



Lower Rio Grande Valley

Overview & Results



Making Observations
April 24 – 27
Adding Identifications
April 28 - May 3





The City Nature Challenge is about Connections: People with Nature + People with People

Considering the global pandemic, this year was not about friendly competition as in years past. Instead, it was about embracing the collaborative heart of the event and the healing power of nature, all while safely documenting biodiversity and sharing it with the community.

Exploring Nature in Urban Areas

Our towns and cities host a lot of life. All it takes is a walk outside to find it!



Sharing Observations with iNaturalist

iNaturalist is a nature program that helps people learn about nature. It's a crowd-sourced identification system and organism occurrence tool available online (inaturalist.org) and as an app (iOS & Android).



Helping each other learn local Plants and Animals

On iNaturalist, users can help each other by adding identifications to observations, and can add helpful tips – or comments – to each others' findings.

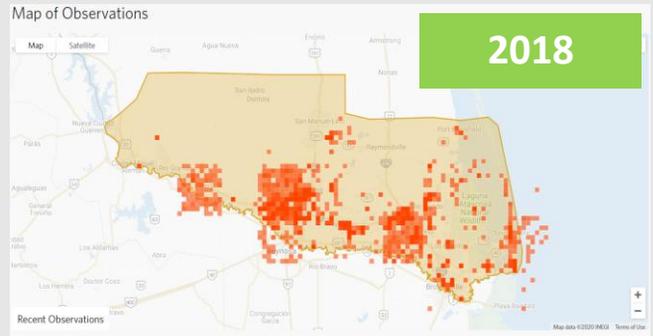
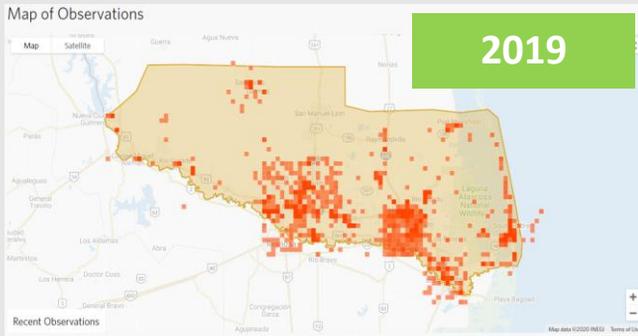
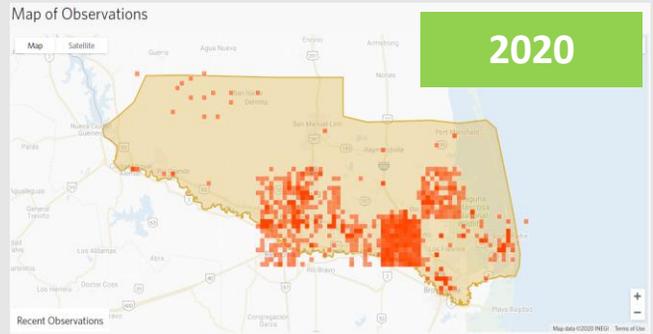




Our Community

Our City Nature Challenge area includes all four counties in the Lower Rio Grande Valley (LRGV) – Cameron, Hidalgo, Starr, and Willacy – and any observations added in that area during the event are automatically added to the project.

By the Year	2018	2019	2020
Observations	8,755	8,773	7,499
Species	1,661	1,874	1,674
Identifiers	281	349	415
Observers	194	127	150



17% of all LRGV iNaturalist observations come from the City Nature Challenge

Over 96% of City Nature Challenge observations come from Hidalgo & Cameron counties

On average, LRGV City Nature Challenge observers make 51 observations representing 31 species



Around the World

We joined 243 other cities in 40 countries around the world during this year's City Nature Challenge. Despite a global pandemic, there were thousands more people compared to last year, and even with fewer observations we still ended up documenting more species!



CITY NATURE CHALLENGE THROUGH THE YEARS					
	2016	2017	2018	2019	2020
Cities	2	16	68	159	246
Countries	1	1	17	28	40
Observations	19,800	125,000	441,000	963,000	815,000
Species	2,500	8,600	8,000	31,000	32,600
Observers	1,000	4,000	17,000	32,000	41,000

On average, City Nature Challenge observers added 28 observations during the 4-day observation period

Tell Us About Your Observations

We asked City Nature Challenge observers which of their observations they liked the most, and why. Here's what they shared!



"I like this one because it came out clear and the situation. Raptors are continuously being mobbed by smaller birds, and I've been watching this kite all winter. It just moved to a wooded area where hopefully they will nest."



"I was excited to get a photo of this moth, since I had no idea what I was looking at until I uploaded it, and someone identified it."



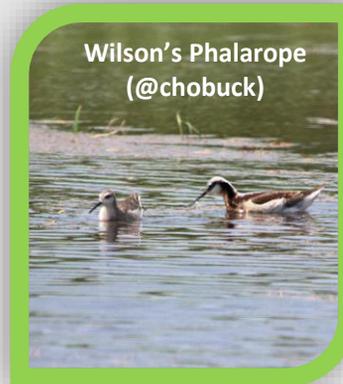
"These mating Mangrove Root Crabs were a surprise to see!"



*My favorite find for the 2020 City Nature Challenge is the Wilson's Wood-nymph Moth *Xerociris wilsonii*. I thought I saw a piece of aluminum foil wrapped around a sparse shrub branch. Wondering how that could have happened, I investigated and Voila! It was a beautiful moth. I'd found a Wilson's Wood-nymph caterpillar on Marine Ivy (Possum Grape) (*Cissus incisa*) two years ago and was thrilled to finally see the moth.*



"I had never seen the larvae of this species before. In fact, I only just recently learned this species existed!"



"I like this one because it's ephemeral quality. This is in a hayfield that gets flooded once a year. When it does it brings in a wide variety of shore birds that are rarely seen in this area. Kind of like Brigadoon for birds."

You can see all the observations at:

<https://www.inaturalist.org/projects/city-nature-challenge-2020-lower-rio-grande-valley>

Tell Us About Your Observations

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Northern Mockingbird
(@vanwest)



"I was happy to be able to add a nice diversity of shorebird observations. This Baird's Sandpiper surprised me as it flew into the pond for just a minute while I was scanning for birds. I don't usually see them much, so that was great to catch!"

"A fellow Texas Master Naturalist instructed me on mothing, via e-mails, during this time of social distancing. I was able to set up as instructed and enjoyed great success as a novice moth. Every moth and bug was exciting to photograph in the wee hours following a night of aiming black lights at a white sheet clamped to an arbor in my yard. Just after sunrise on the last morning of the 2020 challenge, as I was striking the set, a mockingbird sang praises for my efforts, and allowed me to capture photographs of it."

Baird's Sandpiper
(@javigonz)



Azilia affinis
(@jcriv)



"This is a new spider for me found during the CNC. If the ID is correct, this is the second time it has been posted to iNaturalist."

"@oleanderseth noticed a Queen that looked unusual and told me to try and get an open wing shot... It got identified as a subspecies so I uploaded my almost in focus shot."

Danaus gilippus ssp. thersippus
(@oleanderseth & @jcriv)



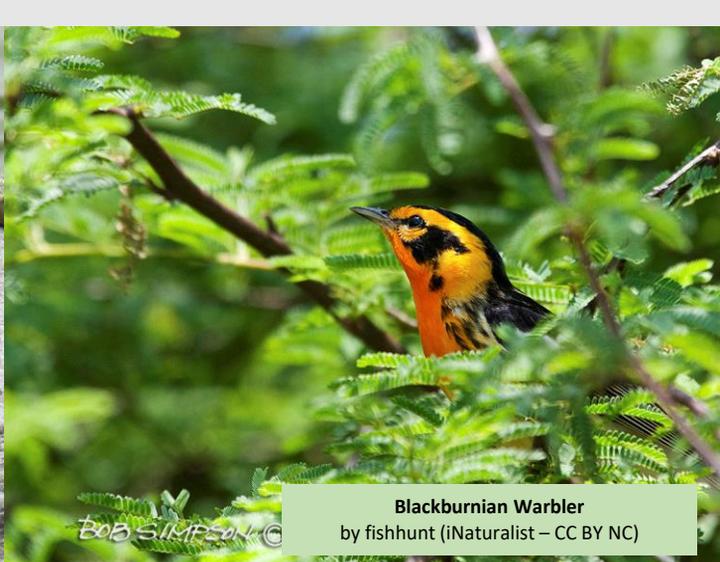
"The neatest most amazing shot was one I DIDN'T get. Went out to our front yard on a Monday, late afternoon, to photograph a few plants I'd previously forgotten. Right in one of my native plant beds, two striped snakes were wrapped up together mating – right there! – but by the time I got my phone camera out, they were long gone. A pretty neat sight though." - @matushkaelizabethperdomo

You can see all the observations at:

<https://www.inaturalist.org/projects/city-nature-challenge-2020-lower-rio-grande-valley>



Texas Spiny Softshell Turtle
by johnyochum (iNaturalist – CC BY)



Blackburnian Warbler
by fishhunt (iNaturalist – CC BY NC)



Engelmann's Prickly Pear
by carolyncardilelovesbirds (iNaturalist – CC BY NC)



Bee Fly (Poecilanthrax Lucifer)
by cicada-rap-battle (iNaturalist – CC BY NC)

The City Nature Challenge is about Documenting Biodiversity: The Who's, Where's, and When's of Plants and Animals

The City Nature Challenge adds hundreds of thousands of observations to iNaturalist, resetting the baseline for each year. This data is used by scientists and educators around the world, helping us better understand and conserve biodiversity.

iNaturalist & Education

"iNaturalist as an engaging tool for identifying organisms in outdoor activities." Unger et al. 2020 – Journal of Biological Education
"Amphibian & Reptile Research Using iNaturalist." Julie Wittmann (Protecthabitat) – <https://protecthabitat.wordpress.com/about/>

Learn about using iNaturalist for education at:
www.inaturalist.org/pages/teacher's+guide

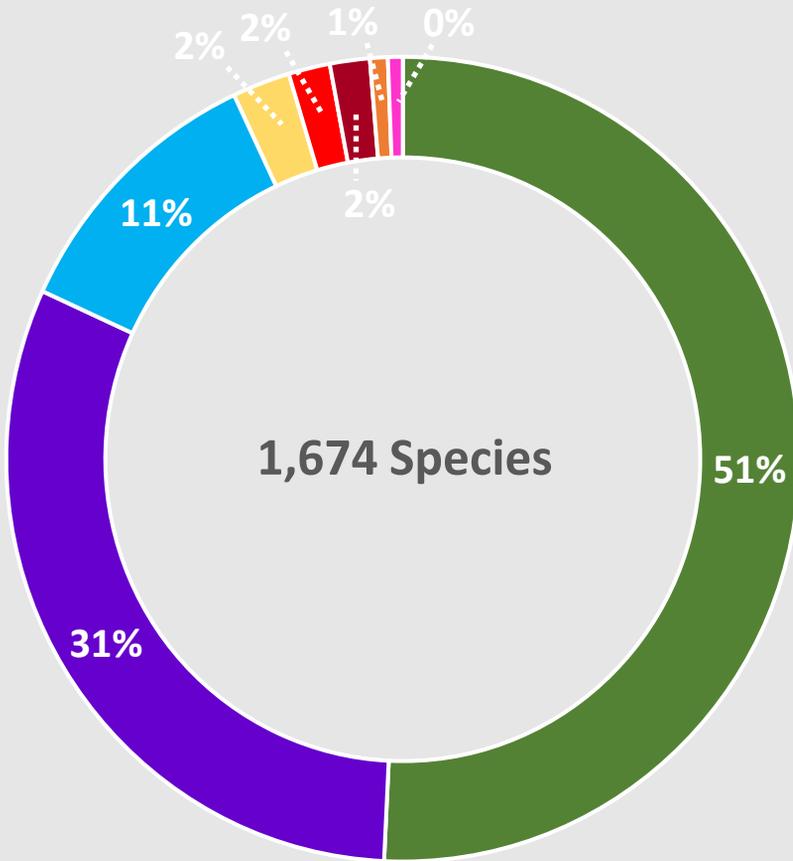
iNaturalist & Science

"Using iNaturalist in a Coverboard Protocol to Measure Data Quality: Suggestions for Project Design" Wittmann, Girman, & Crocker 2019 – Citizen Science: Theory & Practice
"Methods for broad-scale plant-phenology assessments using citizen scientist photographs" Barve et al. 2019 – Applications in Plant Sciences
"Citizen science can improve conservation science, natural resource management, and environmental protection." McKinley et al. 2017 – Journal of Biological Conservation



What We Found in 2020!

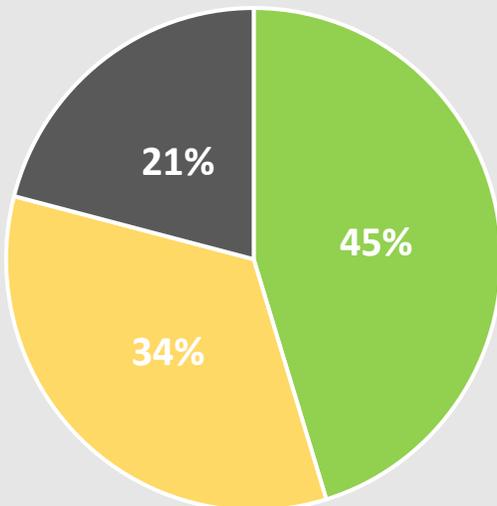
While we were limited in our outdoor travel, we still documented more species in 2020 than we did in 2018, and only trailed our 2019 high by 200 species!



Organisms by Group

- Plants
- Insects
- Birds
- Arachnids
- Reptiles
- Mammals
- Other Animals
- Fungi

Observations by Status



What Does Data Quality Mean?

The building block of iNaturalist is the **verifiable observation**, an observation that has: a date, a location, photos or sounds, and is of a wild organism.

Verifiable observations are labeled as **Needs ID** until they either attain **Research Grade** status (the community agrees on species-level ID or lower, i.e. when more than 2/3 of identifiers agree on a taxon) or are voted to **Casual** via data quality assessment.

Once a week, **Research Grade** observations on iNaturalist licensed for re-use are shared with the Global Biodiversity Information Facility.

- Research Grade
- Needs ID
- Casual



Plants!

Just over half of all the LRGV's observations were of plants. This is in line with our two previous years; in 2019 plants made up 54% of all observations and in 2018 they made up 49% of all observations. You can explore all this year's plant observations on [iNaturalist](#).

Top 10 Plant Families

Plant Family	Plant Common Names	# Observations
Asteraceae	Sunflowers, Daisies, Asters, and Allies	411
Fabaceae	Legume Family	326
Cactaceae	Cactus Family	175
Euphorbiaceae	Spurge Family	160
Malvaceae	Mallow Family	155
Verbenaceae	Verbena Family	144
Apocynaceae	Dogbane Family	134
Asparagaceae	Agaves and Allies	128
Lamiaceae	Mint Family	114
Acanthaceae	Acanthus Family	111

Top 10 Observed Species



36 observations CC
Texas Wild Olive
(*Cordia boissieri*)



35 observations CC
Tropical Sage
(*Salvia coccinea*)



30 observations CC
Honey Mesquite
(*Prosopis glandulosa*)



29 observations CC
Turk's Cap
(*Malvaviscus arboreus*)



26 observations CC
Cenizo
(*Leucophyllum frutescens*)



26 observations ©
Anacua
(*Ehretia anacua*)



25 observations ©
Texas Ebony
(*Ebenopsis ebano*)



25 observations CC
Skeleton-leaf Goldeneye
(*Sidneya tenuifolia*)



24 observations ©
Common Sunflower
(*Helianthus annuus*)



24 observations CC
Silverleaf Nightshade
(*Solanum elaeagnifolium*)

Fun Finds

- Rio Grande Azenia (@lizzro)**
Endangered – USFWS
- Abutilon hulseanum (@lizzro)**
Nationally Vulnerable – NatureServe





Insects!

Insects made up 31% of our total observations this year. That is 5 percentage points higher than in both 2019 and 2018, both at 26%. You can explore all this year's insect observations on [iNaturalist](#).

Top 10 Insect Families

Insect Family	Insect Common Names	# Observations
Hesperiidae	Skippers	106
Libellulidae	Skimmers	89
Nymphalidae	Brush-footed Butterflies	88
Erebidae	Underwing, Tiger, Tussock, and Allied Moths	83
Geometridae	Geometer Moths	66
Lycaenidae	Gossamer-winged Butterflies	61
Noctuidae	Cutworm Moths & Allies	55
Formicidae	Ants	52
Pieridae	Whites, Yellows, and Sulphurs	50
Apidae	Bees	48

Top 10 Observed Species



18 observations CC

Red Harvester Ant
(*Pogonomyrmex barbatus*)



17 observations ©

Reakirt's Blue
(*Echinargus isola*)



15 observations CC

Genus *Geron*



14 observations CC

Gulf Fritillary
(*Agraulis vanillae*)



13 observations CC

Western Honey Bee
(*Apis mellifera*)



13 observations CC

Queen
(*Danaus gilippus*)



12 observations CC

Band-winged Dragonlet
(*Erythrodiplax umbrata*)



11 observations CC

Tropical Checkered-Ski...
(*Burnsius oileus*)



10 observations CC

Fiery Skipper
(*Hylephila phyleus*)



10 observations CC

Great Southern White
(*Ascia monuste*)

Fun Finds

- American Bumblebee (@jziv)**
Globally vulnerable - NatureServe
- Saucy Beauty (@johnyochum)**
A LRGV-specialty moth



1



2



Birds!

Just over 11% of all of our observations were of birds (2x the City Nature Challenge global percentage), more than in 2019 (10%) but less than 2018 (15%). The 185 species we documented are more than a third of the Valley's known list. You can explore all this year's bird observations on [iNaturalist](#).

Top 10 Bird Families

Bird Family	Bird Common Names	# Observations
Icteridae	New World Blackbirds & Orioles	154
Scolopacidae	Sandpipers & Allies	123
Columbidae	Doves & Pigeons	104
Anatidae	Ducks, Geese, and Swans	90
Tyrannidae	Tyrant Flycatchers	86
Ardeidae	Hérons & Egrets	84
Mimidae	Mockingbirds & Thrasher	78
Parulidae	New World Warblers	76
Cardinalidae	Cardinals & Allies	68
Trochilidae	Hummingbirds	64

Top 10 Observed Species



55 observations

CC

Great-tailed Grackle
(*Quiscalus mexicanus*)



36 observations

CC

Black-bellied Whistling Duck
(*Dendrocygna autumnalis*)



34 observations

CC

Northern Mockingbird
(*Mimus polyglottos*)



33 observations

CC

White-winged Dove
(*Zenaida asiatica*)



29 observations

CC

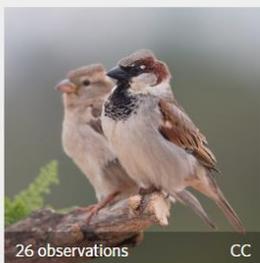
Mourning Dove
(*Zenaida macroura*)



28 observations

CC

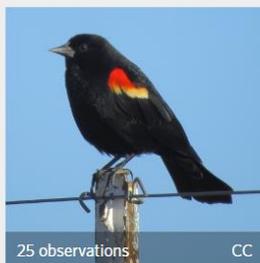
Ruby-throated Hummingbird
(*Archilochus colubris*)



26 observations

CC

House Sparrow
(*Passer domesticus*)



25 observations

CC

Red-winged Blackbird
(*Agelaius phoeniceus*)



23 observations

CC

Golden-fronted Woodpecker
(*Melanerpes aurifrons*)



19 observations

CC

Plain Chachalaca
(*Oreortyx vetula*)

Fun Finds

- Red-crowned Parrot (@johnyochum)**
Globally Endangered – IUCN Redlist
- Worm-eating Warbler (@javigonz)**
Nationally Vulnerable – NatureServe



1



2



Arachnids!

Arachnids are under-represented in our City Nature Challenge results, only making up 2.3% of all observations this year – about the same percentage as 2019 (2.9%) and 2018 (2.3%). You can view all our arachnid observations on [iNaturalist](#).

Top 10 Arachnid Families

Spider Family	Spider Common Names	# Observations
Araneidae	Orbweavers	70
Salticidae	Jumping Spiders	22
Thomisidae	Crab Spiders	14
Oxyopidae	Lynx Spiders	5
Dictynidae	Meshweavers	4
Lycosidae	Wolf Spiders	4
Pholcidae	Cellar Spiders	4
Trachelidae	Trachelid Spiders	4
Agelenidae	Funnel Weavers	3
Tetragnathidae	Long-jawed Orbweavers	3

Top 10 Observed Species



17 observations
CC
Silver Garden Orbweaver...
(*Argiope argentata*)



15 observations
CC
Spinybacked Orbweaver
(*Gasteracantha cancriformis*)



10 observations
©
Bifurcate Trashline Or...
(*Allocyclus bifurca*)



6 observations
CC
Tropical Orbweaver
(*Eriophora ravilla*)



4 observations
CC
Genus *Trachelas*



4 observations
CC
Gray Wall Jumping Spi...
(*Menemerus bivittatus*)



4 observations
CC
Meshweavers
(Family Dictynidae)



3 observations
CC
Green Lynx Spider
(*Peucetia viridans*)



2 observations
CC
Bold Jumping Spider
(*Phidippus audax*)



2 observations
CC
Long-bodied Cellar Spi...
(*Pholcus phalangioides*)

Fun Finds

1. **Tarantula sp.** (@rebeccamelinda)
Found in town, in Mission
2. **Ant-mimic Sac Spider** (@marcbuy)
Some species mimic ants





Other Wildlife

Atlantic Blue Crab
(@javigonz)



Texas Horned Lizard
(@clintonatus)



Rock-boring Urchin
(@owentemple)



Black-striped Snake
(@clintonatus)



Thinstripe Hermit Crab
(@javigonz)



Links to Other Taxa Observations:

[Reptiles](#)

[Amphibians](#)

[Crustaceans](#)

[Mammals](#)

[Fungi](#)

iNaturalist Projects

iNaturalist observations are pooled into a variety of other projects created by conservation organizations & other users. Here are some of the projects our City Nature Challenge observations are contributing to:



Texas Nature Trackers (TNT), part of the Wildlife Diversity Program, tracks the status of wild populations of plants and animals throughout Texas. Our projects are critical to understanding the distribution and seasonality of plants and animals in Texas, and how both are changing over time.

Texas Nature Trackers Projects



Herps of Texas



Bees of Texas



Texas Milkweeds For Monarchs

Other Projects



Biological Interactions of the RGV

The purpose of this project is to observe and document species interactions found within the LRGV.



LRGV Phenology Flowers

The purpose of this project is to help track the flower phenology of plants in the LRGV.



Invasives of the Lower Rio Grande Valley

This project's purpose to record observations of invasive species of the LRGV.

Thank You!

Thank you to everyone for helping to make this year's City Nature Challenge such a success! Each and every observation contributes to our understanding of the natural world, but also represents a way to share the Lower Rio Grande Valley's amazing diversity of plants and animals with our community. Most importantly, I hope everyone found a little peace in the company of our urban flora and fauna. Despite all that's going on in the world, there's comfort to be found in the life all around us.

John Brush

Center for Urban Ecology

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