BROOKE MOFFIS, COMMERCIAL HORTICULTURE AGENT
UF/IFAS EXTENSION LAKE COUNTY

Florida Native Groundcovers & Ecosystem Services

UF | IFAS Extension
UNIVERSITY of FLORIDA

LAKE COUNTY, FL
REAL FLORIDA · REAL CLOSE

Agenda

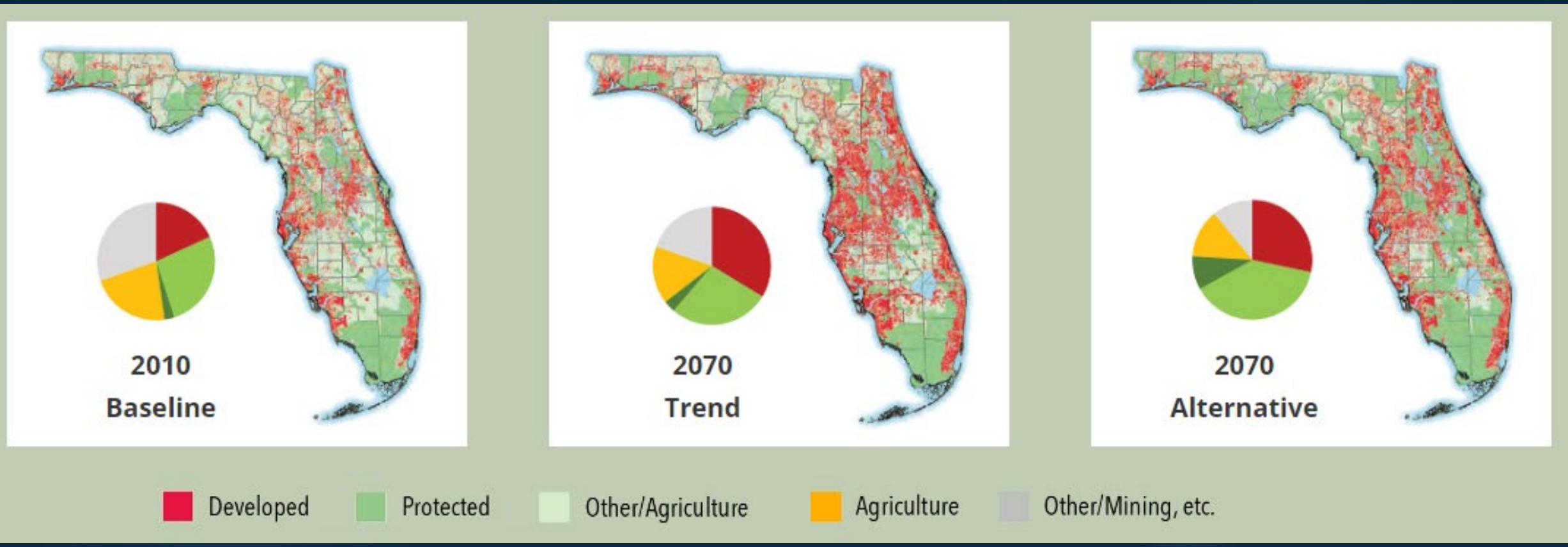
- Situation
- Ecosystem Services
- Multispecies Lawn Project
- Native Groundcovers

Share of the Urban Population Worldwide

Source: United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, custom data acquired via website

2070 Growth Projections

- Stress on resources
- Loss of wildlife habitat, ecosystem services, & functioning

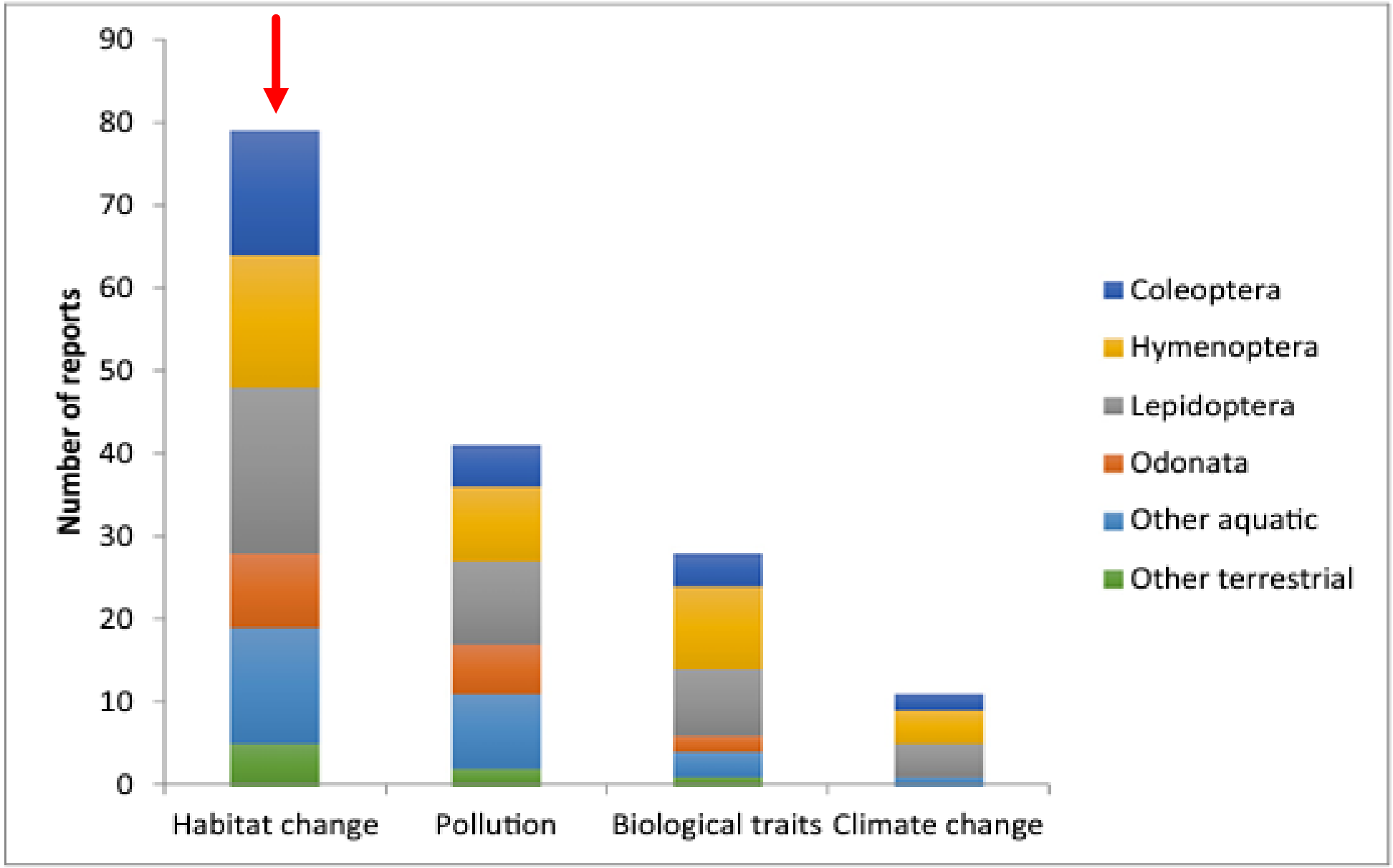


1,000 Friends of Florida and UF

Residential Land Use

- 2019, 900 residents moved to FL every day
- Residential / low-density housing
  - Most rapidly expanding land cover in US – 26%

Major Drivers Insect Decline

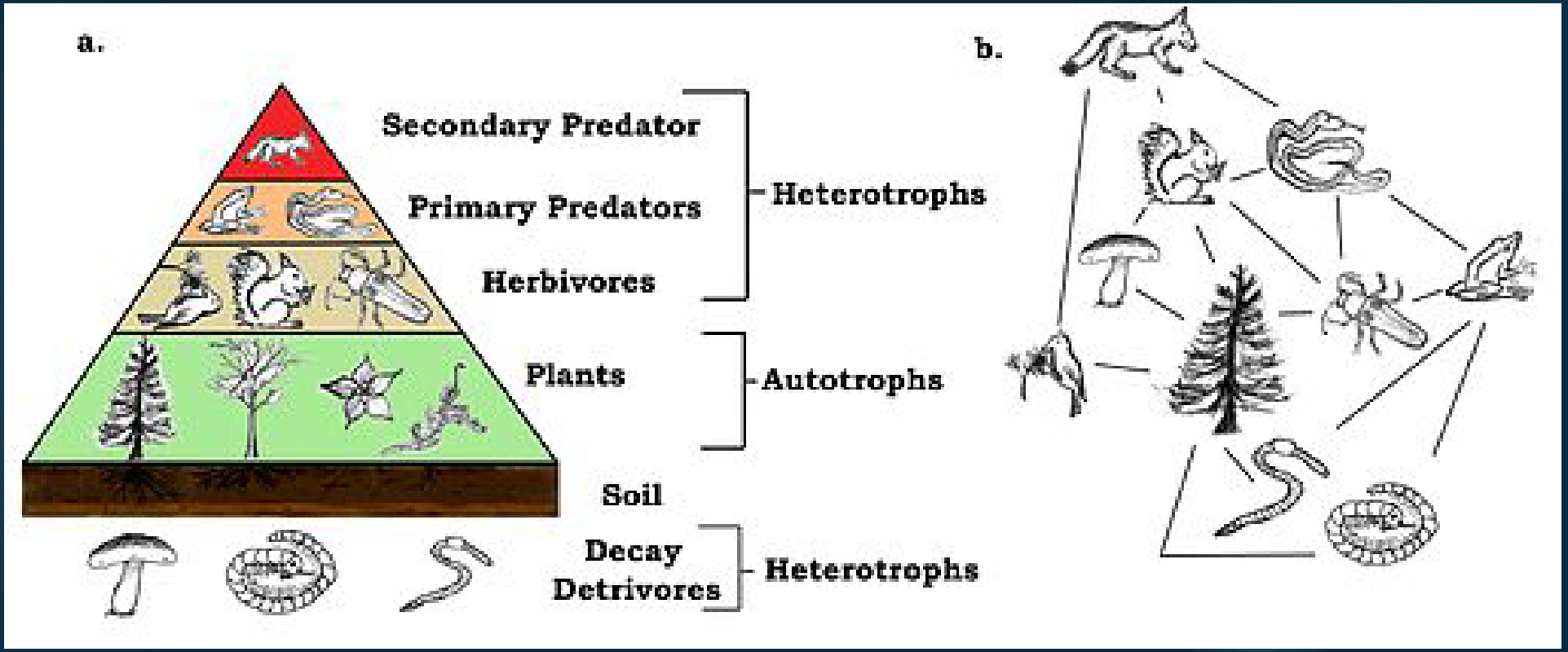


Source: Francisco Sánchez-Bayoa and Kris A.G. Wyckhuys, 2019

How can we create and manage residential/urban landscapes to reduce water use and support biodiversity?

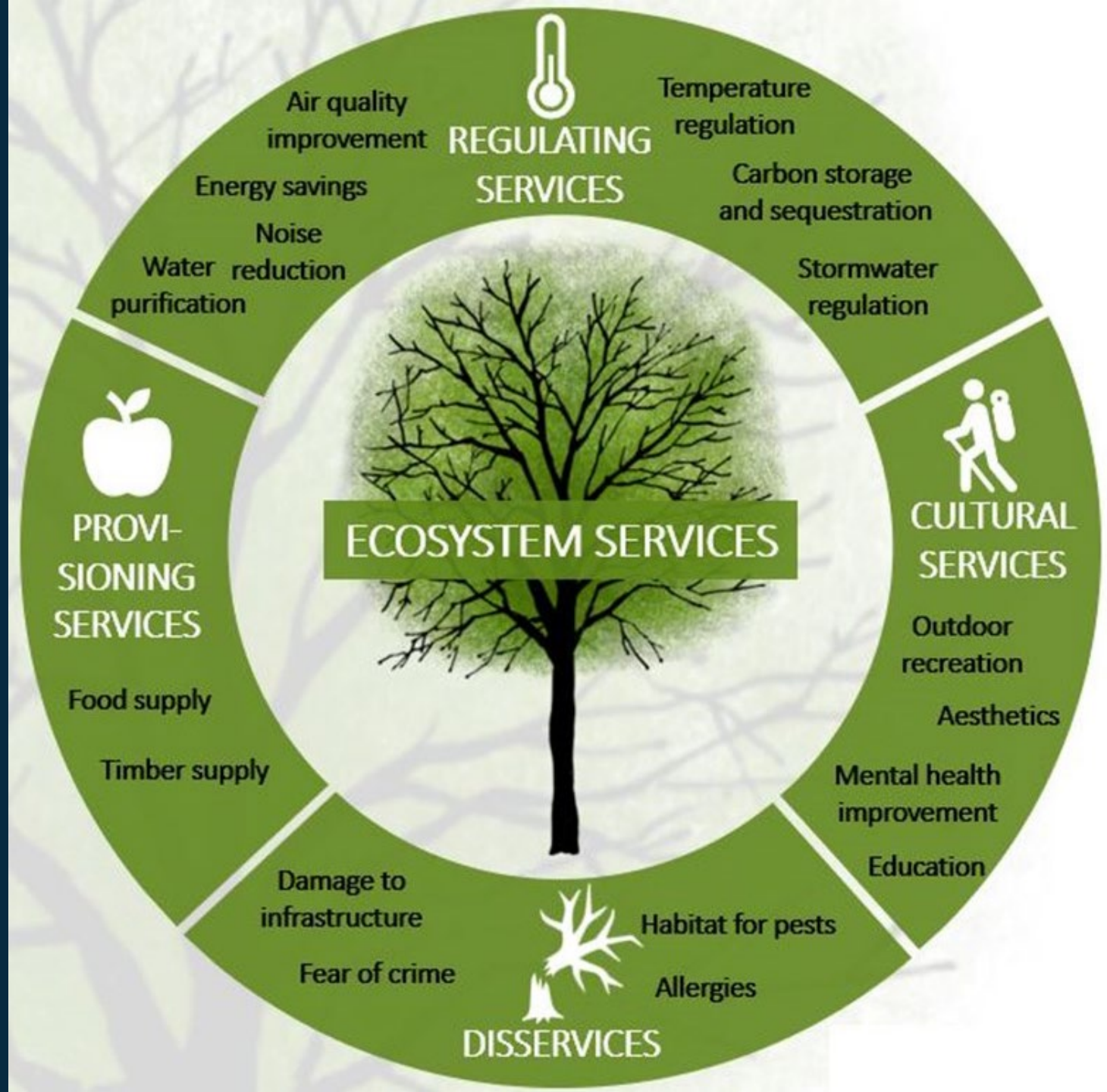
Ecosystem Functions

- Natural processes & interactions that occur within ecosystems
  - i.e., nutrient cycling, primary production, and decomposition.



Ecosystem Services

- Benefits humans derive from ecosystem functions.



Ecosystem Services

- Filter stormwater
- Provide for wildlife
- Resource efficient
- Drought, heat tolerant
- Aesthetically pleasing
- Provide food?
- Survive w/ no irrigation?

Native Plants

Benefits

- Adapted to Florida's climate
- Provides a sense of place
- Crucial to native animal biodiversity
- Critical to the food web

UF Biodiversity Institute UNIVERSITY of FLORIDA

Collage by: Lauren Trotta UF Biodiversity Institute

Multispecies Lawn Research Project

Study Objectives

Effects of plant diversity on

- Lawn resiliency
- Other forms of biodiversity
- Homeowner perception
- Feasibility

Experiment & Demonstration Plots

TRT 1 – bahiagrass

TRT 2 – bahiagrass & 4 forbs

TRT 3 – 4 forbs




Selected Forbs

- Mimosa strigillosa (sunshine mimosa)
- Salvia lyrata (lyreleaf sage)
- Phyla nodiflora (frog fruit)
- Coreopsis leavenworthii (Leavenworth's tickseed)

Plot Management

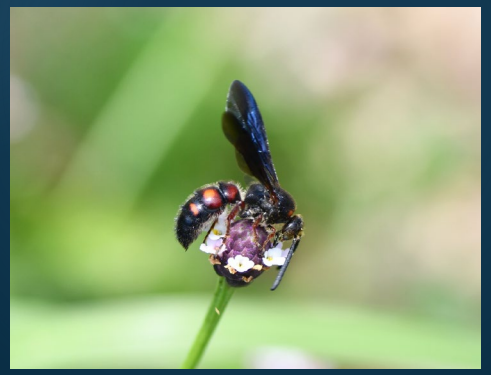
- All plots received the same….
  - Irrigation to establish
  - Weeding Time – 15 min
  - No fertilization
  - No pesticides including herbicides
- Mowing schedule differed

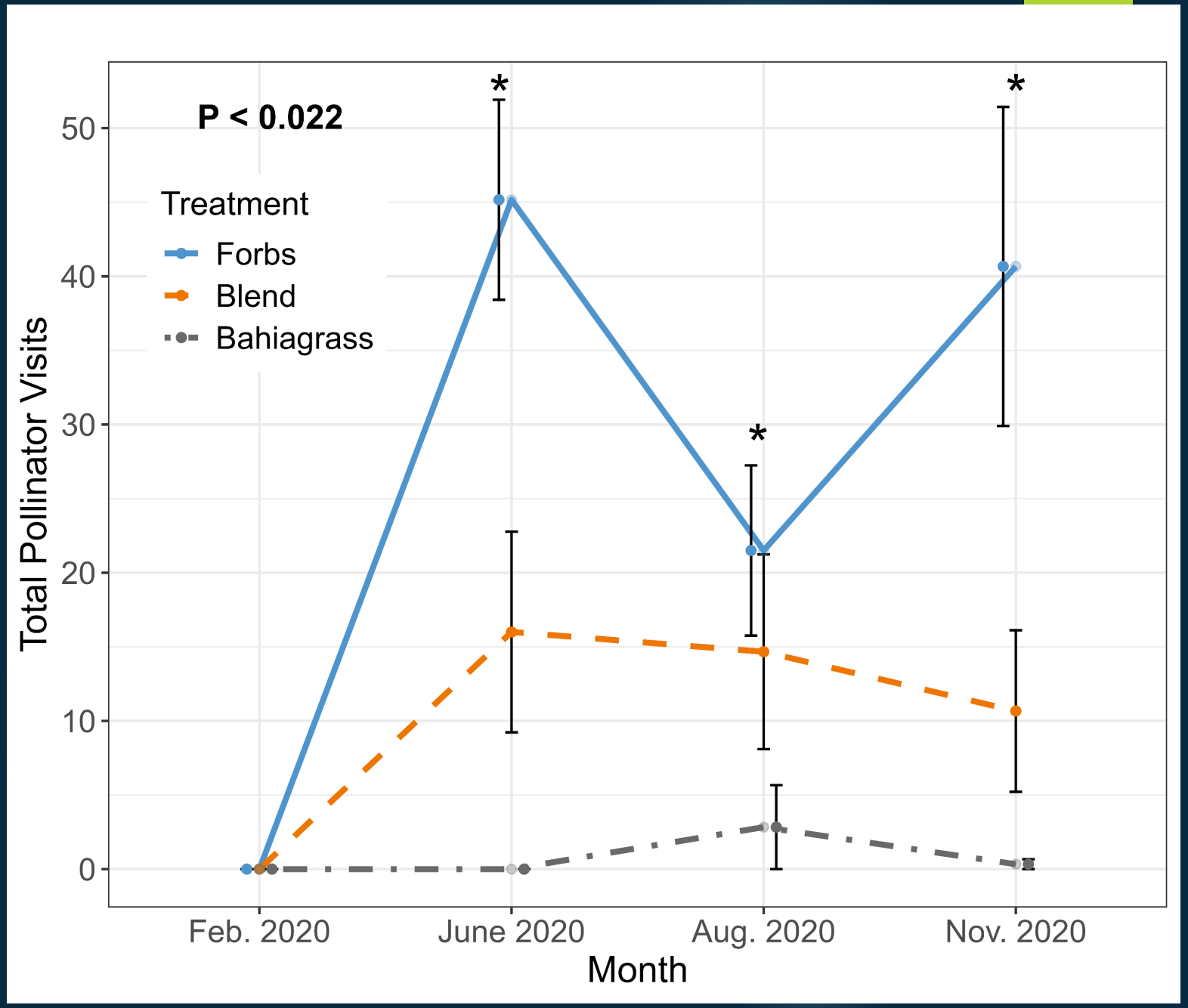
Multi-Species Lawn Project

- Public perception
- Resiliency
    - Percent green coverage
- Pollinator visits
- Arthropod abundance
- Management of a blended system

Pollinator Visits

Pollinator Visitation





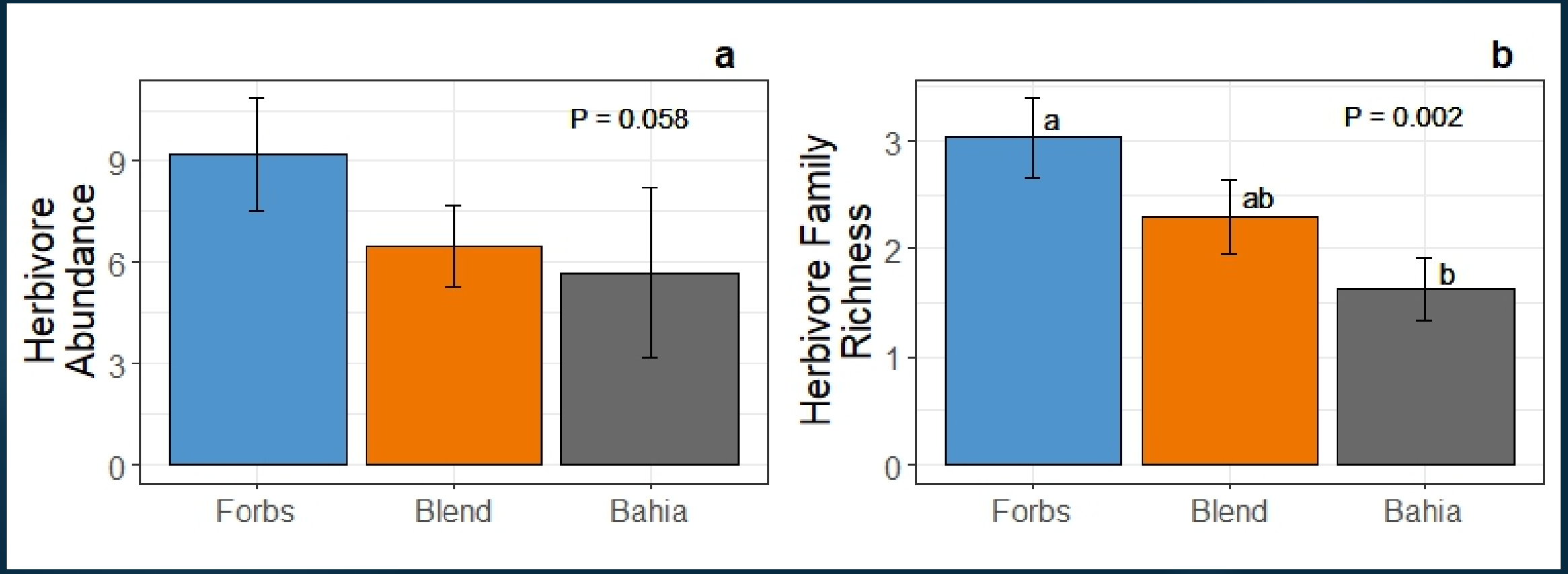
Arthropod Abundance

Sticky cards – 7 days

Pitfall traps – 5 days

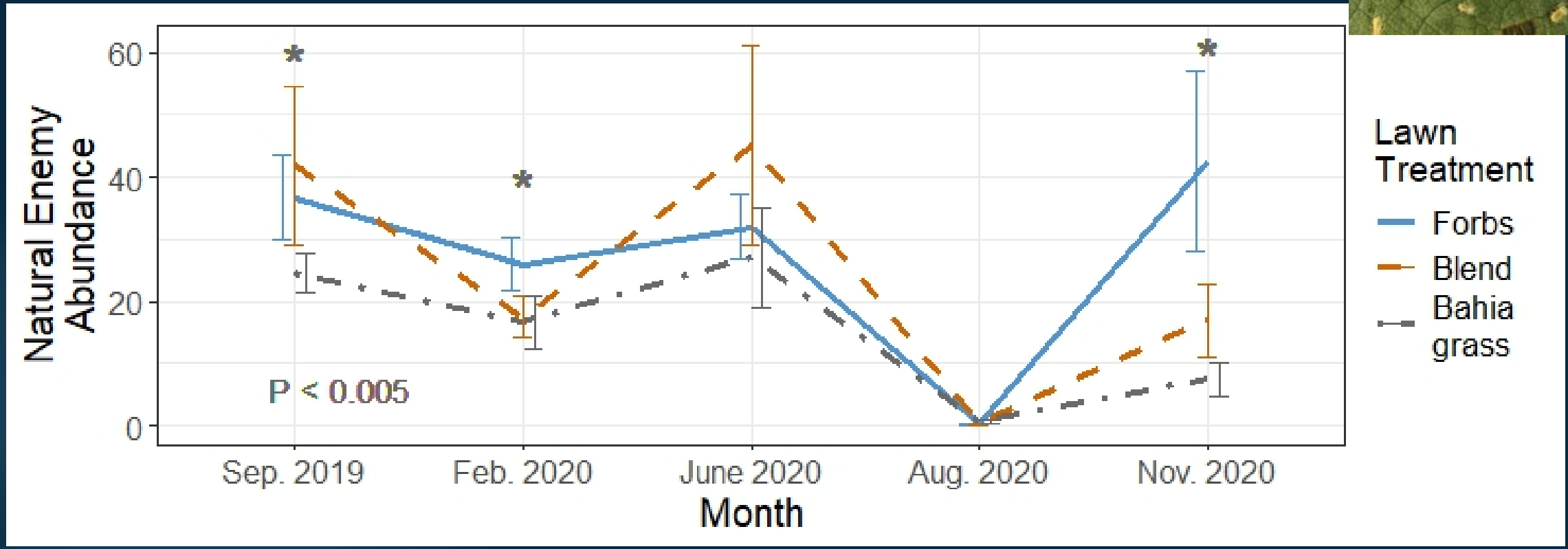
Pitfall Traps Herbivore

Phaon crescent caterpillars Alabama butterfly atlas.org



Pitfall Traps
Natural Enemy Abunndance

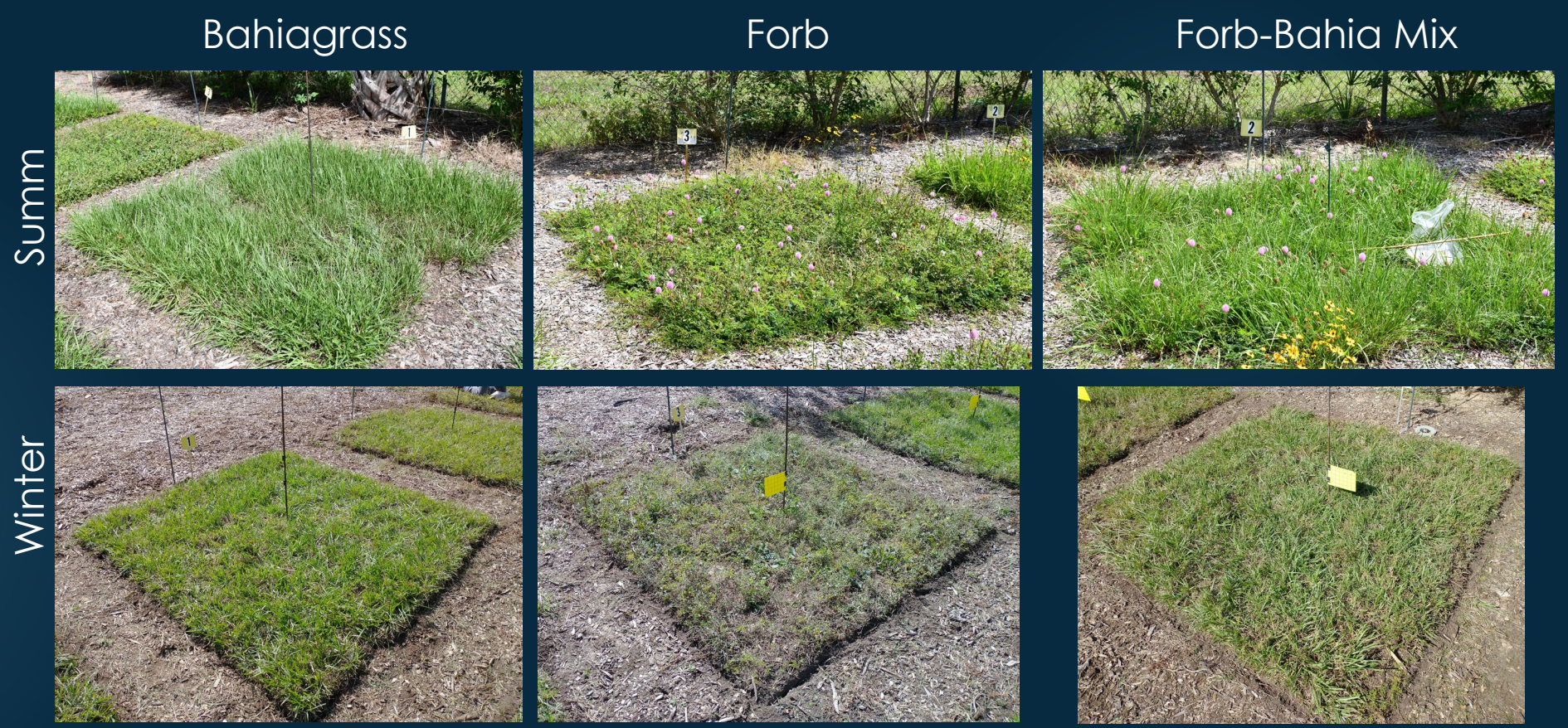
Syrphid fly larvae



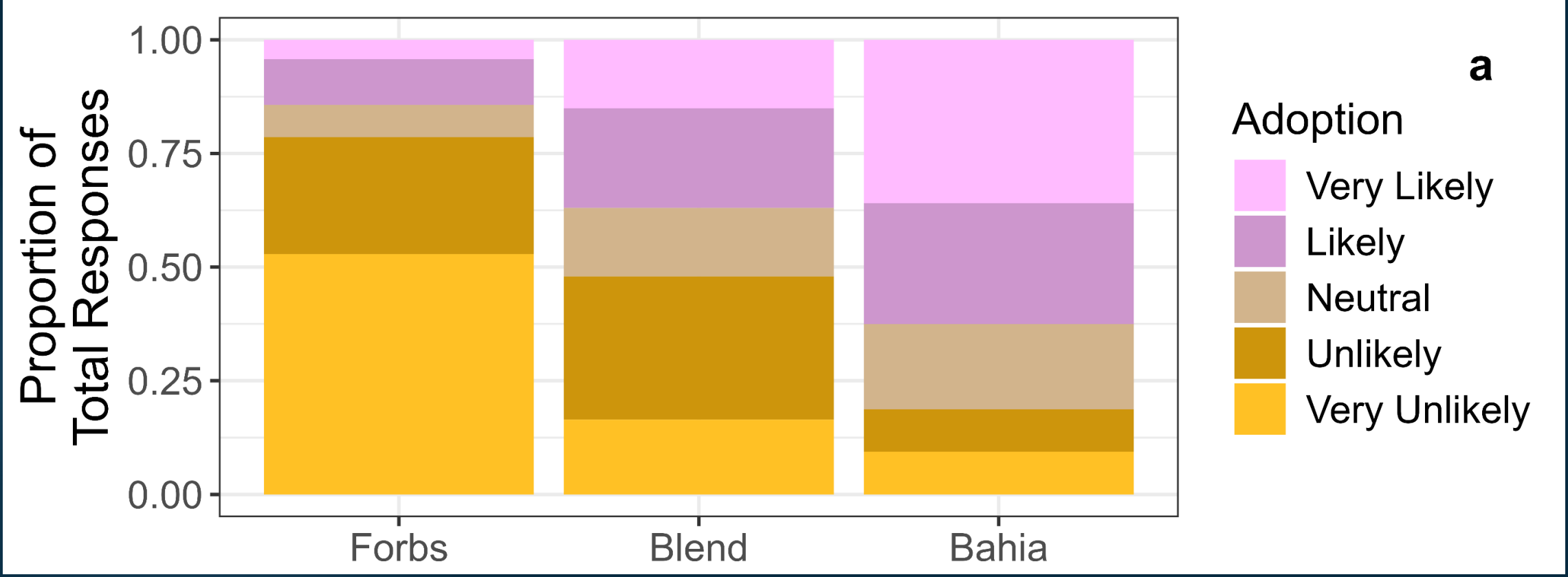
- No other differences in ground dwelling arthropods

Green Plant Cover = Resiliency

- 5-20% higher in plots with forbs during summer
- 30% higher in Bahiagrass plots during winter
- Forbs & grass contribute to cover at different times of year



Survey Responses



Summary of Results

Pollinators

- Plots with forbs demonstrated increased pollinator diversity, increased pollinator visits

Arthropods

- Higher abundance & diversity of herbivores, abundance natural enemies, in plots with forbs
- No effects ground-dwelling arthropods

Cover

- Plots with forbs higher coverage in spring and summer
- Turfgrass provided more coverage in winter

Lessons Learned

- Winter Dormancy
- Irrigation needs
- Better weed suppression
- Preemergent TRTs
- Greater plant densities

Spring drought 2021

- Ecological Theories
  - Resource partitioning
  - Hydraulic lift

Winter dormancy forbs

Moving Forward

- Feasibility
- Select more low-growing & flowering plants
- Determine BMPs
- Commercial interests

Green Isle Gardens
2d ·

Wouldn't it be great if we could create a native groundcover for turf replacement, but just as easy to install, transport and handle as sod? Would it be even better if we could do it with mixed species or made to order for your specific project, yard or habitat? If you said yes to any of these questions then we've got a surprise for you!

Ladies and gentlemen, check out our growers native wildflower turf replacement project! Phase 1 results were better than expected! Our next step will be installing and then monitoring their success in the landscape.

- **Funding**
UF/IFAS Center for Land Use Efficiency
- **Donors**
Lake Sod Jem Farms
- **Contributors**
Dr. Basil Iannone, Dr. Adam Dale, Dr. Sandy Wilson, Dr. Bryan Unruh, Wendy Wilber, Julia Rycyna, Ronald Musgrave Brook Moffis

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CENTER FOR LAND USE EFFICIENCY

SCHOOL OF FOREST, FISHERIES, AND GEOMATICS SCIENCES

Thank You
Master Gardener Volunteers
& Grad Students!

Native Groundcovers

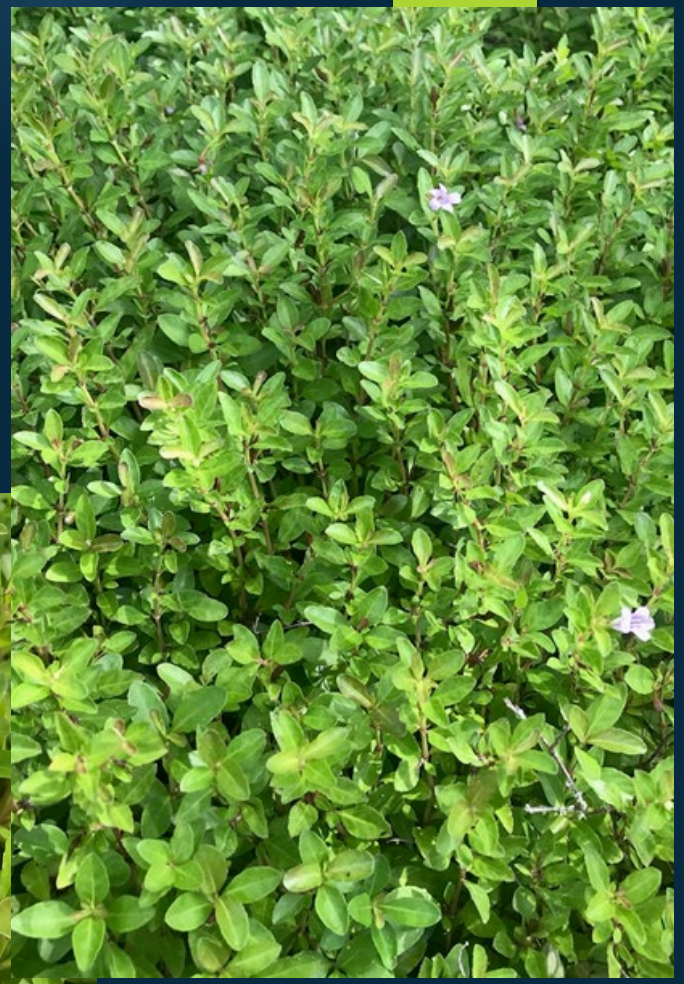
Lawn Traits

- Uniform green
- Recreation
- Erosion control
- Filtration
- Able to mow (Mowable)
- Tolerant of foot traffic
- Low inputs

  (water, fertilizer, pesticides)

Twinflower
Dichoriste oblongifolia

- Thick coverage
- Soil: Sandy, well-drained.
- Light: Full sun best to partial sun
- Water: Dry – moist. Drought-tolerant once established.
- Propagation: Seeds, cuttings, or division
- Mowable - ?



Text by Peggy A. Gretchen FNPS Member, Pasco Master Gardener, Nature Coastline Newsletter

Establishing Dry Twinflower
Dichoriste oblongifolia

Dry Twinflower
Dichoriste oblongifolia

Swamp Twinflower
Dichoriste humistrata

- Full to part sun
- Moderately moist
- Annual – short lived perennial
- Larval plant for common buckeye
- Propagate division and seeds

Google Scholar

Dychoriste oblongifolia

Articles

About 309 results (0.08 sec)

Any time
Since 2021
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Custom range...

Sort by relevance
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Any type
include patents
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Review articles

Create alert

Showing results for ***Dyschoriste*** oblongifolia

Search instead for Dychoriste oblongifolia

Plant response following soil disturbance in a longleaf pine ecosystem

[PDF] jstor.org

SM Simkin, WK Michener, R Wyatt - Journal of the Torrey Botanical Society, 2001 - JSTOR

... **Dyschoriste oblongifolia** at natural mounds was similar to matrix plots (Fig. 6 A,B). Manipulated mounds had resprout reductions of **Dyschoriste oblongifolia** ... In contrast, initially unburned manipulated mounds had similar resprout densities of **Dyschoriste oblongifolia** by August ...

☆ 99 Cited by 12 Related articles All 4 versions

Ground cover recovery patterns and life-history traits: implications for restoration obstacles and opportunities in a species-rich savanna

[PDF] wiley.com

Full View

LK Kirkman, KL Coffey, RJ Mitchell... - Journal of ..., 2004 - Wiley Online Library

... Several myrmecochorous (ant-dispersed) species were found to be extremely vulnerable to disturbance, particularly Viola palmata, **Dyschoriste oblongifolia**, Croton argyranthemus Michx. and Ruellia carolinensis. Gravity- and ant-dispersal mechanisms may represent a ...

☆ 99 Cited by 132 Related articles All 8 versions

[PDF] A message from the president.

[PDF] fnpschapters.org

J Spitler - 2017 - naturecoast.fnpschapters.org

... **Dyschoriste oblongifolia** or Oblongleaf Twinflower is the largest, most robust grower, and most ornamental species. Two other species are more delicate and diminutive. **Dyschoriste** humistrata or Swamp Twinflower is frequently found in floodplain forests or edges of swamps in ...

☆ 99 Cited by 1 Related articles All 3 versions »

Vegetation of the Everglades: determinants of community composition

LH Gunderson - Everglades: the ecosystem and its restoration, 1994 - taylorfrancis.com

... Many of these are endemic taxa, such as pineland **dyschoriste** (.**Dyschoriste oblongifolia**), Florida five-petaled leaf flower (Phyllanthuspentaphyllus), Borreria terminalis, Florida Keys noseburn (Tragia saxicola), Porter's hairy-podded spurge ...

☆ 99 Cited by 315 Related articles All 3 versions »

A monograph of the American species of the genus **Dyschoriste**

[PDF] jstor.org

CE Kobuski - Annals of the Missouri Botanical Garden, 1928 - JSTOR

... the Field Museum, who so willingly loaned their entire collections of **Dyschoriste** for this study. It was found necessary also to borrow types, ... Two species, namely, **Dyschoriste oblongifolia** and D. angusta, occur in the southeastern United States area. This area extends the width ...

Frogfruit - *Phyla nodiflora*

- Moist or moderately dry soil
- Full sun to part shade
- Propagate by division and cuttings
- Adult and larval butterfly plant
  - Phaon crescent
  - Common Buckeye
  - White Peacock

Sunshine Mimosa – *Mimosa Strigillosa*

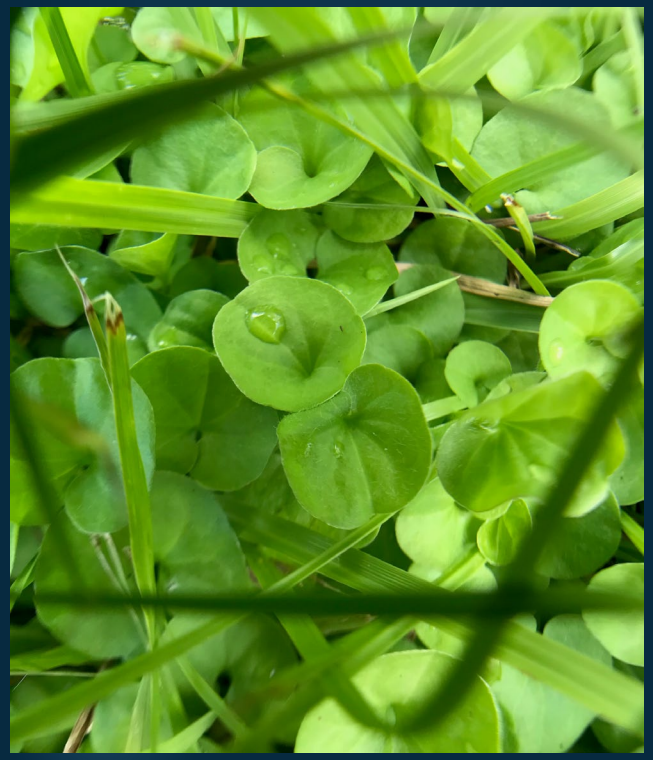
- Full sun – part shade
- Mowable – Yes, but not necessary
- Seasonal coverage
- Performs when droughty
- Weed management

River Sage - *Salvia misella*

- Soil - sand
- Light - full sun to part shade
- Forms a dense stand
- Aggressive native
- Attracts a hairstreak butterfly
- Walkable – No
- Mow-able – probably not
  - FL Native Plant Society

Dichondra(Ponyfoot)
Dichodra carolinensis

- 1-2” tall
- Used in CA as a groundcover
- Light shade to full sun
- Wet to well drained soils
- Propagate division, creeping stems
  - The Institute for Regional Conservation



False Rosemary

- Uses: border; mass planting; container; naturalizing
  Height: 3 feet Spread: 3 feet
- Plant spacing: 3 feet
- Light requirement: plant grows in full sun
- Soil: extremely dry sandy soils
- Drought tolerance: high
- Soil salt tolerances: high

Perennial Peanut – Exotic

Bahiagrass - Exotic

Contact:

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