



Monarch Butterfly Regulatory Update

Website - <https://www.fws.gov/savethemonarch/SSA.html>

Email - MonarchSSAComments@fws.gov

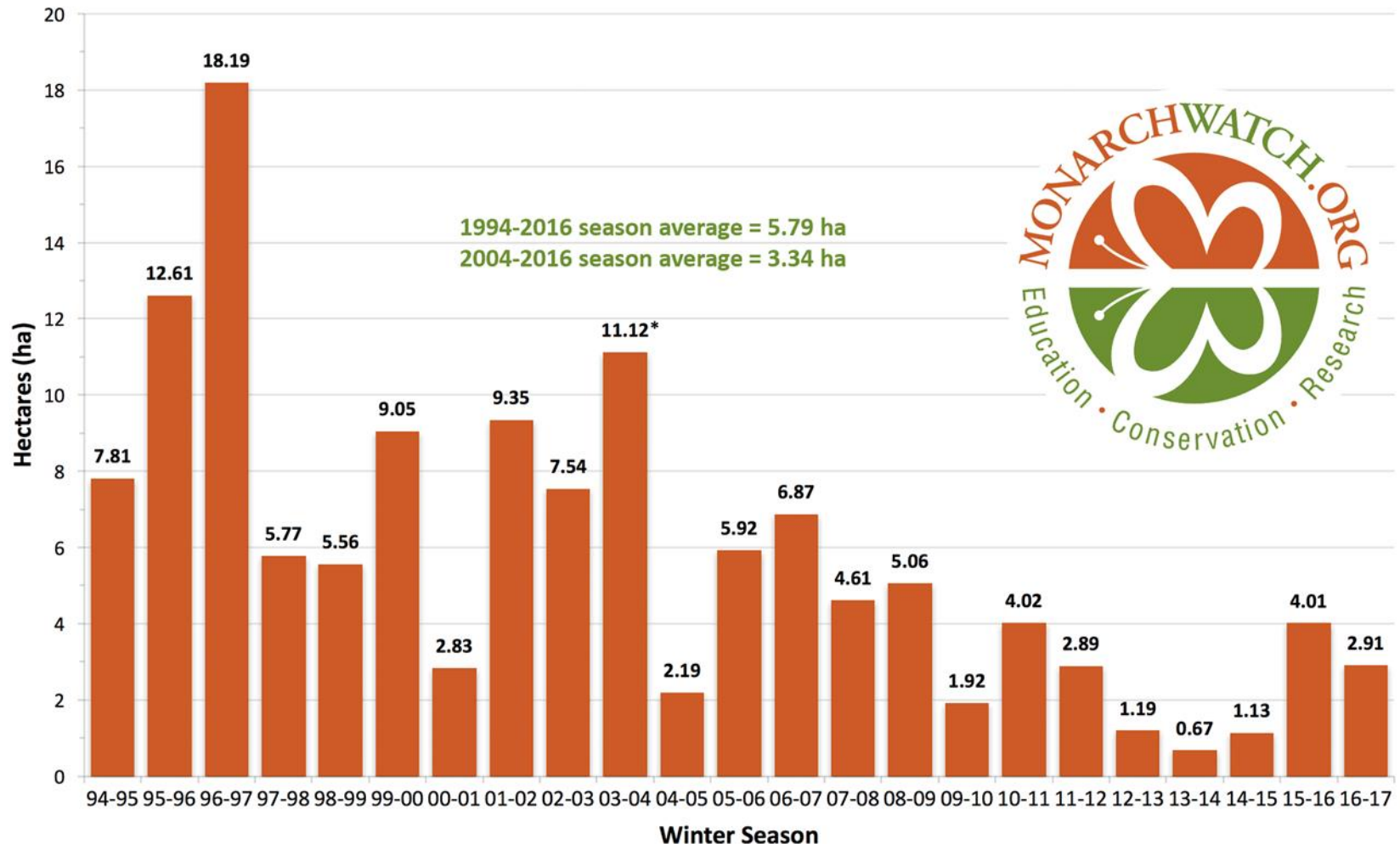
Objectives

- Provide an overview on assessment of monarch butterfly status (SSA)
- Brief overview of PECE and CCAA's
- Question and answer session



Eastern Migratory Population Trends

Total Area Occupied by Monarch Colonies at Overwintering Sites in Mexico



Data for 1994-2003 collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Natural Protected Areas (CONANP) in Mexico. Data for 2003-2016 collected by World Wildlife Fund Mexico in coordination with the Directorate of the MBBR.

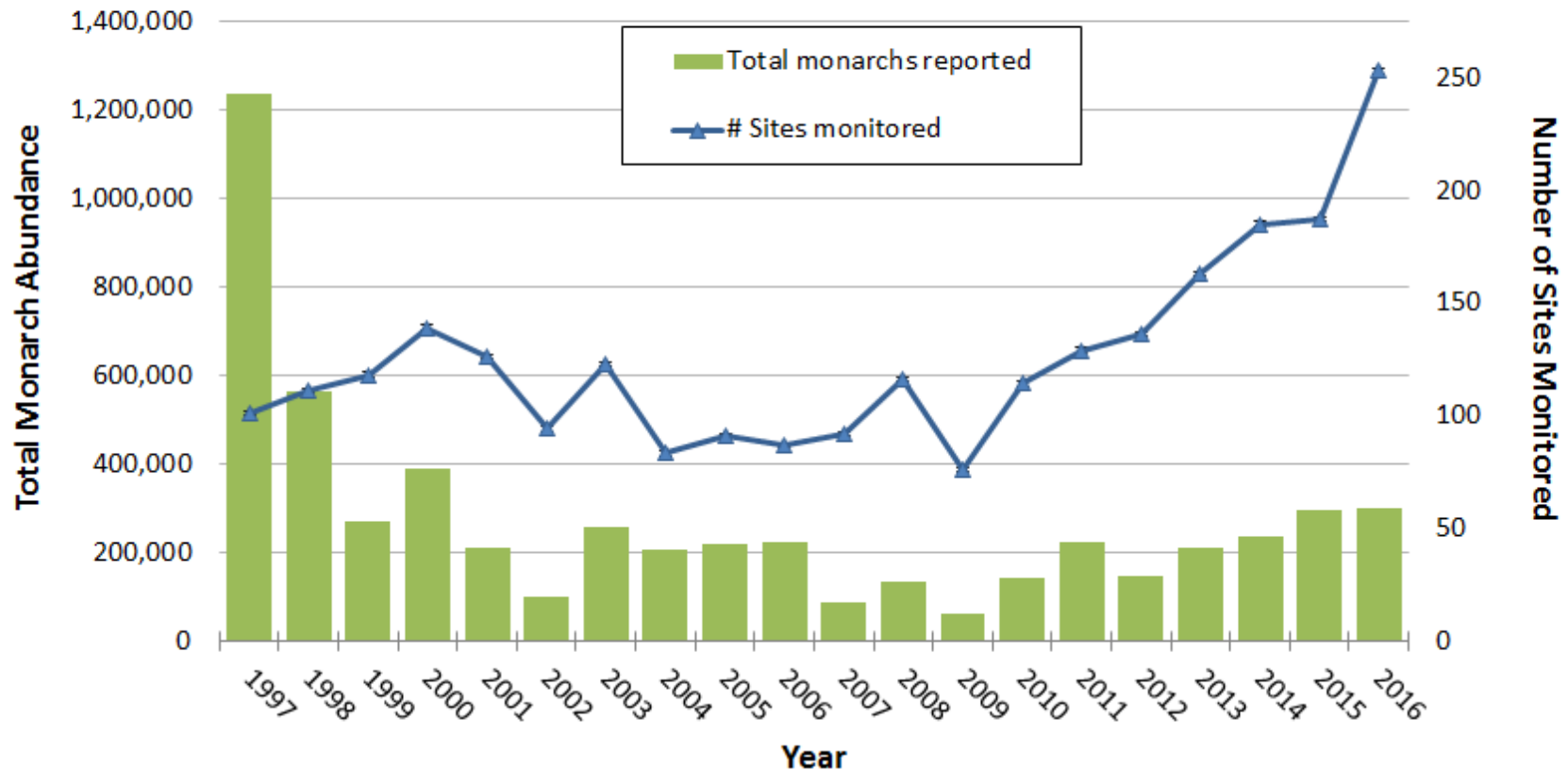
* Represents colony sizes measured in November of 2003 before the colonies consolidated. Measures obtained in January 2004 indicated the population was much smaller, possibly 8-9 hectares. CT

Western Migratory Population Trends

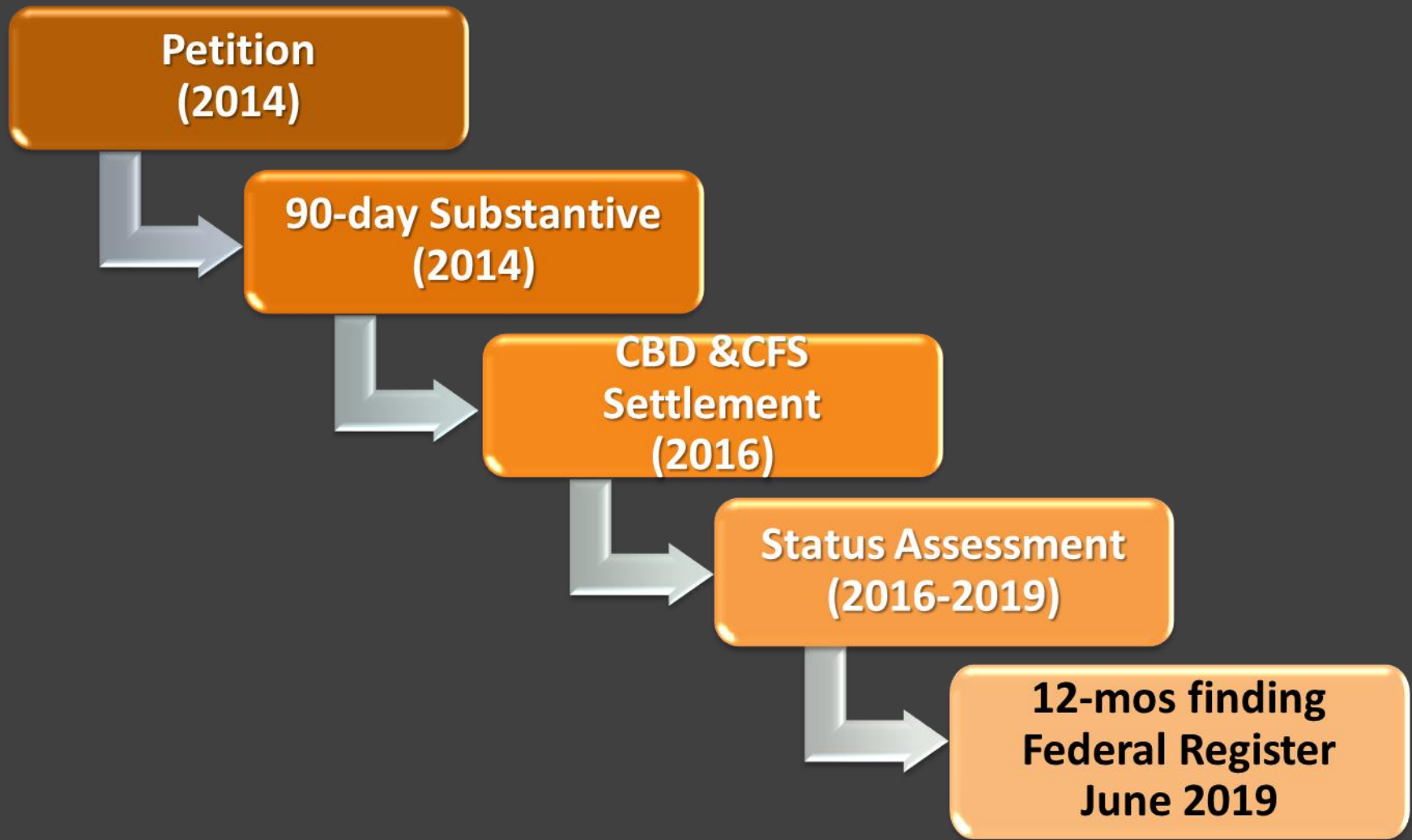
Western Monarch Thanksgiving Count

Total Abundance Estimates w/ Number of Sites Monitored
from 1997-2016
(Monroe *et al.* 2017)

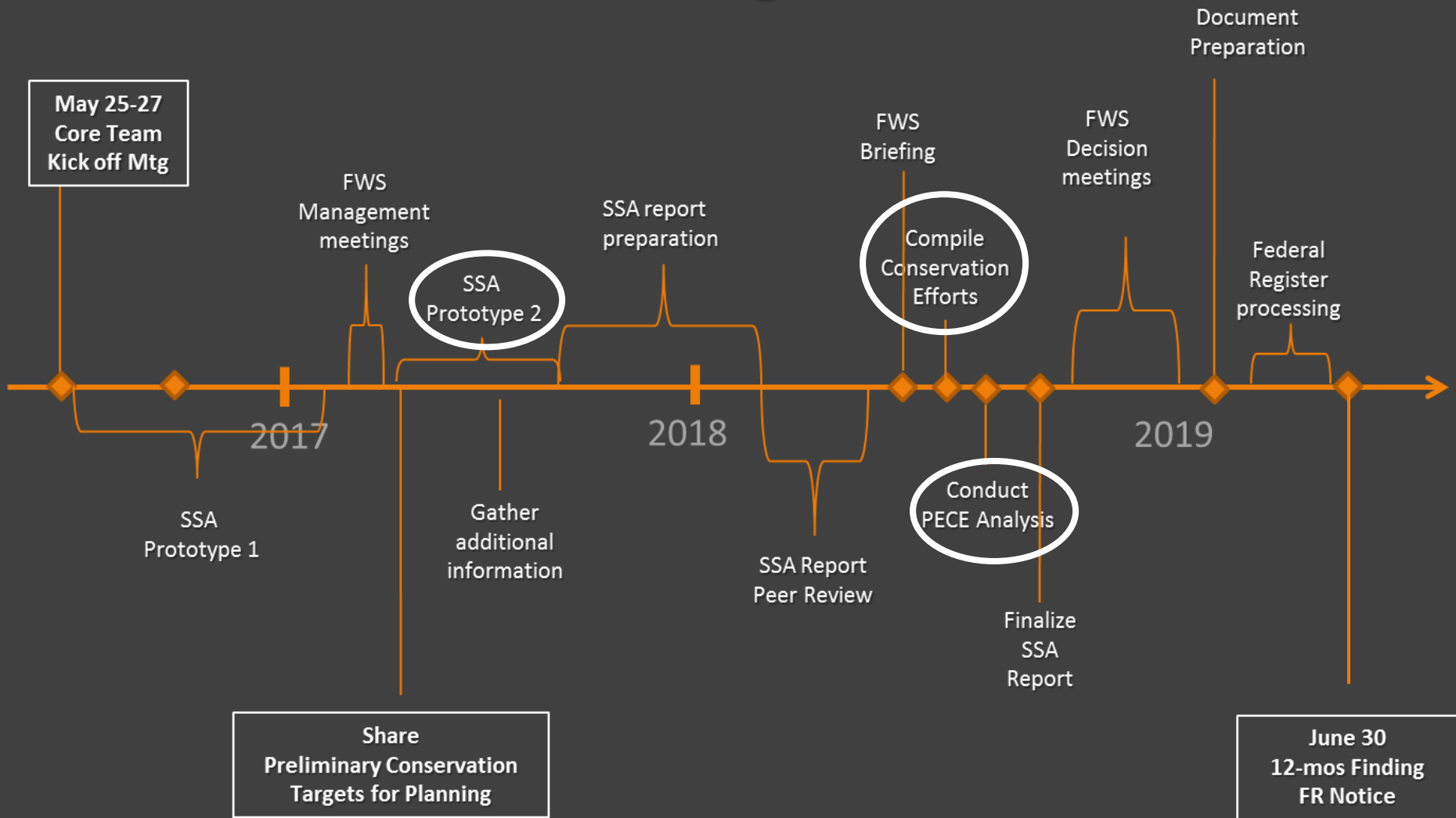
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Endangered Species Act for Monarch



Monarch SSA/Listing Decision Timeline



Monarch Species Status Assessment



Monarch SSA: Analytical Approach

Healthy populations over
a diversity of
environmental conditions

Resiliency

Breadth of adaptive
diversity

Representation

Distribution & # of
pops relative to
spatial extent of
catastrophic events

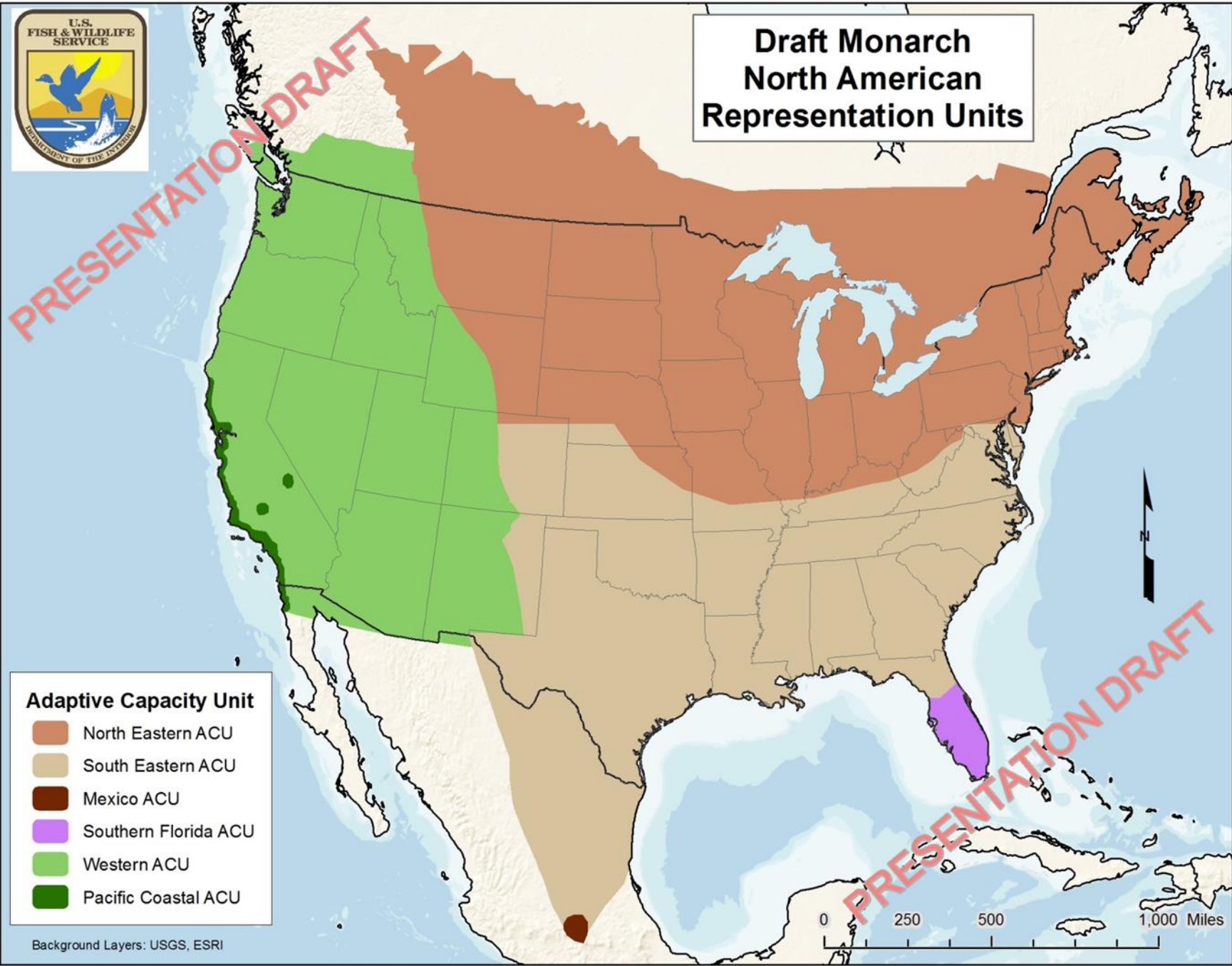
Redundancy

Monarch
viability
(long-term
persistence)





Draft Monarch North American Representation Units



Adaptive Capacity Unit

- North Eastern ACU
- South Eastern ACU
- Mexico ACU
- Southern Florida ACU
- Western ACU
- Pacific Coastal ACU

Background Layers: USGS, ESRI

Influences/Threats

- **Habitat Loss and Fragmentation**
- **Habitat Quality Degradation**
 - Milkweed Density
 - Nectar Resources
 - Insecticide exposure
- **Overwintering Habitat Loss/Degradation**



Eastern Population

- Support average 6 hectare winter population
 - Additional 1.6 – 1.8 billion stems of milkweed
 - Capacity to accommodate a larger population
- Protected, intact oyamel fir forest in Mexico



Western Population

- Maintain and enhance habitat across the breeding and migratory grounds
- Protect and manage overwintering sites

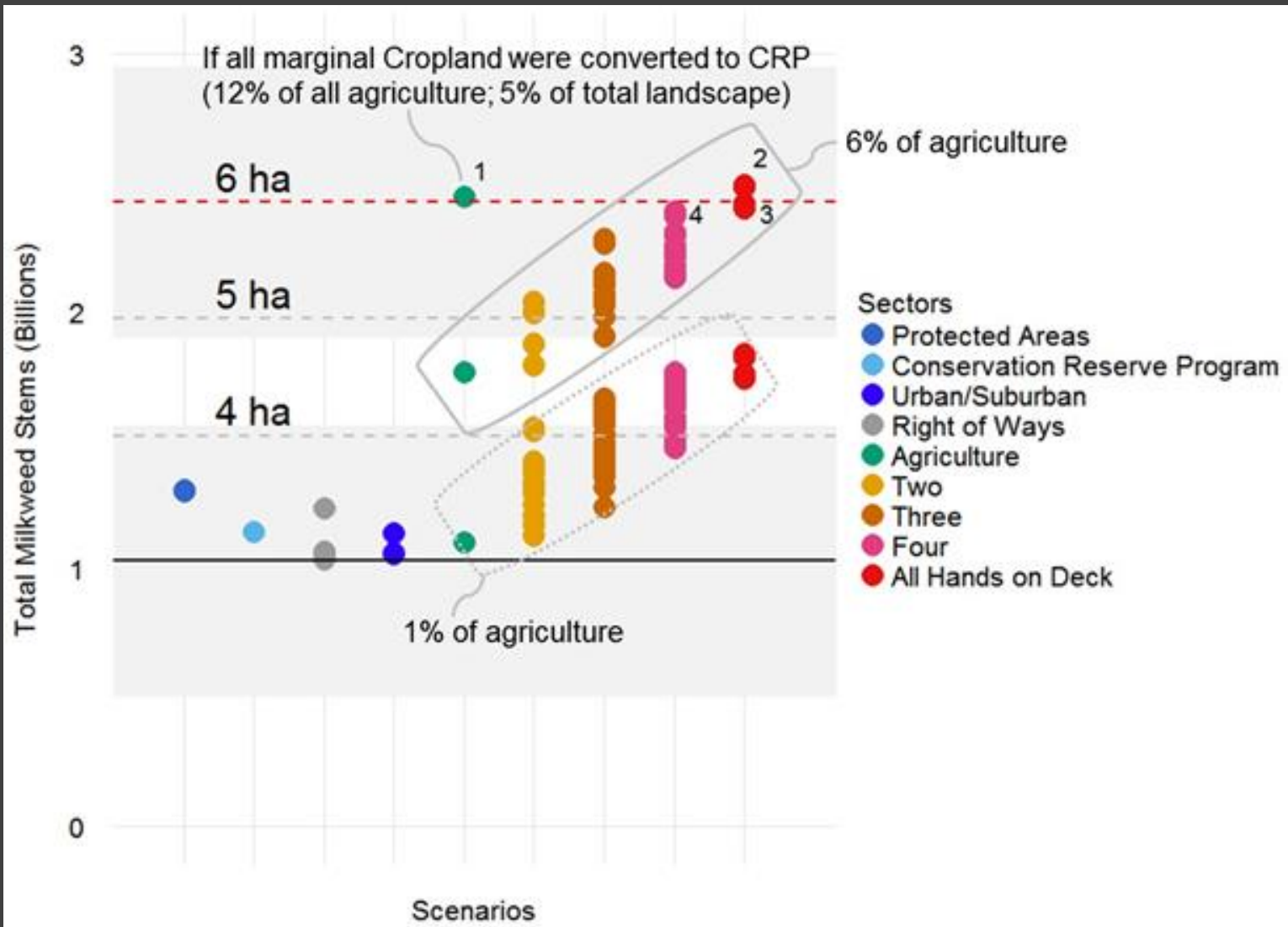


Higher quality acres = More monarchs

- Habitat quality is:
 - Diverse nectar resources blooming at the appropriate time
 - Appropriate milkweed density within the nectar resources
 - Reduced exposure to insecticides



All Hands on Deck



Restoring Monarch Butterfly Habitat in the Midwestern U.S.: "All Hands on Deck". *In Review*. Wayne E. Thogmartin, Laura López-Hoffman, Jason Rohweder, Jay Diffendorfer, Ryan Drum, Darius Semmens, Scott Black, Iris Caldwell, Donita Cotter, Pauline Drobney, Laura L. Jackson, Michael Gale, Doug Helmers, Steve Hilburger, Elizabeth Howard, Karen Oberhauser, John Pleasants, Brice Semmens, Orley Taylor, Patrick Ward, Jake F. Weltzin, and Ruscena Wiederholt.

Policy for Evaluating Conservation Efforts



PECE

Policy for the Evaluation of Conservation Efforts (PECE)

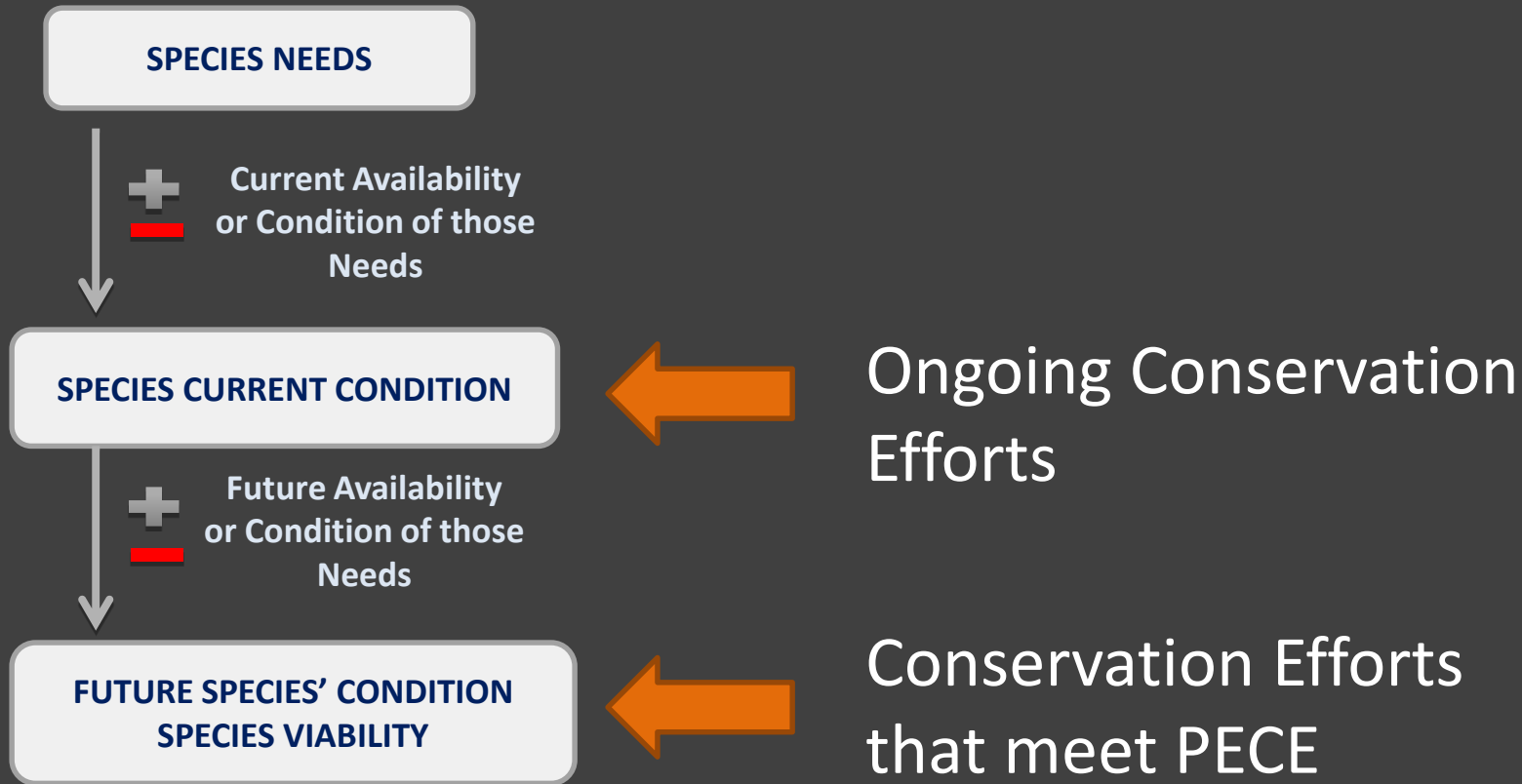
Two important factors when evaluating a conservation effort:

The certainty that the conservation effort will be
implemented

The certainty that the conservation effort will be
effective



Where does PECE fit with SSA?



Conservation Efforts Database

- Initial stages of creating the CED
- Goal is to capture those efforts that are ongoing and planned
- Efforts will be evaluated against the PECE criteria
- Information from the database will then be used by the SSA



A monarch butterfly with orange and black wings is perched on a purple flower. The background is a field of tall green grass with some yellow flowers, under a cloudy sky.

Candidate Conservation Agreements with Assurances

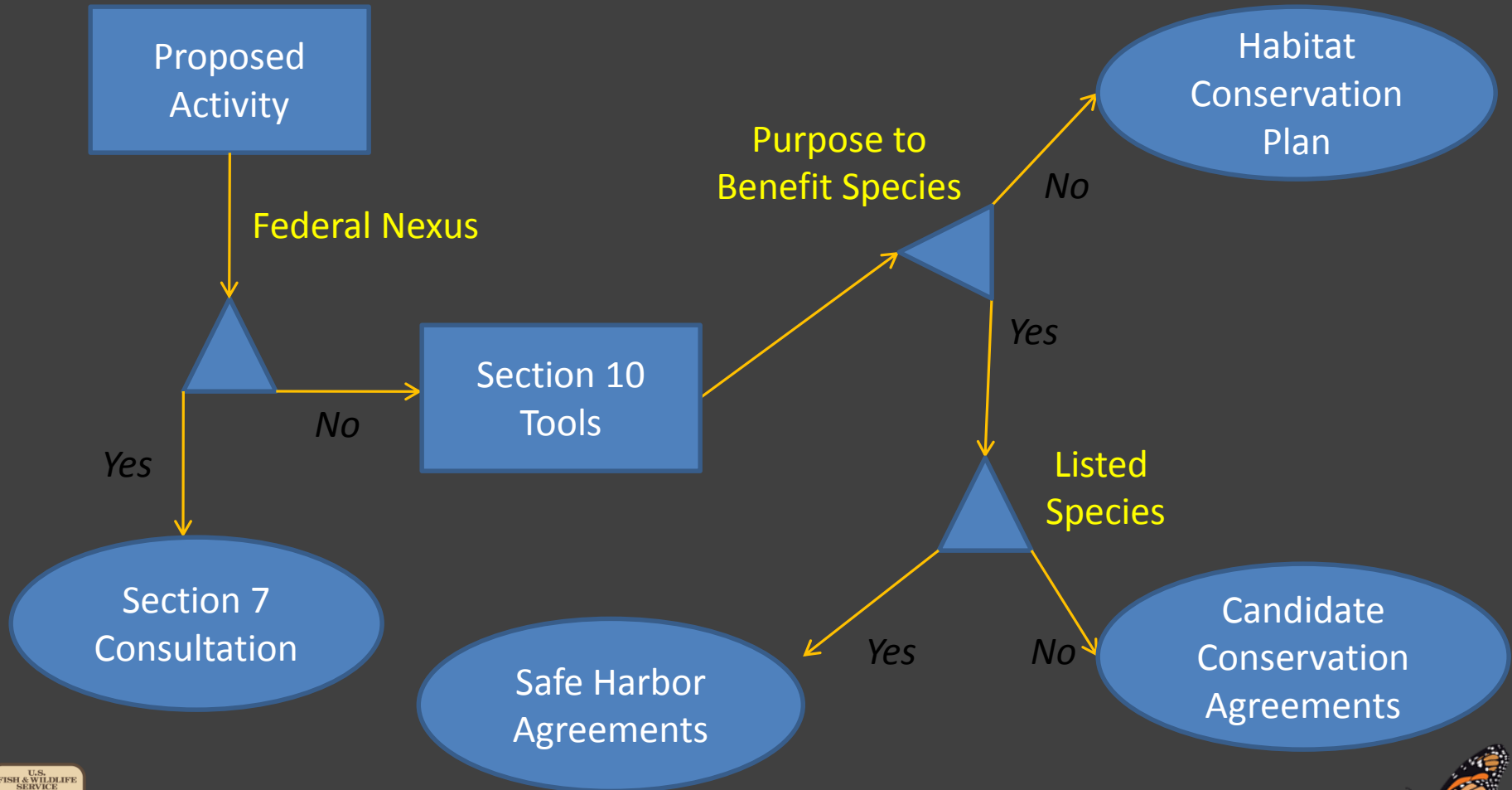
What are CCAAs?

Candidate Conservation Agreements with Assurances (CCAAs) are:

- Voluntary agreements with non-Federal property owners
- Designed to address threats to a particular **unlisted at-risk species** for a specific number of years
- A tool to address concerns about providing conservation for a species that in the future may be listed
- Issuance criteria meet the PECE policy criteria



How do CCAs differ from other Section 10 tools?



CCAA Standard

- The CCAA must provide a net conservation benefit to the covered species
- must address all *KEY* threats to the species on the property (under the property owners control)



How Long do CCAA's last?

Long enough to allow the status to improve which depends on the life cycle of enrolled species and the anticipated habitat response to conservation actions

Duration of CCAs can vary from 5 to 80 Years



What are the benefits of a CCAA?

To the species:

- Reduce or remove identified threats
- Improve their status



To the property owner:

- Incidental take coverage
- Assurances – no additional requirements if species becomes listed

Funds to help implement the conservation actions may be available through the Service's Partners for Fish and Wildlife program or other Federal agencies like NRCS



What actions do property owners take?

Must address all threats on their property that they have control over.

Actions can include:

- Habitat restoration
- Altering grazing or haying schedules
- Resting habitat from grazing
- Removing fences, marking fences
- Prescribed burning
- Removing invasive species



What is a programmatic CCAA?

- Involves multiple property owners enrolling under one regional or state-wide agreement
- Is overseen by one permit holder
- Each property owner receives assurances through a Certificate of Inclusion (CI)
- Each CI is tailored to an individual property
- Conservation actions are selected from a list contained in the overall agreement

Karner Blue Butterfly
Photo by Paul Labus;
The Nature Conservancy
(Indiana)



What happens if a species is listed?

- The CCAA remains in place
- Property owner continues to implement the agreed to conservation measures
- The permit goes into effect and anticipated incidental take that occurs on the enrolled property is covered
- USFWS will not require the property owner to take additional actions beyond what is included in the CCAA



Please email any comments or
information specific to this
presentation to:

MonarchSSAComments@fws.gov

Website - <https://www.fws.gov/savethemonarch/SSA.html>





Rusty Patched Bumble Bee

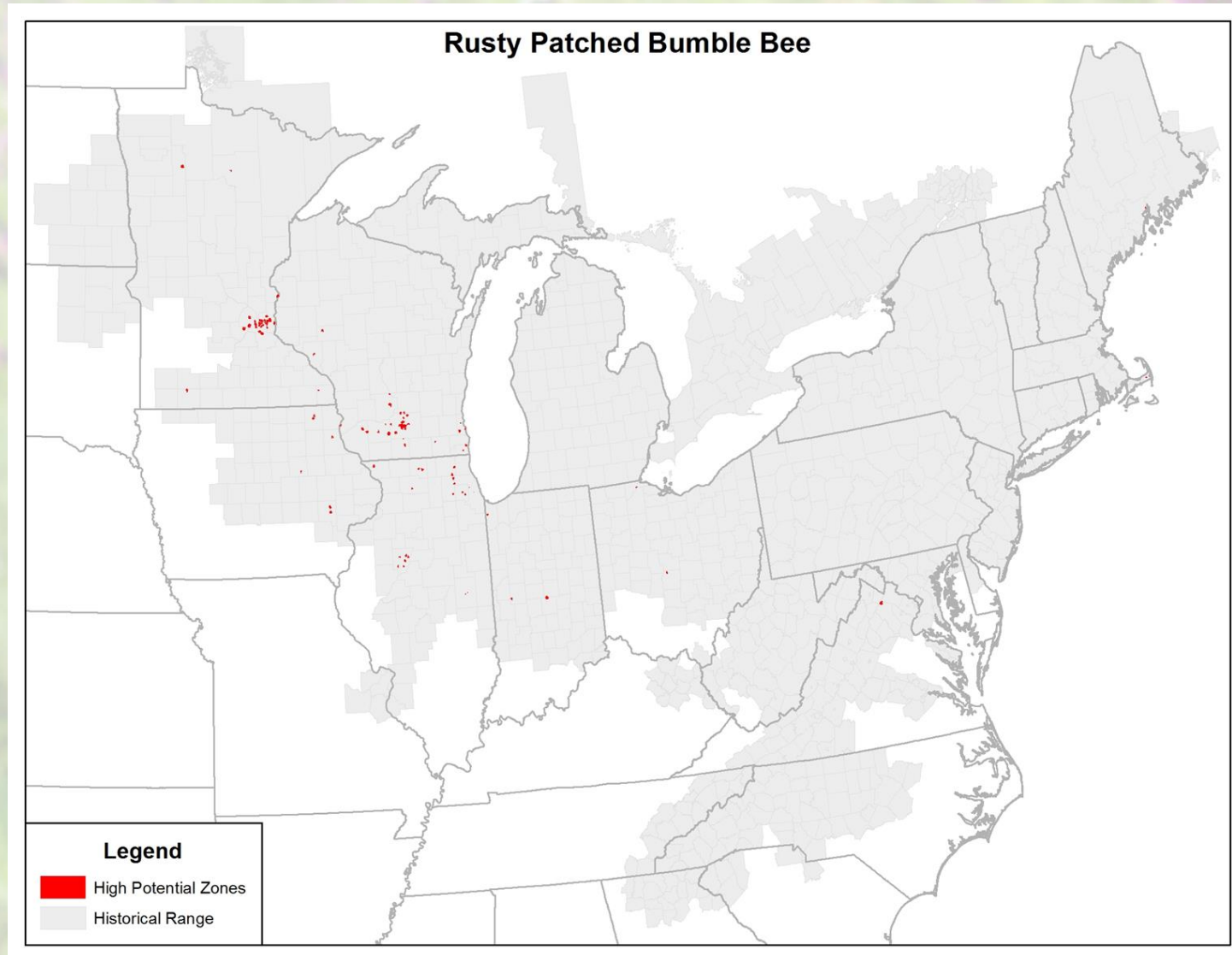


For Rights of Way as Habitat for Pollinators Working Group
May 2017

Background

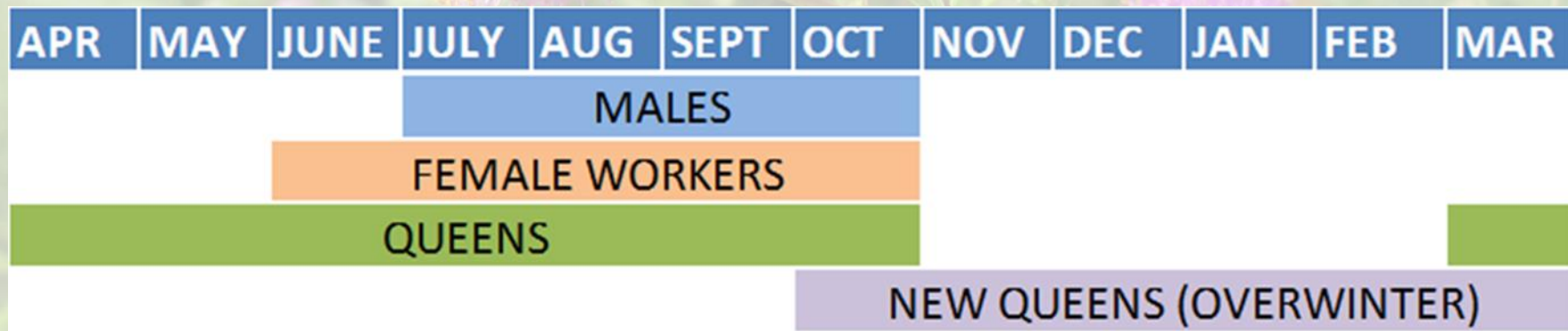
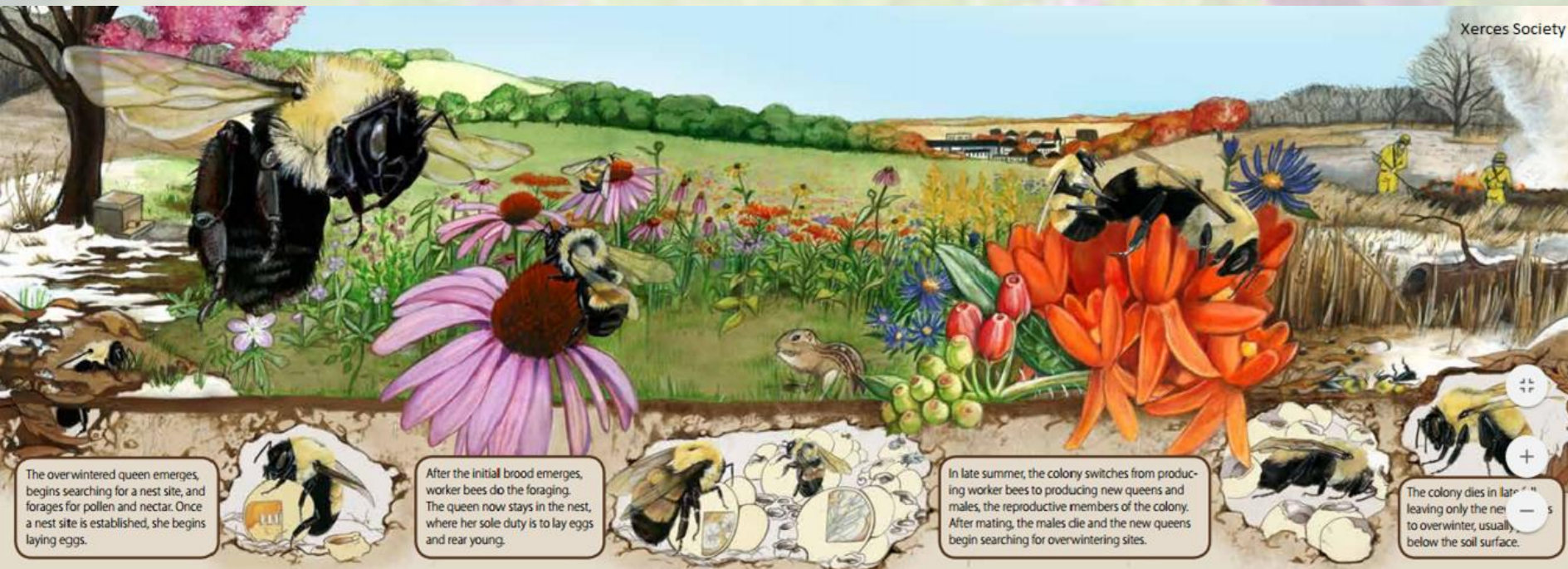
- RPBB listed as endangered January 11, 2017
 - Effective date March 21, 2017
- Once common and abundant
- Swift and dramatic declines
 - Now only in scattered locations

Historical Areas = gray shading
Extant areas = red polygons



Life Cycle & Phenology

Xerces Society



Where are RPBB located?

- Habitat generalists
 - Diversity of flowers from early spring until fall
- Nest & overwinter underground
 - Nest 1-3 ft. underground
 - Queens overwinter ~few cm under loose soil
 - Do not nest/overwinter in the exact same place
- Max dispersal distance ~6 miles (10km)
- Foraging distances ~ 0.3 miles (0.5km)

Habitat Needs

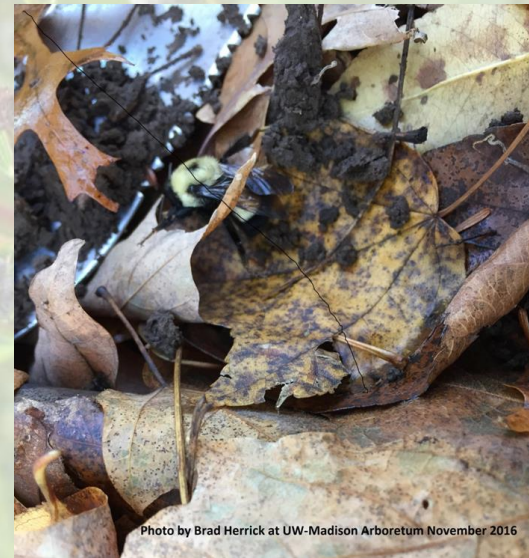
Active season

- Mid-March through mid-October
- Diverse, abundant floral resources
- Undisturbed nesting habitat
- Spring ephemerals for emerging queens



Overwintering

- Mid- October through mid-March
- Solitary queens
- Soft, un-compacted soil
- Under leaf litter
- Few cm deep

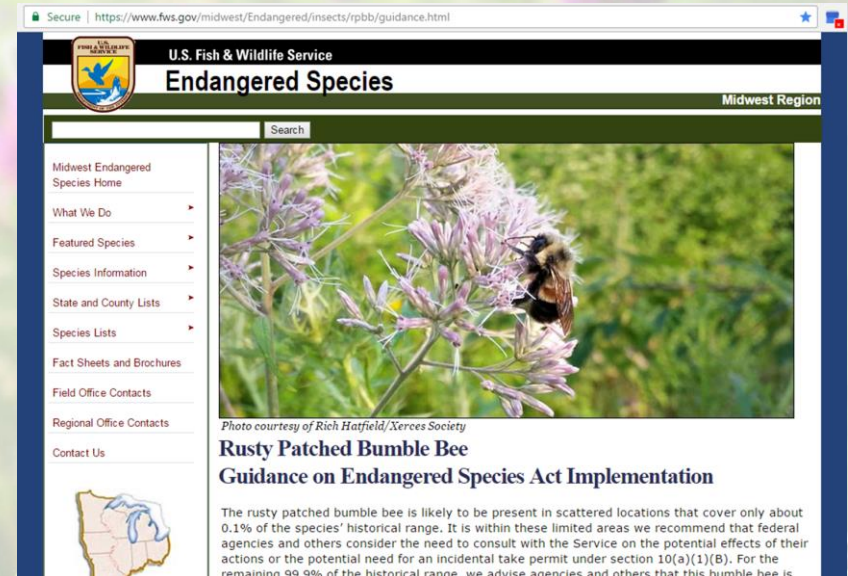


Stressors



FWS Guidance

- Section 7 - consultations
 - Federal actions
- Section 10a1B
 - Non-federal
- Section 10a1A
 - Scientific recovery permits
 - Non-lethal survey
- Maps
- Shapefiles



<https://www.fws.gov/midwest/Endangered/insects/rpbb/guidance.html>



U.S. Fish & Wildlife Service

Endangered Species

Rusty Patched Bumble Bee Map

Midwest Endangered
Species Home

What We Do

Featured Species

Species Information

State and County Lists

Species Lists

Fact Sheets and Brochures

Field Office Contacts

Regional Office Contacts

Contact Us

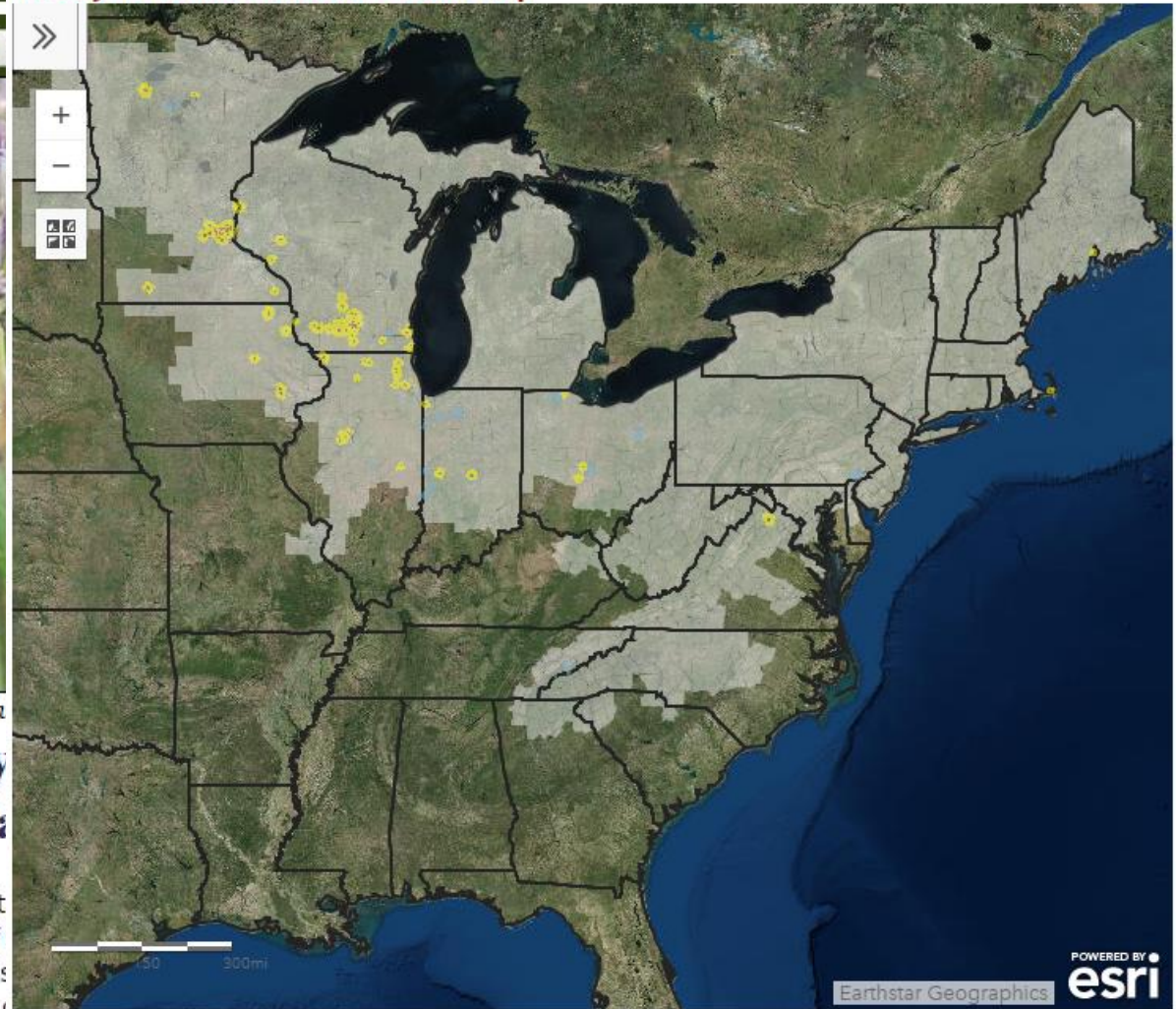


Photo courtesy of

Rusty Guida

The rusty
0.1% of
agencies
actions

remaining 99.9% of the historical range, we advise agencies and others that this bumble bee is

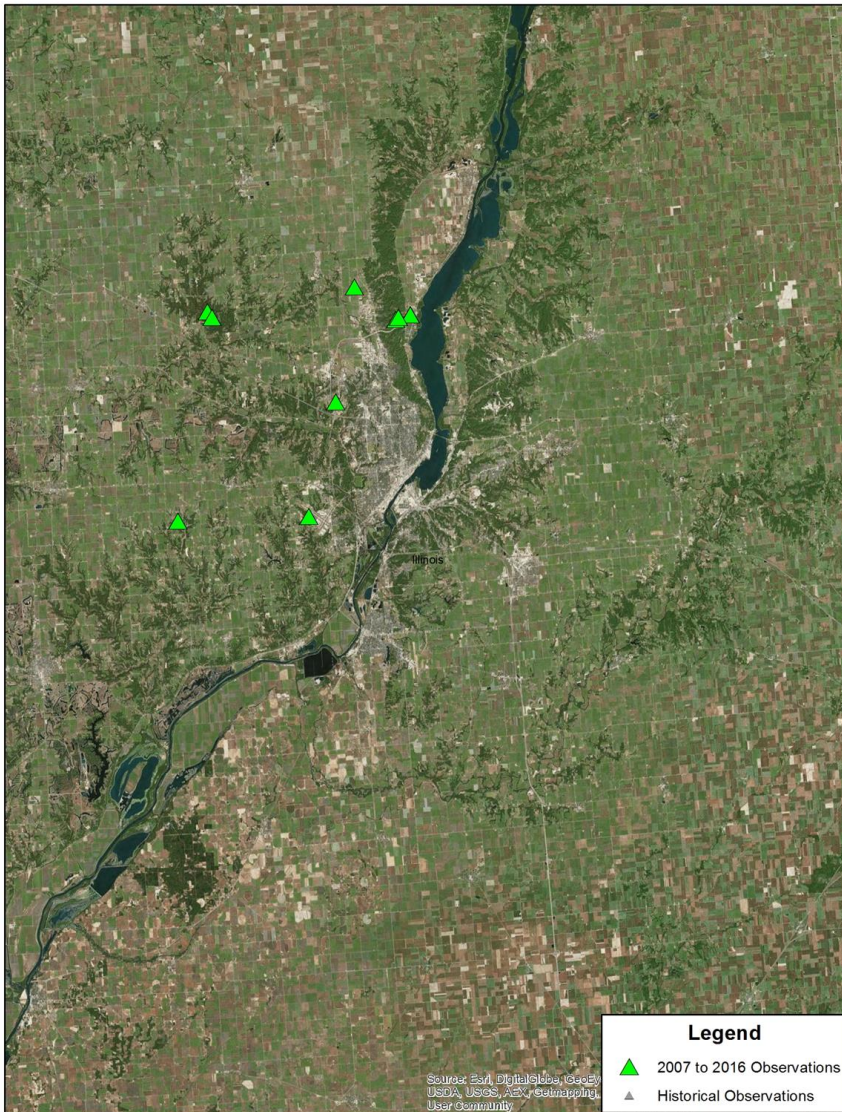


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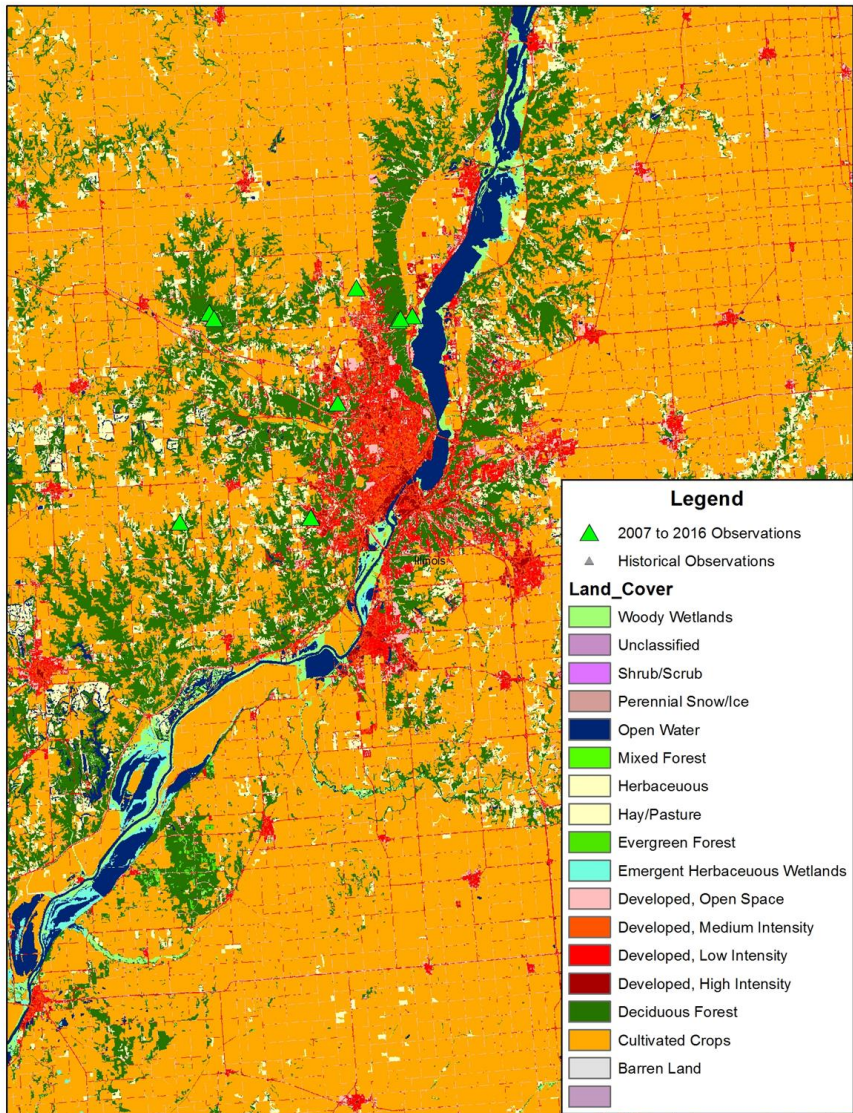
Habitat Model

- Identify RPBB records from 2007 to 2016.



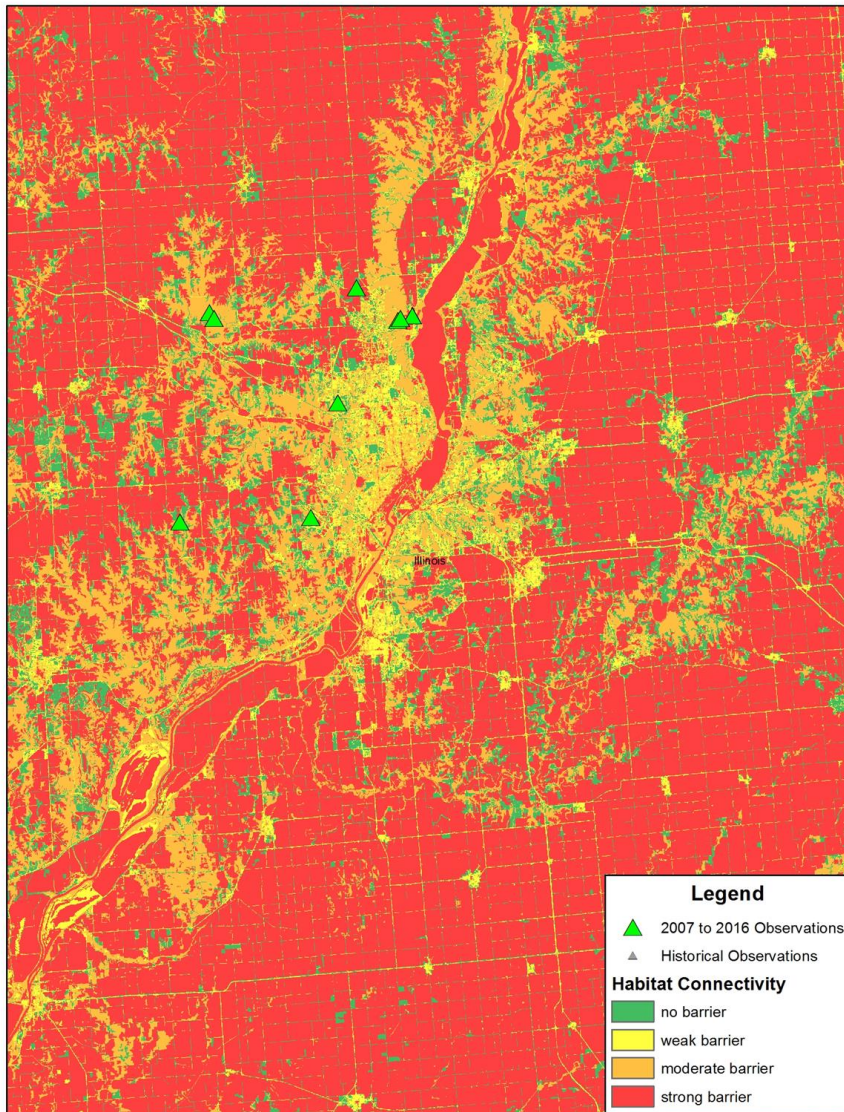
Habitat Model

- Identify RPBB records from 2007 to 2016.
- Use most recent land cover database.



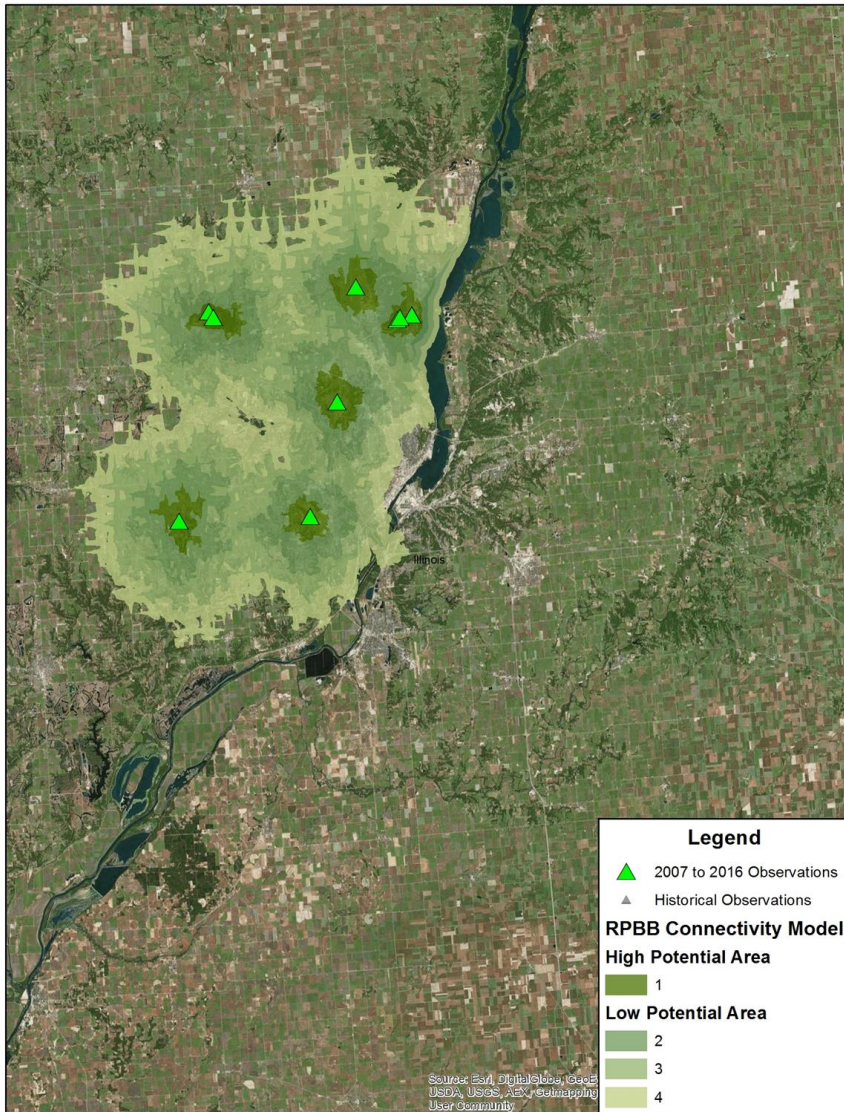
Habitat Model

- Identify RPBB records from 2007 to 2016.
- Use most recent land cover database.
- Identify barriers to movement/occupancy



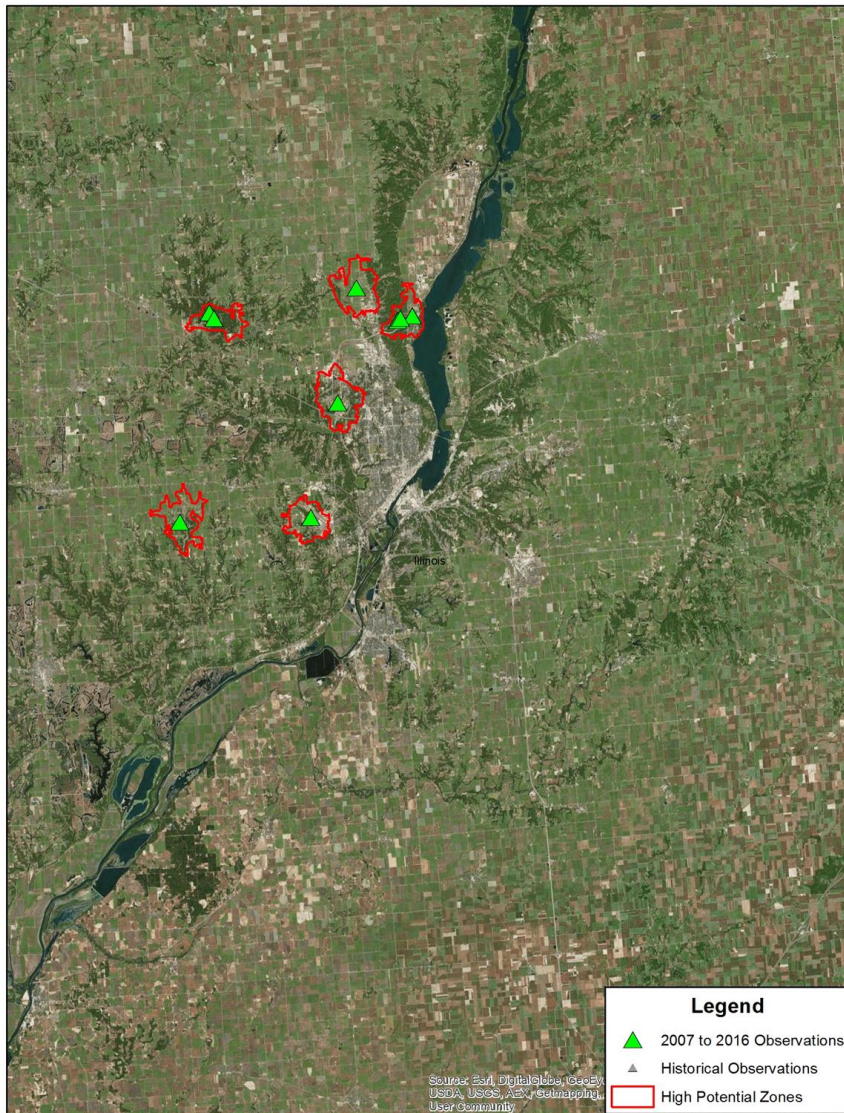
Habitat Model

- Identify RPBB records from 2007 to 2016.
- Use most recent land cover database.
- Identify barriers to movement/occupancy
- Run connectivity model to identify occupancy potential

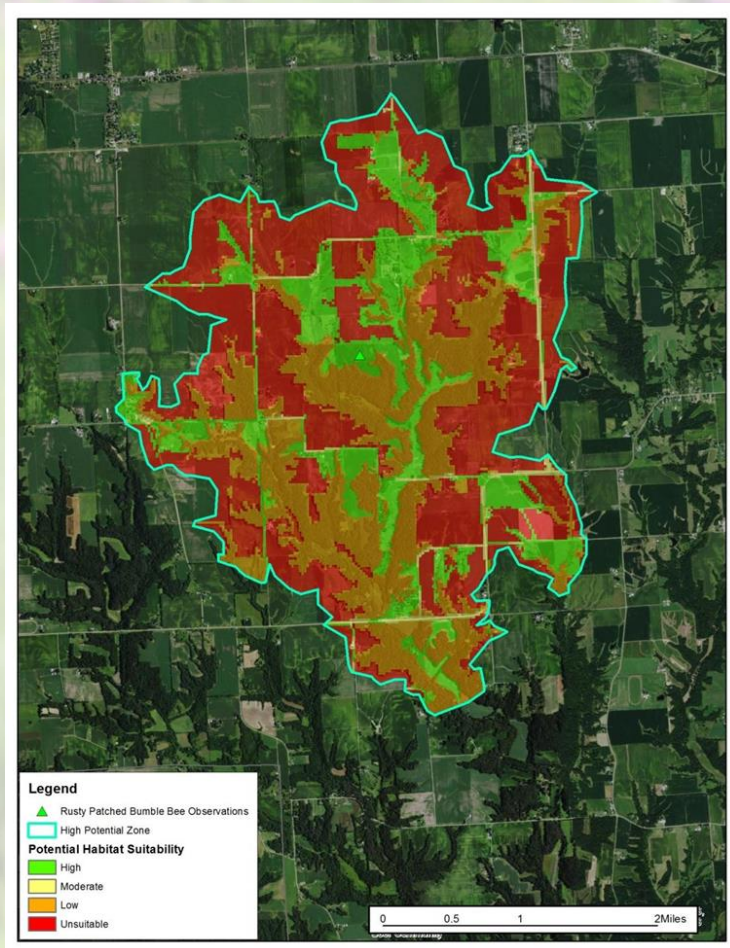


Habitat Model

- Identify RPBB records from 2007 to 2016.
- Use most recent land cover database.
- Identify barriers to movement/occupancy
- Run connectivity model to identify occupancy potential
- Identify High Potential Zones



Example



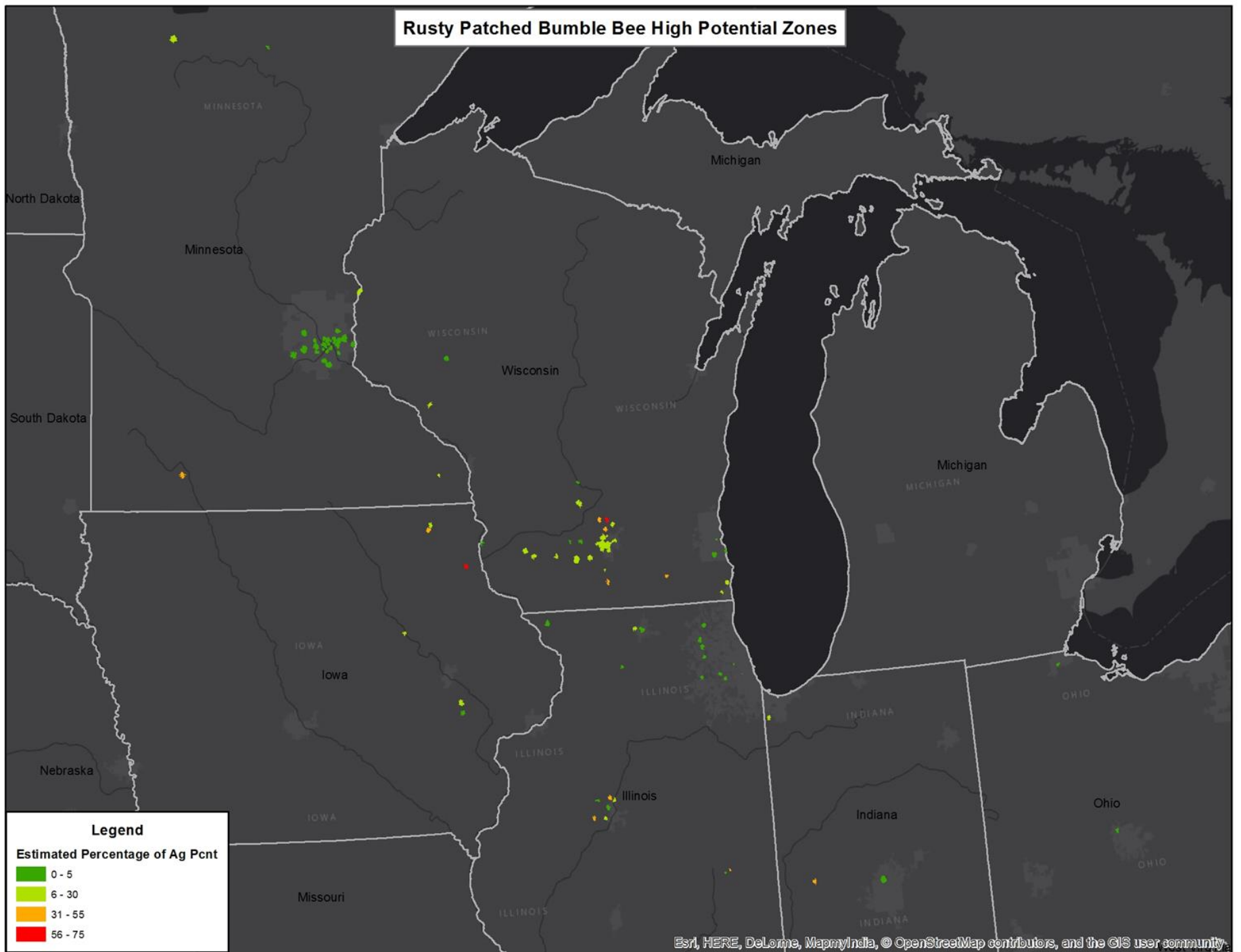
- Example of a high potential zone for RPBB
- RPBB may be present in suitable habitat in high potential zones.

Unlikely to be present...

- Permanently flooded areas/open water
- Paved areas
- Areas with annual row crops (corn, soybeans)
- Forests dominated by invasive shrubs
- Forests without spring flowers
- Frequently mowed areas (without flowers)



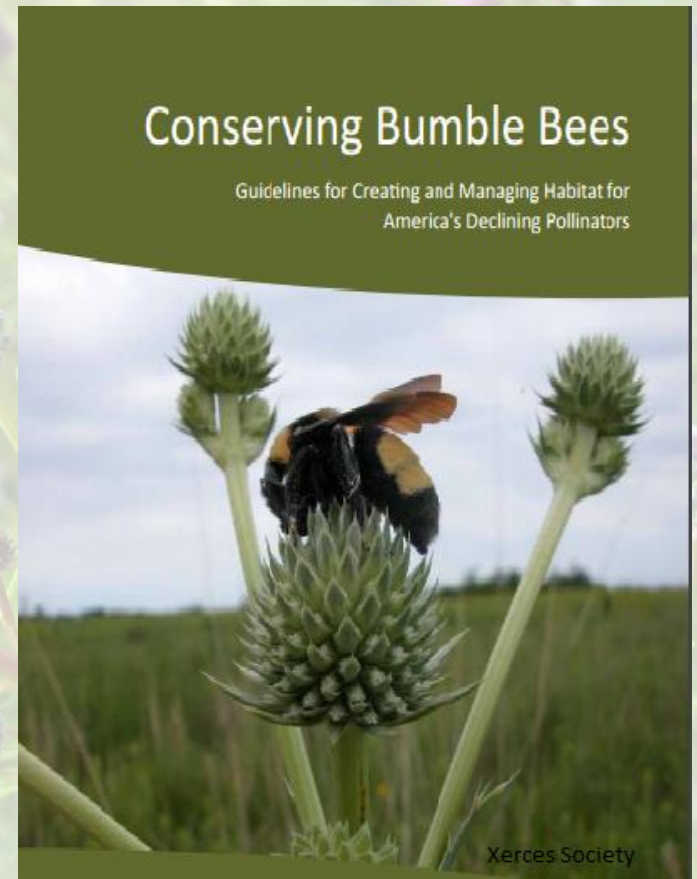
Rusty Patched Bumble Bee High Potential Zones



What conservation guidance do we have?

We are working on it, but in the interim, we recommend

http://www.xerces.org/wp-content/uploads/2012/06/conserving_bb.pdf



Conservation Measures

- Survey for new locations
- Restore/maintain high quality habitat
- Carefully plan/implement management
 - Leave refugia areas for prescribed burns
 - If possible, mow outside of active season and/or leave refugia habitat patches
- Address pesticide use
 - Apply as locally as possible
 - Follow the label and manufacturer's directions
 - Use the least toxic options
 - Apply USDA Integrated Pest Management Strategies
- Minimize competition with non-native bees
- Minimize escape of commercial bumble bees into the wild

Questions?



Photograph by Dan Mullen