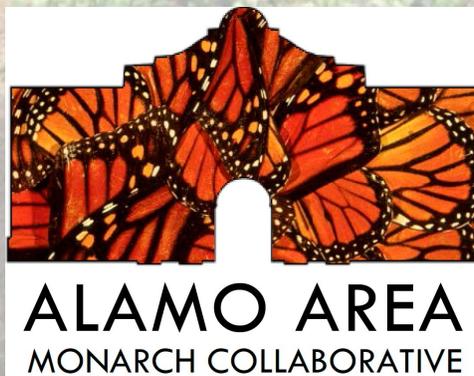


Alamo Area Monarch Conservation Plan

A Collaborative Strategy to
Benefit Monarch Butterflies



Prepared by the members of the Alamo Area Monarch Collaborative

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EXECUTIVE SUMMARY

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.

The Alamo Area Monarch Conservation Plan acknowledges the importance of central Texas in the North American monarch migration and outlines how the various organizations involved with the Alamo Area Monarch Collaborative will act to the benefit of monarch butterflies. The plan highlights five categories of monarch conservation efforts: habitat preservation and development, education and outreach, advocating for best practices, citizen science, and partnerships. Included is a plan to evaluate the success of the Alamo Area Monarch Collaborative's conservation efforts as well as a plan to continue building capacity in order to expand the reach and effectiveness of monarch conservation in the San Antonio region.

INTRODUCTION

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. In 2013 only 56 million monarch butterflies were estimated at the overwintering habitats in Mexico. Thanks to coordinated conservation efforts across Canada, the United States and Mexico, the population of monarch butterflies at the overwintering grounds in Mexico increased to approximately 200 million (4.01 hectares). However, the population has not reached the level recommended by the National Strategy to Promote the Health of Honey Bees and Other Pollinators of 6 hectares (the average population between 2014 and 2015.) Six hectares, or a population of 225 million butterflies, would indicate species health and ensure species survival if another winter storm threatens the monarchs overwintering habitat.

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 do not 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.

The need for immediate action cannot be overstated. Currently, states have considerable leeway in determining action for improving habitat, limited mostly by available resources and the willingness of land owners and managers. If the monarch butterfly is listed as an endangered species under the Endangered Species Act (ESA), the environment for collaboration becomes more difficult. It is in everyone's best interest to work together in an effort to curtail any potential federal action.

SPECIES INFORMATION

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.

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.

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.

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.

THREATS TO THE MONARCH

Monarch scientists attribute the decline to degradation and loss of summer breeding habitat in the U.S., and loss of winter habitat in Mexico.

Monarch Butterfly population decline is an indicator that there is something wrong in our shared environment and a warning that we could be affected as well. Consider the following:

- 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.

WHY SHOULD WE PRIORITIZE MONARCH CONSERVATION?

The monarch butterfly is an iconic North American species whose multigenerational migration and metamorphosis from caterpillar to butterfly has captured the imagination of millions. In February 2014, President Obama agreed to partner with Canadian Prime Minister Stephen Harper and Mexican President Enrique Pena Nieto to protect the monarch butterfly and ensure their continued survival for future generations.

WHY IS SAN ANTONIO CRITICAL TO THE SUCCESS OF MONARCHS?

San Antonio lies within the migratory flyway. Each fall, millions of monarch butterflies pass through San Antonio on their journey to the oyamel fir forests in central Mexico where they overwinter. In the spring, usually March, monarchs fly through San Antonio as they return north to their breeding areas.

SAN ANTONIO MONARCH SUMMIT

On Monday, May 9, 2016, thirty-five San Antonio Metropolitan area residents came together at the San Antonio Area Foundation to discuss the development of a Monarch Conservation Plan for the area. The following organizations and businesses attended:

- Alamo Area Master Naturalists
- Alamo Colleges
- Austin Parks Department
- Bexar Audubon
- Butterfly Learning Center
- Cochlear
- Eco Centro
- Green Spaces Alliance
- Jefferson Community Garden
- Keep San Antonio Beautiful
- Master Gardeners
- Metro Health
- Mitchell Lake Audubon Center
- San Antonio Botanical Gardens
- San Antonio Mayor's Office
- San Antonio Native Plant Society of Texas
- San Antonio River Authority
- San Antonio Zoo
- Texas Butterfly Ranch
- Texas Parks & Wildlife Department
- US Green Building Council: Green Schools Committee
- University of the Incarnate Word
- University of Texas San Antonio

The attendees spent the day fostering opportunities to collaborate to share and leverage resources. After the meeting in May, the group met periodically before deciding to split up into committees to develop the different sections of the Monarch Conservation Plan related to Education, Habitat best practices, and Citizen Science efforts. The full Alamo Area Monarch Collaborative came back together on October 31, 2016 to present on their committee work.

ALAMO AREA MONARCH COLLABORATIVE

MISSION STATEMENT: Citizens leading by example to educate, conserve, restore, and participate in research for the benefit of all pollinators.

VISION STATEMENT: Informed Texans providing a safe haven for monarchs and other pollinators.

DETAILS OF THE MONARCH CONSERVATION PLAN

GOAL 1: INCREASING THE NUMBER OF MONARCH HABITATS AND WAYSTATIONS.

Strategy 1: Establish best practices and develop methods for easy propagation.

- The San Antonio Botanical Gardens will act as a propagation education center:
 - ◊ Respond to public inquiries regarding best practices
 - ◊ Act as a hub for information
 - ◊ Host trainings related to monarch conservation
- Trinity University will hire an intern to collect restoration and propagation tips from various partners and organizations. Based on the collected information, the intern will work with partners to determine the best practices for the Alamo Area. The following organizations will be contacted to help contribute to this goal:
 - ◊ Cibolo Nature Center
 - ◊ San Antonio River Authority
 - ◊ Lady Bird Johnson Wildflower Center
 - ◊ Kleburg Institute
 - ◊ Native American Seed
 - ◊ Monarch Watch
 - ◊ Nurseries that successfully sell native milkweed
 - ◊ University of Texas at San Antonio
- The Alamo Area Monarch Collaborative (AAMC) will form a steering committee to host two workshops a year on monarch related topics. The group will be formed in March 2017. After two years the committee will revisit how many workshops they would like to host each year.
 - ◊ The first workshop will be Gardening for Monarchs: how the public can manage their properties (from urban lots to large properties/campuses) with a focus on native milkweed species appropriate for the area and native pollinator plants that bloom in spring and fall. This workshop will be held in September 2017, and AAMC commits to have at least 45 attendees.
 - ◊ Goal of 45 attendees for each workshop
 - ◊ Potential Workshop Locations include Trinity University, SA Botanical Gardens, Friedrich Wilderness Park, Mission Reach Operation Center and Texas A&M.
 - ◊ The following AAMC members agree to join the committee:
 - Helen Holdsworth (Witte Museum)
 - Patty Pasztor (Bexar Audubon)
 - Judit Green (Texas Parks & Wildlife Department)
 - Emma Trester Wilson (San Antonio Botanical Gardens)

- The following AAMC members agree to incorporate monarchs into current workshops related to wildlife habitats and gardens:
 - ◊ Judit Green (Texas Parks & Wildlife Department)
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Minna Paul (San Antonio River Authority)
 - ◊ Gilbert Martinez (Mitchell Lake Audubon Center)
 - ◊ Green Space Alliance Program Staff
 - ◊ Emma Trester-Wilson (San Antonio Botanical Gardens)
 - ◊ Patty Pasztor (Bexar Audubon)
- The following AAMC members agree to disseminate best practices information to their networks and at public events:
 - ◊ Green Spaces Alliance Program Staff
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Judit Green (Texas Parks & Wildlife Department)
 - ◊ Julie Cornelius (San Antonio College)

Strategy 2: Work with growers and nurseries to ensure availability of native milkweed and nectar plants.

- Promote native plant sales that offer native pollinator plants and native milkweed. The following AAMC members agree to help accomplish this action:
 - ◊ Gilbert Martinez (Mitchell Lake Audubon Center)
 - ◊ Lee Marlowe (San Antonio River Authority)
 - ◊ Emma Trester-Wilson (San Antonio Botanical Gardens)
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Judit Green (Texas Parks & Wildlife Department)
 - ◊ Joan Miller (Native Plant Society of Texas)
- The San Antonio Zoo will create a petition with the plants we would like to see sold in local stores so that we can show nurseries there is a guaranteed customer base for these native plants.
 - ◊ The petition will be launched on March 4, 2017 at the San Antonio Zoo Monarch Festival and will remain open for 3 months or until the petition receives 1,000 signatures. The following AAMC members will help achieve the goal of 1,000 signatures:
 - ◆ Laurie Brown (San Antonio Zoo)
 - ◆ Helen Holdsworth (Witte Museum)
 - ◆ Joan Miller (Native Plant Society of Texas)
 - ◊ AAMC partners will commit to purchase a set number of the plants listed on the petition.

- The following AAMC members will keep an up to date list of all of the nurseries in town to approach them with the petition findings during the summer of 2017:
 - ◊ Drake White (Native Plant Society of Texas)
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Judit Green (Texas Parks & Wildlife Department)
- The following AAMC members agree to make site visits at growers and wholesale/retail nurseries on the list referenced above to ensure (every five years or so) that the native plants AAMC recommends for pollinators are available for sale:
 - ◊ Lee Marlowe (San Antonio River Authority)
 - ◊ Drake White (Native Plant Society of Texas)
- The following AAMC members agree to help establish partnerships between small growers and monarch festivals:
 - ◊ Laurie Brown (SA Zoo)
 - ◊ Drake White (Native Plant Society of Texas)
- Drake White with the Native Plant Society of Texas will help establish partnerships between small growers and successful nurseries.
- The AAMC will work in the future to offer economic incentives for sellers to provide the needed native plants.

Strategy 3: Create synergy with the City of Austin monarch programs.

- City of Austin partners and AAMC members will host a joint meeting during the summer of 2017 to educate each other on current projects, discuss best practices, and opportunities for collaboration. The following AAMC members agree to participate in the meeting:
 - ◊ Julian Chavez (University of Texas at San Antonio)
 - ◊ Patty Pasztor (Bexar Audubon)
 - ◊ Judit Green (Texas Parks & Wildlife Department)
 - ◊ Lee Marlowe (San Antonio River Authority)
 - ◊ Laurie Brown (San Antonio Zoo)

Strategy 4: Establish incentive programs for private developers to incorporate green space into their landscapes.

- In the fall of 2017 AAMC members will:
 - ◊ Reach out to the City of San Antonio's Development Office for insight into the process
 - ◊ Ask SAWS for suggestions based on their incentives for homeowners to plant drought tolerant native plants.
 - ◊ Ask SAWS to add milkweed and other native pollinator plants (specifically fall nectar plants) to their online landscape list.
- AAMC members that agree to help accomplish these actions
 - ◊ Margaret Sledge, Lake Flato Architects
 - ◊ Green Spaces Alliance Staff
 - ◊ Judit Green (Texas Parks & Wildlife Department)

Strategy 5: Work with homeowners associations and neighborhood associations to encourage native plant areas.

- Create a list of neighborhoods , public sites, demonstration gardens that offer examples for the public to visit and see examples of native plants in a garden. The following AAMC members agree to help accomplish this action:
 - ◇ Minna Paul (San Antonio River Authority)
 - ◇ Joan Miller (Native Plant Society of Texas)
 - ◇ Judit Green (Texas Parks & Wildlife Department)
- Encourage all community gardens to incorporate native milkweed and nectar plants into their landscapes. The following AAMC members agree to help accomplish this action:
 - ◇ Green Spaces Alliance Staff
 - ◇ Kirk Moravits (San Antonio River Authority)
- Encourage certification of native pollinator gardens as Monarch Waystations (Monarch Watch), Backyard Habitats (TPWD or NWF), and/or a Plants for Birds property (Audubon). The following AAMC members agree to help accomplish this action:
 - ◇ Green Spaces Alliance Staff
 - ◇ Judit Green (Texas Parks & Wildlife Department)
 - ◇ Laurie Brown (San Antonio Zoo)
- The following AAMC members agree to promote programs offering landscaping guidance:
 - ◇ Green Spaces Alliance Staff
 - ◇ Judit Green (Texas Parks & Wildlife Department)
 - ◇ Gilbert Martinez (Mitchell Lake Audubon Center)
 - ◇ Lee Marlowe (San Antonio River Authority)
- The following AAMC members will develop a list of available speakers that are available for presentations for HOAs/NAs:
 - ◇ Joan Miller (Native Plant Society of Texas)
 - ◇ Judit Green (Texas Parks & Wildlife Department)
 - ◇ Julian Chavez (University of Texas at San Antonio)
- AAMC will use a Google shared document to create a list of available programs that help the public create a landscape design and offer a plant list for pollinator/wildlife friendly gardens. Make the list available to HOAs/NAs.
- Send out a brief email offering HOAs/NAs education and resources. Offer to speak at HOA/NA meetings about monarch planting and educating them about their good weeds and other plants that can still live within their HOA/NA regulations and benefit the monarchs.
- Create a presentation toolkit specifically for HOA/NA presentations.
 - ◇ The following AAMC members agreed to work to combine previous presentations and provide a suggested presentation for the full AAMC to review and approve:
 - ◆ Joan Miller (Native Plant Society of Texas)
 - ◆ Judit Green (Texas Parks & Wildlife Department)
 - ◆ Lee Marlowe (San Antonio River Authority)

Strategy 6: Encouraging large scale planting at big business campuses in San Antonio.

- In 2019, AAMC members will meet to identify what businesses and organizations could potentially have large scale habitats at their facilities and how the AAMC could provide resources and expertise to assist businesses in establishing habitats.

GOAL 2: INCREASING AWARENESS OF THE MONARCH PLIGHT AND THE NEED FOR MONARCH CONSERVATION.

Strategy 1: Host monarch festivals in the San Antonio area.

- The following AAMC members agreed to collaborate on a Monarch Festival Toolkit with activities that could easily be replicated by other groups wishing to host a festival. The group will meet and put together the resources necessary by May 2017.
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Minna Paul (San Antonio River Authority)
 - ◊ Judit Green (Texas Parks and Wildlife Department)
 - ◊ Monika Maeckle (Texas Butterfly Ranch)

Strategy 2: Develop a communication strategy that incorporates social media as well as traditional media sources.

- Develop a logo for the Alamo Area Monarch Collaborative.
- Develop a consistent message for the public such as, “Milkweed in March, flowers in the fall.” The following AAMC members agree to help accomplish this action:
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Ruben Lizalde (City of San Antonio)
 - ◊ Joan Miller (Native Plant Society)
- Develop a community calendar to be posted on the website including monarch events.
 - ◊ Make the calendar available to all members of the AAMC
 - ◊ Promote events from Nature Rocks San Antonio and Texas Children in Nature
- Utilize an internal Facebook page for AAMC members to share events, documents, and resources.
- Develop a list of media contacts for the San Antonio area. This list will be created prior to launching of the plan, however media contacts will continue to be developed and this list will be frequently updated.
- Develop an evaluation strategy for the various communication efforts. This will be created and implemented one year after the plan is launched. The following AAMC members agree to help accomplish this goal:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Amalia Sollars (Northside Independent School District)
- Develop a Messaging Calendar with consistent messages for every few months to keep track of what message we are communicating to the public at every point during the year. This will be created by the Outreach Committee in May 2017.

- AAMC members will build capacity for the following long term goals:
 - ◊ Create an internal webpage to share projects and develop best practices.
 - ◊ Create a public webpage.

Strategy 3: Implement and expand educational programs in schools.

- Julian Chavez with the University of Texas at San Antonio will develop an inventory of the available curriculum and activities related to pollinators.
 - ◊ Is the curriculum TEKS aligned?
 - ◊ What age group is the curriculum appropriate for?
 - ◊ How long does the activity or curriculum take?
 - ◊ What do you have to do to get access to the curriculum?
 - ◊ Does the curriculum require an outdoor classroom or habitat space?
- Identify current programs and initiatives in schools that could incorporate monarch education. The following AAMC members agree to help accomplish this action:
 - ◊ Minna Paul (San Antonio River Authority)
 - ◊ Amalia Sollars (Northside Independent School District)
 - ◊ Margaret Sledge (Lake Flato Architects)
 - ◊ San Antonio Botanical Garden Program Staff
 - ◊ Mary Kennedy (Cibolo Nature Center)
- The AAMC will build capacity over the next few years and then reach out to the Texas Association for Environmental Educations and the Texas Informal Science Educators Association to see if they have monarch curriculum. If not, offer to contribute a workshop on monarchs at the next conference.
- Judit Green with the Texas Parks & Wildlife Department agrees to provide information/handouts/resources at the Science Teachers of Texas CAST event November 9-11, 2017.
- In January 2017, a survey was distributed to science teachers in the Northside Independent School District (NISD). AAMC members will revisit the survey, evaluate the results, make necessary changes and work with other school districts in the Alamo Area to administer the survey to additional teachers by the end of the 2017-2018 school year.
- Based on the information collected, Margaret Sledge with Flato Architects will work with other AAMC members to create a resource for teachers that details the available programs and curriculum including multilingual or bilingual material when possible.

Strategy 4: AAMC will build capacity so that in the future the group can partner with local art organizations to engage in public art projects.

- Attend a meeting of the Art Commission and speak regarding the benefits of monarch butterfly public art projects.
- Reach out to Say Si to discuss a monarch curriculum/activity or focus with some of their after school programs.

Strategy 5: Encourage Alamo Area Monarch Collaborative partners to display signage educating the public on collaborative goals.

GOAL 3: Advocating for changes that encourage habitat creation, restoration, and conservation.

Strategy 1: Encourage city-wide changes in mowing practices.

- Green Spaces Alliance Staff will encourage TPWD, San Antonio Parks and Recreation Department, SA Natural Areas, Bexar County, TXDOT, and AgriLife to implement recommended mowing practices.
- Once best practices are established and findings have been collected, the following AAMC members will share the positive impact of changes to mowing schedules with the public (businesses, institutions, colleges, medical centers, subdivisions, homeowners , etc.).
 - ◊ Lee Marlowe (San Antonio River Authority)
 - ◊ Green Spaces Alliance Staff
- Encourage unincorporated areas in the region to leave native habitat intact on city property. The following AAMC members agree to help accomplish this action:
 - ◊ Lee Marlowe (San Antonio River Authority)
 - ◊ Green Spaces Alliance Staff
- As the AAMC grows we will consider new partnerships that could help implement recommended mowing schedules:
 - ◊ CPS
 - ◊ AT&T
 - ◊ Time Warner

Strategy 2: Establish city-wide signs to designate protected habitat locations.

- The City of San Antonio is partnering with the San Antonio River Authority to use “no mow” signs on city properties.
- The AAMC will build capacity to achieve the following goals:
 - ◊ Investigate potential partnerships with Sign Shops that are willing to sell “no mow” signs to public at cost.
 - ◊ Identify funding sources that could help to provide these signs at no cost to the public.

Strategy 3: Educate city personnel on new policies and the importance of monarch conservation.

- The City of San Antonio provided a Monarch Conservation workshop for Public Works and Parks Department staff. Laurie Brown with the San Antonio Zoo will work to make sure that this training is continued, and provided in other municipalities in the Alamo area.
- The following AAMC members are willing to offer trainings in the importance of monarch conservation to city staff:
 - ◊ Judit Green (Texas Parks and Wildlife Department)
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Lee Marlowe (San Antonio River Authority)

GOAL 4: Expand citizen science efforts throughout the region.

Strategy 1: Develop a toolkit for written agreements with sites for citizen science observations.

- Identify a schedule for citizen science observations and a contingency if weather prevents the observations on a given day.
- Address liability in the written agreements.
- Identify who will be contacted if there is a problem or emergency on the property.
- Encourage sites to get certified.
- Agreement to offer additional benefits to the school such as a presentation by volunteers to students.
- Identify a protocol for reporting citizen science results to the hosting organization.
- The following AAMC members agree to help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)

Strategy 2: Identify locations where organizations are willing to host citizen science efforts.

- Identify current locations where citizen science observations are taking place.
 - ◊ Use data collected by the Outreach and Education committee surveys for schools with gardens.
 - ◊ Inspect current sites to see what native milkweed is available.
 - ◊ The following AAMC members agree to help accomplish this action:
 - ◆ Mary Kennedy (Cibolo Nature Center)
 - ◆ Laurie Brown (San Antonio Zoo)
- Identify sites for bird habitat that could be encouraged to add milkweed and other pollinator plants so they can become a monarch citizen science site. The following AAMC members agree to help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Identify locations where tropical milkweed is present and request to do studies regarding OE at those locations on the tropical milkweed. The following AAMC members agree to help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Look at maps and see where there are gaps to identify new locations where gardens should be established to increase reach of citizen science. The following AAMC members agree to help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)

- Identify locations for observations along the San Antonio River. The following AAMC members agree to help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Kirk Moravits (San Antonio River Authority)
- Mary Kennedy with the Cibolo Nature Center will collect information on new gardens and habitats that could allow for citizen science observations once the habitats are complete.

Strategy 3: Train additional citizen scientists.

- Laurie Brown with the San Antonio Zoo will create a flyer encouraging people to volunteer for monarch efforts. The flyer will be available for all AAMC members to distribute at trainings or events.
- Develop a list of contacts to train and/or mentor citizen scientists in San Antonio, and identify what activities they are qualified to train additional people to do. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Create a full list of all of the citizen science efforts that are available so that people can identify the program that they would like to learn about and participate in. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Host a Train the Trainer Workshop. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Create a power point presentation to discuss what is involved in citizen science efforts and who you can contact to participate in a training for any given program. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Establish regularly scheduled citizen science training at a centralized location and list the trainings on a public calendar. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)

- Offer a full day intensive citizen science training in a centralized location by 2019.
- Goals for new citizen scientists
 - ◊ 10 new active citizen scientists with the Monarch Health program by 2019
 - ◊ 10 new active citizen scientists with the MLMP program by 2019
 - ◊ 25% increase in the number of monarchs tagged in Alamo area in 2017
 - ◊ Doubling Journey North and iNaturalist observations by 2019

Strategy 4: Develop programs to encourage continued participation in citizen science.

- Develop a contact list of trained citizen scientists who can be called upon for citizen science efforts. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Develop a monarch butterfly certification with classes in monarch resources, milkweed propagation and community outreach. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Encourage citizen science programs to visit other sites to keep their volunteers interested and engaged. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
- Work with universities and students in biology and environmental science to help engage new citizen scientists, starting by conducting one presentation at each university by 2019. The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)

Strategy 5: Host public demonstration events for people to see how citizen scientists work so that they could be encouraged to participate in these efforts.

- Identify supportive activities that volunteers could take on without training that might encourage them to participate.
- Goal of 2 a year at different locations throughout the city.
- The following AAMC members will help accomplish this action:
 - ◊ Mary Kennedy (Cibolo Nature Center)
 - ◊ Laurie Brown (San Antonio Zoo)
 - ◊ Kirk Moravits (San Antonio River Authority)

Strategy 6: Encourage use of efforts that do not require citizen science training. The following AAMC members will help accomplish this action:

- Mary Kennedy (Cibolo Nature Center)
- Laurie Brown (San Antonio Zoo)

GOAL 5: Form relationships and partnerships with communities in Mexico centered on monarch conservation.

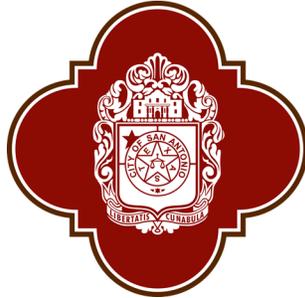
- Identify organizations that are already engaged in outreach efforts with Mexico.
- Educate the public about those partnerships.
- AAMC members will meet to discuss ways to advance and encourage those partnerships.

The following AAMC members will help accomplish this action:

- Monika Maeckle (Texas Butterfly Ranch)
- Laurie Brown (San Antonio Zoo)
- Ruben Lizalde (City of San Antonio)
- Julian Chavez (University of Texas at San Antonio)

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