



Plant Identification Methods and Resources



Matt Jones

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Part III



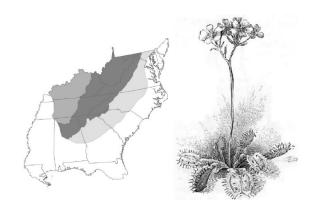


NC COOPERATIVE EXTENSION

Recommended Resources

Flora of the Southern and Mid-Atlantic States

Working Draft of 21 May 2015



by Alan S. Weakley University of North Carolina Herbarium (NCU) North Carolina Botanical Garden University of North Carolina at Chapel Hill Campus Box 3280 Chapel Hill NC 27599-3280

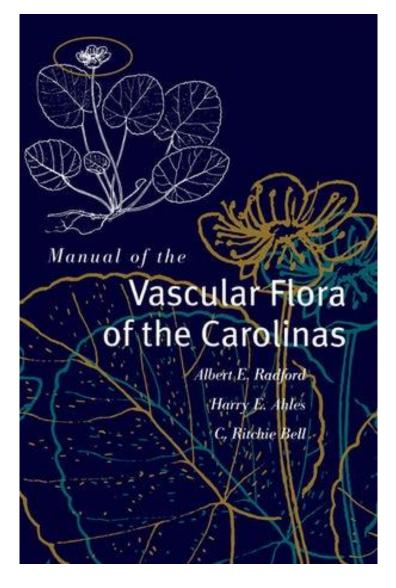
Flora of the Southern and Mid-Atlantic States

Alan S. Weakley UNC Herbarium (hardcopies not published yet)

Draft Versions Available (PDF)

http://herbarium.unc.edu/flora.htm





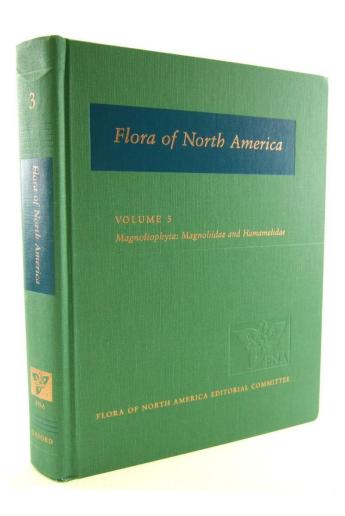
Manual of the Vascular Flora

of the Carolinas

Albert E. Radford, Harry E. Ahles, and C. Ritchie Bell UNC Press (1968)

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Recommended Resources



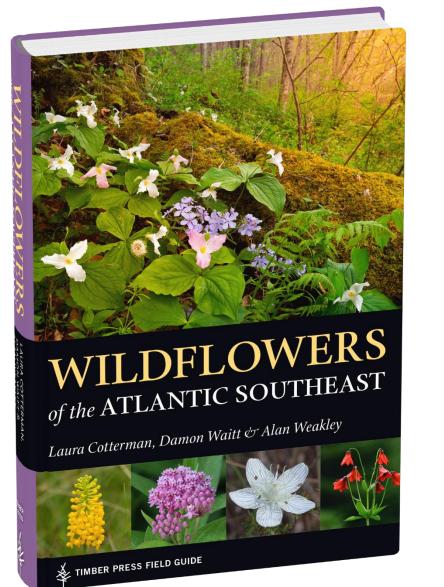
Flora of North America North of Mexico

Flora of North America Editorial Committee, eds. 1993+

http://beta.floranorthamerica.org/Main_Page

Key 1 Abaxial leaf surfaces glabrous or glabrate (hairs scattered along midribs) > 2 1 Abaxial leaf surfaces hairy > 8 2 Petioles 14-51 mm; berries yellow to orange; lateral segments of corolla lobes vestigial or absent. Sideroxylon foetidissimum 2 Petioles 1-14 mm; berries purple to purplish black; lateral segments of corolla lobes lanceolate or falcate > 3 3 Leaf apices acute to acuminate > 4 3 Leaf apices rounded to obtuse > 5 4 Sepals glabrous; pedicels glabrous. Sideroxylon lycioides 4 Sepals hairy; pedicels hairy Sideroxylon salicifolium				
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salicifolium	5		Sepals glabrous; pedicels glab	4
	J		Sepals hairy; pedicels hairy	4
5 Abaxial leaf surfaces without prominent tertiary and smaller leaf Sideroxylon veins; styles 2.2-2.8 mm. celastrinum	Sideroxylon celastrinum			





Wildflowers of the Atlantic Southeast

Laura Cotterman, Damon Waitt, & Alan Weakley **Timber Press (2019)**



Trifolium aureur BACEAE | large hop cloves ay–Aug, 6–14 in. Erect to spreading

nnual/biennial of fields, roadsides, and turbed areas. Native to Eurasia. Stems nple to much -branched, covered with flattened hair s on petioles with stipules of about equal length, ivided into 3 oblong-lance-shaped leaffets, each 12–34 n. long and finely toothed (except near the base). Flower nsely packed into cylindric oval clusters 1/1–3/4 in. long h flower yellow turning creamy and then rus iny, with typical pea-flower shape, IG

Trifolium campestre

ABACEAE | hop clover Apr-Oct. 2-12 in. Erect to sprawling nnual of roadsides, fields, lawns, and disturbed areas. Native to Eurasia. Stems ranched, hairy. Leaves on petioles with pair of stipules at the base, pinnately divided into 3 oval affets, each about %2 in. long, finely toothed and smooth; center leaflet is on a longer stalk. Flowers densely acked into short-cylindrical clusters about 10 in, wide borne on hairy stalks from leaf axils; each flower yellow, tiny, with typical pea-flower shape, the banner petal with aspicuous grooves or veins. Fruit a tiny, 1-seeded pod

Trifolium dubium ACEAE | little hop clove

Apr-Oct, 2-8 in. Erect annual of roaddes, fields, lawns, and disturbed areas. Native to Eurasia. Stems simple to ch-branched and hairy to smooth. Leaves on petioles ith a pair of stipules, pinnately divided into 3 oblong-ova lets, each nearly ½ in. long, notched at the tip, on short o no stalklets, finely toothed and mostly smooth. Flows densely packed into short-cylindrica han ¼ in, wide and borne on stalks from leaf axils; each wer is yellow, with typical pea-flower shape, the banne



Mar-May, 4-12 in. Erect to reclining

Corydalis flavula

REACEAF Vellow fumewo

annual of rich moist forests, especially alluvial forests, as well as glades and outcrops over mafic rocks. Stems branched from base, reddish-green with a wary coating. Leaves to 2 in. long, pinnately divided into 5-7 segments, which are further subdivided or lobed, the lobes minutely pointed at the up leaves pale green to bluish-green and smooth. Flowers it a short terminal raceme, clear yellow, 36 in. long, tubular and opening to 4 unequal lobes, the upper lobe with a toothed crest and backward-pointing spur. Fruit a sler der, cylindrical capsule containing numerous shiny-bla seeds. RTW

Aureolaria flava

CEAE | smooth oak-leech Aug-Sep, 2–5 ft. Erect perennial found in oak forests and woodlands. Stems smooth, often purplish and unbranched or with several stiff, ascending branches above. Leaves opposite (subconosite, with a neticle-like tapered base, elliptic-lance shaped to oval-lance, 2-6 in. long, at least lower ones deeply and irregularly divided, whitish beneath and mooth or finely hairy. Flowers on stout, ascending stall in tairs along a terminal raceme, yellow, 144-144 in, long, bular, smooth on the outside and densely furry within with 5 spreading, broadly rounded lobes that are shorte than the tube. Fruit a smooth, oval capsule. Semi-pr

on members of the white oak group, AWF Aureolaria pectinata HACEAE | southern oak-leed

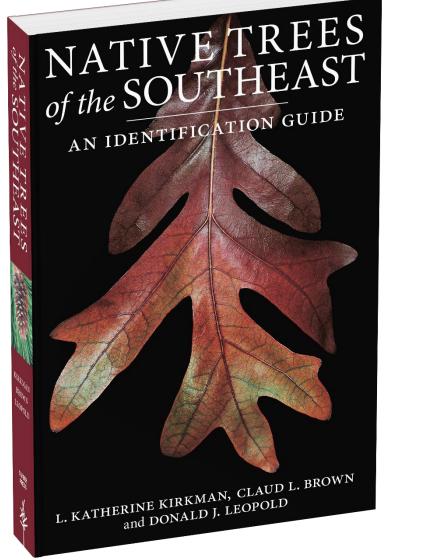
May-Sep. 1-3 ft. Erect to ascending annual found in turkey oak-dominated sandhills and other dry oak forests and woodlands. tems bushy-branched. Basal leaves (on young plants) elliptical to lance-shaped, entire; stem leaves opposite lance-shaped, to 245 in. long, pinnately divided into 10 or 12 narrow, toothed segments. Flowers in a terminal raceme, bright yellow (sometimes red-tinged), about 11/2 in, long, tubular, with 5 spreading, rounded lobes; 5 dis tinctive sepals are pinnately lobed. Fruit an oval capsul-Entire plant is glandular-hairy, sticky to the touch, and turns blackish in autumn. Semi-parasitic on oaks. WS







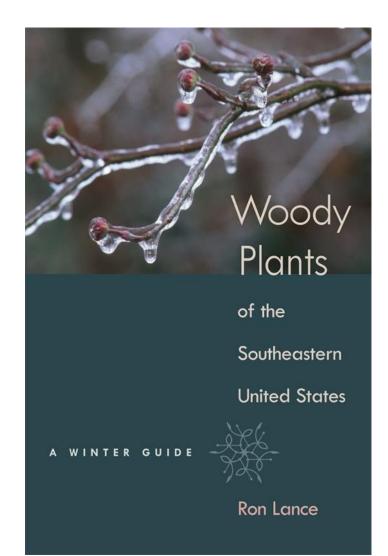




Native Trees of the Southeast: An Identification Guide

L. Katherine Kirkman, Claud L. Brown, & Donald J. Leopold **Timber Press (2007)**





Woody Plants of the Southeastern United States: A Winter Guide

Ron Lance University of Georgia Press (2004)



PLANT IDENTIFICATION TERMINOLOGY

An Illustrated Glossary



James G. Harris Melinda Woolf Harris

Second Edition

Plant Identification Terminology: An Illustrated Glossary

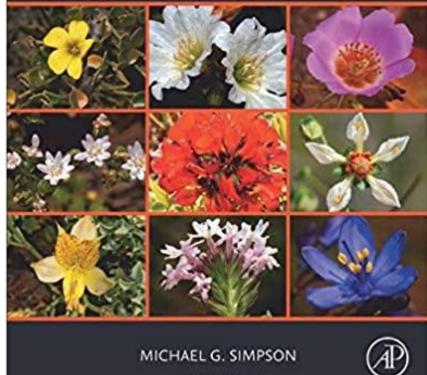
James G. Harris & Melinda Wolf Harris **Spring Lake Press (2001)**



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PLANT SYSTEMATICS

Third Edition



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Plant Systematics (3rd Ed.)

Michael G. Simpson Academic Press (2020)

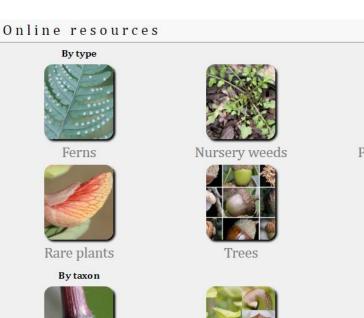


Google: NCSU Botanist's Little Helper



Dr. Alexander Krings

Assoc. Prof. of Plant Biology Director, NC State University Vascular Plant Herbarium https://projects.ncsu.edu/cals/plantbiology/ncsc/





Poisonous plants



Winter twigs



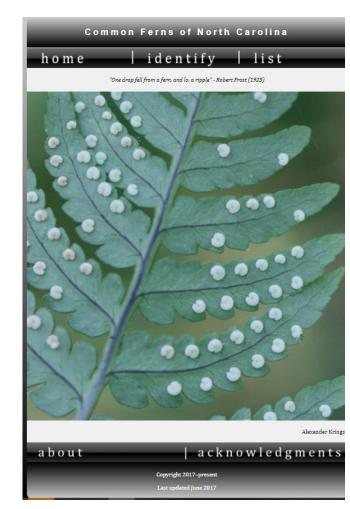
Dichanthelium



Pitcher plants



Common Ferns of North Carolina



https://go.ncsu.edu/fernid

Trees of North Carolina

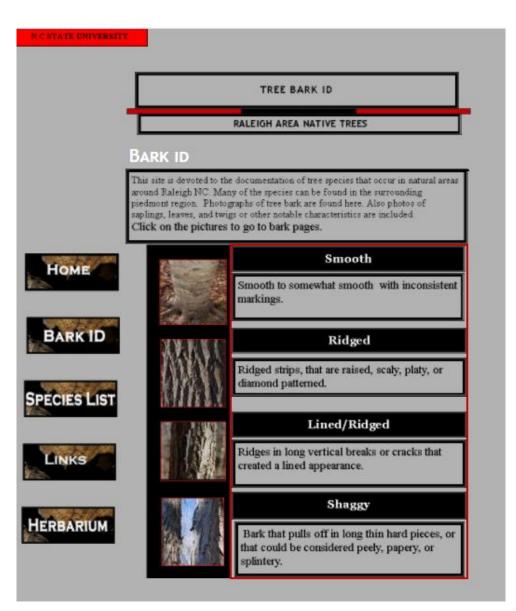


https://go.ncsu.edu/nctreeid



Winter Twig Keys

https://go.ncsu.edu/winterbotany



Tree Bark ID

https://go.ncsu.edu/bark-id



Dichotomous Keys

Decision 'tree' for identification

- 1. Given a *couplet* of two *leads* with contrasting, mutually exclusive characters (qualitative and/or quantitative)
- 2. Choose characters that better match your specimen
- 3. Proceed to the next couplet based on your selection
- 4. Repeat until final *lead* is a species name





Simple Dichotomous Key

1. Leaves usually without teeth or lobes: 2

1. Leaves usually with teeth or lobes: 5

2. Leaves evergreen: 3

2. Leaves not evergreen: 4

3. Mature plant a large tree — Southern live oak Quercus virginiana

3. Mature plant a small shrub — Dwarf live oak Quercus minima

4. Leaf narrow, about 4-6 times as long as broad — Willow oak Quercus phellos

4. Leaf broad, about 2-3 times as long as broad — Shingle oak Quercus imbricaria

5. Lobes or teeth bristle-tipped: 6

5. Lobes or teeth rounded or blunt-pointed, no bristles: 7

6. Leaves mostly with 3 lobes — Blackjack oak Quercus marilandica

6. Leaves mostly with 7-9 lobes — Northern red oak Quercus rubra

7. Leaves with 5-9 deep lobes — White oak Quercus alba

7. Leaves with 21-27 shallow lobes — Swamp chestnut oak Quercus prinus

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Typical Dichotomous Key

Flora of the Southern and Mid-Atlantic States UNC Herbarium Alan S. Weakley

239. ANACARDIACEAE R. Brown 1818, nom. cons. (Cashew Family) [in SAPINDALES]

A family of about 70-81 genera and about 800-875 species, trees, shrubs, lianas, and rarely herbs, of tropical, subtropical, and temperate regions. Our representatives are all classed in subfamily Anacardioideae (Pell et al. 2011). References: Pell et al. in Kubitzki (2011); Barkley (1937).

Leaves simple
Leaves compound.
2 Leaves even-pinnate
2 Leaves odd-pinnate.
3 Fruits both red and glabrous
3 Fruits not simultaneously red and glabrous.
4 Fruits red, glandular pubescent; foliage and stems lacking contact poisons; inflorescences dense, either terminal or lateral on last year's growth; sepal margins ciliate
4 Fruits white or yellow, glabrous or puberulent (the hairs not glandular); foliage and stems containing contact poisons; inflorescences openly branched, axillary; sepal margins entire



NC COOPERATIVE EXTENSION

Typical Dichotomous Key

Flora of the Southern and Mid-Atlantic States UNC Herbarium Alan S. Weakley **Toxice**

Toxicodendron P. Miller 1754 (Poison Ivy, Poison Oak, Poison Sumac)

A genus of about 10-15 species, trees and shrubs, primarily temperate, of North America, n. South America, Indonesia, and e. Asia. References: Gillis (1971)=Z; Pell et al. in Kubitzki (2011).

- 2 Fruits pubescent or papillose; leaflets entire, coarsely toothed, undulate, or round-lobed; lower surfaces of leaflets either velvety puberulent, sometimes becoming glabrate in age (*T. pubescens*) or glabrous (glabrescent or rarely pilose beneath) but with prominent tufts of tannish hairs present in the vein axils (*T. radicans* var. *radicans*).
 - 3 Leaves sparsely pubescent (rarely pilose beneath), the apex and the lobes (if present) generally acute to acuminate; drupes papillose, scabrous or puberulent; plant a high-climbing vine or stoloniferous shrub; [of mesic, swampy, or dry habitats].....

- 2 Fruits glabrous (or very sparsely pubescent); leaflets coarsely toothed or notched (rarely entire); lower surfaces of leaflets glabrous to pubescent, but without tufts of tannish hairs in the vein axils.

 - 4 Leaves glabrous to sparsely strigose on the lower surface; leaves glabrous on the upper surface; pubescence of the leaves appressed.



Dichotomous Key Tips

- Know what species your key covers!
- Look at several specimens and several parts of specimens.
- Look carefully, but don't 'see' something that isn't there!
- Know your path to backtrack if needed
- This will be a learning process:
 - Getting frustrated and making mistakes is part of learning!



Using a Hand Lens

Also know as...

- Hasting's Triplet
- Jeweler's Loupe

High magnification

- Short focal length
- Hold close to subject and your eye









Questions?

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