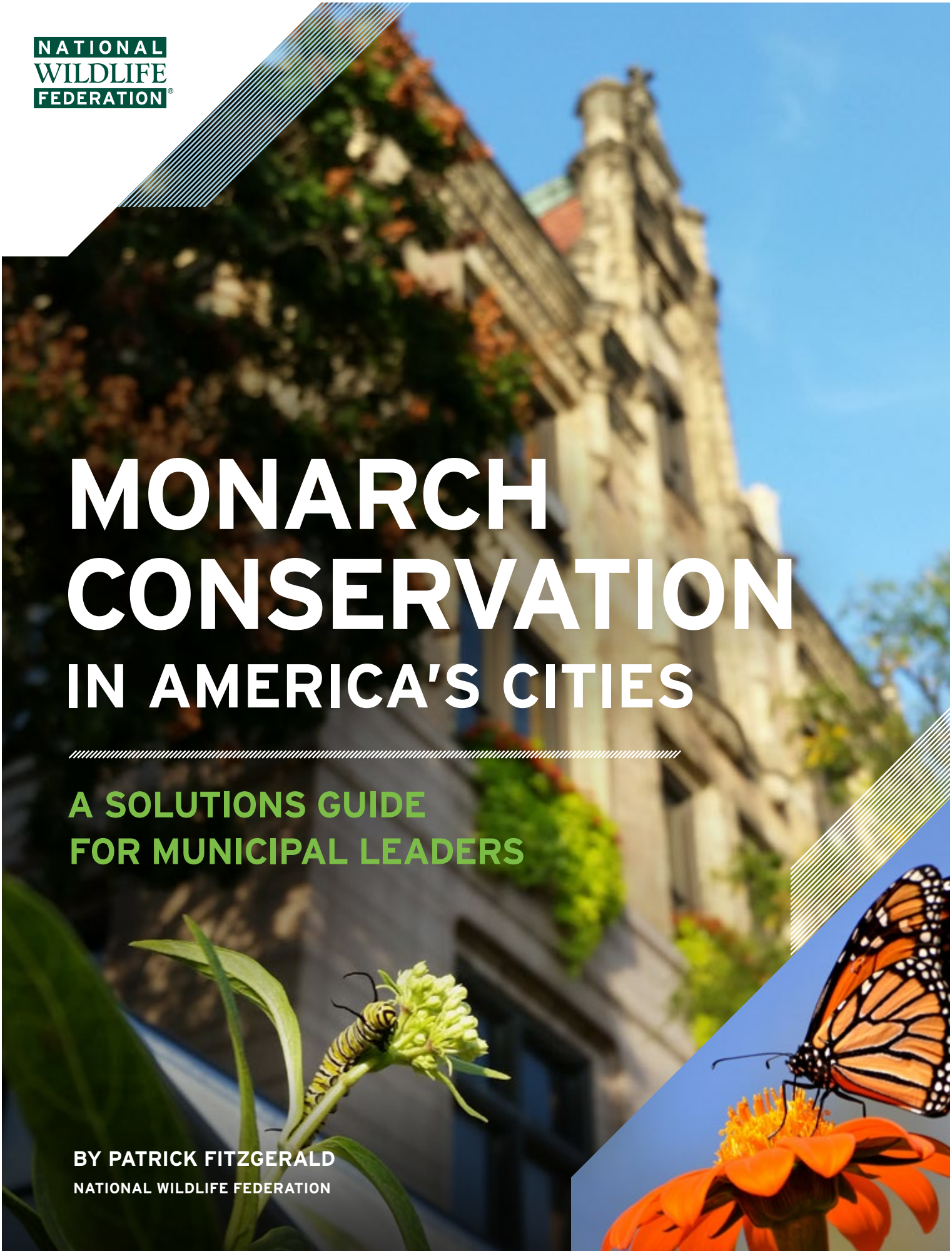
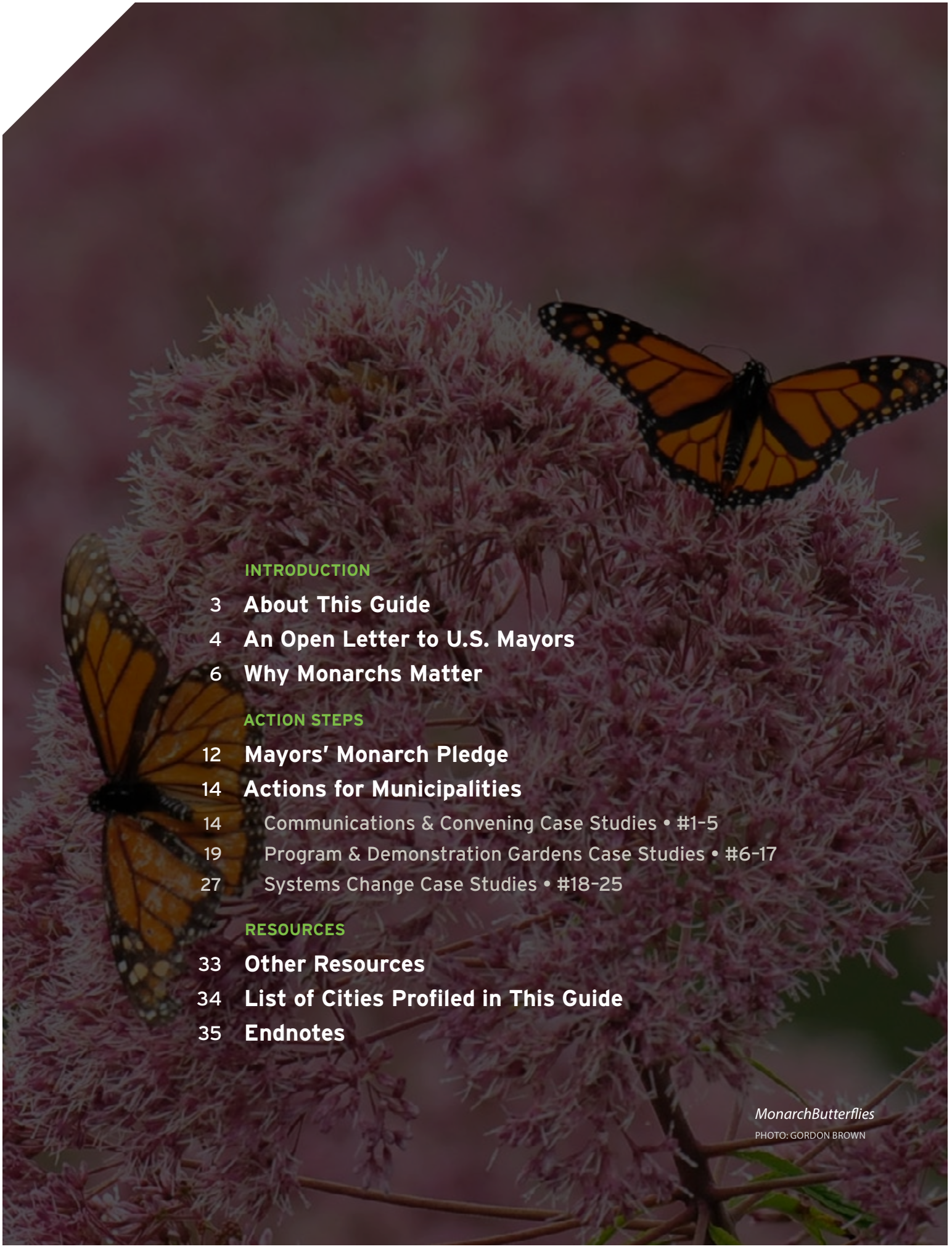
NATIONAL WILDLIFE FEDERATION®

MONARCH CONSERVATION IN AMERICA'S CITIES

A SOLUTIONS GUIDE FOR MUNICIPAL LEADERS

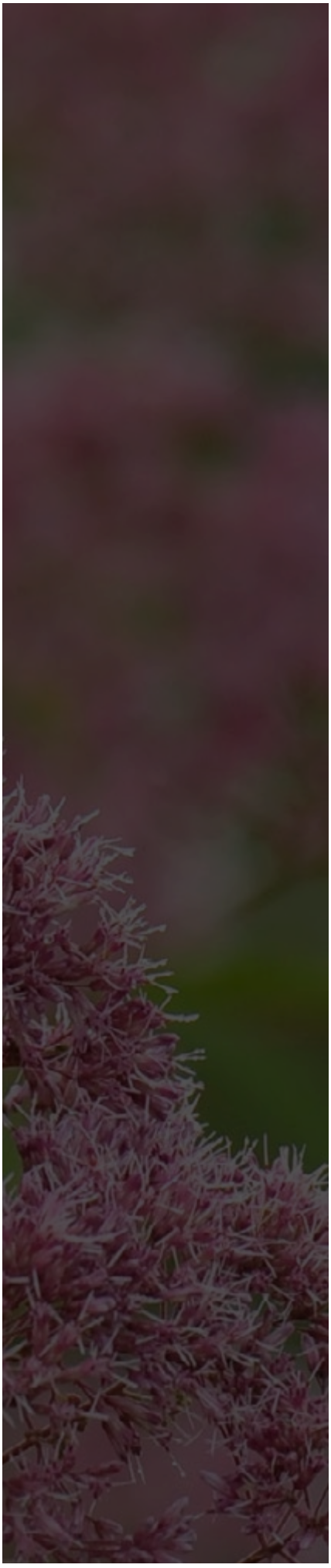


BY PATRICK FITZGERALD
NATIONAL WILDLIFE FEDERATION



MonarchButterflies

PHOTO: GORDON BROWN

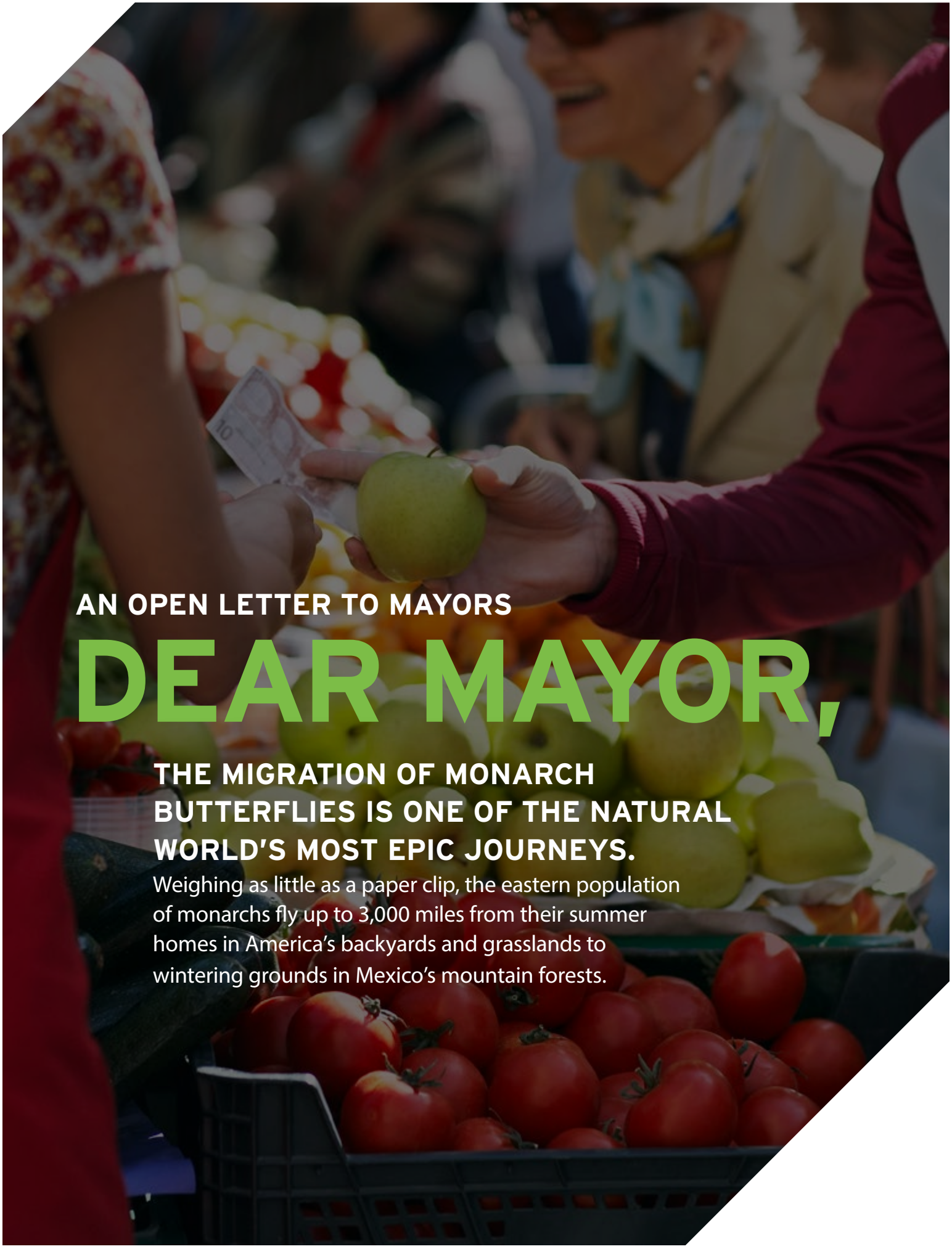


ABOUT THIS GUIDE

SAVING THE DECLINING MONARCH BUTTERFLY IN OUR COMMUNITIES

THIS GUIDE IS INTENDED for mayors, local government chief executives, municipal staff and others that want to take action to help save the declining monarch butterfly in their community. This guide provides case studies and shares innovative best practices that can be replicated by municipalities across the nation. It includes model language for proclamations, ordinances and other best practices. By learning from one another and understanding what has worked (and what hasn't) cities can more effectively and more quickly take action and make a difference for the monarch (and other pollinators too!).

This guide does not cover every best practice in the field of urban monarch butterfly conservation. If your municipality has a model program or initiative, please let us know about it by emailing mayorsmonarchpledge@nwf.org.



AN OPEN LETTER TO MAYORS

DEAR MAYOR,

THE MIGRATION OF MONARCH BUTTERFLIES IS ONE OF THE NATURAL WORLD'S MOST EPIC JOURNEYS.

Weighing as little as a paper clip, the eastern population of monarchs fly up to 3,000 miles from their summer homes in America's backyards and grasslands to wintering grounds in Mexico's mountain forests.

BUT IN RECENT YEARS, the monarch butterfly populations have plummeted at an alarming rate. This decline threatens to deprive future generations of the wonder and beauty of the monarch — and is an ominous sign of the worsening health of ecosystems. As recently as 1996, the monarch population wintering in Mexico was more than 1 billion, turning forests into seas of orange and black. Last year, the wintering population numbered only about 56 million, and gathered on fewer than three acres of forest—a decrease of more than 90 percent.

Monarch butterflies, as well as other butterfly species, bees, birds and bats, help move pollen from one plant to another, fertilizing flowers and making it possible for plants to produce food needed to feed people and wildlife.

MORE THAN A THIRD OF THE FOOD THAT WE EAT REQUIRES POLLINATORS TO GROW.

Yet many of these pollinators are declining, with habitat loss, pesticides and climate change all contributing. We need to know more about why monarchs are disappearing. But, we don't need to wait to take the actions that scientists tell us are necessary. Monarchs need all of us to make our homes, businesses, schools and community spaces more wildlife-friendly.

That's why the U.S. Fish and Wildlife Service, the National Wildlife Federation, and the cities of St. Louis, Missouri, and Austin, Texas, are asking all of our nation's mayors to take action by launching a nationwide "Mayors' Monarch Pledge." Working with mayors and local, state and national partners, we will restore and enhance habitat for monarchs right where people live, work, learn, play and worship. Cities, towns and counties have a critical role to play to help save the monarch butterfly.

MUNICIPALITIES IN PARTICULAR CAN PROVIDE MONARCH HABITAT AT PUBLIC PARKS, MEDIAN STRIPS, COMMUNITY GARDENS AND MUNICIPAL BUILDINGS.

City properties like recreation centers and libraries can host demonstration gardens and serve as community hubs where citizens can learn how to help. Educating citizens about how and where to grow milkweed is also a key piece for success.

The decline of monarchs has continued in part because, until now, saving them has been viewed as someone else's job. By joining forces through the "Mayors' Monarch Pledge," we are declaring that era over. Together, we will ensure that future generations have the chance to enjoy this iconic butterfly.

We hope you will join us in making monarch butterfly conservation a priority in your city by taking the "Mayors' Monarch Pledge."

www.nwf.org/MayorsMonarchPledge

Sincerely,

Dan Ashe
Director
US Fish and Wildlife Service

Collin O'Mara
President and CEO
National Wildlife Federation

Francis Slay
Mayor
City of St. Louis

Steve Adler
Mayor
City of Austin

WHY MONARCHS MATTER

ABOUT THE MONARCH BUTTERFLY

Genus: *Danaus*
Species: *plexippus*

Brilliant orange and black monarchs are among the most easily recognizable of the butterfly species that call the Americas home. Their migration takes them as far north as Canada and, during the winter months, as far south as Mexico City. A single monarch can travel hundreds to thousands of miles!

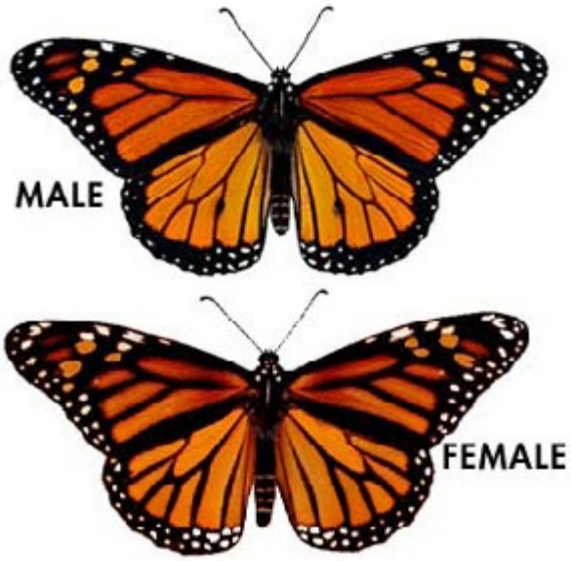
Monarchs are truly spectacular migrants, because the butterflies know the correct direction to migrate even though they have never made the journey before. They follow an internal "compass" that points them in the right direction each spring and fall. The monarch migration is one of the greatest natural phenomena in the insect world.

Description

Monarch butterflies are bright orange with black and white markings. The body of the monarch is black. The head has a set of antennae.

The wings are mostly orange with black veins running throughout. The outer edge of the wings has a thick black border. Within the black border are white spots. The white spots can range in size and they decorate the wings. At the upper corner of the top set of wings are orange spots.

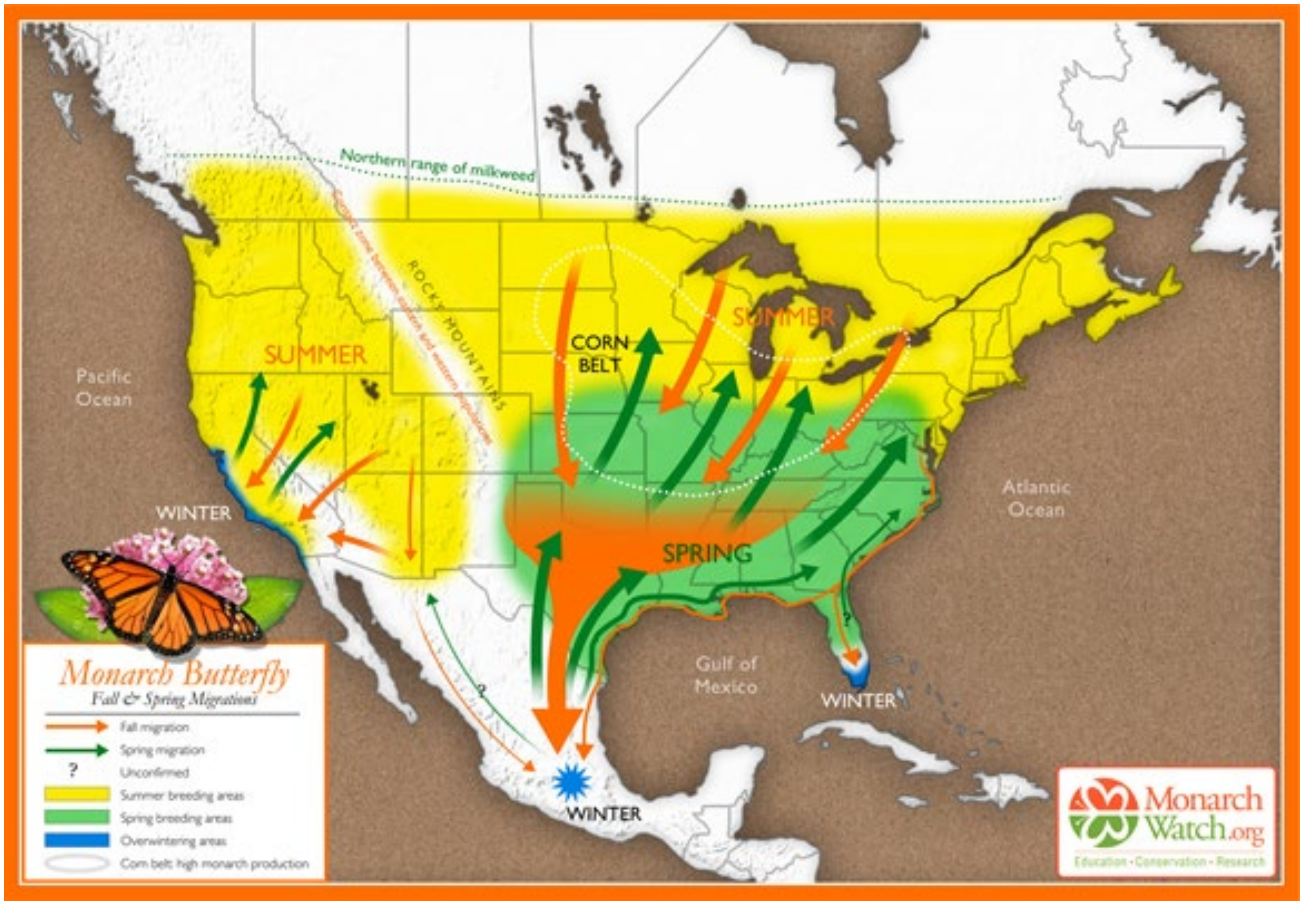
The underside of the monarch butterflies' wings can be seen when the butterfly is at rest or when it is feeding on a flower. Instead of bright orange, the underside is more drab and orange-brown.



PHOTOS: MONARCH WATCH

Males and females can be told apart by looking at the top of their hind wings. Males have a black spot at the center of each hind wing, while the females do not. The spot is a scent gland that helps the males attract female mates. Another less accurate way to tell males from females is that the females usually have much thicker veins than the males.

Monarch butterfly caterpillars are also easy to identify. The caterpillars have many yellow, black and white bands. There are antenna-like tentacles at each end of the caterpillar's body.



Migration Map

PHOTOS: MONARCH WATCH

SIZE

Monarch butterflies have a wingspan of 3 1/2 - 4 inches.

DIET

Monarchs, like all butterflies, change their diet as they develop. During the caterpillar stage, they live exclusively on milkweed plants. Milkweeds are wildflowers in the genus Asclepias. Milkweeds contain glycoside toxins that are harmless to the monarch but poisonous to its predators. Monarch caterpillars feed on all the different parts of milkweed plants and store up the toxins in their body. The toxins remain in their system even after metamorphosis, thereby making adult monarchs poisonous as well.

Adult monarchs feed on nectar from a wide range of flowers, including milkweeds.

TYPICAL LIFESPAN

Most monarch butterflies do not live more than a few weeks. There are about three to five generations born each spring and summer and most of the offspring do not live beyond five weeks. The lone exception is the last generation born at the end of the summer.

The last generation of each year is the over-wintering generation that must make the journey back to Mexico. Rather than breeding immediately, the over-wintering monarchs fly back to Mexico and stay there until the following spring. In the early spring, they fly north to the southern United States and breed. Over-wintering monarch butterflies can live upwards of eight months.

Habitat

Monarch butterflies utilize different habitat in the warm months versus the cold months. In the spring, summer and early fall, they can be found wherever there are milkweeds.

Monarchs lay their eggs on milkweeds and they're always searching for them in fields, meadows and parks. Many people plant milkweeds in their gardens.

Monarchs cannot survive freezing temperatures, so they over-winter in the cool, high Oyamel forests in the Mexican state of Michoacan and woodlands in central and southern California.

RANGE

Monarch butterflies can be found throughout the United States, including Hawaii.

The majority of monarch butterflies live east of the Rocky Mountains. In the early spring, they are first seen in Texas and the south. As spring turns to summer, they're seen in more and more states and Canada.

A much smaller population of monarch butterflies lives west of the Rocky Mountains. Instead of making the long journey between Mexico and Canada, the western monarchs only travel as far south as San Diego. Some monarchs live in California year-round and others spend summers as far north as British Columbia, Canada.

Hawaii also has monarch butterflies. These non-native monarchs - were released or lost their way from California and found success year-round on the Hawaiian Islands.

Communication

Monarch butterflies communicate with scents and colors. The males attract females to mate by releasing chemicals (known as pheromones) from scent glands on the hind wings. All monarchs signal that they are poisonous by having bright orange wings. The bright colors serve as a warning that predators should attack at their own risk.

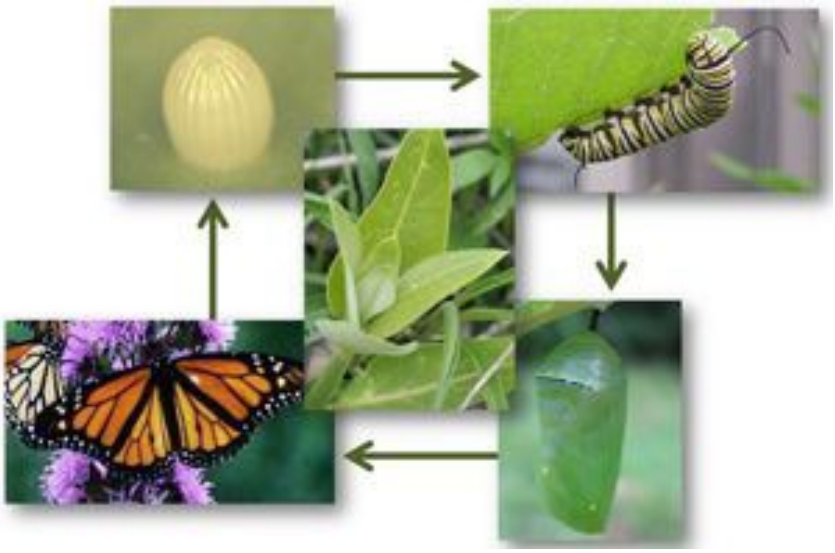
Life History and Reproduction

Over-wintering monarch butterflies in Mexico begin to make the journey north to the United States in early spring. Soon after they leave Mexico, pairs of monarchs mate. As they reach the southern United States, females will look for available milkweed plants to lay eggs.

The eggs hatch after approximately four days. The caterpillars are small and they grow many times their initial size over a two-week period. The caterpillars feed on the available milkweed plant. When they get big enough, each caterpillar forms a chrysalis and goes through metamorphosis.

The chrysalis protects the monarch as it is going through the major developmental change of turning from a caterpillar to a butterfly. The chrysalis is green with golden spots. After another 2-week period, an adult butterfly will emerge from the chrysalis.

The adult monarchs continue the journey north that was left unfinished by their parents. Each year, three to five generations will be born to continue migrating north. It is only the last generation, born in late summer that will live eight months and migrate back to Mexico to start the cycle over again.



Monarch Life Cycle

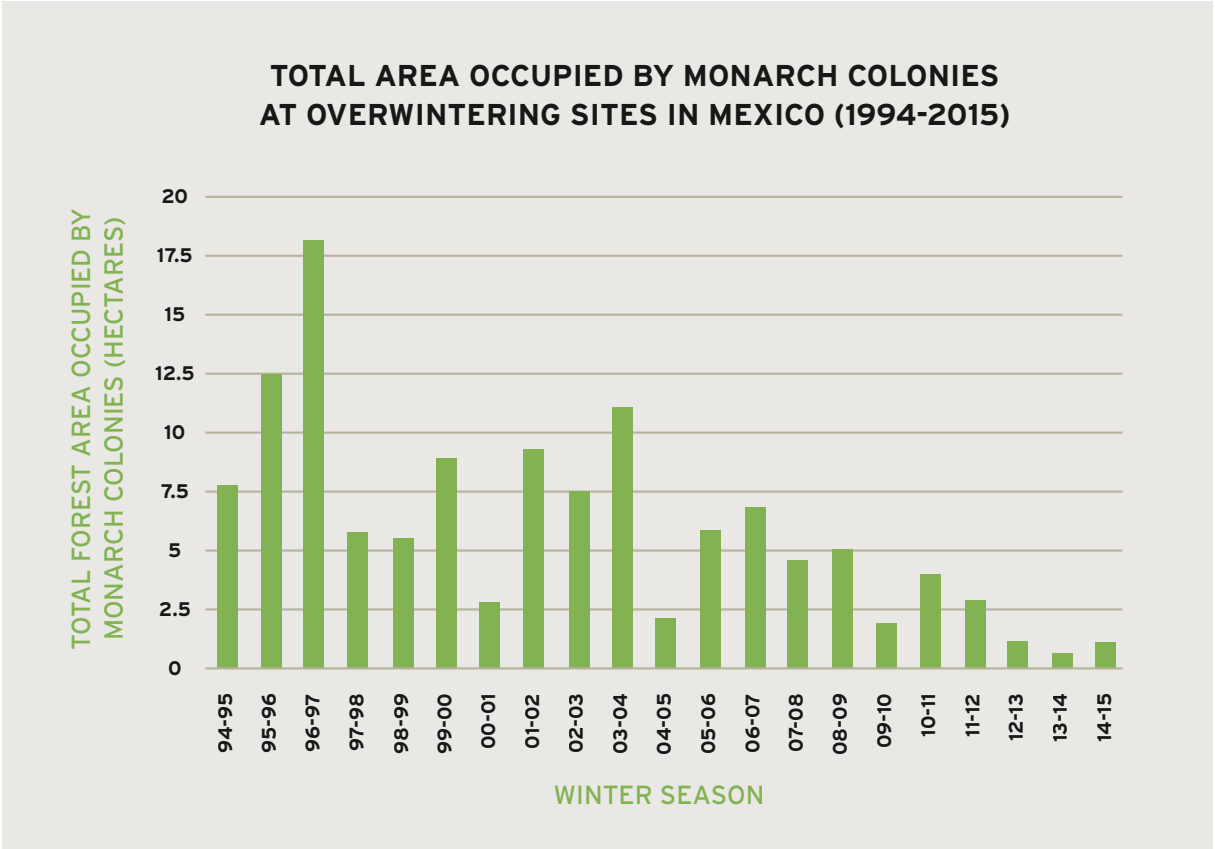
PHOTOS: MONARCH JOINT VENTURE, MICHELLE SOLENSKY, DENNY BROOKS, WWW.NATURALLYCURIOUSWITHMARYHOLLAND.WORDPRESS.COM, WENDY CALDWELL

MONARCH BUTTERFLIES IN PERIL

MONARCH BUTTERFLY POPULATIONS have plummeted in recent years. This decline is an indicator that there is something wrong in our shared environment and a warning that we could be affected as well. Do we really want to live in a world where the next generation has no chance of seeing a monarch butterfly?

Consider the following:

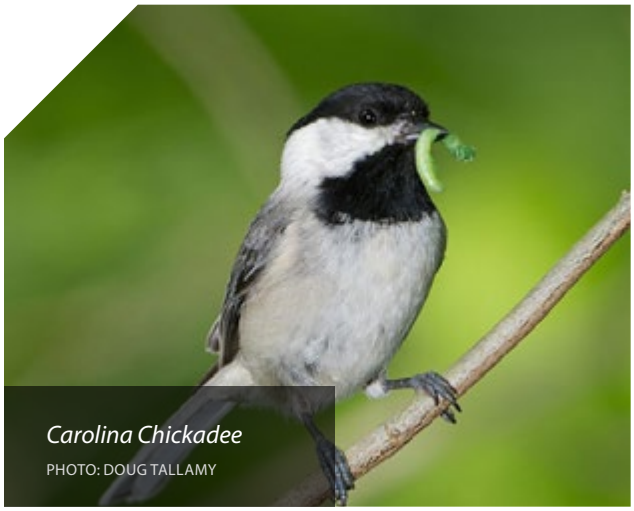
- Twenty years ago more than one billion monarch butterflies migrated to Mexico, in the winter of 2014, only 60 million made the trip.
- The eastern North American monarch population has declined by more than 80% over the average of the past two decades. The 2014 overwintering population is down 94% since its peak in 1996.
- One third of the monarch's summer breeding habitat has been destroyed, largely in the Midwest. Expansion of row crop agriculture and, to a lesser extent, development, has destroyed 90 percent of our nation's native grassland ecosystems, including the milkweed on which monarchs depend.
- Monarch overwintering sites are under threat, especially in Mexico where the forests used by monarchs are under logging pressure.
- Monarchs are being directly killed by insecticides both as adult butterflies and as caterpillars, in both agricultural and suburban and urban landscapes.
- Climate change has intensified weather events which may impact monarch butterfly populations.



Data from 1994–2003 were collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Protected Natural Areas (CONANP) in Mexico. Data from 2004-2015 were collected by the WWF-Telcel Alliance, in coordination with the Directorate of the MBBR. 2000-01 population number as reported by Garcia-Serrano et. al.

Other Pollinators Are in Trouble Too

Threats facing the monarch have helped shine a light on the plight of other insects, especially pollinators. Pollinators are animals that move from plant to plant while searching for protein-rich pollen or high-energy nectar to eat. As they go, they are dusted by pollen and move it to the next flower, fertilizing the plant and allowing it to reproduce and form seeds, berries, fruits and other plant foods that form the foundation of the food chain for other species—including humans.



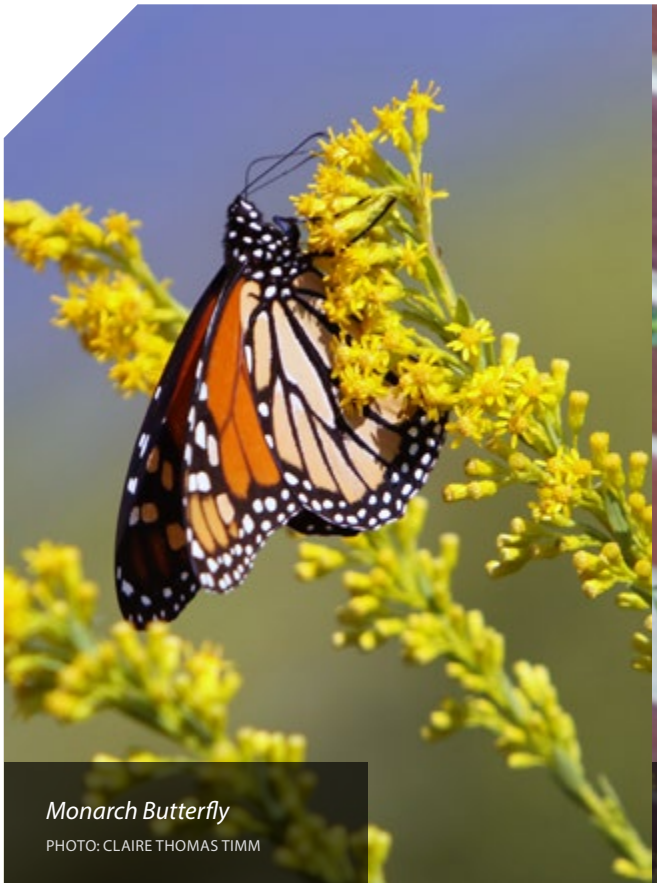
Carolina Chickadee
PHOTO: DOUG TALLAMY

Pollinators are themselves important food sources for other wildlife. Countless birds, mammals, reptiles and amphibians eat the protein and fat-rich eggs, larvae, or adult forms of pollinators, or feed them to their young. For example, during the breeding season, Carolina chickadees and other birds need a lot of insects—in the case of chickadees, more than 5,000 per clutch of hatchlings. Pollinators play a critical role in the food supply for wildlife and people!

Bees are well-known pollinators, but over 100,000 invertebrates—including butterflies, moths, wasps, flies, and beetles—and more than 1,000 mammals, birds, reptiles and amphibians, act as pollinators. Pollinators worldwide are in decline. Habitat loss, invasive species, parasites, and pesticides are largely to blame.

THE MILLION POLLINATOR GARDEN CHALLENGE

The Million Pollinator Garden Challenge was launched by the National Pollinator Garden Network, an unprecedented collaboration of national, regional, conservation and gardening groups to support the President's Executive Strategy to "Promote the Health of Honey Bees and Other Pollinators." The Million Pollinator Garden Challenge is a nationwide call to action to preserve and create gardens and landscapes that help revive the health of bees, butterflies, birds, bats and other pollinators across America. Together the network is working to create one million pollinator gardens and move millions of individuals, kids and families outdoors and make a connection between pollinators and the healthy food people eat. Since milkweed, the host plant for monarchs provides an excellent source of nectar for other pollinators, every monarch garden can count toward one million pollinator gardens.
millionpollinatorgardens.org



Monarch Butterfly
PHOTO: CLAIRE THOMAS TIMM

Bumblebee on Golden Rod
PHOTO: PATRICK FITZGERALD

Many pollinators are keystone species, which means that they are vital to an ecosystem's health and survival. The work of pollinators supports an estimated 1/3 of all foods and beverages in the U.S., producing nearly $20 billion worth of products annually.

Cities and Municipalities Play a Critical Role in Monarch Butterfly Conservation

Cities, towns, counties, neighborhoods and homeowners associations all have practices that impact the monarch butterfly, native bees and other pollinators. Mayors and local leaders can take numerous actions to support the monarch. A review of responses to date uncovers a variety of initiatives ranging from proclamations to innovative landscaping ordinances to environmental education programs. Each of these responses is valuable, but all these and more are necessary if we hope to have a fundamental and lasting impact for the monarch butterfly.

City park departments oversee hundreds or thousands of acres of parkland. City planning departments often control what is planted or mowed along roadsides. School districts can work in partnership with cities to create outdoor learning gardens. Communications departments can help spread the word and reach citizens with messages about how they can help create habitat for monarchs and pollinators at home and in their communities. Cities and communities of all kinds have the potential to create millions of acres of habitat for the monarch butterfly. Through the Mayors' Monarch Pledge and by providing resources to communities, the National Wildlife Federation is working to help mayors take action and catalyze change across multiple fields.

Butterfly House Native Garden
PHOTO: PATRICK FITZGERALD

MAYORS' MONARCH PLEDGE

Mayors can take the Mayors' Monarch Pledge at www.nwf.org/MayorsMonarchPledge. This is the pledge language:

"The monarch butterfly is an iconic North American species whose multigenerational migration and metamorphosis from caterpillar to butterfly has captured the imagination of millions of Americans.

We, the undersigned mayors and local government chief executives, are deeply concerned about the decline of the monarch butterfly population. Twenty years ago, more than one billion Eastern monarch butterflies migrated to Mexico. In the winter of 2014, only 60 million made the trip. The North American monarch population has declined by more than 90 percent in the past two decades. Monarch scientists attribute the decline to degradation and loss of summer breeding habitat in the U.S. and loss of winter habitat in Mexico. Western populations of monarch butterflies that overwinter in California are also in decline.

Cities, towns and counties have a critical role to play to help save the monarch butterfly. Municipalities in particular can provide habitat at public parks, median strips, community gardens and municipal buildings that serve as community hubs such as recreation centers and libraries. Schools, homes and businesses can all provide essential habitat for monarchs too. Simple changes in landscaping ordinances or school policies can make a big difference for the monarch. Educating citizens about how and where to grow milkweed is also a key piece of the puzzle. Creating habitat and educating citizens will benefit other pollinators that need healthy habitat as well.

When mayors speak up and take a stand, citizens notice. Therefore, we hereby commit to help restore habitat for the monarch and encourage our citizens to do the same, so that these magnificent butterflies will once again flourish across the continent."

Monarch Butterflies on Goldenrod

PHOTO: RONALD GIBSON

ACTIONS FOR MUNICIPALITIES

FULFILLING THE MAYORS' MONARCH PLEDGE takes all of us. The Case Studies included in this guide provide the resources needed for us all to join in the work of restoring habitat for the monarch. We are with you every step of the way as you turn your commitment into action.

Part of this commitment is to implement at least three of the following action items within a year of taking the pledge, with at least one action from the Program and Demonstration Gardens section. When your community takes more than eight actions, you'll receive special recognition as part of the National Wildlife Federation's Mayors' Monarch Leadership Circle. Take all 25 actions and you will become a Monarch Champion.

Please visit nwf.org/mayorsmonarchpledge to take the pledge.

COMMUNICATIONS & CONVENING CASE STUDIES

1 ISSUE A PROCLAMATION TO RAISE AWARENESS ABOUT THE DECLINE OF THE MONARCH BUTTERFLY AND THE SPECIES' NEED FOR HABITAT.

Proclamations are a useful tool to call public attention to the decline of the monarch butterfly and to express a city's support for the monarch and other pollinators. Mayors can issue proclamations on the day the pledge is taken and declare it Mayors' Monarch Pledge Day in the city. Proclamations can also be tied to other national days to celebrate sustainability, wildlife and pollinators (see chart). There are many inspiring examples of proclamations by mayors and others.

St. Louis, MO - "Mayors' Monarch Pledge Day"
St. Louis Mayor Francis Slay declared Saturday, September 19th as "Mayors' Monarch Pledge Day" to shine a spotlight on the pledge and to raise awareness about monarch butterfly conservation in the City of St. Louis.

Mayors Monarch Pledge Launch
PHOTO: PATRICK FITZGERALD

Proclamation Language:

WHEREAS, the monarch butterfly is an iconic North American species whose multigenerational migration and metamorphosis from caterpillar to butterfly has captured the imagination of millions of Americans; and

WHEREAS, 20 years ago, more than one billion Eastern monarch butterflies migrated to Mexico, but in the winter of 2014, only 60 million made the trip; and

WHEREAS, cities, towns and counties have a critical role to play to help save the monarch butterfly, and the City of St. Louis has played a leadership role by launching *Milkweeds for Monarchs: The St. Louis Butterfly Project*; and

WHEREAS, every citizen of St. Louis can make a difference for the monarch by planting native milkweed and nectar plants to provide habitat for the monarch and pollinators in locations where people live, work, learn, play and worship; and

WHEREAS, on behalf of the people of St. Louis who have already joined me in creating healthy habitat for these magnificent butterflies, I am honored to be the first Mayor to lead the way by signing the National Wildlife Federation's Mayors' Monarch Pledge; and I encourage other city officials across our great nation to take a stand with me so that the monarch butterfly will once again flourish across the continent.

Now, therefore, I, Francis G. Slay, Mayor of the City of St. Louis, do hereby proclaim September 19, 2015, as:

"MAYORS' MONARCH PLEDGE DAY"
IN THE CITY OF ST. LOUIS

In witness whereof, I have hereunto set my hand and caused to be affixed the seal of the City of St. Louis, this 19th day of September, A.D. 2015.

Edina, MN - May as "Monarch Butterfly Month"
edinamn.gov/edinafiles/files/City%20Council%20Staff%20Reports/May%206,%202015/Item%20V_%20C_%20Monarch%20Butterflly%202015.pdf

DATES TO ISSUE MONARCH PROCLAMATIONS

- **Day Pledge Is Taken** – "Mayors' Monarch Pledge Day"
- **February 5th** - Western Monarch Day www.daysoftheyear.com/days/western-monarch-day/
- **Second Week in March** – National Wildlife Week www.nwf.org/wildlifeweek
- **April** – Earth Month
- **April 22nd** – Earth Day
- **May** – Garden for Wildlife Month www.nwf.org/How-to-Help/Garden-for-Wildlife/Garden-Month.aspx
- **June** – Great Outdoors Month www.greatoutdoorsmonth.org/
- **Third Week in June** – Pollinator Week pollinator.org/npw_action.htm

Action Statement: NOW, THEREFORE, I James B. Hovland, Mayor of Edina do hereby proclaim, the month of May 2015 the time for Edina residents to plant milkweed seeds.

Northbrook, IL - Call to action for community planting and honoring the establishment of a Monarch Waystation:
northbrookil.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=1309&MediaPosition=1356.929&ID=2967&CssClass

Action Statement: NOW, THEREFORE, I, Sandra E. Frum, President of the Village of Northbrook, County of Cook and State of Illinois, do hereby proclaim April 14, 2015, a day honoring the establishment of a MONARCH WAY STATION in Northbrook, and urge all residents of the community to do their part by planting milkweed, the exclusive food source for monarch larvae, so that every parcel of property in Northbrook may contribute to the survival of the monarch butterfly.

MONARCHS NEED MORE THAN JUST MILKWEED

For monarch butterflies to rebound, they need more than just milkweed. Adult monarchs feed on nectar from a wide range of flowers, including milkweeds. Cities and municipalities can make a huge difference for the monarch and pollinators by planting native nectar-producing plants that bloom in a variety of seasons.

New Jersey State Proclamation - May as "Milkweed for Monarchs" Month (can be adapted for municipalities):
www.njleg.state.nj.us/2014/Bills/AJR/70_I1.HTM

Action Statement: BE IT RESOLVED by the Senate and General Assembly of the State of New Jersey: The month of May each year shall be designated as "Milkweed for Monarchs Month" in order to encourage public officials, businesses, schools, and the residents of this State to plant and protect native milkweed and nectar sources, so that monarch butterflies have the resources necessary to produce successive generations and sustain their spectacular migration through the State.

Pollinator Partnership Model State Proclamation - Pollinator Week (can be adapted for municipalities):
pollinator.org/npw_action.htm

Action Statement: NOW, THEREFORE, I, Mayor LAST NAME, Mayor of the city of CITY, do hereby proclaim the week of June 15-21, 2015 as CITY Pollinator Week throughout the City of CITY, and urge all citizens to recognize this observance.

California Native Plant Society - State Proclamation (can be adapted for municipalities):
www.cnps.org/cnps/conservation/nativeplantweek/

Action Statement: RESOLVED by the Assembly of the State of California, the Senate thereof concurring, That the Legislature recognizes the essential value and importance of California native plants to our history, economy, landscape, and environment; and be it further RESOLVED, That the California Legislature encourages community groups, schools, and citizens to undertake appropriate activities to promote native plant conservation and restoration, and to inform their neighbors and communities of the value of native plants in nature and in horticultural settings; and be it further RESOLVED, That the California Legislature hereby declares the third week of April, each year, as California Native Plant Week.

2 LAUNCH A PUBLIC COMMUNICATION EFFORT TO ENCOURAGE CITIZENS TO PLANT MONARCH GARDENS AT THEIR HOMES OR IN THEIR NEIGHBORHOODS.

Proclamations are an excellent start for informing residents about the challenges facing monarch butterflies and how they can help. Leveraging a variety of communication tools however will further increase awareness. Mayors and their teams can engage community members through press releases, earned media, social media, blogs, interpretive signage, events, public access TV and newsletters.

Girl Scout Butterfly Garden
PHOTO: PATRICK FITZGERALD

Andover, MN – Andover has a "Pollinator Awareness Project" that incorporates both communication and educational programs for a comprehensive approach to engaging the community about pollinator (and monarch butterfly) conservation. Their effort includes a list of the "Top 10 Things to Help Pollinators," a demonstration garden with native plants, a garden tour of pollinator-friendly landscapes, local planting projects and more. www.andovermn.gov/407/Andover-Pollinator-Awareness-Project

Austin, TX – Austin publishes a regular newsletter for residents to learn more about gardening for wildlife with an emphasis on pollinators and monarchs. Issues include stories about how the city is working to help the monarch, native plant garden installations at schools, photo challenges and more! www.austintexas.gov/page/wildlife-austin-newsletter-archives

Austin, TX – Austin's Parks and Recreation Department wrote a blog on the importance of fall nectar plants for monarch migration. Strategic blogs that provide key information to wildlife gardeners and citizens at different points in the monarch butterfly's life cycle and migration can help ensure that citizens have the right information at the right time to be most effective for the monarch. www.austintexas.gov/blog/importance-fall-nectar-plants-monarch-butterfly

Sammamish, WA – Sammamish is using Facebook to share relevant content and information about pollinators and wildlife, wildlife gardening and opportunities to get involved and do more for wildlife in the community. www.facebook.com/Sammamish-Community-Wildlife-Habitat-1411279725797133/?fref=ts

3 COMMUNICATE WITH COMMUNITY GARDEN GROUPS AND URGE THEM TO PLANT NATIVE MILKWEEDS AND NECTAR-PRODUCING PLANTS.

According to the National Community Gardening Association, there are approximately 18,000 community gardens in the U.S. and Canada. Imagine if all of these food gardens contained native milkweed and nectar plants to support the monarch and pollinators. This is a natural marriage since many foods require pollination to grow. Many municipalities run community gardens or support local volunteer leaders who run the gardens. These municipalities can distribute information about pollinators and the monarch, including lists of native plants to integrate into the garden or adjacent lands.

Chicago, IL – In Chicago the Monarch Community Garden is both a garden for community members to grow fresh vegetables and a habitat for the monarch butterfly and pollinators since the garden intentionally works to incorporate milkweed and nectar plants. www.monarchcommunitygarden.com/

FOOD AND POLLINATORS

One in three bites of food we take relies on pollinators. Ninety percent of wild plants rely on pollinators.

Bumblebee on Swamp Milkweed
PHOTO: PATRICK FITZGERALD

4 CONVENE CITY PARK AND PUBLIC WORKS DEPARTMENT STAFF AND IDENTIFY OPPORTUNITIES FOR REVISED MOWING PROGRAMS AND MILKWEED / NATIVE NECTAR PLANT PLANTING PROGRAMS.

When and how municipalities mow parks, roadsides and other areas can make a big difference for the monarch butterfly. By convening both staff and contractors that oversee mowing in a city, leadership can educate individuals at all levels about why changes to mowing schedules may be needed. Convening a meeting like this can also help troubleshoot questions or issues that frontline landscapers might see.

Houston, TX – Houston establishes "No Mow" zones throughout the city of Houston to help re-establish urban habitat, which includes native nectar plants. It takes a while for the natural vegetation to re-establish, so the city includes signage at these areas so that citizens know they are intentionally planned and not forgotten by the grounds keeper. These types of "No Mow" zones may also qualify for recognition and signage as an NWF Certified Wildlife Habitat (www.nwf.org/certify).
www.houstontx.gov/parks/forestry/nomow.html

5 CONVENE A MEETING WITH GARDENING LEADERS IN THE COMMUNITY TO DISCUSS PARTNERSHIPS TO SUPPORT MONARCH BUTTERFLY CONSERVATION.

Mayors and municipal staff are not alone in their efforts to help create habitat for monarchs and pollinators. Every community will have local experts that can volunteer, advise and assist with monarch butterfly conservation efforts.

Potential Meeting Attendees: Meeting attendees might include Individuals from master gardener and master naturalist programs, native plant societies, garden clubs, botanical gardens, nature centers, zoos, Keep America Beautiful affiliates, native plant and independent garden centers or nurseries, North American Butterfly Association butterfly clubs, NWF Community Wildlife Habitats, chambers of commerce, local tourist attractions, neighborhood or homeowners' associations and others. This would be in addition to municipal staff from various departments including the mayor's office, public works, parks and recreation, public libraries and more.

Draft Day-Long Meeting Agenda:

I. Mayors Welcome and Introductions
II. Overview of Monarch Butterfly Decline and Conservation Efforts
III. Overview of City Plans for Monarch Butterfly and Pollinator Conservation
IV. Listening Session of Existing Community Actions (or send in advance to read)
V. Discuss Big Picture Goals Should We Work Towards – Where Are We in Five Years? How Does This Fit into State and National Strategies
VI. Break Out into Working Groups to Strategize on Goals
    a. What's happening already to move us toward these goals? Where are there gaps? How could we support these efforts more?
    b. What challenges do we know we will face? How can we address those strategically? What support do we need to do so?
    c. What opportunities do we see that we can only capitalize on together?
VII. Report Back from Groups
VIII. Discuss Plan for Communication and Long-Term Engagement on Specific Projects
IX. Discuss Plan for Citizen Engagement in City Plans
X. Adjourn

PROGRAM & DEMONSTRATION GARDENS

6 HOST OR SUPPORT A NATIVE PLANT SALE OR MILKWEED SEED GIVEAWAY EVENT.

Native plant and seed sales ensure that community members have access to the best possible plants to support monarch butterflies and other pollinators. Municipalities can host native plant sales through their parks, nature centers or other programs. Municipalities can also support and publicize events run by local conservation districts, native plant societies, garden clubs, master gardeners, native plant nurseries and other local partners.

Burnsville, MN – Burnsville hosts its own native plant sale each spring, selling thousands of plants annually (including milkweeds). The city brings together local growers and nurseries to provide the plants and also provides a plant list to the community with native plants broken down into convenient categories like woodland/shade, prairie/sun, rain garden plants and grasses, sedges and ferns. www.ci.burnsville.mn.us/index.aspx?NID=1699

MILKWEED AVAILABILITY

In most parts of the country native milkweed seeds and plants are available. However, in certain areas of the country native milkweeds may be difficult to obtain. If this is the case, municipalities can support efforts to fill the shortage of native milkweed plants by supporting seed collection or other propagation efforts. Additionally, municipalities can work to protect existing milkweed stands along roadsides and parks. Providing native nectar plants in demonstration gardens and elsewhere is also critical for the adult monarch and other pollinators.

McElderry Park residents plant a pollinator friendly garden. Kids could not wait to get their hands dirty!

PHOTO: KIM MARTINEZ

Skagit County, WA – The Skagit Conservation District hosts an annual native plant sale to provide native plants to the public at wholesale prices for conservation plantings. In addition to hosting the sale, the Skagit Conservation District also provides plants throughout the spring for larger scale projects (500 plants or more). www.skagitcd.org/native_plant_sales

Cape May, NJ – The New Jersey Audubon's Cape May Nature Center hosts an annual native plant sale, a native plant swap and a used gardening book sale. The native plant swap encourages residents to bring native plants from their gardens to swap with neighbors. Plants are also donated for use at the nature center and/or at local NWF Schoolyard Habitats. community.njaudubon.org/page.aspx?pid=400&cid=10&ceid=3758&cerid=0&cdt=5%2f9%2f2015

7 FACILITATE OR SUPPORT A MILKWEED SEED COLLECTION AND PROPAGATION EFFORT.

Collecting milkweed pods and seeds in the fall for distribution the following spring can really jumpstart a city's effort to become a monarch-friendly city. It is important to pick the seeds at the right time and store them properly to ensure success. The Texas Native Plant Society has an excellent article on how to collect milkweed pods and seeds. npsot.org/wp/story/2014/5885/

Saint Croix Falls, WI – The Saint Croix River Association hosts family-friendly events to help citizens learn how to find milkweeds, collect the seeds and plant them. stcroixriverassociation.org/event/got-milk-weed/

Richfield, MN – Wild Ones Twin Cities is urging local residents to collect common milkweed seeds and provides instruction on how to do so. The seeds will be distributed at the Minneapolis Monarch Festival: www.wildonestwincities.org/2012/10/milkweed-seed-collection-request.html

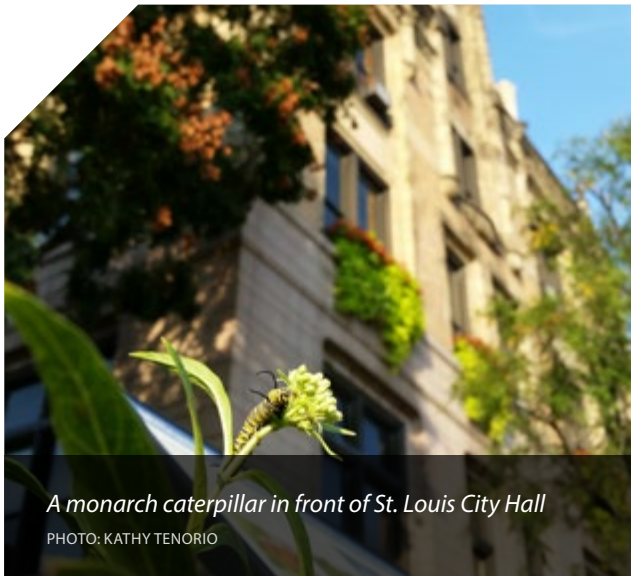
SEED SURPLUS

Have a Seed Surplus? Monarch Watch is a national non-profit organization based at Kansas University that collects seeds and has excellent guidelines on seed collection. monarchwatch.org/bring-back-the-monarchs/milkweed/seed-collecting-processing/

Swamp Meeting Seeds
PHOTO: PATRICK FITZGERALD

8 PLANT A MONARCH-FRIENDLY DEMONSTRATION GARDEN AT CITY HALL OR ANOTHER PROMINENT LOCATION.

Demonstration gardens can educate and inspire citizens to plant their own garden. They can be installed at city hall, municipal buildings, public parks, nature centers, schools and other prominent locations with lots of foot traffic. Gardens with interpretive signage have the potential to educate anyone who might be passing by. Other gardens can be used as learning laboratories for children, master gardeners or the public at large.



A monarch caterpillar in front of St. Louis City Hall
PHOTO: KATHY TENORIO

St. Louis, MO – St. Louis City Hall is host to a demonstration garden full of milkweed and other pollinator friendly plants. It has also been certified by the National Wildlife Federation as a Certified Wildlife Habitat.

Chesterfield, MO – Located in Chesterfield's Faust Park, the Missouri Botanical Garden's Butterfly House includes a large butterfly garden that is also certified as a National Wildlife Federation Schoolyard Habitat® and is always teeming with monarch butterflies and other pollinators.

Helena, MT – The Garden Club of Helena created a demonstration garden with a collection of plants native to Montana that provide wildlife with food, cover, water and places to raise young which can be used for educational purposes. It

is divided into a five areas: Meadow, Charred Forest, Mountain, Prairie and a Landscape for All Season Interest. helenagardenclub.wordpress.com/certified-wildlife-habitat-garden/

Palo Alto, CA – The City of Palo Alto has created the Lucie Stern Demonstration Garden to promote native plant gardening that incorporates sustainable practices to help the community and city meet sustainability goals. The garden includes interpretive signage and the website provides a landscape map for visitors to use while in the garden. www.cityofpaloalto.org/gov/depts/pwd/zerowaste/thingstodo/demogarden.asp

Gardensign
PHOTO: CITY OF PALO ALTO

Bowie, MD – Between Bowie's City Hall and one of the city's most popular parks and running trails lies a demonstration garden built by local high school students…

Bowie Demo Garden
PHOTO: JAIME VARGA

CERTIFY YOUR GARDEN

Does your demonstration garden have the 4 elements that all wildlife need to survive – water, food, cover and places to raise young? If so you can certify your garden at www.nwf.org/certify.

9 CONVERT ABANDONED LOTS TO MONARCH HABITAT.

Most municipalities have abandoned or vacant lands in their communities. These lands can be temporarily or permanently converted to monarch butterfly habitat. These habitats could be managed to produce milkweed seeds and plants for distribution at native plant sales.

Cleveland, OH – Natuvrehood Cleveland is a multi-sector partnership dedicated to restoring and improving green space in Cleveland by creating a network of native plant naturescapes on the city's vacant and abandoned properties. Naturehood has converted more than 30,000 square feet of abandoned lots to pollinator and wildlife habitat. www.facebook.com/Naturehood-58475257963/info/?tab=overview

Baltimore, MD – The Baltimore Housing Authority's Adopt-A-Lot program provides community members with the opportunity to create gardens on vacant lots throughout the city. The city is also providing a flat rate for water service which can be a barrier for gardening in vacant lots. www.baltimorehousing.org/vtov_adopt

10 PLANT MILKWEED AND NATIVE NECTAR PLANTS IN MEDIANS AND PUBLIC RIGHTS-OF-WAY.

Milkweed and native nectar plants can be planted in median strips, road sides and other public rights-of-way. There are in fact nearly 10 million acres of land on roadsides in the U.S. Once planted however, these areas must be managed appropriately to successfully support monarch butterflies, pollinators, birds and other wildlife.

Roadsides on SR 65
PHOTO: FLICKR - ELEANOR

No-mow zones can be established and mowing practices can be amended to ensure the best outcomes for wildlife.

Florida Wildflower Resolution – The Florida Wildflower Foundation has been promoting the historical, environmental and cultural significance of Florida Wildflowers for decades. The Foundation's model county resolution has been adopted by 28 counties and 2 municipalities and encourages roadside plantings as well as best management practices.
flawildflowers.org/resolution.php

Resolution Action Language: NOW THEREFORE, BE IT RESOLVED that the Board of County Commissioners of _____ County, Florida, do hereby commit and encourage others to commit to the conservation of roadside native wildflowers on state and county roadways, and do hereby instruct county staff to partner with the Florida Department of Transportation and adjoining property owners to plan and implement roadside management practices that will increase the visibility and enjoyment of Florida native wildflowers.

Alcoa, TN – A citizen in the City of Alcoa identified a stand of milkweed along a roadside and brought it to the attention of Alcoa's Department of Public Works and Engineering. The city agreed to restrict mowing in the area and put up signs on either side of the milkweed patch and also look for other ways to help save the monarch.
m.thedailytimes.com/news/citizen-s-concern-leads-city-to-save-milkweed/article_5a1bd0e3-b8d5-5c9e-8dc4-decdf4d0c15e.html?mode=jqm

INSECT CONSERVATION

The Xerces Society for Insect Conservation has many excellent resources for roadsides:
www.xerces.org/pollinator-conservation-roadsides/

11 LAUNCH A PROGRAM TO PLANT NATIVE MILKWEEDS AND NECTAR PLANTS IN SCHOOL GARDENS BY ENGAGING STUDENTS, TEACHERS AND THE COMMUNITY.

Different municipalities have different relationships with local school districts. In some cases a city or county could initiate a special school garden program within the district. Others might offer expertise and support from city arborists, horticulturists or park staff to principals, teachers, parents and others that want to create an outdoor learning garden.

Broward County, FL – The NatureScape Broward Program, part of the county's Environmental Planning and Community Resilience Department, provides support to more than 100 NWF Schoolyard Habitats at Broward County Public Schools (the 6th largest district in the U.S.). In 2015, NatureScape Broward together with the National Wildlife Federation, the Youth Environmental Alliance, Alexander's Landscaping and Plant Farm and the Community Foundation of Broward, planted 100 monarch and pollinator gardens for the County's centennial. Images of completed gardens, like the one below, were broadcast on Broward County's closed circuit TV network which is played in all county buildings.

Fairfax County Public Schools, VA – Several years ago a group of active principals in Fairfax County, VA, started the "Get2Green" initiative to engage students and the community around sustainability. In recent years this initiative was formalized by partnering with the National Wildlife Federation's Eco-Schools USA program and Fairfax County Public School District's effort to provide technical

ECO-SCHOOLS USA

The National Wildlife Federation works with nearly 10,000 schools through our Eco-Schools USA comprehensive green school program and our Schoolyard Habitat program. You can sign up for these free programs and access resources at www.nwf.org/EcoSchoolsUSA and www.nwf.org/Schoolyard.

Students hold planter pots
PHOTO: DONNIE BIGGS

support and teacher professional development. To date the school district has more than 90 schools with wildlife habitats that incorporate native nectar-producing plants for the monarch and other pollinators. The district also has and more than 50 schools with edible gardens and more than 80 participating in Eco-Schools USA. Fairfax County Public schools has a 2nd grade science unit completely designed around the monarch butterfly. As part of the curriculum, the 2nd graders plan and install Monarch habitat. www.fcps.edu/is/science/get2green/

Concord
PHOTO: INDEPENDENT TRIBUNE

12 EARN RECOGNITION FOR BEING A WILDLIFE-FRIENDLY CITY BY EXPANDING YOUR ACTION PLAN TO INCLUDE OTHER WILDLIFE AND HABITAT CONSERVATION EFFORTS THROUGH A PROGRAM LIKE THE NWF COMMUNITY WILDLIFE HABITAT PROGRAM

Communities can broaden their efforts to support species beyond monarchs and pollinators like birds, frogs, small mammals and other wildlife found in healthy eco-systems. The National Wildlife Federation's Community Wildlife Habitat® program helps provide corridors of habitat for wildlife throughout a community—where people live, work, learn, play and worship. Communities do this by certifying individual properties as NWF Certified Wildlife Habitats®. These properties include backyards, school grounds and public areas like parks, community gardens, places of worship and businesses. Each individual certified site within the community provides the four basic elements that all wildlife need: food, water, cover and places to raise young. These habitats help to create new corridors for wildlife to thrive.

NWF communities also do outreach to educate residents about sustainable gardening practices such as reducing or eliminating chemical fertilizers and pesticides, conserving water, planting native plants and trees, composting and more. The community hosts workshops about gardening for wildlife and holds community events such as stream clean-ups and invasive species removal to make the community healthier for people and wildlife alike. Local citizens become knowledgeable advocates for wildlife and sustainability.

Communities engaged in the program range in size from Houston, TX, and Charlotte, NC, to smaller neighborhoods towns across the nation. Find out more about the program and a full list of NWF Communities at www.nwf.org/community.

13 CREATE A MONARCH NEIGHBORHOOD CHALLENGE TO ENGAGE NEIGHBORHOODS AND HOMEOWNERS' ASSOCIATIONS WITHIN THE CITY TO CREATE HABITAT FOR THE MONARCH BUTTERFLY.

Municipalities can foster healthy competition among neighborhood and homeowners' associations by instigating some healthy competition among neighborhoods. A neighborhood challenge might include rewarding the neighborhood with the most new monarch habitats among homeowners. Or it might reward the neighborhood that reduces the largest percentage of its common areas from regular mowing.

Austin, TX – Through the Austin Parks and Recreation Department's Wildlife Austin program, the city launched its Pollinator Challenge. The goal is to engage citizens and neighborhoods in creating pollinator and monarch-friendly habitats through the city.
www.austintexas.gov/news/2015-wildlife-austins-pollinator-challenge

St. Louis, MO – "Milkweeds for Monarchs: The St. Louis Butterfly Project" began on Earth Day 2014 and resulted in 50 butterfly gardens on city property throughout the city. The ultimate goal is to encourage private landowners to plant an additional 200 gardens throughout the city. One criteria of both the city and private butterfly gardens is the inclusion of milkweed.
www.stlouis-mo.gov/sustainability/

14 INITIATE OR SUPPORT CITIZEN-SCIENCE EFFORTS THAT HELP MONITOR MONARCH MIGRATION AND HEALTH.

Cities can organize and promote citizen science efforts to help save the monarch. Citizen science is a way to engage citizens and non-professional scientists in conducting scientific observations and research – effectively crowdsourcing scientific research. There are numerous citizen science programs focused on better understanding the monarch butterfly and its migration. Below are four of the programs highlighted by the Monarch Joint Venture. You can see the full list here:
monarchjointventure.org/get-involved/study-monarchs-citizen-science-opportunities/

Project Monarch Health - Project Monarch Health is a collaborative study between citizen scientists and the University of Georgia to better understand *Ophryocystis elektroscirrha*, a microscopic protozoan parasite of monarchs more commonly known as OE.
monarchparasites.org/

Monarch Larva Monitoring Project - The Monarch Larva Monitoring Project is a citizen science effort to track monarch eggs and larvae across North America during the breeding season.
mlmp.org/

Journey North – Journey North is a citizen science program that focuses on migratory organisms, including gray whales, hummingbirds, American robins, whooping

cranes, and monarchs. The project seeks to help scientists and the general public understand how migratory species respond to climate and changing seasons by tracking the journeys each year.
www.learner.org/jnorth/monarch/

Monarch Watch Tagging - To determine monarch migration routes, weather influence and survival during monarch migrations, Monarch Watch launched a tagging program to mark individual monarchs with a unique identification. The tagging program has produced a dataset with records of more than one million tagged butterflies and more than 16,000 recoveries.
www.monarchwatch.org/tagmig/tag.htm

15 ADD MILKWEED AND NECTAR PRODUCING PLANTS IN COMMUNITY GARDENS.

Cities, towns and counties frequently operate community gardens. By planting native nectar and milkweed plants in municipal-run community gardens, monarchs and other pollinators will thrive. These pollinators will also provide pollination services to the various crops in the garden.

Lehman Township, PA – The Lehman Township board of supervisors, township staff, food pantry volunteers and students from Lehman-Jackson Elementary School teamed up to create a new community garden to provide monarch butterfly habitat and supply fresh local produce for the local food pantry.
www.lehmanpa.com/monarchbutterflyfoodpantrygardens.html

16 EXPAND INVASIVE SPECIES REMOVAL PROGRAMS TO MAKE IT POSSIBLE TO RE-ESTABLISH NATIVE MILKWEED AND NECTAR PLANTS TO THE LANDSCAPE.

Non-native invasive species compete with native vegetation. It's difficult for milkweed and native nectar plants to compete with invasive species like kudzu, garlic mustard, English ivy and Russian thistle. Each year the United States suffers $120 billion in losses each year due to invasive species. Municipalities spend millions annually to control invasive species.

INVASIVE SPECIES DEFINED

Invasive species are plants, animals or pathogens that are non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause harm.
www.invasivespeciesinfo.gov/index.shtml

Arlington County, VA – Arlington County in northern Virginia provides many resources to residents about how to identify and remove invasive species. The county also runs the Remove Invasive Plants (RiP) volunteer program to conduct hands-on plant removal and surveys and mapping.
environment.arlingtonva.us/trees/invasive-plants/invasive-plant-program/

Seattle, WA – Seattle provides in depth resources to residents through its Seattle reLeaf Program. The program provides information about how to identify and remove invasive plants at home and encourages opportunities to do more in the community through the Green Seattle Partnership and the Tree Ambassador program.
www.seattle.gov/trees/restoration.htm

NATIONAL INVASIVE SPECIES AWARENESS WEEK

Participate in National Invasive Species Awareness Week – learn more at www.nisaw.org/.

Los Angeles County, CA – The Agricultural Commissioner of Los Angeles County is a lead partner in the Los Angeles County Weed Management Area (WMA). The LA County WMA functions under the authority of a mutually developed Memorandum of Understanding which includes federal, state and municipal governments as well as non-profit organizations. The LA County WMA is currently undertaking several projects to effectively manage some of the most invasive weeds in the County. WMAs across California use many effective outreach weed management methods, such as printing weed identification/control brochures, organizing weed education events, writing and obtaining grants, coordinating joint demonstration projects and weed eradication and mapping efforts.
acwm.lacounty.gov/wps/portal/acwm?1dmy&page=dept.acwm.home.detail.hidden.NoSide&urile=wcm%3Apath%3A/acwm+content/acwm+site/home/detail+page+authoring/0bfb3c5c-e282-47c0-b2d5-b1d25fd87e79

Charlotte, NC – The Charlotte-Mecklenburg Storm Water Services Department provides information to citizens about local invasive species and how to remove them. Department resources include background on invasive species, a list of invasive exotic plants and guidance on landscaping.
charmeck.org/stormwater/PollutionPrevention/Pages/InvasivePlants.aspx#exoticplants

17 HOST OR SUPPORT A CITY MONARCH BUTTERFLY FESTIVAL.

Monarch butterfly festivals can be a community celebration of pollinators and monarch butterflies. Festivals often include activities for kids, milkweed seed or plant giveaways, educational sessions and more.

Minneapolis, MN – The Minneapolis Park and Recreation Board, and the Nokomis East Neighborhood Association collaborate to put on the annual Minneapolis Monarch Festival. Activities include educational sessions on how to tag monarch butterflies, a native plant sale, a monarch migration game and even monarch bingo and jeopardy. This community event also includes food, music and a costume parade.
monarchfestival.org/

Grapevine, TX – Grapevine hosts an annual "Butterfly Flutterby" at the Grapevine Botanical Gardens to celebrate the monarch's migration south through the city. The day begins with a monarch butterfly parade and is followed by a festival with lots of activities for monarch enthusiasts of all ages, including butterfly crafts, interactive games, educational sessions, face painting and an art exhibit from the local school district.
www.grapevinetexasusa.com/festivals-events/butterfly-flutterby/

BUTTERFLY RELEASES

The National Wildlife Federation does not recommend captive breeding or purchasing commercially reared monarchs for release at events. Rearing local wild caterpillars can have positive educational outcomes for children and adults if done properly. Monarch Joint Venture has an excellent resource called "Rearing Monarchs Responsibly: A conservationist's guide to raising monarchs for science and education."
monarchjointventure.org/images/uploads/documents/Monarch_Rearing_Instructions.pdf

SYSTEMS CHANGE

18 REMOVE MILKWEED FROM THE LIST OF NOXIOUS PLANTS IN CITY WEED / LANDSCAPING ORDINANCES (IF APPLICABLE).

Most cities have a noxious plant list that determines what kinds of plants the city and its residents should AVOID planting. Unfortunately, milkweed is frequently included on these local lists. As more and more residents create urban wildlife habitats and prairie patches, it's time to update our nation's local ordinances.

Northville, MI –Like many smaller cities and towns, Northville's noxious weed ordinance had not been updated in many years. Under the town's old ordinance, dating back to 1962, milkweed was specifically prohibited. Northville passed an amendment to the noxious weed ordinance to adopt the state of Michigan's listing of noxious and poisonous weeds which does not include milkweed on the noxious plant list. Northville intentionally tied their ordinance to the state guidelines because the state lists are updated on a more regular basis based on the best and most recent science. Cities that might wish to consider this approach should visit the U.S. Plant Database (plants.usda.gov/java/noxComposite) which includes a helpful list of state noxious plant lists and policies. www.ci.northville.mi.us/referencedesk/OrdinanceUpdates/OrdinanceAmendmentChapter90Weeds09-15-14.pdf

Ordinance Language: Noxious and poisonous weeds means all species identified in the State of Michigan's noxious weeds, and the restricted noxious weed list available from the Michigan Department of Agriculture and Rural Development, as established under Act 329 of 1965.

19 CHANGE WEED OR MOWING ORDINANCES TO ALLOW FOR NATIVE PRAIRIE AND PLANT HABITATS.

Local municipalities have ordinances designed to prevent homeowners from letting their yard get overgrown with weeds. It's pretty simple for the average American yard – if you don't mow it and it gets overgrown with weeds, you'll get fined by your city or homeowners association. However, for those that garden for pollinators and wildlife, city enforcement may mandate that grasses or plants above a certain height (typically 10-12 inches) must mow them down or face a fine from the city.

A Monarch butterfly takes advantage of the beautiful native plants.
PHOTO: CITY OF CHESTERFIELD

Austin, TX – City ordinance originally required that grasses and weeds more than 12 inches tall be cut down. The city later amended its landscape ordinance for yards that are part of NWF's Certified Wildlife Habitat program or Wildlife Austin, a project operated by the city's parks department to promote neighborhood habitat. www.austintexas.gov/edims/document.cfm?id=155824

Minneapolis, MN – Minneapolis updated its ordinance that required mowing grass and weeds more than eight inches tall by incorporating an exception for a "managed natural landscape." The ordinance defines managed natural landscape as a "planned, intentional and

WILD ONES

Wild Ones is a national not-for-profit organization that teaches about the many benefits of growing native wildflowers in people's yards. Wild Ones has a comprehensive set of resources about how to change your local weed ordinances. www.wildones.org/learn/weed-laws-and-native-landscaping/

maintained planting…". The city council also included the following in its findings: "The city council finds that the installation and maintenance of managed natural landscapes is beneficial to the city's environment and its residents and serves to further adopted city goals in that managed natural landscapes require fewer potentially harmful and costly inputs, improve stormwater retention, increase water quality and biodiversity, reduce greenhouse gas emissions, and provide habitat for wildlife such as birds, butterflies and other beneficial insects and species." www.wildones.org/wp-content/uploads/2012/01/minneapolisordinance.pdf

20 INCREASE THE PERCENTAGE OF NATIVE PLANTS, SHRUBS AND TREES THAT MUST BE USED IN CITY LANDSCAPING ORDINANCES AND ENCOURAGE USE OF MILKWEED WHERE APPROPRIATE.

Municipalities can increase the required percentage of native plants (including milkweed), shrubs and trees for use in subdivision and land development. When new developments are required to use of native plants – whether 100% or a significant percentage – the monarch, pollinators and all wildlife benefit. Because native plants are indigenous to a specific region, native plants usually require less maintenance and are welcomed by wildlife, serving an important role in the local ecosystem.

Lower Makefield Township, PA – Through the recommendation of the local Environmental Action Commission, the Township of Lower Makefield passed an amendment to the Subdivision and Land Development provisions of the Lower Makefield Township Code. While Lower Makefield is certainly a model by mandating 100% use of native plants, cities and towns can also make progress by increasing the percentage of native plants used in developments. www.lmt.org/wp-content/uploads/2013/08/Native-Plant-Ordi-Final-4-10-07.pdf

Ordinance Language: § 178-80. Landscape plan required. All major subdivisions and land development plans shall contain a Landscape Plan approved before construction and as part of the subdivision/land development approval process which shall address the conservation of the natural landscape to enhance the development and to protect surrounding areas. All required plants shall be Native Plants. The basic goal is to preserve the native flora by mimicking the localized native plant community. The Landscape Plan shall address all areas of a site that are 396577.3/38935 3 preserved from development and all site development exclusive of building areas. The Landscape Plan must address the following requirements: minimization of site disturbance, street trees, buffers, parking area landscaping, preservation of trees in the right-of-way, tree protection during grading and construction and planting in conjunction with storm water management. The plan shall also indicate the proposed location, quantities and types of plantings and such plants shall be selected from the Township Plant List (Ref. Ex.-1). Since locally grown plants are acclimated to the area, they tend to perform best; therefore, it is desirable, whenever possible, to purchase plants from local sources…

Common Milkweed in NH
PHOTO: PATRICK FITZGERALD

21 DIRECT CITY PROPERTY MANAGERS TO CONSIDER THE USE OF NATIVE MILKWEED AND NECTAR PLANTS AT CITY PROPERTIES WHERE APPROPRIATE.

Cities and towns own and manage buildings, parks and other properties. These properties have the potential to provide habitat for the monarch butterfly by incorporating more milkweed and other nectar plants into the landscape.

INVERTEBRATE CONSERVATION

The Xerces Society of Invertebrate Conservation has an excellent resource for creating pollinator-friendly parks.
www.xerces.org/wp-content/uploads/2009/05/pollinator_friendly_parks_21ed_xerces_society.pdf

Austin, TX – Austin manages nearly 20,000 acres of land through the Austin Parks and Recreation Department and another 7,000 through the Austin Water Utility Wildlife Conservation Division. While no one would imagine that every acre of land will be managed with the monarch as its primary or only constituent, it is a significant step to incorporate more milkweed planting in these spaces. And with more than 500 city-owned buildings and properties, ranging from libraries to police stations and fire departments, this resolution will make difference for the monarch. While this is a City Council resolution, it had the strong support of Austin Mayor Steve Alder.
www.austintexas.gov/edims/document.cfm?id=231467

Resolution Action Statement: BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN: The City Manager is directed to collaborate with the local offices of the National Wildlife Federation and the U.S. Fish and Wildlife Service and initiate a process for incorporating the cultivation of native milkweed where feasible into the city's landscape portfolio at Austin City Hall, city-owned buildings and properties, as well as the city's vast preserve lands, parks and open spaces.

New York, NY – The New York City Council passed legislation to increase native biodiversity in public landscapes. This legislation requires the city to "revise its design manual to increase biodiversity in its landscape practices. Such practices shall maximize the use of native plantings and drought and salt tolerant plantings, as appropriate, and minimize the presence of exotic monocultures on all city-owned property, including green streets, medians, sidewalks, parks and other areas where plantings occur…"
www.nyc.gov/html/gbee/downloads/pdf/ue1.pdf

22 INTEGRATE MONARCH BUTTERFLY CONSERVATION INTO THE CITY'S PARK MASTER PLAN, SUSTAINABILITY PLAN, CLIMATE RESILIENCY PLAN OR OTHER CITY PLANS.

Cities have the potential to create a strategic plan for the monarch or for the pollinators with an emphasis on monarch decline. Yet another option is to integrate monarch and pollinator protection into a variety of existing city strategic and action planning processes. Through park master plans, cities can set aside areas for monarch habitat and incorporate interpretive signage. The use of native plants like milkweed can be integrated into green infrastructure projects which are often part of climate resiliency plans. All of the actions in this guide could be incorporated in a city's sustainability plan.

Monarch Butterfly
PHOTO: KAREN MOHR

Madison, WI - In response to the White House memorandum creating the Pollinator Health Task Force and its directive to implement new strategies to improve pollinator health, Madison Mayor Paul Soglin began the process of creating a city task force to review city policies and practices. The Madison Common Council then adopted a resolution directing the Madison Food Policy Council to form and lead a Pollinator Protection Task Force. The task force was directed to convene, develop, and provide implementation direction to City departments for strategies to promote the health of honeybees and other pollinators (including monarchs).
www.cityofmadison.com/sites/default/files/city-of-madison/mayors-office/documents/Pollinator%20Protection%20Task%20Force%20Report%20Final.pdf

23 CHANGE LANDSCAPE ORDINANCES TO SUPPORT INTEGRATED PEST MANAGEMENT AND REDUCED USE OF PESTICIDES AND INSECTICIDES.

Eliminating or reducing the use of pesticides and insecticides on municipal lands will benefit monarchs, wildlife and humans alike. Integrated Pest Management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices and use of resistant varieties.

BEYOND PESTICIDES

Beyond Pesticides is an excellent resource for those working to reduce or eliminate pesticides. The site includes numerous model ordinances and case studies.
beyondpesticides.org/programs/lawns-and-landscapes/tools-for-change#locali

Carrboro, NC – Carrboro's Department of Public Works has a "Least Toxic" Integrated Pest Management strategy that is clearly outline on the city's website. The goal of the policy is to develop a systematic course of action to prevent pest infestations, and to manage pests successfully, while minimizing adverse effects on people and the environment. www.townofcarrboro.org/140/Least-Toxic-Integrated-Pest-Management-I

San Francisco, CA – San Francisco has been implementing Integrated Pest Management for about 20 years. The Department of the Environment provides numerous resources for city staff and contractors including an integrated pest management compliance checklist, safe disposal guidance and more.
www.sfenvironment.org/article/city-staff/pest-management

24 ADOPT PESTICIDES PRACTICES THAT ARE NOT HARMFUL TO POLLINATORS.

Cities across the U.S. are taking a fresh look at how chemicals in our gardens, neighborhoods and cities impact human health and wildlife populations. Monarch butterflies, bees and other pollinators are negatively impacted by chemical applications. Cities may adopt pesticide practices that are not harmful to pollinators.

Minneapolis, MN – In the fall of 2015 Minneapolis passed a resolution increase the planting of pollinator-friendly plants, decrease pesticide use and educate citizens.

Resolution Action Language: Be It Further Resolved that the City commits to making the following improvements to City policy and practice to increase pollinator forage, including Minnesota native pollinator forage, and decrease pesticide use by the following City departments: The Public Works Department will pursue planting more pollinator forage in appropriate locations, including stormwater management ponds and large land areas that are currently turf grass, adopt clear guidelines against the use of pesticides and pesticide-treated plants, and consider pollinator-friendly amendments to the Minneapolis Vegetation Management Policy.

www.ci.minneapolis.mn.us/sustainability/approach/policies/WCMS1P-149866

Stillwater, MN – The City of Stillwater was one of the first municipalities in the U.S. to address the use of neonicotinoid insecticides on city lands. The resolution calls for ceasing the use of neonicotinoid insecticides, on Stillwater City property as well as not installing any plants or plant seeds that have been treated with neonicotinoids. pollinatorfriendly.org/blog/wp-content/uploads/2015/04/Stillwater-Resolution-2015.pdf

Resolution Action Language: The City of Stillwater promotes healthy environments including food sources, clean water and shelter for pollinators through existing programs and new opportunities. 2) The City of Stillwater including its contractors will consider safe alternatives to pollinator-harming pesticides, and in particular cease the use of neonicotinoid insecticides, on Stillwater City property; and will not install plants or plant seeds that have been treated with neonicotinoids. 3) The City of Stillwater shall undertake its best efforts to plant pollinator friendly plantings favorable to pollinators and free of systemic pesticides on City properties and land, and allowing citizens to contribute to the efforts of the Stillwater Public Works Department by planting and maintaining pollinator plantings on city property. 4) The City of Stillwater will support efforts to educate the broader community about the action it has taken, the importance of creating and maintaining pollinator-friendly habitat and encourage residents and businesses to use similar pollinator friendly practices. 5) The City of Stillwater will transmit copies of this resolution to the Minnesota Department of Agriculture, Governor Mark Dayton, State Representatives and Senators, U.S. Representatives and Senators, U.S. Environmental Protection Agency and U.S. Department of Agriculture. 6) The City of Stillwater will publish a Pollinator Friendly City Progress Report on an annual basis.

GARDEN FOR WILDLIFE

The National Wildlife Federation's Garden for Wildlife Program encourages all gardeners to eliminate the use of herbicides, pesticides and chemical fertilizers, and to instead implement organic practices that create healthy soil and attract beneficial insects. NWF's Garden for Wildlife program also recommends the use of native plants, ideally grown locally, which reduces the need for chemical treatments. Local or state gardening extensions and native plant societies should be able to provide a list of native plant nurseries, garden centers or native plant sales. blog.nwf.org/2015/12/four-questions-about-neonicotinoid-pesticides/

Bee Balm
PHOTO: PATRICK FITZGERALD

25 CALIFORNIA SPECIFIC: PASS A RESOLUTION TO PROTECT OVER-WINTERING MONARCH BUTTERFLY HABITAT ON PUBLIC AND PRIVATE LANDS.

Monarchs west of the continental divide over-winter along California's southern and central coast. Municipalities can pass resolutions or other measures to protect these populations on city or private lands.

Pacific Grove, CA – The City of Pacific Grove provides over-wintering habitat for thousands of monarch butterflies

Monarch Santuary Sign
PHOTO: CITY OF PACIFIC GROVE

each year. Citizens voted to create a tax to create the volunteer-supported Monarch Grove Sanctuary. The police department enforces the strict prohibition of mistreating the insects by issuing fines of $1,000. The Pacific Grove Museum of Natural History provides excellent education resources. The city code also includes special protection for the trees that provide over-wintering habitat and the community has created a Monarch Management Action Plan.
www.cityofpacificgrove.org/visiting/monarch-butterfly-sanctuary
www.codepublishing.com/CA/PacificGrove/#!/PacificGrove11/PacificGrove1148.html
www.codepublishing.com/CA/pacificgrove/html/PacificGrove12/PacificGrove1220.html#12.20.020

Goleta, CA – The City Council of Goleta identified the need for a comprehensive evaluation of the condition of monarch butterfly populations and supporting habitat as well as a detection of trends in butterfly health, number and behavior in the city. The city established a Butterfly Habitat Management Plan (in association with preparation of a Community Wildfire Protection Plan) to identify low impact habitat improvement strategies to ensure long-term monarch butterfly population viability.
www.cityofgoleta.org/city-hall/planning-and-environmental-review/advance-planning-division/environmental-programs/monarch-butterfly-inventory-and-habitat-management-plan

San Leandro, CA - The San Leandro Municipal Code specifically addresses the protection of monarch butterflies at the city marina and golf courses. It prohibits the molestation of or interference with the Monarch Butterflies' peaceful occupancy while at a certain city owned marina and golf courses in "whatever spot they may choose to stop." The exception to the prohibition is if the butterflies swarm in such a way as to interfere with the occupancy of a private dwelling or other building. In such a circumstance, the butterfly(ies) may be removed to another location upon an application to the City Manager. San Leandro Municipal Code Section 4-1-1000
www.sanleandro.org/civicax/filebank/blobdload.aspx?BlobID=22971

Monarchs on trees in Pacific Grove
PHOTO: CITY OF PACIFIC GROVE

OTHER RESOURCES

Creating Monarch Habitat with Milkweed and Native Nectar Plants

The National Wildlife Federation's Garden for Wildlife program has tips and examples for creating monarch and pollinator habitat where people live, work, play, learn and worship.
www.nwf.org/monarchs
nwf.org/garden

Milkweed Resources

Monarch Joint Venture's 2-Page fact sheet highlights different milkweeds by region:
monarchjointventure.org/images/uploads/documents/MilkweedFactSheetFINAL.pdf

Milkweed Native to Eastern U.S.
www.nwf.org/~/media/PDFs/Pollinators/Monarchs_East.pdf

Milkweed Native to the Great Plains
www.nwf.org/~/media/PDFs/Pollinators/Monarchs-Milkweeds_Northern_Great_Plains.pdf

Milkweed Native to Southeastern U.S.
www.nwf.org/~/media/PDFs/Pollinators/Monarch_brochure_Southeast.pdf

Find Milkweed Seeds & Plants

Monarch Watch provide the opportunity to order seeds and plugs (small plants) that are appropriate for your eco-region, schools and non-profits may apply for free plugs:
monarchwatch.org/milkweed/market/

The Xerces Society for Invertebrate Conservation has an excellent native milkweed seed finder:
www.xerces.org/milkweed-seed-finder/

Botanical Interests provides milkweed seeds as well as seed mixes and regional collections:
www.shopnwf.org/Backyard-Wildlife-Habitat/Backyard-Wildlife-Feeders-and-Housing/index.cat
(NOTE: Scroll to Middle of Page)

Other Resources

The U.S. Fish and Wildlife Service is leading the federal government's efforts to help save the monarch:
www.fws.gov/savethemonarch/

Local park systems are creating monarch habitat and educating citizens – learn about the National Recreation and Park Association's Parks for Monarchs initiative.
www.nrpa.org/parks4monarchs/

Your local state fish and wildlife agency can serve as a tremendous resource for municipalities:
www.fishwildlife.org/index.php?section=social-media

The Pollinator Partnership is focused on the protection and promotion of pollinators and their ecosystems and they have excellent resources on their website:
www.pollinator.org/

Spanish Language Resources

Monarch Joint Venture provides certain resources in Spanish:
monarchjointventure.org/resources/publications/

Flight of the Butterflies Educators Guide:
www.flightofthebutterflies.com/in-the-classroom/

LIST OF COMMUNITIES PROFILED IN THIS GUIDE

ENDNOTES

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Back Cover: *Monarch Butterfly* - NWF Austin Habitat Stewards Jim and Lynne Weber

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