





# THE STATE OF THE MONARCH



BY SARAH HADA





**I**nstantly recognizable by its distinct black, white, and orange markings, the monarch butterfly is known for its yearly migration.

From the northern plains of the United States, the monarch migrates each year to the mountains of Michoacán in central Mexico for the winter and returns north in the springtime.

San Antonio sits in the middle of the “Texas Funnel” as the butterflies pass through in mid-October and again in March. The monarch butterfly became the official Texas state insect back in 1995 by a resolution of the state legislature. However, their overall numbers are dwindling and it is estimated that the population has declined over 90% over the past twenty years.

In May 2015, UTSA received a \$300,000 grant from the Texas State Comptroller’s Office to study the reasons why the monarch butterfly is decreasing. **DR. JANIS BUSH**, UTSA Director of the Environmental Science Academic Programs, is the lead investigator. Her field of study involves plant ecology, specifically factors that

impact plant species. UTSA will study whether the decline in monarchs is related to their main source of food, the native milkweed. The team will examine the types of native milkweed species, their abundance and distribution across the state and what effect land management has on the monarch. Rounding out the UTSA research team is **DR. TERRI J. MATIELLA** and **DR. FERNANDO MARTINEZ**.

The project is coordinated by the Texas State Comptroller’s Office. Other partners include the Texas Parks and Wildlife Department, the San Antonio River Authority, the Guadalupe-Blanco River Trust and Authority, the US Forest Service, and the U.S. Fish and Wildlife Service.

Data from the UTSA group will help the U.S. Fish and Wildlife Service determine the best management and policy practices as it relates to the monarch, and to determine if the monarch should be federally protected.

**“THE BIODIVERSITY AND ECOLOGICAL SUSTAINABILITY LABORATORY HERE AT UTSA IS EXCITED ABOUT LEADING THE STATES RESEARCH INITIATIVE ON MONARCHS AND MILKWEEDS. OUR GOAL IS TO WORK WITH OUR PARTNERS TO ENSURE THAT TEXAS IS NOT PART OF THE PROBLEM BUT IS PART OF THE SOLUTION. WE ARE STUDYING MILKWEEDS ON THE GROUND TO KEEP MONARCHS IN THE SKY!”**

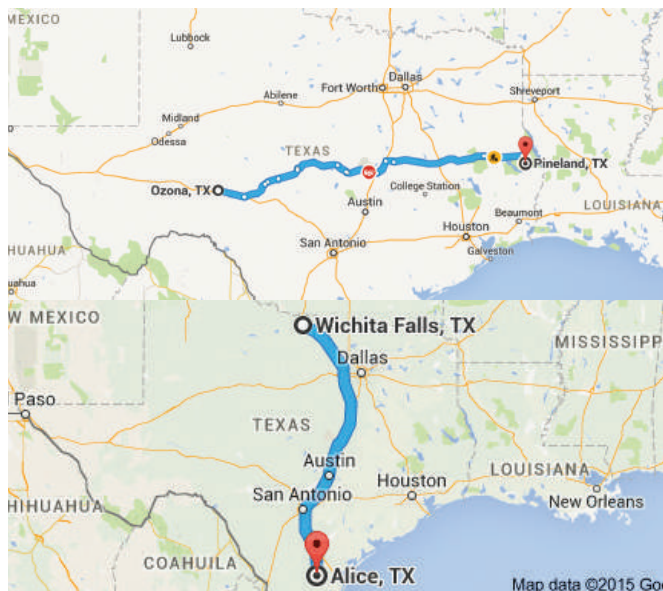
~ DR. JANIS K. BUSH

## THE GROUNDWORK: ROADSIDE SURVEYS

During the spring migration, there will be at least four generations of monarchs moving in a “leap-frog fashion” with each successive generation traveling further north than their parents along a route from Texas to the northern U.S. and southern Canada. They leave their winter roost in late February and March and spread out along the route. When they return south, one generation flies the entire distance from the north to the south.

The UTSA Monarch and Milkweed team completed roadside surveys this past summer and in early fall. Led by project manager **TYLER SEIBOLDT** (UTSA MSc 2015), faculty, graduate and undergraduate UTSA students stopped every ten miles to collect data on the plant communities present. They measured the number of milkweed, identified and counted the specific type of vegetation present; along with pests and the presence of monarch eggs, larvae (caterpillars), and their numbers. The team is focused on determining the current status of native milkweed in the central portion of the state since this is the migratory pathway of the monarch.

The project is a perfect opportunity to teach and train students with real-world research experience. These students are an invaluable part of the project.



The research team is also examining how land management practices – such as grazing, burning, and mowing – are affecting the growth of milkweed “If we keep landowners involved and informed, we will be able to advise them how best to manage their land to help increase the monarch population, [once the study is completed]. For example, whether changes in a mowing schedule could have an effect on growth. The study will help discover what those factors are, and will lead to best conservation practices,” explained Dr. Matiella.

## MILKWEED: MANNA FOR MONARCHS

Milkweed is the monarch larva’s main food source. There are 35 different species of milkweed in the state of Texas – the largest number in any state in the country. Milkweeds are the baby food for monarchs and serves as the nursery during their development to adults. Milkweeds also provide chemicals for the larva that offers protection from some predators. For example, birds will vomit after eating the monarch due to the toxins the monarchs get from the milkweed. During the fall migration, all nectar-producing flowers are needed as energy sources as they migrate south.

The monarch research team has built a butterfly house inside of their greenhouse on the western grounds of the UTSA Main Campus where they are conducting experiments. They are studying whether there is a feeding preference by monarch larva for the native Texas milkweed species. Another study will look at the growth requirements for some of the native milkweed. Propagation of various species of milkweed has already begun. A total of four graduate students in the Environmental Science Academic Programs will be conducting their thesis research on questions related to this project.

**“THE STUDY IS PROGRESSING WELL. WE ARE CREATING A BASELINE AND WILL MONITOR TO SEE HOW THE MILKWEED POPULATIONS ARE CHANGING. AS WE MOVE INTO SPRING, WE WILL ASSESS THEIR GROWTH AND MAKE ANY CHANGES IN WHAT, OR HOW, WE SHOULD BE PLANTING BASED ON THE NEEDS OF THE MILKWEED FOR LIGHT, WATER, AND FERTILIZER AS WE SEE FROM THE GROWTH STUDIES.”**

~DR. TERRI MATIELLA.





DR. TERRY J. MATIELLA AND TYLER SEIBOLDT

## COMMUNITY OUTREACH

The team is also focused on educational outreach. This past summer, a curriculum committee was started and elementary schools identified as possible partners for monarch outreach. The team will give presentations on monarch conservation practices. They also have been asked to speak at a local Lions' Club, the Native Plant Society of Texas, the Exchange Club, and the Alamo Heights and Terrell Hills Garden Club. This coming summer a camp for 8-10 year-olds focusing on monarch and milkweeds will be offered.

Along with the National Wildlife Federation and the San Antonio Zoo, the team was an integral part of the outreach to the City of San Antonio and other stakeholders to promote the Mayor's Monarch Pledge Program. As a result, San Antonio is the only **MONARCH BUTTERFLY CHAMPION CITY** in the country: the first to pledge to complete all 24 action items of the Monarch Pledge Program issued by the National Wildlife Federation. Since launching the pledge back in September 2015, forty-three cities have signed it but only San Antonio has adopted all 24 action items. This includes changing city ordinances, hosting festivals and encouraging planting of native milkweed and butterfly-friendly flowers.

## FINAL STEPS

When the study is completed in May 2017, a final report will be submitted to the Comptroller's Office. It is part of an integrated project, which involves other agencies and program partners. The goal is to take the data that has been collected and apply it to develop efforts and management practices needed to increase the number of the monarchs. Everyone is working together; and by combining all the data, the partners hope to find a solution to the disappearing monarchs.

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#### HOW TO HELP

You can help out by planting native milkweed in your garden. Nectar-producing plants are also important for the fall migration so the monarch can fuel up for their long journey.

#### RESOURCES

<http://tpwd.texas.gov>  
<http://www.fws.gov/savethemonarch/>  
<http://www.KeepingTexasFirst.org>  
<http://www.monarchwatch.org>  
<http://texasbutterflyranch.com/>  
<http://www.learner.org/jnorth>

#### UPCOMING EVENT

### MONARCHS, MILKWEED AND MIGRATION FESTIVAL AT THE SAN ANTONIO ZOO

Friday, March 4 to Sunday, March 6, 2016  
10:30am - 2:00pm

San Antonio is celebrating its designation as the first and only Monarch Butterfly Champion City in the nation. Join partners, City of San Antonio, UTSA, San Antonio River Authority to celebrate butterflies and learn how one can help end the decline of the Monarch Butterfly. 1,500 milkweed seeds will be distributed and events include a butterfly release at the Zoo's butterfly house, insect presentations and displays, crafts, games and more.

<https://www.facebook.com/SanAntonioZoo/>

