

Milkweed Increase Project:

Building markets for milkweed seed and increasing the availability of milkweed seeds to benefit monarch butterflies.

Priya Shahani

Monarch Joint Venture

Monarch Joint Venture Partners

Government agencies:

- Natural Resources Conservation Service
- US Forest Service (Int'l Programs & Region 9)
- US Fish and Wildlife Service
- Texas Parks and Wildlife Department

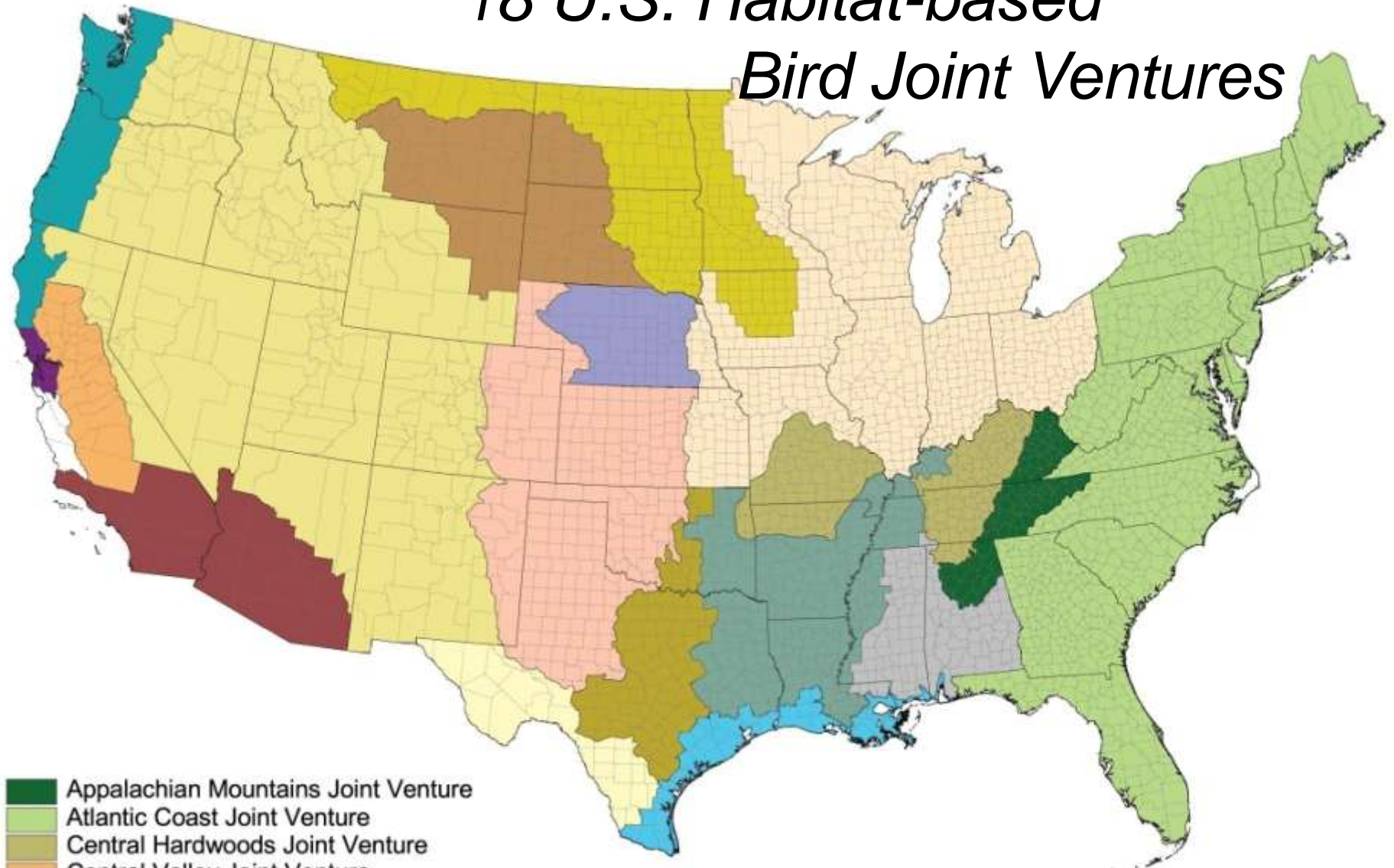


Non-government / academic organizations:

- Monarchs in the Classroom (Univ. Minn.)
- Monarch Watch (University of Kansas)
- The Xerces Society
- Pollinator Partnership
- North American Butterfly Association
- Monarch Butterfly Fund



18 U.S. Habitat-based Bird Joint Ventures



- Appalachian Mountains Joint Venture
- Atlantic Coast Joint Venture
- Central Hardwoods Joint Venture
- Central Valley Joint Venture
- East Gulf Coastal Plain Joint Venture
- Gulf Coast Joint Venture
- Intermountain West Joint Venture
- Lower Mississippi Valley Joint Venture
- Northern Great Plains Joint Venture

- Oaks and Prairies Joint Venture
- Pacific Coast Joint Venture
- Playa Lakes Joint Venture
- Prairie Pothole Joint Venture

- Rainwater Basin Joint Venture
- Rio Grande Joint Venture
- San Francisco Bay Joint Venture
- Sonoran Joint Venture
- Upper Mississippi River/
Great Lakes Region Joint Venture

North American Monarch Conservation Plan



MJV Goals

- ***Research and monitoring*** to better inform monarch conservation work.
- ***Education and outreach*** to increase interest and engagement in monarch conservation.
- ***Habitat enhancement*** to increase monarch breeding and migration habitat availability.

Milkweed Seed Increase Project



THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION



Talk Outline

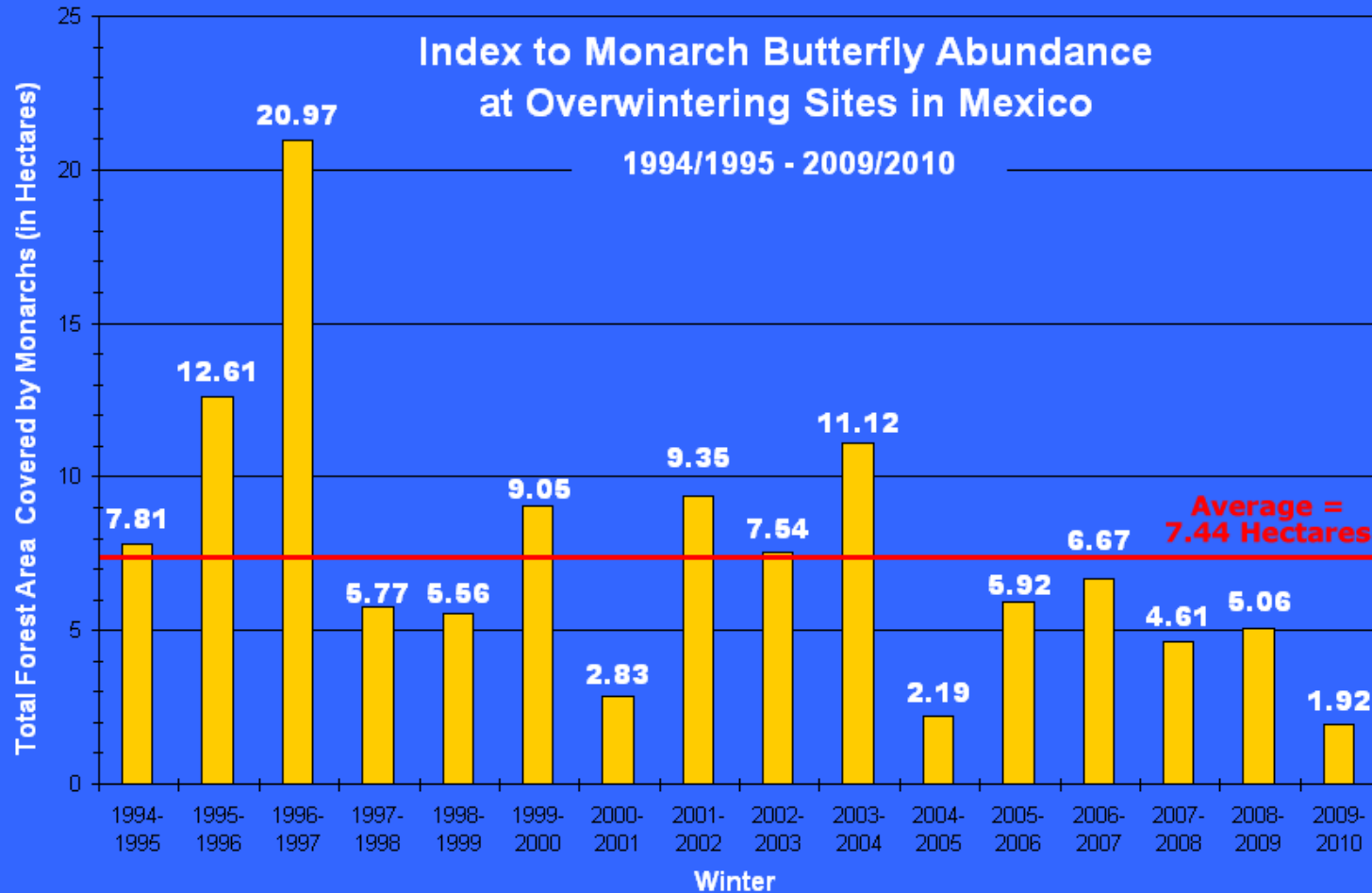
- Monarch Biology
- Threats to Breeding Habitat in U.S.
- Milkweed Seed Increase Project
- Habitat Enhancement Opportunities
- Priority Milkweeds
- Join the Effort!

Monarch (*Danaus plexippus*)



Photo credit: Steven Munafo & Chip Taylor.

Monarch Population Status



Data courtesy of Eduardo Rendón-Salinas and colleagues of World Wildlife Fund-Mexico and the Reserva de la Biosfera Mariposa Monarca (RBMM). Graphic: Journey North

Overwintering Monarchs



Photo credit: Eliya Selhub

Monarch Biology

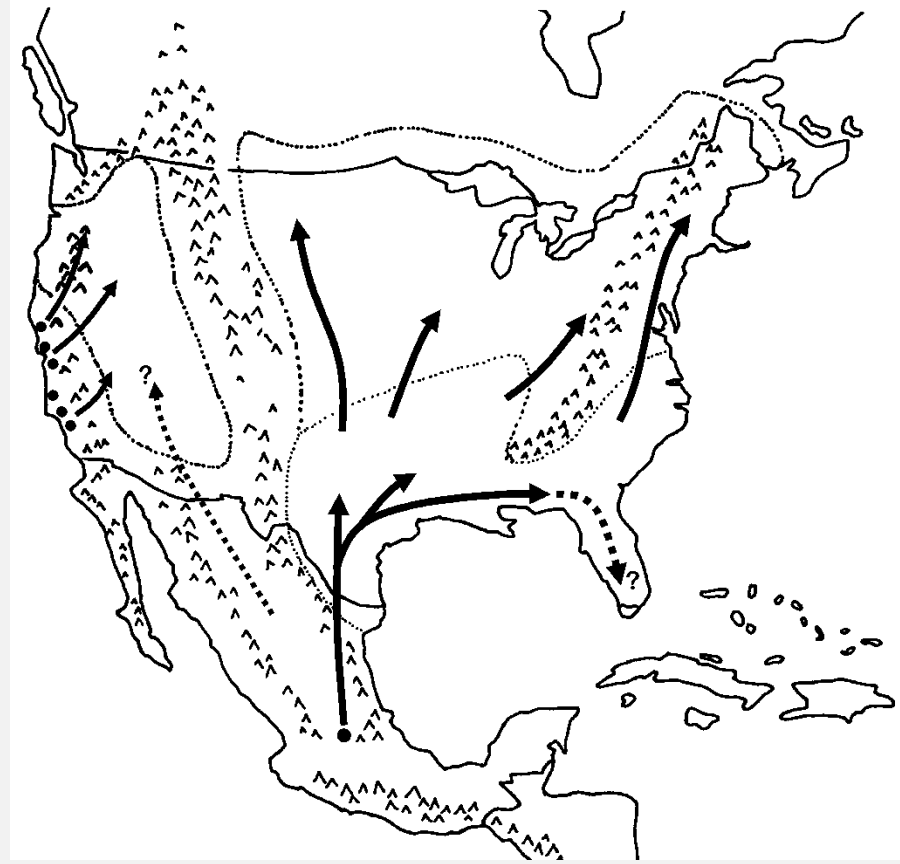
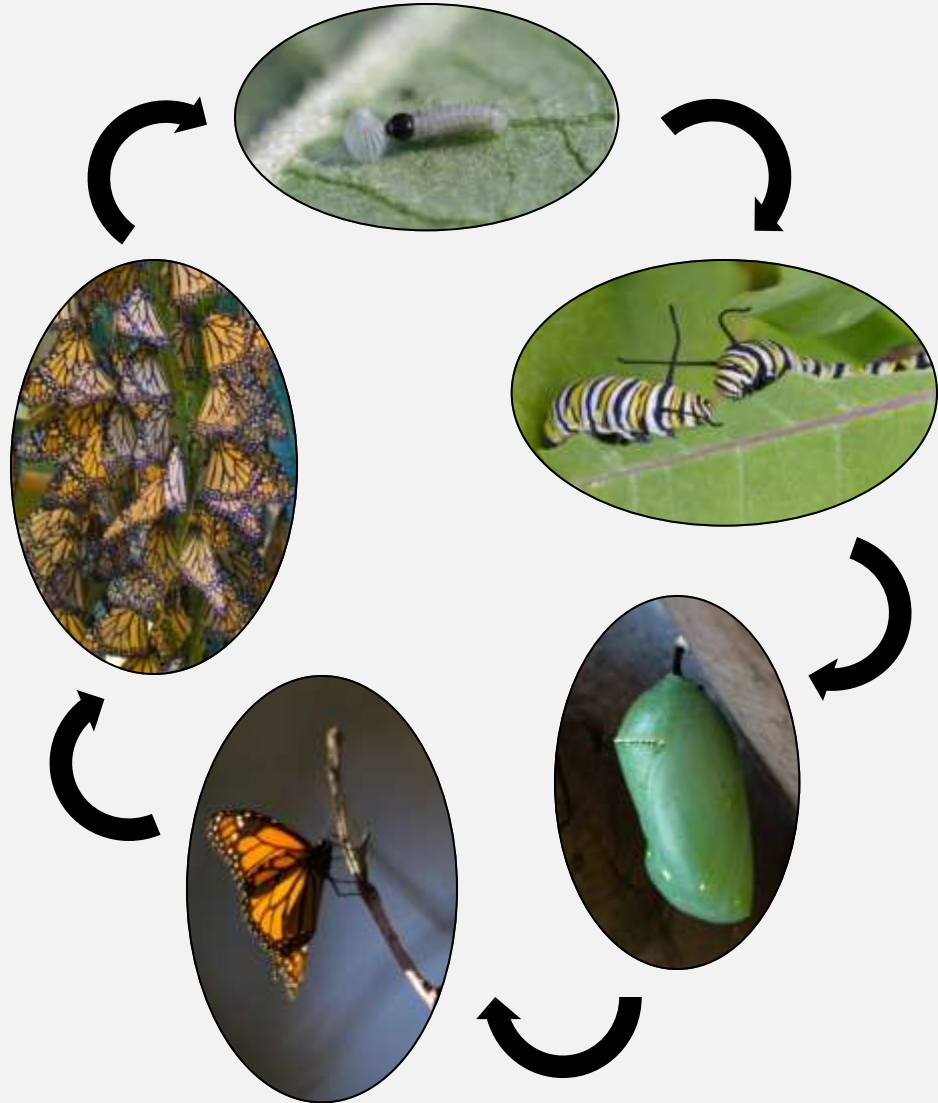


Photo credit: Eliya Selhub, Steven Munafo & Mary Holland. Map modified from L. Brower, 1996.

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Habitat Conversion & Shifting Land Management Practices



Photo Credit: Eric Mader

Herbicide Use



Threats to Monarch Breeding Habitat

- Habitat conversion
- Shifting land management practices
 - Herbicide-tolerant crops
- Pesticide use
- Climate change impacts on milkweed availability, quality and distributions?

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Milkweed Seed Increase Project

- Seed increase approach:
 - Collect seeds (Summer 2010)
 - Work with NRCS to develop propagation techniques (2010 - 2012)
 - Release seeds to private growers (2012 - 2013)
- Public relations for milkweeds
- Creating markets (ongoing):
 - Farm buffers (NRCS)
 - Public lands
 - Roadside management (DOTs)
 - Private lands (including Monarch Waystations)
- Seeds on the market (2015?)

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Habitat Enhancement Opportunities

- Farm Bill conservation programs:
 - Conservation Stewardship Program
 - Environmental Quality Incentives Program
 - Wildlife Habitat Incentives Program
- Roadside plantings
- Landowner Incentives Program
- Monarch Waystations
- Other public & private lands
- US Forest Service plantings

USFS Direction re: Monarch Habitat Improvement

“The Forest Service is in a position to help improve Monarch butterfly numbers through habitat improvement and conservation education. I encourage all field units to include native wildflowers and milkweeds that serve as food sources or host plants for Monarchs in their restoration and wildlife habitat improvement projects. Managing for Monarchs will aid in meeting our Agency’s goal for providing resilient ecosystems.”

- Joel Holtrop, Deputy Chief, USFS to Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors, 3/17/2010

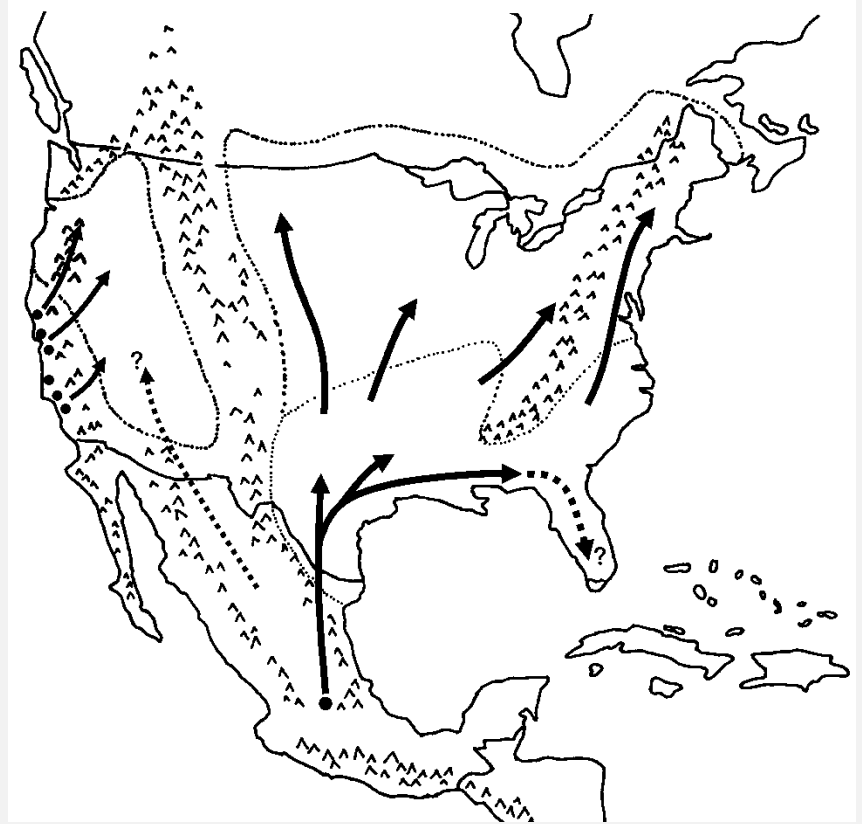
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Establishing Milkweed Priorities

Migration route defines geographic priorities:

- Texas
- California
- Southwest
- Southeast



Milkweeds and Other Pollinators

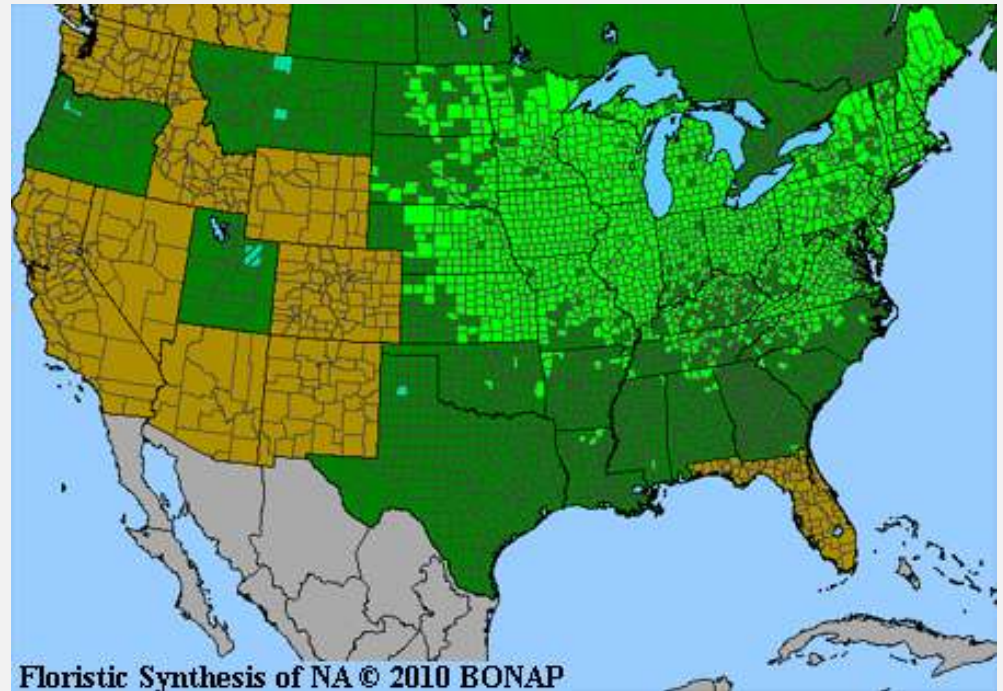


Photo Credit: Chip Taylor

Other Species Selection Criteria

- Plant value to monarchs and other pollinators
- Locally native
- Weed potential
- Ease of establishment
- Lack of current commercial seed availability
- Toxicity to cattle?
- Climate change issues?
- Other thoughts?

Commercially Available Milkweeds



Common milkweed (*A. syriaca*)

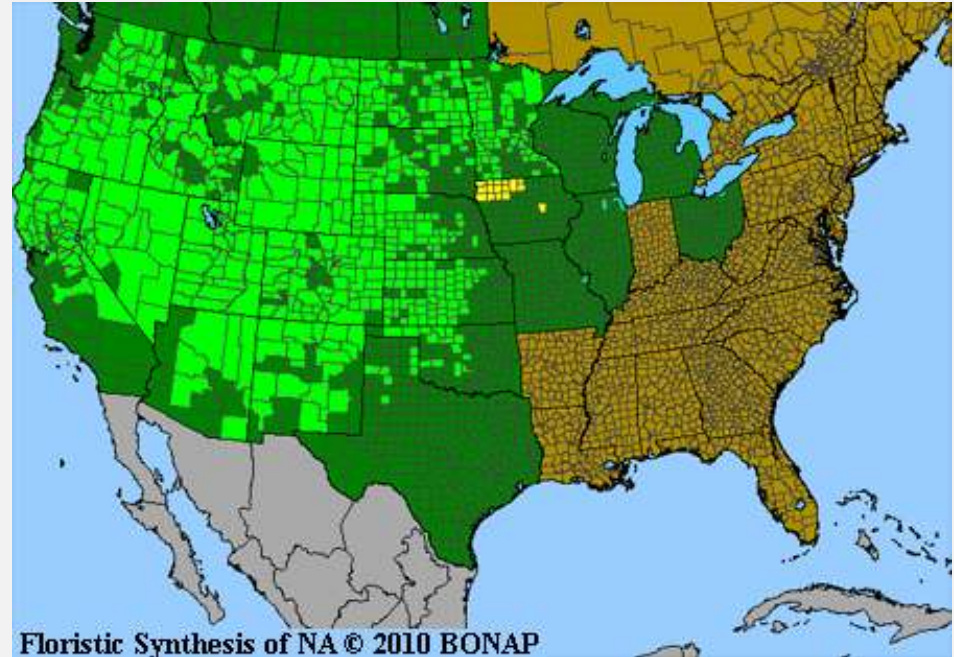
Photo Credit: John Hixson

Map credit: Biota of North America Program, 2010.

Commercially Available Milkweeds



photo by M. B. By



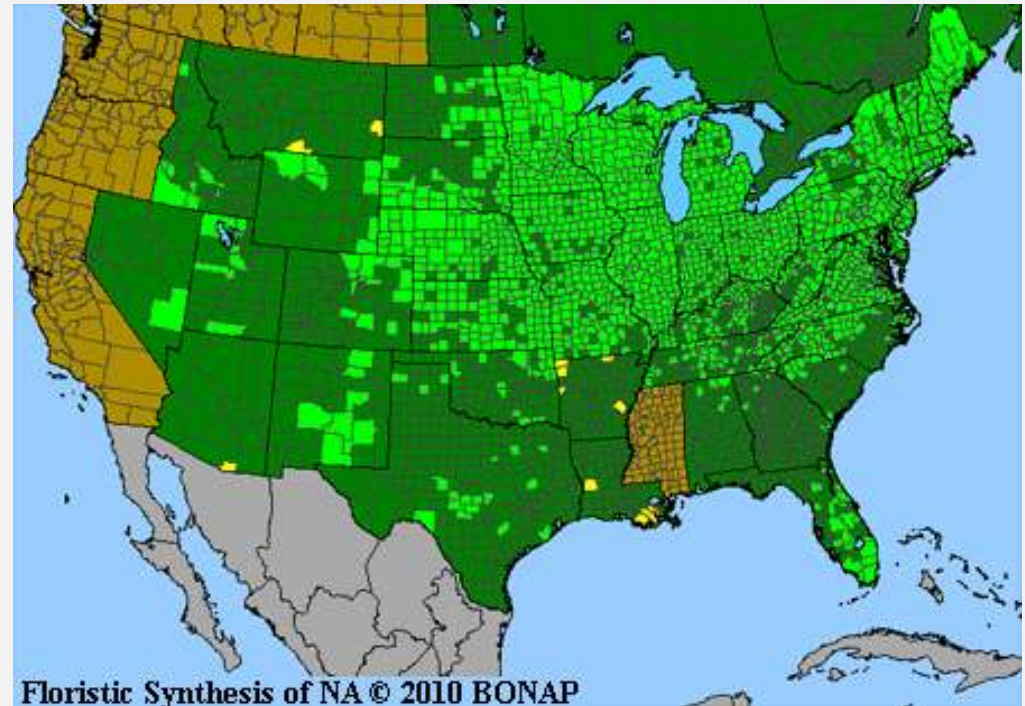
Floristic Synthesis of NA © 2010 BONAP

Showy milkweed (*A. speciosa*)

Photo Credit: M. Brooke Byerley

Map credit: The Biota of North America Project, 2010

Commercially Available Milkweeds

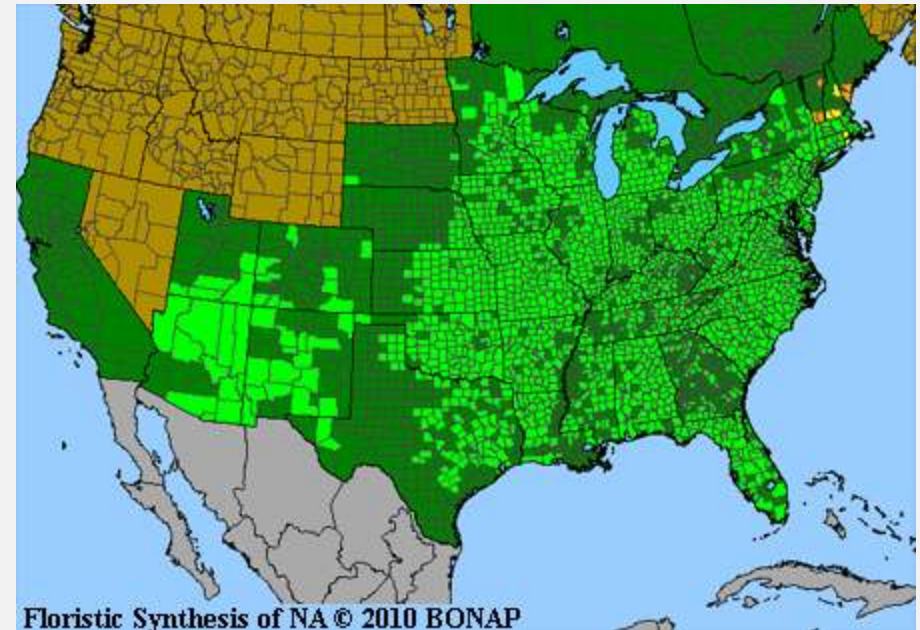


Swamp milkweed (*A. incarnata*)

Photo Credit: Sally & Andy Wasowski

Map Credit: *The Biota of North America Project*, 2010.

Commercially Available Milkweeds

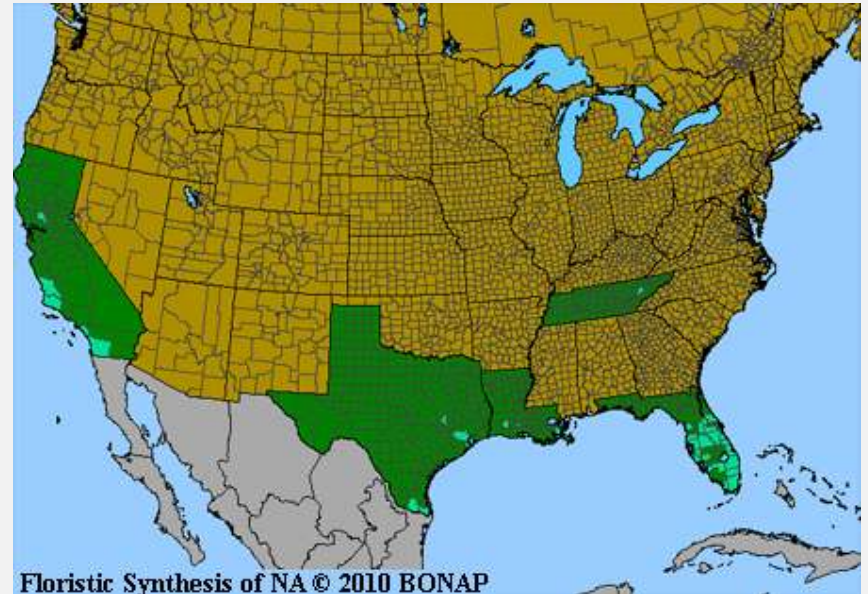


Butterflyweed (*A. tuberosa*)

Photo Credit: M. Brooke Byerley

Map Credit: The Biota of North America Project, 2010.

Non-Native Milkweed



Tropical milkweed (*A. curassavica*)

Map Credit: The Biota of North America Project, 2010.

Numerous Candidate Species



Photo Credit: Chip Taylor

Lead Candidates



Antelope horns
(*A. asperula*)

Photo Credit: W.D. Bransford



Zizotes milkweed
(*A. oenotheroides*)

Photo Credit: Chip Taylor

Lead Candidates



Green antelope horns
(*A. viridis*)

Photo Credit: Norman G. Flaigg



Narrowleaf milkweed
(*A. fascicularis*)

Photo Credit: W.D. Bransford

Lead Candidates



California milkweed
(*A. californica*)



Whorled milkweed
(*A. verticillata*)

Photo Credit: Edith Bettinger

Lead Candidates



Sandhills milkweed, pinewoods milkweed
(*A. humistrata*)

Photo Credit: W.D. Bransford

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Work With Us

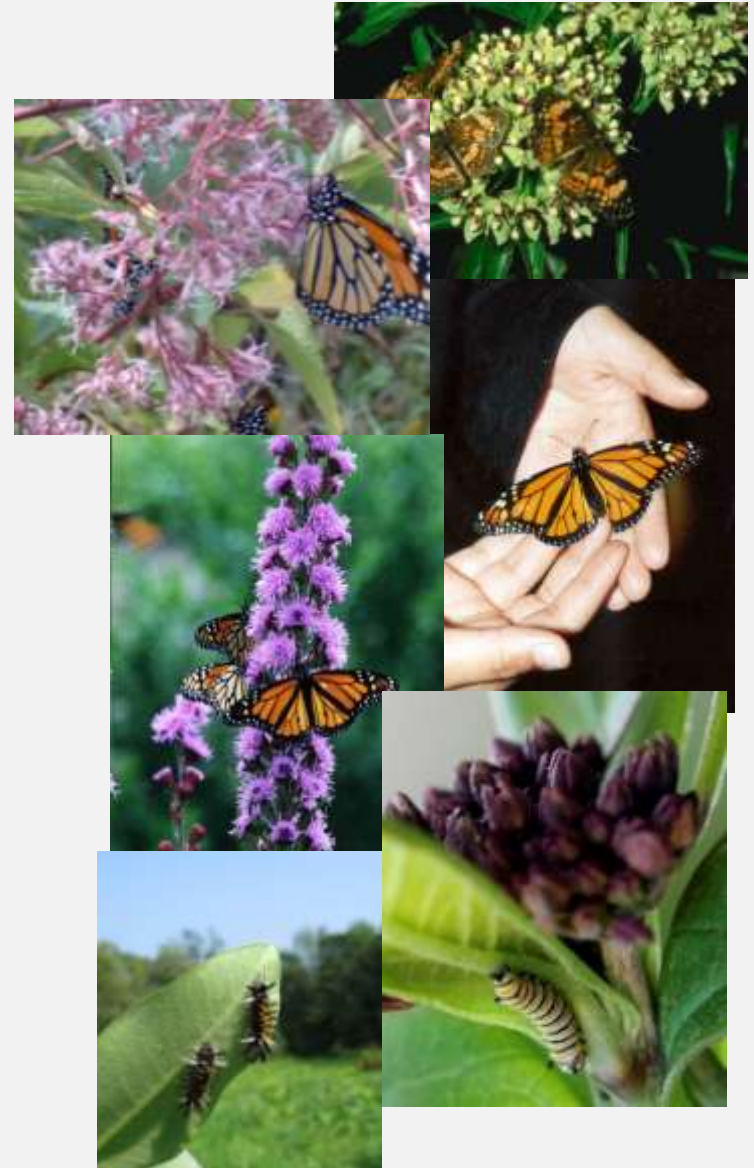
We will be actively seeking:

- Seed collectors
- Native seed producers interested in growing milkweeds
- Seed cleaning facilities
- Anyone interested in implementing habitat enhancement projects

Monarch Joint Venture Vision

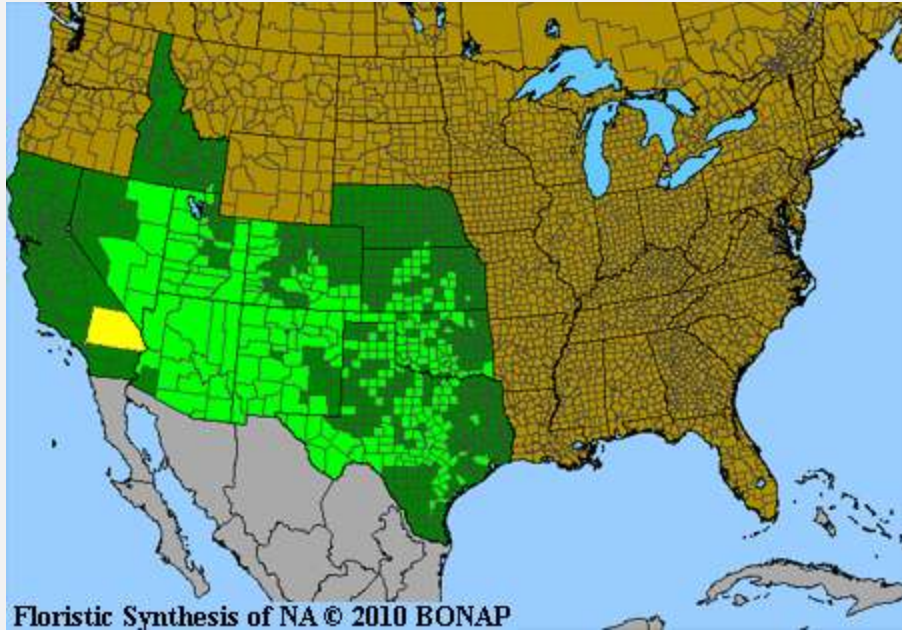
“The vision of this Joint Venture is abundant monarch populations that can be sustained into perpetuity, and more broadly to promote monarchs as a flagship species whose conservation will sustain habitats for pollinators and other plants and animals.”

Priya Shahani
pshahani@umn.edu

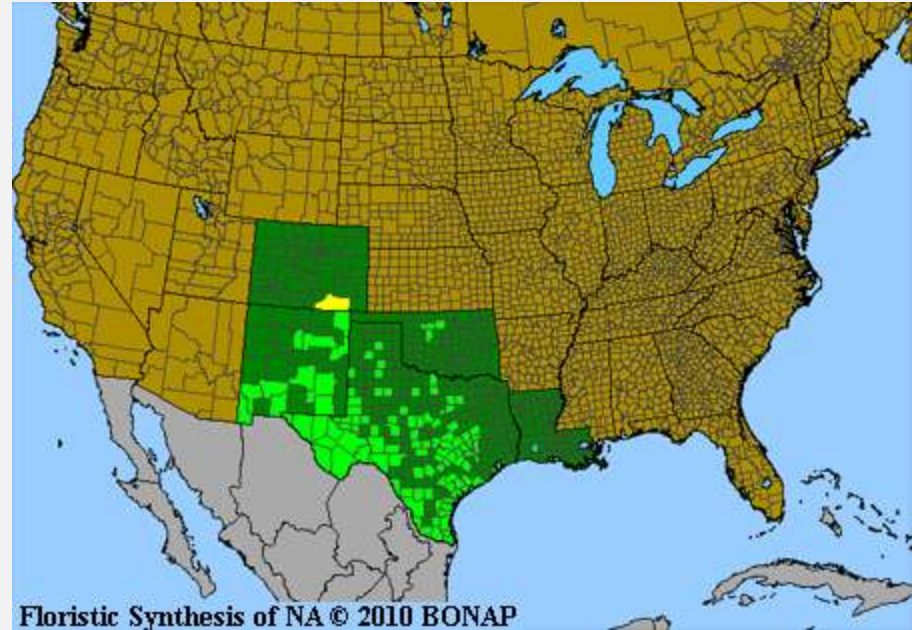


Other Species Selection Criteria

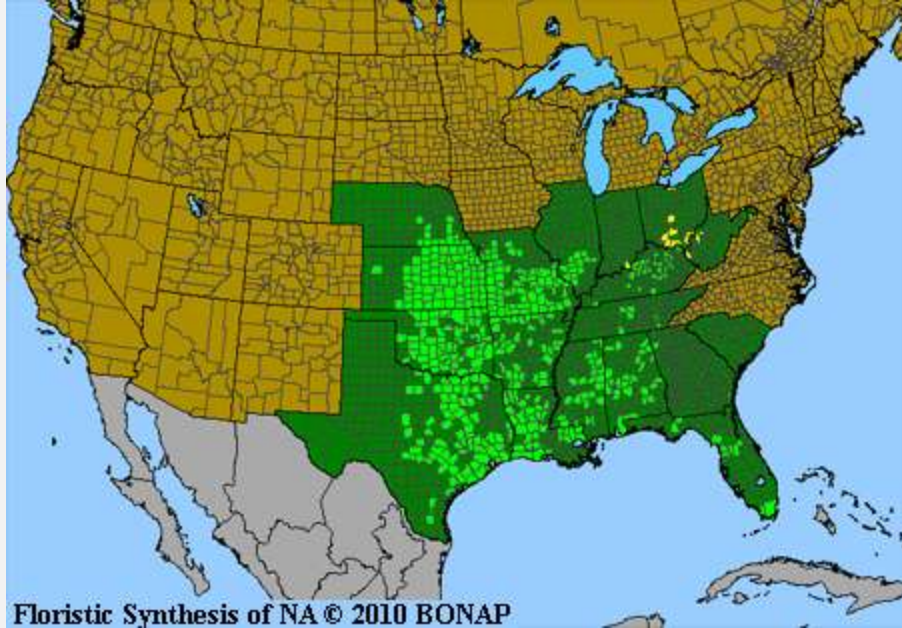
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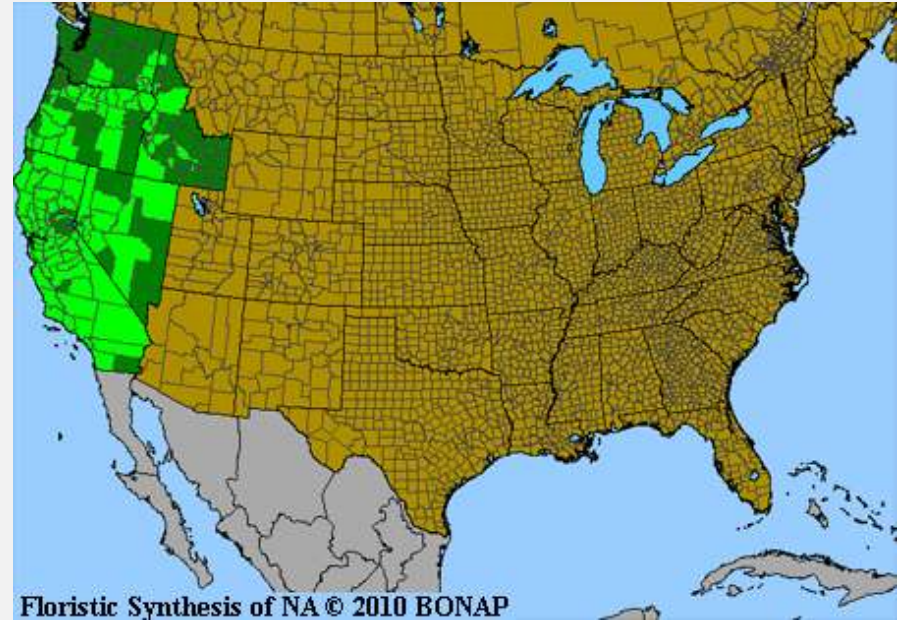
Asclepias asperula



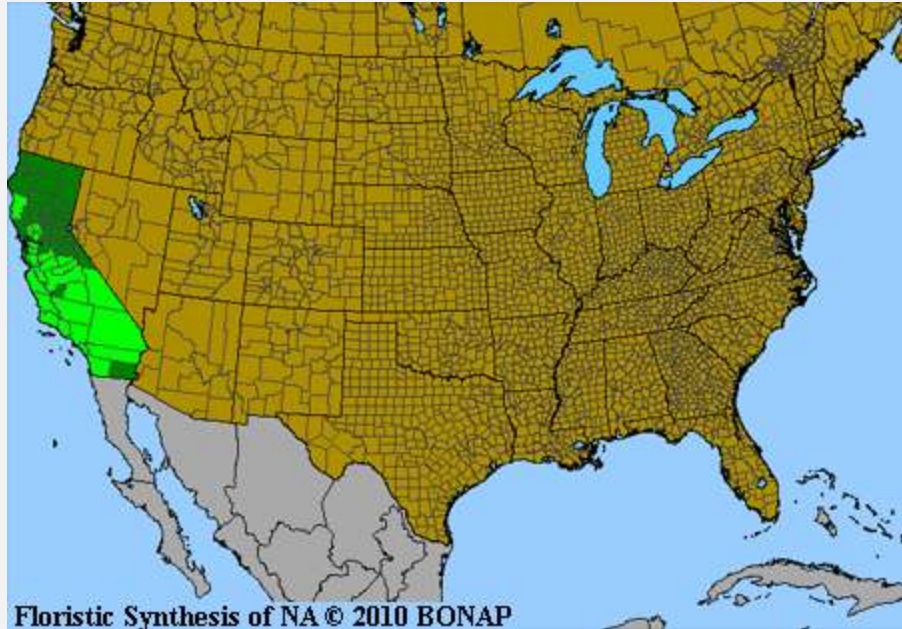
Asclepias oenotheroides



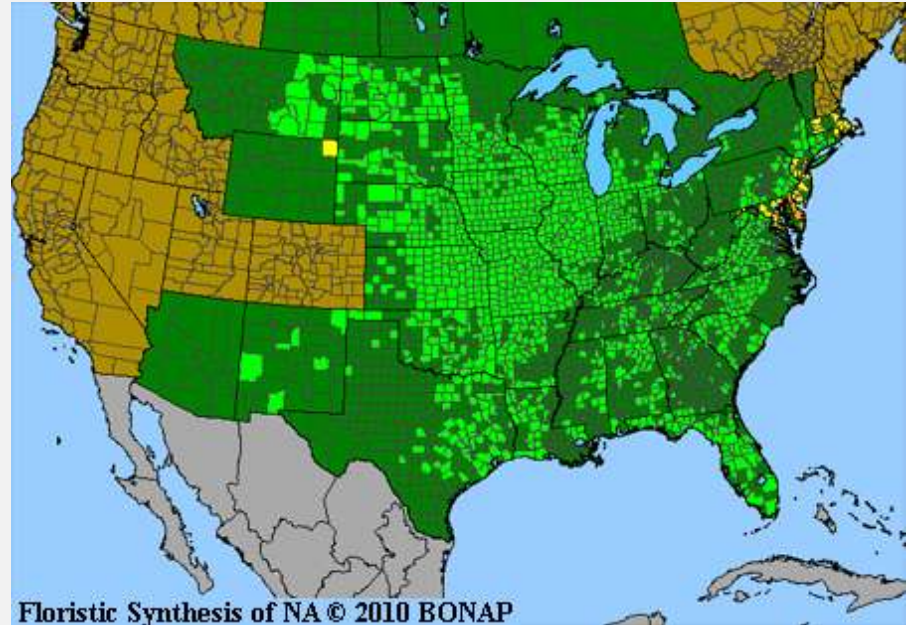
Asclepias viridis



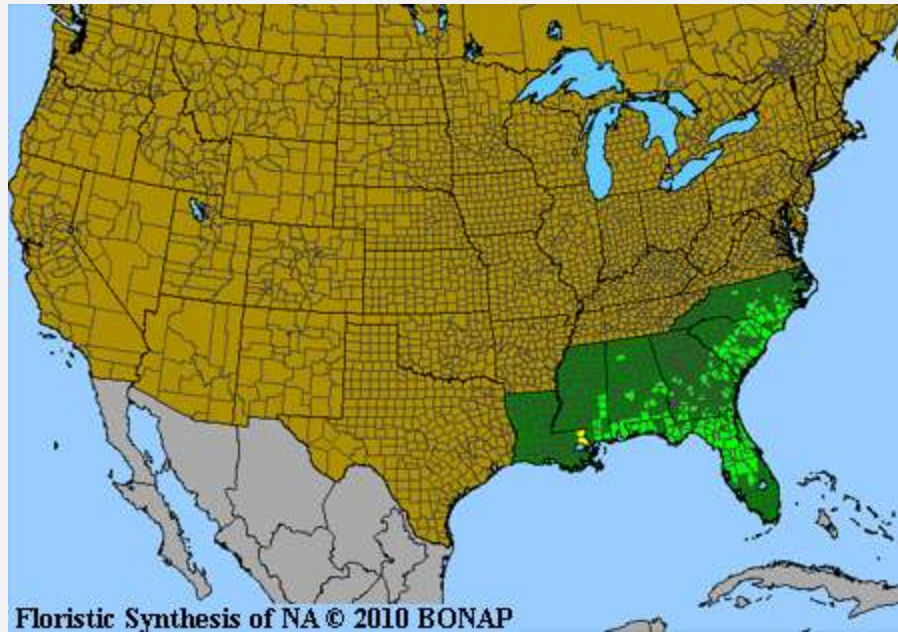
Asclepias fascicularis



Asclepias californica



Asclepias verticillata



Asclepias humistrata