

MONARCH BUTTERFLY LIFE CYCLE AND CONSERVATION



This presentation adapted from slides prepared by a collaboration of the University of Minnesota Monarch Lab., Monarch Joint Venture and the U.S. Fish and Wildlife Service

MONARCH LIFE CYCLE





Egg

First
Instar

Fifth Instar

Instar: Period between larval molts.
Monarchs have 5 instars.

NEW MONARCH CHRYSALIS



MONARCH READY TO ECLOSE



VIDEO OF MONARCH EMERGING FROM CHRYSALIS

USFWS Video available at:
<https://www.youtube.com/watch?v=uxIf3YleztI>

WHICH IS A MALE AND WHICH IS A FEMALE?



Female

Tom Koerner/USFWS

Male



Katherine Dreas/USFWS

CAN YOU TELL A MONARCH BUTTERFLY FROM A VICEROY?

MONARCH



Joanna Gilkeson/USFWS

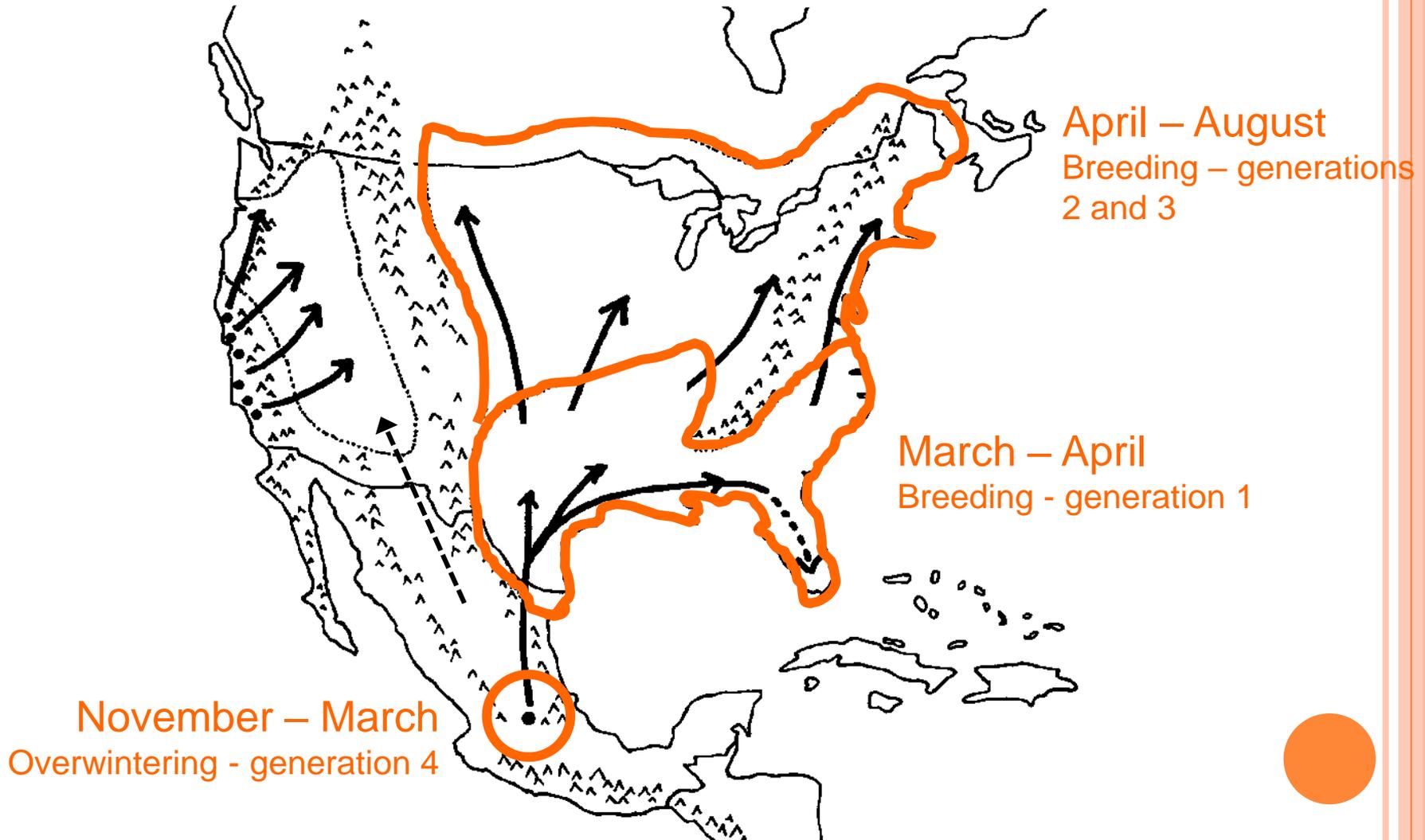
VICEROY



Thomas Barnes/University of Kentucky

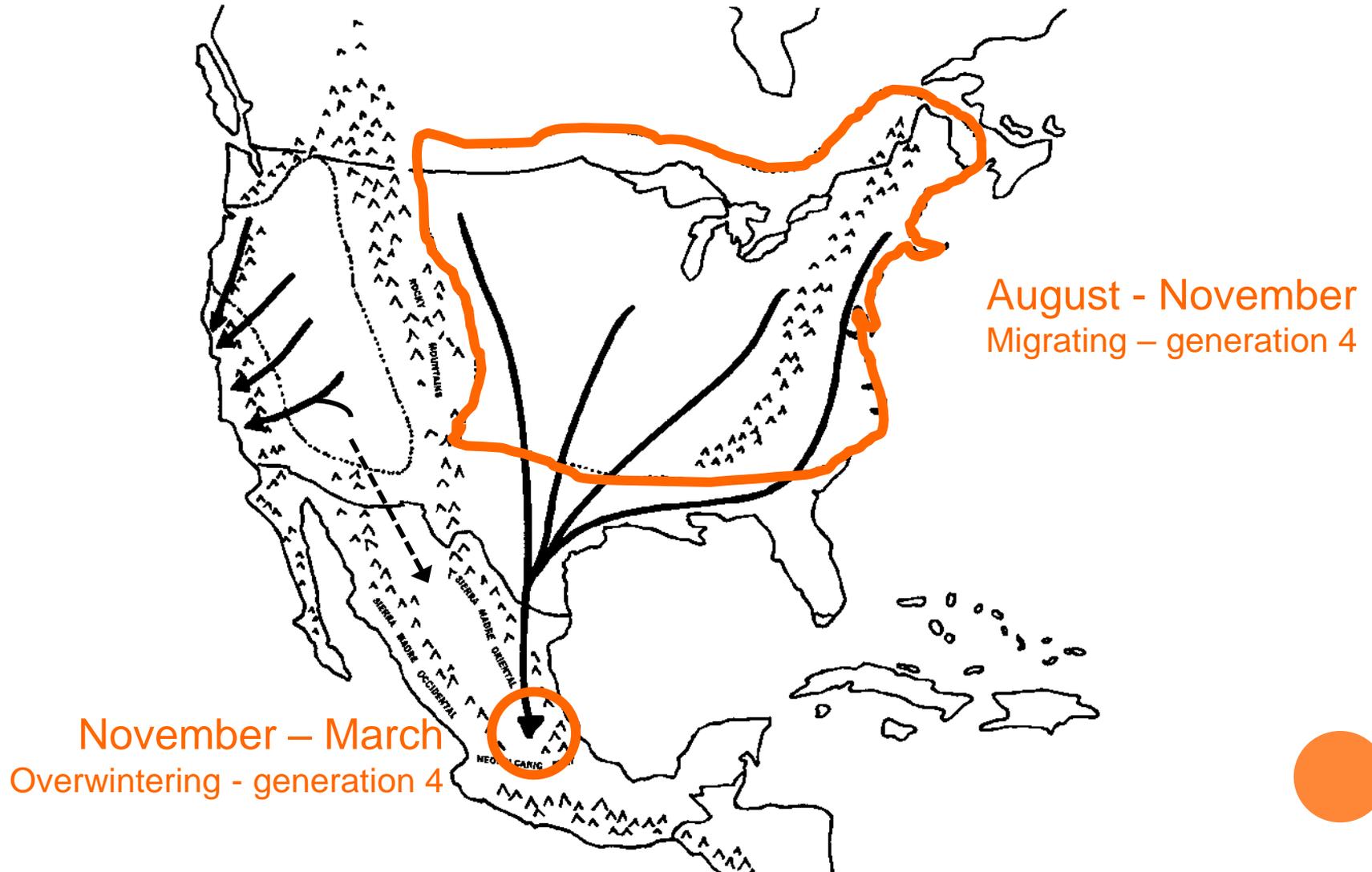
SPRING MIGRATION AND BREEDING

BREEDING GENERATIONS LIVE 2-6 WEEKS.



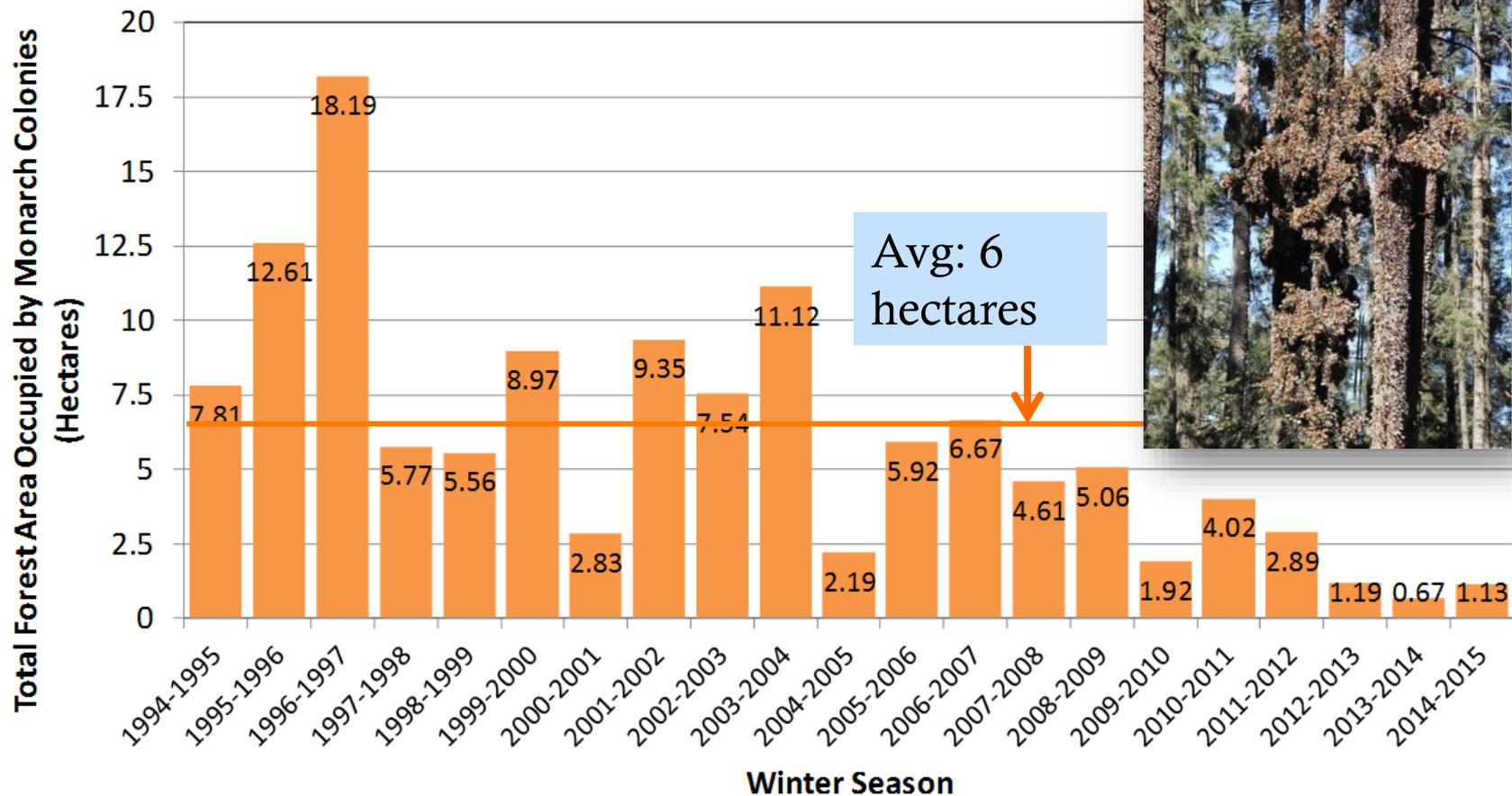
FALL MIGRATION

OVERWINTERING GENERATION LIVES UP TO 9 MONTHS



EASTERN POPULATION TRENDS

Total Area Occupied by Monarch Colonies At Overwintering Sites in Mexico
1994/1995 - 2014/2015

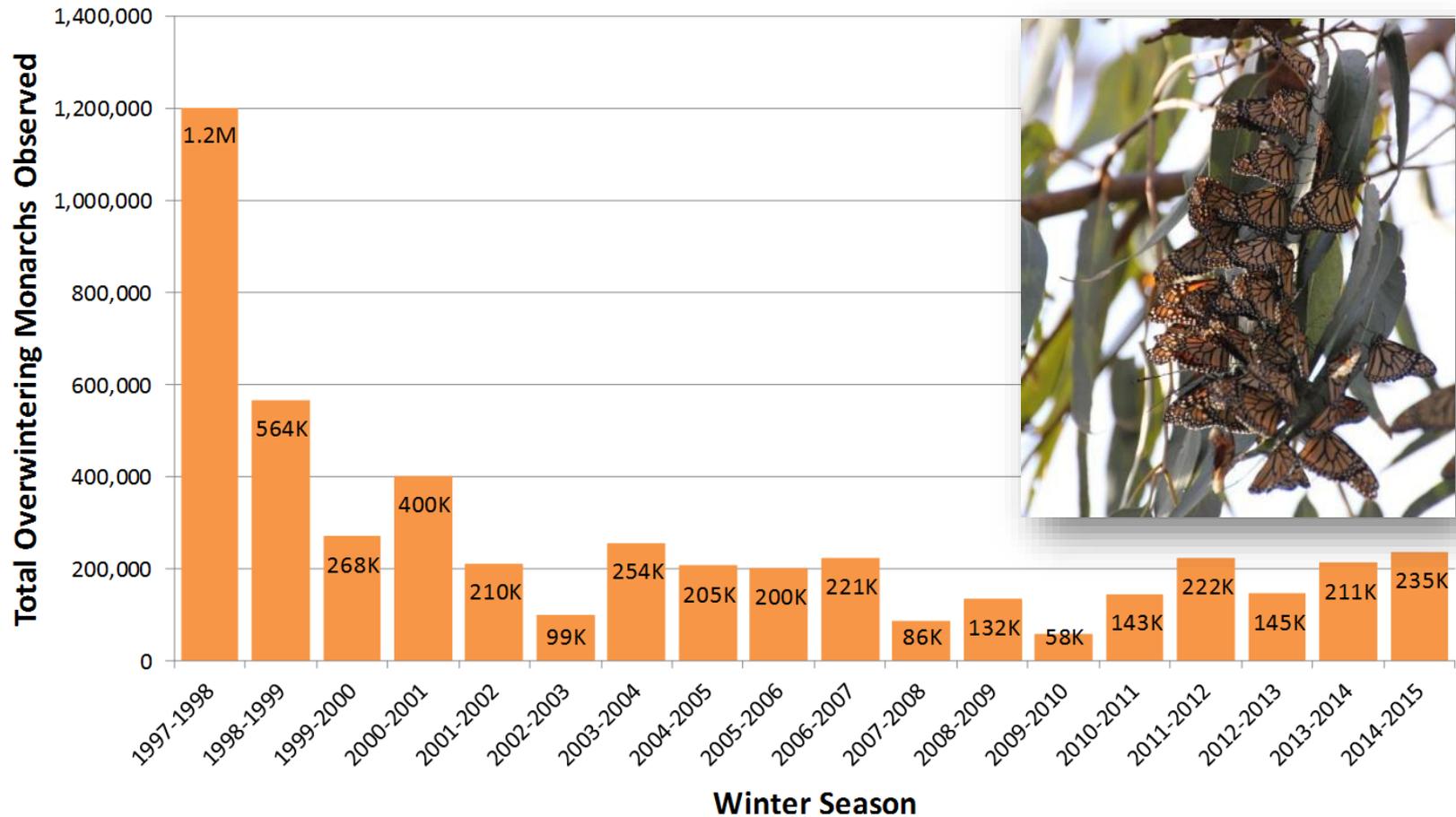


Plot courtesy of Monarch Joint Venture, using data from: WWF-Mexico & the Reserva de la Biosfera Mariposa Monarca (RBMM)

Photo: W. Caldwell

WESTERN POPULATION TRENDS

Total Western Overwintering Monarchs Observed 1997-2015



Plot courtesy of Monarch Joint Venture, using data from: Xerces Society's Thanksgiving Count Program

Photo: W. Caldwell

THREATS



HABITAT LOSS

- Development in breeding habitat
- Increased use of herbicide tolerant crops in breeding habitat
- Illegal logging in overwintering grounds



OTHER FACTORS

- Insecticides
- Climate change
- Invasive species:
Swallow-worts could
serve as monarch
“sinks”
- Increased disease
incidence
- Natural enemies



Brad Johns/USFWS



Univ. of MN Monarch Lab



HOW CAN YOU HELP?



Ryan Hagerty/USFWS



PLANT MILKWEED!



Ryan Hagerty/USFWS



Thomas G. Barnes/Univ. of KY



Tom Koerner/USFWS



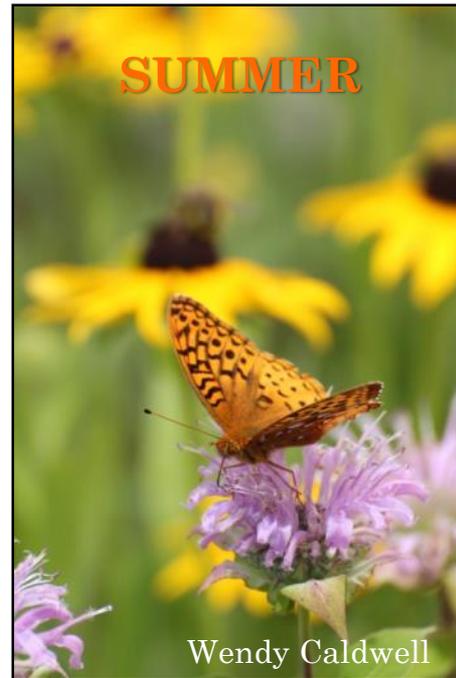
Ryan Hagerty/USFWS



Tom Koerner/USFWS

PLANT NECTAR PLANTS IN BREEDING AND MIGRATING AREAS

- Continuous bloom through the growing seasons.
- Natives are best!



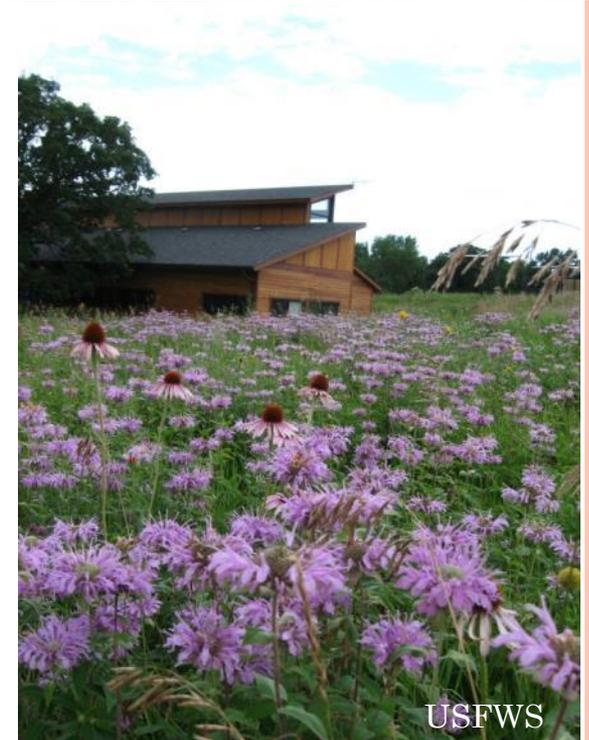
OTHER CONSIDERATIONS

- Habitat size
- Habitat connectivity
- Milkweed abundance
- Milkweed diversity
- Cover/wind break
- Non-native species
- Management



GARDEN TIPS

- Choose a site with good sun
- Choose plants that bloom throughout the entire season
- Plant in clumps
- Choose plants of differing heights
- Bushes can help reduce wind and provide a place for butterflies to shelter
- Accept some damage to plants – pollinators need to eat, too!
- Encourage beneficial insects for pest control
- Consider registering your garden as a monarch waystation or part of the million pollinator garden challenge.



AND GET INVOLVED!

- Citizen Science!
 - Any organized project involving students, teachers or the general public in scientific research



Ryan Hagerty/USFWS

Journey North

<http://www.learner.org/jnorth/monarch>

Monarch Larva Monitoring Project

<http://mlmp.org>

Project Monarch Health

<http://www.monarchparasites.org>

Monarch Watch

<http://www.monarchwatch.org>



USFWS FISH AND AQUATIC CONSERVATION STATIONS HELPING TO CONSERVE MONARCHS



Jordan River National Fish Hatchery in Michigan



is producing milkweed, as well as fish!



USFWS FISH AND AQUATIC CONSERVATION STATIONS HELPING TO CONSERVE MONARCHS

Wolf Creek National Fish Hatchery, Kentucky, is also growing milkweed



To increase monarch habitat.

USFWS



USFWS FISH AND AQUATIC CONSERVATION STATIONS HELPING TO CONSERVE MONARCHS

Many fish hatcheries are planting gardens for monarchs and other pollinators



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Jordan River
National Fish
Hatchery, Michigan,
Pollinator Garden



USFWS

Monarch butterfly sipping on milkweed nectar in Genoa National Fish Hatchery, Wisconsin, prairie habitat restoration area.

FISH AND AQUATIC CONSERVATION STATIONS HELPING TO CONSERVE MONARCHS

Habitat restoration and education



Hagerman National Fish Hatchery, Idaho, is growing milkweed from seed for habitat restoration projects.

Genoa National Fish Hatchery, Wisconsin, incorporates milkweed plantings and monarch lifecycles into the outdoor classroom curriculum for local schools.



OUR EFFORTS WILL BE WORTHWHILE!



Tom Koerner USFWS

- Monarchs use both disturbed and pristine habitats
- Efforts will help monarchs, as well as many other pollinators that share their habitat.
- Monarch migration is unparalleled!



RESOURCES

General

- www.fws.gov/savethemonarch
- www.fws.gov/pollinators
- www.monarchjointventure

Gardening/Habitat for Monarchs

- www.plantmilkweed.org
- <http://monarchjointventure.org/images/uploads/documents/GardeningforMonarchs.pdf>

Milkweed

- <http://monarchjointventure.org/images/uploads/documents/MilkweedFactSheetFINAL.pdf>
- <http://www.xerces.org/milkweed-seed-finder/>
- <http://monarchwatch.org/milkweed/market/>
- <http://www.xerces.org/milkweeds-a-conservation-practitioners-guide/>



RESOURCES

Nectar Plants

- <http://www.pollinator.org/guides.htm>
- <http://www.plantnative.org/>:
- <http://www.wildflower.org/>

Pest Control

- [http://www.fws.gov/pollinators/pdfs/Reducing Risks to Pollinators from Pest Control factsheet.pdf](http://www.fws.gov/pollinators/pdfs/Reducing_Risks_to_Pollinators_from_Pest_Control_factsheet.pdf)

Citizen Science

- <http://monarchjointventure.org/get-involved/study-monarchs-citizen-science-opportunities/>

Garden Certification

- <http://www.monarchwatch.org/waystations/certify.html>
- <http://millionpollinatorgardens.org/>



THANKS TO:



- Monarch Joint Venture



- University of Minnesota Monarch Lab



- U.S. Fish and Wildlife Service



for photos and factual materials for this presentation.

Final content was determined by your presenter and all opinions expressed were those of your presenter.

