

Animal-Vehicle Collision Hotspots Identified from Two Different Data Sources: Is there any Overlap?

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What?

- Compared two AVC datasets:
 - Linking Landscapes for Massachusetts Wildlife (LLMW) data, a citizen science effort.
 - Crash Portal (CP) data, collected through accident reporting to law enforcement.

Why?

- Are deer a good proxy for other wildlife?
- All States have crash data, citizen science efforts are not ubiquitous.

Methods Summary

- Considered data from State and Interstate routes only.
 - Used GIS to divide roadways into one-mile segments, using the MassGIS mile marker shapefile.
 - Counted road segments with AVC for each data set.
 - Counted the number of AVC in those road segments.
 - Counted the number of segments with AVC from both data sets.
 - Counted the number of segments with a high number of AVCs from both data sets (hotspot overlap).
- Investigating factors linked with hotspots beyond the scope of this analysis

LLMW and Crash Portal Data are Different

LLMW

- 2009 – 2017, 8.5 years
- Non-systematic
 - Results dependent on volunteer effort and location
 - 132 unique participants (6 to 72/year)
- 678 mappable mammal AVCs
- 389 were medium- and large-sized mammals

Crash Portal

- 2007 – 2014, 8 years
- Reasonably systematic
- 7,438 mappable AVC
- Deer and “other animal” only

Summary of LLMW Data

All Mammal Species Recorded

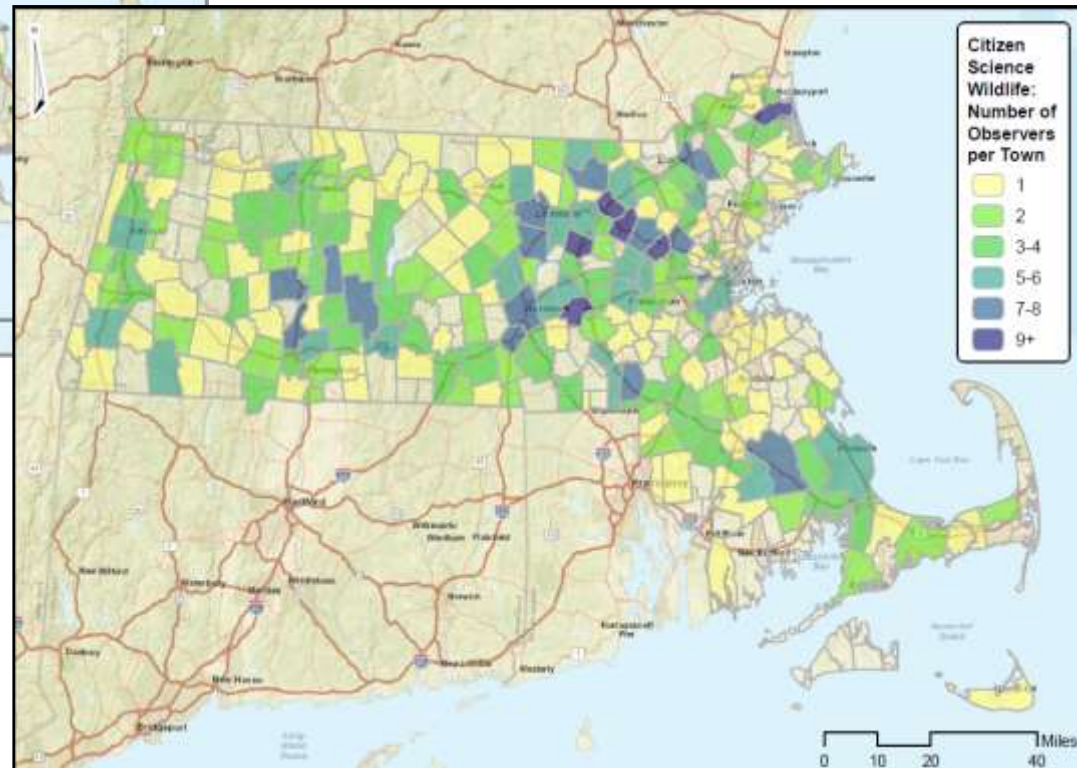
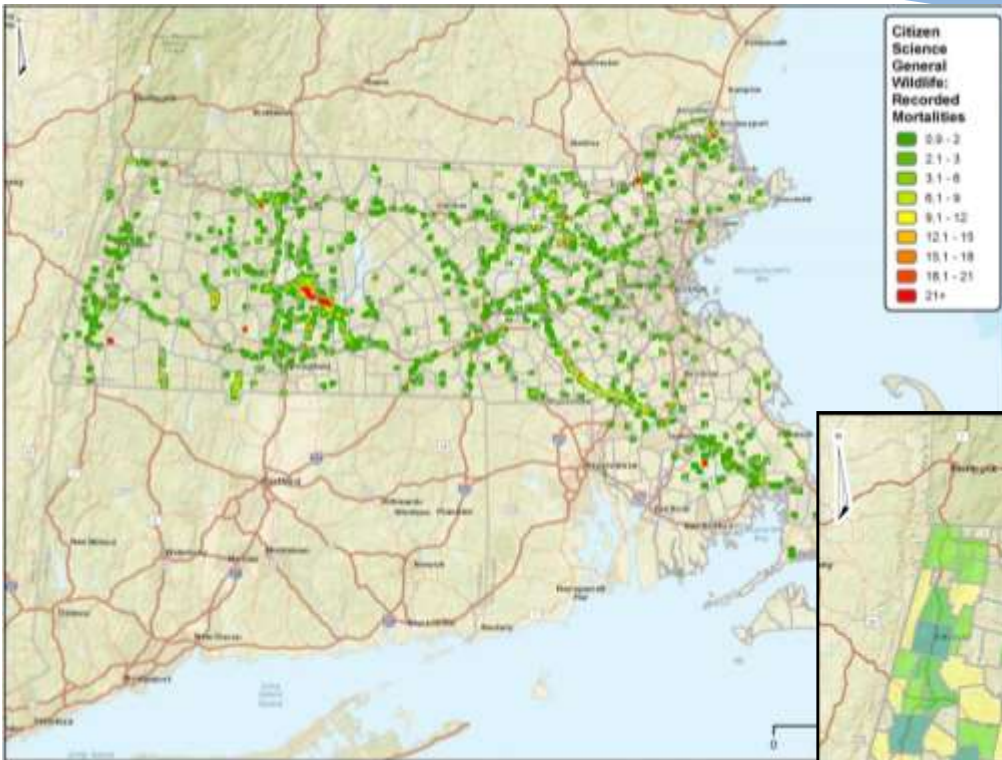
Species	Count	Percent
Squirrel/Chipmunk	131	19.3%
Raccoon	113	16.7%
Opossum	57	8.4%
Beaver	46	6.8%
Deer	45	6.6%
Rabbit/Hare	40	5.9%
Skunk	37	5.5%
Fox	36	5.3%
Porcupine	27	4.0%
Mink	22	3.2%
Fisher	17	2.5%
Coyote	15	2.2%
Muskrat	15	2.2%
Unidentified mammal	15	2.2%
Small mammal	11	1.6%
Woodchuck	11	1.6%
Otter	10	1.5%
Housecat	9	1.3%
Bobcat	7	1.0%
Weasel	6	0.9%
Bear	4	0.6%
Canine	2	0.3%
Moose	2	0.3%
Total	678	

Mapped Species

Species	Count	Percent
Raccoon	113	29.0%
Beaver	46	11.8%
Deer	45	11.6%
Skunk	37	9.5%
Fox	36	9.3%
Porcupine	27	6.9%
Mink	22	5.7%
Fisher	17	4.4%
Coyote	15	3.9%
Otter	10	2.6%
Bobcat	7	1.8%
Weasel	6	1.5%
Bear	4	1.0%
Canine	2	0.5%
Moose	2	0.5%
Total	389	

Note that LLMW also included 113 birds

Distribution of AVCs – LLMW vs. Crash Portal



LLMW and Crash Portal Data Mapped

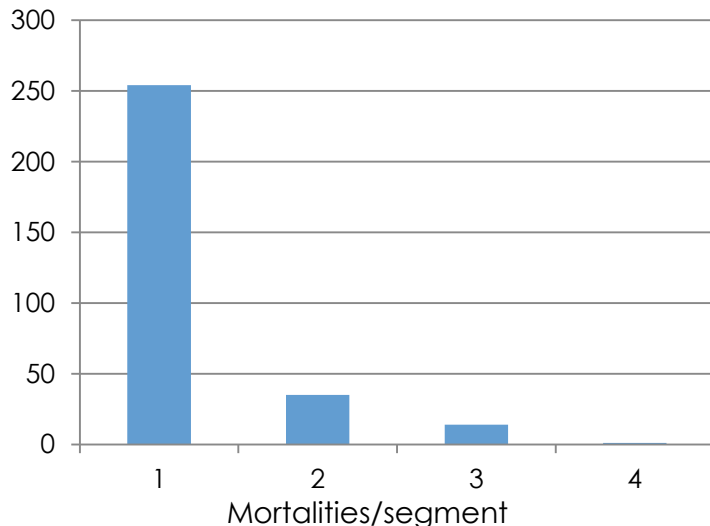


▲ Crash Portal
◇ LLMW

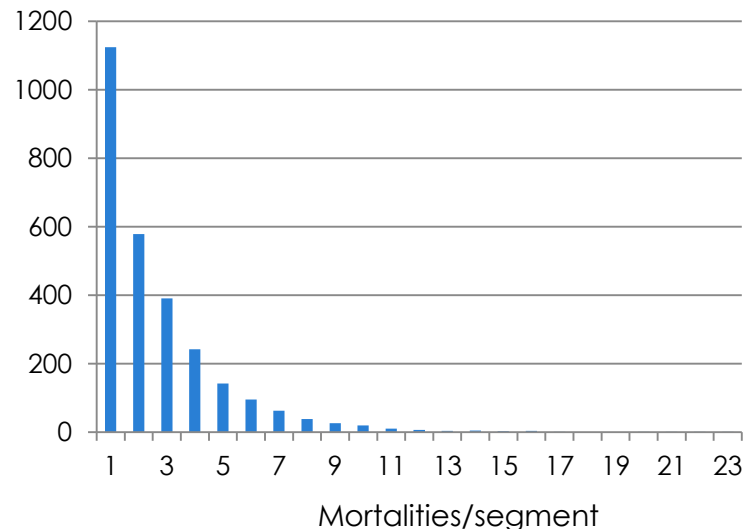
Summary of Results -

- 10,218 one-mile road segments.
- LLMW: 3% (306) of segments had at least on AVC.
- Crash Portal: 27% (2,749) of segments had at least on AVC.
- 1.8% (194) of segments had at least one AVC from both data sources

LLMW



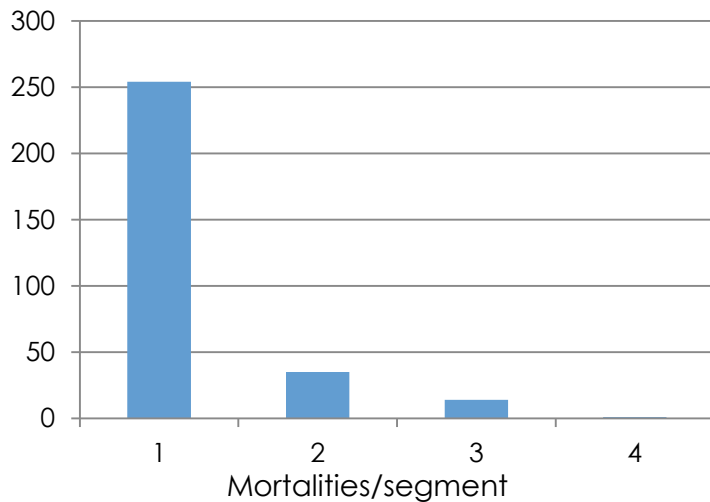
Crash Portal



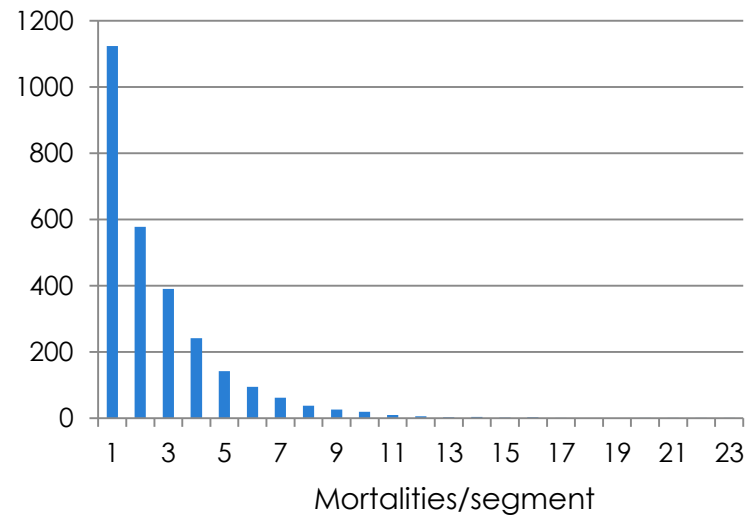
LLMW and CP “Hotspots”

- Hotspot defined:
 - LLMW: segments with ≥ 2 AVC (16%; 50/306).
 - CP segments had ≥ 5 AVC (15%; 415/2,749)
- Hotspot Overlap: 4% of segments with AVC from both data sets had ≥ 2 LLMW AVC had ≥ 5 CP AVCs (8/194).

LLMW



Crash Portal



Questions?