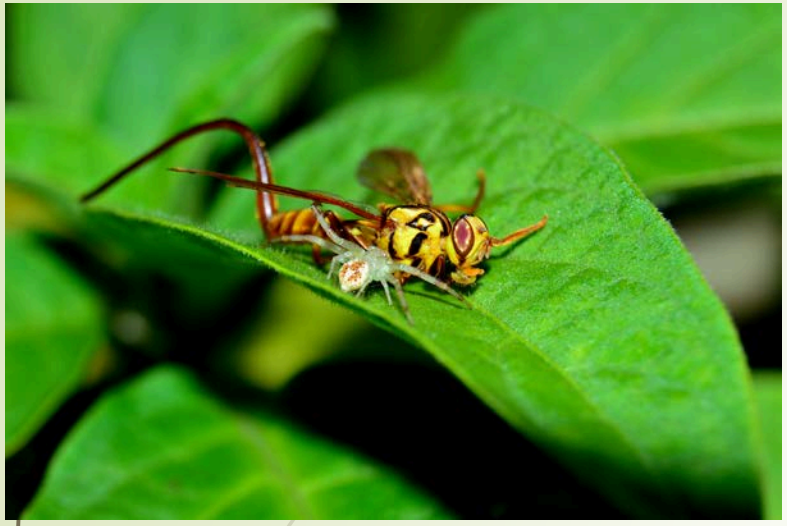


Versatile Uses of Native Florida Plants

Kara Tyler-Julian

ECHO Global Food and Farm Festival

March 16, 2019

Why native plants?

- Ecosystem services
- Food
- Herbs and Teas
- Wildlife value
- Landscaping

Why natives?

- Adapted to our soils, climate, pests, diseases
- Less water, fertilizer (generally)
- Support native insects, wildlife

Ecosystem services

- Attracting pollinators
- Attracting predators/parasitoids
- Maintaining beneficial populations
- =Reduction in pests on crop plants, increased yield.

How to properly use native plants for ecosystem services?

- A mix of plant species and types (wildflowers, grasses, sedges, bushes)
- Large patches, not single plants
- Close to protected plants
- Year-round source of pollen/nectar/pest food
- Structure and refuge for winter/weather
- Older, perennial plantings do better

Which native plants are best?

- Mix of natives, whichever will grow best for you
- Year-round growers, lots of flowers
- Diversity of insects
- Spanish needle, *Bidens alba* is a MUST have.

But does it really work or is this just more hippie dippie crunchy granola hogwash?

- **Wildflowers offered pollen and nectar for beneficial insects and the beneficial insects moved into the nearby crop fields (up to 250 feet).**
  - Long R, Corbett A, Lamb C, Reberg-Horton C, Chandler J, Stimmann M. 1998. Beneficial insects move from flowering plants to nearby crops. Calif Agr 52(5):23-26.https://doi.org/10.3733/ca.v052n05p23.
- **Larger plantings of wildflowers attract more beneficial insects**
  - BLAAUW, B. R. and ISAACS, R. (2012), Larger wildflower plantings increase natural enemy density, diversity, and biological control of sentinel prey, without increasing herbivore density. Ecological Entomology, 37: 386-394. doi:10.1111/j.1365-2311.2012.01376.x
- **Cornflowers increased predators and yield in cabbage.**
  - Balmer, Oliver & E. Géneau, Céline & Belz, Elodie & Weishaupt, Bettina & Förderer, Gerda & Moos, Sebastian & Ditner, Nadine & Juric, Ivan & Luka, Henryk. (2014). Wildflower companion plants increase pest parasitation and yield in cabbage fields: Experimental demonstration and call for caution. Biological Control. 76. 10.1016/j.biocontrol.2014.04.008.
- **Nearby wildflowers led to decreased aphids in an apple orchard.**
  - Gontijo, Lessando & H. Beers, Elizabeth & Snyder, William. (2013). Flowers promote aphid suppression in apple orchards. Biological Control. 66. 8–15. 10.1016/j.biocontrol.2013.03.007.

Continued

- **Wildflower plantings near blueberry fields enhance predators and predation in nearby blueberry field.**
  - Blaauw, Brett & Isaacs, Rufus. (2015). Wildflower plantings enhance the abundance of natural enemies and their services in adjacent blueberry fields. Biological Control. 91. 94-103. 10.1016/j.biocontrol.2015.08.003.
- **Wildflower plantings near blueberry fields increased wild bees and yield significantly in the blueberry field.**
  - Blaauw, B. R. and Isaacs, R. (2014), Flower plantings increase wild bee abundance and the pollination services provided to a pollination-dependent crop. J Appl Ecol, 51: 890-898. doi:10.1111/1365-2664.12257
- **Wildflower plantings increased yield in tomatoes even though pests were higher.**
  - Balzan, M. V., Bocci, G. and Moonen, A. (2016), Utilisation of plant functional diversity in wildflower strips for the delivery of multiple agroecosystem services. Entomol Exp Appl, 158: 304-319. doi:10.1111/eea.12403
- **Older plantings of wildflowers attract more beneficial insects.**
  - Thomas Frank, Simone Aeschbacher, Mario Barone, Irene Künzle, Christa Lethmayer and Corinne Mosimann "Beneficial Arthropods Respond Differentially to Wildflower Areas of Different Age," *Annales Zoologici Fennici* 46(6), (1 December 2009). https://doi.org/10.5735/086.046.0607
- **Mixed native wildflower plantings increased diversity and abundance of wild bees.**
  - Williams, N. M., Ward, K. L., Pope, N. , Isaacs, R. , Wilson, J. , May, E. A., Ellis, J. , Daniels, J. , Pence, A. , Ullmann, K. and Peters, J. (2015), Native wildflower plantings support wild bee abundance and diversity in agricultural landscapes across the United States. Ecological Applications, 25: 2119-2131. doi:10.1890/14-1748.1

Ok, but why that ugly, weedy, nasty Spanish Needle plant???

- **Attracts a wide diversity of predators and pollinators**
- **Blooms year-round and profusely (when no freezes)**
- **Grows anywhere**
- **Not demanding (water, fertilizer)**
- **You can eat it!**
- **My own research**
  - Tyler-Julian, K. Funderburk, J., Srivastava, M., Olson, S., and Adkins, S. 2018. Evaluation of a Push-Pull System for the Management of Frankliniella Species (Thysanoptera: Thripidae) in Tomato. Insects, 9(4):187. https://doi.org/10.3390/insects9040187
  - Funderburk, J., Frantz, G., Mellinger, C., Tyler-Julian, K. and Srivastava, M. (2016), Biotic resistance limits the invasiveness of the western flower thrips, *Frankliniella occidentalis* (Thysanoptera: Thripidae), in Florida. Insect Science, 23: 175–182. doi:10.1111/1744-7917.12250
  - Tyler-Julian, K., Funderburk, J., Olson, S., Paret, M., Adkins, S., and Webster, C. 2013. A stimulo-deterrent method of thrips and Tomato spotted wilt virus management in tomatoes. IV International Symposium on Tomato Diseases 1069. 251-268
  - Tyler-Julian, K. 2013. A Novel Push-Pull Method of Integrated Pest Management of Thrips and Tospoviruses on Peppers and Tomatoes. University of Florida Digital Collections.

Ok, great, but now, let's eat!

Sambucus nigra L. *subsp. canadensis* - American elder; elderberry

- Flowers- fritters
- Berries: jelly, dried and later reconstituted for juices, muffins, pies, tea, etc.
- Likes it wet, can do dry
- Full or partial sun
- Start from seeds or cuttings

Annona glabra - Pond apple

- Fruit: jelly
- Seeds not edible
- Needs to be wet, good for pond edges
- Starts from seeds

Morus rubra, RED MULBERRY

- Fruits when ripe

- Grows near wet areas, can tolerate dry.
- Full to part sun
- Start from cuttings

Morella cerifera, Southern bayberry; wax myrtle

- Leaves as seasoning
- Berries as pepper
- Likes moist areas, will tolerate dry
- Full sun

Grapes, *Vitis spp.*

- 4 species in Lee county
  - *Vitis aestivalis (*summer grape), *Vitis cinerea* (Florida grape), *Vitis rotundifolia* (muscadine), *Vitis shuttleworthii* (Calloose grape).
  - Young leaves boiled
  - Fresh fruit, jelly, cold drink.
- Dry, sunny, sandy areas

Blueberries, *Vaccinium spp.*

- 4 species in Lee county
  - *Vaccinium stamineum* (Deerberry), *Vaccinium arboreum* (Sparkleberry; farkleberry), *Vaccinium darrowii* (Darrow's blueberry), *Vaccinium myrsinites* (Shiny blueberry).
- Fruit: fresh, cooked, dry
- Dry, sunny, sandy areas with acidic soil

Diospyros virginiana, Common persimmon

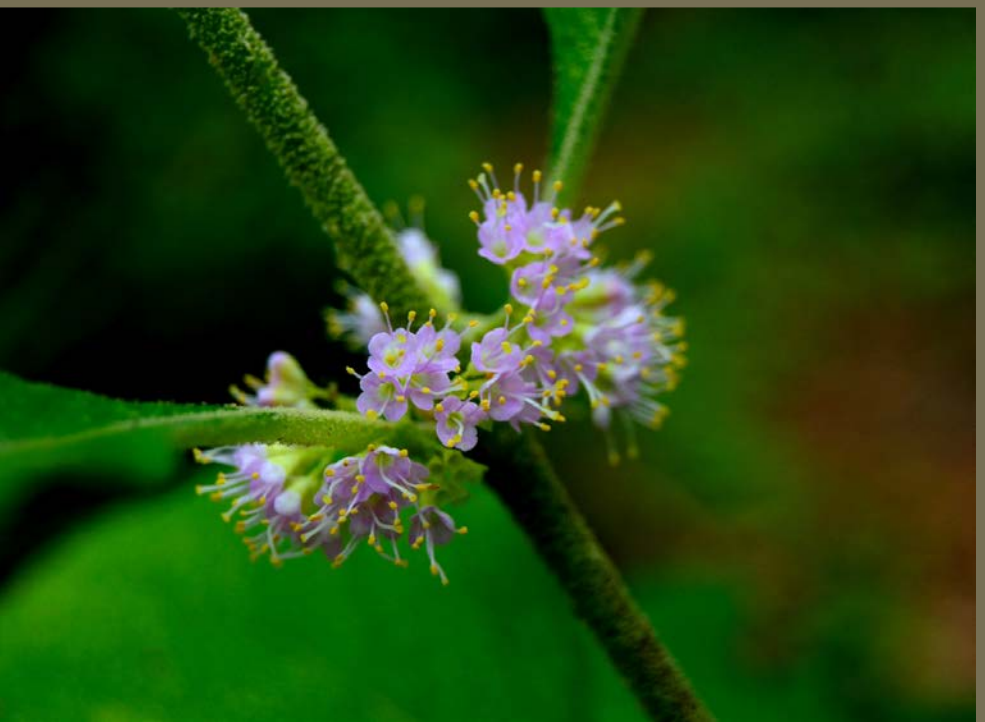
- Fruit: fresh, pudding, nut bread, jam
- Leaves: tea
- Dry-moist areas, full to partial sun

Pines, *Pinus spp.*

- 2 species in Lee county
  - *Pinus palustris*, *elliotii,* longleaf and slash pines.
- Pine nuts
- Tea from the needles, high in A+C

Piloblephis rigida, Wild Pennyroyal

- Minty tea
- Pollinator attraction in winter
- Dry, sandy soil, full sun, acidic pH

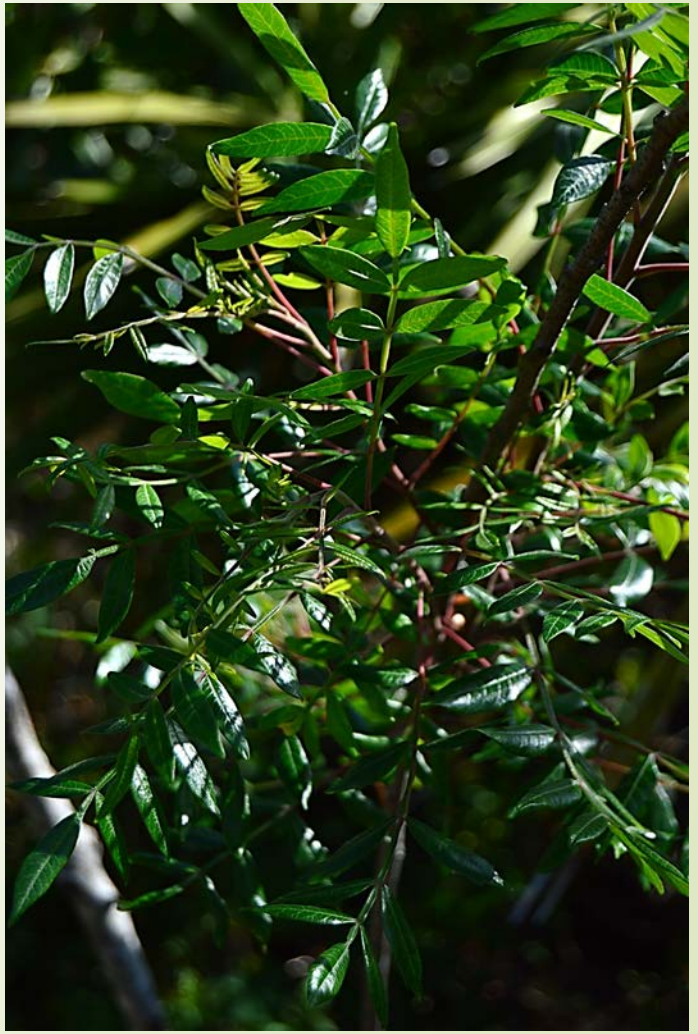


Callicarpa americana, American beautyberry

- Berries- jelly, syrup
- Leaves- mosquito repellant
- Dry soil, full to partial sun

Rhus copallinum, winged sumac

- Berries, lemonade-like drink, syrup, jelly
- Full sun, sandy soil. Dry-moist soil.



Groundcherries, *Physalis spp.*

- **5 species in Lee county**
  - ***Physalis pubescens*** **(Husk tomato),** ***Physalis arenicola*** **(cypresshead groundcherry),** ***Physalis angustifolia*** **(coastal groundcherry),** ***Physalis angulate*** **(cutleaf groundcherry),** ***Physalis walteri*** **(Walter's groundcherry)**
- **Fruit- fresh, cooked, jams, pies, syrups, salsas etc**
- **Unripe fruit and leaves poisonous**

Blackberries, *Rubus spp.*

- 2 species in lee county
  - *Rubus cuneifolius* (sand blackberry), *Rubus trivialis* (Southern dewberry)
- Fruits fresh, jams, syrups, muffins, pies, wines, etc
- Leaves in tea
- Full to partial sun, sandy soil, moist to dry

Melothria pendula, Creeping cucumber

- Green fruits fresh
- Some controversy
- Moist to dry, full sun to full shade, any soil.

Passiflora incarnata, purple passionflower

- Fruits- fresh, cold drink, jelly
- Full sun? Dry sandy soil?
- Butterfly attraction

Carica papaya (?!) Papaya

- Fruits ripe or green
- Seeds as pepper
- Other parts (see eattheweeds.com)

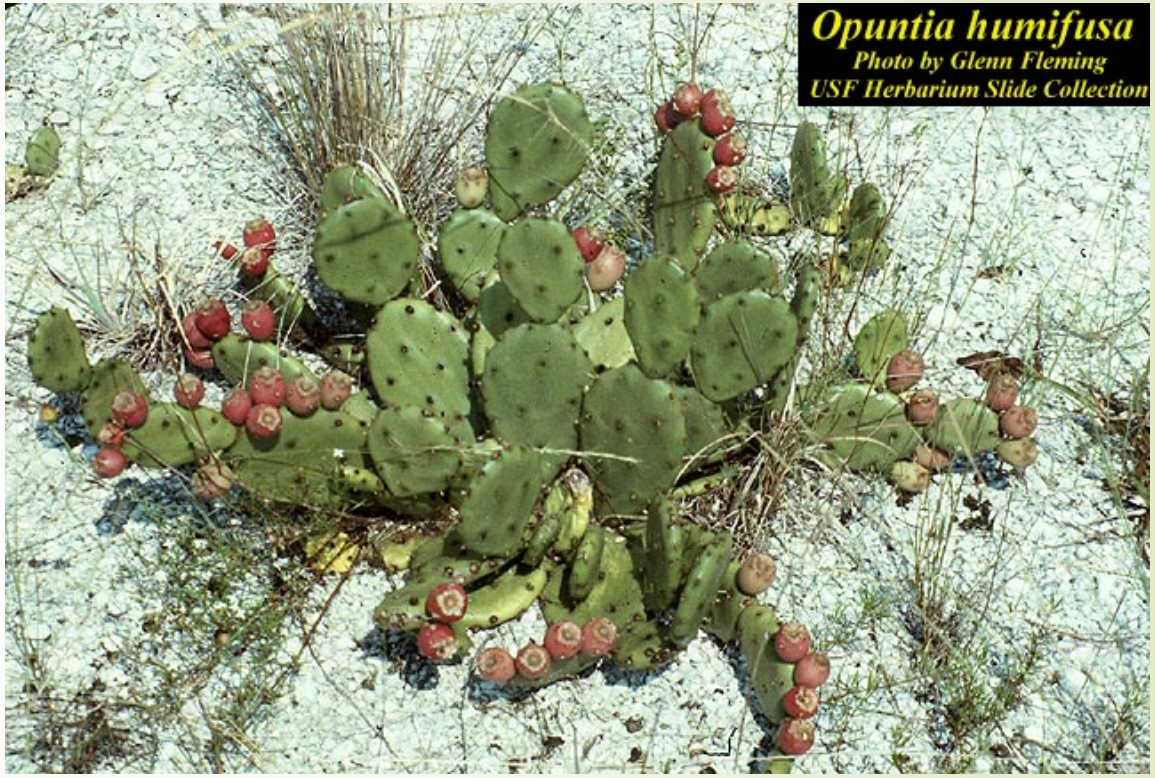
- Full sun
- Any soil
- Wet to dry

Purslane, *Portulaca spp.*

- 4 species in Lee county
  - *Portulaca oleracea* (Little hogweed), *Portulaca pilosa* (Pink purslane; kiss-me-quick), *Portulaca rubricaulis* (Redstem purslane)
- Leaves and stems raw in salads. Soups, omelets.
- Stems pickled.
- Seeds as flour or added to salads, baked goods
- Omega 3s!
- Full sun, dry sandy soil.

Pricklypear, *Opuntia spp.*

- Native species to Lee county
  - *Opuntia humifusa* (Pricklypear)
- Pads cooked, eaten hot or chilled
- Fruit as a drink, jam, syrup, candy
- Seeds as flour or soup thickener
- Full sun, sandy dry soil

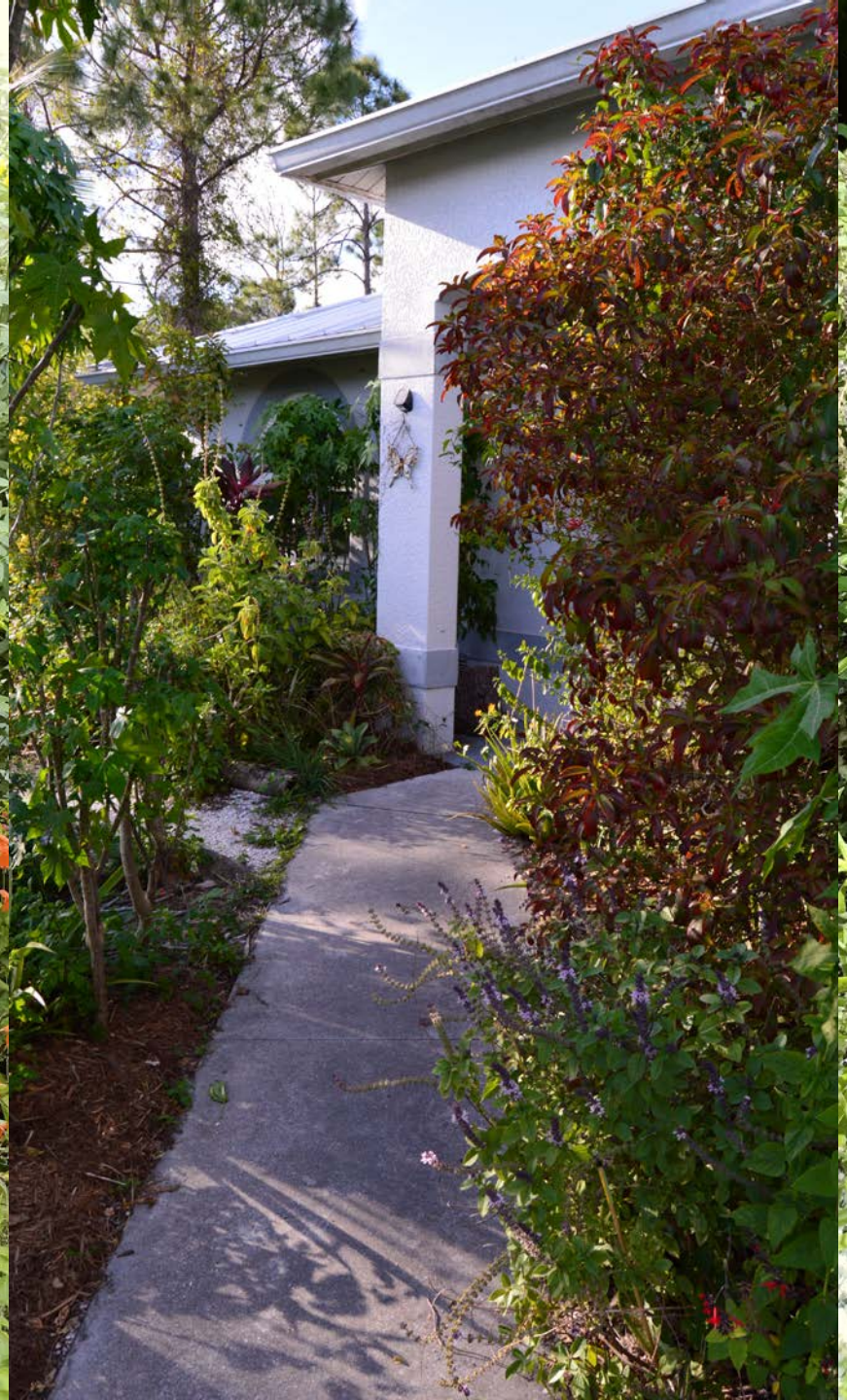


Capsicum frutescens – Tabasco pepper

- Spicy fruits
- Year-round
- Full to partial sun, sandy soil, average moisture

Landscaping

- Simpson’s stopper
- Sea grape, cocoplum
- Muhly grass, Fakahatchee grass
- Bahama senna, privet senna
- Dune sunflower
- Tropical sage
- Fnps.org


Wildlife attraction

- Wildlife can help with pest management
- Oaks
- Pines
- Berries, fruits, seeds
- Diversity of natives
- Areas for cover, nesting

Dr. Paul Julian presents ...

Water Quality in the Everglades

We will hear about Everglades Restoration, including efforts revolving around Lake Okeechobee, Caloosahatchee River and water quality. Dr Julian explains where we were, where we are and where we are going.

* * *

Paul Julian has been with the Florida Department of Environmental Protection, Office of Ecosystem Projects since 2011 where he manages the water quality team providing technical and policy support to permitting and planning efforts surrounding Everglades Restoration. Dr Julian is a graduate of FGCU Marine and Ecological Sciences program (MSc), University of Florida Soil and Water Sciences program (PhD) and a professional wetland scientist with 15 years of experience related to water quality, wetland and aquatic ecosystem sciences.

March 21, 2016 at 7 pm

olton Eco-Preserve at
Unitarian Universalist Church
411 Shire Lane
rt Myers, FL 33912
f Daniels between 6-mi Cypress and I-75)

FREE EVENT!

Visit www.FNPSCoccoloba.org or call (239) 273-8945 for more information

There will be a lively native plant auction afterward

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Questions?