Monarch Nationwide CCAA

Effectiveness Monitoring and Net Conservation Benefit

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Photo: Mike Budd/USFWS

Assurances & Compliance

- FWS response to public comment on CCAA policy -
  - Assurances based on implementation of:
    - Conservation measures
    - Monitoring & other requirements
  - Assurances not affected if species or habitat doesn't achieve expected response from the measures
  - Adaptive management should address shortfalls in response

Assurances & Compliance

USFWS response to comment, cont.

- "In any event, the assurances provided to the property owner are not affected if the species or habitat does not achieve the expected response from the implemented conservation measures."

Nationwide CCAA for MONARCH BUTTERFLY

Net Conservation Benefit & CCAAs – FWS Policy

- *The Service must determine that the benefits of the conservation measures implemented by a property owner under a CCAA will reasonably be expected to provide a net conservation benefit and to improve the status of the covered species.*

Nationwide CCAA for MONARCH BUTTERFLY

Net Conservation Benefit & CCAAs – FWS Policy

- *The benefit is measured by the projected increase in the species' population or improvement of the species' habitat, taking into account the duration of the Agreement and any off-setting adverse effects attributable to the incidental taking allowed by the enhancement-of-survival permit.*

Effectiveness Monitoring vs. Compliance Monitoring

Adaptive Management ≈ Effectiveness Monitoring

Compliance

- Implementation plan
- Implementation and tracking of conservation measures
- Meeting adopted acres targets in accordance with Certificate of Inclusion
- Implementation of effectiveness monitoring
- Reporting
- Paying fees
- Permit terms and conditions
- Allowing UIC and FWS to access to enrolled properties
- Information sharing

Effects of the CCAA/Permit on the Monarch

- Compared 'with agreement' to 'without agreement' scenario
- Key inputs and assumptions
  - Adoption rates
  - Milkweed densities
    - Without CCAA (current)
    - With CCAA
  - % of habitat exposed to veg management
  - Rate of permanent habitat loss

Key Inputs & Assumptions

Sector	Adoption Rate (%)	Milkweed – With Agreement (Stems per Acre – East & Midwest)	Milkweed w/o Agreement	% Habitat Exposed to Veg Mgmt – Outside Adopted Acres	Permanent Habitat Loss (Annual Rate)
Transportation	6.0	156	52.67	57	1%
Energy	9.3	150	3.09	36	0.5%

Sources

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Table 6-1. Sector-specific Adoption Rates Required for Enrollment in the Agreement.

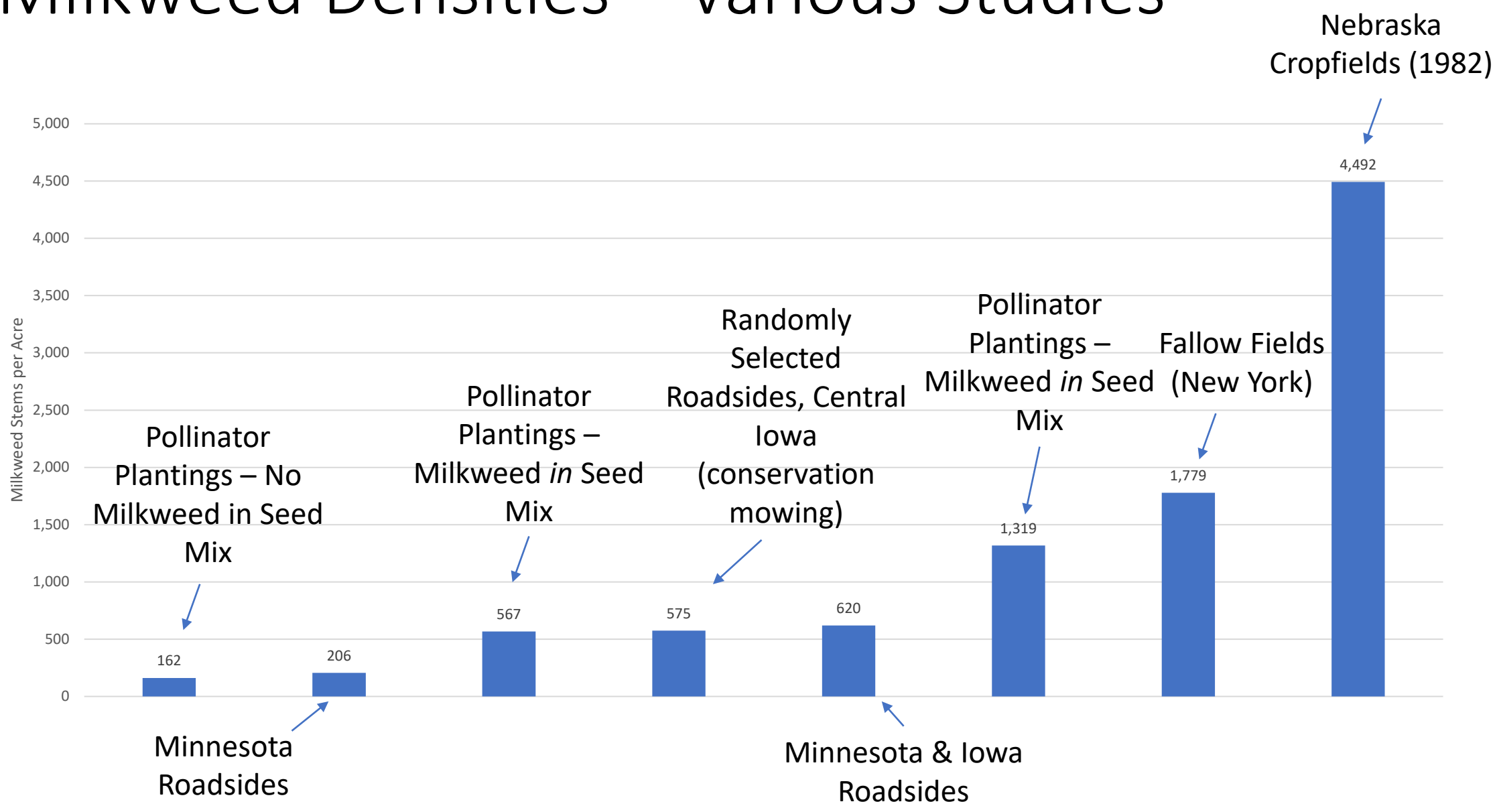
Adoption Rate By Sector	Transmission	Distribution	Generation	Highways (Interstate, U.S., State)	Roadways (County, Local)	Rail
Agreement Adoption Rates	18%	1%	9%	8%	5%	5%

Sources

Sector	Adoption Rate (%)	**Milkweed Densities – With Agreement (Stems per Acre – East & Midwest)**	Milkweed w/o Agreement	% Habitat Exposed to Veg Mgmt – Outside Adopted Acres	Permanent Habitat Loss (Annual Rate)
Transportation	6.0	156	53.17	37	1%
Energy	9.3	150	3.09	36	0.5%

Thogmartin et al. 2017 - "biologically reasonable amounts of new milkweed stems restorable in a given land-cover sector"

Milkweed Densities – Various Studies



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Hartz & Buhler 2000; Thogmartin et al. 2017

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CCAA Partner input

Key Inputs & Assumptions

Some proportion will cause take of monarch.

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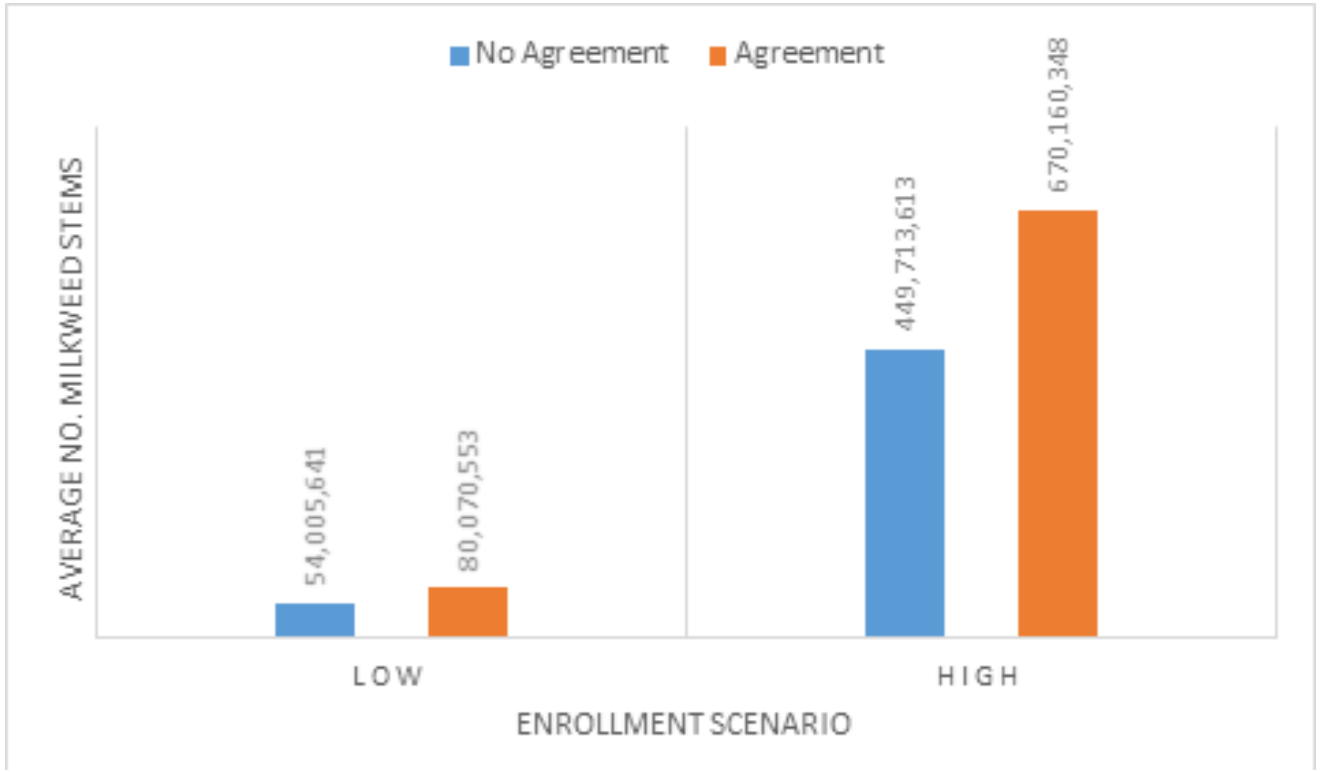
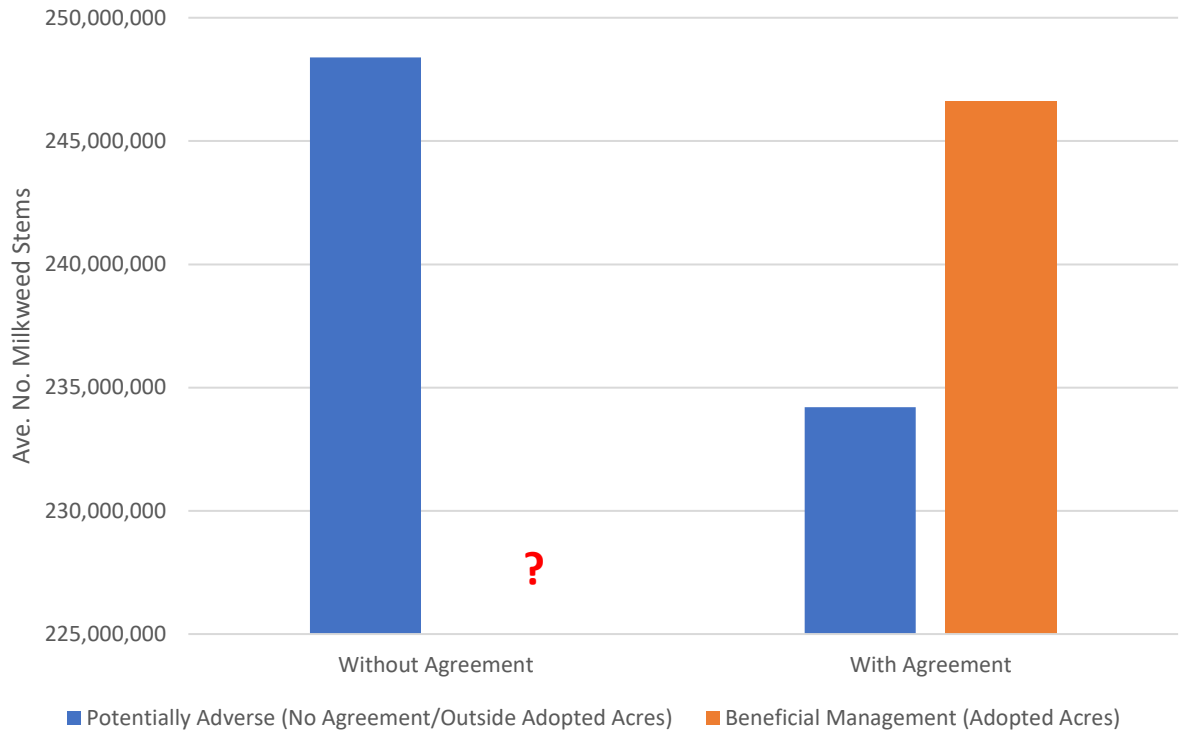
Results – Gains in Milkweed



- Analysis indicated CCAA will increase milkweed abundance
- Graph based on milkweed densities in East & Midwest
- Actual increases lower in West & South
  - proportional increases may be similar

Exposure of Monarch Habitat to Potentially 'Adverse' Management



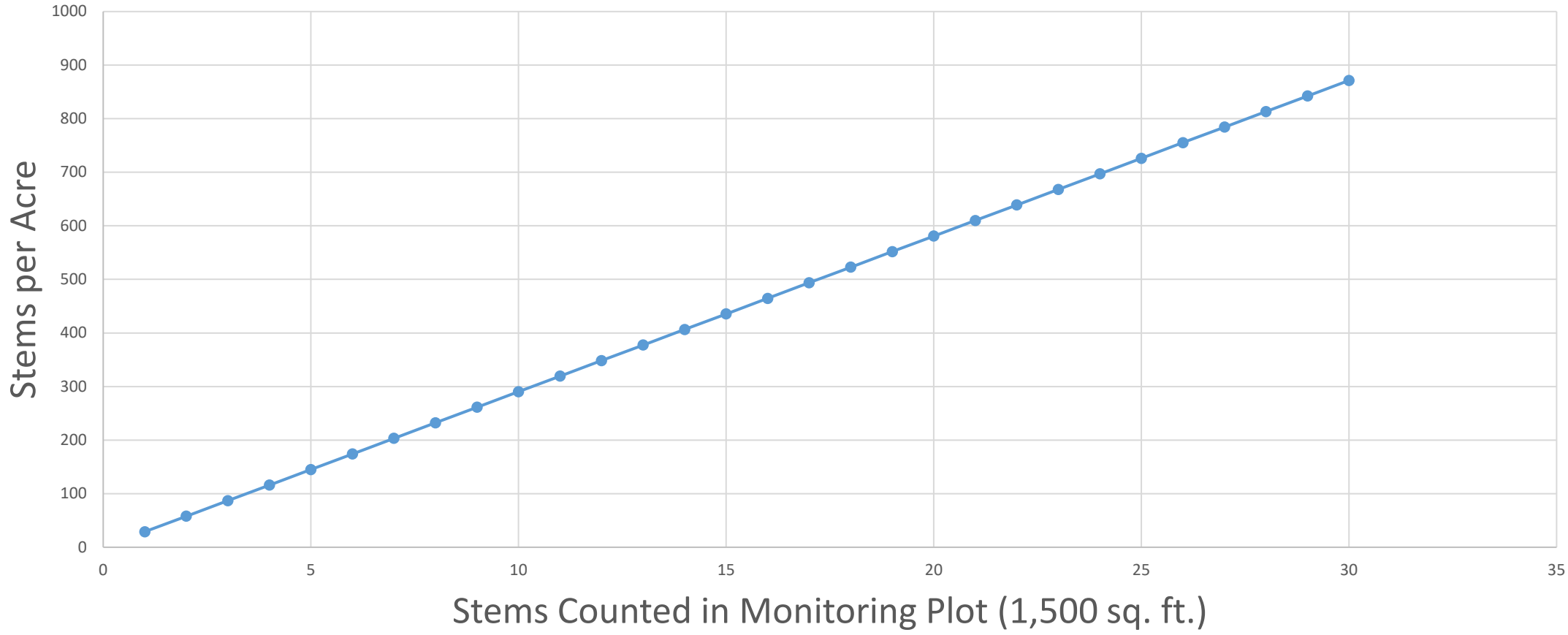
- Milkweed stems a proxy for monarch habitat
- Without Agreement
  - Assumed all veg management was potentially adverse
- With Agreement
  - Decline in extent of habitat vulnerable to adverse management
  - On adopted acres
    - Milkweed increases to biologically reasonable stem densities
    - Veg management is monarch-friendly

Adaptive Management Trigger

- What if milkweed densities are low?
  - Evaluate to determine cause of shortfall
  - UIC will work with Partner to increase densities
  - FWS will help develop follow-up actions
- Options Include
  - Management actions to increase milkweed
  - Increase accuracy and precision of estimates

Photo: Courtney Celley, USFWS

Value of Milkweed Counts in Plots



Effects to Nectar?

- Nectar obviously important to monarchs
- Difficult to analyze for net conservation benefit
  - Would 10% be an increase, generally?
  - Could find little data on coverage of nectar to compare to 10% goal

Photo: Mara Koenig, USFWS

Summary: Effectiveness & Compliance

USFWS CCAA Policy:

We will not revoke a permit simply because the conservation measures implemented through the CCAA fail to achieve the expected benefits to the species or its habitat despite compliance with the provisions in the CCAA.

Questions?

Photo: USFWS