

Pollinator Conservation Is Growing Up Lessons Learned from the Field



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What is the Xerces Society Pollinator Program

**The Xerces Society:
An International Pollinator
Conservation Extension NGO**

Collaborating with scientists, government agencies, farmers, cooperative extension, and other conservation groups

- Training and outreach
- Technical support to the USDA-NRCS and to farmers
- Technical publications
- Restoration and habitat enhancement
- Applied restoration research and monitoring
- Information for policymakers and media
- Document at-risk pollinators



Photo: Eric Mader

Xerces Ag Pollinator Program: Goals

Program Goals

- Increase populations of unmanaged (wild) pollinators and support managed bees
- Increase sustainability and profitability of agriculture



Photo: Mike Ormeg (Omeg Orchards)

Threats to Pollinators

- Lack of habitat (poor diet)
- Insecticides
- Disease/pathogens
- Pests

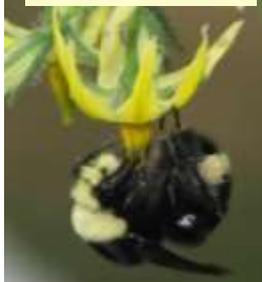



Photo: Mace Vaughan (Xerces)

Threats to Pollinators

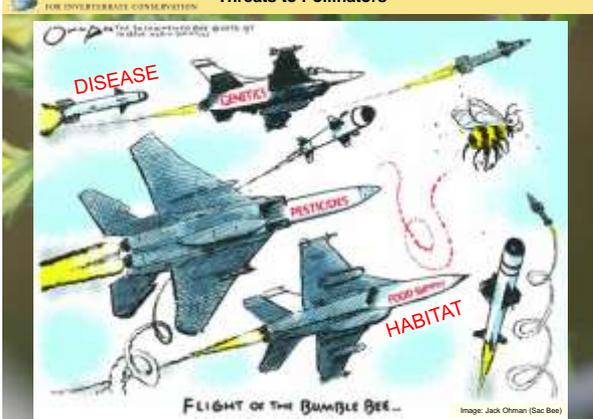


Image: Jack Orman (Sac Bee)

Threats to Pollinators



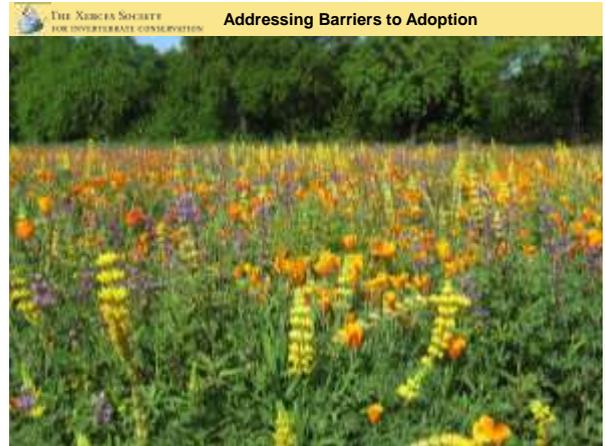
THE XERCEA SOCIETY FOR INVERTEBRATE CONSERVATION **Threats to Pollinators**

- **Lack of habitat (poor diet)**
- Insecticides
- Disease/pathogens
- Pests

Report on the National Stakeholders Conference on Honey Bee Health
National Honey Bee Health Stakeholders Conference Steering Committee

Published by the Xerces Society for Invertebrate Conservation
Petaluma, CA
October 16-17, 2013

Photo: Mack Vaughan (iStock)



THE XERCEA SOCIETY FOR INVERTEBRATE CONSERVATION **Problem: How do I plan a project?**

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- What are potential habitat limitations to bee diversity and abundance?
- What are management limitations to bee diversity and abundance?

THE XERCEA SOCIETY FOR INVERTEBRATE CONSERVATION **Lesson: We need tools to guide planning**

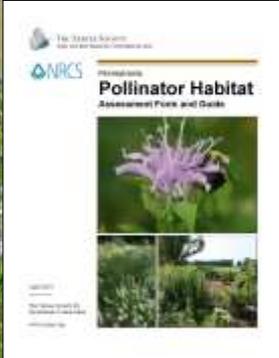
- What are potential habitat limitations to bee diversity and abundance?
- What are management limitations to bee diversity and abundance?
- What opportunities are available on my farm for habitat creation?

THE XERCEA SOCIETY FOR INVERTEBRATE CONSERVATION **Lesson: We need tools to guide planning**

- What are potential habitat limitations to bee diversity and abundance?
- What are management limitations to bee diversity and abundance?
- What opportunities are available on my farm for habitat creation?
- How do I prioritize specific components or location of habitat?

PENN STATE **ICP**

Product: Pollinator Habitat Assessment Guide



Guidance for pollinator habitat assessment and conservation planning

- A subjective tool to educate user (landowner and/or conservation planner)
- Quantify character of habitat and land management
 - Landscape-level
 - Site-level
- Prioritize conservation actions on a single farm

Problem: How Do I Restore Habitat?



Start with this...

Problem: How Do I Restore Habitat?



...move to this...

Problem: How Do I Restore Habitat?



...and end with this.

Lessons Learned : Clear Guidance

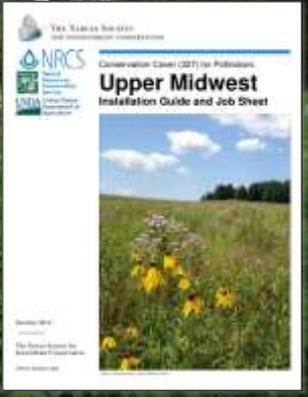
Establishment protocols that are not too expensive, but which work.

- Full growing season of site preparation and weed abatement
- Planting techniques that don't bring more weed seed to surface
- Follow up weed control during establishment



Photo: CA NRCS

Products: Habitat Installation Guides



Habitat Installation Guides

Wildflower meadows and hedgerows for multiple regions of the U.S.

www.xerces.org
www.xerces.org/pollinator-resource-center

Product: Field Trainings

Field trainings on how to:

- Assess habitat and farm management to minimize impacts to pollinators
- Design and implement pollinator projects



Problem: Growers want to know if it works



Lessons Learned: Demonstrate Efficacy

Demonstrating efficacy: California Hedgerow Research

- Farms with hedgerows have greater bee abundance and diversity.
- Hedgerows increase native bee numbers in crop fields.
 - Up to 200 meters from field edges
- Native plants support more native bee diversity than exotic plants.
- Honey bees also prefer native plants in hedgerows



June 2007 (Looking East)



November 2010 (Looking West)



Lessons Learned: Demonstrate Efficacy

Demonstrating efficacy: Michigan Wildflower Plantings



Slide adapted from Dr. Rufus Isaacs and Brett Blaauw
Department of Entomology, Michigan State University



Lessons Learned: Demonstrate It Works

By the Third Year: 12% higher blueberry yields in fields adjacent to wildflower plantings.

Out-of-pocket cost of establishing wildflowers is repaid in 3 to 4 years



Research by Brett Blaauw and Dr. Rufus Isaacs, Michigan State University | Photo: Brett Blaauw



Lessons Learned: Demonstrate It Works




Project ICP is evaluating the performance and economics of multiple pollination strategies in fruit and vegetable crops across the U.S.

Learn more at www.icpbees.org

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Problem: Landowners Don't Care?**



Landowner needs and interests are very personal and site specific

- What if don't grow insect pollinated crop?
- What if no interest in pollinator habitat?
- How do we inspire action?



Photo: Dan Harwell

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Lessons Learned: Financial Incentives**

Financial incentives are still critically important, and need to be fine-tuned.

Example: 2008 Farm Bill Conservation Programs or European Ag Env Schemes



Photo: Katharina Litvinoff

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Lessons Learned: Flexibility and Mainstreaming**

- Offer less expensive options
- Incorporate pollinator conservation into other practices:
 - cover cropping
 - riparian restoration
 - erosion control
 - conservation biocontrol
 - other wildlife conservation
 - forage and biomass plantings




Photo: Mace Vaughan

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Lessons Learned: The Big Picture**



Even with these pieces in place, conservation is place-based and requires close support and strong relationships.

Photo: Mace Vaughan

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Lessons Learned: The Big Picture**

Final piece of advice for graduate students or others interested in on-the-ground pollinator conservation...

Learn/practice applied skills:

- Habitat enhancement,
- Cover cropping,
- Pesticide risk mitigation,
- Teaching, etc.



Photo: Robin Coville

THE XERCES SOCIETY FOR INVERTEBRATE CONSERVATION **Thank You!!**

Neal and Christina...

Our financial support comes from:

- Xerces Society members
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