What's All the Buzz About?

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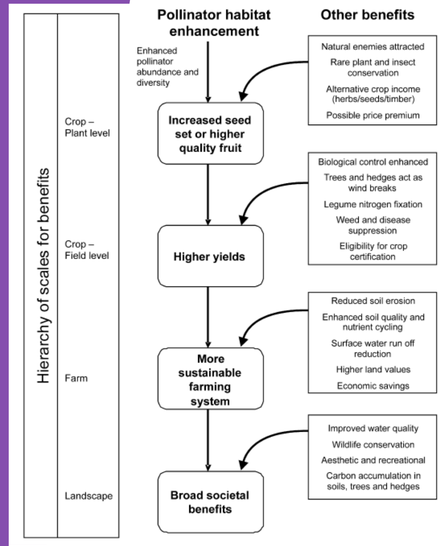
INTRODUCTION

Pollination is one of the most important and widely studied ecosystem services. Over 65% of wild plants and 76% of major domestic food crops depend on animal pollinators. Pollinators promote plant biodiversity, contribute to soil and water quality protection, and are critical to maintaining U.S. and global food security. Pollination services are valued annually at $24 billion to the U.S. economy and $215 billion to global food production. Pollinator populations are threatened by habitat conversion and degradation, climate change, exposure to chemical pesticides, and decreases in the abundance and availability of floral resources. At Marion County Lake, there is no evidence of existing pollinator habitat, requiring installation of pollinator habitat near and around the lake for pollinators to visit the area. Three main types of pollinators that are highlighted - bees, monarchs, and the Regal Fritillary - chosen for their popularity, location of their natural habitat in Kansas and the tallgrass prairie, conservation needs, and their potential benefits to the environment and lake.

BENEFITS OF POLLINATORS

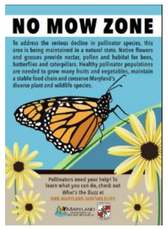


Benefits of pollinators include greater crop yields, biodiversity conservation, conservation biological control, soil and water quality protection, rural prosperity and aesthetics, weed suppression, and weed control savings. Installing pollinator habitats creates homes for pollinators while also including a host of ecosystem services such as increased infiltration of rainwater, providing habitat for other wildlife species, preventing invasive species from taking over, supporting agricultural systems, and creating a beautiful space for people to learn and enjoy nature. This provides Marion County Lake with an opportunity to enhance biodiversity, aesthetics, and educational activities at the lake.

COMMUNITY OUTREACH AND EDUCATION

Community education about pollinators can greatly influence their health, abundance, and diversity. Awareness and support for pollinator conservation can be generated by:

- Using interpretive signs posted near pollinator habitats
- Fliers, local newspaper bulletins, websites, and social media outlets
- Reaching out to local schools and youth programs such as 4H, FFA, Girl Scouts, and Boy Scouts
- Hosting Citizen Science projects such as butterfly tagging, and the building of butterfly and bee boxes



ACKNOWLEDGEMENTS

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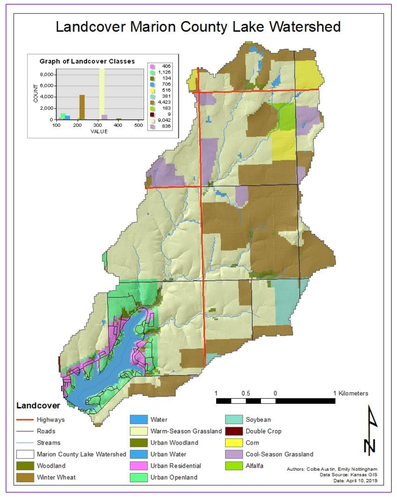
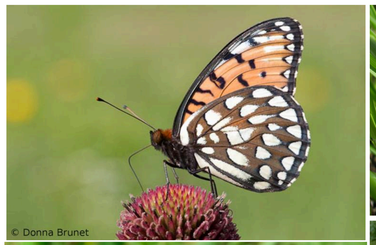
MARION COUNTY LAKE



- Located in Marion County, Kansas, approx. 6.4 km SE of the city of Marion
- Built in 1936 by the Civilian Conservation Corps as part of the New Deal
- 62 ha in surface area
- Soils are mainly silt loams and silt clay loams
- Surrounding land cover is mostly grassland and herbaceous
- Elevation ranges from 393-430 m above sea level
- Average annual precipitation: 30-35 in
- Average mean annual temperature: 54-56 °F (average high of 91 °F and average low of 19 °F)

Marion County Lake is mainly used for boating, fishing, and water recreation. There are several camping sites around the lake along with a frisbee golf course located near the southeast portion of the lake. There is also a shelter house, picnic areas, a museum, children's playground, and boating and fishing docks.

POLLINATOR ECOLOGY



Regal Fritillary

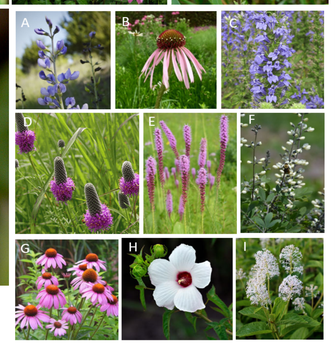
Speyeria idalia

Habitat requirements: native tallgrass prairie, prairie violets (*Viola spp.*)

Monarch Butterfly

Danaus plexippus

Habitat requirements: (a) Milkweed, (b) Joe Pye, (c) Coneflower, (d) Aster



Bees

Habitat requirements: (a) Blue Wild Indigo, (b) Pale Purple Coneflower, (c) Great Blue Lobelia, (d) Purple Prairie Clover, (e) Prairie Blazing Star, (f) White Wild Indigo, (g) Eastern Purple Coneflower, (h) Rosemallow, and (i) New Jersey Tea

FUNDING OPPORTUNITIES

The following organizations provide grants and funding for pollinator habitat installation and maintenance:

- National Fish and Wildlife Foundation
- Monarch Watch
- Feed A Bee
- U.S. Fish and Wildlife Service
- Pollination Project
- Bee and Butterfly Habitat Fund
- Monarch Joint Venture
- Conservation Reserve Program

OBJECTIVES

1) Provide site recommendations and a list of appropriate plants to use for pollinator habitat.
2) Outline the best management strategies to optimize habitat health.
3) Research funding opportunities available to Marion County Lake for pollinator habitat installation.
4) Develop an outreach and educational plan pertaining to pollinators for Marion County Lake community members and visitors.

SITE RECOMMENDATION AND MAINTENANCE

Pollinator habitat should be installed in the areas shown in the figure to the left. Habitat should include a variety of native grasses and flowering plants to increase pollinator visits and aesthetics of the lake.

Management recommendations:

- Use minimum-till drill seeding to establish habitat
- Limit mowing, herbicide, and pesticide use
- 2-year burn rotation to eliminate unwanted vegetation and maintain the health of native plants

Potential pollinator habitat sites near disk golf course on the south side of the lake (left) and near community picnic area on north shore (right)

BIODIVERSITY MANAGEMENT

Marion County Lake lacks a lake management plan to provide specificity for management policies, including those relevant to wildlife present at the lake. It is recommended that Marion County Lake include a biodiversity management clause within their lake management plan.

The U.S. Fish and Wildlife Service suggests that state fish and wildlife agencies:

- Include pollinators in their state wildlife action plans as species of greatest conservation need
- Add pollinator-friendly habitat as part of projects for other target species
- Review management practices to make them more pollinator friendly

In accordance with this, Marion County Lake should include within its lake management plan policies that seek to increase the diversity and number of rare, threatened, or endangered local pollinator species by creating or enhancing habitats and natural areas that support these species.

IMPLEMENTATION PLAN

A basic plan to implement and maintain pollinator habitat at Marion County Lake:

1. Apply for funding opportunities during the summer months leading up to site installation.
2. Prepare site for habitat installation by burning the fall before the habitat is to be installed.
3. Plant grass and flowering plant mixes in the spring in recommended areas.
4. Install interpretive signage and utilize media outlets to make public aware of project. Print informational fliers provided and make available in community areas.
5. Follow long-term maintenance plan that includes burning every 2 years in the spring.