



City Nature Challenge

Lower Rio Grande Valley 2024 Report

WHAT IS THE CITY NATURE CHALLENGE?

Started in 2016 as a competition between Los Angeles and San Francisco, the City Nature Challenge, (CNC) has grown into an international event, motivating people around the world to find and document wildlife in their urban regions. Run by the Community Science teams at the California Academy of Sciences and the Natural History Museum of Los Angeles County (NHM), the CNC is an annual four-day global bioblitz at the end of April, where cities are in a collaboration-meets-friendly-competition to see what can be accomplished when we all work toward a common goal.

This year's CNC broke the records for all categories: cities participating, countries represented, observations made, and species richness

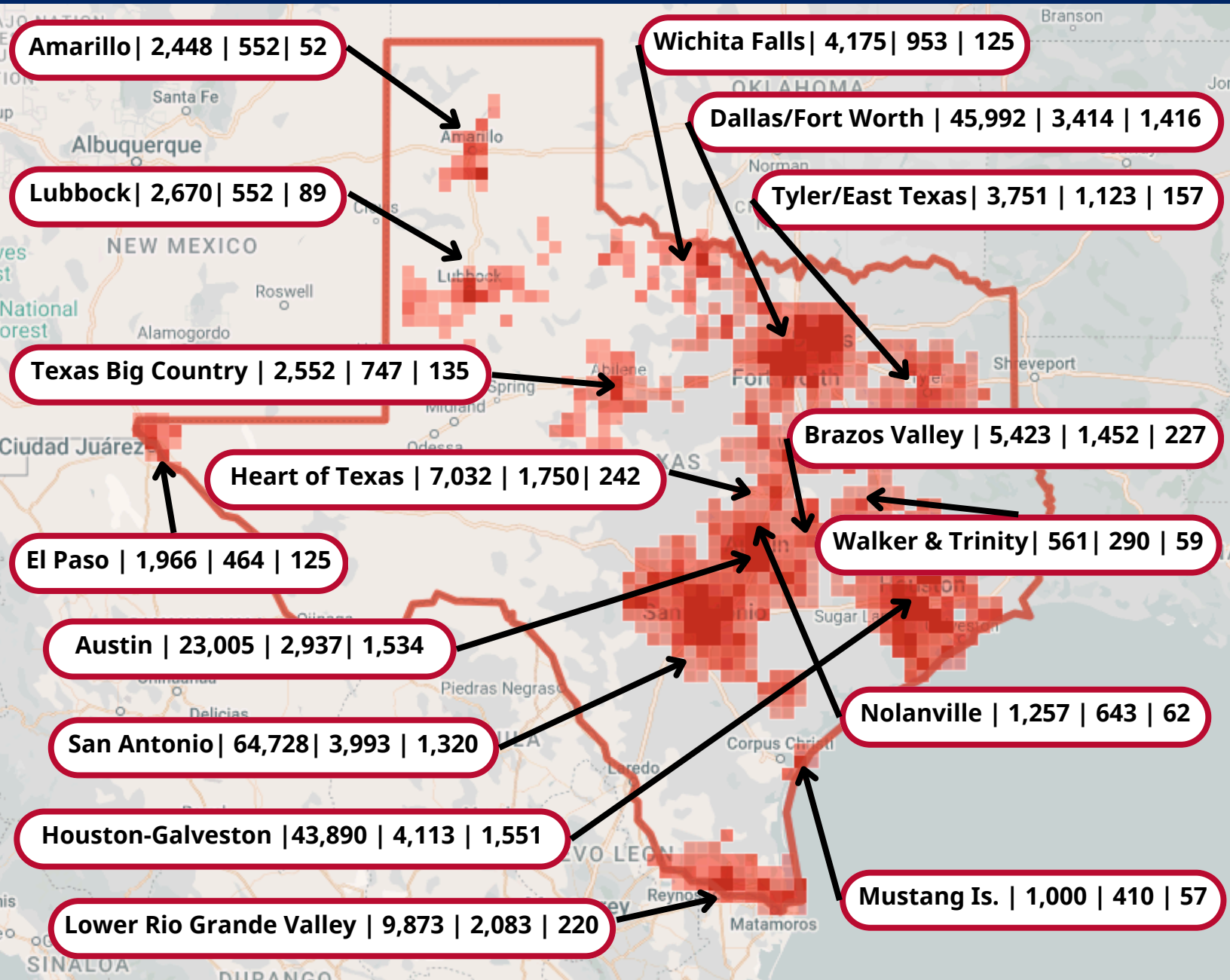
GLOBAL RESULTS THROUGH THE YEARS

Year	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Cities	68	159	244	419	445	482	690
Countries	17	28	40	44	47	46	51
Observations	441K	963K	815K	1.2M	1.7M	1.9M	2.4M
Species	18K	31K	32.6K	45.3K	50.1K	57.2K	65.7K
Observers	17K	32K	41K	51K	67.2K	66.4K	83.5K

K = Thousand, M = Million

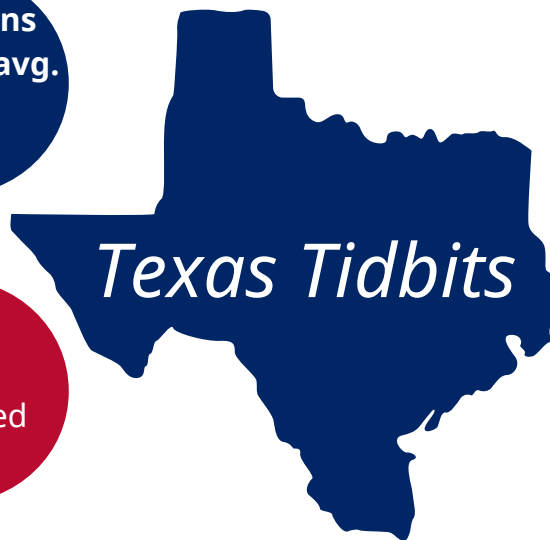
TEXAS RESULTS: HOW THE LONE STAR STATE CONTRIBUTED

16 Cities | 220,323 Observations | 25,476 Species | 7,371 Observers



Texans added 27 observations during the CNC this year, on avg. San Antonio Metro Area participants averaged 49

Texans saw 6.0 species on average during the CNC. Amarillo participants averaged 10.6 species

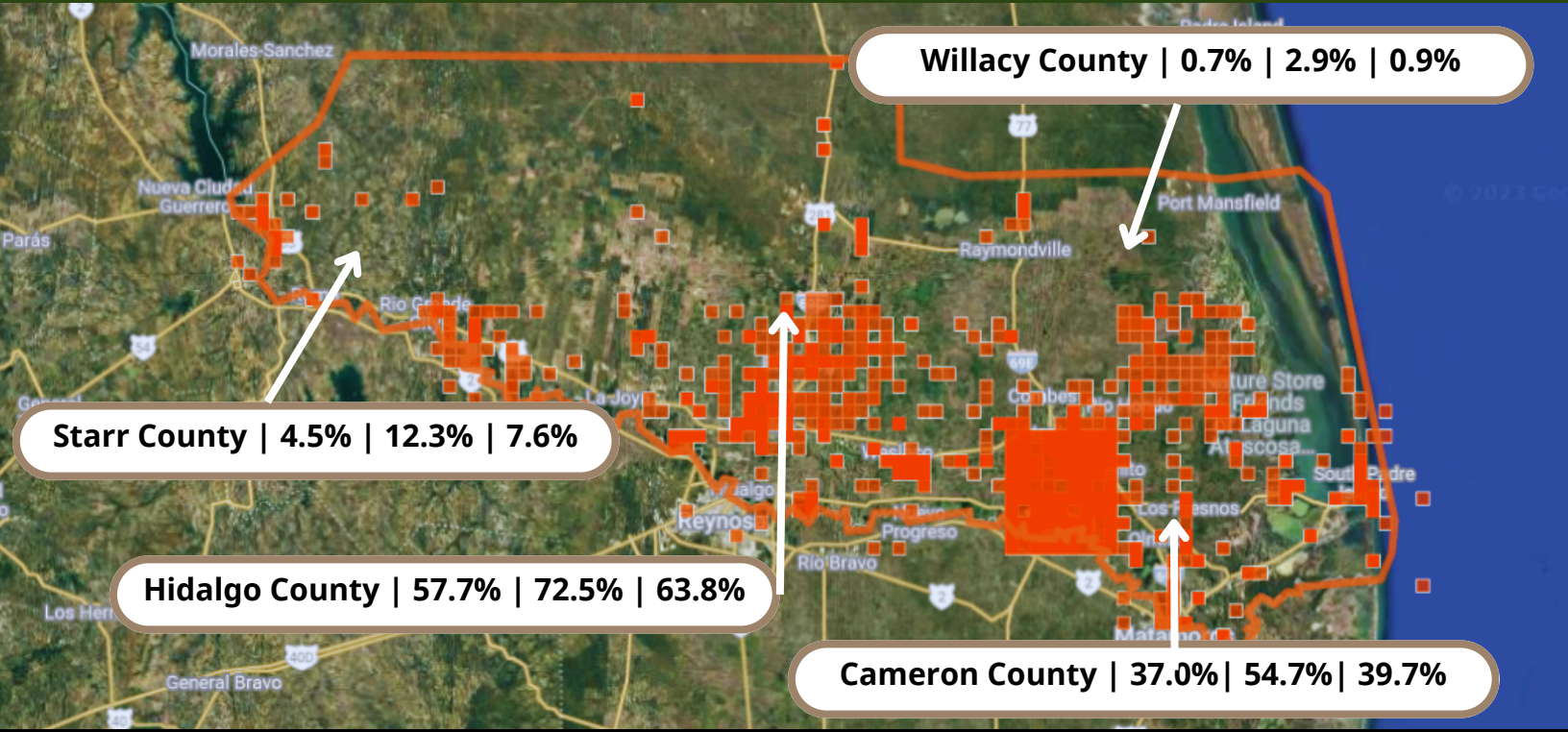


Texans see 1 species per 5.7 observations during the CNC. Nolanville documented 1 species per 2.0 observations

Total observations and city population are highly correlated. In Texas, the correlation is .987; a 1.0 is perfectly correlated

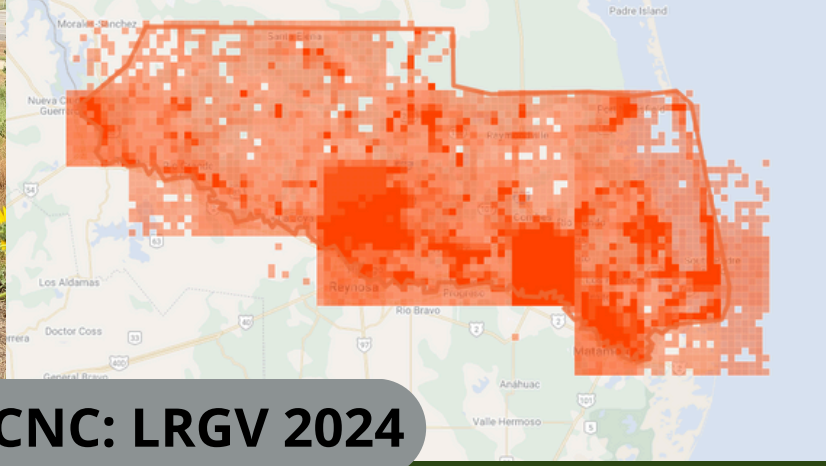
LOWER RIO GRANDE VALLEY RESULTS

LRGV | 9,873 OBSERVATIONS | 2,083 SPECIES | 220 OBSERVERS

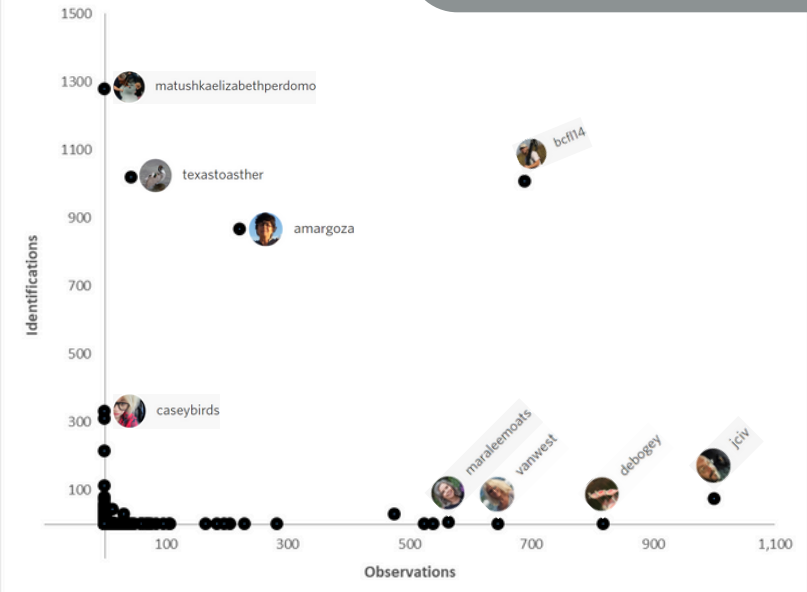


From 2018 - 2023, we averaged 178 observers. This year, we had 220!

CNC observations make up 12% of all iNaturalist observations in the RGV



Notes for the CNC: LRGV 2024



More than 700 people contributed to our CNC region this year, including both observers and identifiers - both vital to documenting wildlife!

On average, LRGV observers made 44 observations

- The top 5 observers made 38% of total observations for the region

On average, LRGV identifiers made 15 identifications

- The top 5 identifiers made 45% of the total identifications for the region

*See chart for top 5 identifiers and top 5 observers

A LITTLE ABOUT DATA QUALITY

The Data Quality Assessment is a summary of an observations accuracy, completeness, and suitability for sharing with data partners (like GBIF). The building block of iNaturalist is the **verifiable** observation, which is an observation that:

- has a date
- has a location (like GPS coordinates or an address)
- has photos or sounds
- is not of a captive or cultivated organism

EXAMPLES OF CAPTIVE/CULTIVATED ORGANISMS



Any pet or domestic farm animals. Captive zoo animals also count as captive/cultivated organisms.



Plant you purchase in pots at a nursery, regardless of whether considered native or non-native.



Even native species, if purposefully grown or planted in a location, are considered captive or cultivated.

It is not against iNaturalist or City Nature Challenge rules to upload observations of captive/cultivated organisms. Observations of cultivated plants in gardens can be helpful to understand phenology patterns, or as personal reminder of when a plant was transplanted into a space. **However, for data quality purposes those observations should be marked as “captive/cultivated”** to help other users, whether they are identifiers or scientists downloading the data, know more about the observation.

If an observation meets all the requirements of a verifiable observation, then gets identified as a particular species by 2/3rds of the identifiers who add suggestions, then the observation becomes **Research Grade**. These are often the observations that most get for science and conservation. You can learn more about data quality here: www.inaturalist.org/pages/help#quality.

LRGV STATS AND NOTES ABOUT DATA QUALITY

About 53% of LRGV observations reached research grade by May 5th

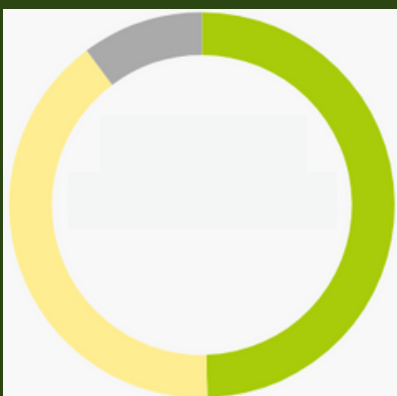
- The average for Texas was 56% percent research grade, with Mustang Island at 84.9% and Walker & Trinity Counties at 30.5%.

10% of LRGV observations are casual, most often because they were observations of captive/cultivated organisms.

- Thanks to all the observers who correctly marked their observations!

About 37% of LRGV observations remain in “Needs ID” status

- Some observations will (and should) remain in “Needs ID”; for example, many insects cannot be readily told apart by photographs.



- Research Grade
- Needs ID
- Casual

LOWER RIO GRANDE VALLEY ANNUAL COMPARISONS

One way to look at trends between years is to look at what percentage of the total numbers - all observations, all species, all observers - each taxa holds from year-to-year. The reasons for these changes are less clear, but here we offer some ideas on what might be potential causes. Note that the darker the shading, the higher the percentage compared with other years within a taxa. For example, insects made up their greatest percentage of observations this year, whereas reptiles were the lowest.

% of Observations										
Year	Plants	Insects	Birds	Arachnids	Molluscs	Mammals	Reptiles	Fungi	Fishes	Amphibians
2024	54.3%	24.5%	11.9%	2.5%	1.2%	1.3%	1.5%	0.7%	0.2%	0.2%
2023	51.1%	22.5%	16.9%	2.2%	1.1%	1.1%	1.1%	1.3%	0.1%	0.1%
2022	55.2%	21.9%	14.2%	2.7%	0.7%	1.1%	2.2%	0.8%	0.2%	0.3%
2021	53.2%	18.1%	20.0%	1.6%	1.0%	1.3%	2.1%	0.8%	0.2%	0.6%
2020	52.2%	21.9%	18.0%	2.1%	0.4%	1.3%	1.7%	0.3%	0.1%	0.1%
2019	58.7%	19.2%	13.7%	2.9%	0.7%	1.0%	1.5%	0.4%	0.3%	0.1%
2018	54.1%	18.8%	19.3%	1.7%	0.7%	1.1%	1.8%	0.8%	0.3%	0.2%
% of Species										
Year	Plants	Insects	Birds	Arachnids	Molluscs	Mammals	Reptiles	Fungi	Fishes	Amphibians
2024	45.3%	33.2%	9.6%	3.3%	1.9%	1.5%	1.3%	1.3%	0.6%	0.2%
2023	44.3%	32.4%	10.6%	3.2%	2.9%	1.3%	1.1%	1.8%	0.6%	0.2%
2022	45.8%	33.7%	9.3%	3.9%	1.3%	1.0%	1.1%	1.6%	0.7%	0.3%
2021	47.4%	29.5%	11.8%	3.0%	1.6%	1.6%	1.8%	0.9%	0.5%	0.6%
2020	48.8%	32.3%	11.1%	2.4%	0.4%	1.6%	1.6%	0.6%	0.4%	0.1%
2019	52.2%	27.4%	10.4%	3.2%	1.4%	1.1%	1.2%	0.5%	0.9%	0.2%
2018	45.6%	29.2%	15.3%	2.2%	1.4%	1.1%	1.7%	1.2%	0.8%	0.1%
% of Observers										
Year	Plants	Insects	Birds	Arachnids	Molluscs	Mammals	Reptiles	Fungi	Fishes	Amphibians
2024	63.4%	60.7%	42.0%	27.2%	14.7%	20.1%	26.8%	10.3%	5.8%	7.1%
2023	51.2%	52.7%	54.6%	17.6%	11.7%	19.0%	28.3%	19.5%	5.9%	5.9%
2022	60.3%	46.2%	43.7%	14.6%	10.6%	20.1%	38.7%	14.1%	5.0%	8.0%
2021	60.0%	46.9%	50.0%	12.5%	12.5%	21.9%	27.5%	14.4%	5.6%	12.5%
2020	65.2%	55.9%	46.6%	20.5%	11.2%	19.3%	28.0%	8.7%	2.5%	3.1%
2019	65.7%	57.7%	53.3%	22.6%	13.9%	29.2%	38.0%	13.1%	7.3%	5.8%
2018	67.8%	54.8%	55.3%	18.3%	11.5%	20.7%	25.5%	13.0%	4.3%	5.3%

One noticeable difference between 2023 and 2024 is in the percentages for insects: the highest in the RGV's City Nature Challenge history in percent of observations and percent of observers, but not in the percentage of species. That combination seems to imply that more people were observing insects, but more of the same species rather than different species.

Another interesting difference is the low percentages of bird observations, species, and observers. I'm not sure what the potential causes are for that, but I'll be checking next year to see if 2024 was just an outlier.

CAMERON COUNTY (PERCENTAGES OF CNC: LRGV 2024)

37.0% OF OBSERVATIONS, 54.7% OF SPECIES, 39.7% OF OBSERVERS

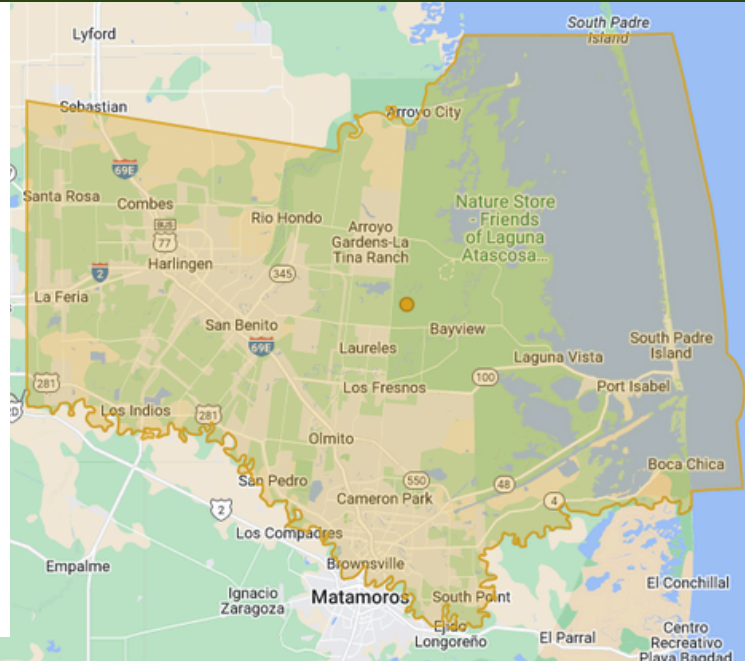
CAMERON COUNTY COMMUNITY STATS

Top Observers in 2024




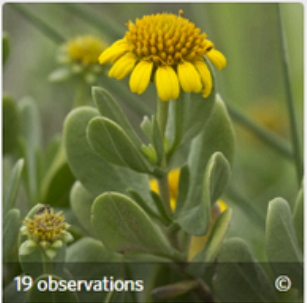





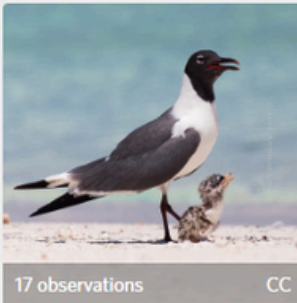

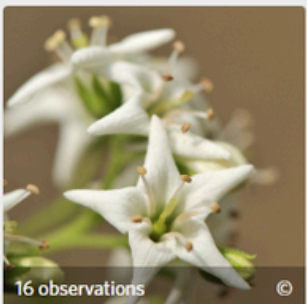
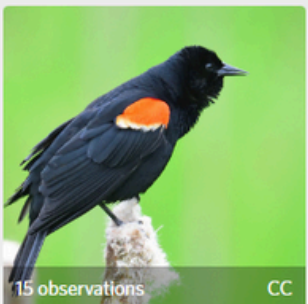


1. debogey (818 observations, 324 species)
2. vanwest (645 observations, 421 species)
3. chobuck (539 observation, 306 species)
4. johnyochum (322 observations, 295 species)
5. amargoza (156 observations, 114 species)

Top Identifiers in 2024

1. matushkaelizabethperdomo (587 identifications)
2. bcfl14 (398 identifications)
3. texastoaster (342 identifications)
4. amargoza (233 identifications)
5. caseybirds (151 identifications)



Top 15 Most Observed Species in Cameron County

 <p>30 observations</p> <p>Berlandier's Fiddlewood (<i>Citharexylum berlandieri</i>)</p>	 <p>21 observations</p> <p>Great-tailed Grackle (<i>Quiscalus mexicanus</i>)</p>	 <p>21 observations</p> <p>Spanish Dagger (<i>Yucca treculiana</i>)</p>	 <p>19 observations</p> <p>Sea Ox-Eye (<i>Borrchia frutescens</i>)</p>	 <p>19 observations</p> <p>Siam Weed (<i>Chromolaena odorata</i>)</p>
 <p>18 observations</p> <p>Sweet Acacia (<i>Vachellia farnesiana</i>)</p>	 <p>18 observations</p> <p>Texas Thistle (<i>Cirsium texanum</i>)</p>	 <p>17 observations</p> <p>Common Spotted Whiptail (<i>Aspidoscelis gularis</i>)</p>	 <p>17 observations</p> <p>Texas Pricklypear (<i>Opuntia lindheimeri</i>)</p>	 <p>17 observations</p> <p>Laughing Gull (<i>Leucophaeus atricilla</i>)</p>
 <p>16 observations</p> <p>Black Mangrove (<i>Avicennia germinans</i>)</p>	 <p>16 observations</p> <p>Anacua (<i>Ehretia anacua</i>)</p>	 <p>15 observations</p> <p>Red-winged Blackbird (<i>Agelaius phoeniceus</i>)</p>	 <p>15 observations</p> <p>Northern Mockingbird (<i>Mimus polyglottos</i>)</p>	 <p>15 observations</p> <p>Silverleaf Nightshade (<i>Solanum elaeagnifolium</i>)</p>

OTHER CAMERON COUNTY OBSERVATIONS



by @craig_lipski

This beautiful **Blue Land Crab** was photographed on South Padre Island. Look for them in summer months in coastal habitats!



by @k77027

These **Yellow-headed Blackbirds** are spectacular members of the oriole, blackbird, grackle family. Look for them in winter or during migration.



by @vanessadelga

This **Texas Toad** was one of the few amphibians observations. They are told from Gulf Coast Toad by their lack of a white stripe down the back.



by @hwise

The dunes of South Padre Island are a great spot to find **Keeled Earless Lizards**, a vulnerable species in TX.



by @toffner

This alien-like creature is an **Io Moth**. They are one of the caterpillars with stinging hairs, making them a great example of "look, but no touch."



by @johnyochum

Golden-winged Warblers are 99.7% genetically similar with their sister species, **Blue-winged Warbler**, with which they frequently hybridize.



by @maglop

I. imperati is the white-flowered beach morning glory (there's also a pink one). They are mostly pollinated by solitary bees. The plants are important dune stabilizers.



by @cynodon

Long-tailed Weasels are widespread across the United States, Mexico, and into South America, but are pretty much only reported from Laguna Atascosa NWR in the RGV.



by @jackietl

This is only the the third research-grade observation of **Wissadula periplocifolia** in the RGV, and 16th in the world (on iNaturalist).

HIDALGO COUNTY (PERCENTAGES OF CNC: LRGV 2023)

57.7% OF OBSERVATIONS, 72.5% OF SPECIES, 63.8% OF OBSERVERS

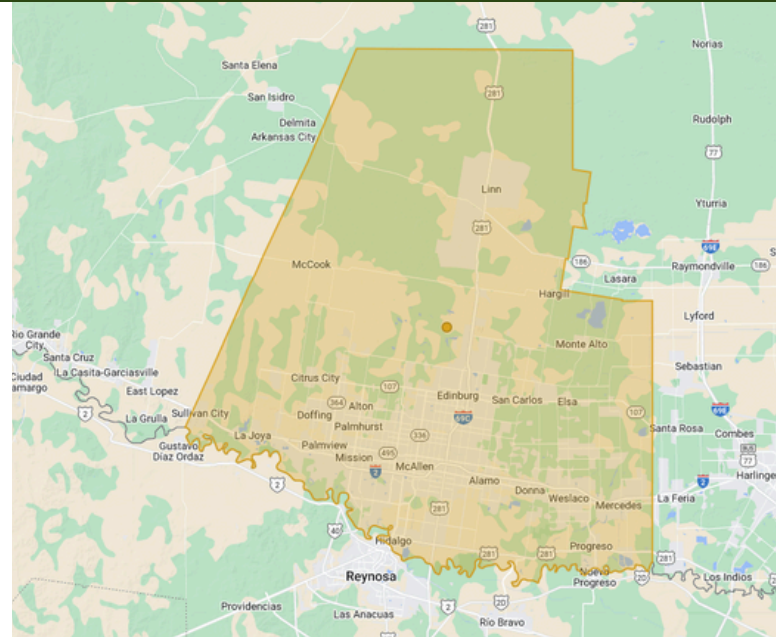
HIDALGO COUNTY COMMUNITY STATS

Top Observers in 2024

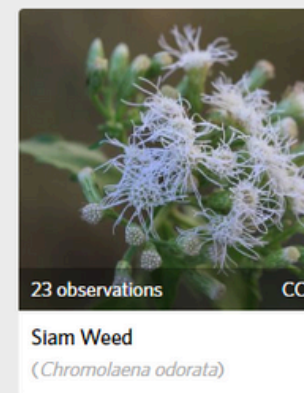
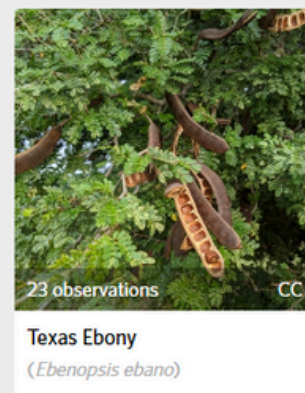
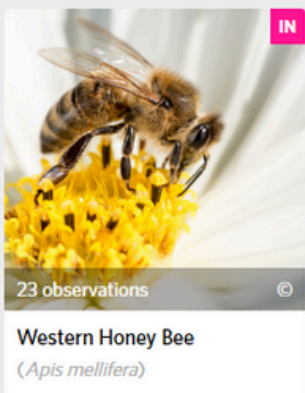
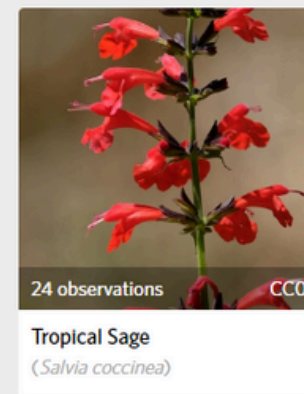
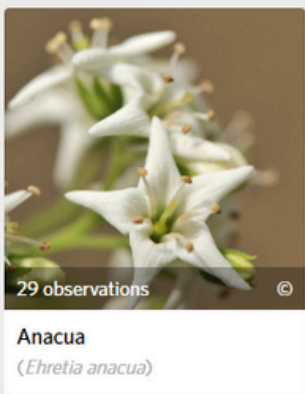
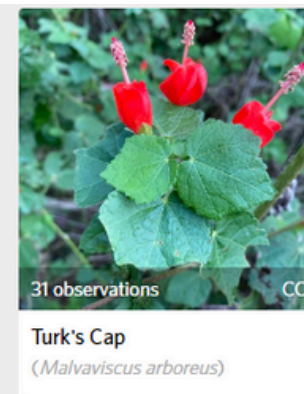
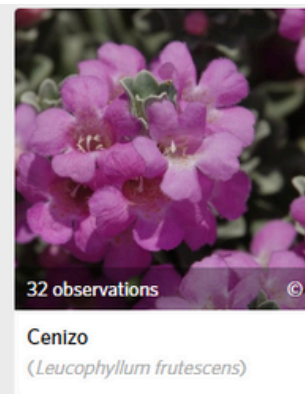
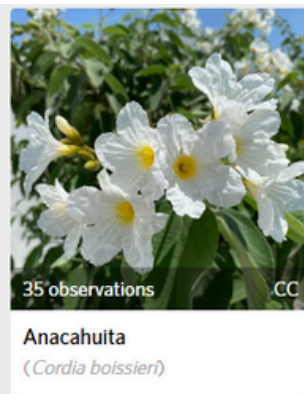
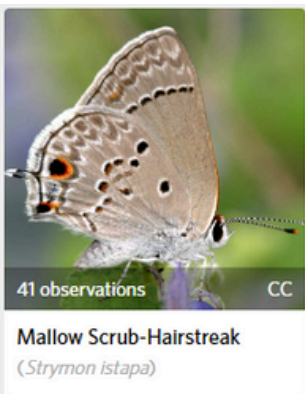
- 1.jciv (1,000 observations, 513 species)
- 2.maraleemoats (565 observations, 256 species)
- 3.bcfl14 (513 observation, 234 species)
- 4.oleanderseth (431 observations, 280 species)
- 5.candiwelliver (229 observations, 114 species)

Top Identifiers in 2024

- 1.texastoasther (645 identifications)
- 2.matushkaelizabethperdomo (620 identifications)
- 3.amargoza (566 identifications)
4. bcfl14(563 identifications)
- 5.aguilita (201 identifications)



Top 15 Most Observed Species in Hidalgo County



OTHER HIDALGO COUNTY OBSERVATIONS



Green Jay
by @junipersap

This is a fun observation of a **Green Jay** visited a camera-equipped bird feeder. A great idea for getting observations!



by @jciv

This is only the 4th RGV observation of a **Turret Fungus-farming Ant**. They farm fungus on leaves and insect droppings they collect.



by @vanenriq07

While they do breed here, **Painted Buntings** are way easier to see in migration. This one seems to have been eating Guineagrass seeds.



by @nancynorman

This is a fantastic combo observation of the rare **Claw-tipped Bluet** and the localized Caribbean Yellowface.



by @cynodon

An absolutely gorgeous photo of a **Bobcat**. Look for them at your local state park or national wildlife refuge!



by @gpstewart

All of the US observations of **Mexican Scarlet-tail** are located in Hidalgo County - look for them at Bentsen-RGV State Park!



by @bcfl14

Texas Tortoises are known to chow down on a variety of cacti - this one was munching on Tasajillo. If you see a tortoise in the wild, leave it be!



by @biancajbanda

Yellow-flowered Waterhyssop is infrequently reported from the RGV, but is a beautiful low-growing plant that likes wetland environments.



by @bcfl14

This **Juanita Sphinx** is only the second observed in the RGV. They lay their eggs on evening-primroses (*Oenothera*) through the Great Plains.

STARR COUNTY (PERCENTAGES OF CNC: LRGV 2023)

4.5% OF OBSERVATIONS, 12.3% OF SPECIES, 7.6% OF OBSERVERS

STARR COUNTY COMMUNITY STATS

Top Observers in 2024

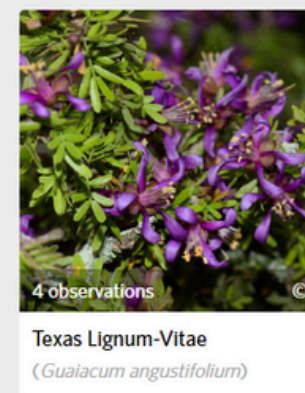
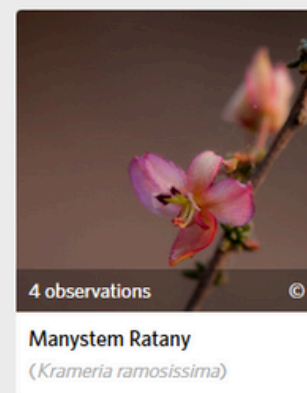
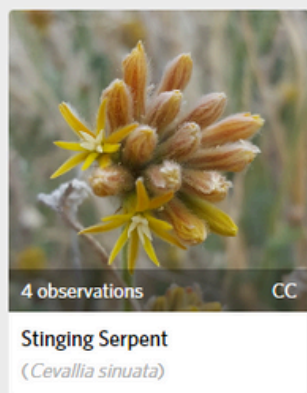
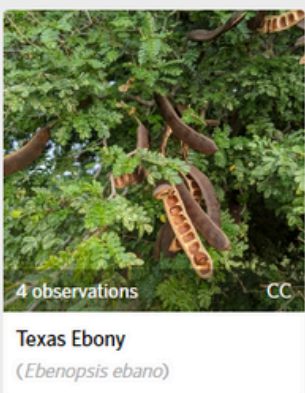
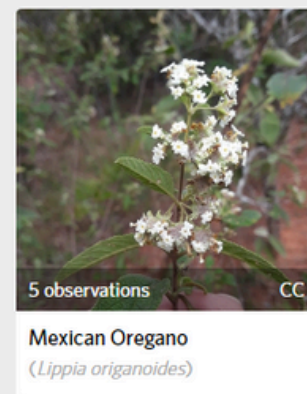
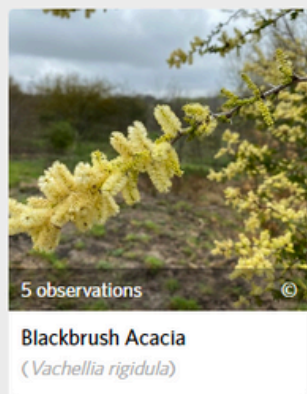
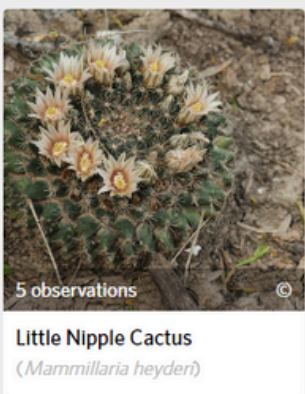
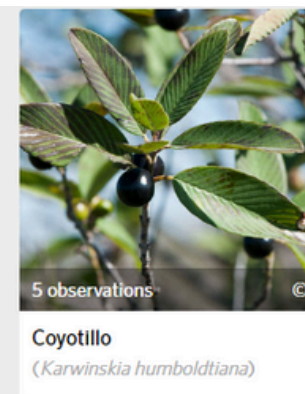
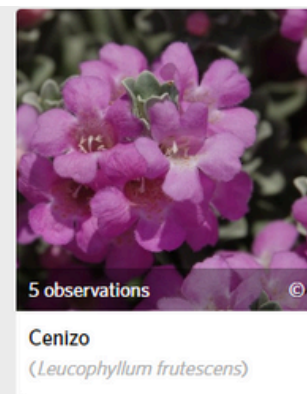
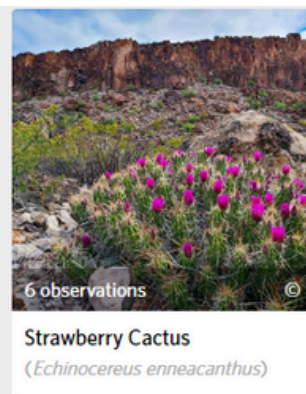
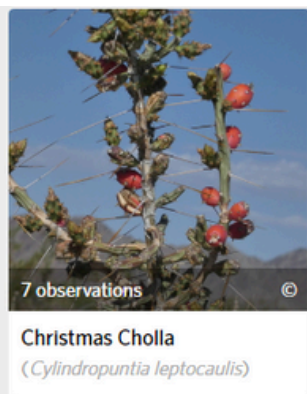
1. bcfl14 (177 observations, 111 species)
2. cynodon (89 observations, 51 species)
3. justin_johnson (63 observation, 57 species)
4. oleanderseth (45 observations, 25 species)
5. urlookingood (28 observations, 23 species)

Top Identifiers in 2024

1. amargoza (67 identifications)
2. matushkaelizabethperdomo (60 identifications)
3. joshua_tx (43 identifications)
4. bcfl14 (28 identifications)
5. wolfgangb (23 identifications)



Top 15 Most Observed Species in Starr County



OTHER STARR COUNTY OBSERVATIONS



by @wldlfnut

This cute little Long-nosed Snake is mostly found in the southwestern US, where they eat reptiles, amphibians, and occasionally snakes.



by @harrisonpriebe

Texas Horned Lizards remain present in the RGV, but are mostly found in thornscrub habitats - they do not seem to like development.



by @bcfl14

The Meximalva filipes has a small, purple flower that hangs downward. The species is mostly found from Central Texas into Northern Mexico.



by @oleanderseth

Part of the flameflower family, the Talinum polygaloides is apparently known for being able to grow in dry, rocky soils.



by @bcfl14

Texas Kidneywood would be a fantastic addition to a yard or city landscaping. Aside from being lovely, it also is great for pollinators.



by @bcfl14

Robberflies, like this Giant Gray Robber Fly, are often predatory as both larva and adults. They are sometimes called assassin flies.



by @justin_johnson

The first Brown Jays seen in the US since the early 2010's were found at Santa Margarita Ranch late last year, attracting thousands of birders to the RGV to see them.



by @justin_johnson

If you think this flower looks familiar, it's because it resembles a small version of Anacahuita! This Leafy Heliotrope is also a member of the Borage Family (Boraginaceae).



by @cynodon

Stinging Serpent will indeed sting you, but no it is not a serpent (obviously). This species is readily found in the western RGV.

WILLACY COUNTY (PERCENTAGES OF CNC: LRGV 2023)

0.7% OF OBSERVATIONS, 2.9% OF SPECIES, 0.9% OF OBSERVERS

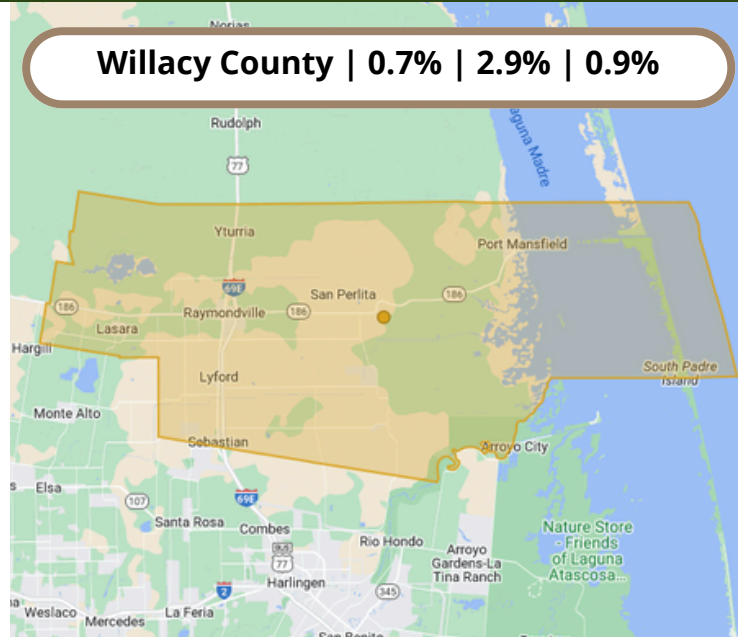
WILLACY COUNTY STANDOUT STATS

Only two observers made observations in Willacy County this year: @amargoza and @mario_722

- Thank you to those two observers for providing coverage in an area with few observations!

Places to visit in Willacy County

- [Port Mansfield Nature Trail](#)
- [LRGV NWR East Lake](#)
- [Fred Stone Park](#)



Interesting Willacy County Observations



by @amargoza

This is the first observation of Woodland Sensitive Pea in the Rio Grande Valley - way to go, @amaroza! According to the Biota of North America Program, this legume is mostly found in South Texas in the United States.

by @amargoza

There are only 6 other research grade observations of **Rust Weed** from the LRGV. This species has a broad distribution across the southeastern United States.

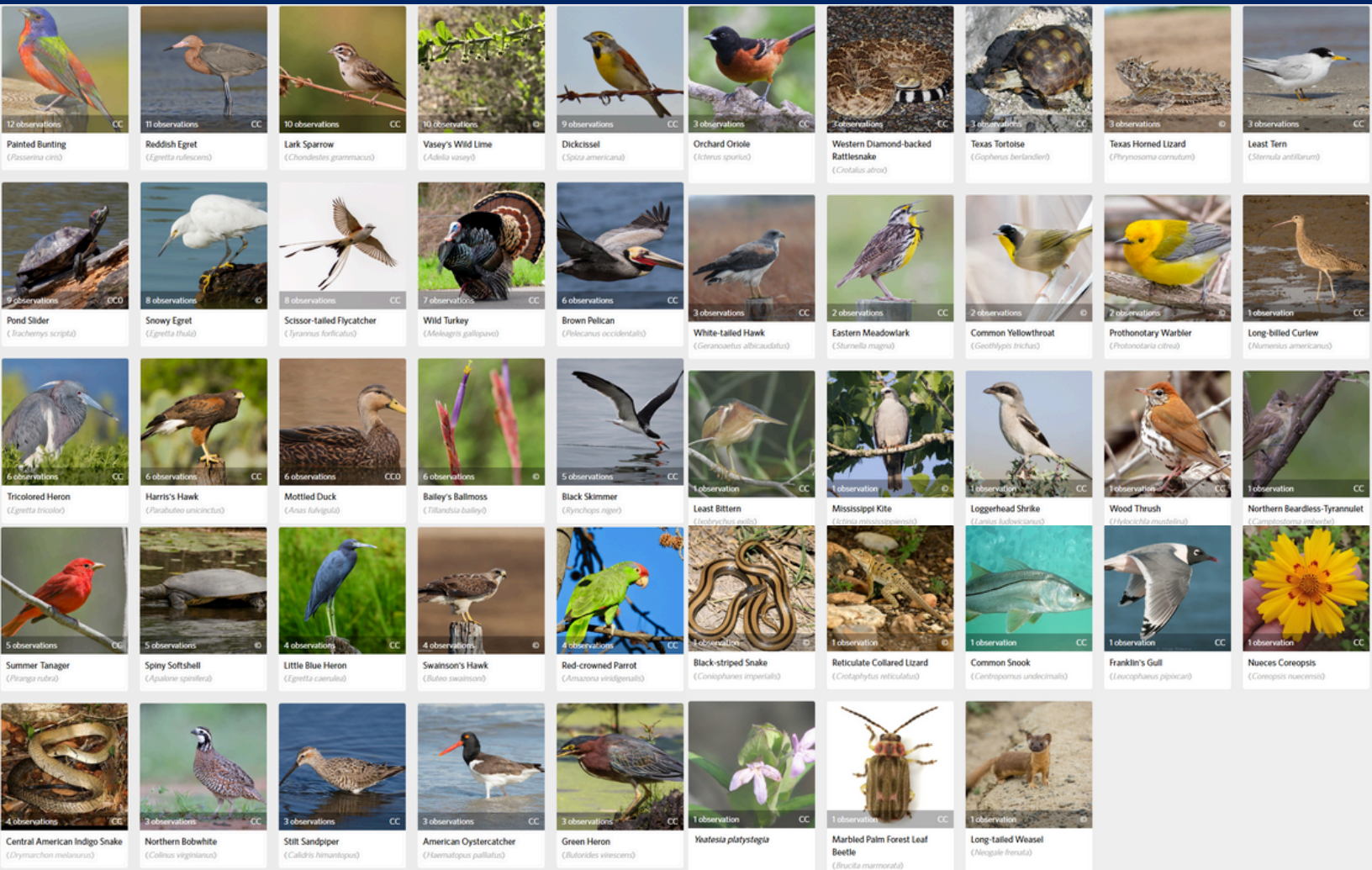
by @amargosa

Tropical Puff is another legume, but is placed in the mimosa subfamily (Mimosoideae). The other legume on this page, the sensitive pea, is part of the peacock flower subfamily.



TEXAS PARKS & WILDLIFE SPECIES OF GREATEST CONSERVATION NEED

195 Observations | 48 Species | 46 Observers



Information about the SGCN

Along with species that have been afforded legal protection due to the risk of extinction, Texas hosts many species that are considered to the Species of Greatest Conservation Need (SGCN). Native animals or plants designated as a SGCN are generally those that are declining or rare and in need of attention to recover their population or to prevent the need to list under state or federal regulation. These species are the focus of Texas Parks and Wildlife Department's Texas Conservation Action Plan and guide the department's nongame conservation efforts. You can learn more at: https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/sgcn.phtml

Your CNC observations can contribute to Texas Nature Trackers projects.

See all the various TNT projects by clicking [here](#). It will take you to the iNaturalist umbrella project.



You can learn how to add your observations to the TNT at the "[Herps of Texas](#)" project.

TNT Projects are how we compile and curate data in the Texas Nature Trackers Program. Our projects are critical to understanding the distribution and seasonality of plants and animals in Texas, and how both are changing over time. While our highest priority is to document Target Species, we are compiling data on common species as well. Today's common species may become the high priority species of tomorrow, and your observations today will provide the baseline for future generations of naturalists. To learn more about our projects, click or tap on a project box below.



iNaturalist

All of our City Nature Challenge observations in the Lower Rio Grande Valley are pooled into iNaturalist, a website started in 2008 as part of a Master's final project by students at UC Berkeley. It helps users get help with identifications and record their own observations, but beyond that the data is also used by scientists studying organisms around the world.

We briefly looked through Google Scholar results to summarize how iNaturalist data seems to frequently be used by scientists in published articles/papers.

FINDING RARE OR NEW-TO-SCIENCE SPECIES

Many cameras make light work: opportunistic photographs of rare species in iNaturalist complement structured surveys of reef fish to better understand species richness. Roberts et al. 2022.

More eyes on the prize: an observation of a very rare, threatened species of Philippine Bumble bee, *Bombus irisanensis*, on iNaturalists and the importance of citizen science in conservation biology. Wilson et al. 2020.

'First Known Photographs of Living Specimens': the power of iNaturalist for recording rare tropical butterflies. Mesaglio et al. 2021.

A new bee-mimicking stiletto fly (Therevidae) from China discovered on iNaturalist. Winterson 2020.

DOCUMENTING RANGE EXPANSIONS OR DISTRIBUTIONS OF SPECIES

Using the iNaturalist application to identify reports of Green Iguanas (*Iguana iguana*) on the mainland United States of American outside populations in Florida. Mo & Mo 2022.

Crowdsourcing the discovery of new plant naturalisations in Canterbury using iNaturalist NZ. Sullivan et al. 2019.

Citizen science reveals the distribution of the invasive harlequin ladybird (*Harmonia axyridis* Pallas) in Argentina. Werenkraut et al. 2020.

UNDERSTANDING PHENOLOGICAL PATTERNS OF ORGANISMS

Monitoring trends in distribution and seasonality of medically important ticks in North America using online crowdsources records from iNaturalist. Cull 2022.

Phenology in adult and larval Lepidoptera from structured and unstructured surveys across eastern North America. Di Cecco et al. 2023.

A comparison of herbarium and citizen science phenology datasets for detecting response of flowering time to climate change in Denmark. Ahlstrand et al. 2022.

Using convolutional neural networks to efficiently extract immense phenological data from community science images. Reeb et al. 2022.

There are many more cool papers out there that use iNaturalist data. You can search for them using [Google Scholar](#). However, in summary, the data that is added to iNaturalist, both during the CNC and otherwise, is valuable to science.

THANK YOU FOR PARTICIPATING IN THIS YEAR'S CITY NATURE CHALLENGE!



One of the things I enjoy most about the City Nature Challenge is that it is a great reason to explore nature in the Rio Grande Valley. The mission of documenting as many plants and animals as possible makes it fun to really pore through a local park or go document a less-visited location. It's a combination of visiting old friends and getting to meet new ones.

I hope you enjoyed your time in nature during this year's City Nature Challenge. I'd love to hear from you about anything you enjoyed, whether finding a particular plants or just an experience or feeling while you were out in nature.

Lastly, I would like to encourage you to continue to explore nature in the Rio Grande Valley outside of the City Nature Challenge - there are so many wonderful places to visit, plant and animal (and fungal) friends to meet, and people to connect with along the way. Even better, snap a few photos for iNaturalist observations!

Many thanks to all the folks who made observations, added identifications, and spread the word about the City Nature Challenge.

**See you next year!
John Brush, Urban Ecologist, City of McAllen**