



Wildlife Corridors Action Plan

2020 Progress Report

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1. Overview

New Mexico took an important step to ensure that wildlife species and the connectivity of their habitats are best protected with the passage of the 2019 New Mexico Wildlife Corridors Act (the Act) (<https://wildlandsnetwork.org/wp-content/uploads/2019/04/New-Mexico-Wildlife-Corridors-Act-2019.pdf>). The ensuing Wildlife Corridors Action Plan is being developed jointly by the New Mexico Department of Transportation (NMDOT), the New Mexico Department of Game and Fish (NMDGF), and a research team led by the consulting firm Daniel B. Stephens & Associates, Inc. (DBS&A) of Albuquerque. Work on the Action Plan began in fall 2019 and continued through 2020 and into 2021. This report is an update on the progress of the Wildlife Corridors Action Plan as of the end of 2020.

Wildlife corridors, as defined in the Act, are “areas used routinely by wildlife to travel through their habitat, and include corridors used by migrating wildlife.” The provisions of the Act do not apply to private property or private property owners unless those owners choose to participate voluntarily. The Act focuses on mule deer, elk, pronghorn antelope, bighorn sheep, black bear, mountain lion, and species of concern, defined as “species identified by the Department of Game and Fish as being adversely affected by habitat fragmentation exacerbated by human-caused barriers and the high potential for wildlife-vehicle collisions.” Specifically, the Act was created to help identify and prioritize areas across the state where wildlife needs extra help, through various means, to move within and among habitat patches and between ranges.

The Action Plan is being developed to provide comprehensive guidance to NMDOT and NMDGF to identify, prioritize, and maintain those areas that are important to wildlife movement and/or where wildlife crossing of highways poses risks to the traveling public. The research team uses modeling and other strictly scientific methods to identify and prioritize the top wildlife-vehicle crash hotspots, the top wildlife habitat linkages, and where those linkages are bisected by roads.

The top 10 priority wildlife-vehicle crash hotspots were identified and field evaluated in 2020 for potential road wildlife mitigation projects.

These projects will be evaluated and prioritized based on public input, land ownership, upcoming NMDOT projects, and overall feasibility. The final projects will be included in the official Wildlife Corridors Project List. The top 10 wildlife-vehicle conflict areas across habitat linkages will be evaluated for projects in 2021. The Action Plan will be finalized in 2021.

2. Wildlife-Vehicle Crash Hotspots

The top 60 wildlife-vehicle crash locations across New Mexico were identified through the use of hotspot modeling in ArcMap 10.6 software, using the Getis-Ord GI* statistical tool called Optimized Hot Spot Analysis (OHSA). A hotspot was defined by the clustering of reported crashes with wildlife. The prioritization of these hotspots was solely based on the number of crashes per mile over 10 years of crash data (2009–2018). The top wildlife-vehicle crash hotspots were prioritized, with top 10 hotspots summarized in Table 1.

Table 1. Top 10 Wildlife-Vehicle Crash Hotspots in New Mexico.

Rank	Name	Length (miles)	Total Wildlife Crashes	Crashes per mile (10 years)	Number of Crashes for Each Species					
					Deer	Elk	Bear	Mountain Lion	Pronghorn Antelope	Bighorn Sheep
1	US 70 Bent – Sacramento Mountains	5.0	88	17.60	18	70	0	0	0	0
2	US 180 SR 90 Silver City	27.6	471	17.05	455	13	2	1	0	0
3	US 285 North Carlsbad – Pecos River	4.00	66	16.50	66	0	0	0	0	0
4	NM 516 and US 550 Farmington to Aztec to CO	33.77	453	13.41	446	2	4	0	1	0
5	US 550 North of Cuba	17	205	12.06	81	12	4	0	0	0
6	US 70 SR 48 Ruidoso - Sacramento Mountains	33	358	10.85	256	97	4	1	0	0
7	US 82 West of Cloudcroft	5.0	54	10.80	13	40	0	1	0	0
8	I-25 North Raton to Colorado Border and South of Raton	26.5	280	10.58	183	42	49	3	3	0
9	US 82 East of Cloudcroft	13.0	134	10.31	46	85	3	0	0	0
10	I-25 Glorieta Pass	4.0	38	9.50	30	2	6	0	0	0

All crash hotspots are mapped in Figure 1, with the top 25 crash hotspots delineated with their rank number.

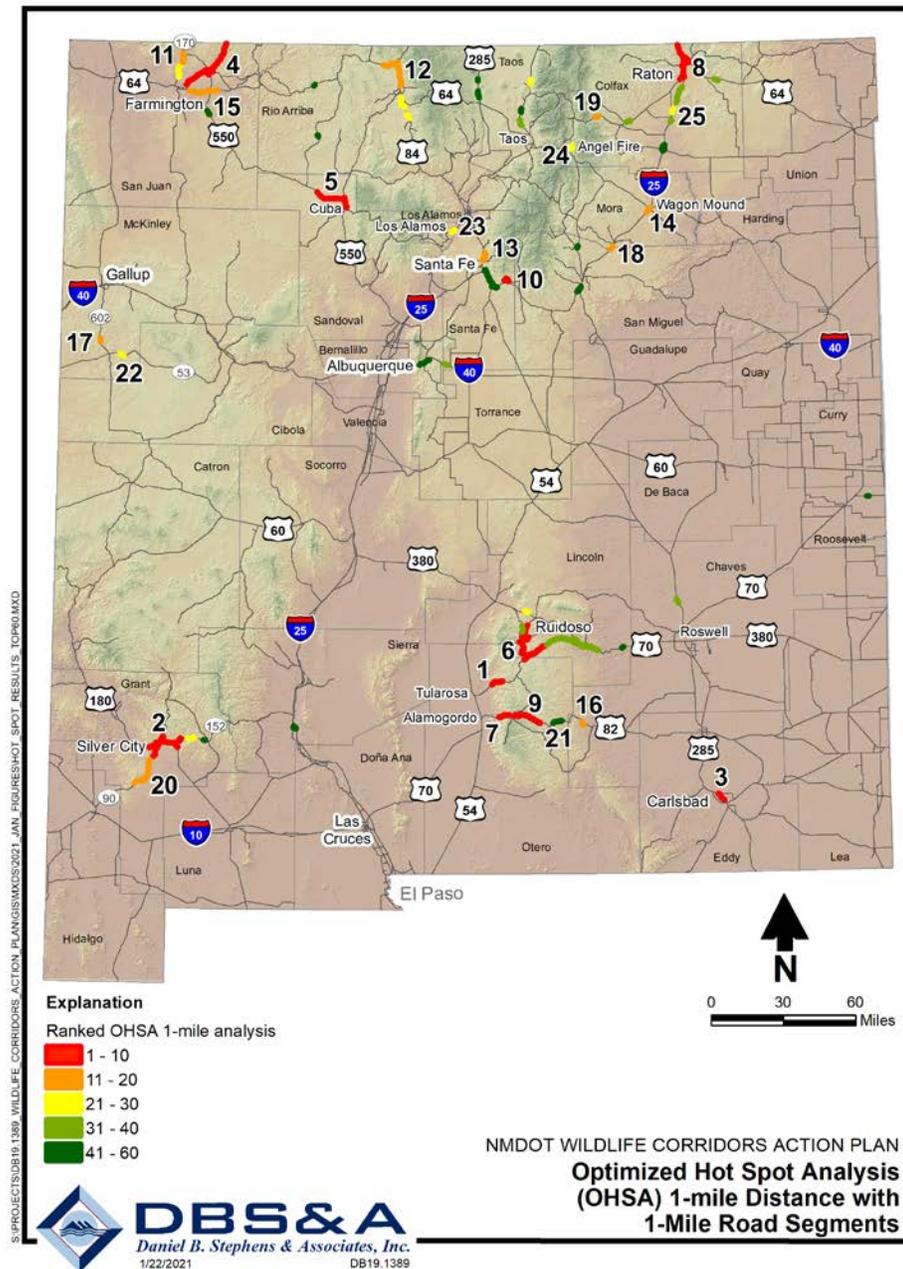


Figure 1. New Mexico’s Top Wildlife-Vehicle Crash Hotspots (2009–2018) on New Mexico Department of Transportation Roads
The top 25 hotspots are numbered and represented in red and orange. The lower-ranked hotspots are represented in yellow and green.

3. Wildlife Habitat Linkage Modeling

The objective of the wildlife habitat linkage modeling was to identify habitats and movement areas or linkages across New Mexico for six large wild mammal species listed in Section 1. The research team created connectivity models for each individual species, and combined those for one overall connectivity model. The models were based on NMDGF's estimates of population locations and numbers for each species, as well as past modeling efforts for the same species in other states. There were two types of models: resistant-kernel models, and factorial least cost path approaches. The process identified areas where roads intersect predicted wildlife movements and the roads with the greatest number of wildlife species and highest probability of bisecting those movements (Figure 2). Future maps will identify linkage areas for each of the six focal species of mammals in this research.

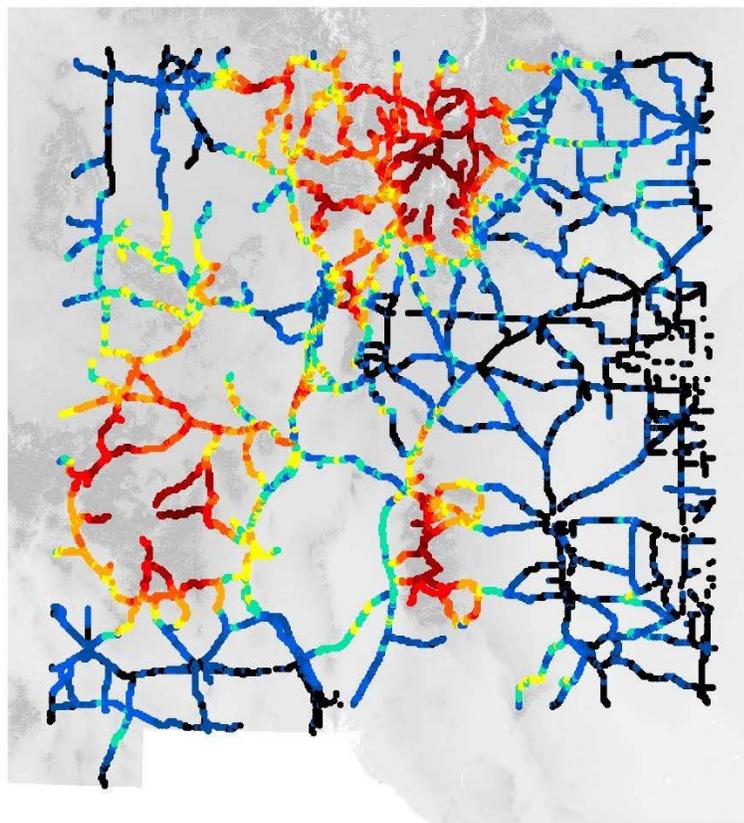


Figure 2. All-Species Connectivity Surface Intersected with Roads
With no connectivity across roads displayed in black, to increased connectivity represented with hotter colors, with red as the highest predicted connectivity across roads for all species

4. Field Reconnaissance

In fall 2020, 9 of the top 10 crash hotspots were visited by a field team of NMDOT, NMDGF, and DBS&A wildlife professionals. The number 8 hotspot, I-25 North of Raton, was not visited because NMDOT is already constructing wildlife fences and wildlife crossing structures along that hotspot. Instead, the number 11 hotspot, on NM 170 South of La Plata, was visited.

A field data collection form was created on the ArcGIS platform Survey123 that allowed field teams to input and record a wide range of site-specific information (e.g., topography, vegetation, existing culverts), supplemented by photographs and videos, on their phones. All the data were presented to the entire team working on the Action Plan for an initial assessment of feasible mitigation projects. At the end of 2020, NMDOT reviewed the 10 hotspot recommendations for a variety of potential projects, from simple solutions, such as variable message boards, to the potential of adding additional features to existing structures (retrofits) that would facilitate wildlife movement, and to new wildlife crossing structures. In 2021, the Advisory Panel in conjunction with the research team will select the top 5 crash hotspot locations and the top 5 wildlife-vehicle conflict areas in wildlife linkages to make recommendations for potential projects to mitigate those roads for wildlife connectivity and to reduce wildlife-vehicle conflict.

Past efforts to mitigate roads for wildlife across New Mexico were also mapped and described in the Action Plan. An appendix of mitigation alternatives was created to help the agencies define potential actions.

5. Species of Concern

In coordination with NMDGF and top wildlife experts in the state, the research team developed a list of species of concern to consider in the selection of projects in the Action Plan. The research team is drafting distribution maps for those species.

6. Public Involvement

A public information plan (PIP) was developed and carried out during the first three months of 2020. A stakeholder list was compiled through combined efforts with NMDOT and NMDGF. This list included individuals and entities interested in the development of the Action Plan:

agencies, Native American tribes, non-government organizations (NGOs), regional transportation planning organizations, county commissioners, and citizens. A letter was sent to these stakeholders to introduce them to the project and inform them of eight planned public meetings to be held across New Mexico in February and March 2020. The letter also provided instructions on how to provide comments on the Action Plan via hard copy and electronic methods. Five of the eight planned public meetings were held through March 10, 2020 prior to the state-wide cessation of all government meetings caused by the Coronavirus pandemic. These meetings were held in Raton, Albuquerque, Santa Fe, Farmington, and Las Cruces, and were attended by a total of 84 participants. Public comments were recorded during the meetings, and were also received by NMDOT and NMDGF through online public comment e-mails to Wildlife.Corridors@state.nm.us and the website <http://www.wildlife.state.nm.us/home/public-comment/>.

Before the Action Plan is finalized, the public will be informed of how to access the Draft Action Plan and provide comments in spring 2021. There will be a quantitative scoring of these comments with respect to the Wildlife Corridors Project list. The projects will then be rescored with this public input and finalized.

7. Work in 2021

The research team, in tandem with NMDOT and NMDGF's Advisory Panel, will further develop and finalize the Wildlife Corridors Action Plan. The actions to be completed in 2021 include the following:

- Connectivity modeling will produce final maps for each of the six species of interest for areas where the expected corridors for these species are bisected by roads.
- Connectivity modeling will produce maps of where all six species are at greatest risk of conflict with roads.
- A top 10 list of wildlife corridors will be completed.
- The field crews of wildlife ecologists will visit the top 10 wildlife habitat linkages bisected by roads to assess the types of wildlife mitigation that can be accomplished at those sites to provide for wildlife connectivity and minimize the risk of wildlife-vehicle crashes.

- The team will meet and finalize the top 5 Wildlife Corridors Project list for both the top wildlife-vehicle crash hotspots and the top 5 wildlife-vehicle conflict areas based on ecological linkage and safety analyses.
- The draft Wildlife Corridors Action Plan will be delivered to NMDOT and the public for comment.
- Public comments will be collected and incorporated into the final ranking of the Wildlife Corridors Project List.
- Public meetings will be scheduled and held to receive input from members of the public and stakeholders on the draft Action Plan and the list of potential projects. At this time, the venue and platform for holding these meetings remains unknown as a result of the ongoing Coronavirus pandemic.
- The final Wildlife Corridors Action Plan will be delivered to NMDOT.