

POLLINATORS

WHAT'S THE BUZZ?



Photo of the rusty patched bumble
bee in Wisconsin (2015), ©Clay Bolt



SUE DEES HARGROVE
KIMBERLY KESSINGER
STEPHANIE DOBBS
JAN PILAND

Animal Pollinators



- ❖ Birds
- ❖ Bats
- ❖ Insects
 - ❖ Bees
 - ❖ Wasps
 - ❖ Flies
 - ❖ Beetles
 - ❖ Moths
 - ❖ Butterflies

WHAT'S THE BUZZ?



Monarch, Bees, and Other Pollinators Declining in Numbers

2013- Honey bee population down 30.6% nationwide

2016- Ice storm devastates Monarch population

2017 Rusty Patched Bumblebee Expected Listing as Federally Endangered

Environmental Stressors

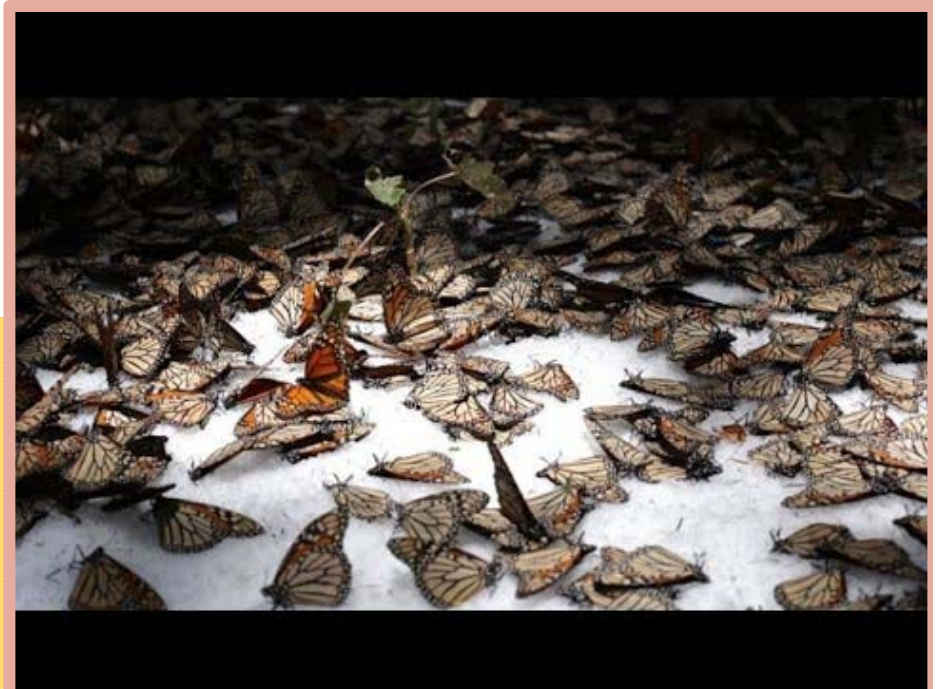
- Nature (Winter weather, storms, late/early frosts)

Habitat destruction

- Milkweed only food plant for Monarch caterpillars
- Fragmentation due to crop production and urban development
- Increased pesticide and herbicide uses
- Invasive species
- Parasites



Varroa mite





IMPORTANCE OF POLLINATORS

Why Should We Care About What Happens to the Pollinators?

- In the US over 100 crop plants depend on pollinators (>\$15 Billion annually)
- Xerxes Society says “Over 1/3 of ag crops worldwide are pollinated by bees ...annually contributing billions of dollars to the global economy”
- More than 75% of flowering plants depend on pollinators
- 80% - 90% of all plants on Earth will be lost if we lose our pollinators
- 1 in 3 bites of food we eat is directly attributed to animal pollination





Your produce choices
with bees



Your produce choices
without bees

Rusty Patched Bumblebee - 2017 Expected Listing as Federally Endangered

- One of 47 native species of bumblebee in North America
- Populations once spanned 28 states
- Since 2000, only 13 states reported sightings of this bee, Illinois included



Counties where the Rusty Patched Bumblebee is listed or known to occur:

Cook DuPage Lake Kane McHenry

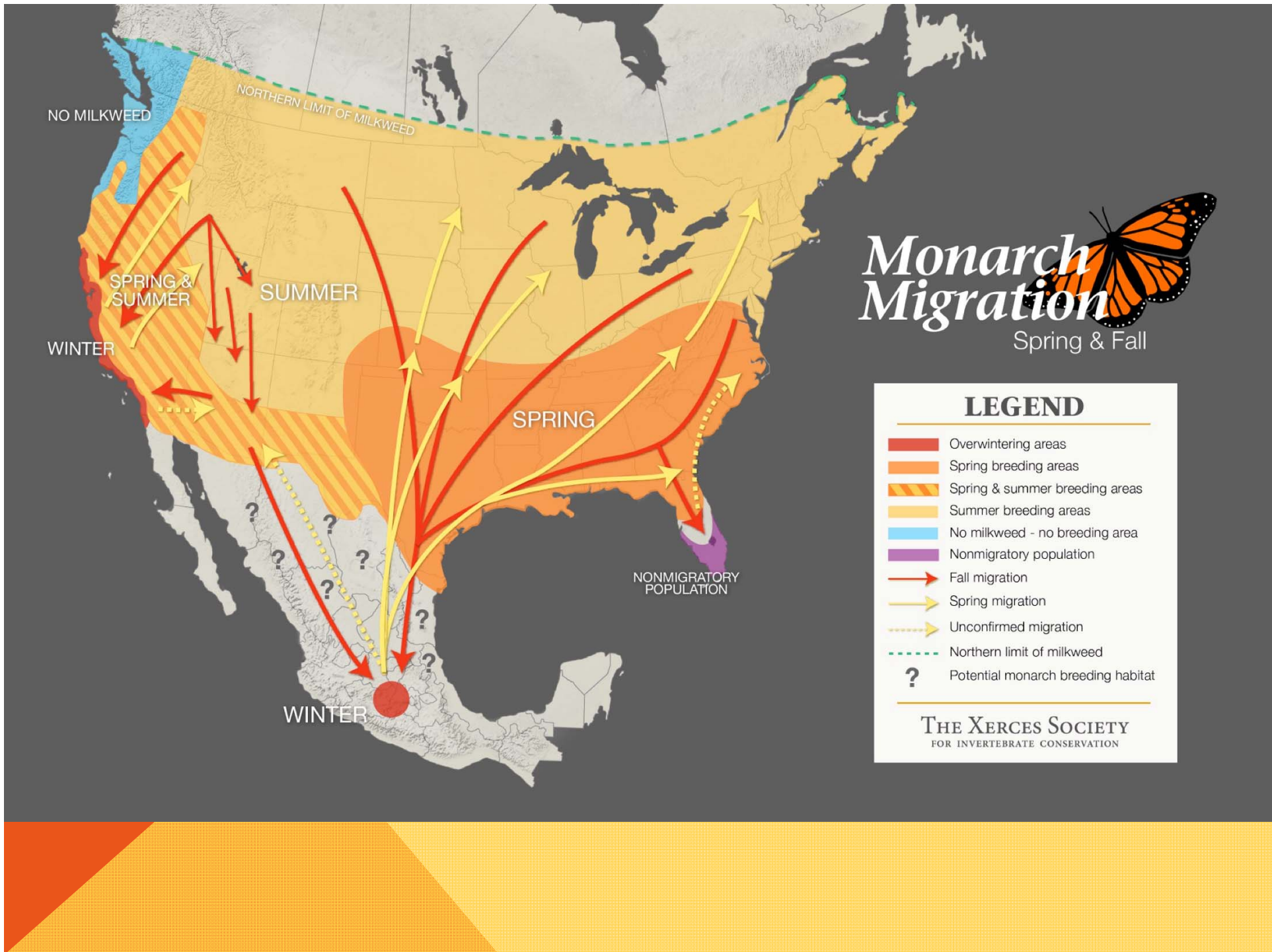
Jo Daviess Lee Ogle Winnebago LaSalle Peoria

Dewitt Champaign Macon

Districts 1,2,3,4,5,7



Additional counties will be added as more data becomes available



NO MILKWEED

NORTHERN LIMIT OF MILKWEED

SPRING & SUMMER

SUMMER

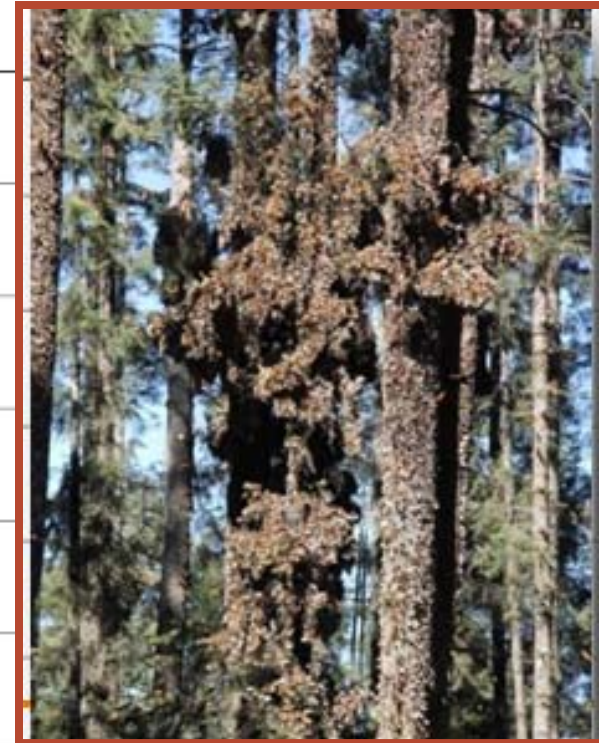
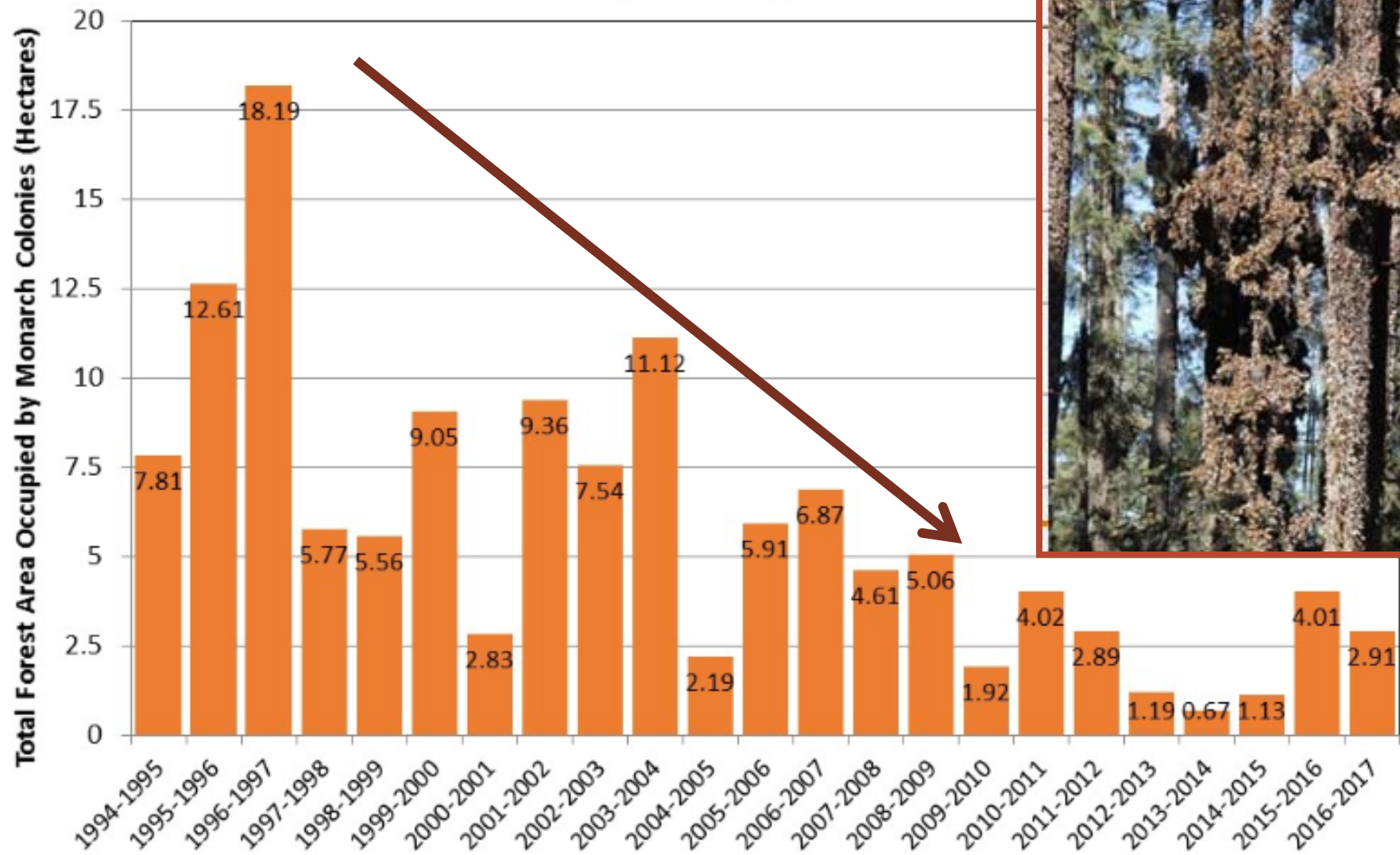
WINTER

SPRING

NONMIGRATORY POPULATION

WINTER

Total Area Occupied by Monarch Colonies At Overwintering Sites in Mexico 1994/1995 - 2016/2017



Data from 1994-2003 were collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Protected Natural Areas (CONANP) in Mexico. Data from 2004-2016 were collected by the WWF-Telcel Alliance, in coordination with the Directorate of the MBBR. 2000-01 population number as reported by Garcia-Serrano et al (The Monarch Butterfly: Biology and Conservation, 2004)

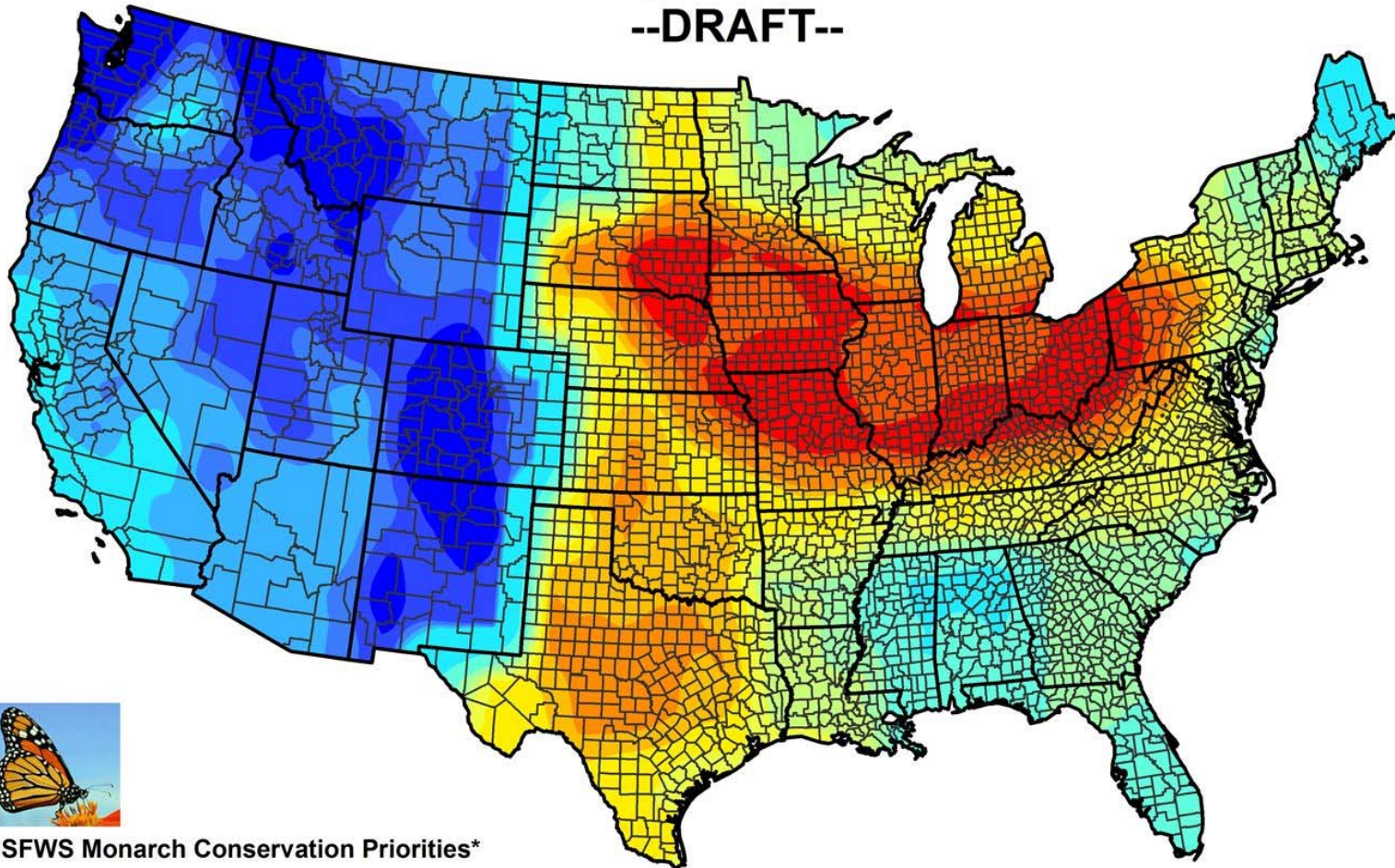
Monarch Proposed for Listing - Final Decision To be Made by June 2019



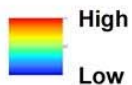
U.S. Fish & Wildlife Service

USFWS Monarch Butterfly National Conservation Priorities

--DRAFT--



USFWS Monarch Conservation Priorities*



**This map is intended to inform U.S. Fish and Wildlife Service national-scale monarch butterfly conservation work. It was created using tools developed by the USGS-led Monarch Conservation Science Partnership, in this case highlighting priorities for maximizing overwintering population-level outcomes through a combination of focusing on geographic priorities, opportunity areas, and threats to be avoided. This is a DRAFT version and can be re-scaled or customized for different decisions and/or scales; updates will be ongoing, using the best available science.*

What Does USFWS Legislation Say About Pollinators?

USFWS Regional Plan

- ❖ Midwest states enter into a combined Conservation Plan for pollinator species
 - ❖ Illinois Statewide Conservation Plan
 - ❖ IDOT owns the most land in the state
 - ❖ All the initiatives IDOT takes, go into the larger state and regional plans



WHAT ARE OTHER STATE DOTs DOING?

Monarch Highway along Interstate 35

- MOU among 6 State DOTs: MO, MN, TX, IA, OK, KS
- Effort to establish Best Management Practices (BMPs) that promote public awareness of monarch butterfly, honey bee, and pollinator conservation
- Does not create obligation or funding



What Does FHWA Legislation Say About Pollinators?

- 1987 STURAA required 0.25% project landscape funding for native wildflowers
- 1999 FHWA Guidance on Invasive Species
- Aug. 10, 2005 SAFETEA-LU added provision for control of noxious weeds and establishing native species (23 USC 329)
- “Transportation Alternatives Program” – eligible activities include “vegetation management practices in transportation rights-of-way to...prevent against invasive species” (23 USC 213(b), 101(a)(29)(E)(iii))
- *June 20, 2014: Presidential Memorandum Creating a Federal Strategy to Promote Honey Bee and Other Pollinators*
- *Dec. 4, 2015 Fixing America’s Surface Transportation (FAST) Act*
- *March 25, 2016 FHWA Administrator memo Improving Habitat for Pollinators*
- Dec. 5, 2016 EO 13112 - Invasive Species
- https://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_pollinators.asp



JUNE 20, 2014 PRESIDENTIAL MEMORANDUM

Creating a Federal Strategy to Promote Honey Bee and Other Pollinators



Requires that the U.S. Department of Transportation shall:

- *Evaluate its current guidance for grantees and informational resources to identify opportunities to increase pollinator habitat along roadways.*
- *Work with State DOTs and transportation associations to promote pollinator-friendly practices and corridors.*
- *Evaluate opportunities to make railways, pipelines, and transportation facilities that are privately owned and operated aware of the need to increase pollinator habitat.*



Section 1415

FAST ACT

Administrative Provisions to Encourage Pollinator Habitat and Forage on Transportation Rights-of-Way

For Federal-aid projects FHWA shall *encourage*:

1. “Integrated vegetation management practices on roadsides and other transportation rights-of-way, including reduced mowing” and
2. “Development of habitat and forage for Monarch butterflies, other native pollinators, and honey bees **through plantings** of native forbs and grasses, including noninvasive, native milkweed species that can serve as migratory way stations for butterflies and facilitate migrations of other pollinators”

March 25, 2016

FHWA Administrator memo *Improving Habitat for Pollinators*



Supports Presidential Memorandum, Section 1415

Announces FHWA publication *Pollinators and Roadsides: Best Management Practices for Managers and Decision Makers*

Strongly encourages FHWA to continue work w/ State partners

US 45 Prairie Restoration

- ❖ Cooperative Project to restore an overgrown prairie remnant
 - ❖ IDOT, Ameren, Canadian National Railroad and Pheasants Forever

<https://www.youtube.com/watch?v=dB0xb8ik25A>



Integrated Roadside Vegetation Management

5-400 Bureau of Operations Maintenance Policy— Mowing

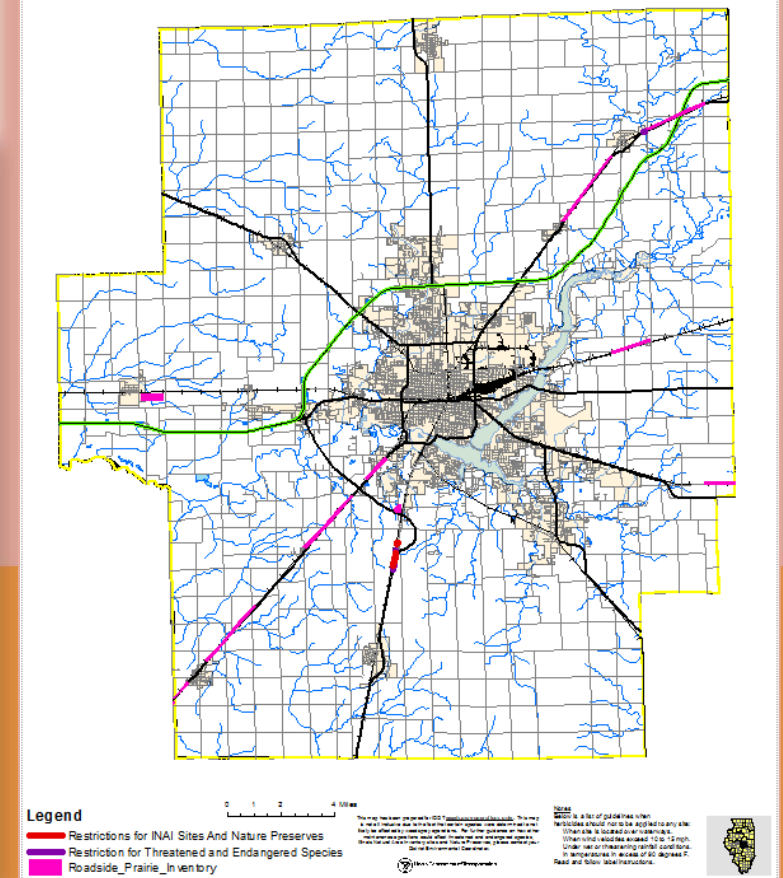
- provide wildlife habitat and to
- preserve and encourage native vegetation
- ensure a consistent and uniform appearance in the mowing along Illinois state highways.

Bureau of Design and Environment

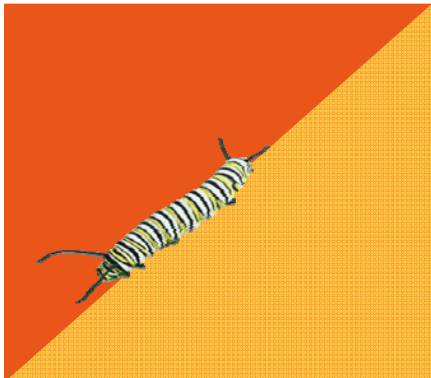
- Pesticide and Mowing Restricted Areas
 - Technical Environmental Memorandum P-3-10



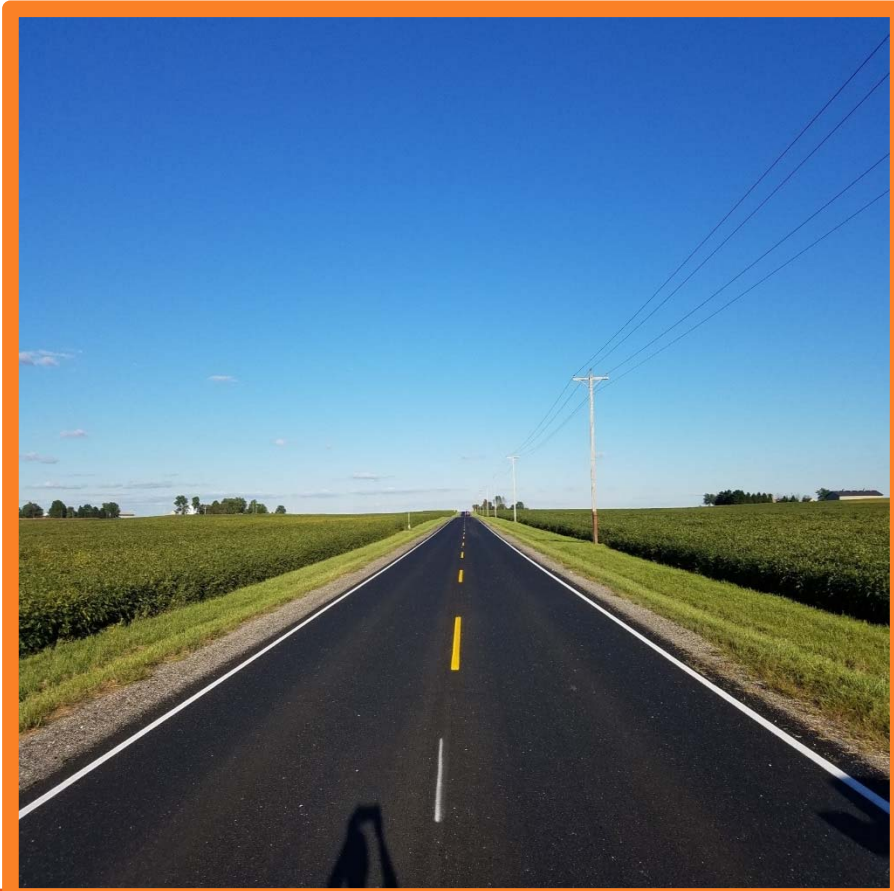
MACON County 2016 Herbicide Restriction Map



But, that looks like weeds!



To a pollinator this ...



=

Looks like this



What are the first steps to viable habitat?

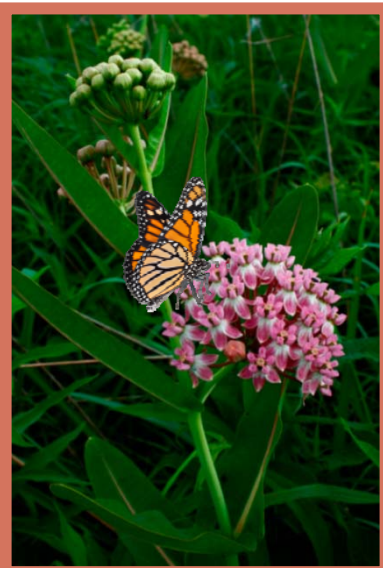
Build IRVM plans

- Identify and mark remnant and restored prairie areas
- Concentrate on North-South routes



- Clear volunteer woody growth from ROW including access control fences
- Selective herbicide use to control invasive weeds and brush
- Mark and restore habitat

Manage and evaluate IRVM plans



Selective Clearing pay items will begin being used on
Vegetation Control Contracts

- May be SQ FT or ACRE
- Will see them used on Interstates or Rest Areas first
- Will include quantities for access control fence replacement as needed
- Will include selective mowing stakes

The intent of these contracts is to restore ROW that has become overgrown with volunteer woody vegetation. When the project is complete the area of work should be clear of all woody volunteer growth and will be ready for installation of seeding for pollinator habitat.

Beginning June 2017 Letting



Monarch and Pollinator Seed Mixture



“Thirty days prior to the time of seeding, the Contractor shall provide for the approval of the Engineer, a written description for the Forbs and Monarch and Pollinator seed mix showing the percentage by weight (mass) of each of the kinds of seed. This description shall also include the following.

- a. Name and location of the seed supplier.
- b. Origin and date of harvest of each of the various kinds of seed.
- c. A statement of the purity and germination of the seeds.
- d. The estimated number of seeds/lb (kg) of each of the kinds of seed to be furnished.

The monarch and pollinator [seed] species shall be of Illinois origin or from a bordering state.”



“Table 1 - SEEDING MIXTURES

Class - Type	Seeds	lb/acre (kg/hectare)
5C Monarch and Pollinator Mixture	Milkweed Mixture (Below) 6/ Pollinator Mixture (Below) 6/	4 (4) 3 (3)”
<p>Milkweed Mixture - Mixture not exceeding 50% by weight pure, live seed of any one species of the following:</p> <p><u>Species:</u> Asclepias incarnata (Swamp Milkweed) Asclepias sullivantii (Prairie Milkweed) Asclepias syriaca (Common Milkweed) Asclepias verticillata (Whorled Milkweed) Asclepias tuberosa (Butterfly Milkweed)</p>		
<p>Pollinator Mixture - Mixture not exceeding 20% by weight pure, live seed of any one species of the following:</p> <p><u>Species:</u> Echinacea purpurea (Purple Coneflower) Gaillardia x grandiflora (Blanket Flower) Liatris pycnostachya (Prairie Blazing Star) Monarda fistulosa (Prairie Bergamot) Rudbeckia hirta (Black-Eyed Susan) Symphyotrichum novae-angliae (New England Aster)</p>		



Flying Forward Pollinator Workshops and Ongoing Efforts



2016 IL Monarch Butterfly Summit and Follow-up

3rd Annual Quad Cities Pollinator Conference Slated for 2017

Rights-of-Way as Habitat Working Group – Chicago, Illinois

- Next meeting May 3 -4, 2017
- Providing Education and Plant ID for highway maintainers
- Provide Vegetation Control training for construction personnel
- Updating the Roadside Prairie Inventory
- Establish IDOT Monarch and Pollinator Conservation Plan



OTHER POLLINATOR EFFORTS

National Cooperative Highway Research Program (NCHRP)

“Evaluating the Suitability of Roadway Corridors for Use by Monarch Butterflies”

- Determines if roadway corridors are beneficial or detrimental to monarchs
- IL, MN, MO, IA, TX, GA, NJ, CA DOTs and FHWA will work with the winning contractor
- \$350,000
- 24 month contract slated 2017-2018 field seasons
- Potential for future grants
- Contract Award Spring 2017





USFWS

Xerces Society

I35-Highway.com



Monarch Joint Venture

Illinois Department of
Agriculture

Illinois State Museum

Credits



FHWA

Pheasants Forever

IDNR

INHS

MonarchWatch.org

University of Illinois Extension



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QUESTIONS?

