



Wildlife Field Notes

Arizona State Route 260 Elk Crosswalk and Fencing Retrofit Project

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Introduction

Wildlife need to cross roads to obtain food, water, cover and access to seasonal ranges or mates. Roadways restrict wildlife movements and expose crossing animals to collisions with vehicles. Collisions with large animals provide a significant public safety issue and liability cost.

timelines or financial constraints. In these cases, an animal activated crossing may provide an alternative, as was constructed on State Route (SR) 260, east of Payson, AZ.

In this location the Arizona Game and Fish Department and Arizona Department of Transportation installed an animal activated crosswalk to alert motorists to elk and other

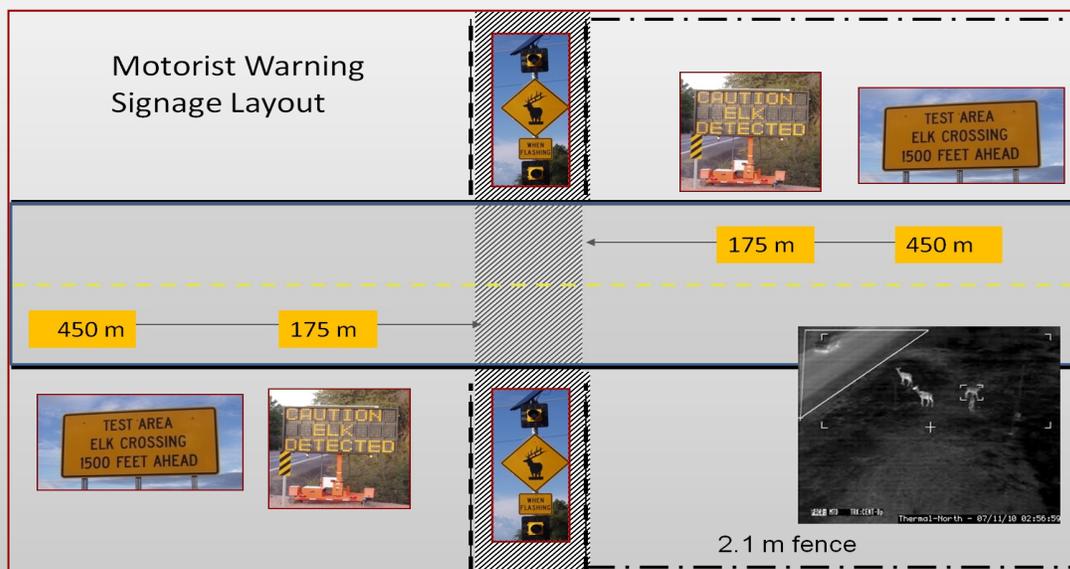


Figure 1. Layout of crosswalk with motorist warning signs activated by target acquisition software programmed to detect wildlife at the crosswalk.

Constructing wildlife underpasses and overpasses with appropriate funnel fencing has proven a successful method to provide safe passage across roadways for many species. However, they require a large financial commitment and may not be feasible in some cases due to flat topography, construction

wildlife crossing SR 260 (Figure 1). Elk and other wildlife are funneled by 8' fences to the crosswalk where a camera system detects them and electronically activates a series of signs warning motorists that animals are crossing ahead. The highway fencing is also tied into two large underpasses.

Study Methods

Researchers with Wildlife Contracts Branch evaluated crosswalk and fence effectiveness by collecting motorist and animal response data. Motorists' response data included speed and braking when the signs were activated as well as wildlife-vehicle collision rates. Wildlife response data included video surveillance of their behavior, and elk ability to successfully cross SR 260 was measured by Global Positioning System (GPS) movement data.

Results

Motorists responded to the warning system by reducing their speed by nearly 10 mph and braking 70% of the time when signs were activated (Figures 2 and 3). Average collisions with elk per year were reduced by 97%.

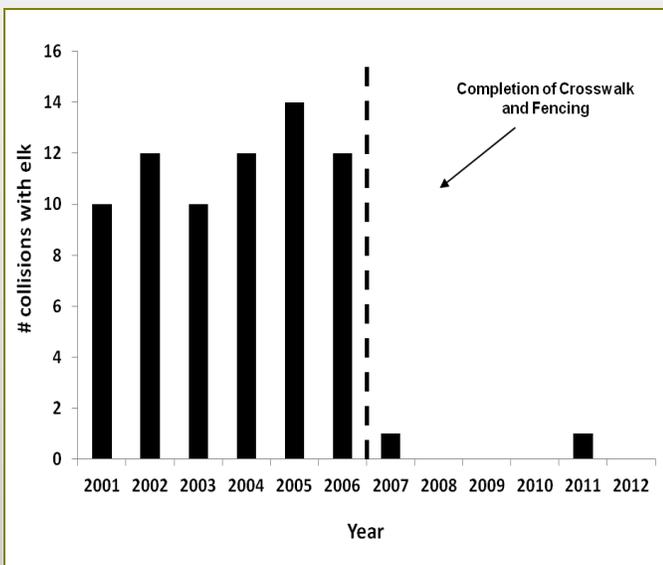


Figure 2. Number of elk-vehicle collisions before and after completion of elk crosswalk and wildlife fencing retrofit.

Wildlife successfully crossed the highway during 27% of the approaches, and 86% of these crossings occurred between 1:00 AM to 4:00 AM when traffic volume was lowest (32 veh/hr). Passage rates of GPS collared elk were reduced by 70% following project completion.

Conclusions

Wildlife crosswalks provide an effective alternative to costly wildlife crossing structures by reducing wildlife-vehicle collisions and maintaining habitat connectivity. However, as with wildlife crossing structures, fencing to funnel the animals to the crosswalk is necessary to ensure its success.

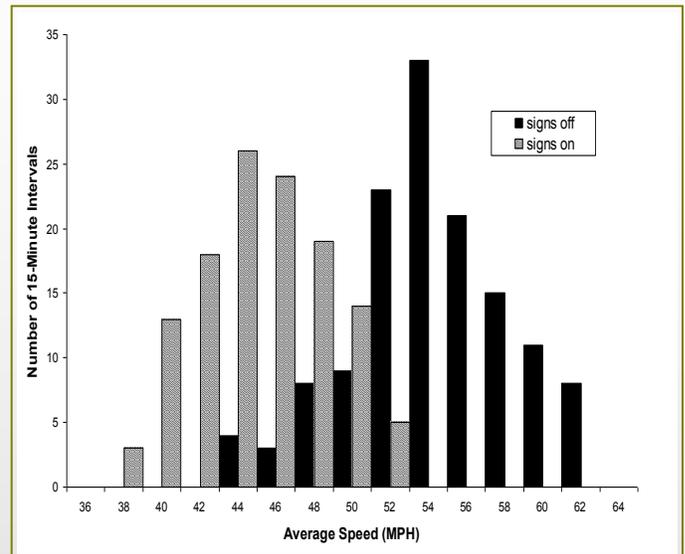


Figure 3. Motorist speeds with detection system sign on (striped bars) and off (black bars).

When using fencing to funnel wildlife to highway crossings, crossing opportunities should be adequately spaced to encourage usage and to reduce habitat fragmentation. Spacing of structures will depend on the species.

Because increases in traffic volume reduce successful crossings for many wildlife species, the ability of animal-activated crosswalks in promoting wildlife passage is inherently limited to highways with relatively low to moderate traffic volumes. Along highways where traffic volumes are higher, wildlife crossing structures are the best option.

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