

Teton County, WY and Teton County, ID Wildlife-Vehicle Collision Database Summary Report

May 2021 – April 2022



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On the Cover: Elk crossing the road.

Photo: Mark Gocke, WGFD

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Teton County, WY

Introduction

Jackson Hole Wildlife Foundation (JHWF) has collected wildlife-vehicle collision (WVC) data since the organization's inception in 1993. These data are collected as carcass reports from trained citizen scientists. In 2003, Biota Consulting summarized JHWF's data (Biota Research and Consulting, Inc 2003) and then in 2011 Huijser et al. wrote a comprehensive report using these data for specific sections of highway within Teton County. However, neither of these efforts comprehensively incorporated all datasets available, e.g., WYDOT crash data, or all major roadways in Teton County, WY. That same year, JHWF began developing a comprehensive WVC database for Teton County, WY with assistance from the Teton Science Schools' Teton Research Institute (TSS-TRI). The goal was to collate and standardize WVC data from citizens, Wyoming Game and Fish Department (WGFD) reports of roadside carcasses and crash reports from Wyoming Department of Transportation (WYDOT) so that these data could be viewed and utilized in a comprehensive manner. Wildlife-vehicle collision data are the combination of both carcass and crash data.

JHWF's WVC database serves as a WVC data hub for use by town and county planners, wildlife managers, land managers, elected officials, transportation planners, scientific researchers and others. The database tool facilitates scientifically-based decision making regarding WVC mitigation and transportation management.

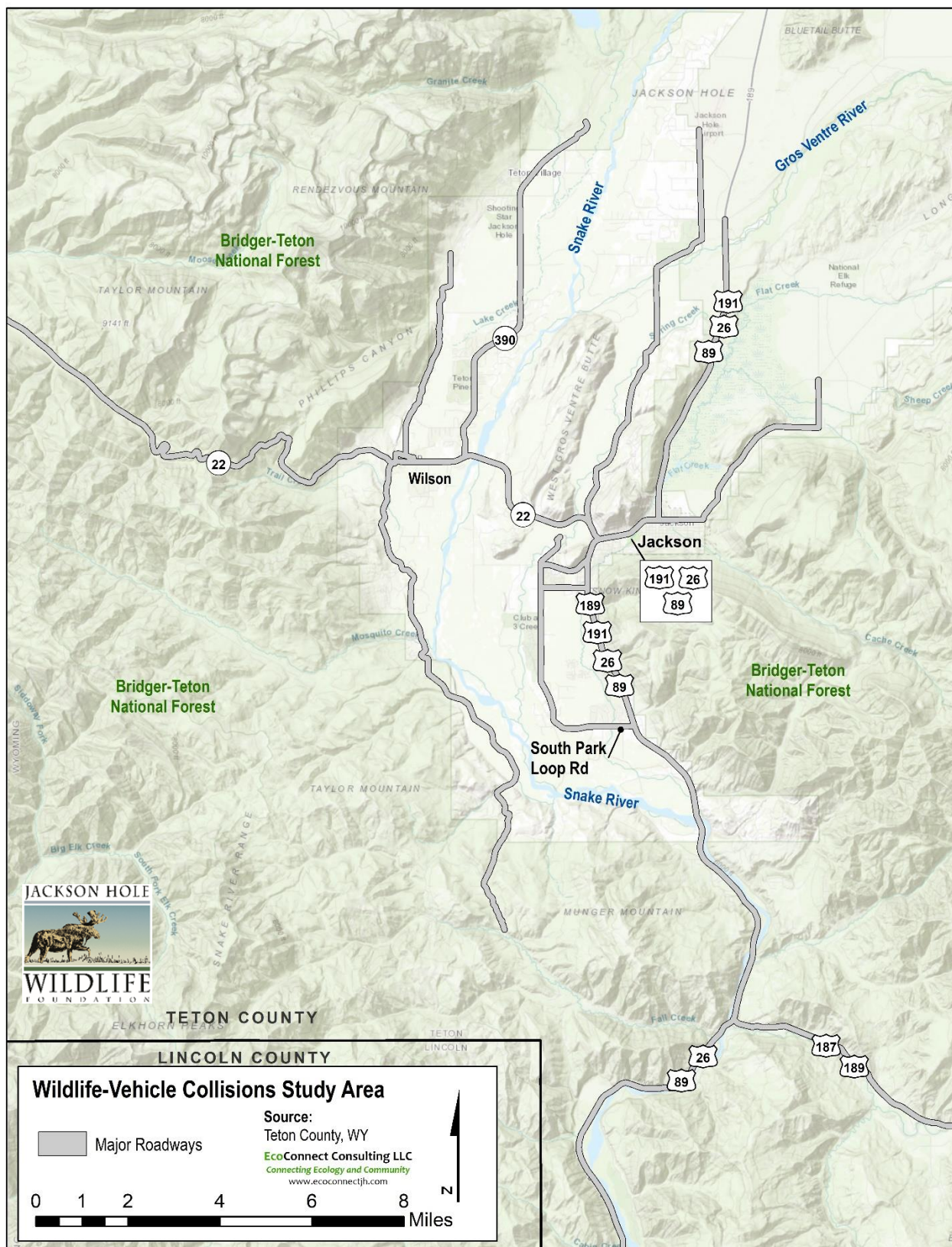
In 2015, JHWF began creating reports summarizing these data for use by government agencies and other partners. These reports focused on southern Teton County, WY (Figure 1) as Grand Teton National Park maintains its own database. Data were also collected for roads in the Alta area and Togwotee Pass. These summaries have influenced many management actions for wildlife protection along roadways in Teton County including:

- a collaborative signage program between JHWF, Wyoming Game and Fish Department, Teton County, and Wyoming Department of Transportation (WYDOT) to increase awareness near WVC hotspots;
- the creation of a County-wide plan to mitigate WVC and increase landscape permeability across roads (Huijser, et al. 2018);
- in 2019, the overwhelming public support for a Teton County Specific Purpose Excise Tax fund for mitigating WVC with wildlife crossings; and
- the use of WVC data to inform and design several wildlife crossing structures and fencing projects with WYDOT and Teton County Engineering including South Hwy 89, the Snake River Bridge Project at the intersection of Highways 22/ 390 and wildlife crossing design projects on WY 22, US191 and North US89.

Each of these progressive efforts aim to reduce WVCs and increase landscape permeability for wildlife in Teton County. The greatest protection for wildlife that allows safe movement across roadways, particularly within the context of continually increasing automobile traffic and widening roadways, has been the installation of well-designed and accurately placed wildlife crossing structures with accompanying funnel fencing (on average, an 86% reduction in WVC; Huijser, et al. 2009).

Through past efforts and JHWF's partnership with WYDOT and Teton County, wildlife underpasses and associated fencing have recently been or will soon be implemented including the ongoing US Highway 89 South (Hwy 89S) expansion project south of Jackson and the Snake River Bridge/Highway 22 project. The Hwy 390/22 intersection project includes realignment of the intersection and construction on the Snake River Bridge. This project was initiated in the summer of 2023 with an expected completion in 2025 (*project area road sign*). With the use of JHWF's Wildlife-Vehicle Collision Database, both projects have presented an opportunity to examine the effects of WVC mitigation efforts on the number of WVCs reported annually within Teton County.

Figure 1. Teton County, WY Study Area



Methods

Wildlife-Vehicle Collision Data Processing and Sources

The WVC database was updated annually using an automated process in combination with human verification. This process collects all WVCs and combined them into one large geodatabase where it could be accessed in ArcMap (<https://www.esri.com/en-us/arcgis/about-arcgis/overview>). For the 2021-2022 data update, the computer programs used were updated to strictly process within ArcMap (see JHWF's *Teton County Wildlife-Vehicle Collision Database Summary Report: May 2019-April 2021 Two Year Summary Report* for earlier methods).

WYDOT maintains spatial datasets for all major travel routes in Wyoming. These spatial datasets used linear-referenced system (LRS) geometry containing route and measurement attributes. Once raw WVC data were combined into one database, observation within 100m of roadways were joined to the nearest WYDOT LRS route using the "Locate Feature Along Route" tool in ArcMap.

This database was then run through the "Find Identical" tool in ArcMap that identified duplicates based on distance (<0.25 mi) from other observations, sample date (\pm one day) and species. The addition of plus or minus one day for the sample date is an update to methods from previous years. In 2021-2022, WYDOT and WGFD changed their approach to removing carcasses which resulted in less frequent removal than in previous years. Therefore, there was a greater likelihood that duplicate WVC entries could be reported on sequential days in 2021-2022. For example, if two mule deer were reported on the same day or two sequential days 0.20 miles from each other, the data points were flagged as possible duplicates and reviewed by a trained biologist for possible removal. Animals not identified to species (i.e., Animal) were also eliminated from the database. Animals identified as "deer" in Teton County, WY were assumed to be mule deer. "Deer" in Teton County, ID were left as deer as it could not be determined if they were white-tailed or mule deer.

When duplicates were identified, optimal observations were selected based on the data source. Table 1 indicates the ranking of the data sources in the JHWF WVC database. If duplicate observations were found in multiple data sources, the record from the source with the highest rank (lowest number) and most complete attributes was retained. The rankings were based on relative spatial accuracy and species sex/age identification. Annual observations were then added to the larger database containing all years.

Table 1. Data Source Ranking and applicable years.

DATA SOURCE	Source Rank
Jackson Hole Wildlife Foundation Nature Mapping Observations (2010-2022)	1
Jackson Hole Wildlife Foundation Roadkill Hotline (2012)	2
Wyoming Game and Fish Department Wildlife Observation System (2014-2022)	2
Wyoming Department of Transportation Crash Data (1994-2022)	3
Wyoming Department of Transportation Carcass Pick-Up Data (1999-2022)	4
Jackson Hole Wildlife Foundation Roadkill Hotline, Other Data Sources (1990-2009)	5
Roadkill 511 Data (2022 Only)	5
Wyoming Game and Fish Department Wildlife Observation System (1976-2013)	6

Important Qualifications of the Database

- No records were included within Grand Teton National Park at the Park's request. The Park maintains a separate database.
- The database combined a mix of data collected by different means with different accuracies.
- Some observers were trained biologists while others were not (e.g., volunteers).
- Annually, there was a large effort to remove potential duplicates by data-vetting biologists.
- Date/time was not a record of actual time of death, but rather the observation time of the dead animal.
- The database was likely heavily biased by ungulates. These were the main species that WYDOT picked up and that caused WVCs large enough to call the authorities. Ungulates were also more readily observed by citizen scientists.
- This database was likely a significant underestimate of WVC occurrences in Teton County, WY even for ungulates. Many WVC events go unreported or animals are hit and die out of sight from roads (Huijser, et al. 2008).
- The database was likely biased by larger roads (more observers and higher traffic volumes).
- Documentation and interest have improved in recent years. These data were likely biased by year. WYDOT has collected data since 1990, but other groups started later. WYDOT's documentation has also improved in later years.
- WVC numbers were likely influenced by winter conditions; higher collision rates likely occurred during more severe winters when ungulates were concentrated close to roads.

WVC Hot Spot Mapping

Hotspots were identified using the Kernel Density tool in ArcMap. The colors in the figures represent the probability density of WVCs occurring based on the search radius.

For the purposes of these WVC data, a WVC year was May 1 – April 30 (e.g., WVC Year 2022: May 1, 2021-April 30, 2022). This time period better demonstrated the seasonal trends associated with WVCs than a calendar year. All years mentioned in this report were in reference to the WVC Yr not the calendar year, unless clearly stated otherwise. Data used for raster creation included the previous 10 years of WVC data inclusive of WVC years 2013 through 2022 (i.e., May 1, 2012 – April 30, 2022). These 10 years of WVC data correspond to the report's figures and "WVC Summary Table - Count of WVC Species by Year" found in Appendix A.

Two raster layers were created for each of four analyses: all species recorded, moose, mule deer and elk. The coarse resolution layer, which appears smoother by generalizing hotspots, identifies searches for WVCs within 300 m of each 50 m pixel (stretch symbology using 3 standard deviations with a raster processing extent of the NAIP County aerial imagery). This coarse resolution layer was used in this report's maps. The finer resolution layer identified WVCs within 100 m of each 50 m pixel resulting in a more precise hotspot depiction and, while not included in this report, were created for the JHWF Team and may prove useful for future management decisions. These raster layers were clipped to 100m on either side of major roadways in southern Teton County, WY using the Extract by Mask tool in ArcMap. Only major roadways were chosen to display hotspot maps because of their higher traffic levels or proposed future roadway projects (e.g., South Park Loop). WVCs reported on roadways outside of those depicted were not represented in these maps.

Roadway Names

Highway segments summarized in this report and displayed in figures were defined as the following:

- WY 22 – From the intersection with Highway 89 to the Idaho and Wyoming state line.
- WY 390 – From the intersection with Highway 22 north to the Grand Teton National Park boundary

- Highway US 191/ US 26/ US 89 – From the intersection with Highway 22 east to center of the Town of Jackson and north to the Gros Ventre River/Grand Teton National Park boundary
- Highway US 189/US 191/US 26/ US 89 - From the intersection with Highway 22 south to Hoback Junction. This section of roadway is commonly referred to as “South 89.”

These highway segments differ from those used in previous year’s reports. The change was made to provide more clarity around WVC analysis segments and to correspond with typical highway segment descriptions.

Results

2021-2022 Data Update

There were 210 total reported WVCs in Teton County, WY during WVC Year 2022 (Figure 2). The 2020-2022 three-year average (198) was down from the previous high mark (269), which occurred during the previous three years (2017-2019; Figure 3). This high 2017-2019 average was heavily influenced by the 2016-2017 winter, which was very severe and may have caused many animals to concentrate near roads. The number of reported WVCs in WVC Year 2022 was also down from the ten-year average of 234 WVCs per year.

Since WVC Year 2013, the dataset has been heavily weighted by ungulate species. Elk represented 17%, moose 7% and mule deer 66% of the total WVCs reported. Seven other species each represented approximately 1% of the WVCs counted during these ten years. These seven species included black bear, coyote, North American porcupine, northern racoon, red fox, striped skunk and white-tailed deer. Notably, in 2022, there were five black bear WVCs reported. All five of these black bear WVCs took place in June and July of 2021 and four were on Teton Pass with the remaining in Buffalo Valley. In 2022, there were seven striped skunk WVCs reported out of 42 total for the ten-year period which was down from 19 in 2021. The remaining species each represented less than 1% of the ten-year dataset (Appendix A).

Figure 2. Total Annual WVCs in Teton County, WY

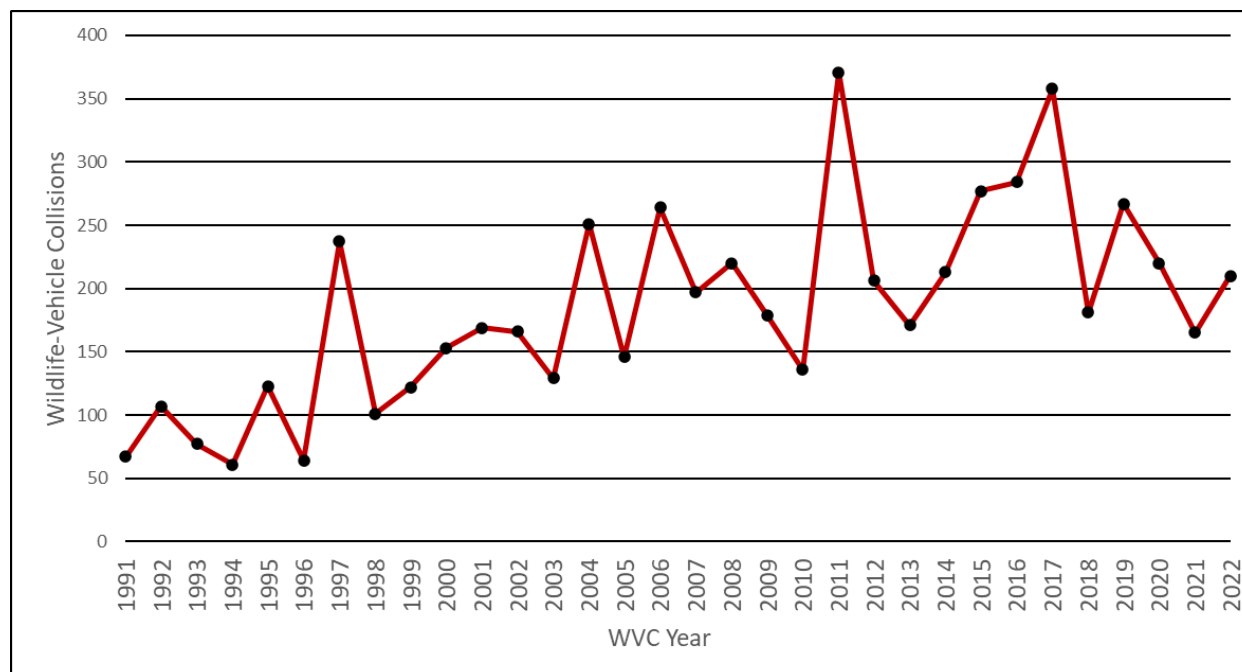
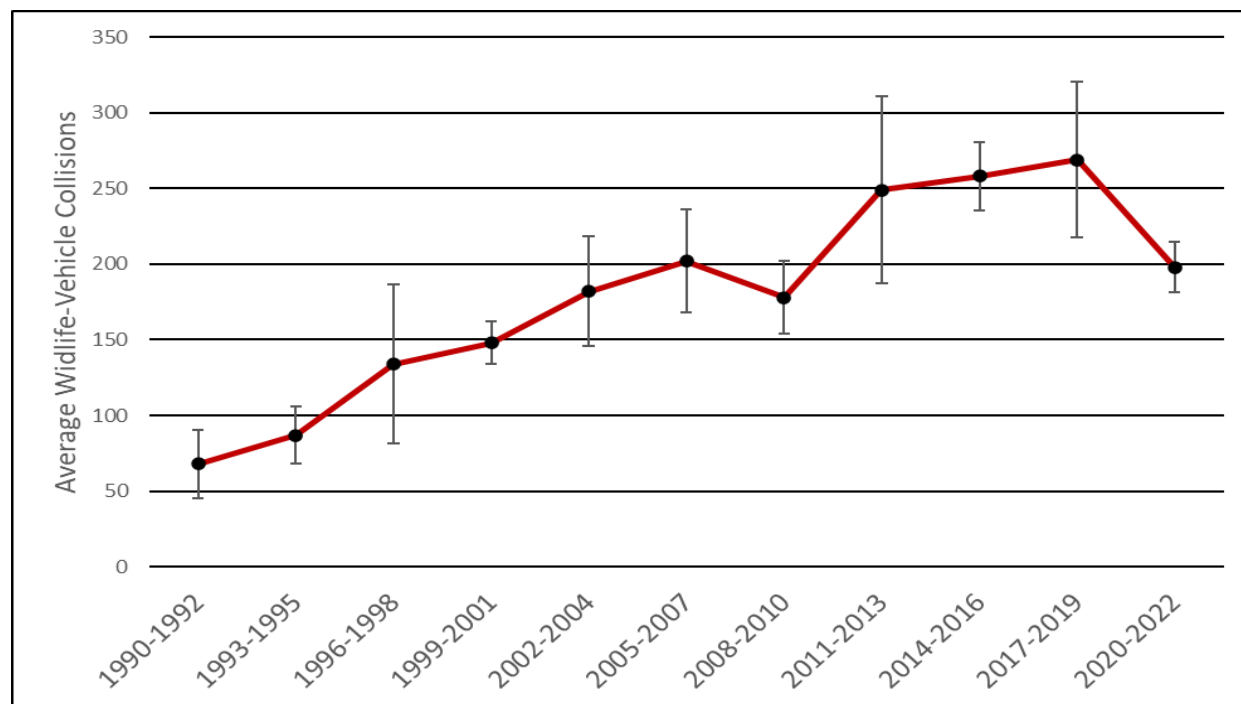


Figure 3. Three-year averages of total annual WVCs in Teton County, WY*

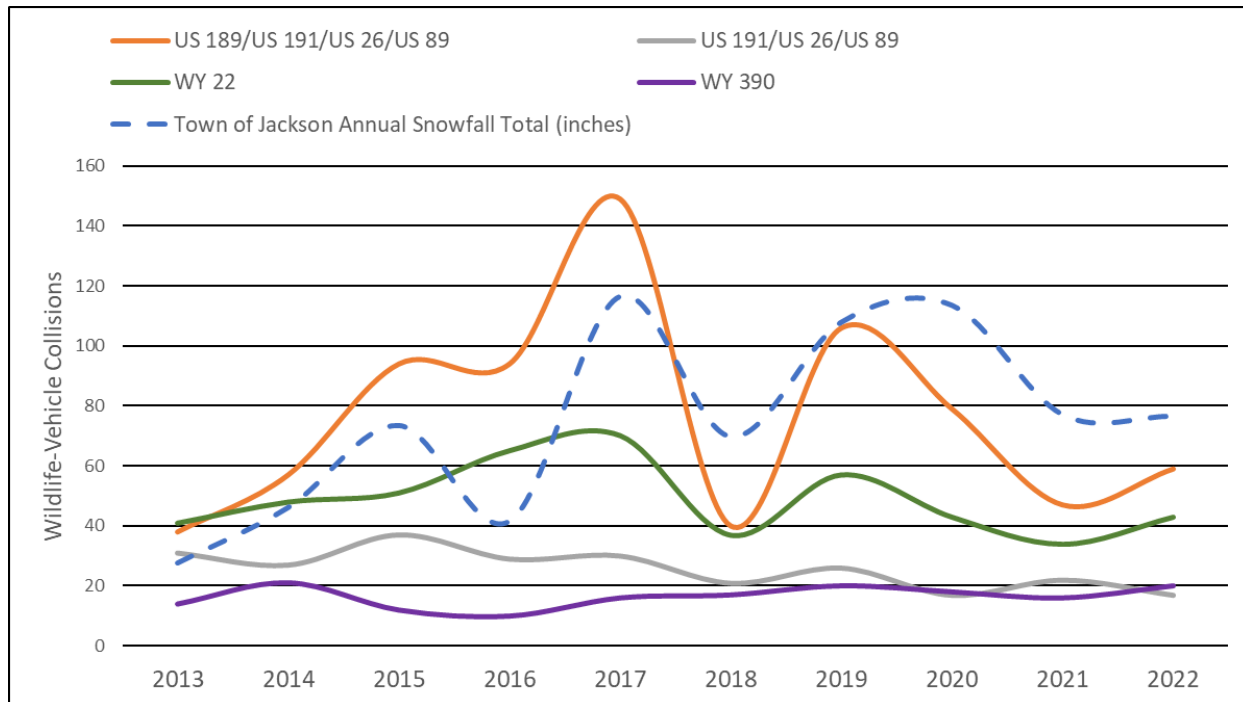


*Mean ± SE of three WVC years indicated

Highway Trends

Since the ten-year high in WVC Yr. 2017, reported WVCs continued to fluctuate while trending downward on state and federal highways in Teton County (Figure 4). Furthermore, the number of WVCs on South 89 (US 189/US 191/ US 26/ US 89) and to a lesser extent WY 22 follow a similar pattern to that of the total annual snowfall in Jackson, WY (snowfall on the valley floor) (NOAA 2023). Throughout the winter, both snowfall and snowpack can vary. Therefore, the use of total snowfall is a relative indicator rather than a specific representation of the snowpack throughout the season.

Figure 4. Total Annual WVCs by Major Highway in Teton County, WY WVC Years 2013-2022



Elk

There were 40 elk WVCs reported in Teton County in WVC Yr. 2022. This count was approximately the same as the ten-year average of 39 reported WVCs per year. In 2022, elk WVCs decreased slightly on US 189/US 191/ US 26/ US 89 while elk WVCs increased on all other major roadways since 2021 (Figure 5). Elk WVCs were highest near West Gros Ventre Butte on WY 22, east of East Gros Ventre Butte on US 191/ US 26/ US 89 and south of town near Game Creek and south and east of Hoback Junction (Figure 6).

Figure 5. Annual Elk WVCs by Major Roadway in Teton County, WY 2013-2022

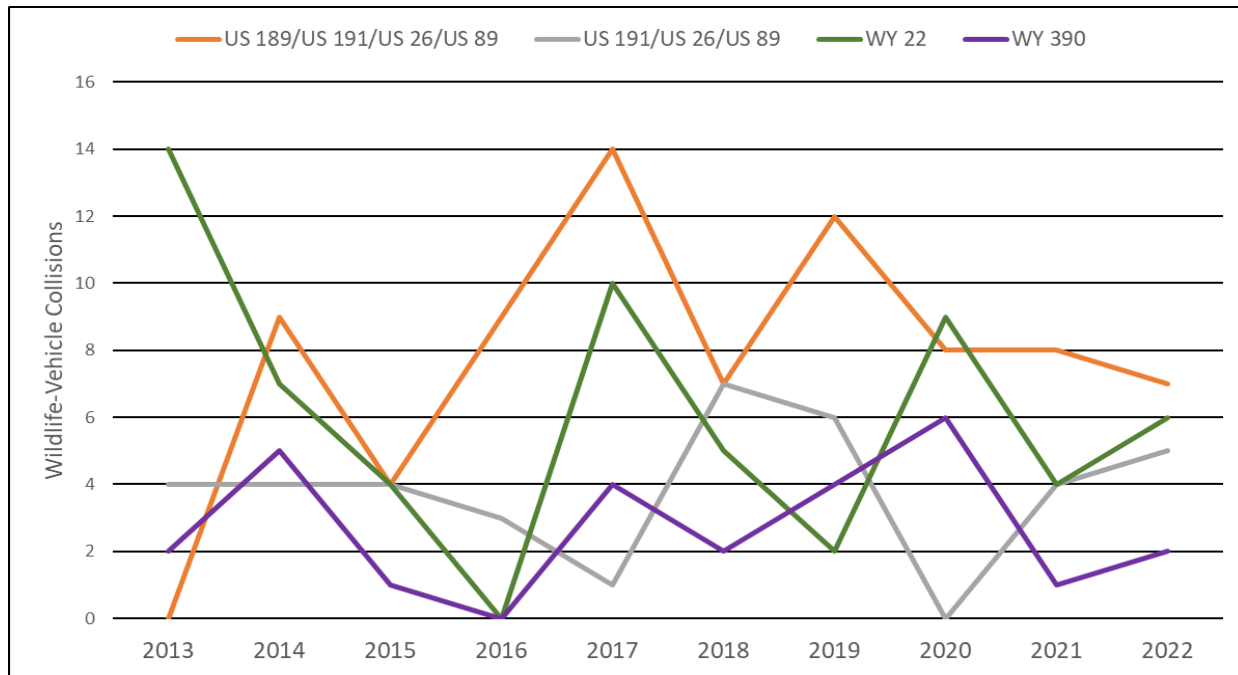
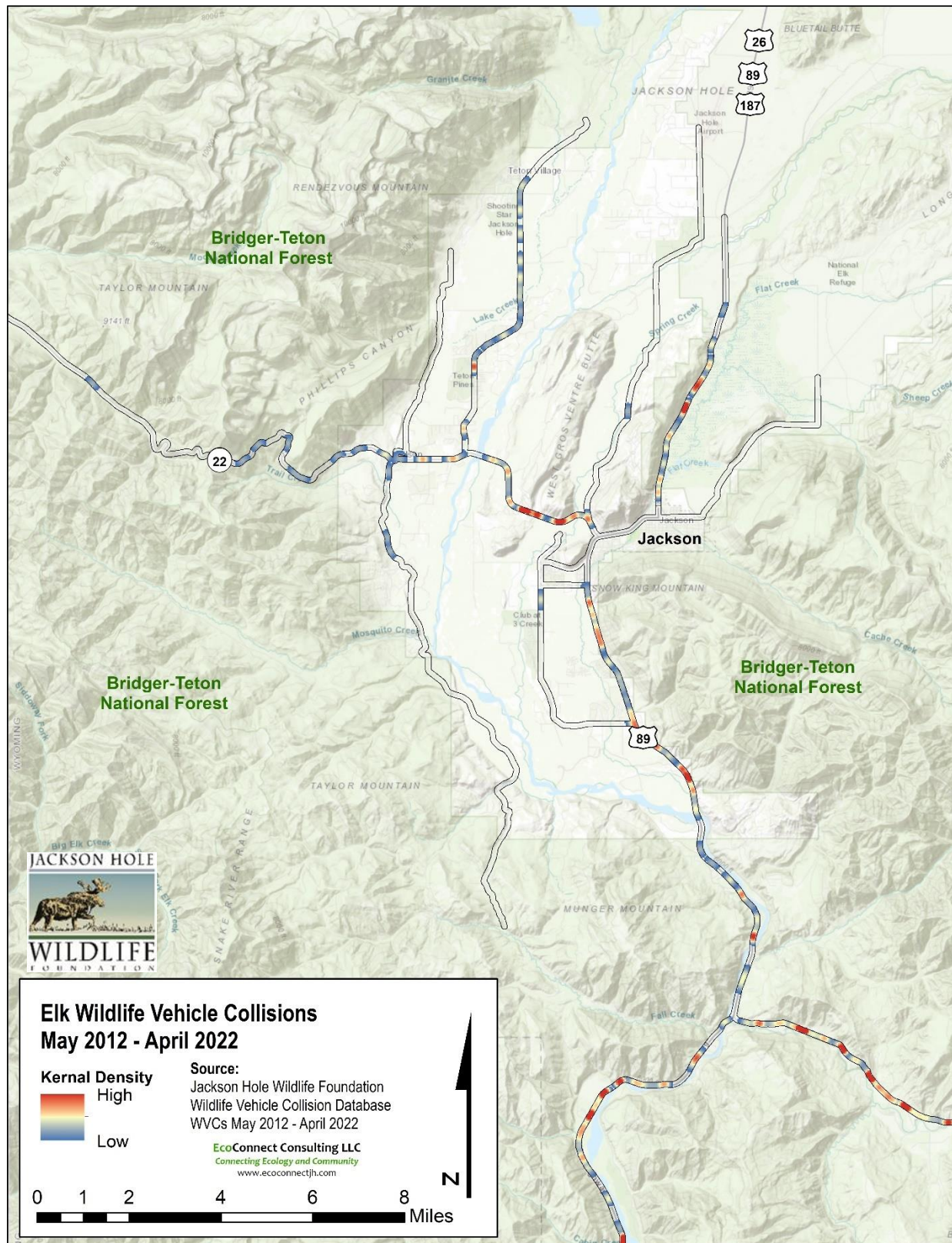


Figure 6. Elk-Vehicle Collision Hotspots



Moose

There were 20 moose WVCs reported in Teton County during WVC yr. 2022. This was higher than the ten-year average of 17 reported WVCs annually. Eight moose WVCs were reported on WY 22 in 2022. Since 2013, moose WVC counts on WY 22 peaked in 2018 and have steadily declined since then until this recent rise in 2022 (Figure 7). Moose WVC hotspots are found on WY 22 on the west side of Teton Pass, WY 22 and WY 390 near their intersection and on WY 22 near West Gros Ventre Butte (Figure 8).

Figure 7. Annual Moose WVCs by Major Roadway in Teton County, WY 2013-2022.

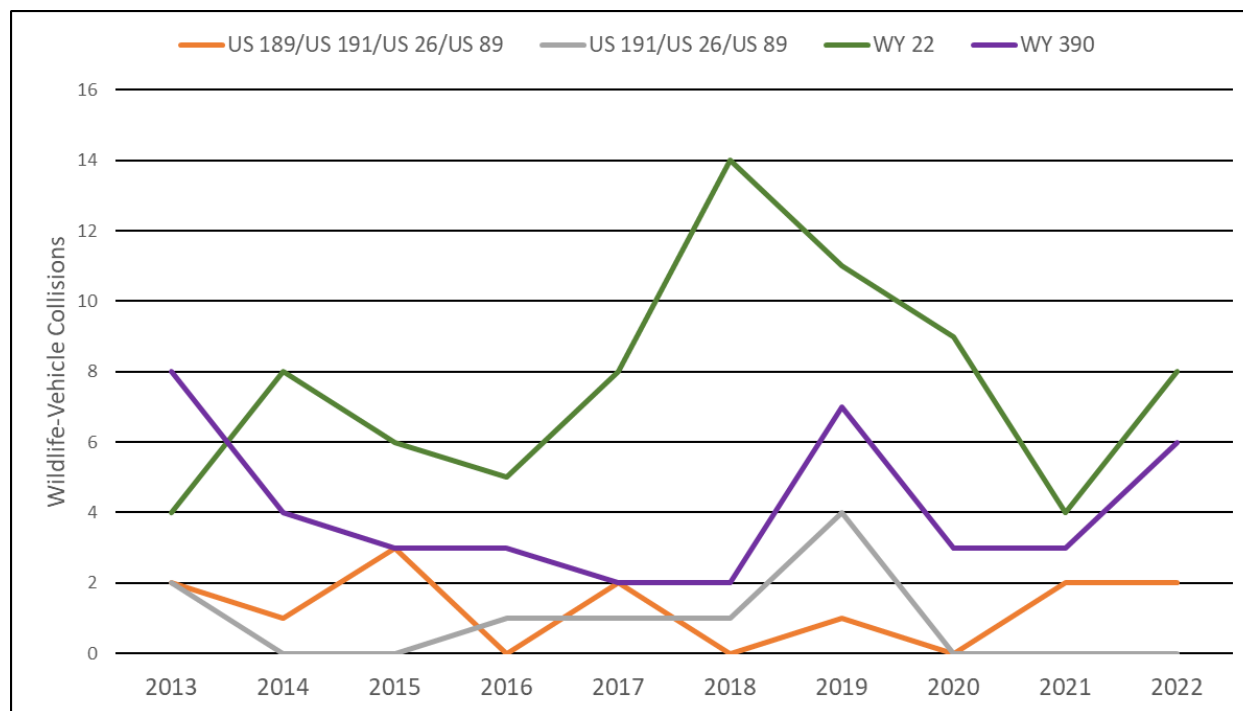
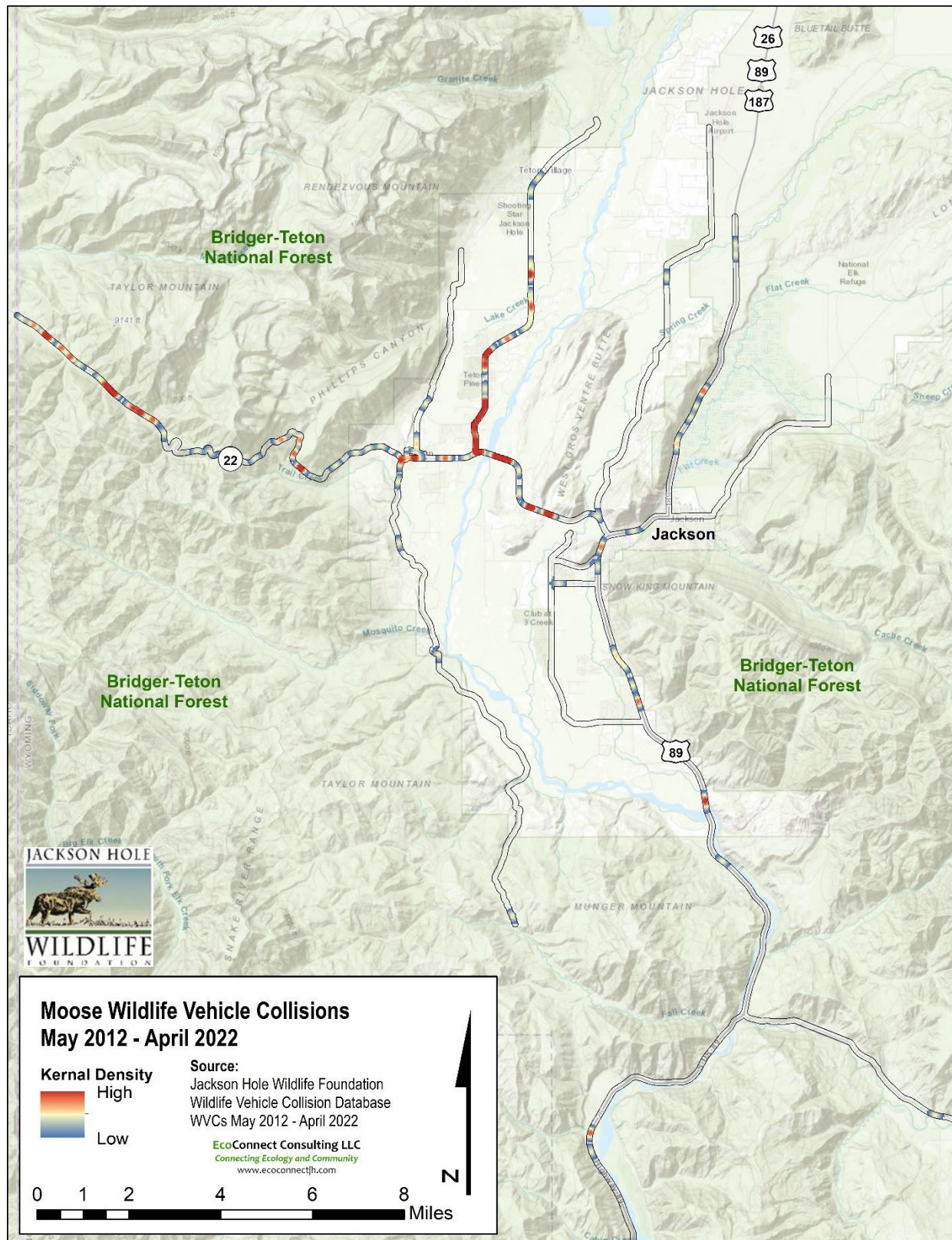


Figure 8. Moose-Vehicle Collision Hotspots



Mule Deer

There were 119 mule deer WVCs reported in Teton County in WVC Yr. 2022. This was less than the ten-year average of 156 reported WVCs per year.

In WVC Yr. 2022, there were 47 mule deer WVCs reported on US 189/US 191/US 26/US 89 (89 South) from the intersection with Hwy 22 to Hoback Junction, which comprised 39% of the total mule deer WVCs reported in the county (Figure 9). Total mule deer WVC counts on 89 South over the last ten years represented 56% of the total mule deer WVCs reported in Teton County, WY during that same ten years (Figure 10).

Figure 9. Annual Mule Deer WVCs by Major Roadway in Teton County, WY 2013-2022.

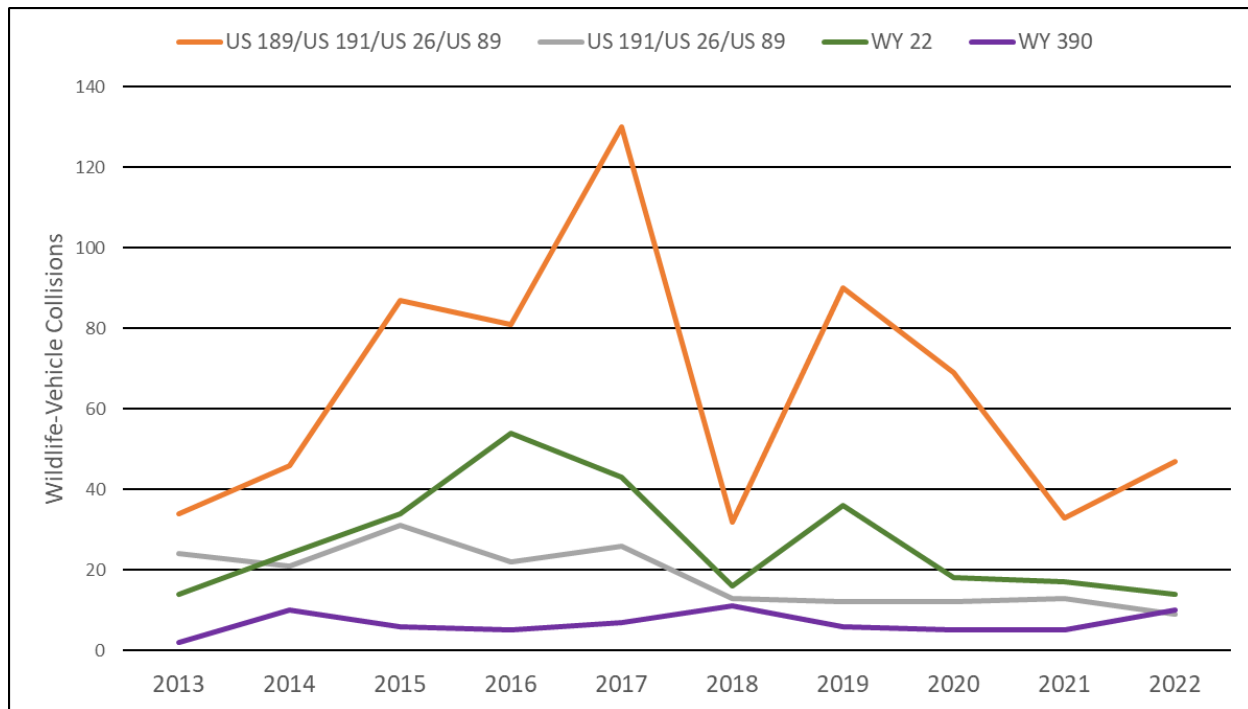


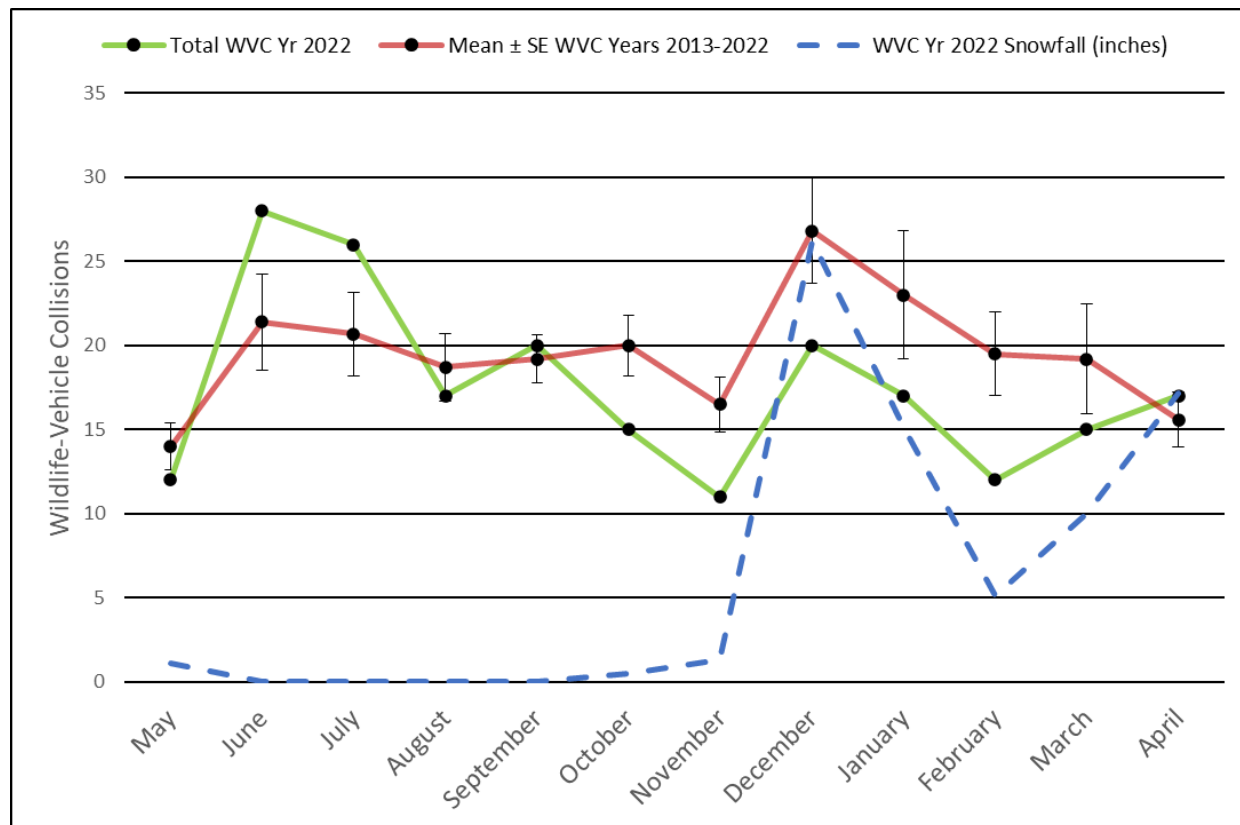
Figure 10. Mule Deer-Vehicle Collision Hotspots



Seasonal Trends

County-wide WVC numbers in WVC Yr. 2022 followed a similar monthly trend as the previous 10 years, but mostly lower (2013-2022) except for June and July 2021 which showed a spike in WVCs in 2022 in excess of the monthly mean for June and July. During the previous ten-year period, December and January had the highest WVC counts. In 2022, June and July had the highest WVC counts. Monthly total snowfall in Jackson, WY for WVC Yr 2022 is shown.

Figure 11. Seasonal Trends of WVCs in Teton County, WY 2013-2022



Discussion

Summary for Teton County, Wyoming

Wildlife-vehicle collision observations are typically underreported. Conservative estimates suggest that wildlife-vehicle collisions are 2-4 times higher than what is reported (Huijser, et al. 2008). Some animals are injured but able to move away from the roadway before dying or succumbing to their injuries, undetected. Furthermore, carcass persistence is low for smaller species, such as birds and small mammals, and it is difficult to see smaller carcasses while driving (Guinard et al. 2012; Teixeira et al. 2013). Therefore, small carcasses are rarely reported to databases like ours. Even large-bodied animal carcasses can disappear from roadways. Scavengers can drag them substantial distances and carcasses in the lanes of traffic can be removed by agency personnel or concerned citizens who may not report them. Our data are incidental and primarily collected by community scientists, so these numbers should be considered a minimum count and it should be assumed that the true numbers are significantly higher.

During WVC Yr. 2022, a total of 210 WVCs were recorded. However, given the vast underreporting of WVCs, even when rigorous survey efforts are undertaken, the actual number of WVCs were likely 420-840 or 2x to 4x higher (Guinard et al. 2012; Slater 2002; Teixeira et al. 2013).

Trends

Since 1990 (Figure 2), when roadkill data collection efforts began in Teton County, the number of reported WVCs has steadily increased; however, the last three-year average (2020-2022) WVC rate has decreased (Figure 3). The reason for this decrease is unknown and could be due to a combination of factors.

In 2021 and 2022, beginning with the COVID pandemic shutdown, Teton County, Grand Teton National Park and Yellowstone National Park have seen record numbers of visitors (NPS 2023). While the 2022 monthly WVC counts were mostly below the ten-year average (Figure 11), this trend may not continue through the 2023 reporting year. If we continue to see reduced WVC trends on busy roads without wildlife crossing structures, it would be prudent to assess habitat connectivity across roads, since traffic itself can reach a threshold where it becomes a barrier to wildlife movement (Seiler 2003). Teton County is currently in the planning stages for implementing wildlife crossings and funnel fence on multiple highways and WYDOT is completing the South 89 construction project inclusive of wildlife crossings and funnel fence, and beginning construction of wildlife mitigation at the WY 22-390 intersection. Once these projects are complete and wildlife have had an opportunity to learn the crossing locations, a comparison of pre- and post- wildlife crossings installation will be informative.

While it is difficult to pick out trends in the species-specific data, it is important to continue collecting WVC data in Teton County. Long-term datasets are valuable for assessing trends over time. For instance, in 2017, mule deer WVC counts peaked in Teton County, WY, with 265 mule deer WVCs reported that year. In 2020, half that number (132) were reported. In 2022, 119 mule deer WVCs were reported (an increase from 2021) equating to 45% of those reported in 2017. Is this downward trend a result of mitigation efforts, driver awareness, weather, management decisions or increased traffic density? Long-term datasets contribute to our ability to answer such questions.

While wildlife crossing structures have proven to be one of the most effective means of lessening wildlife-vehicle collisions and increasing habitat permeability (Huijser, et al. 2009), crossing structures are costly and not possible on all roadways. Increased awareness by individual drivers is an important variable particularly as traffic volume and roadway width continue to increase in Teton County. It is one of Jackson Hole Wildlife Foundation's goals to implement education and awareness campaigns that facilitate the heightened awareness and behavioral changes needed for drivers to reduce wildlife-vehicle collisions.

Teton County, ID

Introduction

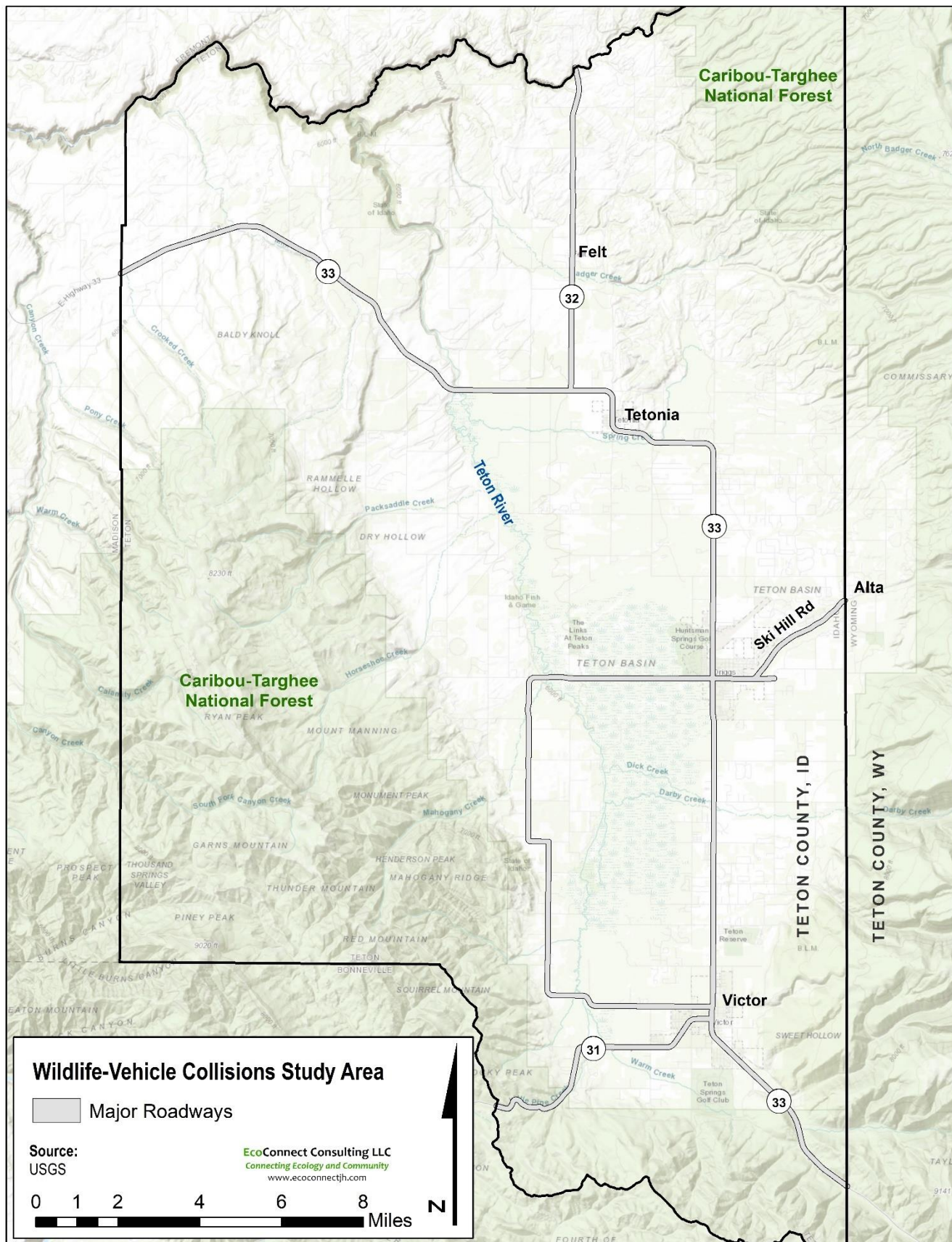
Jackson Hole Wildlife Foundation (JHWF) has collected wildlife-vehicle collision (WVC) data since the organization's inception in 1993 and have summarized this information in annual reports since 2015. However, this year's report is the first to include data from Teton County, Idaho. The goal is to initiate the inclusion of Teton County, ID data into JHWF's long-term database.

The data included in this inaugural year is inclusive of Idaho Fish and Game's Roadkill App data reaching back to 2006 and Nature Mapping Jackson Hole data from 2021 and 2022. Since the methodologies for collecting these data points differs between Teton County, Idaho and Teton County, WY, the data are analyzed in a separate report section.

As with all datasets, the hope is that a future, increased data collection efforts will grow the dataset and increase awareness of wildlife-vehicle collisions. Through a collaborative effort, these Teton County, ID data can inform future mitigation projects and education campaigns aimed at reducing and eliminating wildlife-vehicle collisions on both sides of the county/ state line.

While the two counties include different communities and differing traffic patterns, there is an inarguable connection between the two over Teton Pass (ID Highway 33/WY Highway 22). Each day of the year, high traffic volumes traverse this pass carrying commuters, recreationists and visitors around the region. Wildlife do not notice the county boundary, as it is all habitat to them. Therefore, having a dataset that is inclusive of both sides of the county and state line will be beneficial to our continued work as neighboring counties for the benefit of both people and wildlife.

Figure 12. Teton County, ID Study Area



Methods

Wildlife-Vehicle Collision Data Processing and Sources

Incorporation of Teton County, ID data from 2005 to present was done following the same methods as described above for the annual update of Teton County, WY data.

Seven deer records recorded as neither mule deer or white-tailed deer but rather as unknown deer species were deleted from the database. Since there are both white-tailed deer and mule deer present in Teton County, ID, an educated assumption of species could not be made. Domestic cats and dogs and unidentified animals were also deleted.

Table 2 indicates the ranking of the data sources included in the JHWF WVC database. While the vast majority of the data available originated with the Idaho Fish and Wildlife Information System, it is anticipated that future sources will be added or existing sources (e.g., Nature Mapping efforts) will be strengthened.

Table 2. Data Source Ranking and applicable years.

DATA SOURCE	Source Rank
Jackson Hole Wildlife Foundation Nature Mapping Observations (2021-2022)	1
Idaho Fish and Wildlife Information System (IFWIS) (2005-2022)	2

Important Caveats of the Database

- The number of WVCs reported are likely biased primarily by reporting efforts that appear to have increased in recent years.
- The database combined a mix of data collected by different means with different accuracies inclusive of data submitted by the public.
- Some observers were trained biologists while others were not (e.g., volunteers or the general public). A significant portion of these data included in the IFWIS dataset are reported by the public.
- Annually, there was a large effort to remove potential duplicates.
- Date/time was not a record of actual time of death, but rather the observation time of the dead animal.
- The database was likely heavily biased by ungulates. These were the species that agency personnel picked up and that caused WVCs large enough to call the authorities. Ungulates were also more readily observed by citizen scientists and the public.
- This database was likely a significant underestimate of WVC occurrences in Teton County, ID even for ungulates. Many WVC events go unreported or animals are hit and die out of sight from roads (Huijser, et al. 2008).
- The database was likely biased by larger roads (more observers and higher traffic volumes).
- Documentation and interest have improved in recent years. Continued interest and reporting in the future will improve the dataset.
- WVC numbers were likely influenced by winter conditions; higher collision rates likely occurred during more severe winters when ungulates were concentrated close to roads.

WVC Hot Spot Mapping

Hotspots were identified using the Kernel Density tool in ArcMap following the methods outlined above for Teton County, WY.

Data used for raster creation included the previous 10 years of WVC data inclusive of WVC years 2013 through 2022 (i.e., May 1, 2012 – April 30, 2022). These 10 years of WVC data correspond to the report's figures and "WVC Summary Table - Count of WVC Species by Year" found in Appendix B.

Roadway Names

The study area and major roadways are depicted in Figure 12.

Highway segments summarized in this report are defined as the following:

- ID 31 – From the intersection with ID 33 in Victor west to the County boundary
- ID 32 – From the intersection with ID 33 south of Felt north to the County boundary
- ID 33 – ID 33 traverses Teton County, ID from the southeast coming off Teton Pass, north through Victor and Driggs, west to Tetonia and continuing west to the County boundary
- Ski Hill Rd - From the intersection with ID 33 in Driggs east to the County boundary

Results

2021-2022 Data

There were 48 total reported WVCs in Teton County, ID during WVC Year 2022 (May 2021 – April 2022; Figure 13). From 2020-2022, the three-year average (56) increased from the previous three-year period (46) and represents the highest of three-year periods reported (Figure 14). This high average (2020-2022) may have been influenced by the 2019-2020 winter. The number of reported WVCs in 2022 was higher than the ten-year average of 37 WVCs per year.

Figure 13. Total Annual WVCs in Teton County, ID 2006-2022.

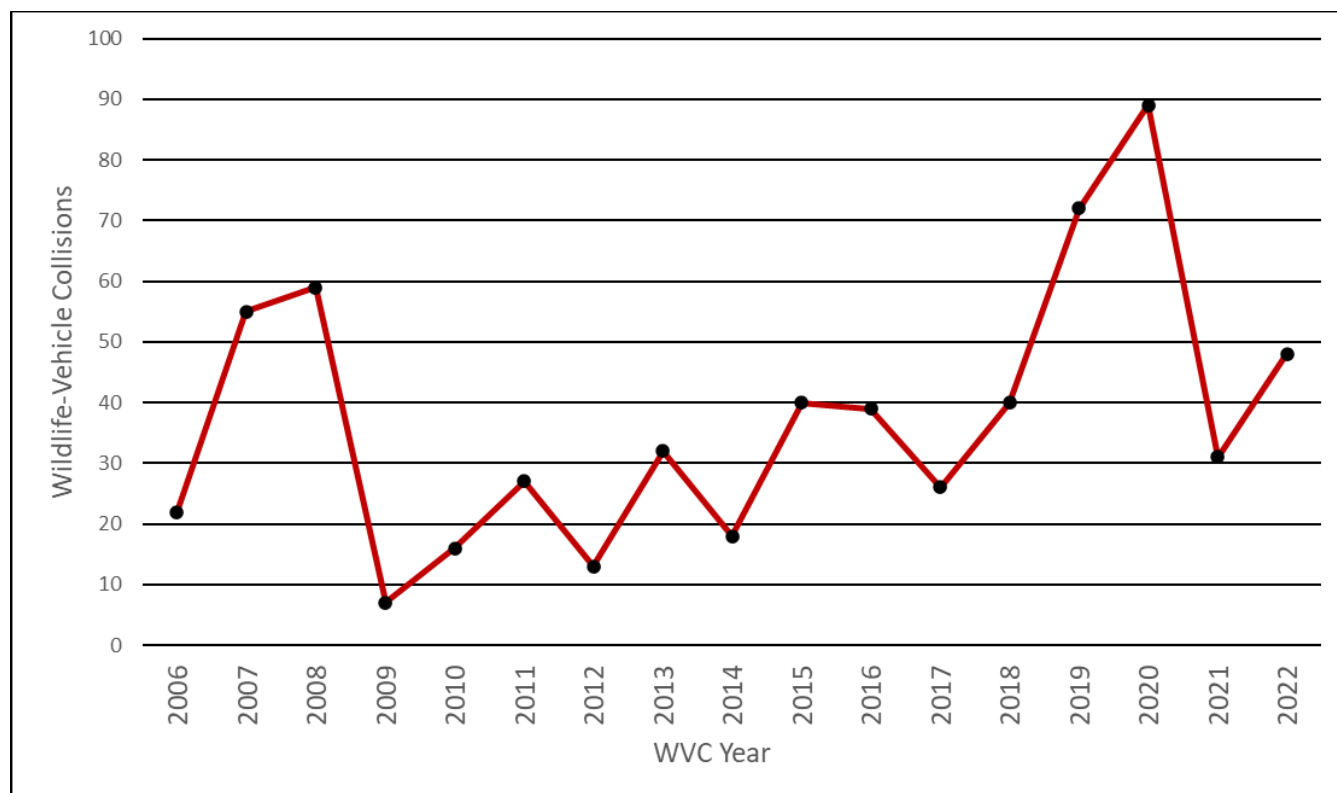
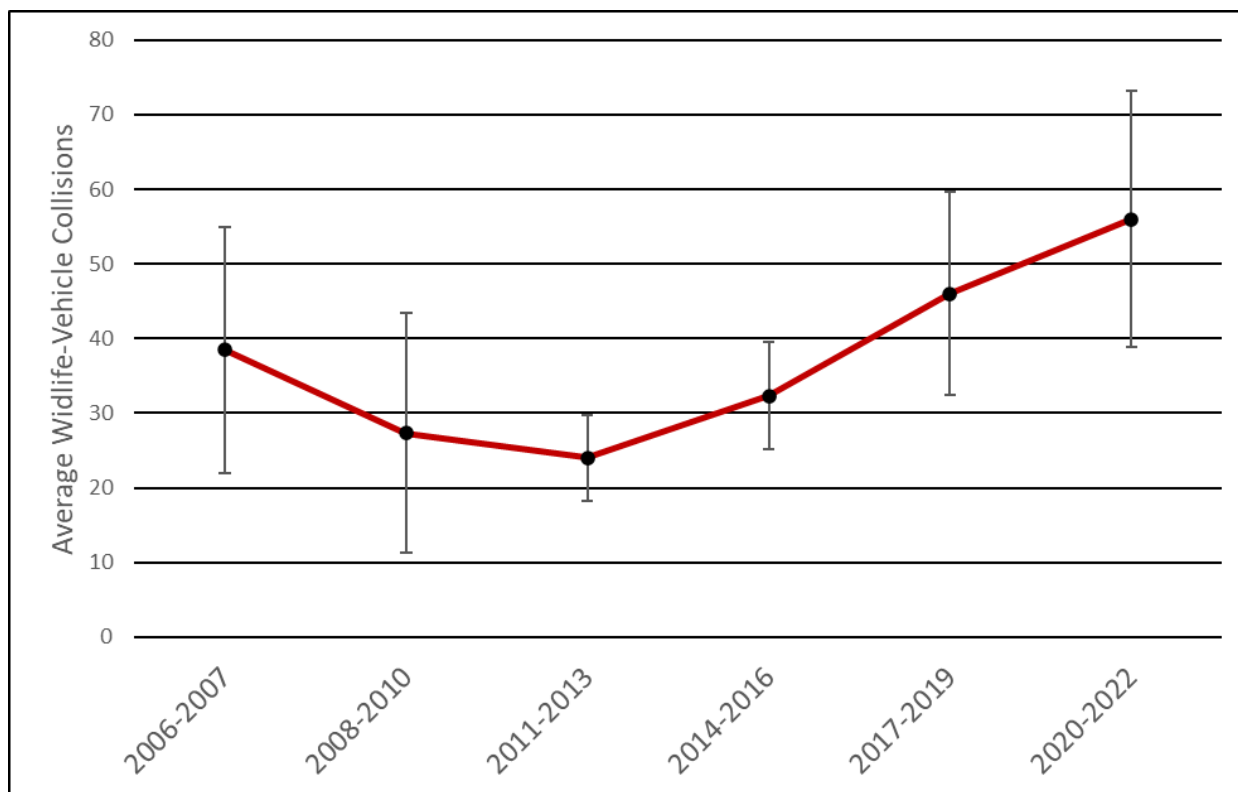


Figure 14. Three-year averages of total annual WVCs in Teton County, ID 2006-2022.*



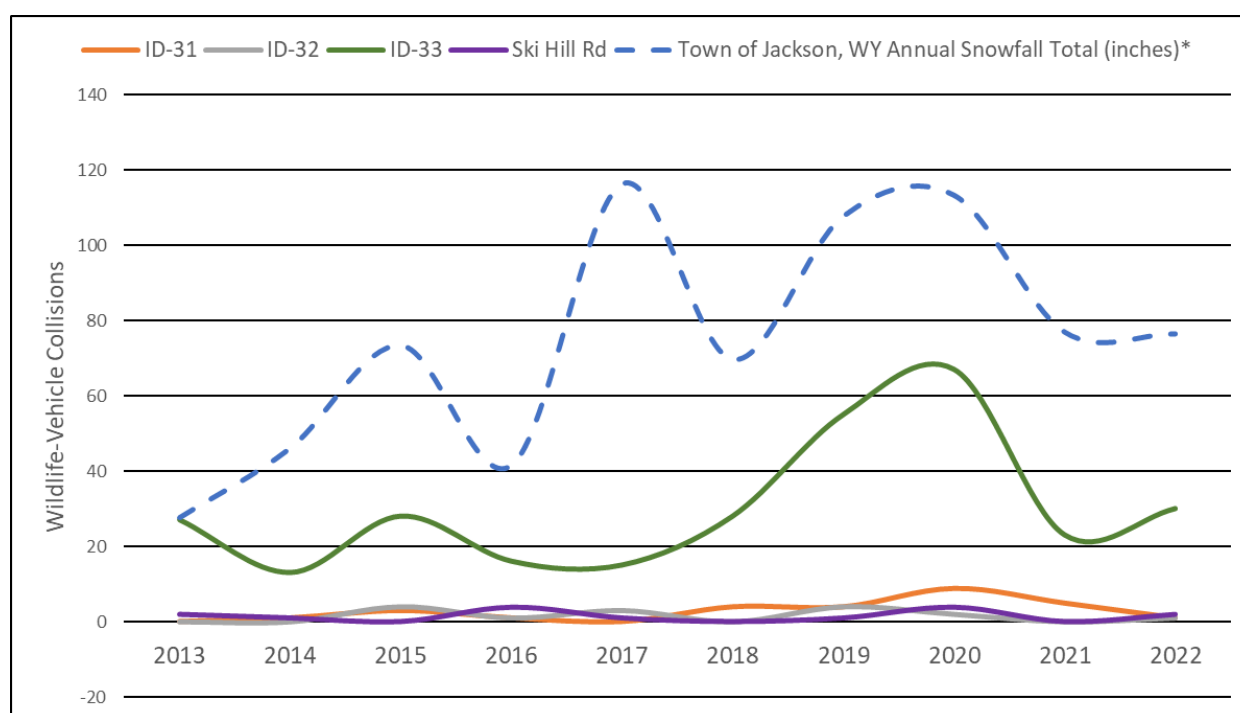
*Mean \pm SE of three WVC years indicated

Highway Trends

Since a high in 2020, reported WVCs continued to fluctuate (Figure 15). Unlike Teton County, WY, the number of reported WVCs only somewhat appear to follow a pattern similar to that of the total snowfall for the year (NOAA 2023). Throughout the winter, both snowfall and snowpack can vary. Snowfall and snowpack also vary on the west versus east side of the Tetons. Nonetheless, snowfall data for Jackson, WY was used to show a relative trend as data available for Driggs, ID were missing a significant number of entries for the winter months (NOAA 2023). Jackson, WY is closer to Teton County, ID than other available weather station locations. Therefore, the use of total snowfall is a relative indicator rather than a specific representation of the snowpack throughout the year.

It is likely that Figure 15 displays not only the relationship, or lack thereof, between snowfall and WVCs but also serves as an indicator of the reporting efforts.

Figure 15. Total Annual WVCs by Major Highway in Teton County, ID WVC Years 2013-2022



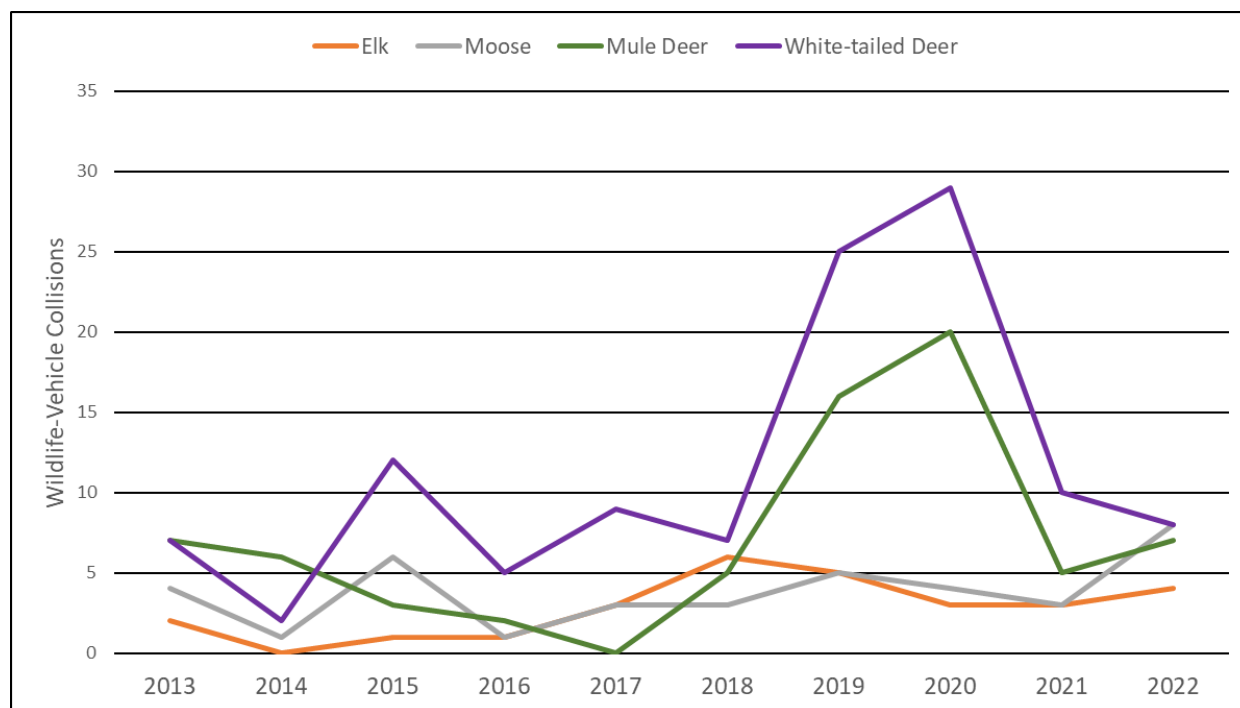
* Snowfall data for Jackson, WY was used as the data available for Driggs, ID was missing a significant number of entries for winter months (NOAA 2023). Jackson, WY is closer to Teton County, ID than other available weather station locations.

Idaho Highway 33

ID 33 is the longest highway segment in the study area traversing the County from the State line on Teton Pass, through the towns of Victor, Driggs and Teton and west to the County boundary.

Along Highway ID 33 there were four elk, eight moose, seven mule deer and eight white-tailed deer WVCs reported in 2022. Combined, these ungulate WVCs represent 56% of the WVCs reported in Teton County, ID in 2022. Since 2013, mule deer represent 28% and white-tailed deer represent 45% of the WVCs reported. The dominance of deer species in the dataset is shown in Figure 16 and Appendix B.

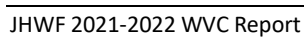
Figure 16. Total Annual WVCs Recorded on ID 33 by Ungulate Species WVC Years 2013-2022



Species Specific Wildlife-Vehicle Collision Hotspots

The following hotspot figures identify several distinct locations throughout Teton County, ID where WVCs are prominent including straight-aways and entering and exiting towns Figure 17 through Figure 19.

Figure 17. Elk-Vehicle Collision Hotspots



Moose

Figure 18. Moose-Vehicle Collision Hotspots

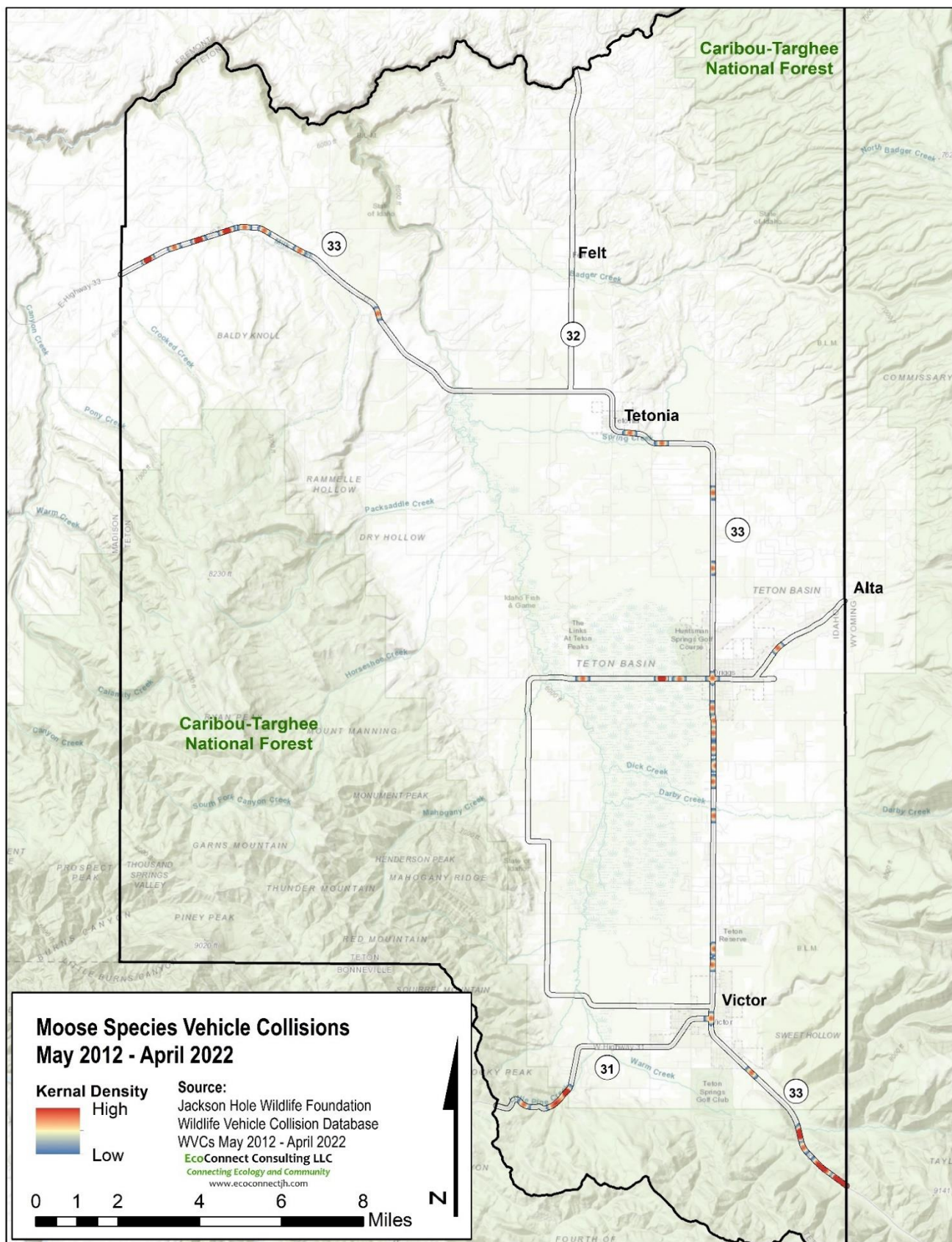
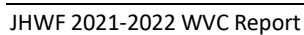


Figure 19. All Deer Species-Vehicle Collision Hotspots



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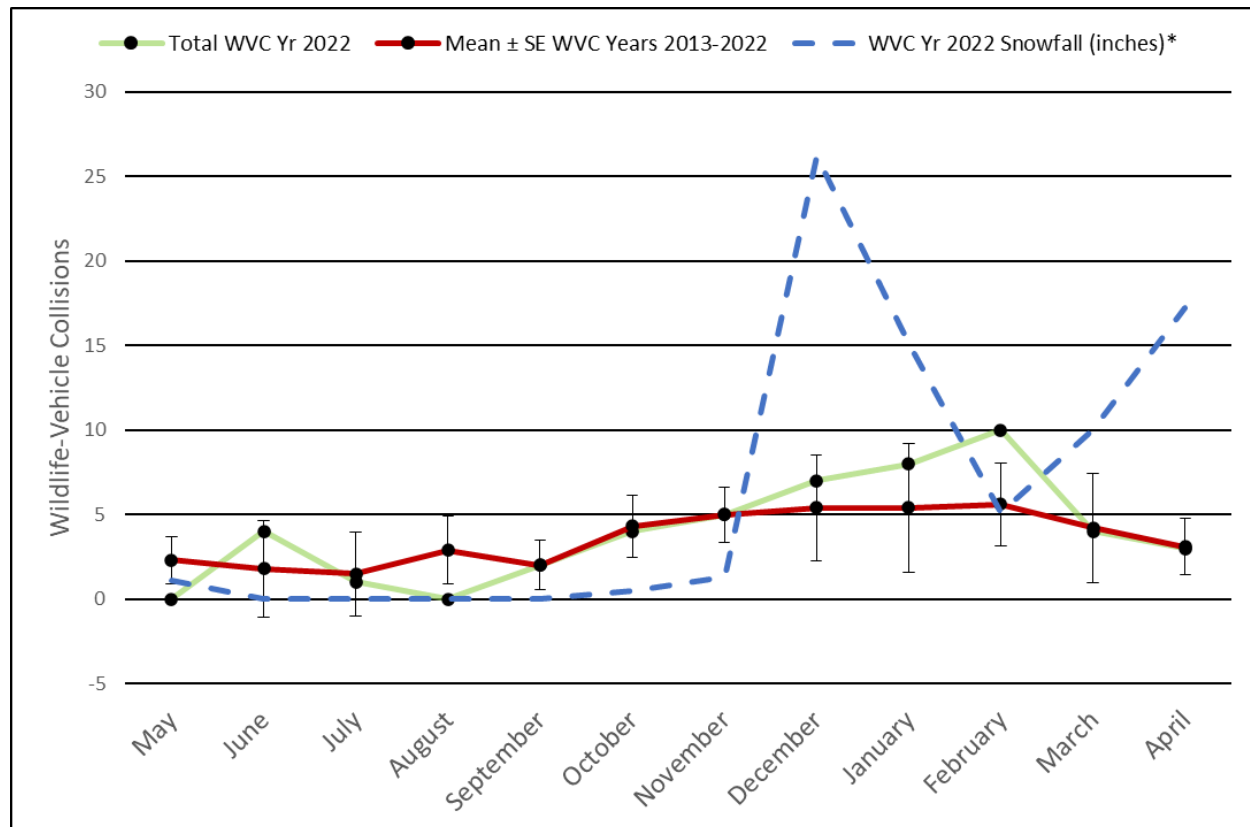


Figure 20 shows the distribution of mule deer versus white-tailed deer species -vehicle collisions across the study area. These data for both species were used in combination to create the hotspots identified in Figure 19.

Seasonal Trends

WVC numbers in 2022 followed a similar monthly trend as the previous 10 years (2013-2022). June 2021 and December, January and February 2022 WVCs exceeded the monthly mean for those months over the previous ten-year period. As the effort to record WVC observations increases, the confidence in the ten-year mean will also increase.

Figure 21. Seasonal Trends of WVCs in Teton County, ID 2013-2022



* Monthly total snowfall in Jackson, WY for WVC Yr 2022 is shown. Snowfall data for Jackson, WY was used as the data available for Driggs, ID was missing a significant number of entries for winter months (NOAA 2023). Jackson, WY is closer to Teton County, ID than other available weather station locations.

Discussion

Summary for Teton County, ID

As with all new datasets, an increase in data collection efforts will continue to strengthen the dataset. Wildlife-vehicle collision observations are typically underreported and this is particularly true at the beginning stages of data collection efforts. Conservative estimates suggest that wildlife-vehicle collisions are 2-4 times higher than what is reported (Huijser, et al. 2008). Some animals are injured but able to move away from the roadway before dying or succumbing to their injuries, undetected. Furthermore, carcass persistence is low for smaller species, such as birds and small mammals, and it is difficult to see smaller carcasses while driving (Guinard et al. 2012; Teixeira et al. 2013). Therefore, small carcasses are rarely reported to databases like ours. Even large-bodied animal carcasses can disappear from roadways. Scavengers can drag them substantial distances and carcasses in the lanes of traffic can be removed by agency personnel or concerned citizens who may not report them. These WVC data are incidental and primarily collected by community scientists, so these numbers should be considered a minimum count and it should be assumed that the true numbers are significantly higher.

In 2022, a total of 48 WVCs were recorded. However, given the vast underreporting of WVCs, the actual number of WVCs were likely higher (Guinard et al. 2012; Slater 2002; Teixeira et al. 2013).

Trends

Since 2006 (Figure 14Figure 2), when roadkill data collection efforts began in Teton County, ID, the number of reported WVCs has increased. The reason for this increase is unknown and could be due to a combination of factors including an increase in reporting effort by agencies, community scientists and the public.

While it is difficult to decipher whether changes in the number of WVCs are influenced by weather patterns, reporting effort or traffic volumes, it is important to continue collecting WVC data in Teton County, ID. Long-term datasets are valuable for assessing trends over time and can inform mitigation efforts such as driver awareness education and wildlife crossing projects. Long-term datasets contribute to our ability to answer such questions.

While wildlife crossing structures have proven to be one of the most effective means of lessening wildlife-vehicle collisions and increasing habitat permeability (Huijser, et al. 2009), crossing structures are costly and not possible on all roadways. Increased awareness by individual drivers is an important variable particularly as traffic volume and roadway width continue to increase in Teton County, ID. It is one of Jackson Hole Wildlife Foundation's goals to implement education and awareness campaigns that facilitate the heightened awareness and behavioral changes needed for drivers to reduce wildlife-vehicle collisions.

Combined Resources

Suggested Citation

Jackson Hole Wildlife Foundation. 2023. Teton County Wildlife-Vehicle Collision Database Summary Report (2021-2022). Jackson, WY.

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Appendix A: WVC Summary Table - Teton County, WY

WVC Species Count By WVC Years 2013-2022

SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
American Marten							1				1
American Robin				1							1
Bighorn Sheep					4					2	6
Black Bear	1	1		1	2		1	2		5	13
Black-billed Magpie	1	1					1				3
Boreal Toad					1						1
Common Raven			1								1
Coyote	1	1		3	2		2	1	1	1	12
Elk	36	46	29	25	46	49	34	47	37	40	389
Gray Wolf	1		1								2
Great Horned Owl		1		4					2	1	8
Grizzly Bear				1	1			1			3
Least Chipmunk				2							2
Long-tailed Weasel					1		1				2
Moose	18	15	13	12	18	20	28	14	10	20	168
Mountain Bluebird			1				1			1	3
Mountain Lion						1			1		2
Mule Deer	99	134	217	223	265	105	179	132	86	119	1559
North American Badger							2	2	1		5
North American Porcupine	5	4	2	4	4		3	1	2		25
Northern Goshawk		1									1
Northern Raccoon	3	4	6	4	1	1	5	6		5	35
Pronghorn		1				1					2
Red Fox	1	1	1		2	2	2	3	3	2	17
Red Squirrel				1					1		2
Rough-legged Hawk		1									1
Ruffed Grouse			1								1
Short-tailed Weasel	1										1
Snowshoe Hare	1										1
Striped Skunk	1		4		6		2	3	19	7	42
Tiger Salamander							1				1
Wandering Gartersnake				1		1	2	1		1	6
Weasel				1							1
Western Tanager								2			2
Western Toad										1	1
White-tailed Deer	2	2		1	4	1	2	5	1	5	23
Yellow-bellied Marmot			1		1				1		3
Grand Total	171	213	277	284	358	181	267	220	165	210	2346

Appendix B: WVC Summary Table - Teton County, ID
WVC Species Count By WVC Years 2013-2022

SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
American Beaver				2							2
American Black Bear	1									1	2
American Black Duck						1					1
American Mink		1									1
American Robin								1			1
Barrow's Goldeneye								1			1
Black-headed Grosbeak								1			1
Bobcat		1									1
Coyote								1			1
Elk	2		1	4	7	7	8	4	3	5	41
Great Horned Owl							2	1			3
Moose	6	2	9	6	4	7	6	5	5	11	61
Mule Deer	10	8	7	10	2	6	22	29	8	11	113
Muskrat								1			1
North American Porcupine				3				2	1		6
Northern Flicker								1			1
Northern Raccoon	2		3	1		4		2	1	2	15
Northern River Otter		1									1
Rabbit and Hares (Leporidae)			1								1
Red Fox			1					1	1	1	4
Ring-necked Pheasant			1								1
Ruffed Grouse								1			1
Sharp-tailed Grouse						1					1
Skunks and Stink Badgers (Mephitidae)	4	1	2	4		3					14
Striped Skunk							4	4	1	2	11
White-tailed Deer	7	4	15	9	13	11	30	34	11	14	148
Yellow-rumped Warbler										1	1
Grand Total	32	18	40	39	26	40	72	89	31	48	435