VILLAGE OF HOBART
GREATNESS IS GROWING

**Village of Hobart**
**Village Office 2990 S. Pine Tree Rd, Hobart, WI**
**www.hobart-wi.org - www.buildinhobart.com**

**Notice is hereby given according to State Statutes that the PARK AND RECREATION COMMITTEE of the Village of Hobart will meet on Monday September 30th 2024. NOTICE OF POSTING: Posted this 27th day of September, 2024 at the Hobart Village Office, 2990 S. Pine Tree Rd and on the village's website.**

# MEETING NOTICE – PARK AND RECREATION COMMITTEE

**Date/Time: Monday September 30th 2024 (5:15 P.M.)**
**Location: Village Office (2990 S. Pine Tree Road)**

## ROUTINE ITEMS TO BE ACTED UPON:

1. Call to order/Roll Call.
2. Certification of the open meeting law agenda requirements and approval of the agenda
3. Public Comment on Non-Agenda Items
4. Approval of the June 24th 2024 minutes (Page 2)

## ACTION ITEMS

**5. DISCUSSION AND ACTION – Pickleball Courts at Four Seasons Park (Page 3)**
Following the direction of the Village Board, staff will present the specific project plans and costs for the construction of two (2) pickleball courts in Four Seasons Park, with an option to construct four (4), with the work commencing in the spring of 2025. The Committee's recommendations will go to the Village Board for their October 1st meeting.

**6. DISCUSSION AND ACTION – Pollinator Park in Centennial Centre (Page 4)**
Mark Konlock (Director of Horticulture, GB Botanical Garden) and Maria Otto (City of Green Bay Conservation Corps Coordinator) have been invited to discuss the future of a pollinator park in Centennial Centre (the green space at the NW corner of the Centennial Center Blvd-Centerline Drive-Adriana Ct roundabout), as well as the costs and timetable for the installation and maintenance. The Committee's recommendations will go to the Village Board for their October 1st meeting.

**7. DISCUSSION AND ACTION - Items for Future Agendas/Scheduling of Next Committee Meeting**

**8. ADJOURN**

_____
Aaron Kramer, Village Administrator

COMMISSION MEMBERS: Mary Jane Hemmy (Chairperson), Laura Lear (Vice-Chairperson), Cynthia Silvers, Jane Jerzak, Kassie Freckman, Tammy Zittlow (Alternate)

**NOTE:** All agenda and minutes of Village meetings are online: www.hobart-wi.org. Any person wishing to attend, who, because of their disability requires special accommodations, should contact the Village Clerk at 920-869-1011 with as much advanced notice as possible. Notice is hereby given that action by the Board may be considered and taken on any of the items described or listed in this agenda. There may be Board members attending this meeting by telephone if necessary.

VILLAGE OF HOBART
GREATNESS IS GROWING

# Village of Hobart Parks & Recreation Committee Minutes
# Monday June 24th 2024

**ROUTINE ITEMS TO BE ACTED UPON:**

1. Call to order/Roll Call (5:30 PM) – Mary Jane Hemmy (Chairperson), Laura Lear (Vice-Chairperson), Cynthia Silvers, Kassie Freckman and Jane Jerzak were present. Tammy Zittlow (Alternate) was absent.
2. Certification of the open meeting law agenda requirements and approval of the agenda – ACTION: To certify the open meeting law agenda requirements and approval of the agenda MOTION: Silvers SECOND: Lear VOTE: 5-0
3. Public Comment on Non-Agenda Items - None
4. Approval of the June 29th 2024 minutes - MOTION: Lear SECOND: Freckman VOTE: 5-0

**ACTION ITEMS**

**5. DISCUSSION AND ACTION – Request for Proposals (RFP) for Pickleball Courts at Four Seasons Park –** The RFP was reviewed by the Committee with some minor grammatical changes recommended. The final draft of the RFP will be on the July 2nd Village Board agenda for action. ACTION: To forward the RFP to the Village Board with a positive recommendation MOTION: Freckman SECOND: Jerzak VOTE: 5-0

**6. DISCUSSION AND ACTION – Design and Budget for Fireman's Park –** This park would be located adjacent to the new fire station on South Pine Tree Road. Village Administrator Kramer and Fire Chief Lancelle said the project is temporarily on hold while plans for a training tower for the new station are being considered. No action was taken.

**7. DISCUSSION AND ACTION – Design and Budget for Riverdale Dog Park -** This park would be located on Village-owned property on Riverdale Drive (County Highway J). The Committee asked that dog waster stations be added to the RFP, and that lighting of the parking lot be included. The final draft of the RFP will be on the July 2nd Village Board agenda for action. ACTION: To forward the RFP to the Village Board with a positive recommendation MOTION: Silvers SECOND: Jerzak VOTE: 5-0

**8. INFORMATION – Update on Current Projects –** Kramer said he was investigating grant opportunities for additional pedestrian trails in the community, specifically the Centennial Centre Boulevard area. Lear said she would like the Committee to explore the possibility of creating a native planting area in the wetland at the intersection of Centerline Drive and Centennial Centre Boulevard, perhaps in a partnership with the Green Bay Botanical Gardens.

**9. DISCUSSION AND ACTION - Items for Future Agendas/Scheduling of Next Committee Meeting** – No specific date was set.

**10. ADJOURN (6:12 PM)** – MOTION: Lear SECOND: Jerzak VOTE: 5-0

| (2) PICKLEBALL COURTS | |
|---|---|
| **ITEM** | |
| EARTHWORK | $14,000.00 |
| STONE | $8,500.00 |
| CONC SIDEWALK | $4,500.00 |
| ASPHALT | $33,500.00 |
| FENCE | $45,000.00 |
| NETTING | $8,000.00 |
| COURT SURFACE | $20,500.00 |
| RESTORATION | $5,000.00 |
| SURVEY/ENGINEERING | $16,000.00 |
| **TOTAL=** | **$155,000.00** |

| (4) PICKLEBALL COURTS | |
|---|---|
| **ITEM** | |
| EARTHWORK | $23,000.00 |
| STONE | $17,000.00 |
| CONC SIDEWALK | $4,500.00 |
| ASPHALT | $61,000.00 |
| FENCE | $90,000.00 |
| NETTING | $16,000.00 |
| COURT SURFACE | $39,000.00 |
| RESTORATION | $7,500.00 |
| SURVEY/ENGINEERING | $17,000.00 |
| **TOTAL=** | **$275,000.00** |

Above proposed pricing cover construction and engineering related services for the proposed pickleball courts as specified in the RFP.

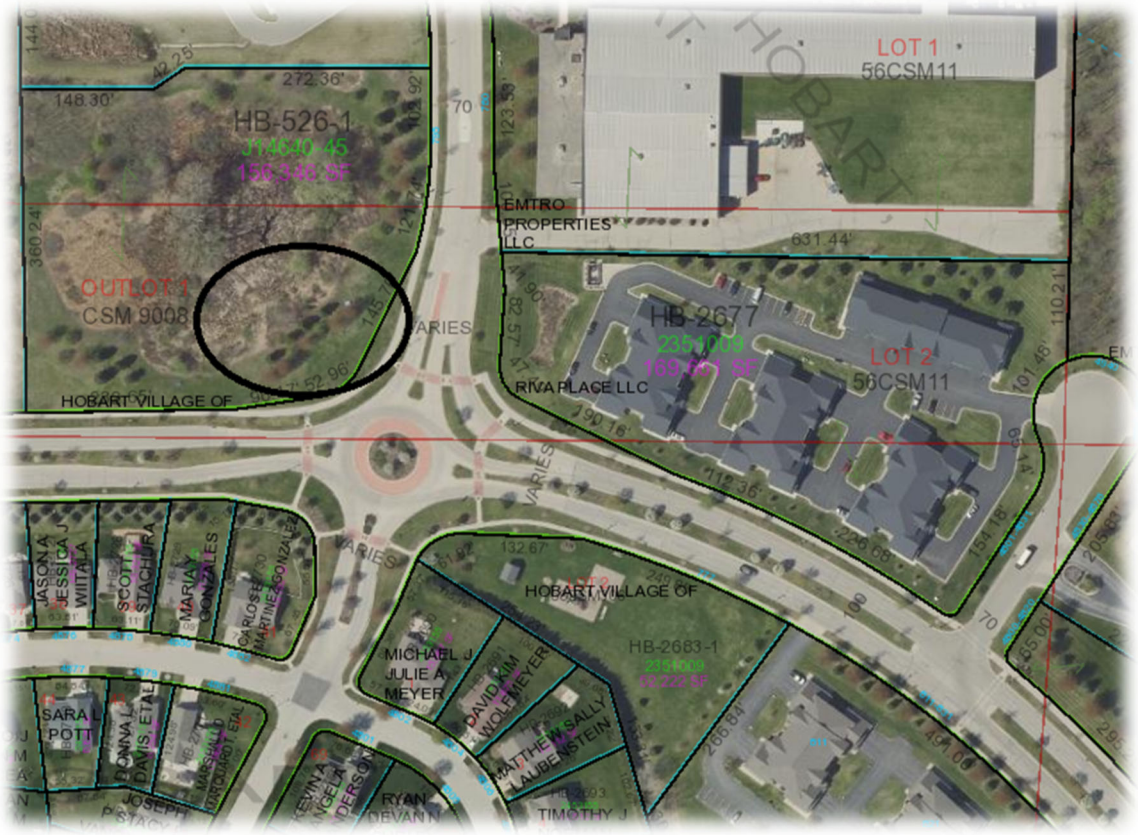
VILLAGE OF HOBART
GREATNESS IS GROWING

# MEMORANDUM

**TO:** Park and Rec Committee & Hobart Village Board
**FROM:** Aaron Kramer, Village Administrator
**RE:** Creation of Pollinator Park (Centennial Centre)
**DATE:** September 26th 2024

## BACKGROUND

The Village, in conjunction with the Green Bay Botanical Garden (GBBG) and the City of Green Bay Conservation Corps, is seeking to create a "Pollinator Park" in the green space located northwest of the Centennial Center Boulevard-Centerline Drive-Adriana Court roundabout.




This would be the first park of its kind in Hobart, and utilize a relatively unused area in the green space.

## BUDGET

The project would require some minimal expenses to get it underway and do some of the early maintenance. The work would be done the Green Bay Conservation Corps, with assistance from the Hobart Public Works Department. Funding would come from the Village's Park and Recreation Fund.

| ***Component*** | ***Cost*** | ***Comments*** |
|---|---|---|
| **Sod removal** | $750 | This would take place this fall. Mulch would need to be delivered to the site prior to the removal so that it can be spread immediately after. For the 2,250 square foot planting, it is recommended about 14 cubic yards of mulch be used. This provides roughly 1 to 2 inches of depth. The Conservation Corps would prefer to pile the cut sod for removal by Hobart staff; otherwise, the costs would increase. |
| **Initial planting** | $2,000 | This would occur next summer (2025). |
| **Weekly maintenance** | $1,000 | This would be for the summer of 2025 as the park is establishing. |

**DONATION:** GBBG would donate 1,000 plants for the project (estimated value of $3,000), and ten (10) people for eight (8) hours at $25 per hour on the date of planting (estimated value of $2,000. The total GBBG donation of plants and labor would be approximately $5,000.

As far as maintenance goes after next year, this could be done through the Conservation Corps (at a cost) or through a group of volunteers in Hobart.

Future pollinator parks could be developed throughout Hobart in unused or underused green spaces owned by the Village.

## RECOMMENDED MOTION

To approve the proposed Pollinator Park project in Centennial Centre as presented to the Village Board, with funding to come from the Park and Recreation Fund.

kept out of natural areas where they can spread diseases and compete with native species. Use a thoughtful approach when mowing roadsides, grazing rangeland, or using prescribed fire.

***Become an advocate for insect conservation.*** People rarely protect what they do not know and appreciate. Personal outreach to others is a powerful means for increasing awareness and appreciation of insects. Join Xerces community-science programs including our bumble bee and firefly atlas programs, apply to be a Xerces Ambassador, or get your children or your school involved in X Kids.

For more information visit **xerces.org**.

(This list of actions is partly based on the paper by Kawahara et al. published in *Proceedings of the National Academy of Sciences* in 2021.)

Will you support our work? Make a tax-deductible donation to the Xerces Society today! To learn more, visit **xerces.org/donate**.

XERCES SOCIETY
for Invertebrate Conservation

Established in 1971, the Xerces Society is an international, donor-supported nonprofit dedicated to protecting the natural world by conserving invertebrates and their habitat. The Society uses hand-on conservation, advocacy, education, and applied research to protect the life that sustains us.

**The Xerces Society for Invertebrate Conservation**
**(855) 232-6639 | xerces.org**

The Xerces Society's work is made possible with generous support from Bently Foundation, the National Science Foundation Research Coordination Network, and Xerces Society members. Thank you.



22-012_01

# Why We Need Insects and Other Invertebrates

## *And what you can do to help*

Butterflies, bees, dragonflies, beetles, spiders, mussels, and other invertebrates sustain life as we know it. Yet many are declining due to habitat loss, pesticide use, climate change, and more. There are steps we can all take to help these vital animals.

### Why Conserve Insects and Other Invertebrates?

Insects pollinate most flowering plants, including many of the fruits, vegetables, nuts, and seeds that both humans and wildlife depend on. The vast majority of bats, birds, and freshwater fish eat insects. Invertebrates clean our streams and rivers, and help clear up plant, animal, and human waste. One study found that the ecosystem services provided by insects are worth more than $80 billion a year to the U.S. economy.

If you like to eat good food, you can thank an insect, and if you like birds in your trees and fish in your streams, you should be concerned about insect declines.

### Causes of Decline

We have removed, degraded, or fragmented habitat in towns, cities, and agricultural areas. Less habitat means fewer individuals and fewer species. Pesticides are widely used to grow crops, as well as in the quest for blemish-free lawns and flowers, leaving toxic residues in the remaining habitats that can profoundly impact insects.

There are additional impacts from invasive plants and animals, diseases of bees and butterflies, poor water quality and quantity that imperils aquatic invertebrates, and lights that are disruptive to nighttime insects such as fireflies and moths.

Overlay all of this with the severe weather events and shifting rainfall patterns caused by climate change and you can see that it is hard to be an invertebrate in this human-dominated world.

### The Good News is that There is Hope

Insects are resilient, and conservation, restoration, and management of habitat have been shown to produce positive outcomes for insect populations.

***Anyone can contribute at any scale.*** All of us can do something, wherever we live. No action is too small. Grow more flowers; get rid of insecticides; buy local, organic, sustainably grown food when possible; lower your climate footprint by eating more vegetables and less meat; and challenge your elected officials to commit to addressing biodiversity loss and climate change. If we all work together, we can make a difference.

### We Have the Solutions to this Crisis

If we hope to stem the losses of invertebrate diversity and abundance, we must take steps at all levels to protect, restore, and enhance habitat for these animals across all landscapes. Ensuring high-quality habitat means providing a diversity of native plants, and also good water quality and quantity to support aquatic invertebrates.

***Convert lawns into diverse natural habitats.*** There are over 40 million acres of turfgrass in the U.S. If every home, school, and local park converted at least 10% of their lawn into habitat, this would provide millions of acres for insects.

***Grow native plants.*** Native plants typically provide more benefits to native insects than non-native species. Native plants are adapted to local climates and rainfall regimes, so are often easier to maintain. Growing plants in patches of any size, even a planter, can make a difference

***Restore farm landscapes.*** We need to move away from fencerow-to-fencerow farming and pesticide use, and toward regenerative and organic farming. Plant hedgerows, flowering strips, and other habitats, and adopt integrated pest and pollinator management.

***Eliminate or reduce pesticide use.*** In towns and cities, we must move away from pesticide use for cosmetic purposes—we should not poison our environment for tidy parks and gardens. In all landscapes, moving to an ecologically based integrated pest management approach is vital.

***Managing other threats.*** Turn off lights at night or ensure that they are wildlife friendly. Do not move commercial bumble bees outside of their native ranges, and ensure honey bee hives are

# Our World Depends on Invertebrates

Without insects and other invertebrates, life as we know it would cease to exist. Here are a few ways they keep our planet green, clean, and abundant.

1. **Wild plants depend on them.** Bees and butterflies are some of the thousands of species that pollinate plants in prairies, forests, and hedgerows.
2. **Insects pollinate our crops.** We can thank pollinators for as much as one third of our food.
3. **Insects convert plant energy.** Grasshoppers and caterpillars are herbivores, eating plants and converting that biomass into a form that can be eaten by other wildlife.
4. **Other animals eat invertebrates.** Insects are essential food items for fish, mammals, and birds, including barn swallows, woodpeckers, and, on the cover, chickadees.
5. **Predators control pests.** Dragonflies, tiger beetles, wasps, spiders, and other invertebrate predators keep pests such as mosquitoes, aphids, and mealybugs in check.
6. **Invertebrates recycle waste.** Snails, dung beetles, millipedes, and other detritovores eat decayed matter and waste, cleaning our landscape and recycling nutrients to grow new generations of plants.
7. **They give us clean water.** Freshwater mussels filter water in lakes and rivers. Also, mayflies, caddisflies, and many other aquatic species are eaten by wildlife.

XERCES SOCIETY for Invertebrate Conservation

## For More Information

This brochure is a companion to *Conserving Bumble Bees*, a comprehensive set of conservation guidelines. *Conserving Bumble Bees* includes detailed information about managing and creating habitat, including specific management techniques, regional plant recommendations, and regional bumble bee ID guides. The guidelines can be downloaded from www.xerces.org/bumblebees/guidelines.

Follow us on Facebook for program updates and other news: www.facebook.com/bumblebcons.

## Additional Resources

***Identification and citizen science:***
www.bumblebeewatch.org

***USDA Forest Service identification guides:***
http://goo.gl/HGKkJ6

***Conservation guidance and plant lists:***
www.xerces.org/pollinator-resource-center/
www.xerces.org/lbj

XERCES SOCIETY
for Invertebrate Conservation

The Xerces Society is a nonprofit organization that protects wildlife through the conservation of invertebrates and their habitat. Established in 1971, the Society is a trusted source for science-based information and advice. Our team draws together experts from the fields of habitat restoration, entomology, botany, and conservation biology with a single focus—protecting the life that sustains us.

**The Xerces Society for Invertebrate Conservation**
**628 NE Broadway, Suite 200, Portland, OR 97232**
**Tel (855) 232-6639 Fax (503) 233-6794**
**www.xerces.org**

Regional offices from coast to coast.

Funds for our bumble bee conservation efforts provided by Alice C. Tyler Perpetual Trust, C.S. Fund, Charlotte Martin Foundation, Cinco, Disney Worldwide Conservation Fund, Endangered Species Chocolate, Hind Foundation, Horne Family Foundation, Maki Foundation, The New-Land Foundation, The Regina Bauer Frankenberg Foundation, and Turner Foundation, Inc.



2012-020

# Bumble Bee Conservation

***A Guide to Protecting Our Vital Pollinators***

Bumble bees are an essential part of our wildlands, farms, and urban areas, yet many species are suffering alarming population declines. It is critically important to protect these vital pollinators.

There are simple things you can do to protect or create high-quality bumble bee habitat. Typically, these efforts do not involve significant increases in cost or work, but do require increased awareness and attention to the needs of bumble bees.

Inside you'll find an overview of information about how to enhance any landscape to meet the seasonal needs of bumble bees.

## Status of Bumble Bees

Evidence from North America, Europe, and Asia suggests that many bumble bee species have recently undergone dramatic declines. Bumble bees face many threats including disease, habitat loss, overgrazing, pesticide use, and climate change. The illustrations in this brochure feature two North American species that have experienced marked population declines, the American bumble bee (*Bombus pensylvanicus*) on the cover and the rusty patched bumble bee (*Bombus affinis*) inside. Protecting and restoring existing habitat and creating new habitat are the best ways to conserve these and other bumble bees.

## Creating Habitat for Bumble Bees

There are three things that bumble bees need in the landscape to thrive: flowers from which to gather pollen and nectar, a place to nest, and a sheltered location to overwinter.

***Flowers.*** Bumble bees eat pollen and nectar, and need access to a diversity of flowers throughout their life cycle. Of particular importance is providing blooms both early and late in the season. For specific plant recommendations in your region, see the Xerces Society publication *Conserving Bumble Bees* or visit www.xerces.org/lbj.

***Nest Sites.*** Most bumble bees nest underground, usually in abandoned holes made by ground squirrels, mice, or rats, but occasionally they nest above ground in abandoned bird nests. Some species nest on the surface of the ground (in grass tussocks) or in empty cavities (hollow logs, dead trees, under rocks, etc.). In gardens, nests are often found in compost piles or unoccupied bird houses. Maintaining a variety of the habitat features listed above will help support healthy bumble bee colonies.

***Overwintering Sites.*** Queens typically overwinter in small cavities just below or on the ground surface, utilizing loose soil and leaf litter. They have also been noted overwintering in woodpiles and rock walls, as well as in sheds. To help provide essential overwintering sites, maintain a diversity of these features in your landscape.

## Managing Your Habitat

Management practices that protect existing habitat are as important as creating new habitat. Even in gardens you can adopt some of these practices. *Conserving Bumble Bees* has more detailed guidance.

***Mowing, fire, and grazing.*** These are all widely used and valuable tools for maintaining the open, meadow-like conditions that bumble bees prefer. However, do not mow, burn, or graze more than one-third of the site per year.

***Pesticides.*** We strongly recommend against the use of pesticides, but also realize that targeted herbicide and insecticide applications can be effective management tools to control invasive species and pests. For situations when pesticides cannot be avoided, we recommend that you choose targeted formulations with the least toxic ingredients, follow the manufacturer's directions, apply the pesticide as directly and locally as possible, and apply when bumble bees are not active (either after dark or during winter). Also, avoid the use of systemic (e.g., neonicotinoid) and broad-spectrum (e.g., organophosphate and pyrethroid) pesticides.

PAGE 8

## Conserving Bumble Bees

*Conserving Bumble Bees* is a detailed set of conservation guidelines produced by the Xerces Society and available at www.xerces.org/bumblebees/guidelines. The guidelines provide land owners and managers with in-depth information, including region-specific plant lists and detailed recommendations on how to implement management that minimizes risks to bumble bee colonies, while maintaining flower-rich foraging areas, and secure nesting and overwintering sites. This brochure is a companion to the guidelines; it illustrates the bumble bee life cycle and offers a brief overview of appropriate seasonal management practices.

## Bumble Bee Watch

Get involved in bumble bee conservation by joining Bumble Bee Watch, our citizen science project, which helps us understand the status of bumble bees and gather more data on their nesting biology, at BumbleBeeWatch.org.

## Spring – Early Summer

Include early-blooming plants and maintain a diversity of flowers in your landscape.

To protect overwintering queens, avoid early raking or mowing. Raking is best done in April and May.

To provide secure nesting sites, keep large patches of land unmowed and untilled. Healthy ground-nesting mammal populations help create future nesting sites.

Because queens are still foraging and colonies are usually very small, avoid the use of pesticides.

## Summer – Fall

Include mid- and late-blooming plants such as goldenrod, milkweed, and aster in your landscape.

Leave leaf litter, downed wood, and uncut bunch grasses to serve as potential overwintering sites.

As colonies are producing new queens at this time of year, avoid using pesticides. If pesticides are necessary, choose products that are less harmful to bumble bees, and do not use them at times when bees are active or when plants are flowering.

## Winter

Late fall and winter are the best times for mowing. Cut with the mower deck at the highest safe level to avoid disturbing overwintering queens.

To protect overwintering queens, continue to leave large sections of untilled ground.

Small, controlled burns are okay, but burn less than 1/3 of available land annually, and leave unburned patches as a refuge for animals.

If needed, this is the best time to use a targeted herbicide treatment for invasive species.

The overwintered queen emerges, begins searching for a nest site, and forages for pollen and nectar. Once a nest site is established, she begins laying eggs.

After the initial brood emerges, worker bees do the foraging. The queen now stays in the nest, where her sole duty is to lay eggs and rear young.

In late summer, the colony switches from producing worker bees to producing new queens and males, the reproductive members of the colony. After mating, the males die and the new queens begin searching for overwintering sites.

The colony dies in late fall, leaving only the new queens to overwinter, usually just below the soil surface.

# Creating Perennial Habitat for Pollinators and Beneficial Insects Using Plugs

High-quality pollinator and beneficial insect habitat is usually composed of native vegetation. Providing pollen and nectar resources, host plants, overwintering and nesting opportunities, and protection from pesticides are all critical to quality habitat. Native habitat plantings can be established from seed or with small live plants, also known as plugs. There are advantages and disadvantages for each approach (see Table 1 on page 2 for comparison), and selecting the right plant materials depends on the project goals and a variety of other site-specific factors. If you decide that establishing habitat with plugs is the method you want to use, this fact sheet will help you successfully complete your project.

Plugs, often sold in a few cubic inches of soil, are a great way to establish small-scale habitat in a variety of locations, such as city parks, street landscaping, urban and rural farms, residential gardens, natural areas, or acreages. While plugs are generally more expensive than seeds, they are much faster to establish, more reliably successful, often require less management in the long-term, and offer more opportunities for aesthetic and functional design of the habitat. Bloom densities, heights, colors, and vegetative textures can be specifically coordinated and staggered to provide diverse resources for pollinators and beneficial insects throughout the growing season.

This document focuses on how to design and create perennial pollinator and beneficial insect habitat by installing native plugs. The strategies outlined for plug planting are broad to cover multiple regions. For larger plantings (an acre or more in size), starting with seed is generally a more practical and economical approach, and Xerces Habitat Installation Guides (see “Further Reading” on page 6) should be referenced for that process.

Top-down—Native pollinator habitat installed by farm interns and apprentices at Michigan State University's Detroit Partnership for Food, Learning, & Innovation; green sweat bee on purple milkweed; parking lot pollinator garden in New Jersey. (Xerces Society Photos: Stefanie Steele [top, middle]; Kelly Gill [bottom].)

XERCES SOCIETY
for Invertebrate Conservation

# Seed or Plugs?

## Table 1. Establishing Perennial Wildflower Habitat from Seed or Plugs

This table compares the planting of native perennial wildflower habitat from seed and from transplants (plugs). Use this table to help decide which option is best for the specific site.

| STARTING FROM SEED | STARTING FROM TRANSPLANTS (PLUGS) |
|---|---|
| **Typically lower cost** (can vary by region/availability). | **Higher cost** (cost is reduced if you are able to grow some transplants yourself). |
| **Very thorough pre-planting weed control is needed,** since native seeds are slower to establish and can be outcompeted by weeds. | **Less pre-planting weed control needed,** since native transplants have more of a competitive advantage against weeds. |
| In some regions **mowing is required for weed management** during establishment. In drier areas (e.g., western US) hand-weeding or mowing are options for post-planting weed control. | **Hand-weeding or weed-whacking is typically necessary** during establishment. |
| **Slower to bloom;** blooms are usually not abundant until years 2–4 of project (depending on site preparation and establishment mowing). | **Quicker to bloom;** blooms abundant in year 1 or 2 of the project, depending on the timing of planting. |
| **Can be low or high diversity.** Seed mixes can be designed with very high diversity, but this is not always realized in the planting; some species are very difficult to establish from seed. | **Can be low or high diversity.** Some species are not available as plugs; others are nearly impossible to establish without using plugs. |
| **Less control of planting layout;** design is mostly limited to seed mix. | **More control & design opportunities;** select plants can be clustered, evenly distributed, arranged by height & bloom time, etc. |
| **Lower installation time/labor.** | **Higher installation time/ labor.** |
| **Irrigation may not be needed or may be minimal,** depending on location and climate. | **Will likely require irrigation** at the time of transplant or during dry periods. |

# Design Considerations for Native Plug Plantings

### Where to Plant

If the native perennial plantings are intended to be long term or permanent, placement is critical in the planning process. Consider the goals and objectives of the site and how long-term or permanent habitat will fit in. Creating and maintaining pollinator habitat is a commitment, and it should be planned to fit into the surrounding area and scaled to be manageable. Site specific considerations include sun exposure, soil type, protection from pesticides, access to irrigation, purpose (general planting, sensory garden, beetle bank, etc.), and more.

Additional considerations should be made when planting habitat on vacant or revitalized city lots or remediation lots. Have an understanding of the type of structures or businesses that previously occupied the site (i.e., residential or brownfield site), determine if obstructions have been buried (e.g., buried foundations or other debris from demolition), what soils were used to fill in the demolished area (sand and gravel are commonly used and will make planting difficult), and conduct soil tests to measure whether heavy metal contaminants are present. For more information on contaminated soils, review the Environmental Protection Agency's guidance, "What to Know Before You Grow."

## Size

The size of the planting will depend on the space available and other factors. The high cost of plants and labor is often a significant factor in the size. In some regions plugs are typically used for projects less than $\frac{1}{10}^{th}$ of an acre in size and are usually only a few hundred square feet in size. In California and some other western regions, it is not uncommon for plug project areas to be up to an acre in size. In these areas, plug plantings can be more advantageous because native seed may not be readily available or affordable, may be difficult to establish, or have specific germination requirements to break dormancy. Plugs overcome all these concerns.

## Site Preparation

Before planting, it is important to remove existing vegetation, particularly undesirable and invasive plants, to reduce competition with newly installed plants. Proper site preparation will decrease the need for extensive maintenance of the planting and should be conducted well in advance of planting. Examples of site preparation approaches include the use of herbicides or organic strategies such as smother cropping, silage tarping, sheet mulching, or solarization. See "Further Reading" below for sources of detailed guidance on site-preparation methods.

## Plant Selection

A mixture of short- and tall-stature plants can be used, but remember taller plants have the potential to shade out smaller plants or flop into walkways and other areas. Match native species to the site's sun exposure, soil, and drainage conditions. Select a variety of native wildflower species to ensure blooming begins early in the spring and lasts through the fall. Include species from a diversity of plant families and genera to support a wider range of insects. Consider adding host plants to benefit moths and butterflies, like native milkweed for monarch caterpillars or sunflowers and/or goldenrods for moth caterpillars. Native grasses and sedges are also an important part of pollinator and beneficial insect habitat; forage (as host plants), nesting, and overwintering opportunities are provided by our native grass species. Native grasses and sedges can also aid in the suppression of unwanted vegetation.

A native plug planting in process to support monarchs in California. (Photo © Nurtiz Katz.)

## Initial Care of Plugs

Plants should be planted within a few days of delivery or pick-up, but if needed, they can be left in their trays for up to a few weeks until planting can take place. To care for plants prior to planting:

- Place plant trays in a lightly shaded area
- Protect from animal damage and monitor for potential damage, such as rabbit browse.
- Regularly water trays, ensuring the roots are thoroughly saturated, not just the top surface of the plug.
- Consider taking photos of young plants and their plant name tags for ease of identification later on.

## Planting Design

We recommend the following practices:

- Plant the same species in groups of 3–6 plugs to improve garden aesthetics and create the larger bloom displays some pollinators prefer for more efficient foraging.
- Use grasses and sedges to create natural drifts between clusters of flowers.

- If a manicured look is desired, mix groups of plants with different bloom periods or flower colors and/or add a border (e.g., mowed borders, bricks, dead wood, etc.)
- Do not overwhelm shorter species with tall species, consider planting taller species in the interior of the planting and shorter species along the habitat perimeter edge.

A planting map may be helpful to plan or document the configuration and location of plants. This could be as rough or as detailed as you'd like, from broadly noting the species in each flower cluster and grass or sedge "drift" to describing exactly how many plants of each species and where they should be placed in a given location.

## Plant Spacing

Plugs of wildflowers or grasses should be planted anywhere from 12–36" apart (center-to-center). Denser plantings will fill in more quickly and be more resistant to weed invasion. Planting on a grid can help ensure even distribution.

## When to Plant and Irrigation

The local climatic conditions will determine when planting can take place, how much watering is necessary to establish plants, and for how long. Once planted, plugs will need to be water thoroughly and immediately. In most cases, plug plantings will need to be watered regularly for ease of establishment. Watering can be done by hand (e.g., hose) or through an irrigation system. See Table 2 on page 5 for installation and irrigation timing.

## Common Tools for Planting and Weeding

There are several tools that can aid in the planting of plugs such as soil knives, trowels, dibblers, or shovels. Weeding can be done by hand using hoes (collinear, swan-neck, stirrup, diamond, etc.) or flame weeders, or by machine with walk-behind tractors or mowers.

## Mulch

Spread a layer of weed and disease-free straw, bark, or wood chip mulch around the plants to reduce weed competition and to hold in moisture. Following the first year or two of growth, additional applications of mulch may be unnecessary and may even prevent plants from spreading or seeding out into the surrounding space. As the mulch decomposes, native plants should naturally reseed or spread via roots into the exposed soil space.

A newly planted habitat garden created with plugs. The plants are laid out so the species form blocks and spaced so that they will fill the planted area over the next year. (Photo: Xerces Society.)

Native plants emerge in spring for their second growing season on a urban farm in Iowa. (Photo: Zack D'Amico.)

Three-year-old beetle bank planted with native plugs on urban farm in Iowa. (Photo: Xerces Society / Sarah Nizzi.)

## Table 2. Timing Windows for Installing and Irrigating Plugs by Region

| REGION | INSTALLATION | IRRIGATION |
|---|---|---|
| **Alaska** | Apr–May or Sep–Oct | May require irrigation if rainfall is sparse and in dry regions |
| **California** | Oct–Dec | Apr–Oct for the first 2–3 years during normal rainfall; may need more during drought years, and may require winter irrigation in times of severe drought |
| **Florida** | Spring | May require irrigation |
| **Great Basin** | Apr–May or Sep | Jun–Sep |
| **Great Lakes** | Early fall or spring | May require irrigation if soils are dry or rainfall does not follow planting event |
| **Hawaii** | Early wet season (Nov–Mar) | Leeward-facing shore areas may require irrigation during dry periods; windward-facing shore areas may or may not need irrigation depending on rainfall |
| **Inland Northeast** | Mar–Apr or Oct–Nov | Apr–Oct in the first season during dry periods |
| **Maritime Northwest** | mid-Sep–mid-Oct | Spring, usually require irrigation the first season |
| **Mid-Atlantic** | mid-Oct–mid-Dec or spring | Plugs usually require irrigation the first season |
| **Midwest** | Early fall or spring | May require irrigation if soils are dry or rainfall does not follow planting event |
| **Northeast** | May–Jun | May require irrigation the first season, especially during dry years |
| **Northern Plains** | Sep | If dry, or drought year, irrigate recent plug plantings |
| **Rocky Mountains** | Apr–May or Sep | Required for the first 2–3 years |
| **Southeast** | Spring | May require irrigation |
| **Southern Plains** | mid-Oct–Jan | If dry or drought year, irrigate recent plug plantings |
| **Southwest** | Sep–Dec | Required for the first 2–3 years, may need more during drought years |

We do not recommend using dyed wood chips, black walnut wood chips, or wood chips whose origins may be from chemically treated wood.

### Protection During Establishment

Install temporary fence, netting, or other plant or root guards where needed to protect transplants from browsing animals that can cause significant damage.

### Weed Management

During the first growing season, plan to control weeds throughout the habitat area—something that is especially important if a mulch weed barrier is not applied. Focus efforts on fully removing any problematic perennial weeds, and clipping the seed heads of annual weeds. After a few years of regular weed control, the prolific growth and dominant cover of native plants should prevent most weeds from establishing.


An example of animal protection in a urban setting in New York. (Photo: Anna Victoria.)

### Soil Amendments

In most cases, native plants do not require any fertilizers, composts, or other amendments. However, it may be useful to add a bit of compost to each plant hole to reduce compaction issues or add a beneficial nutrient boost. If soils have been significantly altered, we recommend consulting your county's Extension or USDA office on appropriate soil-restoration and remediation practices. Soil tests are recommended to determine the level of heavy metals on site and if soil remediation is required. Heavy metals, such as lead, pose health risks to the people who steward and interact with the land, as well as wildlife.

Monarch habitat kit recipients ready to plant native plugs in California. (Photo: Xerces Society / Jessa Kay Cruz.)

### Long-Term Management

Management will be ongoing throughout the lifespan of the planting. Monitor plantings on a regular basis and pull or spot-spray woody or herbaceous weeds at first detection. Larger plantings can be maintained through mowing, haying, or burning every 4–6 years once the habitat is established. (Establishment may be achieved in years 3 or 4 of the project, so burning, etc., is unlikely to be considered earlier than year 6 or 7.) Timing may depend on the presence and type of weed pressure. Leave refugia areas by only disturbing one-third of the habitat each year and rotating where the disturbance happens from year to year. See "Further Reading" section below for resources on management recommendations.

A completed native plug planting in California. (Photo: Xerces Society / Jessa Kay Cruz.)

## Further Reading

- Habitat Installation Guides (Xerces Society)
- Maintaining Diverse Stands of Wildflowers Planted for Pollinators (Xerces Society)
- Nesting and Overwintering Habitat for Pollinators and Beneficial Insects (Xerces Society)
- Organic Site Preparation for Wildflower Establishment (Xerces Society)
- Pollinator Conservation Resource Center (Xerces Society)
- Turning Brownfields into Community-Supported and Urban Agriculture (Environmental Protection Agency)

### Acknowledgments

**AUTHORS:** Sarah Foltz Jordan, Sarah Nizzi, and Micah Kloppenburg. **DESIGN:** Sara Morris. **LAYOUT:** Raven Larcom. **EDITOR:** Matthew Shepherd. **REVIEWERS:** Jennifer Hopwood, Karin Jokela, Jessa Kay-Cruz, and Stefanie Steele. All contributors work for Xerces Society.

This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under number NR213A750008C008. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture.

Fund: 010 - Parks & Recreation

| Account Number | | 2024 September | 2024 Actual 09/26/2024 | 2024 Budget | Budget Status | % of Budget |
|---|---|---|---|---|---|---|
| 010-00-41950-000-000 | Room Tax | 0.00 | 136.15 | 0.00 | 136.15 | 0.00 |
| **TAXES** | | 0.00 | 136.15 | 0.00 | 136.15 | 0.00 |
| 010-00-42200-000-000 | Park Donations | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **SPECIAL ASSESSMENTS** | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 010-00-44910-000-000 | Park Fee From Bldg Permits | 900.00 | 4,800.00 | 0.00 | 4,800.00 | 0.00 |
| 010-00-44920-000-000 | Park Fee From Developer | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 010-00-44930-000-000 | Rentals Park / Shelter / Hall | 725.00 | 6,435.00 | 0.00 | 6,435.00 | 0.00 |
| 010-00-44940-000-000 | Reimbursements paid to Village | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **LICENSES & PERMITS** | | 1,625.00 | 11,235.00 | 0.00 | 11,235.00 | 0.00 |
| **Total Revenues** | | 1,625.00 | 11,371.15 | 0.00 | 11,371.15 | 0.00 |

Fund: 010 - Parks & Recreation

| Account Number | | 2024 September | 2024 Actual 09/26/2024 | 2024 Budget | Budget Status | % of Budget |
|---|---|---|---|---|---|---|
| 010-00-55200-006-000 | Park & Rec - Supplies | 0.00 | 39.99 | 0.00 | -39.99 | 0.00 |
| 010-00-55200-039-000 | Park & Rec - Site Maintenance | 504.00 | 3,740.00 | 0.00 | -3,740.00 | 0.00 |
| 010-00-55200-045-000 | Park & Rec - Promotions | 0.00 | 460.00 | 0.00 | -460.00 | 0.00 |
| 010-00-55200-046-000 | Park & Rec - Tree Protection | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 010-00-55500-000-000 | Park & Rec - Development | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **PARK & RECREATION** | | 504.00 | 4,239.99 | 0.00 | -4,239.99 | 0.00 |
| 010-00-61000-078-000 | Park & Rec - Engineering | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **PARK & RECREATION** | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Total Expenses** | | 504.00 | 4,239.99 | 0.00 | -4,239.99 | 0.00 |
| **Net Totals** | | 1,121.00 | 7,131.16 | 0.00 | -7,131.16 | |

9/26/2024 2:02 PM Balance Sheet Detail Report Page: 1
ACCT

Dated From: 1/01/2024 Fund: 010 - Parks & Recreation
Thru: 9/26/2024

| Account Number | | Debit | Credit |
|---|---|---|---|
| 010-00-11000-000-000 | Cash and Marketable Securities | 400,709.38 | |
| **Cash and Marketable Securit** | | 400,709.38 | |
| **TOTAL ASSETS** | | 400,709.38 | |
| 010-00-21100-000-000 | Vouchers Payable | | |
| **Accounts Payable** | | | |
| **TOTAL LIABILITY** | | | |
| 010-00-34000-000-000 | Fund balance - Unreserved | | 388,292.37 |
| 010-00-34004-000-000 | Restricted Memorial Brick/Tree | | 5,285.85 |
| **Fund balance - Unreserved** | | | 393,578.22 |
| **TOTAL FUND EQUITY** | | | 393,578.22 |
| | 2024 Revenues | | 11,371.15 |
| | 2024 Expenditures | 4,239.99 | |
| **GRAND TOTALS** | | 404,949.37 | 404,949.37 |