

Oregon Crash App

Data Analytics Group Project 3
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Project Overview

The purpose of this project is to identify hotspots for vehicle collisions involving deer and elk in order to better determine where safety improvements via signage or road modification needs to be prioritized to improve safety for drivers and animals. This will be achieved via mapping and an interactive dashboard.

Hypothesis: Drivers are more likely to get in vehicle crashes with wild animals on rural freeways leading to and from significant population centers in the western most part of the state, necessitating improved signage and safety on those roads.

Overview of Data Collection

Dataset

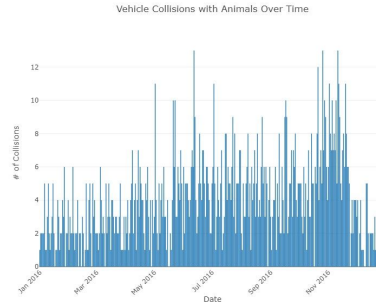
- Oregon Department of Transportation - Crash Statistics & Reports
- Data was in Microsoft Access Database format, which was then converted to CSV and imported into a SQLite database.
- The dataset was then jsonified in Flask for use in the map and dashboard.

Data Used

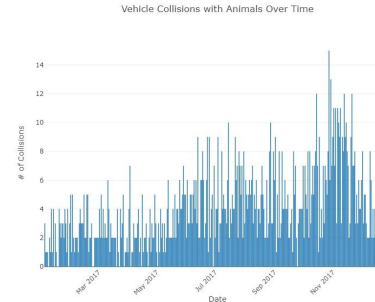
- Crash ID - CRASH_ID
- Date - CRASH_DT
- Year - CRASH_YR_NO
- Route Name - HWY_MED_NM
- Latitude - LAT_DD
- Longitude - LONGTD_DD
- Crash Type - CRASH_TYP_CD
- Crash Type Description - CRASH_TYP_SHORT_DESC
- Crash Severity - CRASH_SVRTY_CD
- Crash Severity Description - CRASH_SVRTY_SHORT_DESC
- Crash Type - CRASH_EVNT_1_CD, CRASH_EVNT_2_CD, CRASH_EVNT_3_CD (codes 034 - GAME, 035 - DEER ELK)
- Crash Type Description - CRASH_EVNT_1_SHORT_DESC, CRASH_EVNT_2_SHORT_DESC, CRASH_EVNT_3_SHORT_DESC
- Crash Cause - CRASH_CAUSE_1_CD, CRASH_CAUSE_2_CD, CRASH_CAUSE_3_CD
- Crash Cause Description - CRASH_CAUSE_1_SHORT_DESC, CRASH_CAUSE_2_SHORT_DESC, CRASH_CAUSE_3_SHORT_DESC

Seasonality Findings

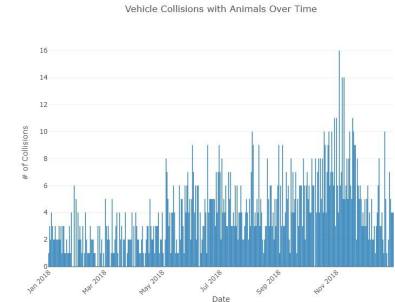
- The data for each year has the same shape, indicating that the majority of animal related crashes are during the deer rut (mating season, begins in October and runs through the beginning of December).
- Deer, especially male deer, are very active during the rut and are more likely to be traveling throughout the day, including over roadways.



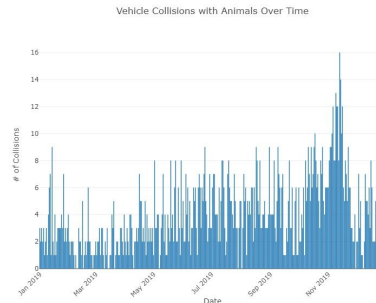
2016



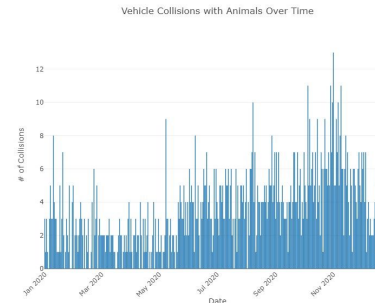
2017



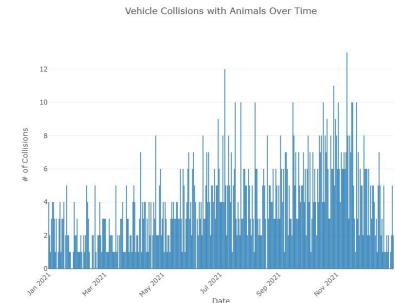
2018



2019



2020



2021

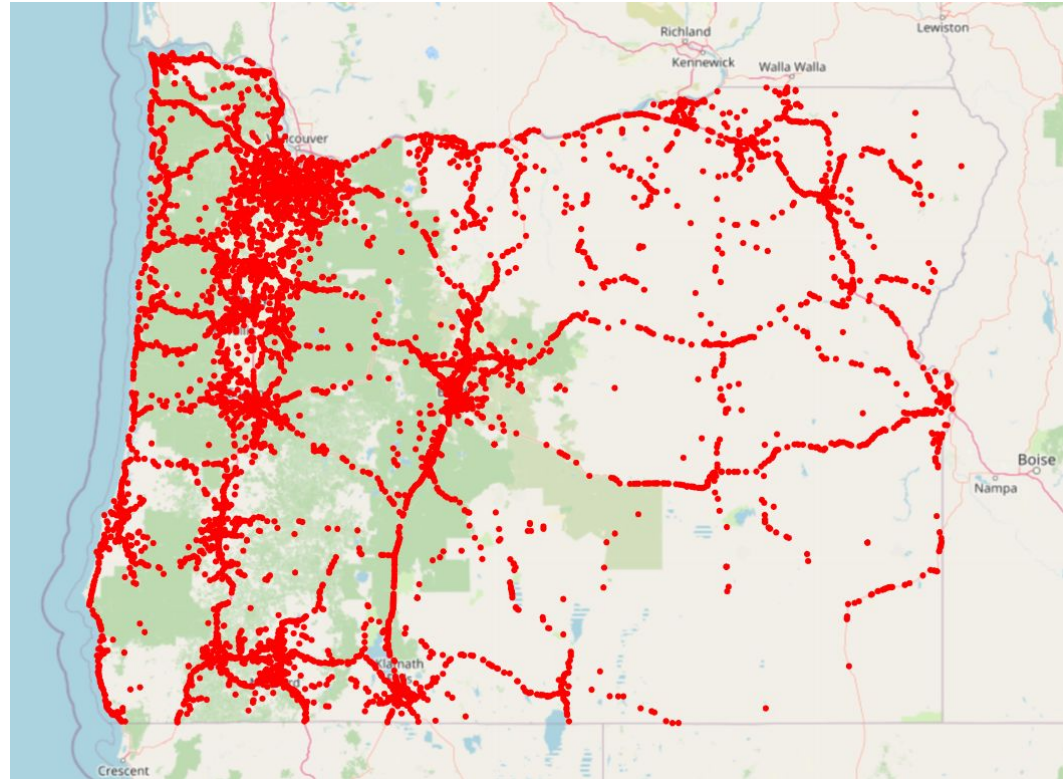
Crash Severity Findings

- The vast majority of animal-involved collisions only involve damage to property, with very few resulting in a fatality.

Crash Severity	% of Total Crashes
Fatal Crash	0.21%
Non-fatal injury crash	29.62%
Property damage only crash	70.18%

Animal Crash Hotspots

As we can see from the map, quite a few of the animal related crashes are centered along major freeways connecting population centers, with a lot of those being clustered between Portland and Eugene (the capital of Salem being right between them). Bend, Klamath, and Medford are also notable hotspots



Highway Findings

The Klamath Falls-Lakeview, Historic Columbia River, and Mapleton-Junction City routes have a significantly higher number of vehicle collisions with animals. These roadways should be prioritized for improved safety measures and signage to help prevent animal collisions.

# of Collisions by Roadway 2016-2021	
Klamath Falls-Lakeview	132
Historic Columbia River	115
Mapleton-Junction City	110
Pendleton-Cold Springs	66
Snake River Correctional Institute	58
Clear Lake-Belknap Springs	52
East Portland Freeway	42
The Dalles-California	42
Baker-Copperfield Spur	22
Service Creek-Mitchell	22