

Milkweed for Monarchs



Sheila Murray, Research Botanist



Seeds of Success

- 5-year agreement with BLM to collect for CPNPP, AZ Strip and Mojave regions, with partial funding through NFWF
- Goal: 21+ collections
- 8 collected in 2017
- 2018 focus on Mojave region spring species
- Volunteers as in-kind match

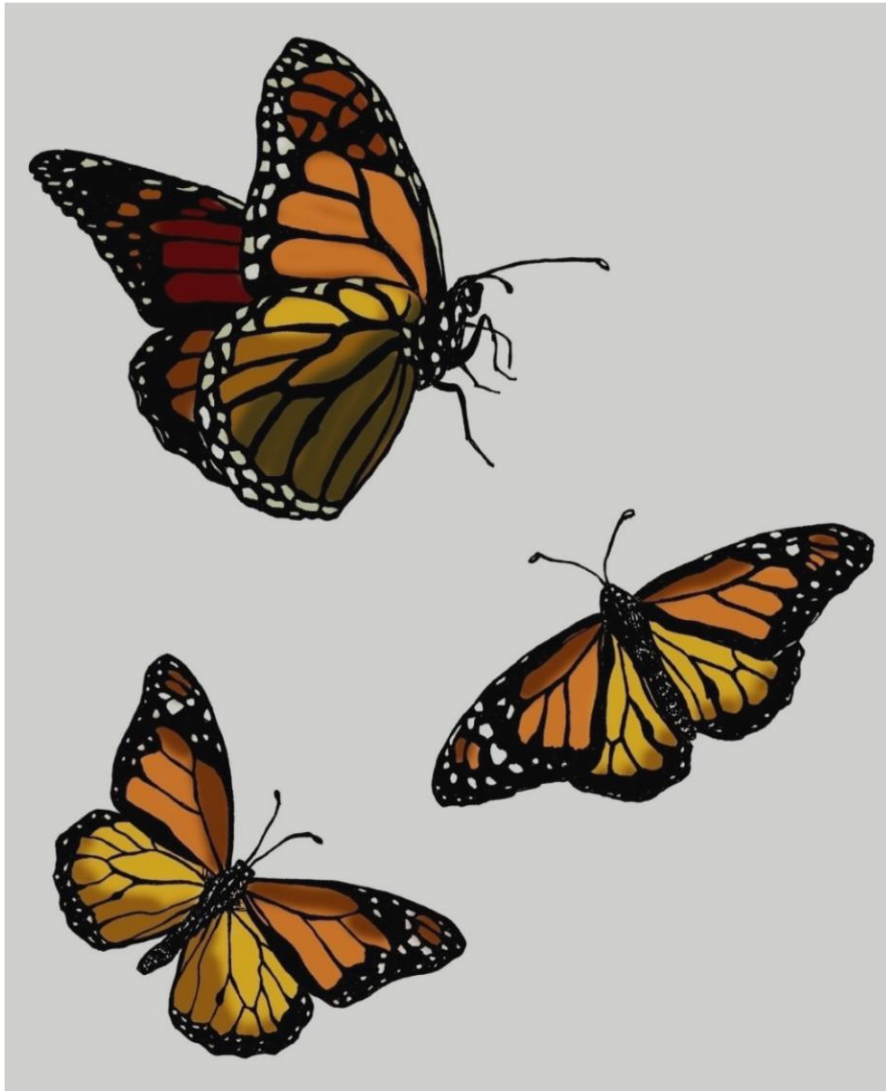


Separate funding, similar goals

- USFWS Partners For Fish and Wildlife Program
- Goals similar to the BLM National Seed Strategy:
 - Action #1.3.1: Expand and improve facilities and plant production capability
 - Action #2.2.3: Develop species specific protocols for seed and seedling production
- Goals similar to the BLM NFWF Pollinator Initiative:
 - Collect food and nectar plants for monarchs
 - Seed production
 - Education outreach



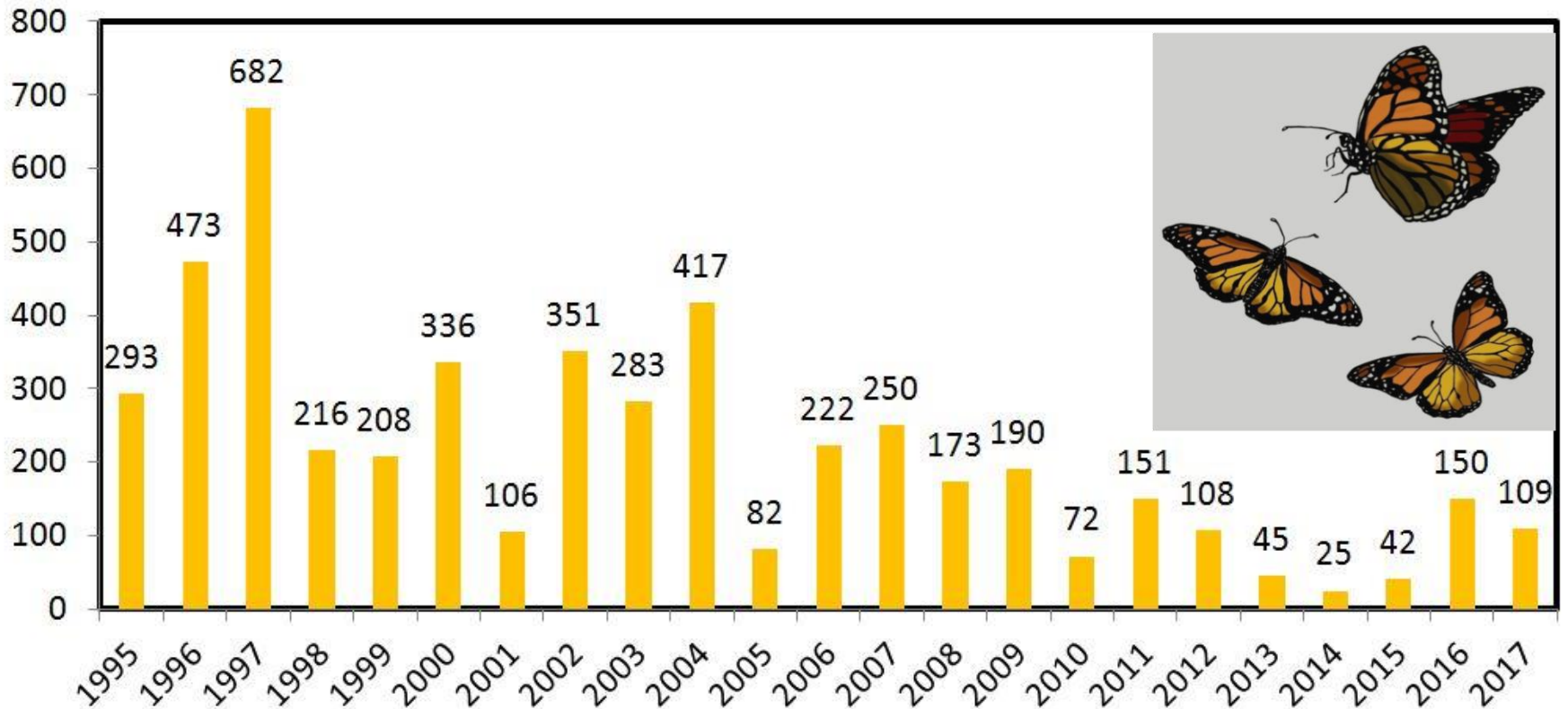
Monarch Decline



- Monarchs have declined by 80% over the past two decades
- An 80% decline points to extinction if not acted upon
- USFWS to make a decision by June 2019
- Decisions include: proposing protection, denying protection, or placing on Candidate waiting list

Monarch Decline

Monarch Population in Millions



Why Are Monarchs Declining?

- Habitat & food source loss
- Urban development and aggressive roadside “weed” elimination through mowing and herbicide
- Challenging to replace milkweed due to limited sources for seed and plants
- Perception that milkweed species are invasive and dangerous prohibits support



Showy milkweed with monarch butterfly (*Danaus plexippus*), honey bee, and leafcutter bee. (Photo: John Anderson, Hedgerow Farms, Inc.)

Genus *Asclepias*

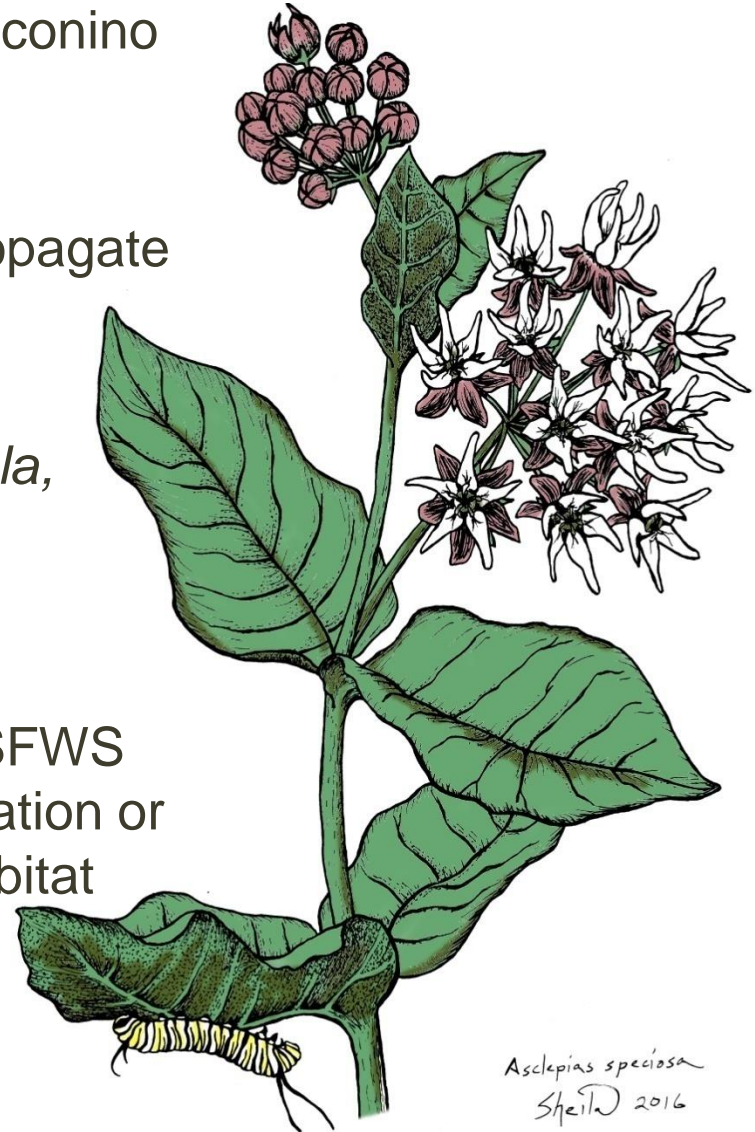
- 72 species native to North America
- deserts, swamps, forests, grasslands & prairies
- endemic species in soils rich in serpentine, iron & magnesium
- Texas (37 spp.) and Arizona (29 spp.) have the highest diversity
- AZ, CA, TX, FL, UT are the only states with endemic milkweed species



Showy milkweed with western tiger swallowtail. (Photo: Claudia Street, Lake County Farm Bureau.)

Project Overview

- U.S. Fish and Wildlife Service and Coconino Master Gardener Association funds
- Collect wild AZ *Asclepias* species, propagate and establish seed production beds
- Establish 300 individuals of *A. asperula*, *A. speciosa*, *A. subverticillata*, and *A. tuberosa*
- Resulting seed to be distributed to USFWS and other interested parties for restoration or enhancement of Monarch butterfly habitat
- Interpretation at The Arboretum





Arb Partners



USFWS- Grant, shares common goal of special status species conservation

Monarch Watch- Waystation Program

USFS- The Arb currently is a permit holder for forest service land where we will locate wild milkweed populations for seed collection



www.fws.gov/savethemonarch

The USFWS supports The Arboretum at Flagstaff's efforts in monarch butterfly habitat restoration. Agreement goals are to increase milkweed on Arboretum grounds, become a reliable seed supplier for USFWS and others interested in locally sourced milkweed restoration plant materials, and to expand public education about monarchs and milkweeds through interpretive signs on Arboretum grounds, partnerships with schools, and active participation in presentations and talks.

- The Arboretum is forming an agreement with the Flagstaff Unified School District to donate plants to schools interested in engaging students in monarch and wild pollinator habitat restoration.

www.monarchwatch.org

Monarch Waystations:
Habitats that provide
resources necessary for
monarchs to produce
successive generations
and sustain their
migration.

The need for host plants
for larvae and nectar
plants as energy sources
for adults applies to all
monarch and butterfly
populations around the
world.



Monarch Watch A Nonprofit Educational Outreach Program Based at the University of Kansas

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Waystation Certification Application

A non-refundable application fee of \$16 is required for each habitat you would like to certify - this helps offset the costs associated with processing your application (including adding your habitat to the online registry) and also helps support Monarch Watch's conservation efforts.

Please note that you can also purchase a weatherproof sign to identify your monarch habitat as an official Monarch Watch waystation [here](#) separately after completing your registration or opt for the [certification and sign bundle](#).

Registrant Name(s) exactly as you would like it/them to appear on the certificate *

Habitat Name (Be creative! e.g., "The Monarch Inn", "Grandma's Garden", etc.) (optional)

Habitat City *

Habitat State/Province *

Habitat Zip/Postal Code *



http://www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/index.shtml

The Arboretum is a permit holder with the USFS to allow collection of wild provenance seed from the National Forests of Arizona and New Mexico.

- The USFS supports a program called The Monarch Joint Venture (MJV)
 - Partnership of federal and state agencies, non-governmental organizations, and academic programs
 - Support and coordinate efforts to protect the monarch migration across the lower 48 United States
 - The MJV is committed to a science-based approach to monarch conservation work, guided by the North American Monarch Conservation Plan (2008)
- Taking an active role in public outreach and conservation by creating pollinator habitat gardens

Our Strategy

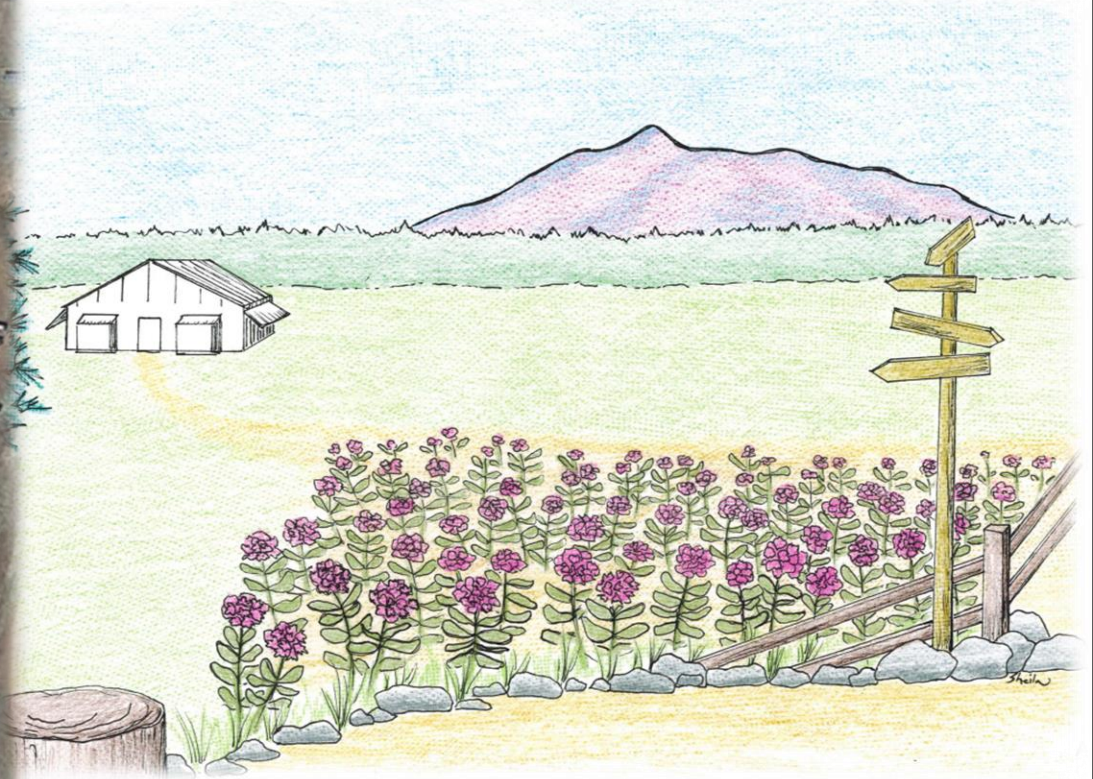
- Locate wild plant populations
- Collect seed (never take more than 20% from wild sources)
- Cultivate plants
- Plant in Arboretum gardens
- Establish grow-out beds for seed harvest
- Provide plants and seed for sale and donation
- Research and monitoring of wild and cultivated plants

FOREST PRODUCTS FREE USE PERMIT
PERSONAL USE ONLY (Not for Resale)
(Ref. FSM 2460 and FSH 2409.18)
DEPARTMENT OF AGRICULTURE – FOREST SERVICE

Address:	Permit No.	Prepared
	50-207	03
	Effective Date	
Load	5/15/15	
	Number: NA	
License	All national for	
	(Arizona, New	



Grow-Out Beds



Planted June 2016

Grow-Out Beds



June 2018

Grow-Out Beds



June 2018



The Greenhouse

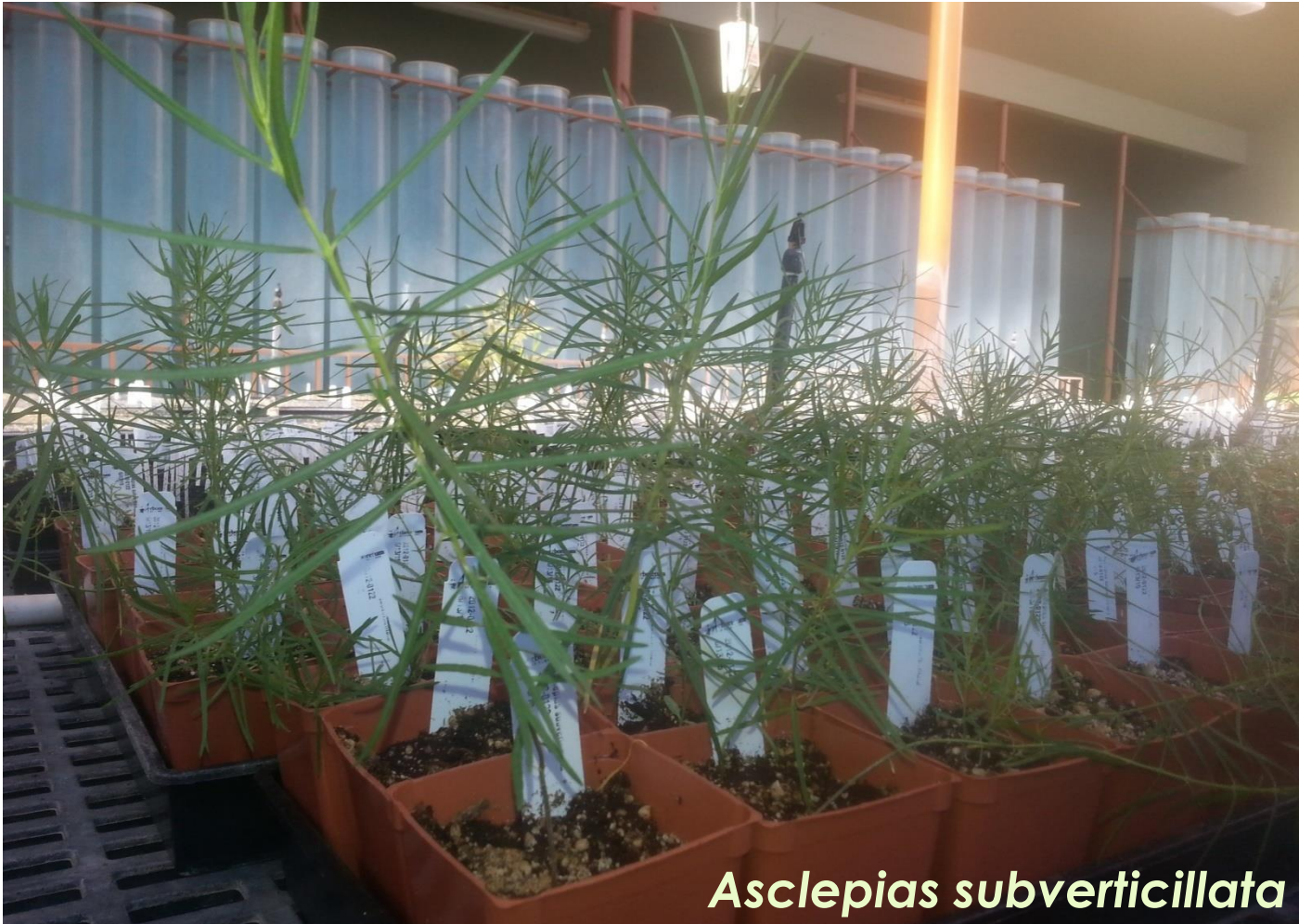
The Arboretum greenhouses & gardens are open to the public.



THE **Arboretum**
AT FLAGSTAFF

Cultivation

The Arboretum propagates 4 milkweed species native to Northern Arizona: *Asclepias subverticillata*, *A. speciosa*, *A. tuberosa*, and *A. asperula*.



Asclepias subverticillata

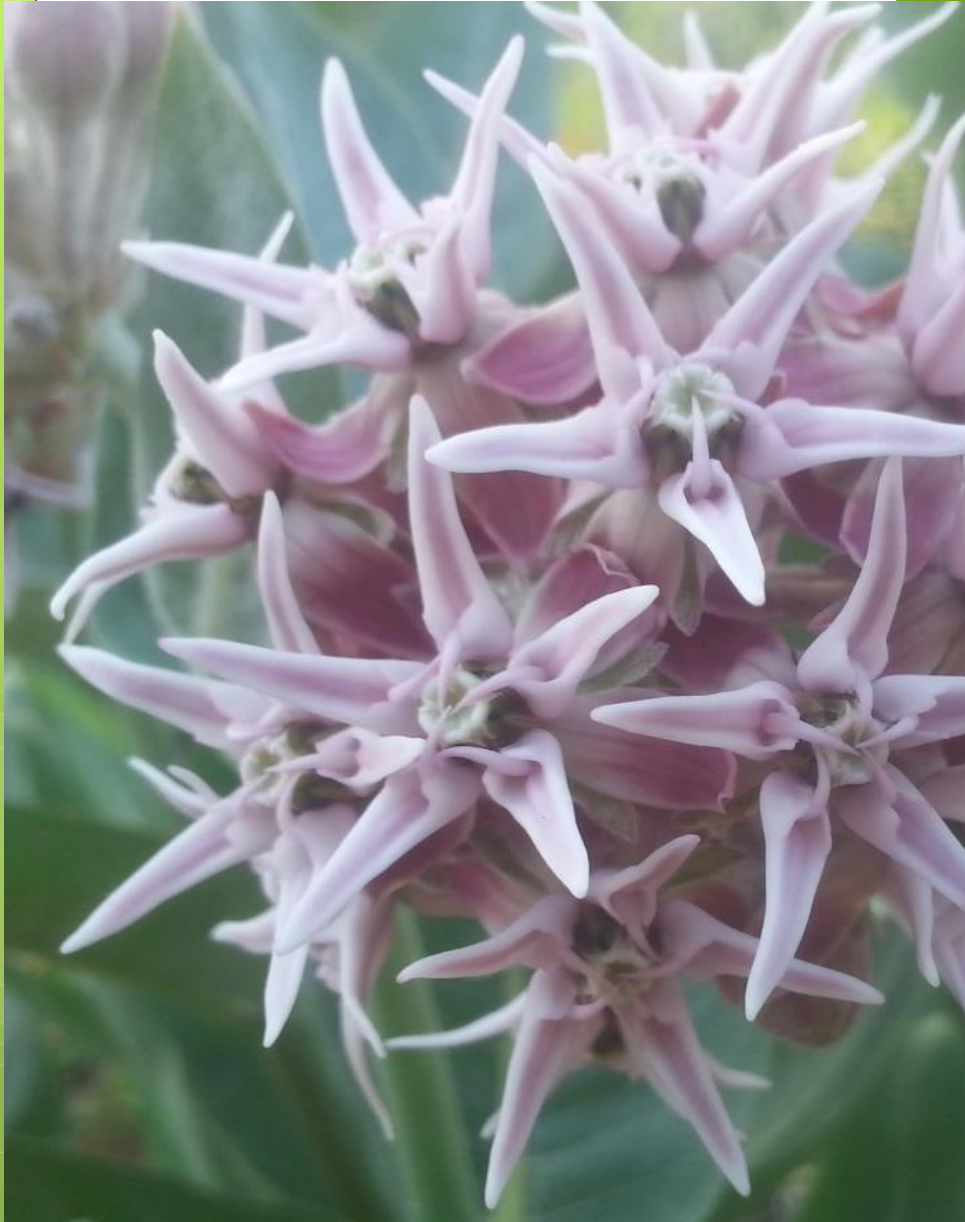
Asclepias subverticillata



Asclepias tuberosa



Asclepias speciosa



Asclepias asperula



Milkweed Pests

- Mediterranean Oleander Aphid (*Aphis nerii*)
- Rusts
- Milkweed Bugs (*Oncopeltus fasciatus*)
- **Milkweed Tussock Moth (*Euchaetes egle*)**
- Leaf beetles, fungus, leaf spot.....

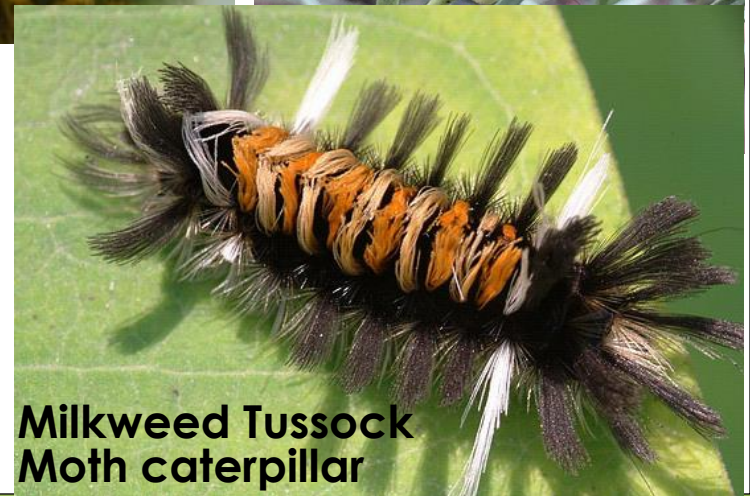
Aphids



Rust



Milkweed Bugs



Milkweed Tussock Moth caterpillar

Outreach

- Future Monarch Waystation in Picture Canyon (City of Flagstaff 500 acre preserve)
- Talks and Presentations 2017:
 - 14 different community events
 - 2491 total in attendance

Education

The Arboretum is expanding interpretive signs in some gardens to expand public understanding of native plants and pollinators.





Pollinator Garden

Milkweed for Monarchs Grow-Out Garden Interpretation



Monarch Butterfly Habitat Restoration: Producing a Local Seed Source

The Monarch butterfly has experienced drastic declines in numbers in the past 20 years, and has been petitioned for listing under the Endangered Species Act.



Milkweed (*Asclepias spp.*) is the only plant on which Monarch butterflies lay their eggs, and is the only food source for their larvae.

To complete their incredible North American migration, the butterflies need patches of milkweed habitat all along their route.

The Arboretum at Flagstaff is propagating and establishing seed production beds of locally sourced milkweed. These production beds will provide a source of seed and serve as habitat for monarchs in our area.



Illustrations and Photos by Sheila Murray,
Research Botanist, The Arboretum at Flagstaff

Funding for this project was provided
by The USFWS through the Partners for
Fish and Wildlife Program and by the
Coconino Master Gardeners Association.



Resources



- ◉ www.fws.gov/savethemonarch/
- ◉ www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/index.shtml
- ◉ www.monarchwatch.org/index.html
- ◉ www.xerces.org/wpcontent/uploads/2015/03/NatureServe-Xerces_monarchs_USFS-final.pdf

For more info or volunteer
opportunities:

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www.thearb.org

