An infestation of *Ficaria verna* (formerly *Ranunculus ficaria*), commonly known as Fig Buttercup or Lesser Celandine, at Lake Conestee Nature Park in Greenville County, South Carolina.

The plant in the photograph above (from N 34° 46.547' W 082° 21.056', site #1FICARIA in the aerial photo) has been identified by Dr. Alan Weakley, UNC Chapel Hill, and Dr. John Nelson, USC.
Photographs on these two pages were taken from what seemed to be one large series of connected patches that reached almost all the way across the peninsula.

#2, 2B, 2C

N 34° 46.442' W 082° 20.996'
N 34° 46.436' W 082° 21.001'
N 34° 46.436' W 082° 20.980'
Photos on the next four pages were from other sites on the peninsula.

N 34° 46.425’
W 082° 20.995’

N 34° 46.337’
W 082° 21.025’

N 34° 46.429’
W 082° 20.994’

N 34° 46.441’
W 082° 20.993’

N 34° 46.497’
W 082° 20.993’
The rest of the photographs were taken at the north end of the Park, on a new trail accessed from the Swamp Rabbit near its intersection with Churchill Circle.

*Ficaria* is adjacent to the boardwalk, and other patches are visible through the underbrush, further off the path.

#9FICARIA  
N 34° 47.201’  
W 082° 21.739’

#10  
N 34° 47.199’  
W 082° 21.734’

#11  
N 34° 47.197’  
W 082° 21.720’
The trail parallels the river.

Small patches can be hard to spot, especially if they are not blooming.
Much of the infestation seems to follow channels made by the river's overflowing its banks — thus these are a good place to look closely.

#12
N 34° 47.292’  W 082° 21.683’

#13
N 34° 47.278’  W 082° 21.684’

#14
N 34° 47.416’  W 082° 21.820’

#15
N 34° 47.441’  W 082° 21.851’

#16
N 34° 47.449’  W 082° 21.849’

#17
N 34° 47.452’  W 082° 21.868’
Recent heavy equipment disturbance has impacted the infestation — it probably should be assumed that *Ficaria* bulblets and tubers have been transported by this equipment to other locations in the Park.

The next three pages contain photographs of the largest population that we found, running along drainage channels adjacent, through and under privet. More investigation is needed throughout the floodplain.

#18  
N 34° 47.458'  W 082° 21.871'

#18A  
N 34° 47.461'  W 082° 21.899'

#18B  
N 34° 47.457'  W 082° 21.893'

#18C  
N 34° 47.444'  W 082° 21.894'

#18D  
N 34° 47.439'  W 082° 21.882'

#18E  
N 34° 47.473'  W 082° 21.904'
Additional evidence of heavy equipment disturbance.

#19
N 34° 47.482’  W 082° 21.912’

#20
N 34° 47.471’  W 082° 21.941’
The South Carolina Native Plant Society is a non-profit organization committed to the preservation and protection of native plant communities in South Carolina. For more information, visit www.scnps.org.

Page 1 photo by Rob Hunnings; all other photos made by JK Marlow, in the company of Rob Hunnings, on 9 April 2013 at Lake Conestee Nature Park. Aerial views by GoogleEarth.
Invasive Plants in Pennsylvania

Lesser Celandine

*Ranunculus ficaria*

**Description:**
Lesser celandine is a perennial herbaceous plant that forms low-growing mats. Plants consist of a basal rosette of dark green, kidney-shaped leaves. The bright yellow flowers are borne singly on stalks that rise above the leaves. Abundant, finger-like tubers are produce by the roots.

**Biology and Spread:**
Lesser celandine spreads primarily through vegetative means. Its abundant tubers and bulblets may be unearthed and scattered by animals, well-meaning weed pullers and flood events.

**Ecological Threat:**
An exotic vernal plant, lesser celandine is aggressive and emerges earlier than most native species. It easily displaces native spring ephemerals with its thick carpet of vegetation. This, in turn, negatively affects native pollinators, which rely on spring ephemerals for nectar and pollen during a time when other food sources are scarce.

**Background:**
Lesser celandine was introduced into the United States as an ornamental plant. It is still commercially available. All varieties should be assumed to be invasive.

**Range:**
Native to Eurasia, lesser celandine can now be found in the Northeast and Pacific Northwest regions of the United States.

**Habitat:**
Lesser celandine is characteristic of moist alluvial soils in forested floodplains. It can also be found in low open woods, meadows, roadsides and waste places. It seems to prefer moist, sandy soils. Less frequently, it will invade drier soils.
**How to Control this Species:**

**Physical**

Lesser celandine is very difficult to control. Persistence is key.

Small infestations may be pulled up by hand or dug up with a trowel. Be sure to remove all bulblets and tubers. Deal with small infestations early before things get out of control.

Physical removal causes soil disturbance, which can lead to further infestation by lesser celandine and other invasives. Keep this in mind when dealing with high-quality natural areas.

**Look-A-Likes:**

Lesser celandine closely resembles marsh marigold (*Caltha palustris*), a native wetland plant. Please take steps to ensure proper identification before any treatment is initiated.

**Chemical**

The window of opportunity for the chemical control of lesser celandine is very small. Herbicide should be applied in late winter to early spring (March through May) in order to minimize impacts to native wildflowers. Be careful to apply the herbicide to lesser celandine only, and be aware of the site’s proximity to breeding amphibians.

Use a wetland-approved concentration of glyphosate, which is a systemic herbicide that will kill the roots.

**References:**


For More Information:

DCNR Invasive Species Site: [http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm](http://www.dcnr.state.pa.us/conservationscience/invasivespecies/index.htm)

DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers: [http://www.dcnr.state.pa.us/forestry/invasivetutorial/Lesser_Celandine.htm](http://www.dcnr.state.pa.us/forestry/invasivetutorial/Lesser_Celandine.htm)

**Native Alternatives:**

Many beautiful native spring-flowering plants are available.

**Dutchman’s Breeches**

Rob Routledge, Sault College
[www.forestryimages.org](http://www.forestryimages.org)

**Yellow Trout Lily**

Wendy VanDyk Evans
[www.forestryimages.org](http://www.forestryimages.org)

**Marsh Marigold**

Joseph O’Brien, USDA Forest Service
[www.forestryimages.org](http://www.forestryimages.org)
FACT SHEET: FIG BUTTERCUP

Fig Buttercup

*Ficaria verna* (previously *Ranunculus ficaria* L.)
Buttercup family (Ranunculaceae)

**NATIVE RANGE**
Eurasia including Europe, Northern Africa, Western Asia, Caucasus, and Siberia

**DESCRIPTION**
Fig buttercup, also called lesser celandine and pilewort, is a perennial herbaceous flowering plant that completes its life cycle during the winter and spring. The name is derived from *Ficaria* (Latin for fig) and *verna* (spring). Plants consist of a basal rosette of tender, succulent, dark green, shiny, stalked kidney- to heart-shaped leaves. Flowers are symmetrical, bright buttery yellow with a slightly darker center, have 8 (typical) to 12 petals, and are borne singly on delicate stalks that rise above the leaves. Tiny cream colored bulblets are produced in stem axils and become apparent later in the flowering period. Abundant fingerlike tubers are produced by the roots and are easily visible when plants are pulled up. Fruiting heads are globose composed of many achenes that are pubescent and usually abortive. When in bloom, large infestations of lesser celandine appear as a green carpet with yellow dots, spread across the forest floor. There are many varieties of lesser celandine including a double-flowered form with many petals and dark green leaves mottled with silvery markings.

NOTE: Fig buttercup may be confused with marsh marigold (*Caltha palustris*), a native plant found in wetland habitats in the eastern United States. Marsh marigold is a robust plant with glossy, rounded or kidney-shaped leaves and flowers on stalks that are 8 in (20.3 cm) or more in height and consist of five to nine deep yellow “petals” (actually sepals). Marsh marigold does not produce tubers or bulblets, nor does it form a continuous carpet of growth. Extreme care should be taken to correctly identify lesser celandine before undertaking any control measures to avoid impacts to this plant. It also resembles celandine (*Chelidonium majus*) and celandine poppy (*Stylophorum diphyllum*), both of which belong to the poppy family and can be distinguished from the invasive buttercup by having flowers with four petals.

**ECOLOGICAL THREAT**
Fig buttercup is a vigorous growing vernal plant that forms large, dense patches in floodplain forests and some upland sites, displacing many native plant species, especially those with the similar spring-flowering life cycle. Spring ephemerals complete the reproductive part of their life cycle and most of their above-ground development in the increasing light of late winter and spring, before woody plants leaf out and shade the forest floor. Some examples of native spring ephemerals include bloodroot, wild ginger, spring beauty, harbinger-of-spring, twinleaf, squirrel-corn, trout lily, trilliums, Virginia bluebells, and many, many others. These plants provide critical nectar and pollen for native pollinators, and fruits and seeds for other native insects and wildlife species. Because fig buttercup emerges well in advance of the native species, it has a developmental advantage which allows it to establish and overtake areas rapidly.

**DISTRIBUTION IN THE UNITED STATES**
Fig buttercup is reported to be invasive in at least seventeen states in the northeastern U.S. from Wisconsin to New Hampshire south to Tennessee and, to date, in one western state, Oregon (http://www.invasiveplantatlas.org).

**HABITAT IN THE UNITED STATES**
Fig buttercup occurs in low open woods, floodplains, meadows and waste places and seems to prefer sandy soils.

**BACKGROUND**
Fig buttercup was introduced to the United States as an ornamental plant. It is still available commercially in the U.S. along with many colorful varieties. All varieties should be assumed to be potentially invasive and should not be allowed to escape from plantings.
BIOLOGY & SPREAD
Fig buttercup is a vernal or spring ephemeral perennial plant that spends much of the year (summer through early winter) underground as thickened, fingerlike tubers or underground stems. During the winter, leaves begin to emerge and photosynthesize in preparation for flowering. In the mid-Atlantic region, most flowering occurs from late winter through mid-spring (March through May), depending on conditions. After flowering, the above-ground portions begin to die back and the plants are mostly gone by June. Fig buttercup spreads primarily by vegetative means through abundant tubers and bulblets, each of which can grow into a new plant once separated from the parent plant. The prolific tubers may be unearthed and scattered by the digging activities of some animals, including well meaning human weed pullers, and spread to new sites during flood events.

MANAGEMENT OPTIONS
Due to its short life cycle, the window of opportunity for controlling fig buttercup is very short but it can be accomplished with persistence over time using methods that are appropriate for the site and size of infestation. While manual methods are possible for some (small) infestations, the use of systemic herbicide is more effective because it kills the entire plant including the roots and minimizes soil disturbance.

Biological
No biological control agents are currently available or being investigated for fig buttercup.

Chemical
In order to have the greatest negative impact to celandine and the least impact to desirable native wildflower species, herbicide should be applied in late winter-early spring, generally February through March. Start applications prior to flowering and up until about 50 percent of the plants are in flower, around April 1, then stop. After that, control success declines and many more native wildflowers have emerged that could be killed by spray. Native amphibians would also be emerging and could be harmed. Apply a 1 to 1.5% rate of a 53.8% active ingredient glyphosate isopropylamine salt (e.g., Rodeo® which is labeled for use in wetland areas), mixed with water and a non-ionic surfactant to foliage, avoiding application to anything but the celandine. Glyphosate is systemic; that is, the active ingredient is absorbed by the plant and translocated to the roots, eventually killing the entire plant. The full effect on the plant may take 1-2 weeks. Retreatment the following year will likely be needed. Applications can be made during the winter season as long as the temperature is 50 degrees Fahrenheit or above, and no rain is anticipated for at least 12 hours. Because glyphosate is non-specific, spray should be directed such that it contacts only fig buttercup and does not drift onto desirable native plants. To minimize impacts to sensitive-skinned frogs and salamanders, some experts recommend applying herbicide in March and then switching to manual methods.

Manual-Mechanical
For small infestations, fig buttercup may be pulled up by hand or dug up using a hand trowel or shovel. It is very important to remove all bulblets and tubers. Due to the abundant tiny bulblets and tubers, all material must be bagged up, removed from the site and disposed properly in a landfill or incinerator. A major consideration when manually removing invasive plants like this is the disturbance to the soil which can encourage the target invasive as well provide openings for invasion by other exotic species. For these reasons, manual and mechanical removal is probably inappropriate for larger infestations in high quality natural areas.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.
CONTACT
For more information on the management of fig buttercup, please contact:

- Sue Salmons, National Park Service, Washington, sue_salmons at nps.gov
- Jil Swearingen, National Park Service, jil_swearingen at nps.gov

SUGGESTED ALTERNATIVE PLANTS
Many lovely native perennial, spring-flowering plants are available as alternatives to fig buttercup. Plants native the eastern U.S. that are available from native plant nurseries include wild ginger (Asarum canadense), bloodroot (Sanguinaria canadensis), twinleaf (Jeffersonia diphylla), and various species of trilliums. Contact your local native plant society for additional suggestions and assistance for which species are appropriate for your area. Buying from reputable sources will ensure that the plants you buy are not collected from the wild. For sources of native plants, see link to Lady Bird Johnson Wildflower Center website below.

OTHER LINKS
- http://www.invasive.org/search/action.cfm?q=Ranunculus%20ficaria
- http://invasiveplantatlas.org/subject.html?sub=3069#maps
- http://www.wildflower.org/explore/

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REFERENCES


