

Native Thistles

Important and Misunderstood Plants for Conservation



 **XERCES
SOCIETY**
for Invertebrate Conservation

Jim Eckberg,
Plant Ecologist/
Agronomist



Eric Lee-Mäder,
Pollinator Conservation
Prog. Co-Director



The Xerces Society: Protecting the Life that Sustains Us



- Major Programs:
- Endangered species
 - Aquatic invertebrates
 - Pollinator conservation
 - Pesticide program

Conservation, education, research, & advocacy to protect invertebrates and habitat



Introduction to the Xerces Society

Xerces Pollinator Team

- Staff in Nebraska, Minnesota, North Dakota, Iowa, Maine, Wisconsin, Oklahoma, North Carolina, New Jersey, Connecticut, California, Oregon, Washington.



Pollinator Conservation Education

- Outreach to 60,000+ farm and agency professionals since 2008
- Training events in all 50 states, Europe, Asia, Latin America



Habitat Restoration

- Supported 400,000+ acres of habitat created in the U.S. since 2008



Draft and final version: <https://xerces.org/native-thistle-guide/>

Draft available today, July 25

Final version available August 1

Native Thistles

A Conservation Practitioner's Guide

*Plant Ecology, Seed Production Methods,
and Habitat Restoration Opportunities*

James Eckberg, Eric Lee-Mäder, Jennifer Hopwood,
Sarah Foltz Jordan, and Brianna Borders



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Bumble bee and soldier beetle on field thistle





Great-spangled fritillary



American bumble bee



Owlet moth larva



Regal fritillary



Field thistle production plot in Minnesota



Native Thistles

Natural History

Conservation Value & Threats

Seed Production



Monarch on tall thistle



What are Native Thistles?



Edible Thistle

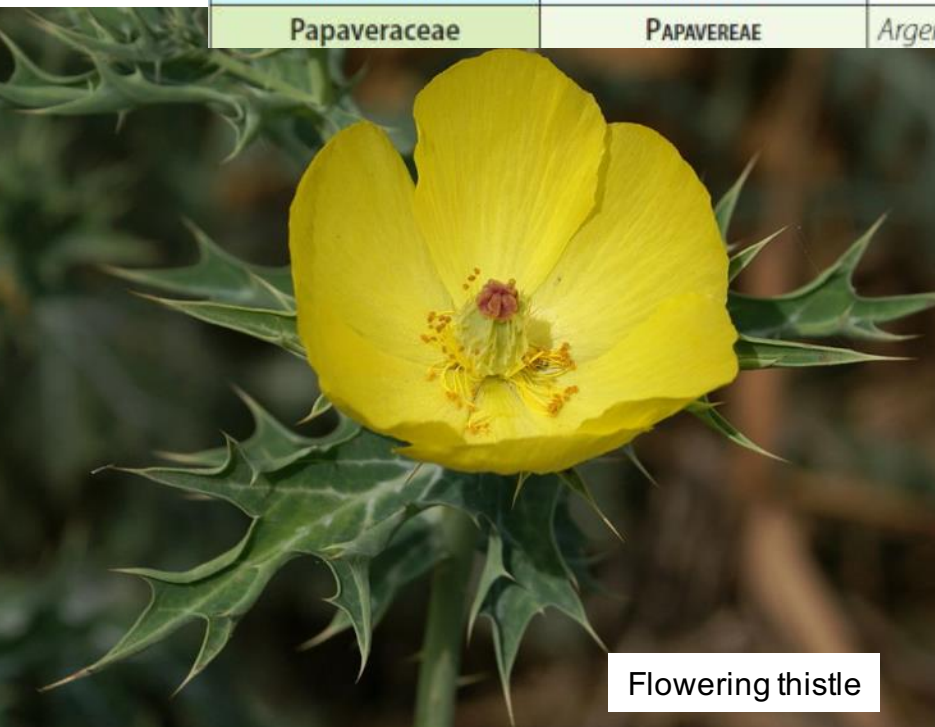




Invasive Canada thistle



Family	Tribe	Genera/Species	Common Name
Asteraceae	CARDUEAE (SYN. CYNAREAE)	<i>Carduus</i> spp.	Plumeless thistles
		<i>Carthamus</i> spp.	Distaff thistles
		<i>Carlina</i> spp.	Carlina thistle
		<i>Centaurea</i> spp.	Star-thistles, knapweeds
		<i>Cirsium</i> spp.	True thistles
		<i>Cynara</i> spp.	Artichoke thistle
		<i>Echinops</i> spp.	Globe thistles
		<i>Onopordum</i> spp.	Scotch thistles
		<i>Silybum</i> spp.	Milk thistles
		CICHORIEAE	<i>Sonchus</i> spp.
		<i>Cicerbita</i> spp.	Blue sow thistle
Apiaceae	SANICULEAE	<i>Eryngium heterophyllum</i>	Mexican thistle
Amaranthaceae	SALSOLEAE	<i>Kali</i> spp.	Russian thistle, tartar thistle
Papaveraceae	PAPAVEREAE	<i>Argemone mexicana</i>	Flowering thistle



Flowering thistle



Russian thistle



Platte thistle



Brewer's thistle

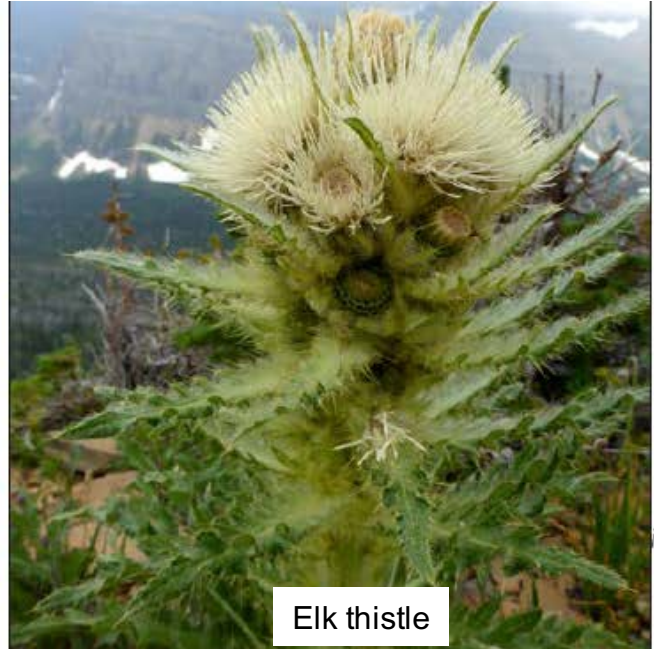


Hill's thistle

62 native thistle species



Tall thistle



Elk thistle



Pitcher's thistle

Elk thistle



Field thistle



Pitcher's thistle



Nuttall's thistle



Edible thistle



Waveleaf thistle



Elk thistle (8 varieties)





Conservation Value of Native Thistles



Tiger swallowtail



American lady



Hawk moth



Monarch; Soldier beetle



Documented over 200 pollinators of native thistle

American bumble bee



Thistle long-horned bee



Leafcutter bee



Preference of native thistle flowers over other forbs



American bumble bee on field thistle



Preference of native thistle flowers over other forbs



Monarch on tall thistle





Rufous and broad-tailed hummingbirds



American goldfinch

Importance to songbirds and other wildlife



Chickadee



Anna's hummingbird



American goldfinch

Generalist and specialist thistle-feeding insects



Differential grasshopper on field thistle



Owlet moth larva boring through field thistle stem



Native thistles role in suppressing invasive thistles

***Spillover of native herbivores inflicts severe damage on invasive thistles**



Native tall thistle



Non-native Bull thistle



Photo credit: E Bockmang Eckberg

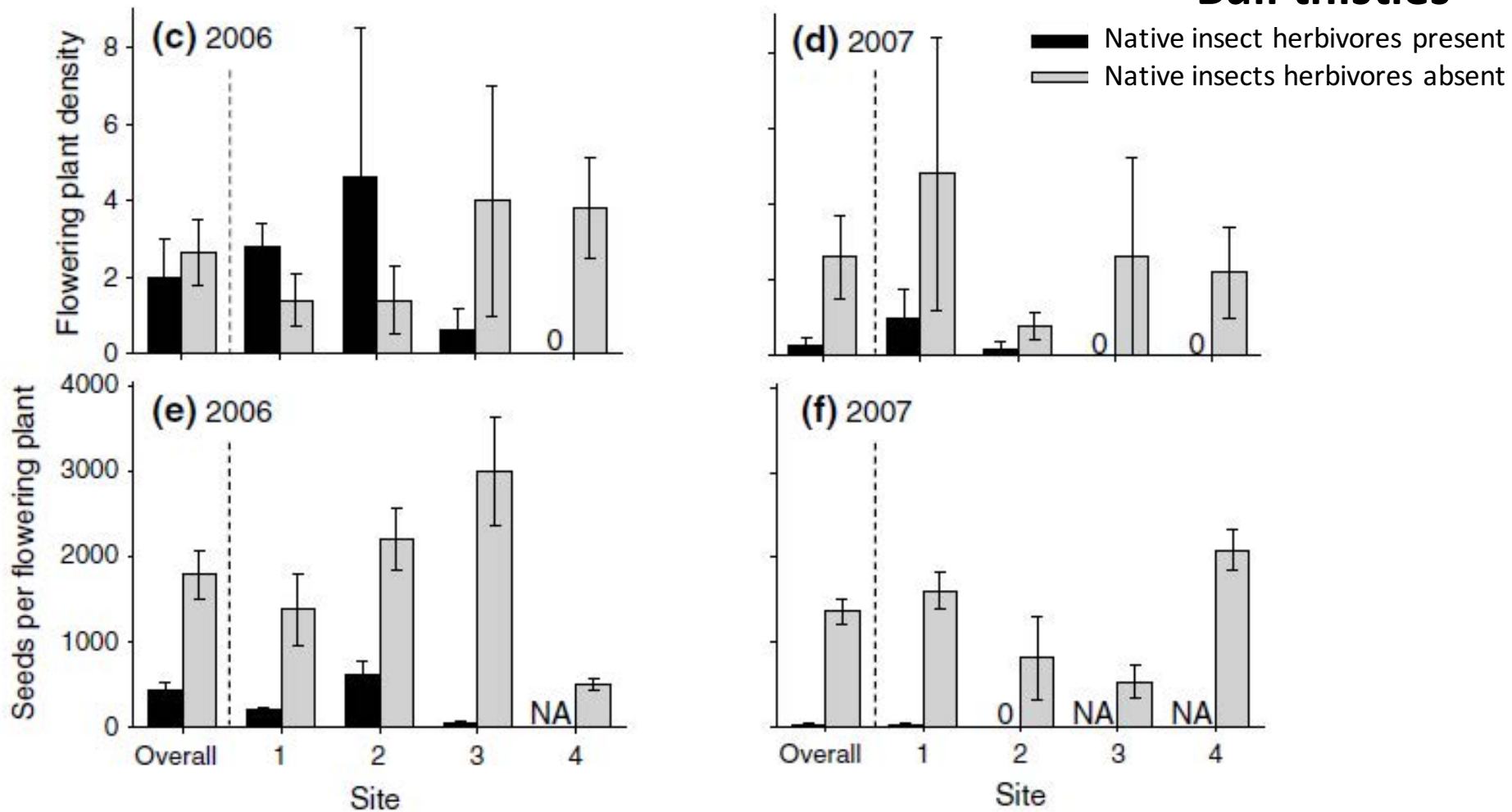


Native insects suppress invasive thistles



Bull thistles

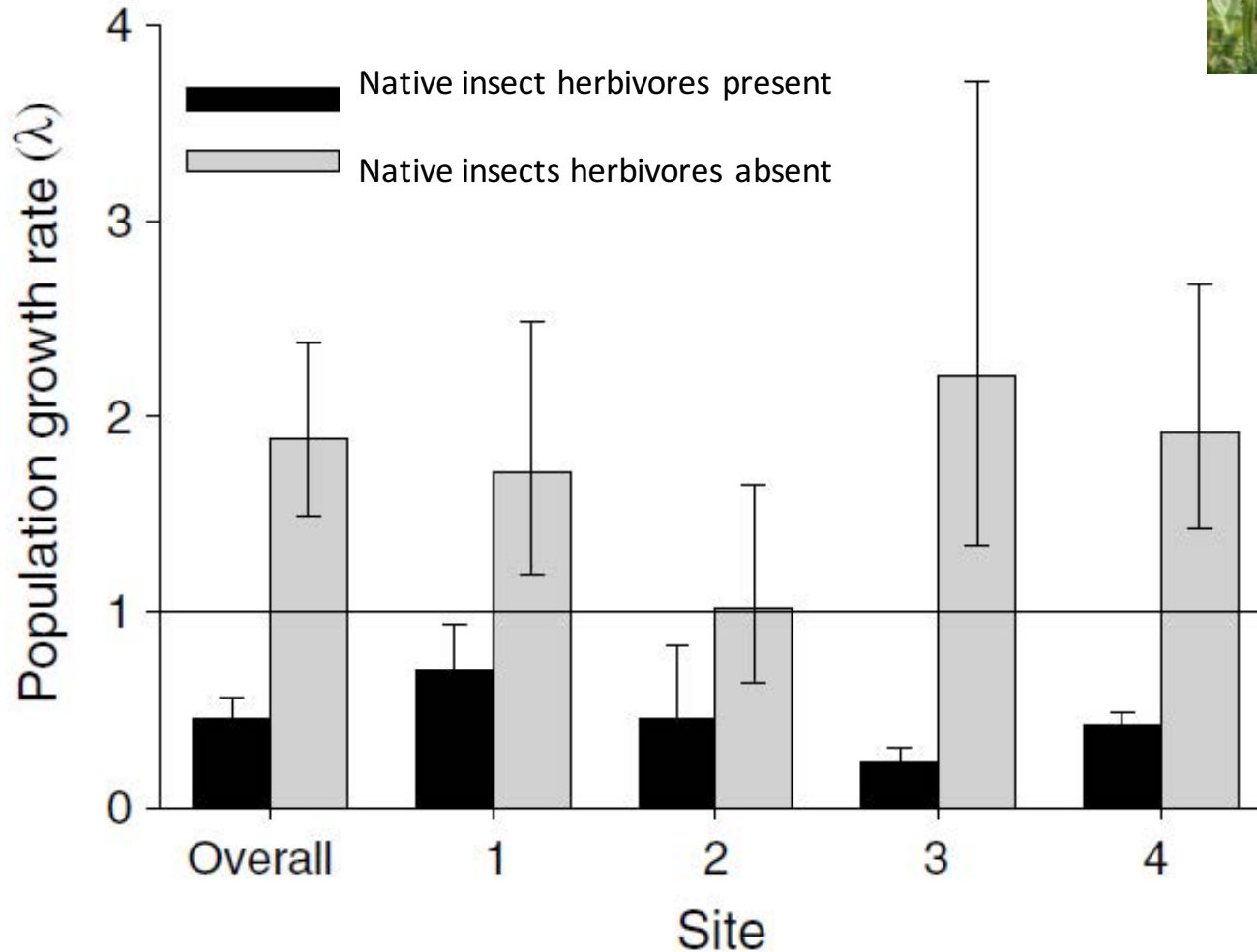
*Herbivores reduce invasive thistle density and seed set



Native insects suppress invasive thistles



*Insect feeding caused invasive thistle to decline



Native thistle decline and conservation



Threatened Pitcher's thistle



Impact of Nonnative Invasive Insects on Imperiled Thistles



Canada thistle bud weevil damage to wavyleaf thistle



Damage to peregrine thistle by thistle head weevil





Platte thistle



Pitcher's thistle



Indiscriminate Spraying and Regulatory Policies

Page 1 of 1



EIK Thistle
A NATIVE
PLANT!
PLEASE DO
NOT KILL
OR CRUSH.
Thanks



Vegetation zone: Montane, Subalpine
Time of bloom: June - August
Origin: Native



Germinating tall thistle



Tall thistle production plot



Field thistle seedling trays



Field thistle production plot



Information on:
Seed Collection
Germination
Field Establishment
Herbivores & Pathogens
Management
Harvest

Native Thistles

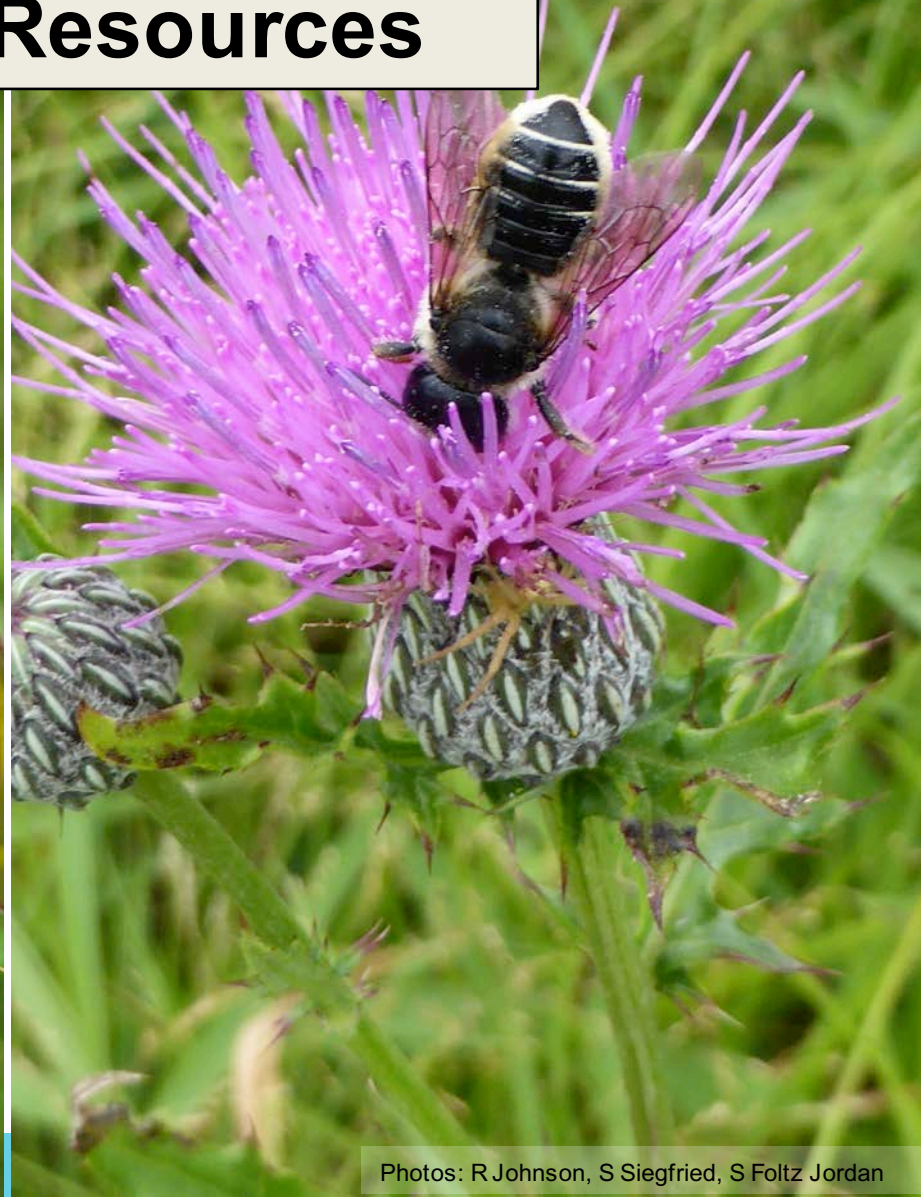
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Additional Resources

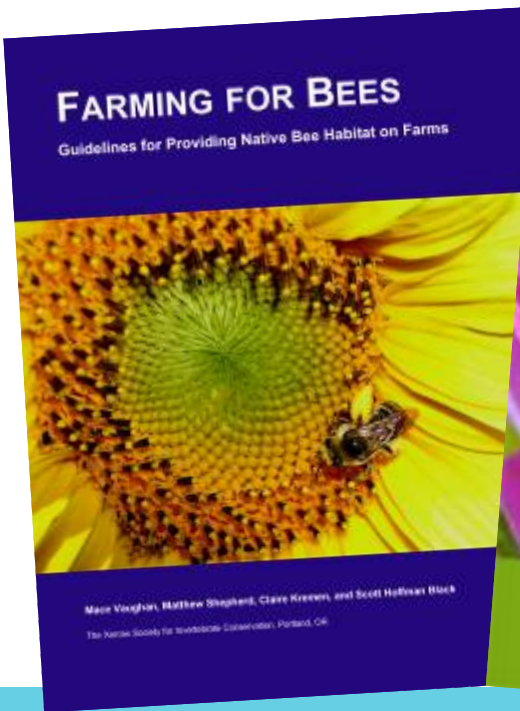
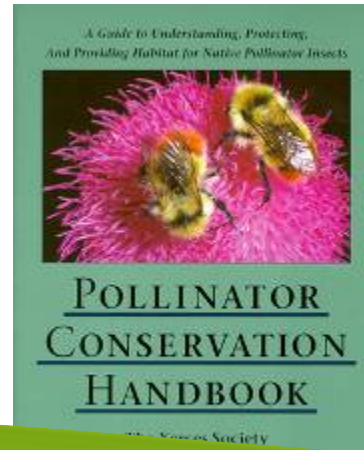


Additional Resources

The Xerces Society

- Free downloadable publications
- Conservation advocacy
- Workshops and short courses

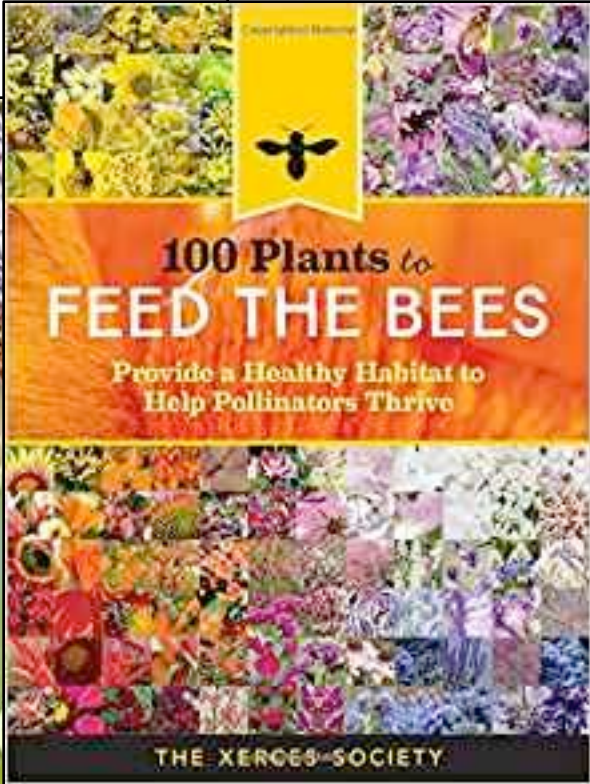
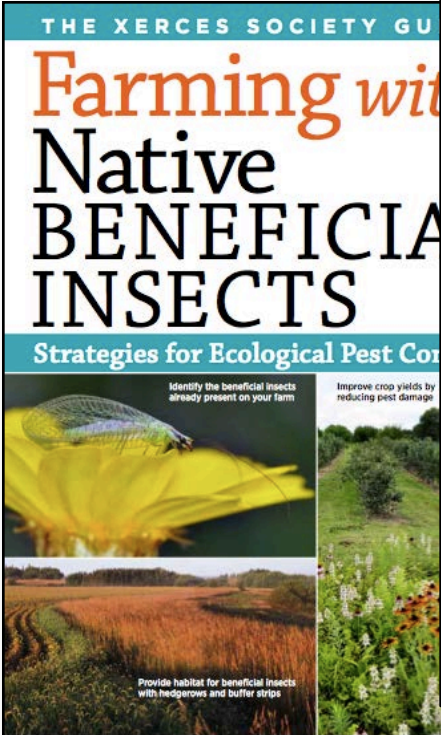
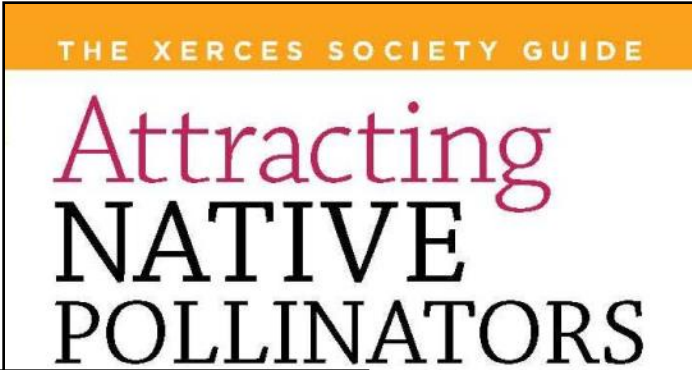
www.xerces.org



Additional Resources

Xerces Books

- *Attracting Native Pollinators*
- *Farming with Native Beneficial Insects*
- *Gardening for Butterflies*
- *100 Plants to Feed the Bees*



Pollinator Conservation Resource Center

Information from Xerces and other sources, including:

- Wildflower lists
- Conservation guides
- Bee nest construction guides
- Links to identification guides
- Pesticide guidelines
- Native plant nursery directory

www.xerces.org/pollinator-resource-center

THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

about programs publications news invertebrates our work support

Pollinator Conservation Resource Center

Welcome to the Pollinator Conservation Resource Center, where you can find regional information about plant lists, habitat conservation guides, and more. Scroll over the map below and click on your region of the country. For questions or comments about the Resource Center, or to suggest additional content, please contact [Steph Medler](mailto:Steph.Medler@xerces.org), Xerces Assistant Pollinator Program Director.

[Click here to donate](#)

Program Features

- [main page](#)
- [pollinator resource center](#)
- [activities](#)
- [organic farming resources](#)
- [managing habitat for pollinators](#)
- [gardens](#)
- [native bee surveys](#)
- [bumble bees in decline](#)
- [and list of bees](#)
- [resources for teachers](#)
- [xerces pollinator publications](#)

Program Highlights

- [Online presentation](#) on pollinator conservation basics in farm landscapes
- The Xerces Society works with congressional staff to include [pollinators in the Farm Bill](#)
- Xerces organizes a [briefing to U.S. legislators](#) on Honeybees, Colony Collapse Disorder and native pollinators
- The National Research Council issues a [report](#) on the Status of Pollinators in North America
- Agriculturally important [bumble bees in decline](#)

This resource center is a collaboration of the Xerces Society and [Neal Williams at the University of California, Davis](#). Significant funding was provided by a grant from NESARE. Additional funding was provided by the USDA Natural Resources Conservation Service, the Columbia Foundation, Turner Foundation, Panis Rhee Foundation, Disney Wildlife Conservation Fund, CS Fund, Wildwood Foundation, CERES/Greater Milwaukee Foundation, Bullitt Foundation, Organic Valley, Organic Farming Research Foundation, The White Pine Fund/The Hawkspine Foundation, and Xerces Society members.

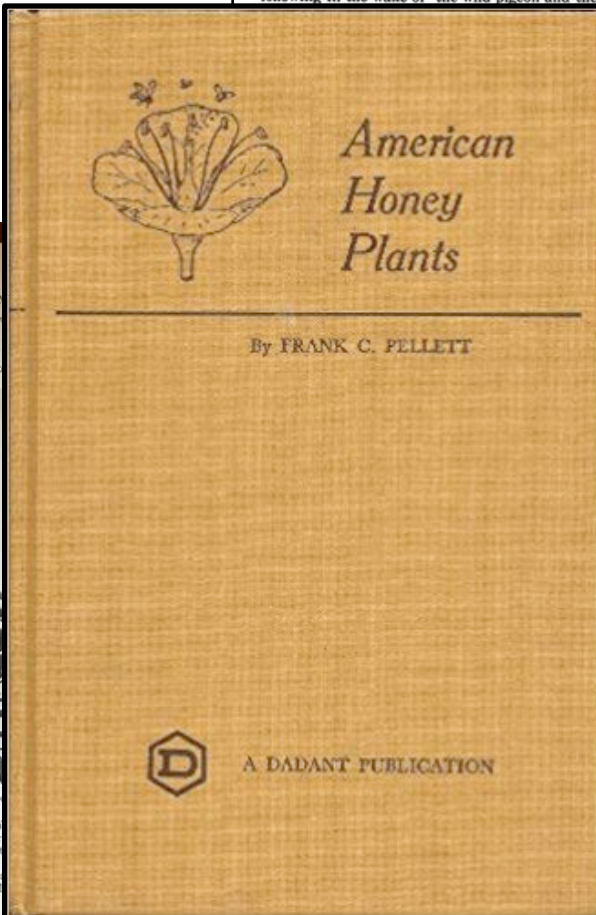
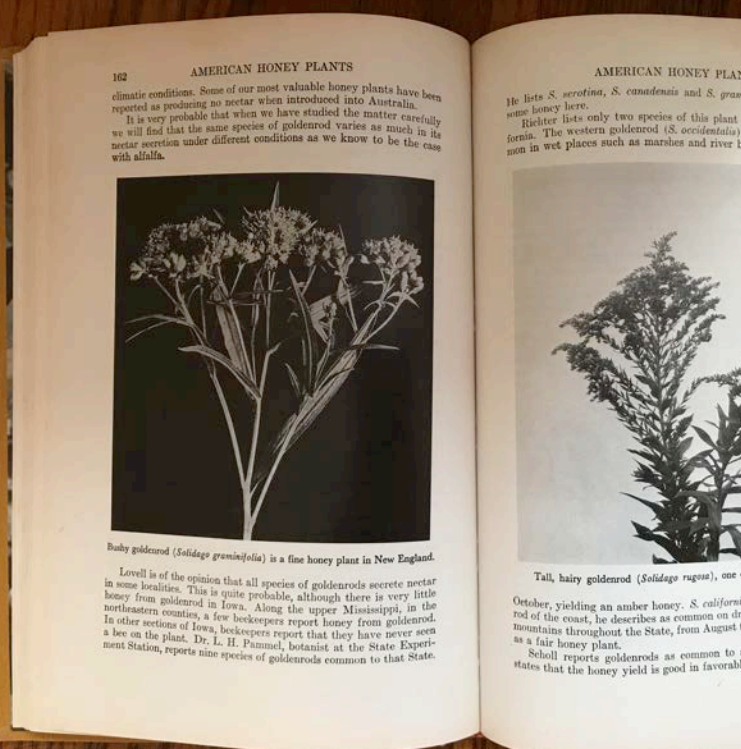
SARE **UC DAVIS** **NRCS** Natural Resources Conservation Service
UNIVERSITY OF CALIFORNIA

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Take Home Message

Frank Chapman Pellett (1879-1951)

- Iowa lawyer, naturalist, beekeeper, philosopher, tomato gardener, bird conservationist, wildlife refuge-creator and more!



SAVING IOWA'S WILD FLOWERS IS FRANK C. PELLETT'S HOBBY

By FRANK G. MOORHEAD

SAVE the wild flowers from extinction," is the slogan raised by Frank C. Pellett. Seven years ago he gave up a lucrative law practice in the Ozarks, to devote himself to preventing the larkspur, the wild honeysuckle, the Sweet William and the Johnny-jump-up from following in the wake of the wild pigeon and the buffalo.

chosen trowel. Foul brood must wait until the flower is dug up, roots and all, and carefully packed away for the journey to the Pellett wild-flower preserve.

It is this two-acre preserve which makes the neighbors maddest, in this country of neat farms and every foot of ground cultivated; for from the road it is only an overgrown tangle. But Frank Pellett returns from every trip, supremely happy to get back, with some treasure, which is lovingly transplanted. One must step carefully, or some flower, preserved there against extinction, will be crushed.

"Twenty years from now, perhaps ten, two-thirds of our most common wild flowers will be extinct, unless some such work as this is done," declares Frank Pellett. "Why? Because, with farm land at \$200 an acre, there is no longer any room for the wild flower. They are even talking of narrowing the country roads from sixty feet to forty; ex-Governor Carroll, of Iowa, is championing it. It means so many more millions of dollars for the corn and oats and wheat crops; it also means so much less room for the wild rose and the golden-rod. I am advocating a wild-flower preserve like mine for every county—for every township, if possible.

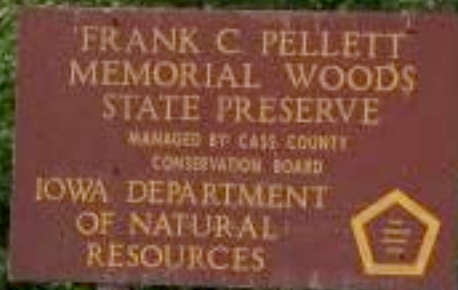



at home does not contain. Out he gets, with the

Our Backyard Neighbors

“There were many wild flowers, such as asters and goldenrod, crownbeard and rudbeckia, which the neighbors regarded as weeds, but which the Naturalist guarded with jealous care.”

-Frank Chapman Pellett, 1917



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Sustainable Agriculture Research and Education program

Turner Foundation, Inc.

The White Pine Fund

USDA National Institute of Food and Agriculture

USDA Natural Resources Conservation Service

Whole Foods Market and its vendors

Whole Systems Foundation





Protecting the Life that Sustains Us

The Xerces Society is a nonprofit organization that protects wildlife through the conservation of invertebrates and their habitat. For over forty years, the Society has been at the forefront of invertebrate protection worldwide, harnessing the knowledge of scientists and the enthusiasm of citizens to implement conservation programs.

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