Take the City Nature Challenge

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More than 85% of Texas population now lives in a major metro area

Overall state population is predicted to nearly double by 2050
Emerging MegaRegions

Texas Triangle:
Grow 93% and host 70% TX pop by 2050

Gulf Coast:
Grow 76% by 2050
How do we engage urban and suburban Texans with natural resource monitoring and conservation?
Texas Nature Trackers Program

Goals:
- Grow & enrich the naturalist community & experience
- Contribute to research & inform conservation decisions
Species of Greatest Conservation Need

Texas: 1,310 birds, mammals, herps, fishes, invertebrates, & plants
Texas Natural Diversity Database

Species of Greatest Conservation Need

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reptiles and Amphibians</td>
<td>73</td>
</tr>
<tr>
<td>Mammals</td>
<td>92</td>
</tr>
<tr>
<td>Birds</td>
<td>111</td>
</tr>
<tr>
<td>Fish</td>
<td>134</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>449</td>
</tr>
<tr>
<td>Plants</td>
<td>449</td>
</tr>
<tr>
<td>Total</td>
<td>1308</td>
</tr>
</tbody>
</table>

1,053 Tracked Species
The City Nature Challenge is a global, city-scale BioBlitz event that frames an urban biodiversity survey as a friendly competition between cities.
2017 City Nature Challenge

16 US cities

- Austin
- Houston
- Dallas-Fort Worth
2018 City Nature Challenge

68 cities worldwide

- Austin
- Houston
- Dallas-Fort Worth
- Amarillo
- El Paso
- Lower Rio Grande Valley
- San Antonio
2019 City Nature Challenge

150+ cities worldwide

- Austin
- Houston
- Dallas-Fort Worth
- Amarillo
- El Paso
- Lower Rio Grande Valley
- San Antonio
- Corpus Christi
The City Nature Challenge takes place in two stages:

**Observation**

- Observations of wild plants & animals
- 4 days

**Identification**

- Identifying what was found in iNaturalist
- 3-6 days
City Nature Challenge 2019

Observe:
Apr 26-29, 2019

Identify:
Apr 30-May 5, 2019

Twice as long for IDs as 2018
2019 City Nature Challenge
State-wide Results for Texas Metros

April 26-29, 2019
46 counties

More than:
- 98,000 observations
- 6,300 species recorded
- 3,400 observers
- 1,500 identifiers
## Texas Rankings in 2019 City Nature Challenge

*as of May 6, 2019*

<table>
<thead>
<tr>
<th>Metro</th>
<th># Observations</th>
<th># Species</th>
<th># Observers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amarillo</td>
<td>85</td>
<td>84</td>
<td>94</td>
</tr>
<tr>
<td>Austin</td>
<td>16</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Corpus Christi</td>
<td>62</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>DFW</td>
<td>7</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>El Paso</td>
<td>75</td>
<td>73</td>
<td>76</td>
</tr>
<tr>
<td>Houston</td>
<td>13</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>LRGV</td>
<td>32</td>
<td>19</td>
<td>62</td>
</tr>
<tr>
<td>San Antonio</td>
<td>38</td>
<td>28</td>
<td>21</td>
</tr>
</tbody>
</table>
Participation
2019 City Nature Challenge Texas Results

Research Grade
iNaturalist observations of *wild* organisms with *photo or sound vouchers* of a quality to merit a *species level* identification by the *majority of identifiers*.
Percent of Observations to Research Grade

<table>
<thead>
<tr>
<th>Location</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amarillo</td>
<td>48%</td>
</tr>
<tr>
<td>Austin</td>
<td>47%</td>
</tr>
<tr>
<td>Corpus Christi</td>
<td>39%</td>
</tr>
<tr>
<td>Dallas - Fort Worth</td>
<td>43%</td>
</tr>
<tr>
<td>El Paso</td>
<td>53%</td>
</tr>
<tr>
<td>Houston</td>
<td>42%</td>
</tr>
<tr>
<td>Lower Rio Grande Valley</td>
<td>42%</td>
</tr>
<tr>
<td>San Antonio</td>
<td>42%</td>
</tr>
</tbody>
</table>
Research Grade Observations by County

- Dark brown counties had the highest **Research Grade Observations** as percent of Total Observations
- Chambers = 71%
- Ellis, Burnet, Kendall, Waller = 69%
- Caldwell = 68%
- Denton, Williamson, Guadalupe = 66%
**Species/Taxa**

![Bar chart showing the number of species and taxa in different locations in Texas.](image)

- **Amarillo**: Total Species (Taxa) = 292, Total Taxa to Research Grade = 141
- **Austin**: Total Species (Taxa) = 3107, Total Taxa to Research Grade = 1453
- **Corpus Christi**: Total Species (Taxa) = 1083, Total Taxa to Research Grade = 421
- **Dallas - Fort Worth**: Total Species (Taxa) = 3698, Total Taxa to Research Grade = 1594
- **El Paso**: Total Species (Taxa) = 455, Total Taxa to Research Grade = 243
- **Houston**: Total Species (Taxa) = 4471, Total Taxa to Research Grade = 1866
- **Lower Rio Grande Valley**: Total Species (Taxa) = 2514, Total Taxa to Research Grade = 1057
- **San Antonio**: Total Species (Taxa) = 1933, Total Taxa to Research Grade = 812
Species/Taxa

- Amarillo: 48%
- Austin: 47%
- Corpus Christi: 39%
- Dallas - Fort Worth: 43%
- El Paso: 53%
- Houston: 42%
- Lower Rio Grande Valley: 42%
- San Antonio: 42%

% Species to RG
2019 City Nature Challenge Texas Results

Over 1,700 Research Grade Observations of 129 SGCN Species
SGCN Observations as Percent Total

Research Grade SGCN Observations as Percent Total Research Grade Observations

- Amarillo: 4.8%
- Austin: 2.8%
- Corpus Christi: 9.8%
- Dallas - Fort Worth: 2.6%
- El Paso: 5.4%
- Houston: 4.1%
- Lower Rio Grande Valley: 4.7%
- San Antonio: 2.1%
SGCN Observations by County

- Dark red counties had the highest SGCN Observations as percent of total Research Grade Observations
  - Bandera = 15%
  - San Patricio = 14%
  - Chambers = 13%

<table>
<thead>
<tr>
<th>Research Grade SGCN Observations as Percent of Total RG Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.10% - 2.20%</td>
</tr>
<tr>
<td>2.21% - 3.60%</td>
</tr>
<tr>
<td>3.61% - 6.19%</td>
</tr>
<tr>
<td>6.20% - 9.33%</td>
</tr>
<tr>
<td>9.34% - 14.58%</td>
</tr>
</tbody>
</table>
SGCN Species as Percent Total

Research Grade SGCN Species as Percent Total Research Grade Taxa

- Amarillo: 7.8%
- Austin: 3.2%
- Corpus Christi: 10.5%
- Dallas - Fort Worth: 3.1%
- El Paso: 7.0%
- Houston: 3.5%
- Lower Rio Grande Valley: 5.3%
- San Antonio: 3.9%
SGCN Species by County

- Dark red counties had the highest **SGCN Taxa** as percent of total Research Grade Taxa
  - Bandera = 14%
  - Nueces = 11%
  - San Patricio = 10%
  - Chambers = 10%
  - Randall = 9%
Amarillo

**Texas horned lizard**, Supercoolmom318, iNaturalist, CCBY-NC

**Wild Turkey**, Panhandlegal, iNaturalist, CCBY-NC
Amarillo

• 11 Species of Greatest Conservation Need at Research Grade
• 35 new species records in iNaturalist
• 9% increase in iNaturalist observations for the Amarillo metro counties

Austin

Golden-cheeked Warbler, Rich Kostecke, iNaturalist, CCBY-NC-ND

Spiny softshell turtle, Tonja Hamel, iNaturalist, CCBY-NC
Austin

• 46 Species of Greatest Conservation Need at Research Grade
• 153 new species records in iNaturalist
• 5% increase in iNaturalist observations for the Austin metro counties
Corpus Christi/Coastal Bend

Reddish Egret, calebh, iNaturalist, CCBY-NC

Finetooth shark, thegreatlamp, iNaturalist, CCBY-NC
Corpus-Christi/Coastal Bend

• 44 Species of Greatest Conservation Need at Research Grade
• 131 new species records in iNaturalist
• 5% increase in iNaturalist observations for the Corpus Christi metro counties

• Project page:  
Dallas-Fort Worth

Harris's Sparrow, Tommy Farquhar, iNaturalist, CCBY-NC

Strecker's chorus frog, corynorris, iNaturalist, CCBY-NC
Dallas- Fort Worth

• 50 Species of Greatest Conservation Need at Research Grade
• 200 new species records in iNaturalist
• 8% increase in iNaturalist observations for the DFW metro counties

El Paso

Burrowing Owl, bennyep, iNaturalist, CCBY-NC

Texas Antelope Squirrel, Liz DeMoultrie, iNaturalist, CCBY-NC-ND
El Paso

• 17 Species of Greatest Conservation Need at Research Grade
• 55 new species records in iNaturalist
• 7% increase in iNaturalist observations for the El Paso County
Houston-Galveston

Common snapping turtle, corvid81, iNaturalist, CCBY-NC

American Oystercatcher, baygirl, iNatualist, CCBY-NC
Houston-Galveston

• 65 Species of Greatest Conservation Need at Research Grade
• 388 new species records in iNaturalist
• 10% increase in iNaturalist observations for the Houston metro counties

Lower Rio Grande Valley

Red-crowned Parrot, ottodkc1, iNaturalist, CCBY-NC

Bailey’s ballmoss, chobuck, iNaturalist, CCBY-NC
Lower Rio Grande Valley

• 56 Species of Greatest Conservation Need at Research Grade
• 302 new species records in iNaturalist
• 10% increase in iNaturalist observations for participating counties
San Antonio

**Mexican free-tailed bat**, graciemooney, iNaturalist, CCBY-NC

**American bumble bee**, Jessica Beckham, iNaturalist, CCBY-NC
San Antonio

• 32 Species of Greatest Conservation Need at Research Grade

• 177 new species records in iNaturalist

• 9% increase in iNaturalist observations for participating counties

Impactful Discoveries

Spotlight: Engelmann’s Bladderpod

The City Nature Challenge uncovered a previously unknown population of a rare Texas plant, the Engelmann’s bladderpod (Physaria engelmannii), in Dallas County. Kim Taylor, a rare plant botanist at the Botanical Research Institute of Texas, identified iNaturalist user tadamcochran’s observation as Engelmann’s bladderpod. Found from Southern Oklahoma to Central Texas in limestone prairies, this plant historically occurred in several areas in Dallas but only one population was believed to remain in the county. This record is significant for the conservation of this rare species.

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Challenges & Opportunities for the Future

- Curation of taxonomic projects vs. volume of data
- Increase participation leading to long-term engagement with TNT projects
- More SGCN observations to curated TNT projects (to TX Natural Diversity Database)
- Encourage use of data in local planning/resource management
Texas Nature Trackers iNaturalist Projects

www.tpwd.texas.gov/trackers and click Projects
City Nature Challenge Websites

citynaturechallenge.org
inaturalist.org/projects/city-nature-challenge-2019
tpwd.texas.gov/naturechallenge
City Nature Challenge 2020

Save the Date!
April 24-27, 2020
CITY NATURE CHALLENGE: NATURE WINS IN DALLAS/FORT WORTH
Preplanning

- Partners, partners, partners
- Engaging the big users – delegating these folks to leading walks
- Journal entries, tag folks!
- Having partners promote outings/bioblitzes
During the data collection

- Encouragement in comments ("Keep it up!")
- Nocturnal surveys!
- Uploading as soon as possible
- Trying to ID your own observations first (others may use your observations to find out ID’s)
After the data collection process but before the end...

- ID as much as you possibly can...
- Know that ID’s or comments make or break engagement (and future involvement from naturalists!)
After the results announced

- Personally contact the users... Engagement
- Reach out to partners with those specific results
- Reach out to ‘higher ups’ within the municipalities so they know what happened!
- Recognition of constituency of naturalists! We seek out areas of biodiversity. Manage for it.
Questions?

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