

INTRODUCTION TO MONARCH HABITATS: THE MONARCH WAYSTATIONS PROGRAM



MONARCH WAYSTATIONS

CREATE, CONSERVE, & PROTECT MONARCH HABITATS

www.MonarchWatch.org

Introduction

Each fall, hundreds of millions of monarch butterflies migrate from the United States and Canada to overwintering areas in Mexico and California where they wait out the winter until conditions favor a return flight in the spring. The monarch migration is truly one of the world's greatest natural wonders, yet it is threatened by habitat loss in North America – at the overwintering sites and throughout the spring and summer breeding range as well.

Monarch Waystation Habitats

Monarch Waystations are places that provide resources necessary for monarchs to produce successive generations and sustain their migration. Without milkweeds throughout their spring and summer breeding areas in North America, monarchs would not be able to produce the successive generations that culminate in the migration each fall. Similarly, without nectar from flowers these fall migratory monarch butterflies would be unable to make their long journey to overwintering grounds in Mexico. The need for host plants for larvae and energy sources for adults applies to all monarch and butterfly populations around the world.

Sustainability

Climate Change. Predicting species' responses to climate change is especially challenging for migratory species, like monarchs, because they could respond to climate change in many different ways. Because they depend on diverse resources across a vast landscape, and because the timing of migration is driven by environmental cues, migratory species could be especially vulnerable to environmental changes. On the other hand, their propensity to move could buffer them against shifting resources, with the outcome being little net change to their population sizes and distributions. Monarchs' response to climate change will also be driven by how milkweed responds; even if temperatures allow monarch survival, if conditions cause their milkweed host plants to go dormant, become too dry, or die altogether, monarchs will need to move to other areas.

Development. Development (subdivisions, factories, shopping centers, etc.) in the U.S. is consuming habitats for monarchs and other wildlife at a rate of 6,000 acres per day – that's 2.2 million acres each year, the area of Delaware and Rhode Island combined!

Genetically Modified Crops. Widespread adoption of herbicide-resistant corn and soybeans has resulted in the loss of more than 80 million acres of monarch habitat.

The Value of Monarch Waystations

To offset the loss of milkweeds and nectar sources we need to create, conserve, and protect milkweed/monarch habitats. By creating and maintaining a Monarch Waystation you are

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contributing to monarch conservation, an effort that will help assure the preservation of the species and the continuation of the spectacular monarch migration phenomenon.

Seed Resources:

Free Milkweeds for Restoration Projects Application: <http://monarchwatch.org/bring-back-the-monarchs/milkweed/free-milkweeds-for-restoration-projects/>

Native Seeds/SEARCH Community Seed Grants:
<http://www.nativeseeds.org/get-seeds/communityseedgrants>

Save our Monarchs, Free Milkweed Seeds:
http://www.saveourmonarchs.org/store/p17/Milkweed_Seeds.html

Purchasing a Monarch Waystation Seed Kit (\$16.00):
http://www.monarchwatch.org/waystations/seed_kit.html

Curriculum Resources:

Interactive Monarch Waystation Map:
<http://www.monarchwatch.org/waystations/registry/>

Monarch Waystation Network: Developed to connect and support schools and nonprofits who have Monarch Waystation Gardens, or who have received free milkweeds from us. This website provides a unique opportunity for meaningful interactions and connections with educators and students across the nation, through the use of our **forums, curriculum** and **activity guides**, and more. <http://www.monarchwaystationnetwork.res.ku.edu/>

Curriculum Lessons for Monarchs and More: <http://monarchlab.org/education-and-gardening/curricula/>

The University of Arizona Community and School Garden Program: The primary purpose of the CSGP's Green Academy curriculum is to encourage more extensive, consistent pedagogical use of school gardens by providing teachers with a set of grade appropriate and subject specific, garden-based lesson plans. <http://schoolgardens.arizona.edu/curriculum>

Video Resources:

Monarch Butterfly Amazing Migration: <https://www.youtube.com/watch?v=LawHWsIqa5s>



Vernalization

Seeds of most temperate plants need to be vernalized, which is a fancy way of saying that they need cold treatment. The best way to give the required vernalization is through stratification. To stratify seeds place them in cold, moist potting soil (sterilized soil is best but not required) in a dark place for several weeks or even months. Since most people would like to avoid placing potting soil in their refrigerators, an alternative is to place the seeds between moist paper towels in a reclosable plastic bag. This works well, and with the paper towel method there are fewer fungi and bacteria available to attack the seeds. After the vernalization period the seeds should be planted in warm (70°F), moist soil. Without vernalization / stratification, the percentage of seeds that germinate is usually low. Seeds from tropical plant species do not require this treatment.

ADDITIONAL PLANT SPECIES

The following plants can add diversity to your Monarch Waystation habitat as larval host plants and/or nectar sources for monarchs and other pollinators:

Annuals

Lantana (*Lantana camara*) - Nectar source. Varied-colored flowers bloom from summer to fall in temperate regions. Lantanas will grow 18-30 inches tall and 24 inches wide. Perennial in subtropical regions where it can grow much larger.

Pentas (*Pentas lanceolata*) - Nectar source. Pentas are a warm season annual that will bloom from summer to early fall. The flowers vary in color from white, pink, purple, to red. There are numerous varieties ranging from 10-36 inches in height.

Salvia (*Salvia* spp.) - Nectar source. Flowers range from blue to red. Many different annual and perennial species ranging from 12-30 inches in height. Most attract butterflies and bees; however, *S. coccinea* is especially attractive to butterflies.

Perennials - Herbaceous

Fennel (*Foeniculum vulgare*) - Host plant for black swallowtail butterflies (other hosts include parsley, dill, and rue). This herb grows to height of 4 feet.

Garden Phlox (*Pblox paniculata*) - Nectar source. Fragrant flowers range in color from white, pink to red, and blue to purple. Grows to 20-40 inches in height. Blooms during midsummer to fall and attracts Hawk moths as well as butterflies.

Ironweed (*Veronia* spp.) - Nectar source. Purple flowers bloom during the summer months. Ironweed will reach heights of 3-6 feet.

Mallow (*Malva* spp.) - Host plant for painted lady butterflies. Hardy perennial; produces pink to purple flowers during the summer into the fall. Grows to 3-4 feet.

Sedum (*Sedum* spp.) - Nectar source. Sedums are hardy perennials 18-24 inches in height that bloom in late summer and fall with pink to rosy-red flowers. The fall blooming *Sedum spectabile* attracts numerous butterflies and moths.

Vetch (*Vicia* spp.) - Host plant (sulphur butterflies) and nectar source (bees). Vetches have a viney growth form and purple pea-like flowers in early summer.

Perennials - Shrubs

Blue Mist Spirea (*Caryopteris* spp.) - Nectar source. Produces light-blue flowers in late summer to fall, 24-36 inches in height. Attracts a broad variety of insects.

Butterfly bush (*Buddleia davidii*) - Nectar source. Blooms continuously from early summer to fall. Color varies by variety from purple to white and yellow. Should be pruned back in the spring. Will grow to 6-8 feet tall. Reported to be invasive in several Atlantic coast states and in Washington and Oregon.

Buttonbush (*Cephalanthus occidentalis*) - Nectar source. White flowers will bloom for several weeks in midsummer. Can grow to a height of 6-10 feet. Requires a low spot or lots of watering. Highly attractive to many seldom seen insects.

Chaste tree (*Vitex*) - Nectar source. Summer to fall blooming shrubs and small trees 3-8 feet tall with white to blue flowers. Grows best in southern regions and may die back in the winter. Must be pruned in the spring before new growth begins.

Leadplant (*Amorpha canescens*) - Host plant for dogface butterfly. Purple flower spikes appear in early summer when plants reach 2-4 feet tall.

Wild Plum (*Prunus americana*) - Host plant (several butterfly species) and nectar source. White flowers in spring and yellow fall color on small trees of up to 15 feet in height. Can produce unwanted suckers from roots and form clones. The plums attract wildlife.

CERTIFY YOUR MONARCH WAYSTATION

To show that you are contributing to monarch conservation, you may choose to have your new or existing monarch habitat certified as an official Monarch Waystation. Upon certification your site will be included in the International Monarch Waystation Registry, an online database of Monarch Waystations, and you will be awarded a certificate bearing your site's Monarch Waystation ID number. Furthermore, you become eligible to display a weatherproof sign that identifies your monarch habitat as an official Monarch Waystation. This display helps convey the conservation message to those who visit your Monarch Waystation and may encourage them to create their own monarch habitat.

Additional information about the Monarch Waystation program, including certification, Monarch Waystation Seed Kits, brochures, and other support materials, is available on our website at:

www.MonarchWatch.org/ws

or by writing to us at: Monarch Watch, University of Kansas,
1200 Sunnyside Avenue, Lawrence, KS 66045

Good Luck with your Monarch Waystation!

©2005 Monarch Watch. This guide is also available in PDF format (suitable for onscreen viewing and printing) at www.MonarchWatch.org/ws

CREATING A MONARCH WAYSTATION



INTRODUCTION

To create a habitat for monarchs, we need to provide milkweeds for the larvae, nectar plants for the adults, and sufficient vegetation to provide shelter for the larvae, pupae and adults. Our Monarch Waystation Seed Kit is designed to enable you to create a habitat suitable for monarchs within the context of a traditional garden. If you wish to restore milkweeds to large areas such as roadsides, natural areas, field margins, etc., please visit us online for instructions that apply to these conditions.

Selecting Your Monarch Waystation Site

If you are establishing a new garden, two things to consider are sunlight and drainage. Butterflies and butterfly plants need full sunlight for at least 6 hours per day; therefore, you should choose a sunny, wind-sheltered area for your garden. Most of the plants we've selected for our Monarch Waystation Seed Kit grow best in well-drained soils – for example, areas with a slight slope or even raised beds. The exception is swamp milkweed, which tolerates saturated soils and can be planted in areas with poor drainage.

Organizing Your Monarch Waystation

Once you have chosen a site, measure its dimensions and make a plan of the layout of the garden. When deciding where to place each type of plant, consider whether it is an annual or perennial, its height, and blooming time. Tall plants should be placed in the back, followed by medium height plants and then shorter plants in the front. This will create a stepped effect to ensure all plants are visible from the

primary viewing area. If you create a garden that allows viewing from all sides, i.e., a rounded bed, place the tallest plants in the center, with decreasing heights toward the edges. It is usually easier to manage a garden in which the perennials are toward the back, or center, with the annuals closer to the edge. Most of the annuals used in butterfly gardens bloom throughout the growing season while some of the perennials have shorter blooming periods. By careful placement of the continuously blooming annuals and perennials, the garden can have the appearance of always being in bloom.

Specialized Areas in the Garden

Monarchs do not need the water sources and nectar/fruit feeding sites that are known to attract numerous other species. If you would like to add these features to your garden to attract other species, please visit us online for information.

GENERAL INSTRUCTION

The seeds in our Monarch Waystation Seed Kit can be planted in prepared beds outdoors or started indoors in flats. We recommend the latter approach since germination rates are generally higher indoors and it is easier to establish your garden with transplanted seedlings that are well-rooted and therefore more resistant to weather extremes and pests.

Germinating, Growing and Transplanting

Seeds can be started indoors in a greenhouse or under artificial lighting and then transplanted outdoors after the average date of last frost. If seeds are started indoors, allow 4-8 weeks growing time before transplanting. Plastic flats can be used to start the seeds. Fill the flats with a soil mix suitable for seedlings (most potting mixes are), thoroughly soak the soil, and let the excess water drain. Sow the seeds by scattering them on the soil surface 1/4-1/2 inch apart, and then cover with about 1/4 inch of additional soil mix. Gently mist the soil surface with water to dampen the additional soil mix that has been added. In an effort to improve germination rates, many gardeners place seeds in packets made from paper towels and soak them in warm water for 24 hours prior to planting.

After the seeds are sown in the flats, cover each flat with a clear plastic cover, plastic wrap, or a plastic bag to keep the seeds from drying out while germinating. Then, place the flat under grow lights, in a warm sunny window, or in a greenhouse. Most seeds will germinate in 7-10 days if the flats are maintained at 75 °F. After the seeds have germinated, remove the plastic covering from the flats. Once the seedlings have emerged, the soil should be kept moist by watering the flat from the bottom. You can water from the bottom by placing the flat in a sink or a larger flat filled with 2 inches of water until moisture appears on the soil surface. The soil should be kept moist but some care is needed to keep the seedlings from getting too wet - such conditions contribute to fungal growth that can kill the young seedlings (“damping off”). Thinning (see below) can reduce damping off.

The plants are ready to be transplanted when they are about 3-6 inches in height. Before transplanting, acclimate the plants to outdoor conditions for a few days by placing them in a sheltered location during the day and then bringing them indoors at night. The seedlings should be planted 6-24 inches apart depending on

the species (check your seed packets or other reference for information). Newly transplanted plants should be watered frequently.

When to Plant

The seeds in the Monarch Waystation Seed Kit can be sown outdoors after the danger of frost has passed. Refer to the seed packets for special instructions on sowing the seeds. Keep in mind that seeds have a range of soil temperatures at which they will germinate. Also, remember that under sunny conditions, the soil temperatures can be much higher in the daytime than the ambient air temperatures you experience. Plant the seeds early since those planted late in the season may not germinate because of high temperatures. In addition, new seedlings from late plantings can "dry off" before they are even noticed.

Preparation of the Seedbed

If you are gardening for the first time, it is wise to consult with your local county extension agent to see if your soil needs to be enhanced (amended) with soil additives before planting the seeds.

A smooth, clump-free, weeded soil bed will virtually guarantee a successful start for germination and seedling establishment. If vegetation exists in the future habitat location, it can be removed by using a tiller or by hoeing the area. To reduce clumping, do not work the soil when it is wet. The soil should be worked to a fine consistency to ensure good soil-to-seed contact.

The seedbed should be kept moist until germination. As the seedlings become established, it is important to avoid watering too much or too little. A light watering each morning until roots are well established (7-10 days) should be sufficient.

MANAGEMENT

Dead-Heading

If you would like to keep your plants producing an abundance of flowers throughout the season, you should pinch back (or otherwise remove) old withering flowers, developing fruits, or seed heads.

Fertilizing

If your soil has been properly amended with additives recommended by your county extension agent, fertilization can be kept to a minimum. Water-soluble fertilizer can be periodically applied while watering with the use of canister that attaches to the end of a hose. Granular, time-release, fertilizers are another choice and offer two advantages: they only need to be applied once during the season, and you can avoid fertilizing plants that do poorly when fertilized.

Growing from Cuttings

Many perennials can be grown from cuttings, which can provide a way of quickly adding new species to your Monarch Waystation habitat. To start cuttings, cut the stems underwater, then coat the bottom of the stem with a strong rooting hormone. The stems should be placed in sand, vermiculite, or potting soil that is kept continuously moist. Cuttings can usually be transplanted in 6-10 weeks. Survival is best when cuttings are made from green stems (1/3 inch diameter) obtained from plants fertilized two weeks earlier.

Pest Control

Pest control in a butterfly garden or monarch habitat can be tricky. Avoid pesticides of any kind, regardless of how selective or safe they are. Most treatments for pest species will also negatively affect the caterpillars and butterflies you are trying to attract and protect. The good news is that with proper planning and maintenance, you will probably not have to control insects. When you plant your Monarch Waystation, you are creating an ecosystem that has its own system of checks and balances. The insect most likely to get out of balance in your monarch habitat is *Apbis nerii*, the orange-colored Oleander aphid, which feeds on milkweed. This species does not affect monarch larvae but can retard the growth of plants. The number of aphids can be reduced by spraying the infested plants with warm soapy water or even by blasting the aphids from the plants with water from a hose.

Thinning

When small seeds are sown, they are often mixed with sand or fine soil to have better seed distribution. However, this method does not completely prevent crowding of seedlings and thinning will be necessary. Thinning provides more space between plants, increasing the amount of light reaching the plants and the air circulation around them. Seedlings may need to be thinned several times beginning 1-2 weeks after germination. Without proper thinning, you will end up with weaker plants.

Watering

Watering is the most important aspect in maintaining your Monarch Waystation habitat. In order to get your plants established and have healthier plants, you need deep watering. Deep watering is accomplished with the use of a soaker hose or a sprinkler. The idea is to let the water soak deeply into the soil and then not to water for several days. Deep watering, followed by a lack of water in the soil near the surface, encourages roots to go deeper into the soil, enabling the plant to draw moisture from the soil more readily. This practice creates stronger and healthier plants. Generally speaking, your Monarch Waystation should be watered at least weekly for an hour or two at a time; however, the frequency of watering ultimately depends on weather conditions, soil type, plant species, and size of the plants.

Weeding and Mulching

After your seedlings emerge, the battle with the weeds begins. Weeds will compete with your seedlings for light, space, and soil nutrients. The key is to control weeds when they are small by cultivation and mulching. Carefully cultivate around or near plants with a hoe or pull the weeds by hand. If you weed your habitat regularly, maintenance will be less of a chore.

Mulching can begin after the seedlings are well established (about 1 month), preferably after cultivation. A variety of mulches are suitable for such gardens, such as wood chips, barks, leaves, straw, or peat moss. We recommend wood chips, which can sometimes be obtained free of charge through your city. Mulching can reduce the time spent on cultivation, helps retain soil moisture, and keeps the soil temperature relatively constant.

Storage of Seeds

Store dried seeds in a cool, dry place protected from mice and insects - a plastic bag (reclosable) or other container in the refrigerator works well.

MONARCH WATCH

MONARCH WAYSTATION CERTIFICATION REQUIREMENTS

If your monarch habitat meets or exceeds the general description of a Monarch Waystation set forth below, your habitat may be certified by Monarch Watch as a Monarch Waystation. Upon certification, your habitat will be included in the Monarch Waystation Registry, an online listing of Monarch Waystations worldwide, and you will be awarded a certificate bearing your name and your habitat's unique Monarch Waystation ID number. You may also choose to purchase a weatherproof sign to display, identifying your habitat as an official Monarch Waystation.

Size. A suitable Monarch Waystation habitat can be easily integrated with an existing garden. There is no minimum area requirement in order to certify your habitat; however, a truly effective Monarch Waystation will be at least 100 square feet. The total area may be split among several sites at your location and there is no upper limit for the size of a Monarch Waystation habitat.

Exposure. Butterflies and butterfly plants need lots of sun; therefore, Monarch Waystations need to be located in an area that receives at least six hours of sun a day.

Drainage and Soil Type. Milkweeds and nectar plants will do best in relatively light (low-clay) soils. Good drainage is needed to avoid root rot and provide good aeration of the roots.

Shelter. To assure that the maximum number of monarchs survive in your habitat, the plants should be relatively close together. However, they should not be crowded – be sure to follow the planting guides specific to each plant. All monarch life stages need shelter from predators and the elements. Planting milkweeds and nectar plants close together contributes to this shelter for monarchs and other wildlife.

Milkweed Plants. To maximize the utilization of your habitat by monarchs, it is desirable to include a number of milkweed species. It is best to have at least 10 plants, made up of two or more species; however, a large number of plants (more than 10) of one species is sufficient. Milkweeds of different species mature and flower at different times during the season. By increasing the number of milkweed species in your habitat you will increase the likelihood that monarchs will utilize your property for a longer period during the breeding season.

Nectar Plants. Monarchs, other butterflies, and numerous pollinators need nectar. By providing nectar sources that bloom sequentially or continuously during the season (as many butterfly plants do) your Monarch Waystation can provide resources for monarchs throughout the breeding season and the migration in the fall. A Monarch Waystation should contain at least 4 annual, biennial, or perennial plants that provide nectar for butterflies.

Management. You should have a plan to sustain a Monarch Waystation. Specific actions you take will depend on the features of your habitat; however, some general examples include mulching, thinning, fertilizing, amending the soil, removing dead stalks, watering, eliminating insecticide use, removing invasive plant species, and incorporating additional features.

Be sure to visit www.MonarchWatch.org/waystations for updated information.

Thank you for your interest and continued support!

**APPLICATION FOR MONARCH WATCH
MONARCH WAYSTATION CERTIFICATION**

A non-refundable application fee of \$16 is required for each habitat you would like to certify. At this time, please allow 3-6 weeks for processing. An online application is available at www.MonarchWatch.org/waystations or you may fill out all three (3) pages of this form completely (print or type) and mail or fax to:

Monarch Watch c/o NBS • 2701 Centerville Road • Wilmington, DE 19808 • 1-877-687-4878 fax

MONARCH WAYSTATION REGISTRATION INFORMATION
(this information will be added to the Monarch Waystation Registry)

Registrant Name(s) exactly as you would like it/them to appear on the certificate:

Habitat Name (Be creative! e.g., “The Monarch Inn,” “Pete’s Pollinator Patch,” “Grandma’s Garden,” etc.):

Habitat City, State/Province, Zip/Postal Code: _____

Habitat Country: _____ U.S.A. _____ Canada _____ Other: _____

Habitat Type: _____ Rural _____ Suburban _____ Urban

Habitat Location:

- | | | |
|--|---|---|
| <input type="checkbox"/> Business | <input type="checkbox"/> Home | <input type="checkbox"/> School |
| <input type="checkbox"/> Community Garden/Park | <input type="checkbox"/> Nature Center | <input type="checkbox"/> Zoo |
| <input type="checkbox"/> Farm | <input type="checkbox"/> Place of Worship | <input type="checkbox"/> Other (specify): _____ |
| <input type="checkbox"/> Golf Course | <input type="checkbox"/> Retirement Home | |

Habitat Size:

- | | |
|--|---|
| <input type="checkbox"/> Small (less than 200 sq ft) | <input type="checkbox"/> X-Large (1,000-4,999 sq ft) |
| <input type="checkbox"/> Medium (200-499 sq ft) | <input type="checkbox"/> Colossal (more than 5,000 sq ft) |
| <input type="checkbox"/> Large (500-999 sq ft) | |

Shelter

All monarch life stages need shelter from predators and the elements. In the context of a Monarch Waystation, shelter is provided by the variety of the plants and the density, or closeness, of the plantings. Please estimate the number of milkweed and nectar plants (combined) per square yard (3' x 3' area) in your habitat. Depending on the species and size of the plants, densities of 2-10 plants per square yard are probably the most effective.

1 2-5 6-10 11- 20 20+

Host Plants For Monarchs - Milkweeds (check all that are present in your habitat):

- | | |
|---|--|
| <input type="checkbox"/> Balloonplant (<i>Asclepias physocarpa</i>) | <input type="checkbox"/> Narrowleaf Milkweed (<i>Asclepias fascicularis</i>) |
| <input type="checkbox"/> Blue Vine Milkweed (<i>Cynanchum laeve</i>) | <input type="checkbox"/> Purple Milkweed (<i>Asclepias purpurascens</i>) |
| <input type="checkbox"/> Butterfly Milkweed (<i>Asclepias tuberosa</i>) | <input type="checkbox"/> Showy Milkweed (<i>Asclepias speciosa</i>) |
| <input type="checkbox"/> Common Milkweed (<i>Asclepias syriaca</i>) | <input type="checkbox"/> Sullivant's Milkweed (<i>Asclepias sullivantii</i>) |
| <input type="checkbox"/> Desert Milkweed (<i>Asclepias erosa</i>) | <input type="checkbox"/> Swamp Milkweed (<i>Asclepias incarnata</i>) |
| <input type="checkbox"/> Green Antelopehorn (<i>Asclepias viridis</i>) | <input type="checkbox"/> Tropical Milkweed (<i>Asclepias curassavica</i>) |
| <input type="checkbox"/> Heartleaf Milkweed (<i>Asclepias cordifolia</i>) | <input type="checkbox"/> Whorled Milkweed (<i>Asclepias verticillata</i>) |
| <input type="checkbox"/> Indian Milkweed (<i>Asclepias eriocarpa</i>) | <input type="checkbox"/> Other Milkweed(s) |

Nectar Plants - Annuals or Biennials (check all that are present in your habitat):

2 of 3

- | | |
|---|---|
| <input type="checkbox"/> Blanket Flower (<i>Gaillardia</i> spp.) | <input type="checkbox"/> Pentas (<i>Pentas</i> spp.) |
| <input type="checkbox"/> Cleome (<i>Cleome</i> spp.) | <input type="checkbox"/> Porterweed (<i>Stachytarpheta</i> spp.) |
| <input type="checkbox"/> Cosmos (<i>Cosmos</i> spp.) | <input type="checkbox"/> Sweet William (<i>Dianthus</i> spp.) |
| <input type="checkbox"/> Floss Flower (<i>Ageratum</i> spp.) | <input type="checkbox"/> Thistle (<i>Centaurea</i> and <i>Cirsium</i> sp.) |
| <input type="checkbox"/> French Marigold (<i>Tagetes patula</i>) | <input type="checkbox"/> Verbena/Vervain (<i>Verbena</i> spp.) |
| <input type="checkbox"/> Lantana (<i>Lantana</i> spp.) | <input type="checkbox"/> Zinnia (<i>Zinnia</i> spp.) |
| <input type="checkbox"/> Mexican Sunflower (<i>Tithonia rotundifolia</i>) | <input type="checkbox"/> Other Annuals or Biennials |

Nectar Plants - Perennials (check all that are present in your habitat):

- | | |
|--|---|
| <input type="checkbox"/> Bee Balm (<i>Monarda</i> spp.) | <input type="checkbox"/> Joe-Pye Weed (<i>Eupatorium purpureum</i>) |
| <input type="checkbox"/> Black-Eyed Susan (<i>Rudbeckia hirta</i>) | <input type="checkbox"/> Mallow (<i>Malva</i> spp.) |
| <input type="checkbox"/> Blazingstar/Gayfeather (<i>Liatris</i> spp.) | <input type="checkbox"/> New England Aster (<i>Aster novae-angliae</i>) |
| <input type="checkbox"/> Boneset (<i>Eupatorium perfoliatum</i>) | <input type="checkbox"/> Phlox (<i>Phlox</i> spp.) |
| <input type="checkbox"/> Butterfly Bush (<i>Buddleia</i> spp.) | <input type="checkbox"/> Purple Coneflower (<i>Echinacea purpurea</i>) |
| <input type="checkbox"/> Caryopteris (<i>Caryopteris</i> spp.) | <input type="checkbox"/> Sedum (<i>Sedum spectabile</i>) |
| <input type="checkbox"/> Catmint, Catnip (<i>Nepeta</i> spp.) | <input type="checkbox"/> Senna, Cassia (<i>Senna</i> spp.) |
| <input type="checkbox"/> Coreopsis (<i>Coreopsis</i> spp.) | <input type="checkbox"/> Violet (<i>Viola</i> spp.) |
| <input type="checkbox"/> Goldenrod (<i>Solidago</i> spp.) | <input type="checkbox"/> Vitex (<i>Vitex</i> spp.) |
| <input type="checkbox"/> Hollyhock (<i>Alcea</i> spp.) | <input type="checkbox"/> Other Perennials |
| <input type="checkbox"/> Ironweed (<i>Vernonia</i> spp.) | |

Sustainable Management Practices

Maintaining productive monarch habitats requires a management plan. Please indicate which actions you have taken (or will take) to maintain your Monarch Waystation (check all that apply):

- Add other features (e.g., fruit feeders, bee nesting boxes, other host plants, etc.)
- Amend the soil (add nutrients or other materials) to achieve proper conditions before planting
- Eliminate the use of insecticides
- Manage the density of the plot by thinning (removing plants to minimize crowding)
- Mulch around the base of plants to reduce the growth of weeds and retain water
- Remove dead stalks, etc. before the next growing season by mowing, burning, or by hand
- Remove invasive species from the site
- Use natural compost for fertilization
- Water the plot as needed to maintain growth

Once your habitat has been certified you will receive a certificate bearing your habitat's Monarch Waystation ID and instructions for submitting comments and/or photos for display in the Monarch Waystation Registry.

MONARCH WAYSTATION CONTACT AND PAYMENT INFORMATION

(this information will be kept private)

Contact Information

Organization (if applicable): _____

Contact Name: _____

Address (certificate and other materials will be sent here): _____

City, State/Province, Zip/Postal Code: _____

Telephone (w/area code): _____

Email Address: _____

Order Information

I am including payment for the following (U.S. shipping included*):

Monarch Waystation 9" x 12" Aluminum Sign: ____ (quantity) @ \$24.95 ea. =	\$ _____
A donation to Monarch Watch: ____ \$10; ____ \$20; ____ \$30; ____ other	\$ _____
*International Shipping (outside of the continental U.S.) add \$19.95	\$ _____
Monarch Waystation Application Fee	\$ 16.00
Total	\$ _____

Payment and Billing Information

Payment Method:

____ Check (check number: _____)

____ Purchase Order (PO# _____);

____ Credit Card (circle type: Visa • MasterCard)

Card Number _____ Expiration date: _____

Billing Name: _____

Billing Address: _____

City, State/Province, Zip/Postal Code: _____

Telephone (w/area code): _____

Email Address: _____

Please double check to make sure all three (3) pages of this application are filled out legibly, completely, and correctly (especially all contact and payment information, should we have any questions) and then mail or fax to:

Monarch Watch c/o NBS • 2701 Centerville Road • Wilmington, DE 19808 • 1-877-687-4878 fax

*Thank you for your participation and continued support!
- Your Friends at Monarch Watch*