in trade that reached from downstate to the Yucatan, using 40-foot dugout canoes that plied what is known now as the Inter-Coastal Waterway. Did they bring in Coreopsis basalis from elsewhere? If so, when? Does it matter when, since... indigenous people may have made the introduction? I think that at least 10%, and perhaps much more, of the alleged indigenous flora of Florida consists of Indian introductions, before or after 1492 and from as far away as Central America and the entire Carribean [sic]. And what is scientific about the date 1492? ...Setting any date for what's native is arbitrary... [and] essentially says that plants are not dynamic. It also... inserts political history into the evaluation of biological processes. (Clewell, 2013)

If not introduced by Native Americans, it's possible the *C. basalis* was introduced into the Panhandle in a previous geologic era and that only small isolated pockets, which were disjunct (see box) from the parent population in Texas, were present at the time of European settlement. As Nancy Coile (2002) noted:

At the height of glaciation when the water level was 300 feet lower than present, the continental shelf was exposed to give a corridor across the northern part of the present Gulf of Mexico... This land exposure allowed easier migration of plant species from what is present day Texas...

And Clewell (2002) commented:
Is Coreopsis basalis one of those species that moves around with the climate every millennium or two? If so, isn't it rather harsh to call it an exotic? There are many species that move around, particularly tropical ferns whose spores are blown into Florida periodically by storms. Also the tiny seeds of orchids. They are not considered to be exotics. Why should Coreopsis basalis be called an exotic if it, too, moves around?

Being limited to small isolated pockets, *C. basalis* easily could have been unnoticed by botanical explorers. It would be presumptuous to assert that botanical explorers observed every species in every habitat at every time of year.

There are those who would point out that *C. basalis* can't be native to Florida since it only occurs in disturbed habitats (areas associated with human activity like pastures, roadsides, fencerows, etc.) and not in any one of Florida's natural ecosystems. While that may be true now, and even in the 19th century, that conclusion does not take into account the dynamics of plant populations as mentioned previously. In the Florida part of its range, *C. basalis* simply may be best adapted, or became best adapted, to a disturbed habitat. Plant adaptation to different habitats under differing environmental conditions is common. For example, in North Florida, *Rudbeckia hirta* (black-eyed Susan) most often occurs in upland habitats while in Central and South Florida, it mainly occurs in moist prairies and flatwoods; it also is common in disturbed

Disjunct Populations:

Populations of native species separated by large distances, that is, disjunct populations are not unusual. Disjunct populations can be small, or in the case of Mimosa strigillosa (sunshine mimosa), quite large. Mimosa strigillosa is composed of a Southeastern population that occurs mainly in peninsular Florida, north to extreme southern Georgia and west to the central Florida panhandle. The western population occurs mainly from western Mississippi to southeastern Texas, as well southern Arkansas.

habitat throughout its range.

In conclusion, I assert that there is enough reasonable doubt about *C. basalis* being non-native in Florida to nullify that conclusion, and hence *C. basalis* should be deemed native.

Resources

- Clewell, Andy. 2002. Response to request for information about the nativity of *Coreopsis basalis* [email] Personal communication, 12 August 2002.
- Clewell, Andy. 2013. Response to request for information about the nativity of *Coreopsis basalis* [email] Personal communication, 22 May 2013.
- Coile, N. 2002. Native plant? Wildflower? Endemic? Exotic? Invasive? Rare? Endangered? Botany Circular No. 35 Fla. Dept. Agriculture & Consumer Services July/August 2002 Division of Plant Industry.

2013 Florida Wildflower Symposium set for Brevard County Sept. 27-28

You're invited to join the Florida Wildflower Foundation at its 2013 Florida Wildflower Symposium. This year's two-day event will be held in Brevard County, with your choice of field trips and dinner at Dixie Crossroads on Friday, Sept. 27, and presentations, walks and workshops at the Enchanted Forest Sanctuary in Titusville on Saturday, Sept. 28.

Friday field trip options include a tour of Sams House at Pine Island Conservation Area, the oldest standing house in Brevard County; a wildflower excursion to Merritt Island National Wildlife Refuge, lead by retired biologist Jim

Stahl; and a trip to Dicerandra Scrub Sanctuary, a 44-acre property where the endangered mint *Dicerandra thincicola* is found.

On Friday evening, enjoy dinner at Dixie Crossroads and a presentation by keynote speaker Xavier Cortada, who will talk about his statewide participatory art and history project FLOR 500, during which 500 Florida artists are depicting Florida native wildflowers. (Artists interested in participating can choose a wildflower from a list at www.FLOR500.com.)

On Saturday, a day of presentations, walks and workshops is planned at the Enchanted Forest on

such topics as pollinators, use of native herbs, nature photography, native-plant landscaping and more. A native plant sale will be hosted by the Florida Native Plant Society's Sea Rocket chapter, and Xavier Cortada will dedicate a FLOR 500 wildflower garden. Local artists who participated in the FLOR 500 project will display their works in the visitor center.

Symposium registration will begin in late July—sign up for our e-news list to be notified when it opens — www.flawildflowers.org/newssubscription.php.

Calendar

July 15–Aug 30:

[La Florida: 500 Years in the Place of Flowers](#)

Sept. 1: [Monarch Butterflies](#),

St. Marks National Wildlife Refuge

Sept. 27 & 28: [Florida Wildflower Symposium](#), Titusville

Sept. 28: [Fall Wildflowers of the Panacea Sandhills](#), St. Marks NWR

Oct. 4–6: [Wings and Wildflowers Festival](#), Tavares

Oct. 12: [Wildflowers and Wildlife of Tate's Hell State Forest](#)

Sept. 9–Oct. 25: [La Florida: 500 Years in the Place of Flowers](#), Monticello

Oct. 26: [Monarch Festival](#), St. Marks NWR

Visit FlaWildflowers.org/news.php for full calendar and event details.



Donate to the Florida Wildflower Foundation Today!

The Florida Wildflower Foundation is a not-for-profit 501(c)3 public charity devoted to native wildflower research, planting and education. Help support the work for Florida's native ecosystems by making a contribution today. Your gift makes an impact at any giving level:



- \$10 provides butterfly/wildflower brochures to 50 school children
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- \$250 provides wildflower seeds for a roadside
- \$500 provides funds for a community planting

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Welcome new members

(r) – renewal

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 Ginny Stibolt (r) Linda Christian
 Primila Rajakulasingham

Student / Senior

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 Mary Ellen Frazier (r) Tony Marra
 Darlene May Doris Bareiss (r)

Sustaining

Stan Meeks (r)

License Tag

Violet Calliope Gail Crisp

Reconfirmed License Tag

Kay Cleary Katherine Edison
 Nancy Given