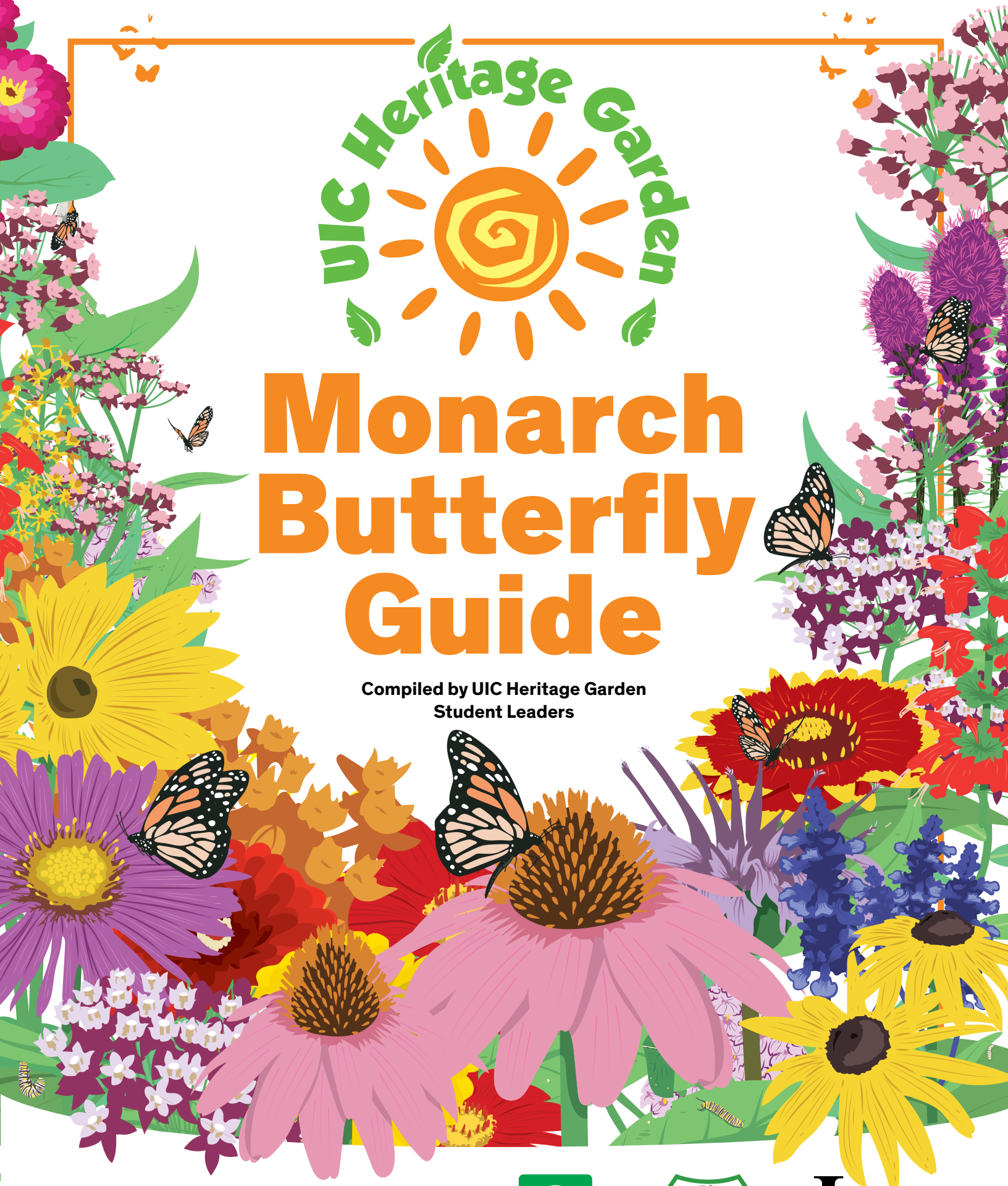
UIC Heritage Garden

Monarch Butterfly Guide

Compiled by UIC Heritage Garden
Student Leaders



Rafael Cintrón Ortiz
Latino Cultural Center

UIC
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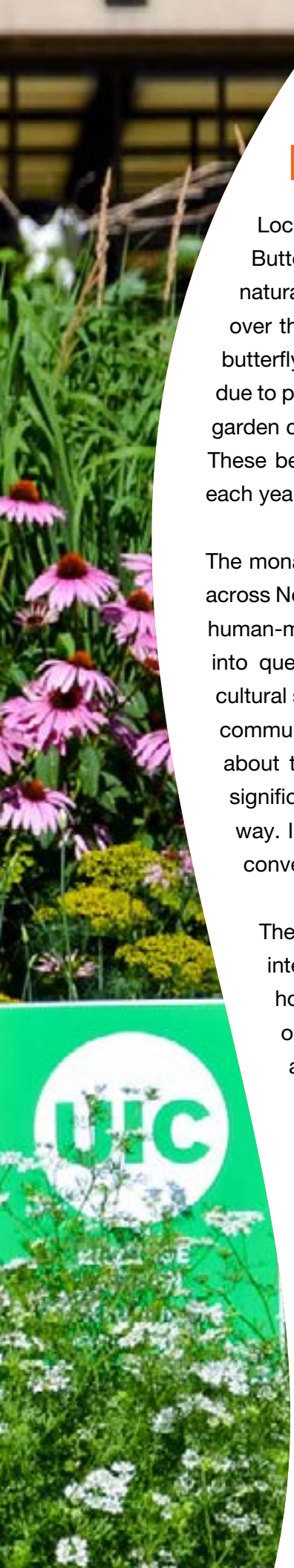

UIC Heritage Garden Monarch Butterfly Guide

Located in front of the UIC Rafael Cintrón Ortiz Latino Cultural Center, the Monarch Butterfly Habitat was created by the UIC Heritage Garden Interns in 2015 in response to a natural crisis: an 80% drop in the monarch butterfly population from their historic average over the past 20 years. One major factor in this decline is the destruction of the monarch butterfly habitat. Caterpillars feed exclusively on milkweed, which has become less available due to pesticides, prairie destruction, deforestation, and extreme weather changes. Planting a garden can provide food and shelter for pollinators like birds, bats, and of course, butterflies. These beautiful insects need support so they can continue to migrate across the continent each year.

The monarch serves as a symbol of immigration for the Latinx community, as it moves freely across North American borders, representing beauty, resilience, and natural survival. It crosses human-made borders, in a way that is extremely difficult for people to do, and helps us call into question the folly of walls that criminalize something so natural as movement. The cultural symbolism of the monarch and migration has since been used within other immigrant communities. As you see monarchs around your neighborhood or around campus, think about the whole journey they'll be making, all the places where they'll have a small but significant impact, and all the people and plants who will provide them with help along the way. In addition to inspiring environmental and climate action, this habitat can help spark conversations about cultural understanding and social justice.

The goal of this guide is to provide comprehensive information for the UIC Heritage Garden internship around monarch butterfly conservation in the Chicago-land area, as well as how to engage in community science efforts at UIC. The UIC Heritage Garden is a hands-on learning project with an internship program. Student interns work with faculty, staff, and community members to connect horticulture with environmental sustainability, cultural diversity, and social justice. There are currently 8 satellite gardens on the east side of UIC's campus. The seven Centers for Cultural Understanding and Social Change (CCUSC) collaborate on this project with program infrastructure provided by the Latino Cultural Center.

This project was made possible because of the generous support of the USDA Forest Service International Programs and UIC Sustainability Fee. We would like to thank our community partners as well in supporting us in our learning and engagement around monarch butterfly conservation.

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ESTABLISHING A MONARCH BUTTERFLY HABITAT

Monarch habitats consist primarily of milkweed and nectar plants. A beneficial mix of plants to have include: Swamp Milkweed, Common Milkweed, Butterfly Milkweed, Pale Purple Coneflower, Joe Pye Weed, Blazing Star variants, and Aster Variants. Visit this website for more options: https://monarchjointventure.org/images/uploads/documents/wfm_brochure_final.pdf

Size of Planting Area: at least 100 square feet

Exposure: at least 6 hours of sun per day

Drainage and Soil Types: low-clay soil with good drainage is ideal

Shelter: plants should be close together and spaced, but not overcrowded

Milkweed Plants: Habitat should consist of milkweed, as this is the primary source of food for rearing monarch caterpillars. Include at least 10 individual milkweed plants (multiple species is recommended)

Nectar Plants: Habitat should consist of a mix of pollinator plants that do not require as much sunlight or can grow sufficiently in partial shade. These pollinator plants provide nectar, the primary source of food and energy for monarch butterflies. We also refer to them as nectar plants. At least 4 annual, biennial, or perennial nectar plants that will provide nectar for the butterflies throughout the seasons

Management: Water and weed regularly. Mulch, fertilize, or amend the soil. Remove large dead plant material and invasive plants. Eliminate the use of insecticides.

Milkweed

Milkweed, members of the family Asclepiadaceae and of the genus *Asclepias*, come in various shapes, lengths, and colors. Milkweed plants serve as shelter and food for monarch larvae, which are caterpillars with yellow, black, and white bands. Female monarch butterflies lay their eggs underneath the leaves of milkweed plants, where it is safe from predators. Once the eggs hatch, the caterpillars feed solely on milkweed, although the plant's "milk" or acidic white latex is somewhat poisonous to many animals. Since the monarch caterpillars feed on milkweed, they absorb some of the plant's acidic and poisonous substances. The substances are stored in their bodies throughout their life. Therefore, the monarchs taste awful to many of their predators, like wasps or birds.

Milkweed Varieties

Common Milkweed (*Asclepias syriaca*)

LEAF: Look for a green or red stem running down the middle, with veins running oblique connecting with the middle leaf.

FLOWER: Look for a collection of pinkish-white flowers that cluster up, almost into a ball, when looking from afar.

PLANT: Look for a plant that is 60-180 cm tall, with leaves that are 15-20 cm long and 5-9 cm wide. Leaves are arranged in opposite pairs, and are thick with a notable vein on the back. Flowers are a light pink.

Swamp Milkweed (*Asclepias incarnata*)

LEAF: Look for a yellow stem running down the middle, with veins running oblique connecting with the middle leaf.

FLOWER: Look for a collection of pink flowers that cluster up, almost into a ball, when looking from far away.

PLANT: Look for a plant that is 7-20 cm tall with leaves mostly opposite, the leaves are 5-15 cm long and 1-3 cm wide. These leaves are much more narrow than common milkweed leaves.

Butterfly Milkweed (*Asclepias tuberosa*)

LEAF: Look for a yellow stem running down the middle, with veins running oblique connecting with the middle leaf.

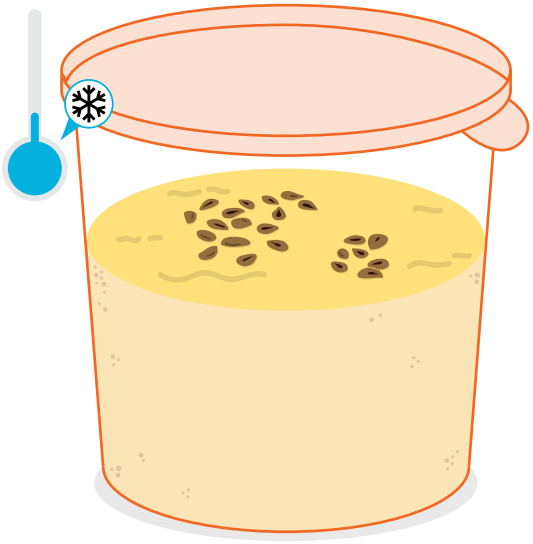
FLOWER: Look for a collection of bright orange flowers that cluster up, almost into a ball, when looking from far away. Occasionally yellow but very rarely.

PLANT: Look for a plant that is 3-9 cm tall with leaves mostly alternate, usually being 5-10 cm long with 0.7-2.3 cm wide.

Germinating Milkweed from Seed

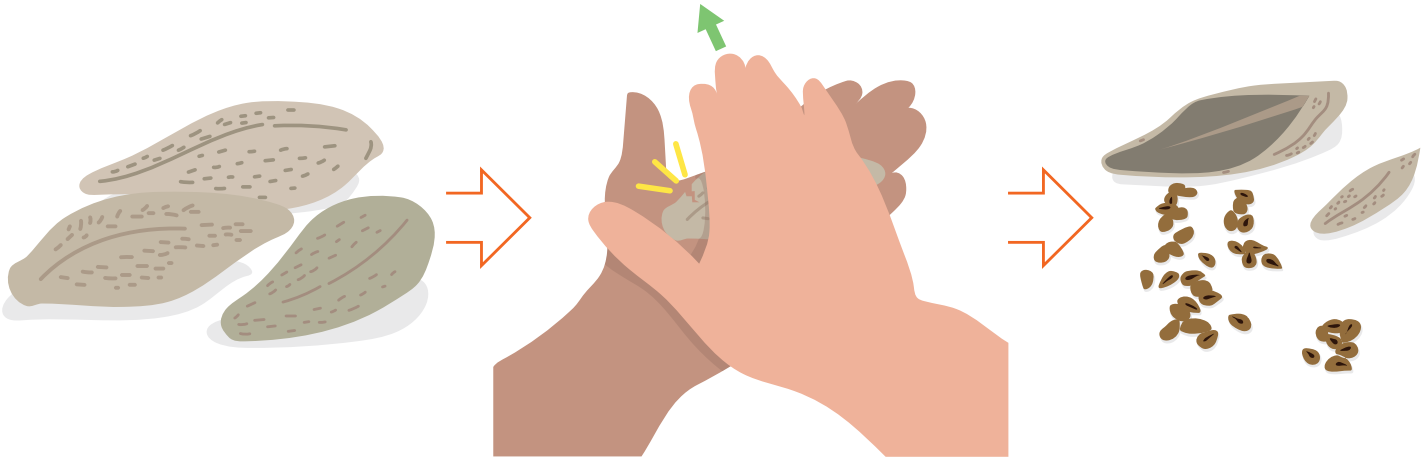
Milkweed requires a cold stratification period, or “winterization.” Nature’s method is done through seeds dropping from the plants in the fall, and then “resting” over winter until spring to germinate.

To obtain a similar result at home, seeds should be kept with moist sand, in an airtight container, and placed in storage between 33-38 degrees Fahrenheit (a refrigerator works best). Common milkweed requires at least 30 days of cold stratification and swamp milkweed requires 30-90 days. Once the seeds are ready, they can be sown in trays indoors with a commercial seed starting mix. Seeds should be kept between 65-75 degrees F. Seedlings require 14-16 hours of light and moist soil - but not overwatered. Seedlings can be transplanted outdoors after 4-8 weeks.



Harvesting Milkweed Seed Pods in the Fall

Harvest pods when they are dry, so they can be easily separated/split through the motion of squishing/pressing down. If they’re hard-to-press or do not split, the seed pods are not ready. Seeds must be brown or “brown-ing” to be ready to collect. If they are green, it is too early. Essentially, it must pop easily.



Volunteer Day, UIC Heritage Garden, 2019

Nectar Plants

Nectar plants should be grown in warm and sunny areas that should be protected from wind by large shrubs, hedge rows, or fences. Nectar plants provide nectar for pollinators such as bees and butterflies. Nectar is a kind of sugar water that contains amino acids, proteins, organic acids, and vitamins. It serves as a fuel and is the only source of energy for pollinators. Monarchs need sugar to fuel their search for mates and egg-laying sites. Without nectar, pollinators cannot fly.

The following nectar plants are recommended for the Chicago region (see link on page 1 for more):

Indian Blanket
(Gaillardia pulchella)
1-3 ft. / June to frost

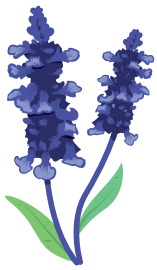
Purple Coneflower
(Echinacea purpurea)
2-5 ft. / July to September

Joe Pye Weed
(Eupatorium purpureum)
5-7 ft. / July to October

Scarlet Sage
(Salvia coccinea)
1-3 ft. / July to October

Tithonia Torch
Mexican Sunflower
(Tithonia rotundifolia)
4-6 ft. / July to September

Zinnia, Dahlia Mix
(Zinnia elegans)
1-4 ft. / June to frost



Blue Sage
(Salvia farinacea)
1-3 ft. / May to frost

Chia
(Salvia columbariae)
1-2 ft. / March to June

Blazing Star
(Liatris spicata)
2-4 ft. / June to July

Bergamot or Bee Balm
(Monarda fistulosa)
2-4 ft. / May to August

Maximilian Sunflower
(Heliathus maximilanii)
3-10 ft. / August to November

Goldenrod
(Solidago rigida, S. speciosa)
4-5 ft. / August to October

New England Aster
(Aster novae-angliae)
3-6 ft. / August to October

Yarrow
(Achillea millefolium)
1-3f ft. / June to September

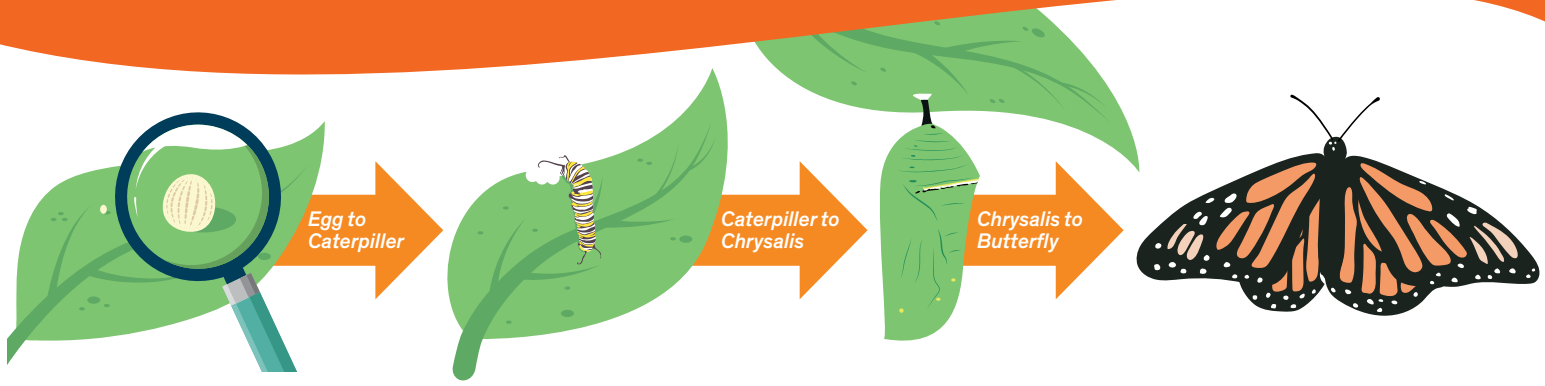
Black Eyed Susan
(Rudbeckia)
1.5-2 ft. / July to October

Sun Exposure Preference:
Full Sun Part Sun Shade

Bloom Time:
Indicated by Months

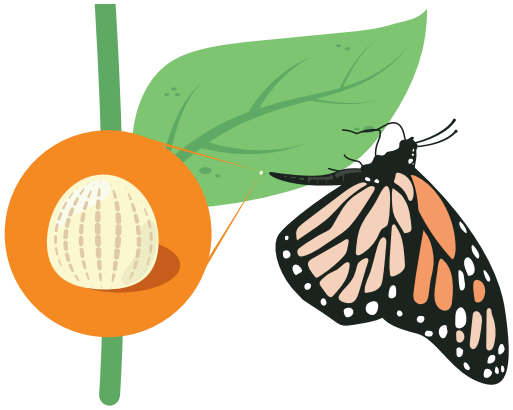
Soil Preference:
Dry Dry to Medium
Medium Moist

MONARCH BIOLOGY AND LIFE CYCLE



Eggs

Female monarch butterflies lay eggs (ovipositing) on the underside of a milkweed leaf. A female monarch lays up to 500 eggs in a lifetime. A monarch butterfly egg appears translucent with ridges that encompass all around the sides. They often appear white in daylight, and can appear as a ball the size of a pinhead on the contrasting green leaf. Eggs typically take 3-5 days to hatch.

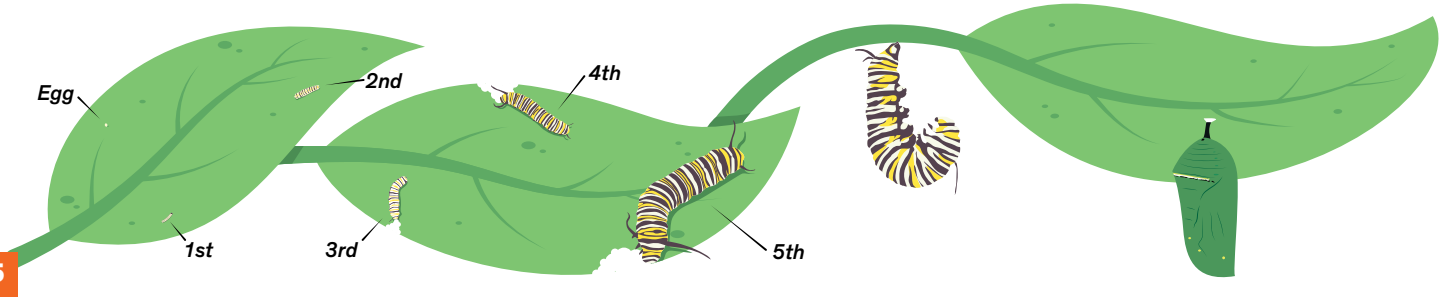


Larvae

During the Larval stage after the egg hatches, the caterpillar undergoes molting, or shedding of its old skin, as it grows. Monarch caterpillars grow almost 3,000 times their size over 10-15 days. The larval stage is however noted in five growth stages, known as instars.

- **1st instar:** caterpillar 2-6mm in length, 0.5-1.5mm in width, looks translucent and shiny with a dark head
- **3rd instar:** caterpillar 10-14mm in length, distinct black and yellow bands, front tentacles reach 1.7mm
- **5th instar:** caterpillar 25-45mm in length, pronounced yellow, white, and black stripes, black looks velvety

The 5th and final larval instar signals the imminent arrival of the pupa stage. It begins with the caterpillar searching for a suitable out of reach spot in which it climbs to and hangs upside down from in what is known as a 'J' shape. A silk-producing spinnernet helps the larva form a small appendage called a cremaster which holds it in place. Within 24 hours of being in the J shape, the larva molts a final time, shedding its exoskeleton. Its new exoskeleton forms the solid chrysalis. This stage lasts for roughly 2 weeks and is actually one of the most dynamic phases of the monarch.



Chrysalis

While the monarch is in the chrysalis stage, the caterpillar transforms inside. The only things that stay present are the tracheal tubes and gut - they still change in size however. The caterpillars aren't sentient to know of the change, but it's triggered through hormones. What actually happens is the body of the caterpillar breaks down into imaginal cells, which similar to stem cells, can become new types of cells. The imaginal cells reform into new shapes like the wings and legs of the butterfly. They also rebuild things like the muscles, digestive system, the heart, and most of the nervous system. This transformation process consumes a large amount of energy, and the chrysalis actually weighs much less when the butterfly is about to hatch, compared to when it is first formed.

The gold looking spots on the chrysalis are still unknown in terms of their function.
There are five primary hypotheses:

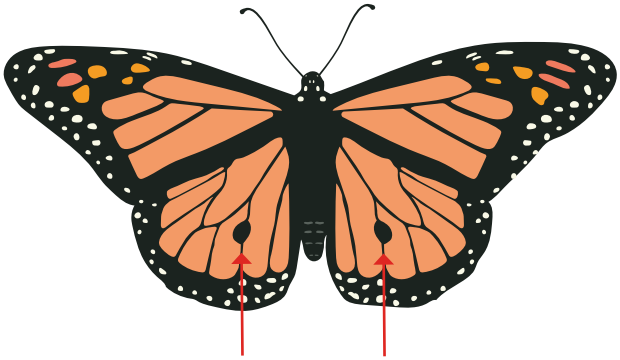
- **Camouflage**
- **Warning coloration**
- **Filtering wavelengths of light that could be harmful to the monarch**
- **No function at all**
- **Oxygen exchange**

Hatching

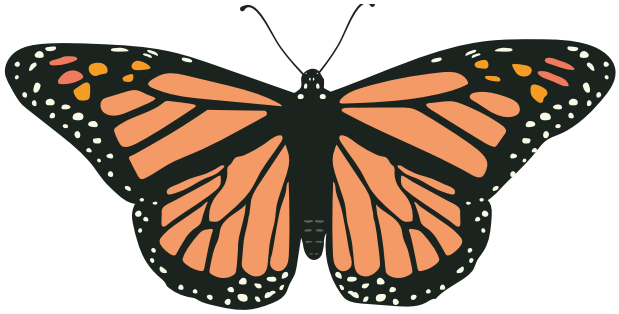
After a period of one and a half to two weeks, the monarch chrysalis will darken and hatch. Before hatching, the bright orange wings will be visible through the pupa. A dark pupa past two days can be assumed to be dead. After hatching, you might notice a red or brown liquid underneath the chrysalis - this is waste that has accumulated during the metamorphosis stage. Adult butterflies will usually hatch mid-morning, this allows them to bask during the height of the sun's path in the sky. The monarch adults hatch moist and must dry their wings before they are able to fly. The monarch adult circulates blood and fluids stored in its abdomen throughout their wings in order to inflate them. Once blood has been pumped into its wings, the monarch butterfly will bask for three to four hours. During this period, the butterfly will sit motionless and will appear dead to the untrained eye. Once active, the monarch will seek out nectar plants to feed on.

Behavior and Sex Differences

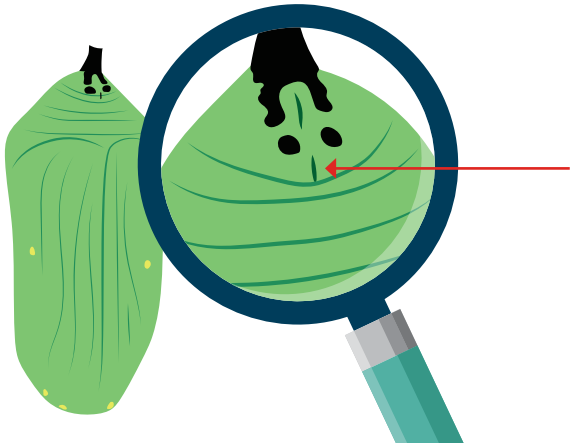
The easiest way to identify the sex of a monarch butterfly is through the sighting of or lack of a pheromone sacks, most visible in the lower half of the wing. It is also possible to ID male and female pupae, using a line by the dark spots on the top ring of the pupa. The line signifies if it is female, and the lack of this line signifies it is a male. In terms of general behaviors, environmental cues - particularly temperature - trigger monarch behaviors such as reproduction, migration, and hibernation. The best way to learn about Monarch behavior is to continue to find trusted sources of research, and do some observations yourself when possible, being respectful to the Monarch's space.



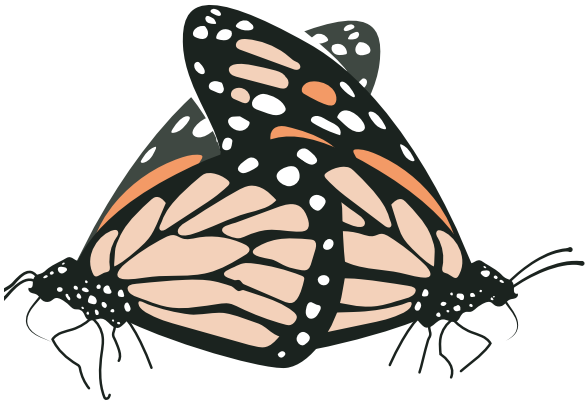
Male Monarch Butterfly
Pay special attention to the dark spots on the lower half of the wing, these are sacks that are used by males to store pheromone. Males also have thin veins spread throughout their wings.



Female Monarch Butterfly
Pay special attention to the lack of dark spots and the dark, banded veins spread throughout their wings.



Female Monarch Pupa
Identified through the line along the top ring of the monarch, by the two dark spots.



Monarchs Mating
Monarchs won't mate until they are 3-8 days old. When 2 monarchs decide to mate, they will start in the afternoon and continue into early the next morning, totaling up to 16 hours of mating time. Immediately after mating, female monarchs will lay their eggs and life cycles can start. There are some observations of male monarchs mating with each other, signaling that monarch mating behavior might be more diverse than we think, but not enough information is available at the time of this guide going to print.

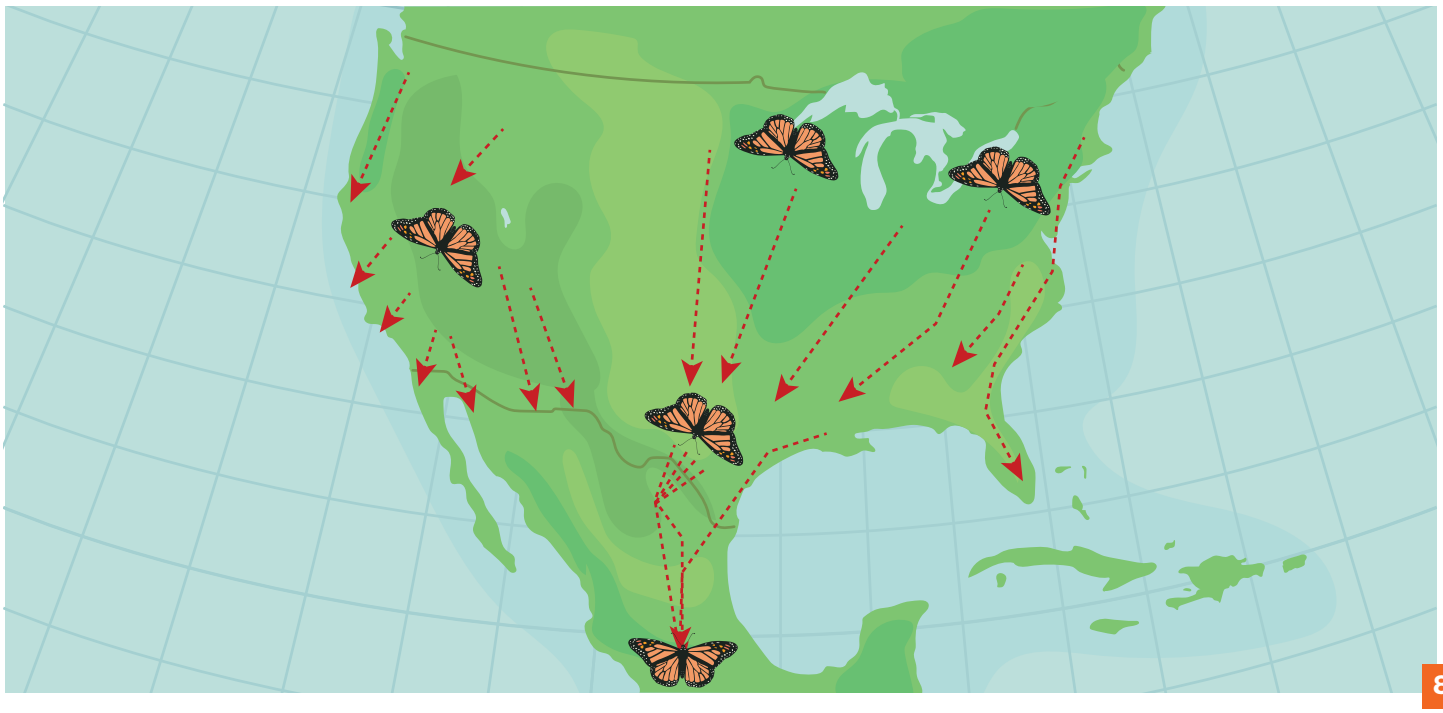
MONARCH MIGRATION

The monarch migration is unique. The 4th and final generation of monarchs migrate up to 2,000 miles from North America to the Oyamel Fir forests in Michoacán, Mexico. This generation of monarchs also live through an overwintering period of 5 months, and then return north to reproduce in the spring for a total life span of 8-9 months. To accomplish the migration, they conserve energy during flight by soaring on updrafts of warm air, then glide their way to their destination. They can fly for up to 11 hours before resting. Monarchs make their migration at an average pace of 25-30 miles per day. They also use both the sun and Earth's magnetic field to navigate.

Generation #	Timing of immature stages	Timing of adult stage	Migrates?	Overwinter?	Lifespan
1	March – May	April – June	Yes, north in spring	No	2 – 6 weeks
2	May – July	June – July	No	No	2 – 6 weeks
3	July – August	July – August	Some	Some	2 – 6 weeks
4	July – October	August – April	Yes, south in fall and north in spring	Yes	8 – 9 months

Fall path for butterflies on the west coast and Midwest/East coast of the U.S.

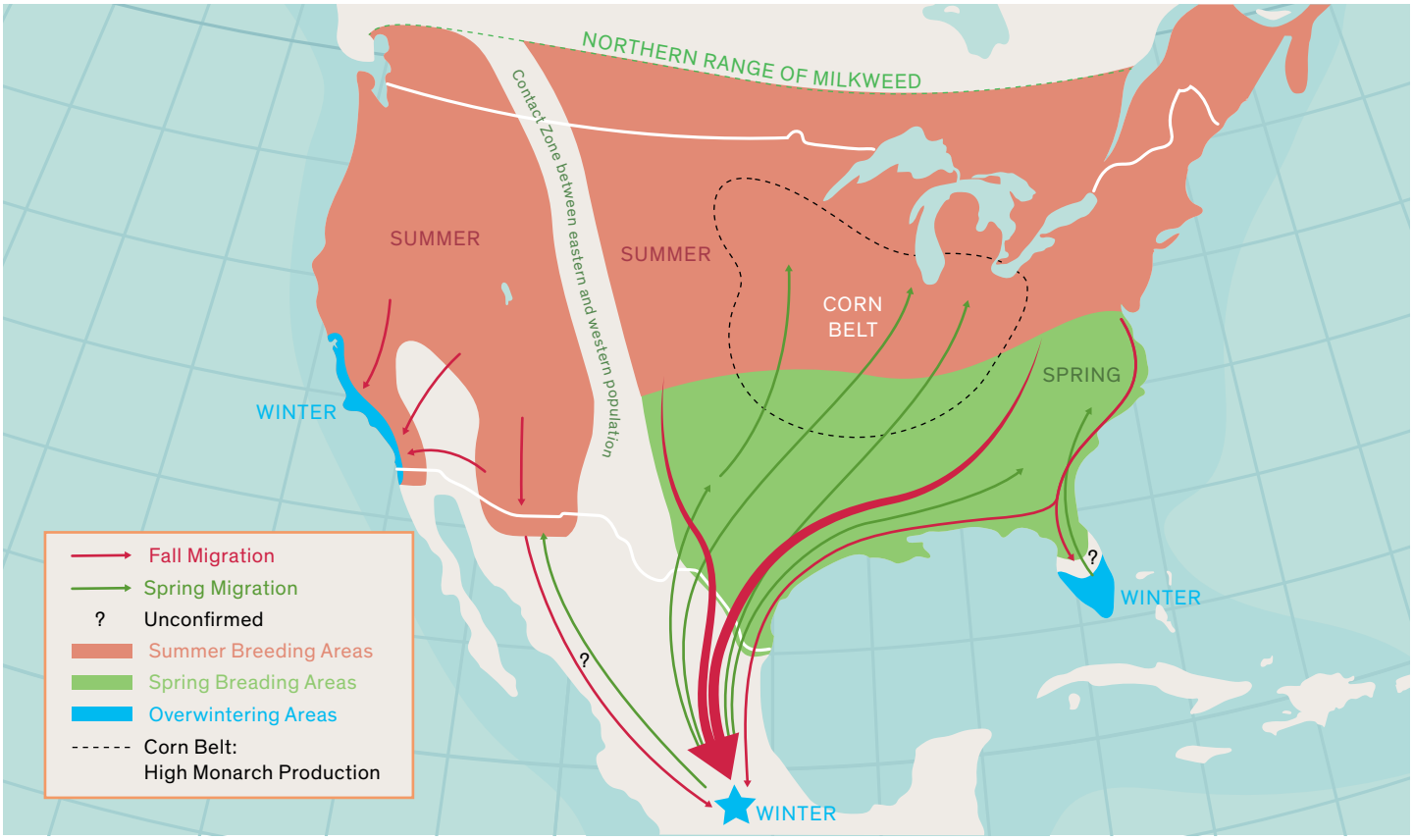
Monarchs west of the Rocky Mountains travel to small tree groves that run along the California coast, whereas monarchs east of the Rocky Mountain travel deep into the south of Mexico in search of the forests high up in the mountains of Mexico.



Fall and Spring Migrations

Monarchs travel in different paths depending on their location to the west or east of the Rocky Mountains. The red lines in the figure underneath details the path of migration during the fall season, as monarchs require a roosting spot during the winter time. If the monarch butterflies remain in the north for too long, there is the possibility that they will not be able to travel due to their ineptitude of flying in the cold weather prevalent in the late fall.

The 4th generation monarchs are biologically and behaviorally different than the ones hatched in the late summer and early fall. There is a phenomenon that is triggered by the length of shorter days and cooler air of late summer, that cause the monarch butterfly to prioritize preparing its body for a long and difficult flight over mating and laying eggs. These butterflies will not engage in these behaviors until the following spring, not until after they have made their journey to the south during the winter. We still don't know why this generation of monarchs can live much longer than the previous generations.



The fall and spring season path of travel for butterflies on the west coast and midwest/east coast.

Monarchs migrate because they cannot withstand the cold northern weather during the winter. Additionally, milkweed does not grow in their overwintering sites, which is why the spring generation must fly north. The majority of monarchs overwinter in the Oyamel Fir forests of Michoacan, Mexico. They serve as protection for the butterflies by protecting them from extreme cold and rain. The tree canopy and ecosystem provide a "blanket" for them. However, the Oyamel Fir forests are threatened by forest degradation, illegal logging, land loss, as well as climate change. The smaller Western population of monarchs overwinter around Pacific Grove, California in eucalyptus trees, Monterey pines and cypresses.

MONARCH REARING AT UIC

Monarch rearing is done at UIC for observational and educational purposes, in combination with monarch habitat maintenance, and monarch taggaing, all as part of community science projects. We do not encourage individuals to rear Monarchs as a tactic of monarch conservation. We do encourage people to help expand monarch and pollinator habitat through planting nectar plants, saving and sharing seeds and getting involved in different community science projects that can be found on some of the pages of the organizations listed as resources. Read more as to rearing monarchs here: https://monarchjointventure.org/blog/revised-handout-raising-monarchs-why-or-why-not

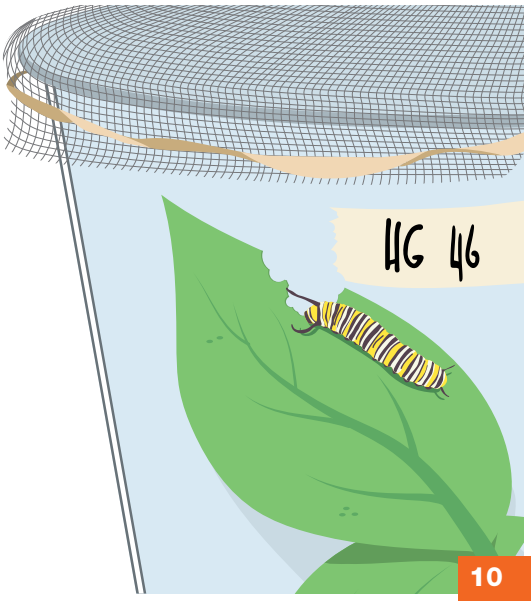
1. Milkweed leaves with eggs laid on them can be snapped from its respective plant and placed on a sturdy tray. Only place one leaf for every open spot on the tray, with the egg facing up.

2. Keep the eggs in an ambient temperature room that is not too dry or too humid.

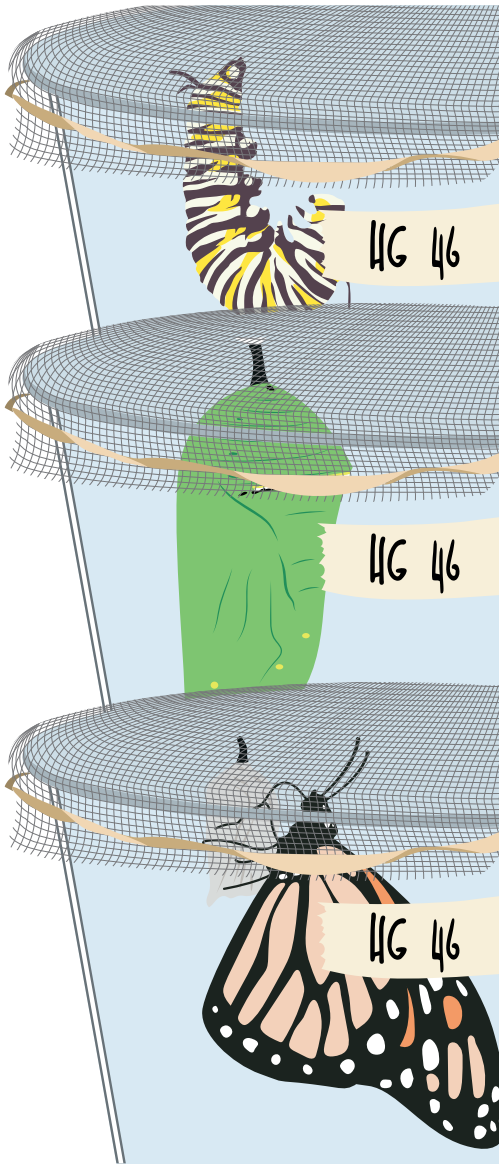
3. To help with retaining moisture in a dry room, place a moist paper towel underneath the leaves. This is a good idea overall for leaves being left over the weekend to hatch. Too much moisture = mold, BEWARE.

4. Check daily, when possible, to see when the eggs hatch. Eggs will hatch in three to five days.

5. Once the eggs hatch, place hatchlings in cup habitat. The cups should be large enough for an adult monarch butterfly to be able to flap its wings (at least 16oz cup). Harvest fresh milkweed leaves, with no aphids on them, for hatchlings to feed on when the egg-laid milkweed dries. Be careful when picking the leaves, as the toxic milky substance will seep out of the stems. Wash the leaves before placing them in the cups; this removes potential monarch fungal and/or bacterial diseases from the leaves. Use the same type of milkweed species the eggs were laid on when deciding the leaves to feed, but in a pinch, common milkweed leaves are preferred. Each cup should have one to two leaves depending on the instar of the larvae; the larger caterpillars will need more food. Cups need to have its leaves replaced every one to two days. Frass, the excrement that is the byproduct of eating milkweed, should be cleaned up and thrown away every time when leaves are being changed. Disease can easily attack the larvae and cause them to die, so clean and wash old cups being reused to minimize spread of disease between generations. If the cups are paper, discard the cup.



Cup Habitats: 1 solo cup per egg found (at least 16oz size), 1 5'' x 5'' screen mesh per cup, 1 rubber band per cup, 1 ID number per cup, written on tape, to identify the monarch. First, create a record of each caterpillar you raise within the app, and identify it with the ID written on the cup. Then, put the mesh on the top of the cup, aka the open end that can hold a beverage. Use the rubber band to seal the mesh over the cup. Seal tightly, as caterpillars have been known to escape from loosely banded cups.



6. As monarch caterpillars grow, their appetites grow too. Make sure to keep an eye on how many leaves are being consumed after one day. If one caterpillar eats three leaves in a day with only the stems remaining, add four leaves and check back in the next day. Make sure they're able to eat as much as they want, they will stop eating when not thirsty or hungry.

7. The next stage in the monarch life cycle are as pupas, when the caterpillar sheds for one final time after going into its iconic "J" shape when hanging from the top of the screen. The larvae hang themselves via a silk spun from spinnerets underneath the head.

8. After a period of a week and a half to two weeks, the monarch pupa will darken and hatch. Before hatching, the bright orange wings will be visible through the pupa. A dark pupa past two days can be assumed to be dead. Adult butterflies will usually hatch mid-morning, this allows them to bask during the height of the sun's path in the sky. The monarch adults hatch moist and must dry their wings before they are able to fly. The monarch adult circulates blood throughout their wings in order to inflate them.

9. Once the monarch butterfly exits from the pupa, it will be necessary to move the monarch into an appropriate habitat container with a removable lid. A mesh, structured laundry bag works well. Once blood has been pumped into its wings, the monarch butterfly will bask for three to four hours. During this period, the butterfly will sit motionless. A monarch is ready to be released once it is strong enough to fly on its own and is active. A monarch that has hatched in the morning can very well be released later in the day. The temperature must be above 60 degrees in order for the monarch to be able to fly properly, as they are cold blooded creatures.

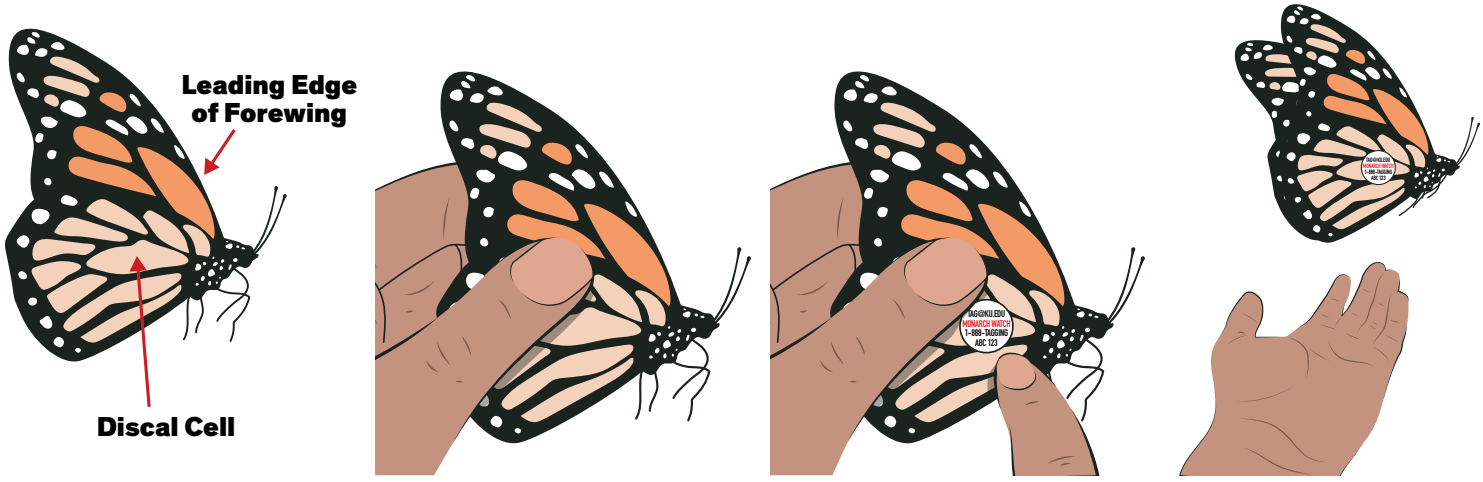
10. Once the monarch begins to be active, it will need to feed on nectar from prairie flowers. Collect fresh nectar plants every 1-2 days until the day the release will occur. The cut flowers are to be kept in a solo cup half filled with water, placed inside the habitat.

11. Tag and release the monarchs no longer than a week after hatching to ensure they fulfill their biological goals.

Tagging and Releasing Monarchs

The UIC Heritage Garden is a registered monarch Waystation with the organization Monarch Watch. We also participate in Monarch Watch Citizen Science and tag our raised monarchs. Order tags on their website yearly (listed within the resources section), and they are delivered in August. All monarchs hatched after tags are received should be tagged before released.

To tag the monarch, carefully hold a monarch between your thumb and index finger along the leading edge of the butterfly's forewings (close to the body, not at the tip) and locate the discal cell (large mitten-shaped cell on the hindwings). The tag should be placed over the large, mitten shaped cell (discal cell) on the underside of the hindwing of the monarch. This tagging method places the tag close to the center of lift and gravity for the butterfly so as to not interfere with flight or otherwise harm the butterfly.



Tagging monarchs is as easy as:

1. Record the complete 6-character tag code (e.g., ABC123) and other information requested on the datasheet;
2. Remove the tag from the backing, place it over the discal cell and position the pads of your thumb and forefinger over the discal cells on both side of the butterfly press firmly for two seconds; and
3. Release the butterfly.

Butterfly Release, UIC Heritage Garden, 2015

COMMON MONARCH CONCERNS

Common Deaths

There are four life stages in the monarch's life, each of which have common associated deaths. Remember that genetics can be a PRIME factor in why a monarch dies during its life cycle.

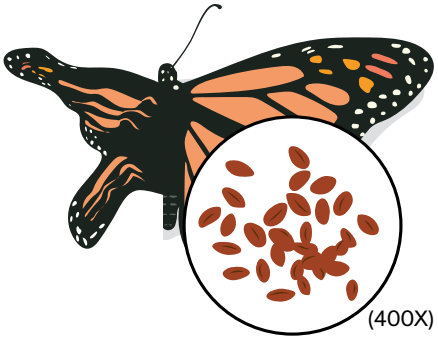
- **Deaths in the Egg Stage:** If the eggs remain black after 3 days, the eggs are not going to hatch. Disease, fungi, and insects all can play a role in monarch egg deaths.
- **Deaths in the Larva Stage:** Predatory/Parasitic insectoids often lay eggs inside larvae that feast on the larvae once hatched, or attacks from microorganisms can cause the larvae to change colors and die.
- **Deaths in the Pupa Stage:** Predatory/Parasitic insectoids often lay eggs inside the pupa that feast on the pupa, or attacks from microorganisms can cause the pupa to change colors and die.
- **Deaths in the Adult Stage:** Birds, and other insectivores like spiders.

Tachinid Flies

These parasitic flies lay eggs on the monarch caterpillars, which burrow inside the caterpillar and feed on it from the inside out. If the caterpillar becomes skinnier, it is likely infected. These caterpillars often die as they pupate. The maggots are white, and when the maggots pupate they have a dark red pupae. If you find these, throw them away.

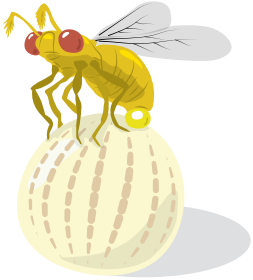
OE (Ophryocystis elektroscirrha)

OE is a protozoan parasite in the milkweed that caterpillars ingest. It spreads through microscopic spores, and spread by coming off the wings of the adult butterflies. Butterflies infected with OE can't fly as well and travel in shorter distances. It can cause disfigurement. Prevent the spread of OE by washing milkweed leaves before feeding them to the caterpillars.



Trichogramma Wasps

These wasps lay eggs inside of monarch eggs. The infected eggs will turn completely dark. If you find eggs this way, dispose of them. If the eggs are dark only on the top of the egg, then they might still be viable.



Black Death (NPV - Nuclear Polyhedrosis Virus OR Pseudomonas)

Caterpillars infected with NPV will deflate, turn black, and sometimes liquify. The chrysalis could also turn black. Pseudomonas affects caterpillars similarly, but often will affect caterpillars that are already weakened.

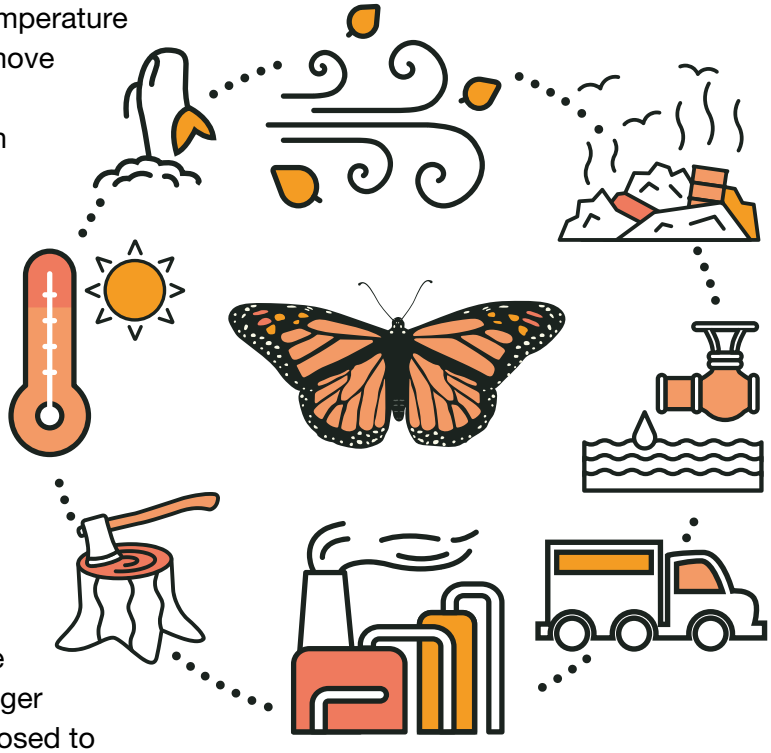
To prevent these, make sure there is good ventilation in the environment. Caterpillars leaking fluid or turning black should be immediately removed and the cups should be discarded.

Pesticide Poisoning

If the caterpillars ingest pesticides, they will expel green vomit. If this happens, rinse the caterpillar and give it a new and clean milkweed leaf. Another sign of pesticide poisoning is when the caterpillar dies while forming its chrysalis, which can happen if they ingest organic pesticides like neem oil.

Climate Change

In recent years, the southern migration of monarchs from North America has been delayed by as much as six weeks because of the warmer than normal temperatures. When the temperature begins to cool, it triggers the butterflies instinct to move south. Extreme weather events, like severe storms, can kill a large amount of overwintering monarchs in Mexico. In 2002, a severe storm killed around 80% of this population, a hit from which the species is still recovering. Hotter and drier weather can also negatively affect the larval stage of monarch development.



Climate change also impacts the plants and environments that the monarch depends on. The rising levels of carbon dioxide from car and factory exhaust has been linked to reducing the medicinal qualities of milkweed. Moreover, milkweed habitat loss has partially been from climate change, and climate models predict that the overwintering forests in Mexico may soon be no longer suitable for overwintering. The forests could be exposed to higher stress from heat and drought, which makes them more susceptible to insects and disease.

MONARCH STORIES AND CULTURAL CONNECTIONS

The monarch serves as a symbol of immigration for the Latinx community, as it moves freely across North American borders, representing beauty, resilience, and natural survival. In addition to inspiring environmental and climate action, this butterfly can help spark conversations about cultural understanding and social justice.

We highlight these connections primarily through our garden tours. There is a dedicated section in our tour to the Monarch Butterfly Garden, in which we engage participants around monarch stories, in hopes of starting a dialogue and sharing additional stories. Along with the tours, there are several ways the Heritage Garden connects environmental sustainability with social justice through the stories of the monarch butterfly.

Butterflies and Social Justice Project

In 2013, the UIC Heritage Garden collaborated with Pilsen muralist Hector Duarte to create a public installation in the Heritage Garden satellites that allows visitors to visualize the power of the monarch butterfly migration metaphor. They painted butterflies on paper, and wired the butterflies to hang them in the garden satellites.

Butterfly Art Project, UIC Latino Cultural Center, 2018

The parallels between migrants in North America and the monarch butterflies are striking. Most obvious is the similarity in the actual geographic route of these creatures of flight and so many migrants from Latin America who search for safer and healthier places to lay a strong foundation for the next generation. Likewise, we can compare the migration of birds from the U.S. south to the north with the Great Migration of African-Americans throughout most of the 20th century. All of these journeys—in flight and on foot—from unsavory conditions to the promise of something better and just within reach are synonymous with one pursuit: survival. Moreover, many of the conditions that prompt this migration are human made. Although the survival response to migrate is something we share in common with many of our plant and animal relatives, the conditions we migrate from can range from changing climate patterns to capitalism. The migration of the monarch reminds us that we must keep moving, intuitively recalling the actions of our ancestry and those trails that were created out of necessity. It symbolizes the significance of never forgetting those who came before in order to secure our futures.

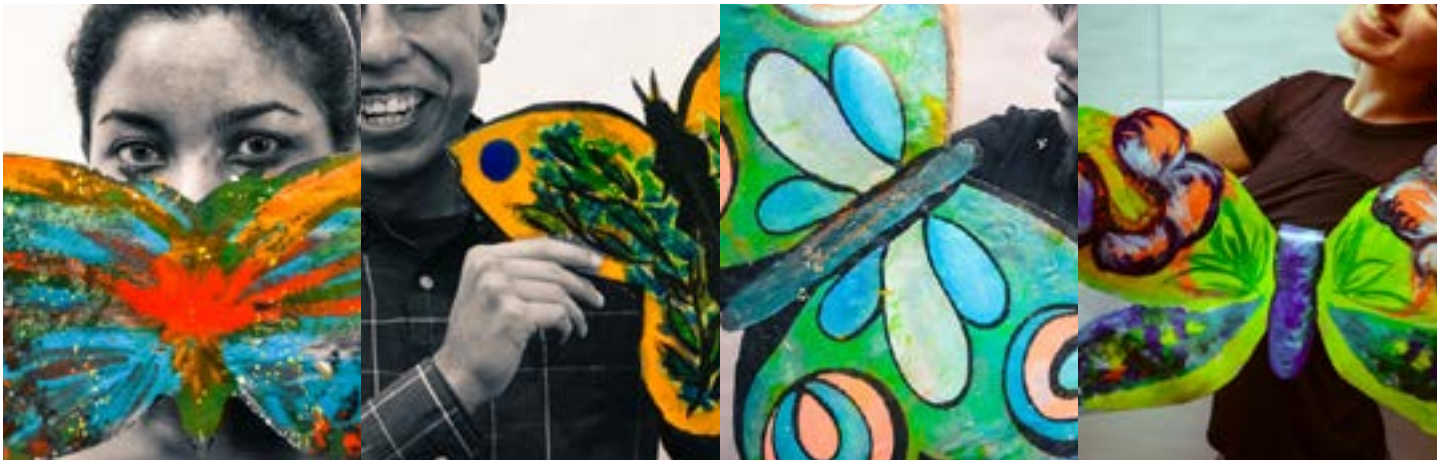
The American Dream Mural, UIC Latino Cultural Center

Action Project

Following the installation, this project was also a timely and necessary address to the situation of the DREAM 9, a group of undocumented activists that during the summer of 2013 courageously demonstrated against the state of immigration policy in the U.S. These nine activists, including UIC alum Lulú Martínez, crossed the border from Mexico to the U.S. in yet another ceremonious representation of the perils and power of migration - an action that was coordinated by the National Immigrant Youth Alliance (the NIY A). They were held at the Eloy Detention Center in Arizona. There, some were kept in solitary confinement which prompted the group to launch a hunger strike. National attention and support pushed authorities to release the entire group after being detained for over two weeks, highlighting the hypocrisy of the U.S. government in treating people differently when a case is public versus private, and showing the power of organizing and collective action.

Eight of the Dream 9 before crossing into the United States from Mexico Photo Credit: Steve Pavey

The interns in collaboration with student organization Fearless Undocumented Alliance (FUA) created the Butterfly Postcard Campaign to highlight the parallels between the migration of people and Monarch butterflies across national borders. The Latino Cultural Center uses the postcards to collect stories about migration and immigration. For more information about the program: http://latinocultural.uic.edu/events/undoculove-messages/



To access the postcard stories: http://latinocultural.uic.edu/archives/stories/butterfly-postcard-campaign/

Historias Monarca

Historias Monarca (Monarch Stories) collects stories from Mexican communities in Chicago about their connections to monarch butterflies, including conservation practices adapted from Mexico or learned in Chicago, cultural meanings of the monarch in relation to homeland and the Midwest, and its symbolism for social and environmental justice. We hope to continue conversations around the conservation of the monarch butterfly by preserving and sharing the knowledge offered by Mexican communities in Chicago. Historias Monarca is a storytelling project of the UIC Latino Cultural Center in partnership with UIC Heritage Garden, Enlace Chicago, and Yollocalli Arts Reach with support from the USDA Forest Service International Programs.

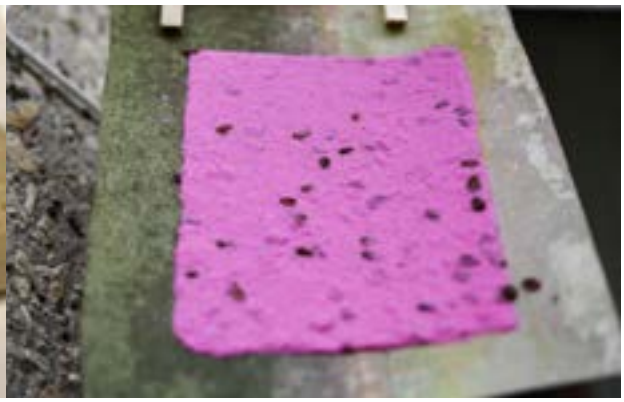
https://latinocultural.uic.edu/historias-monarca/

Earth Week: SeedBombs, UIC Latino Cultural Center, 2017

Workshops and Programs

Since the establishment of the Monarch Butterfly Garden, the UIC Heritage garden has continued to host various workshops and activities to promote the cultural connections of the monarch butterfly. One primary example is hosting seed bomb workshops. For this activity, participants get hands on experience and education around creating seed bombs, and are informed about how the seeds themselves can promote monarch butterfly habitats. We make use of a sugar skull mold, to highlight the cultural connection and stories of Día de los Muertos with migration and the journey of the monarchs.

http://latinocultural.uic.edu/events/monarchs-seed-bombs-migration-stories/
http://latinocultural.uic.edu/events/dia-de-los-muertos-day-of-the-dead-2017/
http://latinocultural.uic.edu/events/day-of-the-dead-2016-vida-y-muerte-ritual-dance/



Seed Bombs and Seed Paper, UIC Heritage Gargen, 2015

Monarch Kit

The UIC Heritage Garden Leaders, Summer 2021, have put together a monarch kit which combines a condensed version of information found in this guide, with more illustrations, cultural connections, and seeds. Contact us at heritagegarden.uic@gmail.com for more information. Special thanks to Zuleyma Morales, Grace Fick, Keyana Robinson and Eyzel Torres.

Additional Cultural Connections

Along with the aforementioned stories around the monarch butterfly, below are additional cultural connections that can bolster our understanding of the monarch.

Poetry by Alex Smith, UIC Heritage Garden Student Leader

Monarch

Flying in,
With their wings of hues
Looking for some place
To travel to.
But walls
Of habitat destruction,
And biodiversity obstruction.
We have to help them.
They're not asking for much,
But for milkweed to land on
And nectar to drink from.
And along,
They lose members of their family.
And along,
They gain new ones.
And so long,
As they make a stop here
And then there
And go back to Michoacan.
Smile,
Embrace the beauty.
Uniquely it seems,
Spreading their magic like a symbol,
Let them be free.

A poetic take on how the Monarch as symbol for migration, but also on the struggles they face to find habitats that can sustain them and facilitate their egg-laying. A cry out to help them and let them prosper again. -Alex Smith

Flight of the Monarch

They fly in,
With stained-glass wings.
They land, these little things.
Delicate,
Yet significant.
Let their proboscis down and
Kiss the small wounds,
Drink up tears
Like nectar.
Their wings shadow over
And scars.
How brilliant;
Radiant;
The butterflies are.
Engulf the self-injured
Parts of us and protect
Us from doing it again.
They give us reason
To look at our arm and not
Regret the mark there,
Because they now remain.
These creatures carefully creep
To cover mutilated skin
And create something beautiful,
Wonderful.
Their bodies are shape kind
Of Like a semi-colon-
Signifying strength out of suicide.

El vuelo de la mariposa monarca.
The flight of the monarch butterfly,
Just to land and live on my wrist
Because I hurt myself one too many times.
All they ask in return
Is to never do it again,
To promise,
And it will remain a friend.
So, this is me saying
"The End"
To that chapter of my life.
Turn the page,
Throw the knives and matches away.
This is the time,
Now is the day,
For monarchs.

This poem is a piece used to illustrate how the monarch is not only an important symbol for migrants, but also for survivors from self-injury and suicide. Their wings have the same orange hue as the self-injury awareness ribbon and the time they migrate during the summer is also the time of year for important mental health, suicide prevention, and self-injury awareness. When the monarch flashes its wings it signifies to look up at the beauty in life and not the broken aspects of it which is also a testament to how they are still here trying to prosper even after so much loss they have experienced. -Alex Smith

MONARCH CONSERVATION RESOURCES

The following is a comprehensive list of organizations and programs involved in monarch conservation and community science. Many of these resources were used in the compilation of our guide, so we would like to credit and thank them for their knowledge and resources.

Monarch Watch
https://www.monarchwatch.org/

Monarch Joint Venture
https://monarchjointventure.org/

Monarch Larva Monitoring Project
https://monarchlab.org/mlmp

North American Pollinator Protection Campaign
http://pollinator.org/nappc

US Forest Service International Programs
https://www.fs.fed.us/about-agency/international-programs

The Xerces Society
https://xerces.org/

Journey North
https://journeynorth.org/

Monarch Butterfly Fund
https://monarchconservation.org/

Pollinator Partnership
http://pollinator.org/

National Audubon Society
https://www.audubon.org/

The Nature Conservatory
https://www.nature.org/en-us/

PlantNative
http://www.plantnative.org/

US Fish and Wildlife Service National Conservation Training Center
https://training.fws.gov/

The Field Museum
https://www.fieldmuseum.org/science/research/area/keller-science-action-center/science-action-chicago/monarchs-view-city

UIC Heritage Garden

Heritage Garden at the University of Illinois Chicago
803 S. Morgan St., Chicago IL 60607

September 2021

Heritagegarden.uic.edu

/uicheritagegarden