

Monarch Butterfly Status Assessment Update

Website - www.fws.gov/savethemonarch/SSA.html

Email - MonarchSSAComments@fws.gov

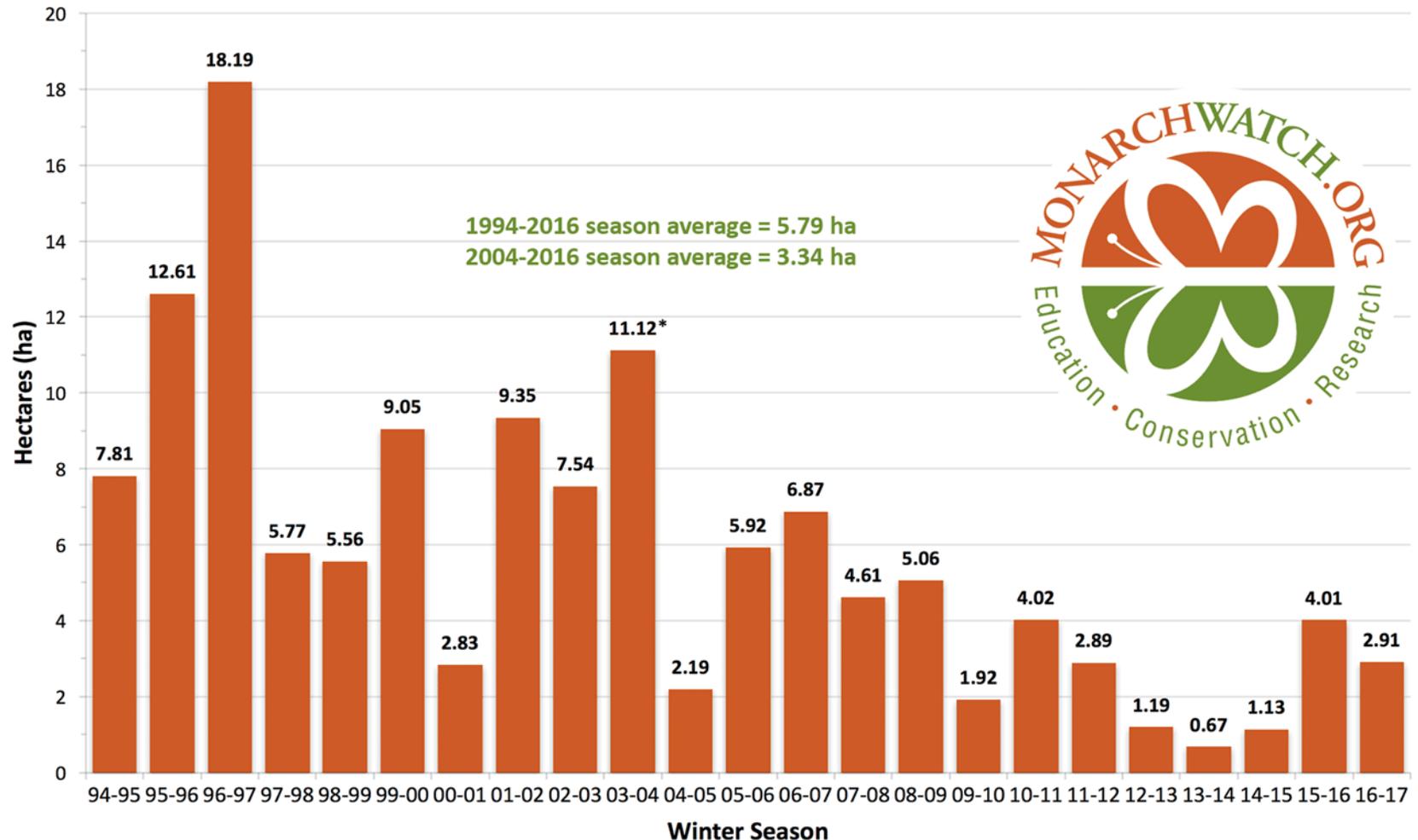
Objectives

- **Overview of the Current SSA information**
- **Introduce the Monarch Conservation Efforts Database**
- **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.

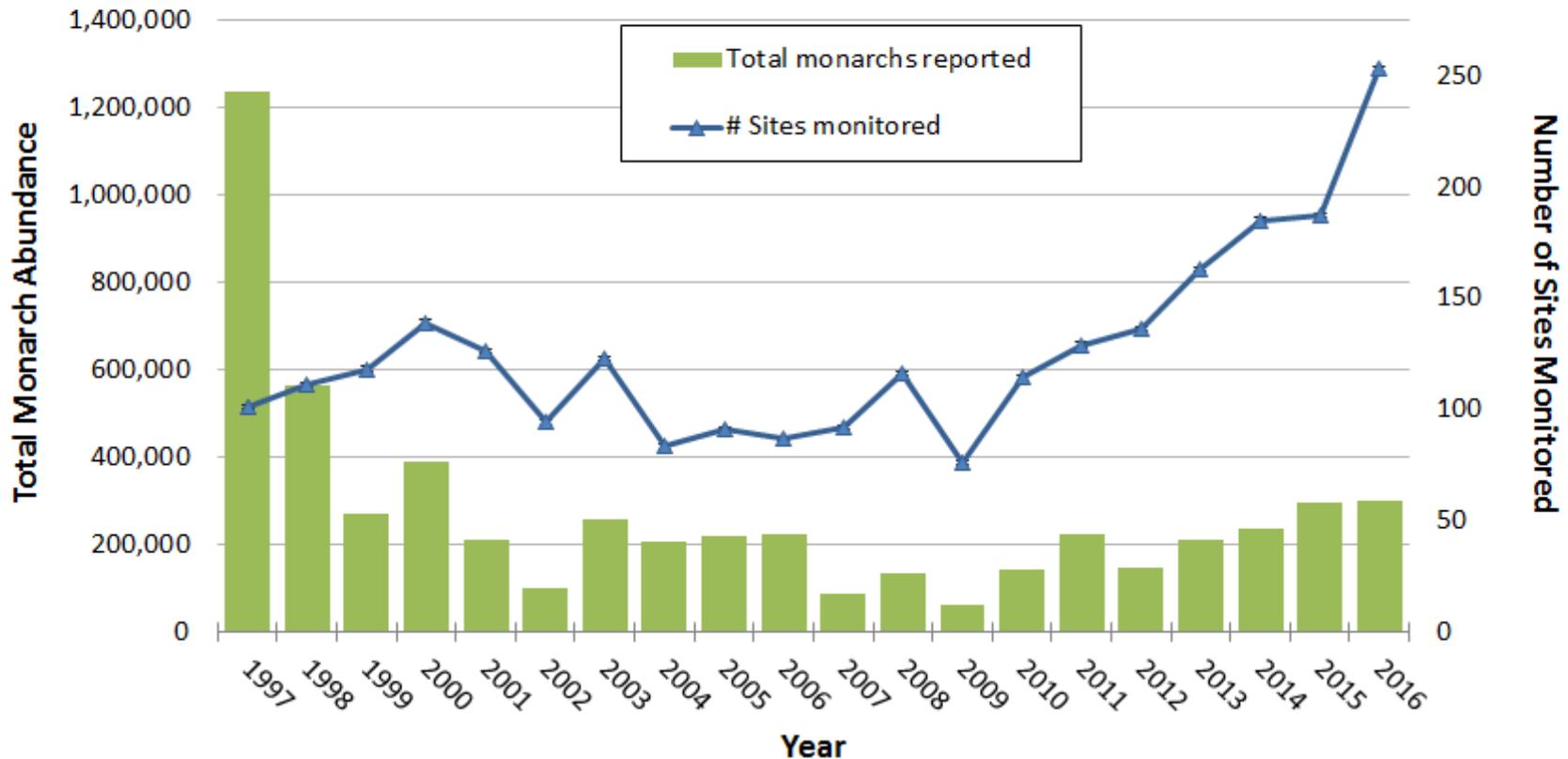
* Represents colony sizes measured in November of 2003 before the colonies consolidated. Measures obtained in January 2004 indicated the population was much smaller, possibly 8-9 hectares. CT

Western Migratory Population Trends

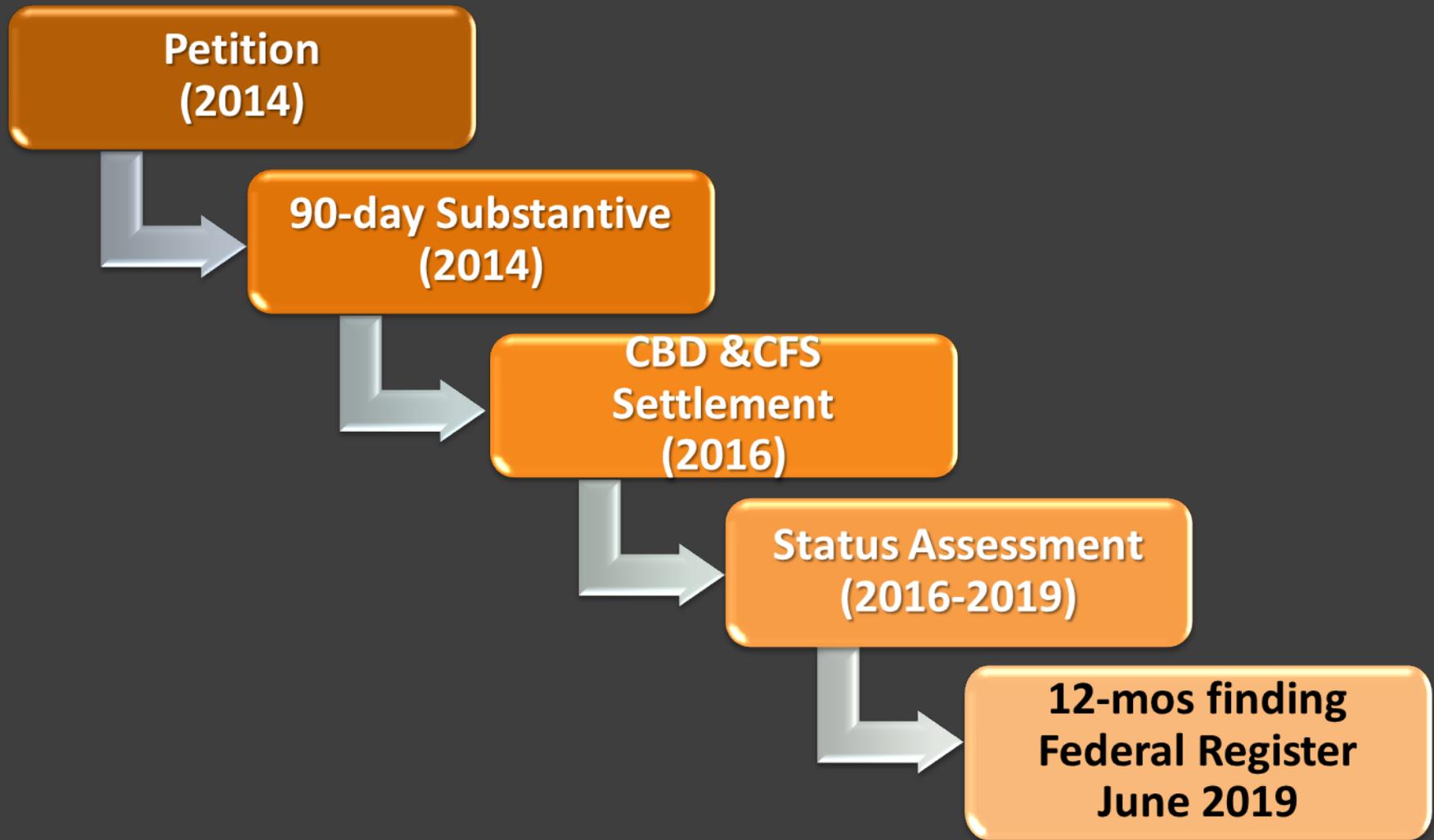
Western Monarch Thanksgiving Count

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

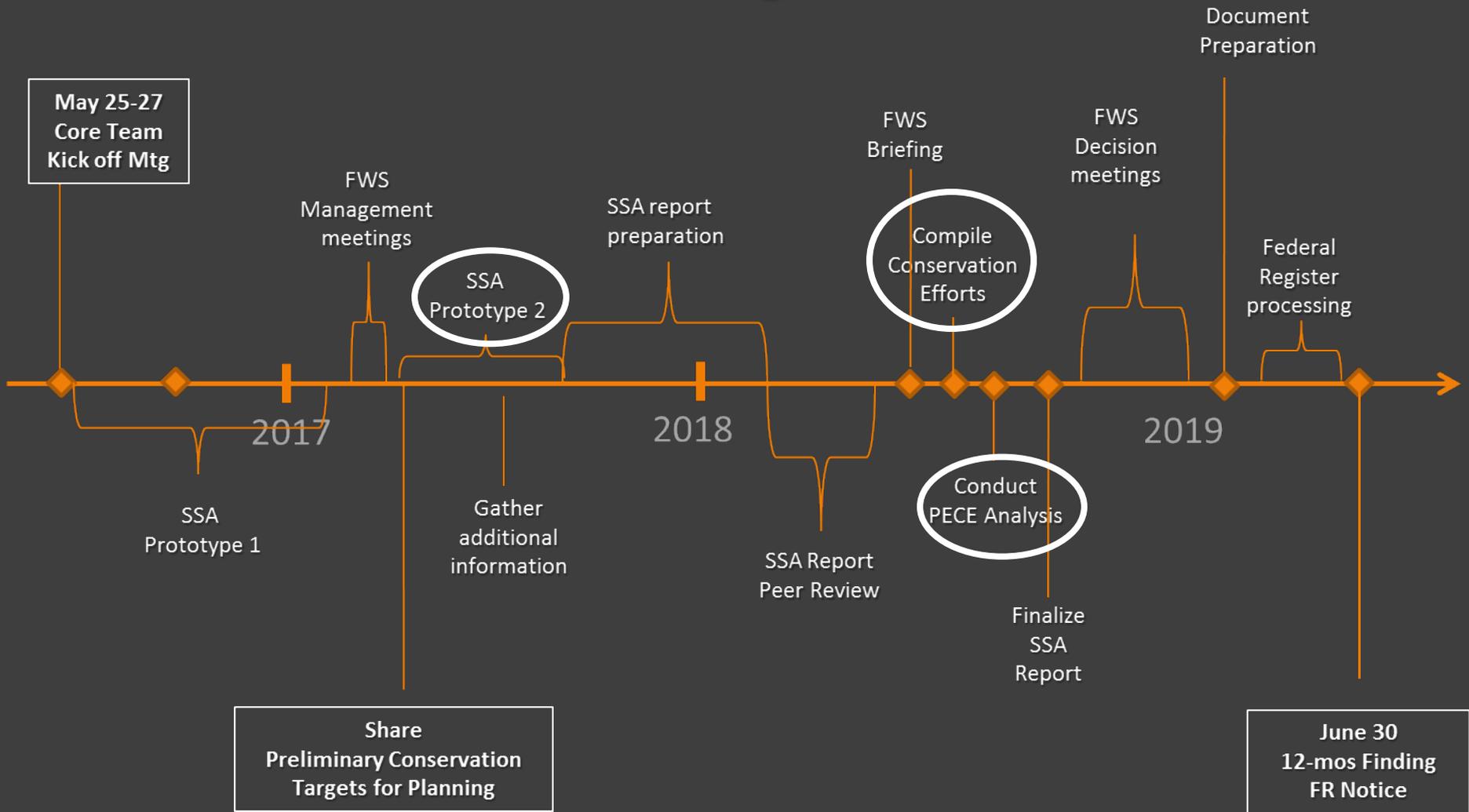
© The Xerces Society for Invertebrate Conservation 2017



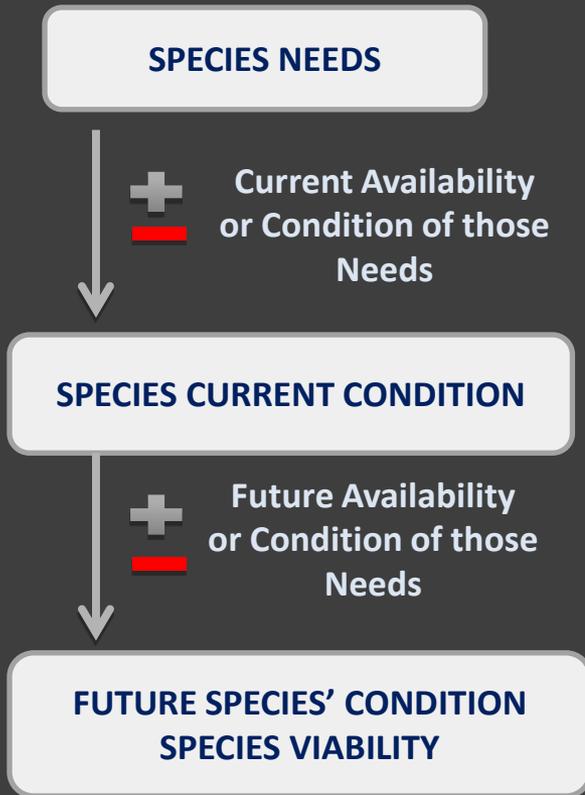
Endangered Species Act for Monarch



Monarch SSA/Listing Decision Timeline



Species Status Assessment Framework



- The purpose of the SSA Framework is to describe the *viability* of species in a way that supports our ESA decisions.
- Viability for a species is the ability to sustain populations in the wild over time.

Monarch SSA: Analytical Approach

Healthy populations over a diversity of environmental conditions

Resiliency

Breadth of adaptive diversity

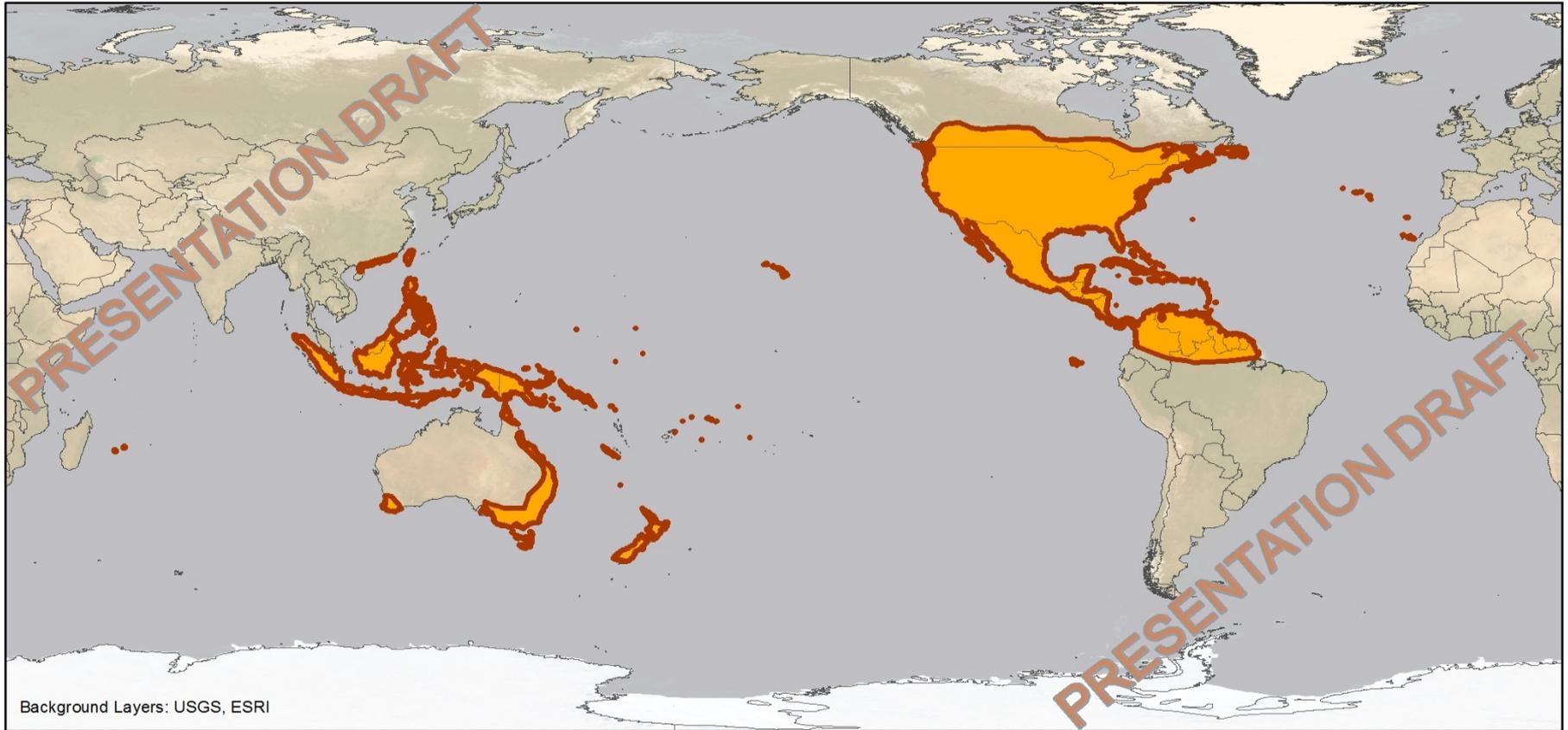
Representation

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

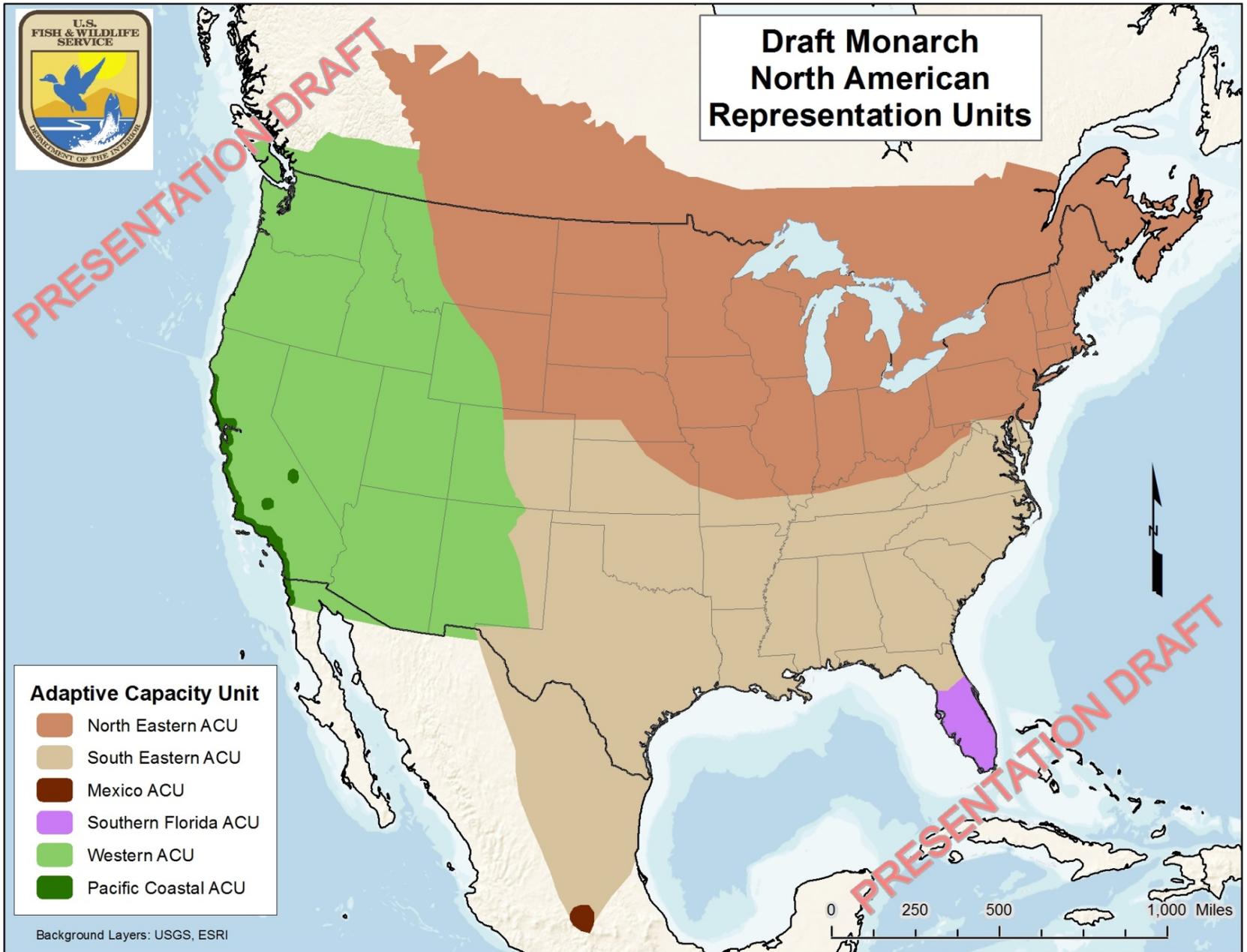
Redundancy

Monarch viability
(long-term persistence)





Monarch SSA: Representation



Monarch SSA: Redundancy

- Evaluate historical, current and future redundancy within each of the 3 populations by comparing extinction risk over time due to catastrophic events
- Potential catastrophic events:
 - Eastern Population: mass mortality storm event on the overwintering sites
 - Western Population: catastrophic fire within the core overwintering sites
 - Florida Population: mass-insecticide mortality event



Monarch SSA: Resiliency

- Account for large booms and busts in population
- Geometric Growth Model
- Change in population growth rate due to threats



Monarch SSA: Potential Threats



Draft Monarch North American Demographic Units

PRESENTATION DRAFT

Breeding

- Milkweed
- Insecticides
- Nectar

North Central

- Milkweed
- Insecticides
- Nectar

North East

- Milkweed
- Insecticides
- Nectar

Overwinter

- Forest loss
- Fire

South

- Milkweed
- Insecticides
- Nectar

Breeding

- Milkweed
- Insecticides
- Nectar
- Disease

Overwinter

- Forest loss

Population

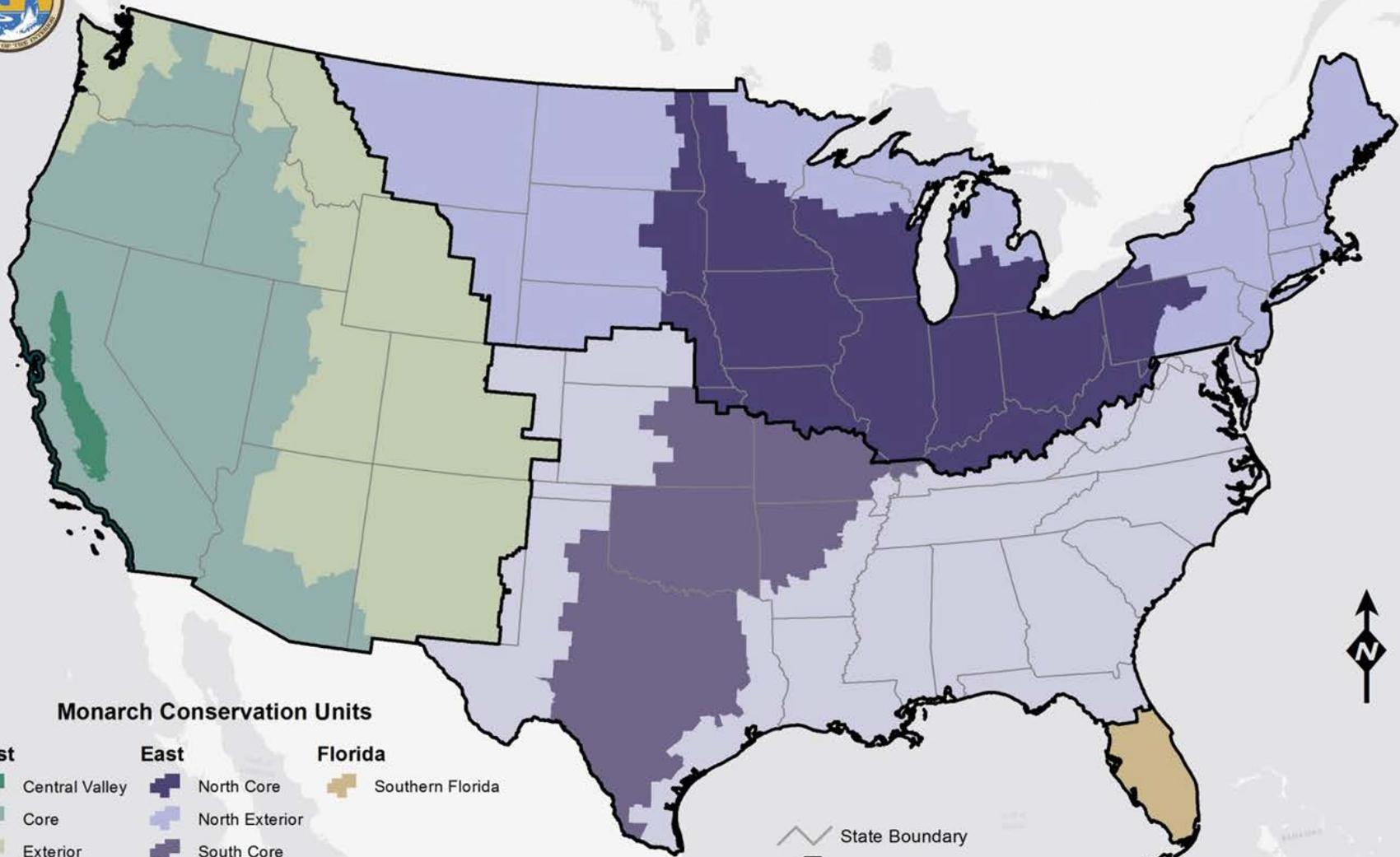
- Eastern
- Florida
- Western

Background Layers: USGS, ESRI

0 250 500 1,000 Miles



Monarch Butterfly Conservation Units in the U.S.



Monarch Conservation Units

- | West | East | Florida |
|----------------|----------------|------------------|
| Central Valley | North Core | Southern Florida |
| Core | North Exterior | |
| Exterior | South Core | |
| Overwintering | South Exterior | |

State Boundary
 Adaptive Capacity Unit

0 100 200 400 Miles

All Hands on Deck

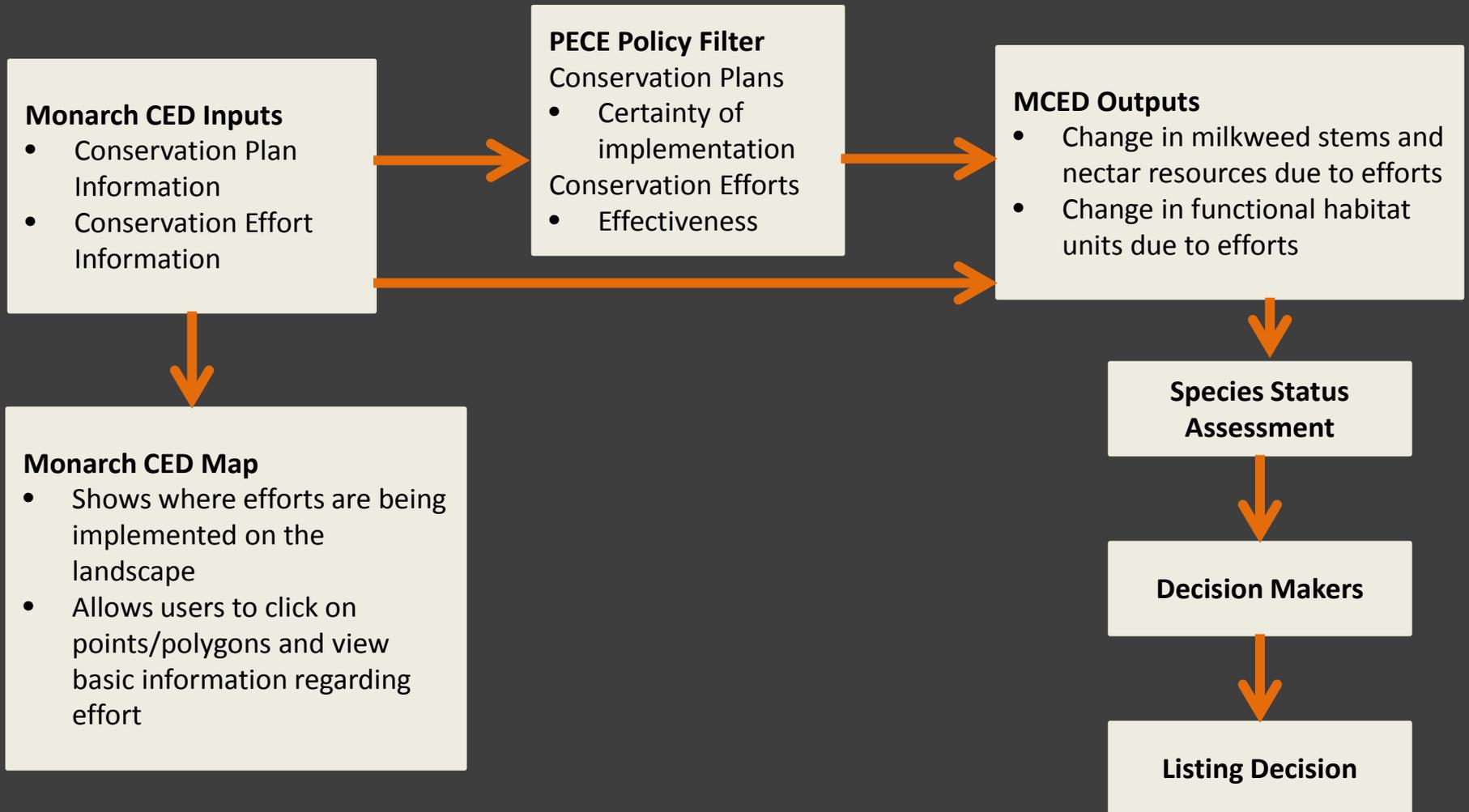


Monarch Conservation Efforts Database

- Initial stages of creating the Monarch Conservation Efforts Database (MCED)
- Goal is to capture all monarch conservation efforts that are ongoing and planned



Monarch Conservation Efforts Database



Monarch CED: Key Components

- Conservation Plans
 - “conservation agreements, conservation plans, management plans, or similar documents approved by Federal agencies, State and local governments, Tribal governments, businesses, organizations, or individuals.”
- Conservation Efforts
 - “specific actions, activities, or programs designed to eliminate or reduce threats or otherwise improve the status of a species....may involve restoration, enhancement, maintenance, or other beneficial actions.”



PECE

Policy for the Evaluation of Conservation Efforts (PECE)

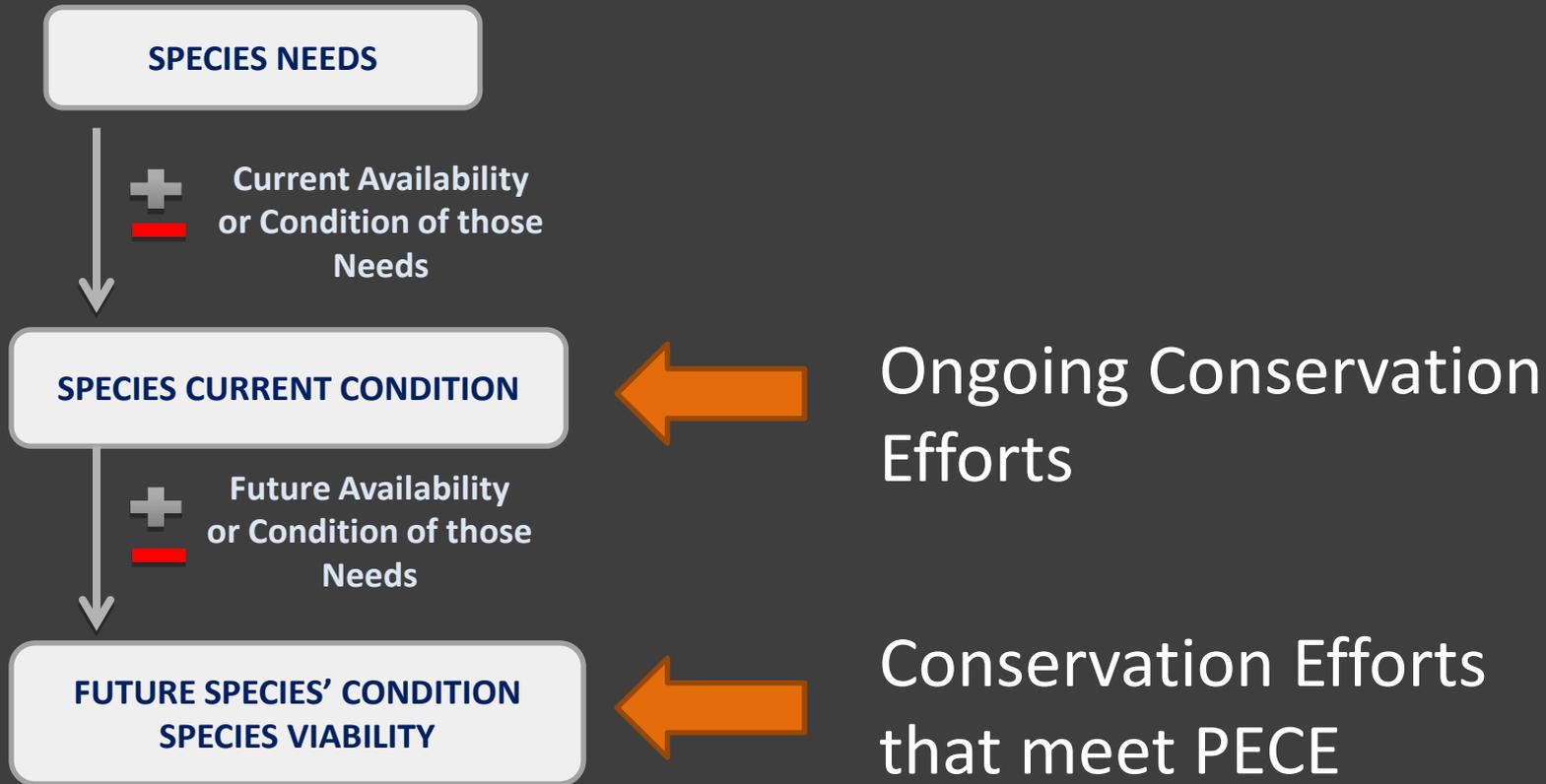
Two important factors when evaluating future conservation efforts:

The certainty that the conservation effort will be
implemented

The certainty that the conservation effort will be
effective



Where does PECE fit with SSA?



Monarch CED: **Key Fields**

- Background
 - Implementing parties
 - Relevant geography
 - Date of implementation
 - Has a plan been adopted/approved
- Conservation elements
 - Threats being addressed
 - Spatial extent of effort
- Milkweed and blooming nectar plant metrics



Monarch CED: **Webinars**

Topics	Approximate Date
Capturing conservation efforts	October 2017
How will data in the MCED be analyzed to calculate gains	December 2017
First look at user interface and batch uploading	February 2018
MCED user acceptance testing	April 2018
MCED open for data entry	June 2018

Questions?



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