

WILDLIFE USE AND INTERACTIONS WITH STRUCTURES CONSTRUCTED TO MINIMIZE COLLISIONS AND ANIMAL MORTALITY ALONG STATE ROAD 46, LAKE COUNTY, FLORIDA

PROBLEM STATEMENT

State Road 46 in Lake County, Florida consistently has the highest concentration of Florida black bear roadkill events in the state. The Florida Fish and Wildlife Conservation Commission lists the Florida black bear as a threatened species in most Florida counties. The Florida black bear is considered an umbrella species, which means that if a viable population of bears is stable, the environmental conditions are probably favorable for the persistence of other species.

The construction of a wildlife underpass and associated barrier fence was completed in December 1994, and another is currently under construction. The barrier fence has eliminated the occurrence of large mammal roadkill within its limits. However, the barrier fence may hinder natural wildlife movements. Furthermore, the level of traffic is increasing and housing development continues to encroach upon this area, which, with the other considerations, make this topic increasingly important to study.

OBJECTIVES

This study contains three linked objectives:

- 1) to determine if wildlife is successfully using the existing underpass
- 2) to determine how wildlife reacts to and tolerates the barrier fence
- 3) to determine the location and distribution of wildlife roadkills within the study area

Achieving these objectives may help to determine the location and design of future wildlife underpasses.

FINDINGS AND CONCLUSIONS

The *underpass* structure is just one element of the wildlife crossing system. The *barrier fence* is complements the underpass by minimizing roadkill events while guiding wildlife to the underpass, and the *plant communities* adjacent to the underpass can be manipulated in order to encourage wildlife to utilize it. However, other human activities (e.g., deer feeders, garbage cans, houses, lawns) have also impacted the behavior and movement of animals.

The roadkill data clearly indicate that the wildlife barrier is reducing the number of roadkills. However, small mammals, reptiles, and amphibians are able to move either under or through the fence. The endpoints of the fenceline were not significant roadkill hotspots as expected. Additional fencing options to exclude small mammals, reptiles, and amphibians should be explored to complement the existing wildlife fence.

The study revealed that the Florida black bear and the gray fox follow the fenceline for shorter distances than do other species. These two species may be utilizing the habitat manipulations to a greater extent or they may remember the location of the underpass and return to it for more efficient crossing. Other species appear to wander and graze along the fenceline (e.g., white-tailed deer) or to hunt along the fenceline (coyote) with no immediate intention of traveling through the underpass.

The underpass camera revealed interesting trends. White-tailed deer (408 images) and turkeys (96 images) were the most common species monitored. The third most prevalent species monitored using the underpass was the Florida black bear (73 images). Interestingly, the number of bears captured on film increased from 22 in the summer of 2002 to 49 in the summer of 2003. While there are not enough years worth of data to derive any conclusions, this data suggests that more bears are becoming acclimated to the underpass structure.

BENEFITS

The benefit of this study is its contribution to ongoing efforts to facilitate the safe passage of animals through habitats transected by a highway. Vehicle/wildlife interactions have tangible ramifications, particularly with regard to the safety issues arising from collisions between vehicles and large animals, which can result in human injuries and loss of life. Furthermore, the state is obligated to protect listed species from further decline. The data gathered through this study can be used to optimize the location and design of future wildlife crossing systems, which, in turn, should maximize their benefit to cost ratio.

To obtain more definitive information than cameras alone can obtain, any future studies should focus on identifying individual black bears that may utilize wildlife underpasses. The maximum amount of data can be acquired by using radio collars and radio telemetry. A less expensive option would be to incorporate hair snags at underpasses to determine how many bear individuals are “comfortable” using the underpass study.

This research project was conducted by Gregg Walker, of the Florida Department of Environmental Protection. For more information, contact Victoria Sharpe, Project Manager, at (850) 414-5886, victoria.sharpe@dot.state.fl.us.