QUANTIFYING WILDLIFE-VEHICLE INTERACTIONS ON SOUTH TEXAS ROADWAYS

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Brown Pelican – *Pelecanus occidentalis carolinensis*; BRPE

Listed ENDANGERED in 1970 – Pre-Endangered Species Act
De-listed in 2009
Texas population 12-15 individuals by late ‘70s
Re-established in Lower Laguna Madre mid-’90s (non-breeding)
Incidents of high Brown Pelican mortality events reported on SH 48 bridges.

Primarily seemed to be reported during strong weather events (Northers).

“Dozens” of dead pelicans per event.
“Pelican Poles” installed on SH 48 bridges at San Martin and Bahia Grande channels in 2015. Mortality events seemed to decrease. But reports persisted... Where? . . . .When?
Research objective:
Determine geographic distribution and seasonal occurrence of Brown Pelican road mortality events.

Sampling Methods:

- SH 48 & SH 100 (Cameron County) and SH 186 (Willacy County)
- Driving transects ≤20 MPH
- SH 48 and SH 100 driven bi-monthly; SH 186 driven once per month
- All vertebrate taxa sampled, plus a few others (crabs, tarantulas, moths)
- Color-marked specimens to prevent duplicate counting.
**Limitations:**

**Infrequency:** many specimens persist only a few days or hours due to scavenging or vehicular obliteration.

**Speed:** Many specimens likely overlooked at 20 MPH; especially small critters or those concealed by ROW vegetation or road debris.

**Removal or relocation by TxDOT MNT Division:** Irregular and opportunistic schedule and practices; however, MNT reliably reported occurrences of pelican carcasses.
What should have happened

Data Collection

Repost for Next Data Collection

Data QC

Clean Online Data

Export from ArcGIS
What really have happened

- Repost clean forms for Data Collection
- ArcGIS Online Issues
- Data from Pharr using a GPS unit
- Data Collection
- No signal! I see the cell tower from here
- iPad Issues
- Sync Data with the ArcGIS Online cloud
- Sync Data
- Why won't you sync you [censored]
- Clean Online Data
- What Happened to those Photos
- Ok, the photos are there
Location: SH 186
Length: 15 Miles
ADDT: From 410 to 654 VBD
Road Geometry: 2 Lanes undivided and Shoulders
EMST MOU Type: Agriculture, Tidal and Salt Marsh; Scrub, Thorns scrub, Shrubland, Coastal Grassland

Location: SH 100
Length: 19 Miles
ADDT: From 4,921 to 21,012
Road Geometry: Mostly 4 Lanes, Shoulders and 3.5 ft barriers
EMST: Tidal and Salt Marsh; Clay Dunes; Beaches and Salt Tidal Flats

Location: SH 48
Length: 12 Miles
ADDT: From 5,971 to 10,324 VBD
Road Geometry: Mostly 4 Lanes Divided and Shoulders and 3.5 ft barriers
EMST MOU Types: Tidal and Salt Marsh, Beaches and Salt Tidal Flats, Clay Dunes
Winter of 2015-16 – Very mild
1 strong weather event week of December 28; 2-3 lesser events in January.
Up to 23 BRPE carcasses reported by TxDOT MNT in December and January
BRPE specimens observed during surveys:
15 January: 16
26 January: 1
26 February: 2
-All on SH 48 in vicinity Bahia Grande Channel bridge; very few on bridge deck.
Most BRPE carcasses found in areas where there was open water only on 1 side of highway.

Possibly diverting overland by bridge poles?

Still many unknowns – More Research Needed.
5,182 total individual roadkill
- 131 classifications/103 species
- 4,100 herps (19 species)
- 505 birds (62 species)
- 537 mammals (18 species)
- 57 other taxa (5 species)
### All Taxa (by family)

<table>
<thead>
<tr>
<th>All Taxa (by family)</th>
<th>N</th>
<th>Herps</th>
<th>N</th>
<th>Birds</th>
<th>N</th>
<th>Mammals</th>
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<td>3525</td>
<td>Unknown anuran</td>
<td>3525</td>
<td>Unknown bird</td>
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<td>Virginia opossum</td>
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<td>Frogs</td>
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<td>Rio Grande Leopard Frog</td>
<td>246</td>
<td>American Coot</td>
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<td>Opossums</td>
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<td>Western Ribbon Snake</td>
<td>71</td>
<td>Laughing Gull</td>
<td>36</td>
<td>Nine-banded Armadillo</td>
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<tr>
<td>Unknown mammals</td>
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<td>Unknown snake</td>
<td>51</td>
<td>Northern Mockingbird</td>
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<td>Raccoon</td>
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<tr>
<td>Colubrid snakes</td>
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<td>Texas Tortoise</td>
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<td>Unknown songbird</td>
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<td>Eastern Cottontail</td>
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<td>Western Diamondback Rattlesnake</td>
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<td>Brown Pelican</td>
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<td>Unknown rat</td>
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<tr>
<td>Rails/Coots</td>
<td>65</td>
<td>Unknown turtle</td>
<td>26</td>
<td>Great-tailed Grackle</td>
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<td>Domestic cat</td>
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<tr>
<td>Armadillos</td>
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<td>Yellow Mud Turtle</td>
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<td>Unknown gull/tern</td>
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<td>Coyote</td>
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<tr>
<td>Raccoons</td>
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<td>Southwestern rat snake</td>
<td>19</td>
<td>Turkey Vulture</td>
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<td>Unknown canid</td>
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<tr>
<td>Unknown snakes</td>
<td>51</td>
<td>Red-eared Slider</td>
<td>16</td>
<td>Barn Owl</td>
<td>16</td>
<td>Long-tailed Weasel</td>
<td>9</td>
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<tr>
<td>Gulls/Terns/Skimmers</td>
<td>50</td>
<td>Gulf Coast Toad</td>
<td>7</td>
<td>Northern Bobwhite</td>
<td>16</td>
<td>Black-tailed Jackrabbit</td>
<td>9</td>
</tr>
</tbody>
</table>

### “Top Ten Things You Find D-O-R”

- **Frogs**
  - Rio Grande Leopard Frog: 246
  - American Coot: 47
  - Unknown mammal: 100
  - Unknown snake: 51
  - Texas Tortoise: 47

- **Opossums**
  - Western Ribbon Snake: 71
  - Laughing Gull: 36
  - Nine-banded Armadillo: 59
  - Unknown snake: 51
  - Texas Tortoise: 47

- **Unknown birds**
  - Western Diamondback Rattlesnake: 40
  - Brown Pelican: 19
  - Unknown songbird: 28
  - Great-tailed Grackle: 19
  - Unknown gull/tern: 16

- **Unknown mammals**
  - Virginia opossum: 147
  - Raccoon: 52
  - Nine-banded Armadillo: 59
  - Raccoon: 52
  - Nine-banded Armadillo: 59

- **Unknown snakes**
  - Unknown gull/tern: 16
  - Coyote: 13
  - Unknown canid: 10
  - Long-tailed Weasel: 9

- **Unknown anurans**
  - Unknown anuran: 3525
  - Unknown bird: 68
  - Virginia opossum: 147

- **Gulls/Terns/Skimmers**
  - Gulf Coast Toad: 7
  - Northern Bobwhite: 16
  - Black-tailed Jackrabbit: 9

- **Rails/Coots**
  - Unknown turtle: 26
  - Great-tailed Grackle: 19
  - Domestic cat: 15

- **Armadillos**
  - Yellow Mud Turtle: 19
  - Unknown gull/tern: 16
  - Coyote: 13

- **Raccoons**
  - Southwestern rat snake: 19
  - Turkey Vulture: 16
  - Unknown canid: 10

- **Unknown snakes**
  - Red-eared Slider: 16
  - Barn Owl: 16
  - Long-tailed Weasel: 9
Seasonal distribution SH 100
Wildlife-Vehicle Interactions

Wednesday, September 14, 2016
Texas brown snake N = 3
Mexican milk snake N = 2
Texas horned lizard N = 1
Mexican racer N = 4
Southwester rat snake N = 19
Crested Caracara N = 1
Grasshopper Sparrow N = 3
Virginia Rail N = 4
Great Kiskadee N = 1
Ladder-backed Woodpecker N = 1
Black-bellied Whistling-Duck N = 12
Grasshopper Sparrow N = 3
Collared Peccary N = 5

Long-tailed Weasel N = 9

Feral Pig N = 2 (not this one)

American Badger N = 2
QUESTIONS?