



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://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=89>
- <http://invasiveplantatlas.org/subject.html?sub=3069#maps>
- <http://www.wildflower.org/explore/>

AUTHOR

Jil Swearingen, National Park Service, Center for Urban Ecology, Washington, DC

REVIEWERS

John Parrish, Susan Salmons, Sally Gagne, Ann Rhoads, Carole Bergmann, Larry Morse, Steve Young

PHOTOGRAPHS

Jim Stasz @ USDA-NRCS PLANTS Database

Olivia Kwong, Plant Conservation Alliance, Washington, DC

REFERENCES

Fernald, M. L. 1970. Gray's Manual of Botany, Eighth edition. D. Van Nostrand Company, New York, NY. p. 648.

Hammerschlag, R., S. Salmons, C. Kraft, M. Paul, and J. Hatfield. 2003. Ecology and Management of *Ranunculus ficaria* in Rock Creek Park. U.S. Geological Survey.

Invasive Plant Atlas of the U.S. 2010. The University of Georgia Center for Invasive Species and Ecosystem Health and the National Park Service. Available online at www.invasiveplantatlas.org/; last accessed February 23, 2010.

Kartesz, J. 2010. Biota of North America Project (BONAP). <http://www.bonap.org/>

Rhoads, A. F. and T. A. Block. 2000. The Plants of Pennsylvania, an Illustrated Manual. University of Pennsylvania Press, Philadelphia, PA. 1061 pp.

Swearingen, J. 2008. Survey of Invasive Plants Affecting National Parks in the United States. <http://www.invasiveplantatlas.org/parksurvey.pdf>

USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 19 February 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Weakley, A.S. 2008. North Carolina University Flora of the Southeastern United States. Chapel Hill, NC. <http://www.herbarium.unc.edu/seflora/firstviewer.htm>