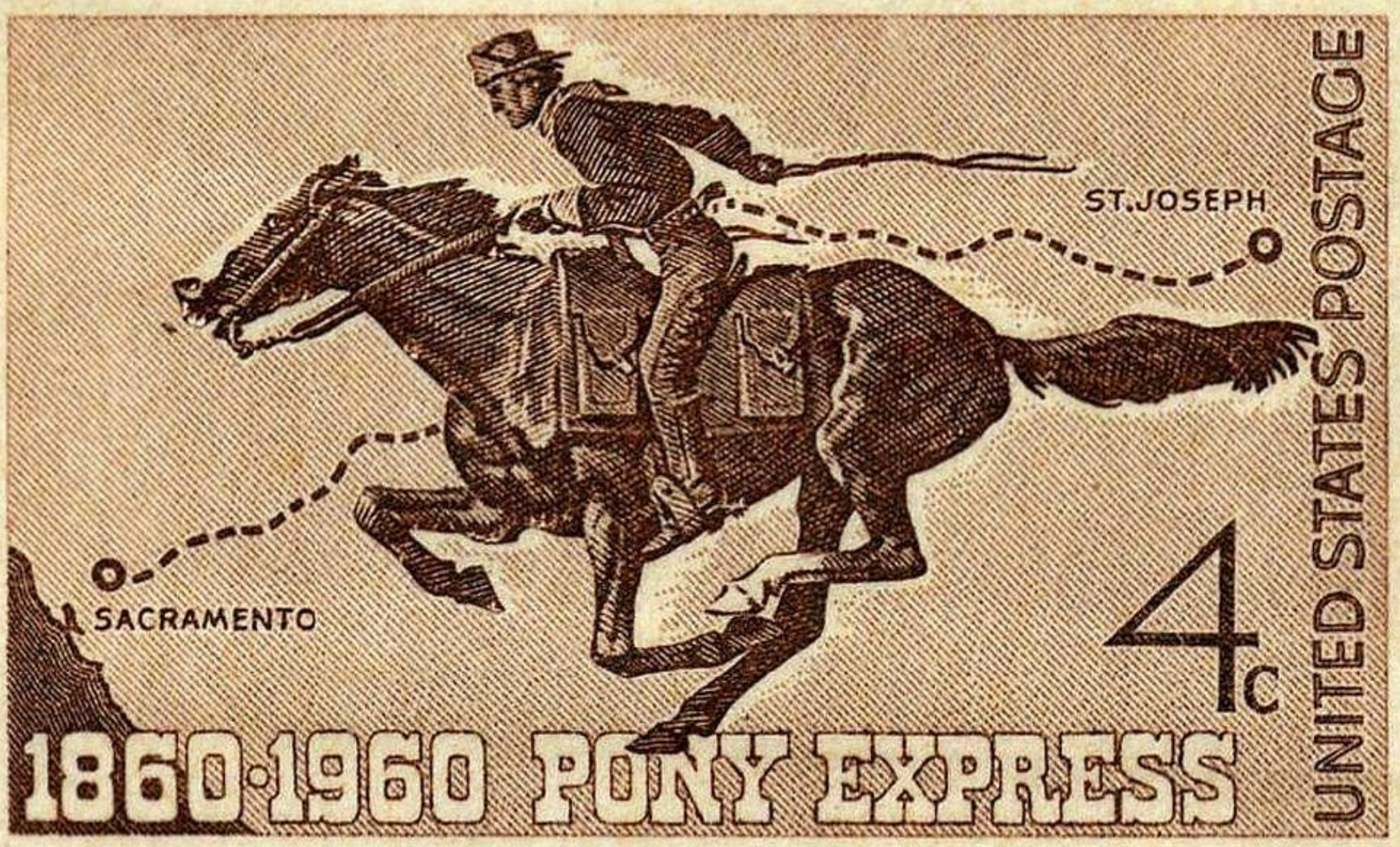
NATIVE HERBS

Matthew Herron

Capital Area Native Plant Society


ST. JOSEPH
SACRAMENTO
4c
UNITED STATES POSTAGE
1860·1960 PONY EXPRESS

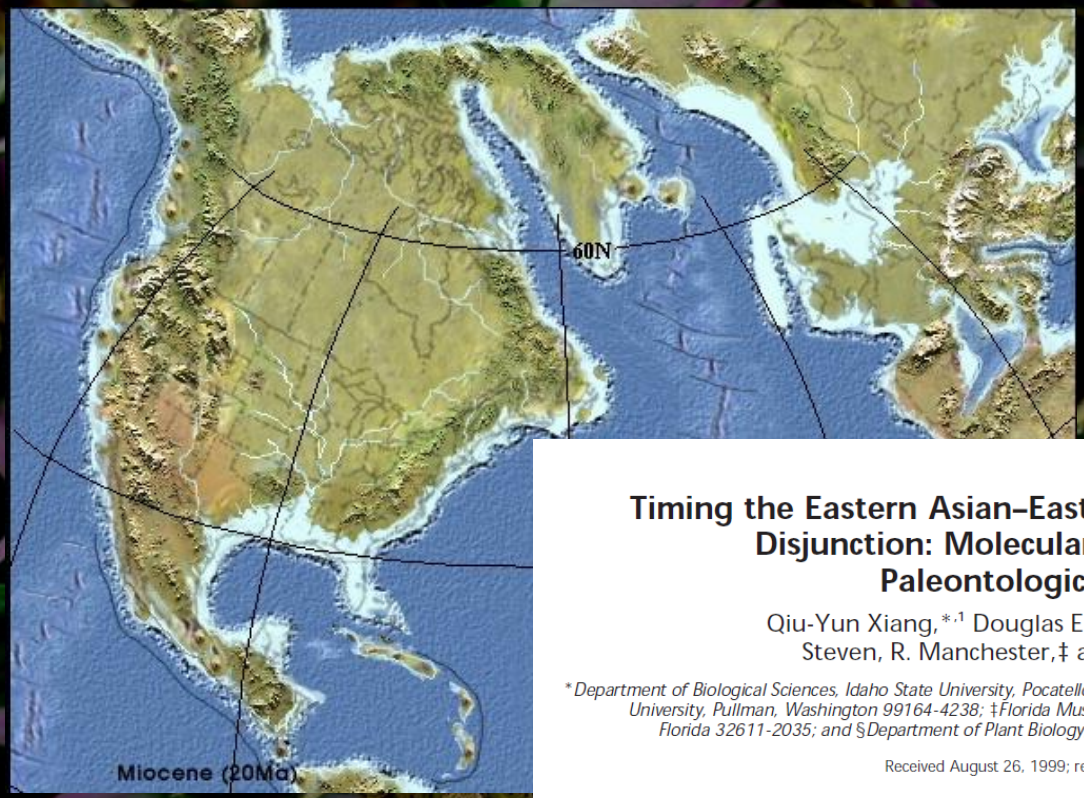

White

European Traditions

- Achillea millefolia
- Equisetum sp.
- Rubus sp.
- Hypericum sp.
- Allium sp.
- Sambucus sp.

Yarrow (*Achillea millefolia*), a cosmopolitan species

the origins of our current flora



Timing the Eastern Asian–Eastern North American Floristic Disjunction: Molecular Clock Corroborates Paleontological Estimates

Qiu-Yun Xiang,*[,1] Douglas E. Soltis,† Pamela. S. Soltis,†
Steven, R. Manchester,‡ and Daniel J. Crawford§

*Department of Biological Sciences, Idaho State University, Pocatello, Idaho 83209-8007; †Department of Botany, Washington State University, Pullman, Washington 99164-4238; ‡Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611-2035; and §Department of Plant Biology, Ohio State University, Columbus, Ohio 43210-1293

Received August 26, 1999; revised November 15, 1999

Sequence data of the chloroplast gene *rbcL* were used to estimate the time of the well-known eastern Asian–eastern North American floristic disjunction. Sequence divergence of *rbcL* was examined for 22 species of 11 genera (*Campsis, Caulophyllum, Cornus, Decumaria, Liriodendron, Menispermum, Mitchella, Pachysandra, Penthorum, Podophyllum,* and *Phryma*) representing a diverse array of flowering plants occurring disjunctly in eastern Asia and eastern North America. Divergence times of putative disjunct species pairs were estimated from synonymous substitutions, using *rbcL* molecular clocks calibrated for *Cornus*. Relative rate tests were

INTRODUCTION

The eastern Asian–eastern North American floristic disjunction represents one of the most prominent intercontinental disjunctions of closely related species; approximately 65 genera of seed plants display the disjunction (Wen, 1999). This phytogeographic pattern has attracted the attention of botanists since the time of Linnaeus (see Boufford and Spongberg, 1983). During the 120 years since Asa Gray's first comparative study on the subject in 1878, the pattern has been discussed extensively, with emphasis on documenting

Native ranges of *Sassafras* species in eastern North America and eastern Asia.

PETER DEL TREDICI

PETER DEL TREDICI

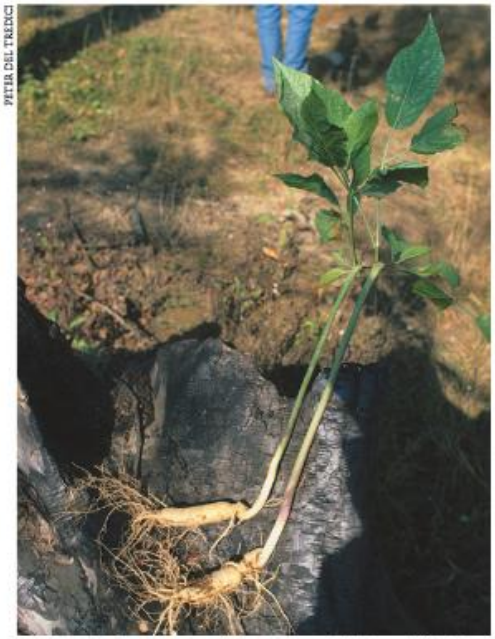
Foliage of *Sassafras albidum* (left), a familiar native tree in much of the eastern United States, and of *S. tzumu* (right), native to China.

David Yih 2012 - Land Bridge Travelers of the Tertiary: The Eastern Asian–Eastern North American Floristic Disjunction

ENA meets EA: A garden path separates the eastern North American species Allegheny spurge (*Pachysandra procumbens*, left) from the eastern Asian species Japanese spurge (*Pachysandra terminalis*).

Though their flowers look similar, Chinese witchhazel (*Hamamelis mollis*), left, blooms in late winter or very early spring while common witchhazel (*Hamamelis virginiana*), right, blooms in late fall or early winter in eastern North America.

Asa Gray listed sensitive fern (*Onoclea sensibilis*) as a disjunct species, but it was later determined simply to be a very globally widespread species.



Cultivated Chinese ginseng (*Panax ginseng*), left, and a fruiting specimen of American ginseng (*Panax quinquefolius*), right.

David Yih 2012 - Land Bridge Travelers of the Tertiary: The Eastern Asian–Eastern North American Floristic Disjunction

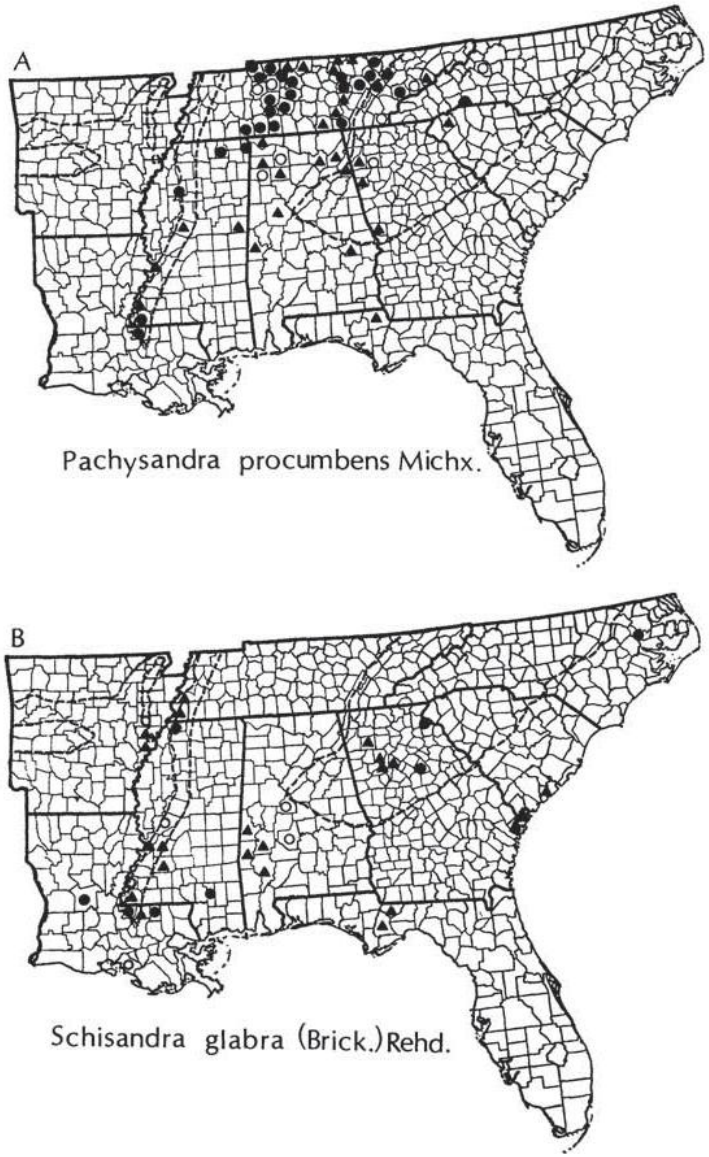


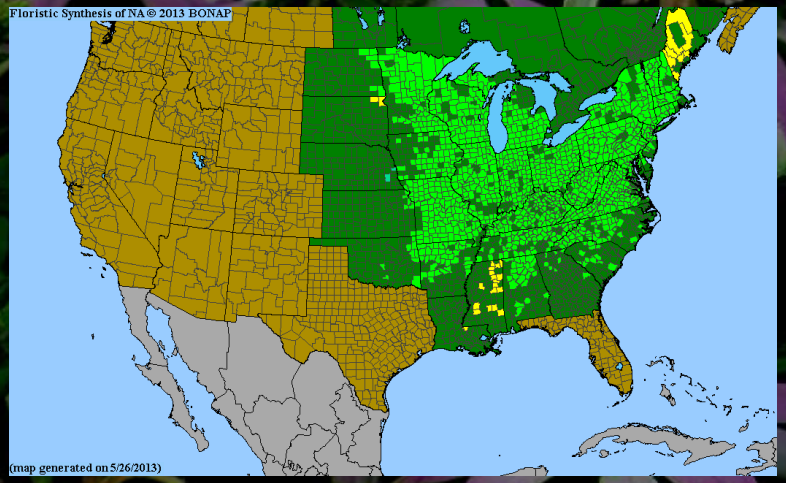
Fig. 4.—Distributions of (a) *Pachysandra procumbens* and (b) *Schisandr*
glabra in the southeastern United States. (*See* Fig. 2 for a key to symbols use

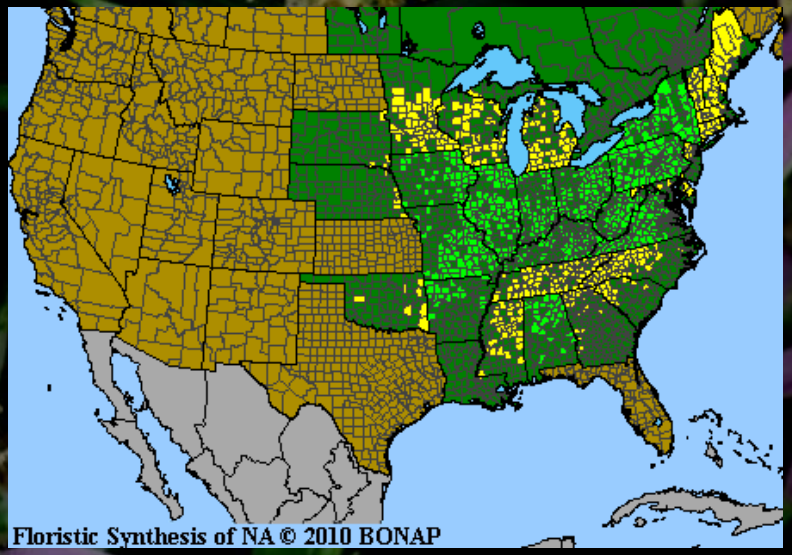
Allgheny Spurge (*Pachysandra procumbens*)

Bay Starvine (*Schisandra glabra*)

Canada Wild Ginger *(Asarum canadensis)*

American Ginseng (*Panax quinqefolia*)





HELP CONSERVE

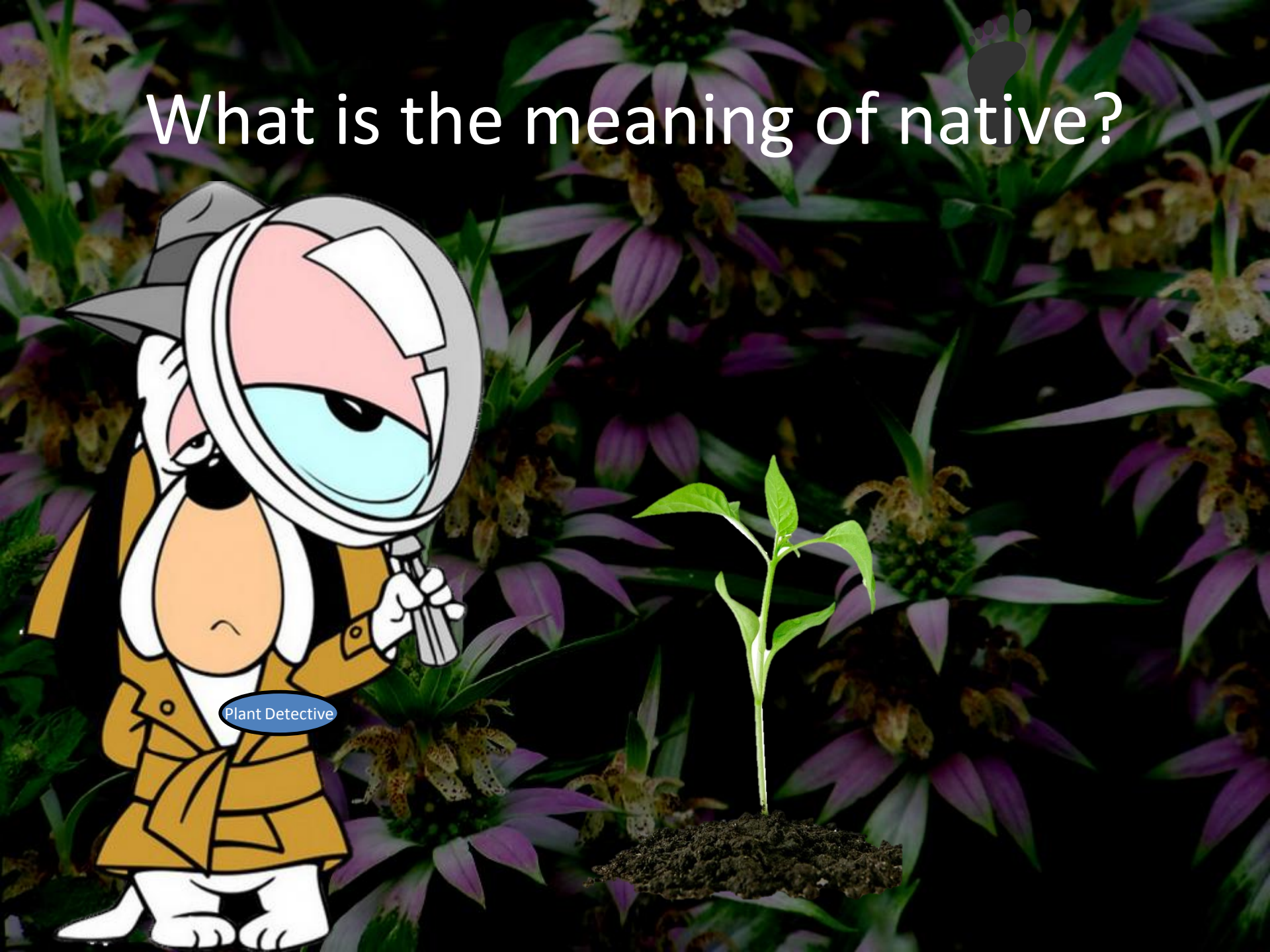
NATIVE HERBS

PROPOGATE SEEDS AND CUTTINGS

SUPPORT HABITAT CONSERVATION

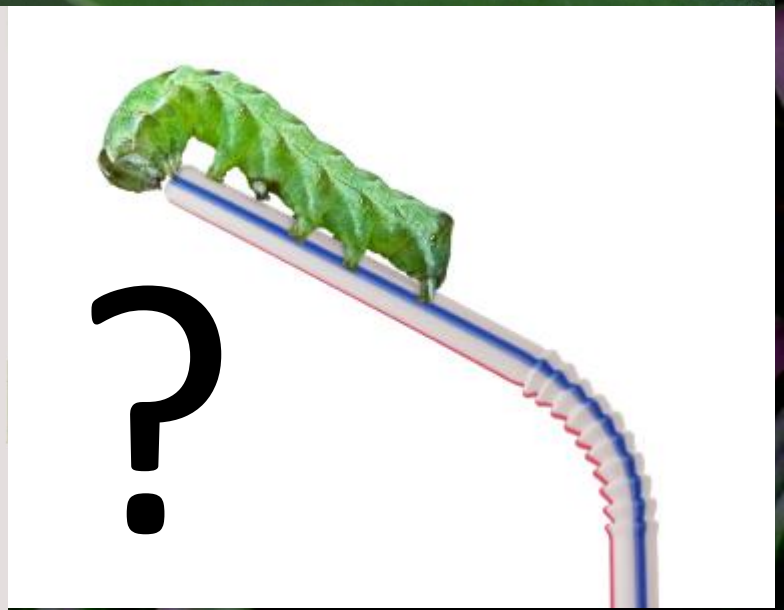
RECONNECT WITH NATURE

What is the meaning of native?



Interactions & Relationships

What does a glass of root beer have to do with a caterpillar?



Spicebush Swallowtail Caterpillar
Papilio troilus

Spicebush Swallowtail Caterpillar
Papilio troilus

Herbivores Drive the Evolution of Secondary Compounds in Plants

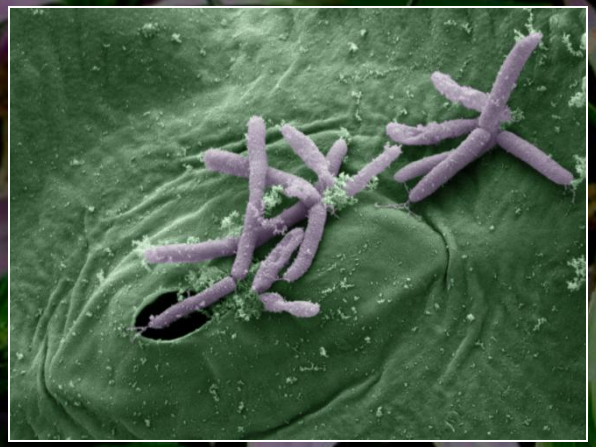
- **Spices**
- **Medicines**
- **Fragrances**
- **Poisons**
- **Preservatives**

Evolutionary Arm's Race

The Evolutionary Arm's Race

Is a Positive Feedback Loop






© alexanderwi


Platanthera ciliaris orchid being pollinated by a Pipevine Swallowtail butterfly.
Note pollinia attached to the eyes of the butterfly...

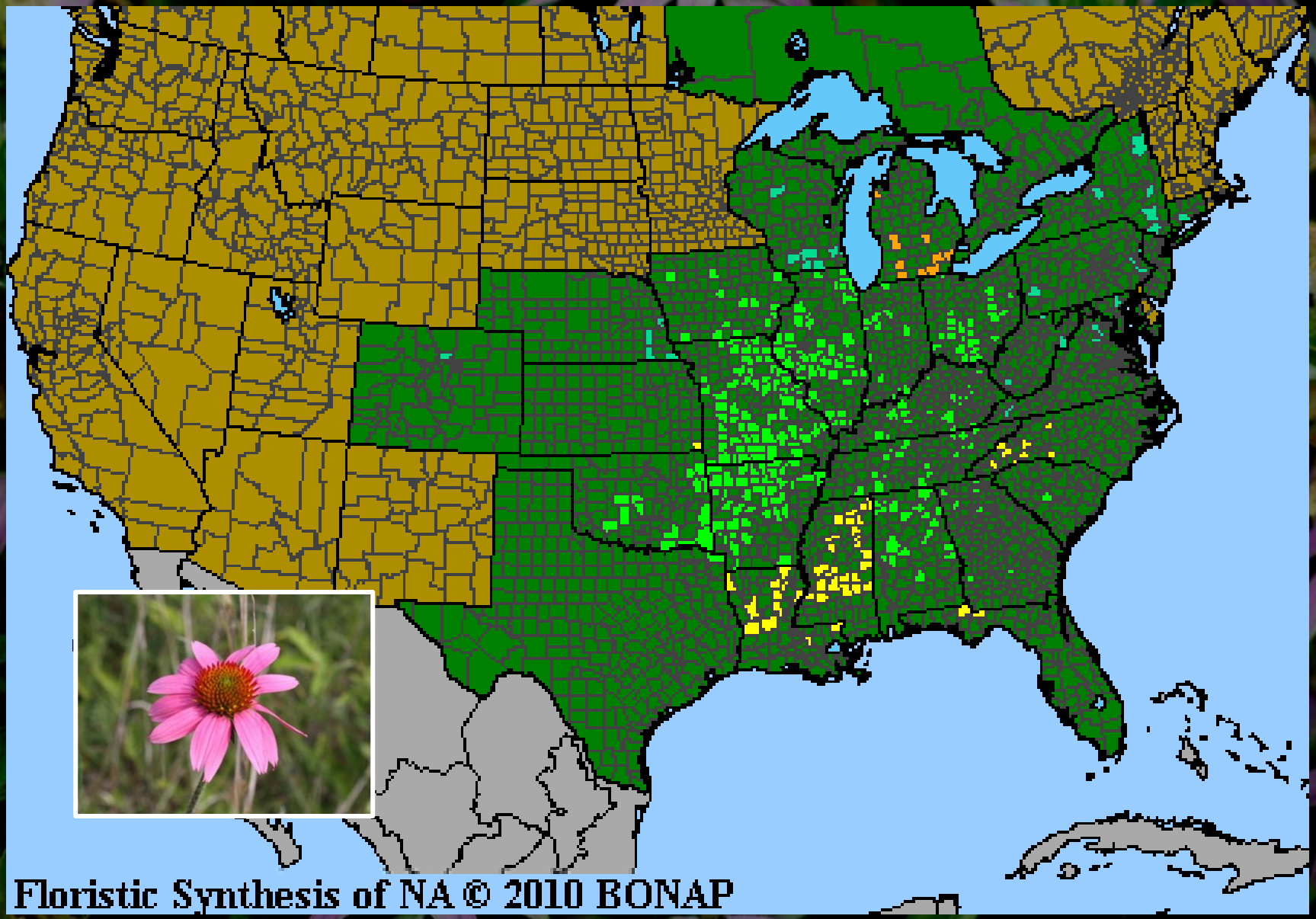
TEAS

Yaupon (*Ilex vomitoria*)

Wax Myrtle (*Morella cerifera)*

Wood Nettle (*Laportea canadensis)*

Heartleaf Nettle (*Urtica chamaedryoides)*



Echinacea purpurea

Slippery Elm (*Ulmus rubra)*

FRAGRANCES

Star Anise (*Illicium floridanum)*

Blue Water Hyssop (*Bacopa caroliniana)*

Spring Spiderlily (*Hymenocallis liriosome)*

MEDICINES

Jewelweed (*Impatiens capensis)*

Beautyberry (*Callicarpa americana)*

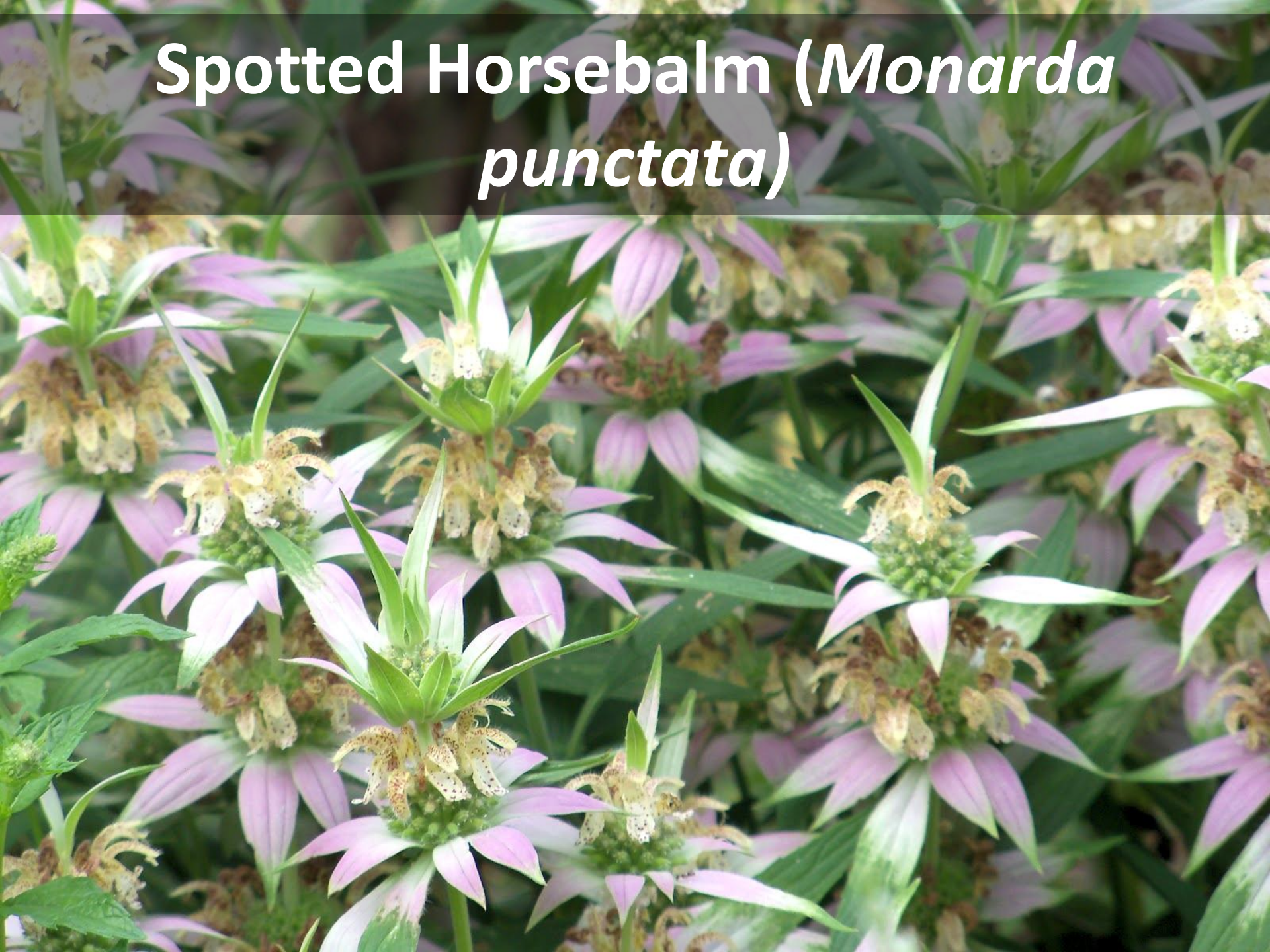
Wild Garlic (*Allium canadensis*)

SPICES

Red Bay (*Persea borbonia*)

Whiteleaf Mountainmint (*Pycnanthem albescens)*

Spotted Horsebalm (*Monarda punctata)*




Copyright 2003 Univ. Florida
Photo by A. Murray
Florida rosemary
Ceratiola ericoides
Floristic Synthesis of NA © 2014 BONAP
(map generated on 11/2/2014)

Lemon Balm (*Monarda citriodora)*

CORDAGE

Butterflyweed (*Asclepias tuberosa*)

Dogbane (*Apocynum cannabinum*)

Basket Oak (*Quercus michauxii)*

DYES

Plains Coreopsis *(Coreopsis tinctoria)*

White Wild Indigo *(Baptisia alba)*

Horsesugar *(Symplocos tinctoria)*


INVASIVES

Camphor Tree *(Cinnamomum camphora)*

Beafsteak Plant *(Perilla frutscens)*

HELP STOP

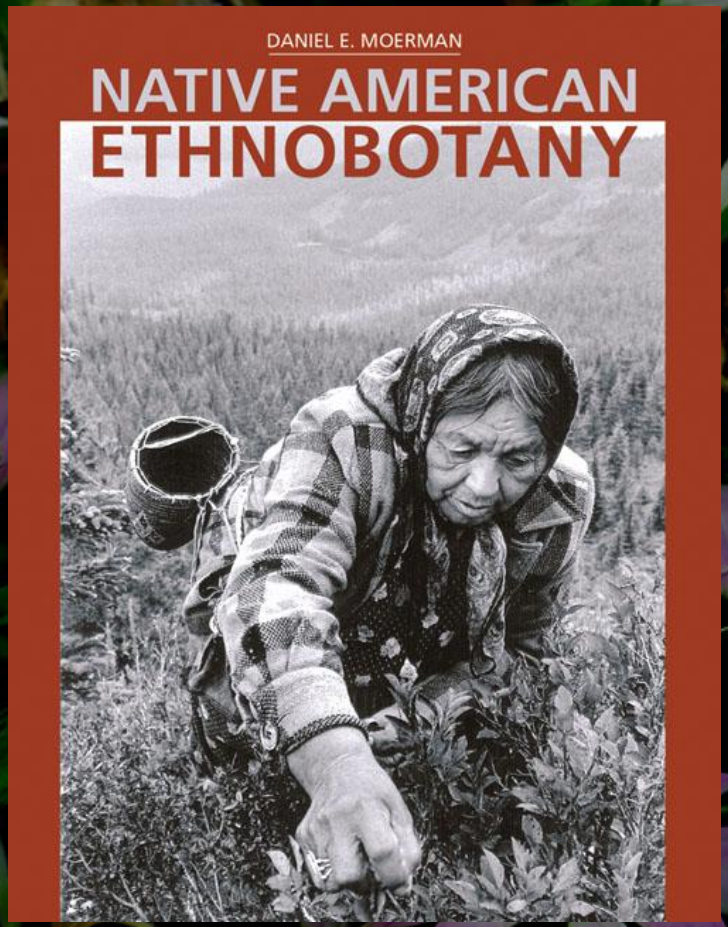
INVASIVE HERBS

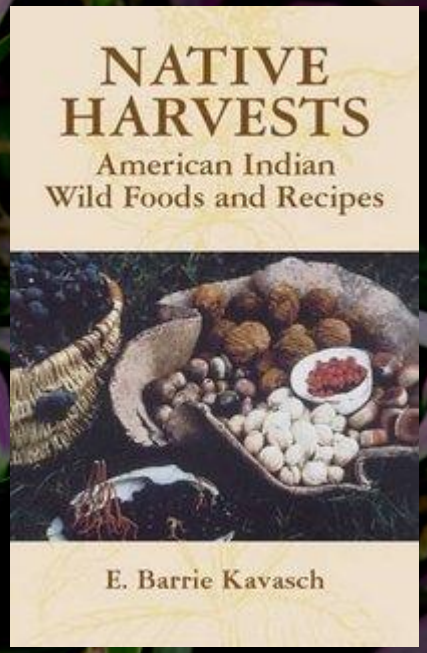
HARVEST INVASIVES

AVOID SPREADING SEED AND PROPAGULES

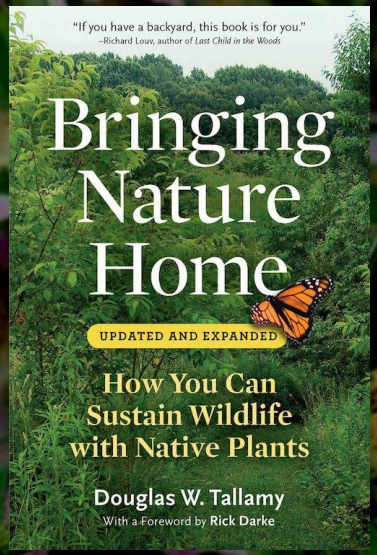
RECONNECT WITH NATURE

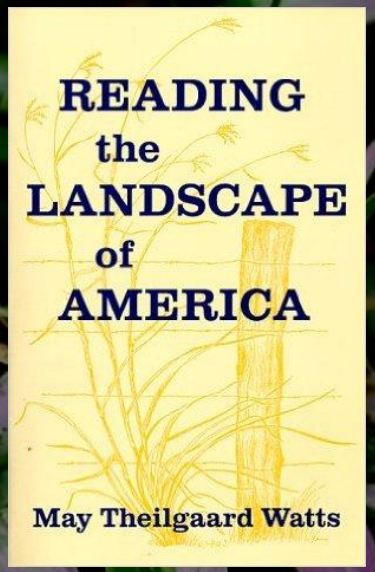
Further Reading

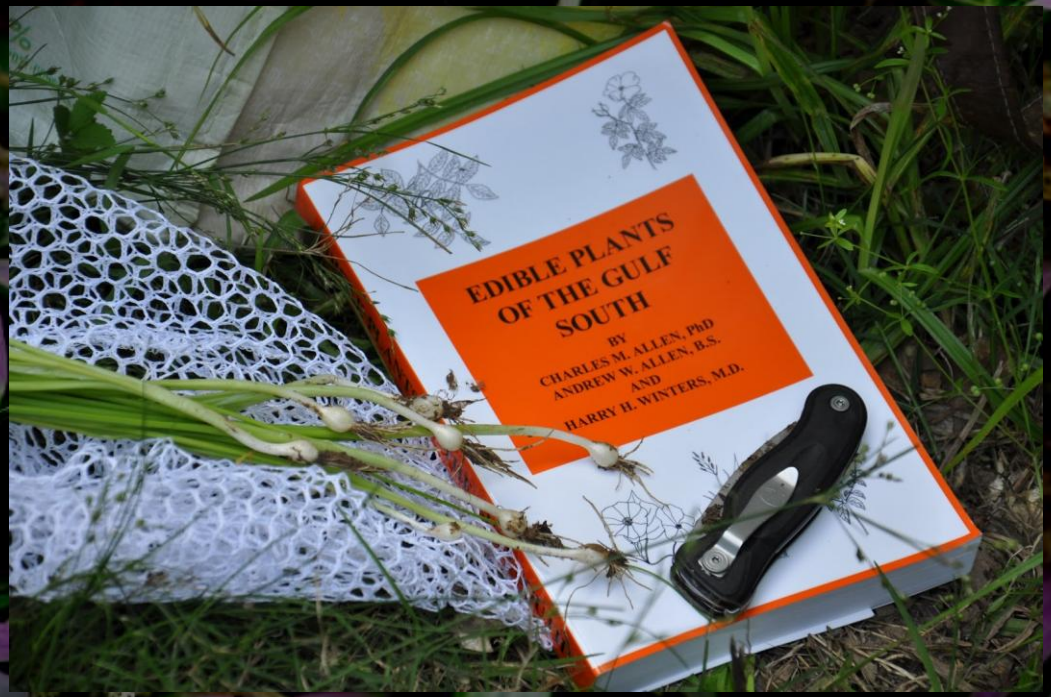




Further Reading








QUESTIONS
INATURALIST.ORG