"Oh Deer!" Managing and Reducing Deer and Vehicle Collisions in Minnesota

Author: Aaron Brake

Advisor: Jean Lavigne

Introduction

The issue of wildlife and vehicle collisions is common throughout the United States due to the negative effects that collisions have on a driver's physical health and economic wellbeing. This issue is particularly relevant when it comes to deer and vehicle collisions. Each year in the United States there is a total of over one million deer and vehicle collisions reported, which costs drivers over $1 billion in property damages. Human health and economic concerns are not the only issue, so is the health and wellbeing of deer and other wildlife that are impacted by vehicle collisions throughout the United States. This issue of deer and vehicle collisions, which is common in Minnesota, brings us to the focus on this paper; the attempt to find the most tangible and effective solution to help reduce the number of deer and vehicle collisions in Minnesota. The list of potential solutions researched includes the use of fencing, wildlife bridges, deer whistles and more. What is the most effective way to reduce the number of deer and vehicle collisions?
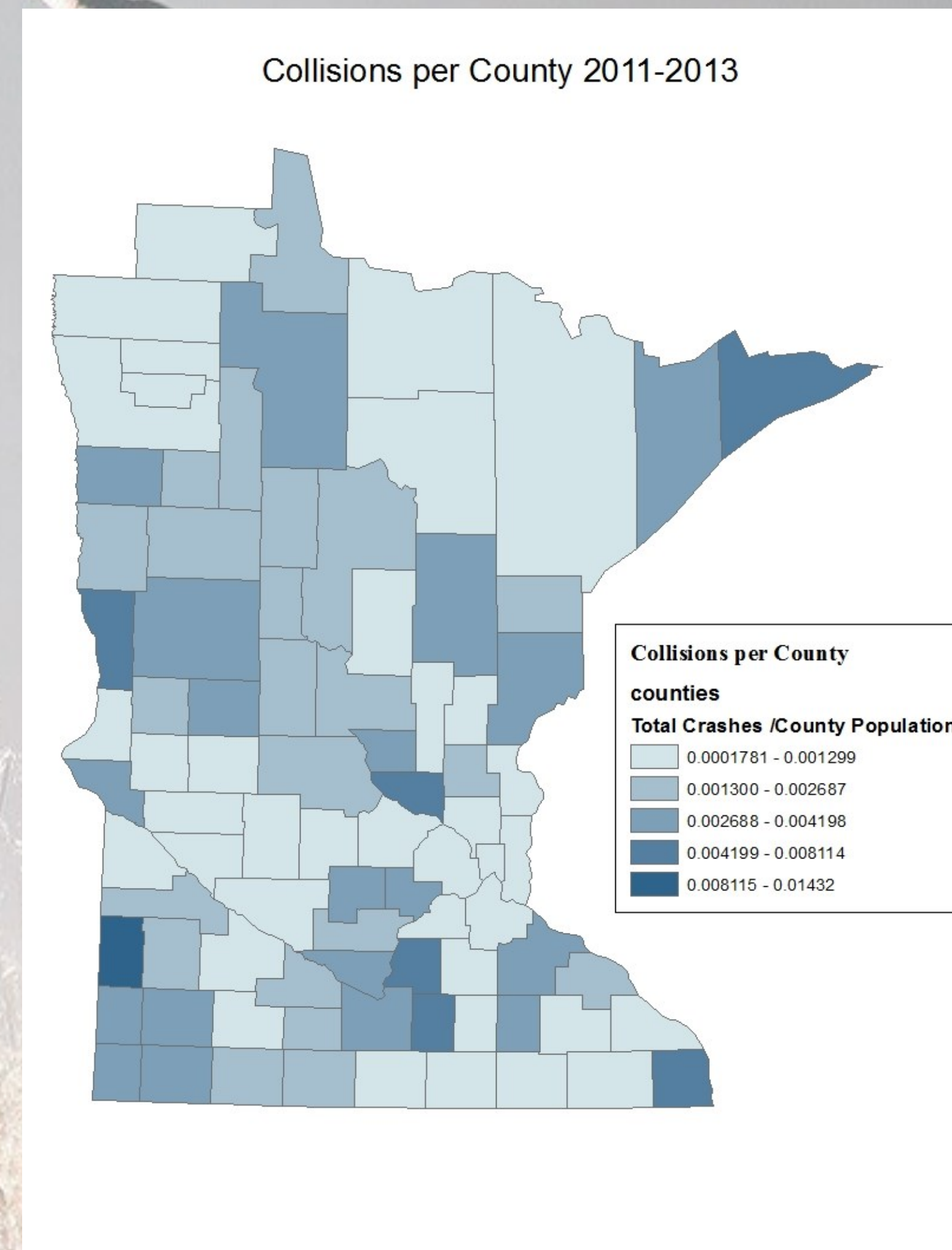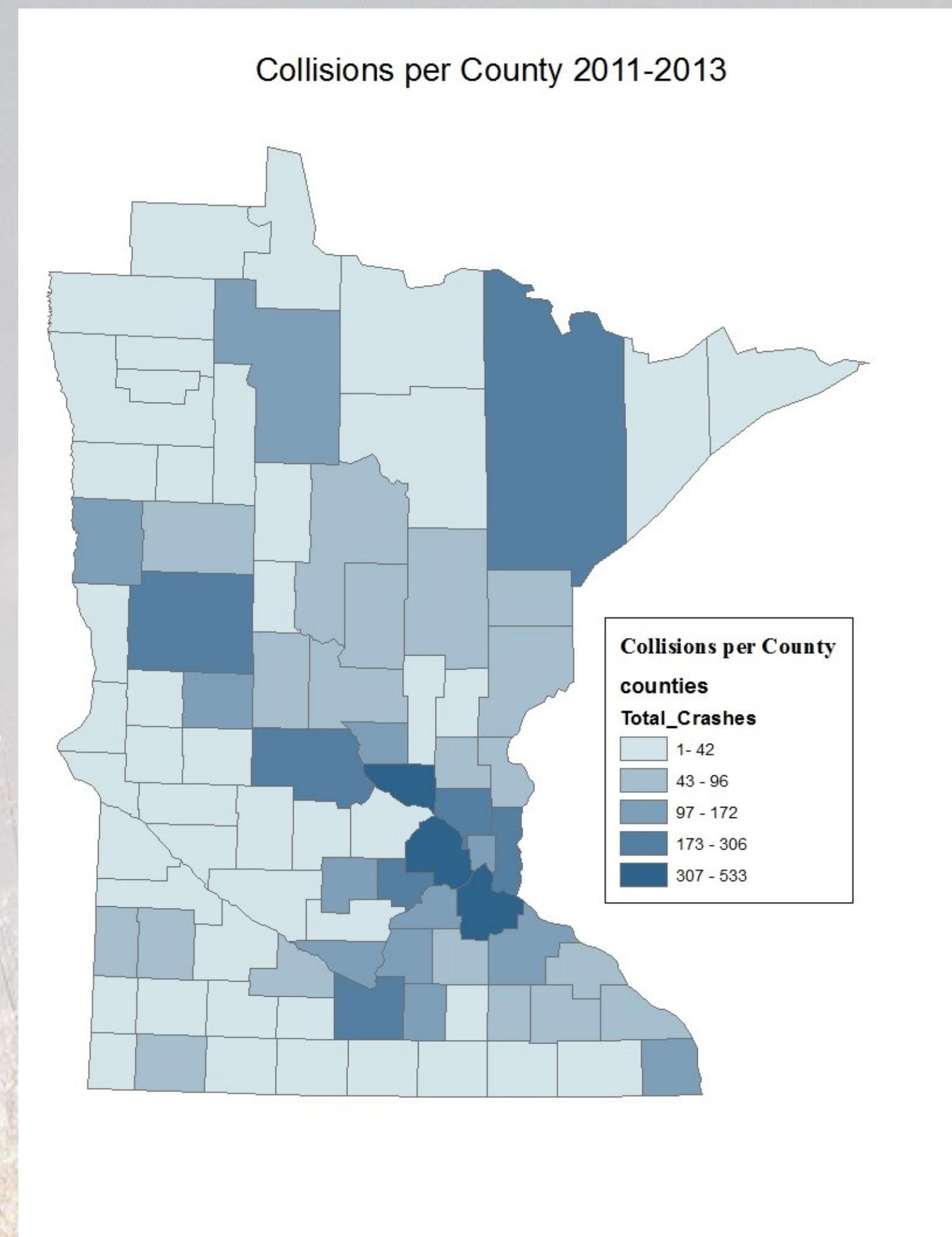
Methods

Research was completed through the analysis and collection of scholarly articles, case studies, and general research done in the field of wildlife and vehicle collisions. I found that many potential solutions to this problem have little research done on the subjects, especially the use of deer whistles, which is low cost but scientifically unproven. Using my collection of information and data, I pieced together a way in which to interpret different solutions and their effectiveness in different locations or specific situations. This was vital due to the fact that there is no current solution that is most effective in all situations and locations. While there is not a large amount of data or statistics regarding deer and vehicle collisions in Minnesota and the United States, the data I did find helps to show the nature of this deer and vehicle collision issue.
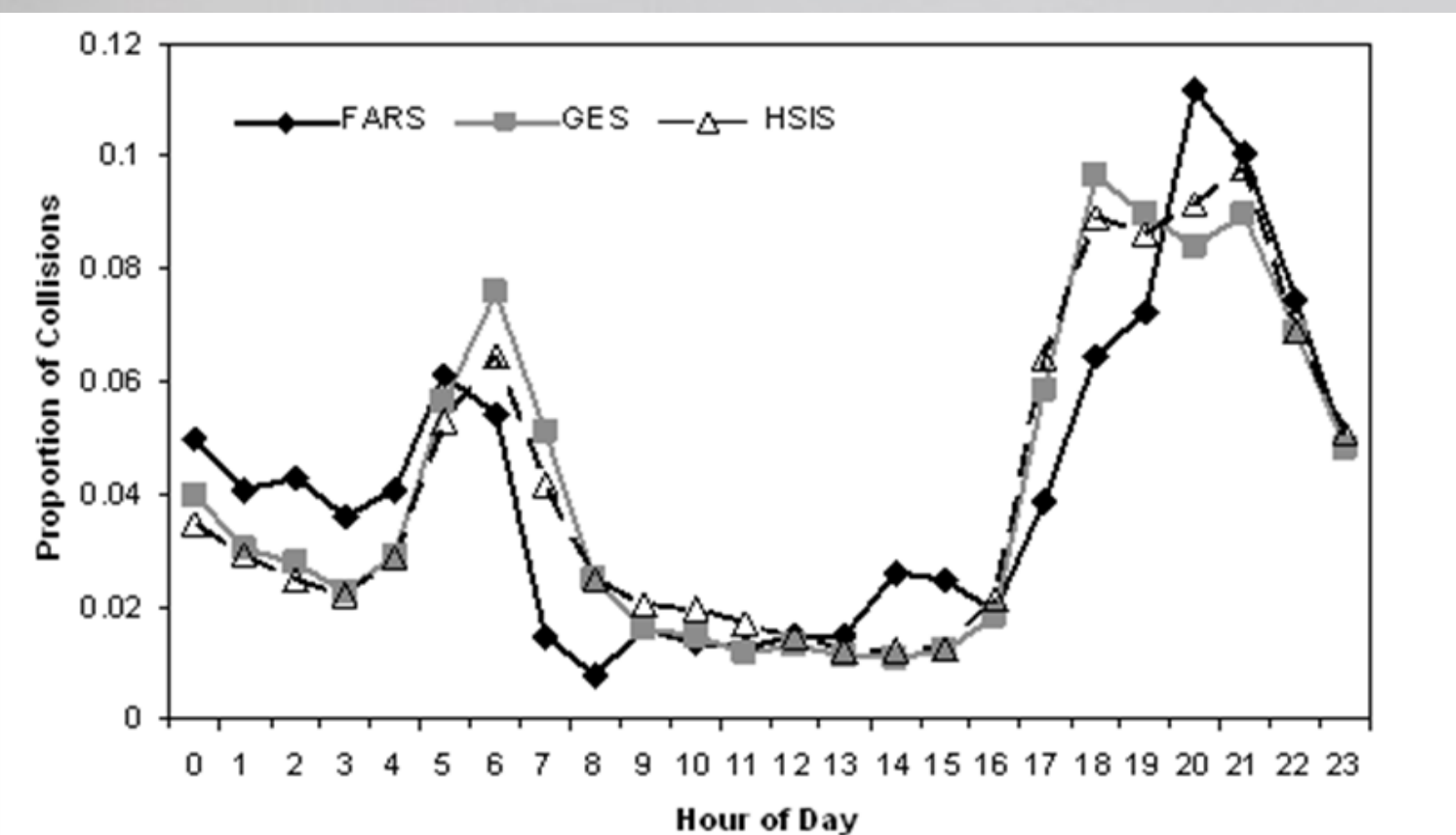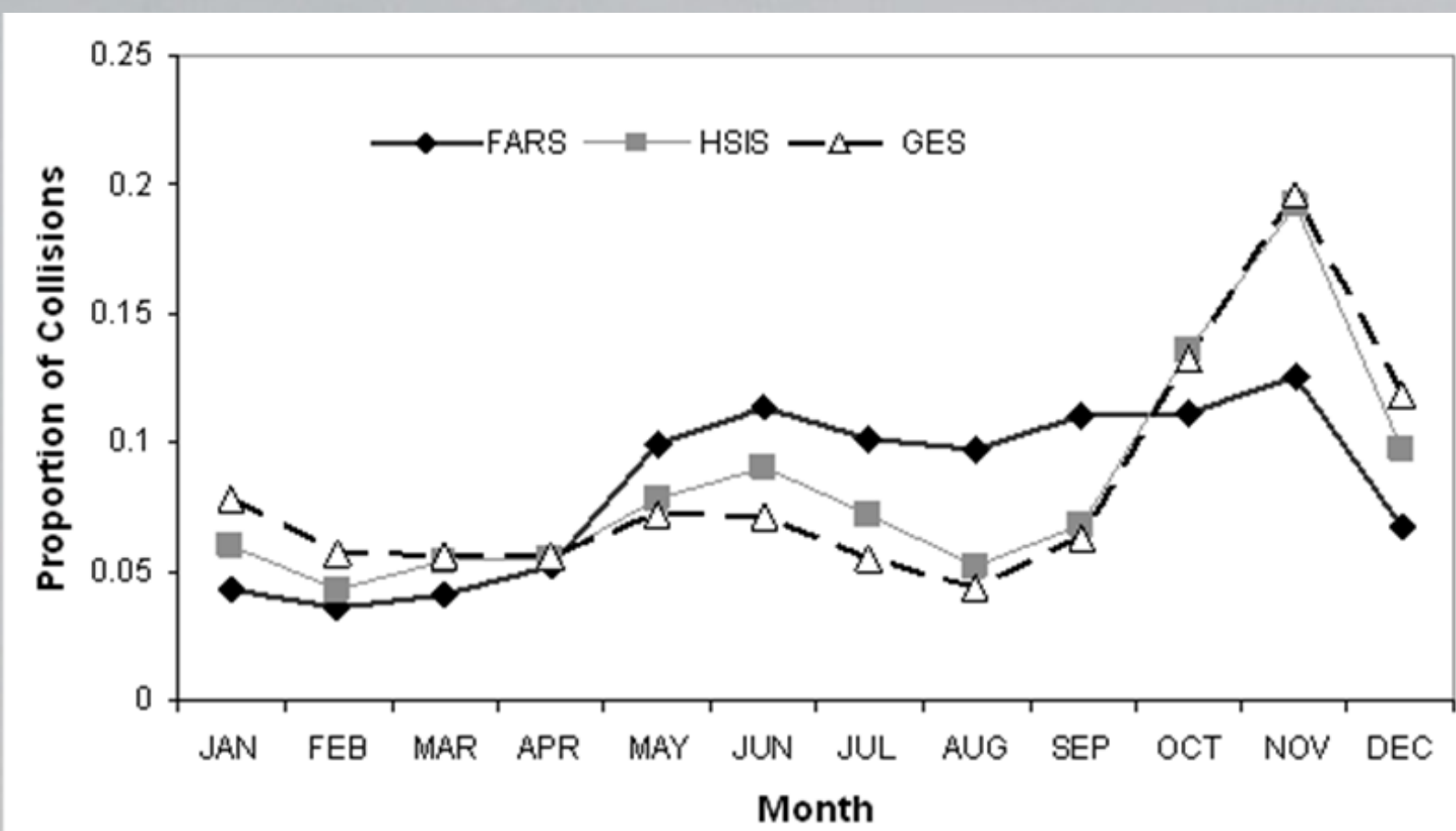
The graphs above, from the Federal Highway Administration, show the significant increases in collisions during the fall hunting season, as well as the increases during the hours of the day that are closest to dusk and dawn. http://www.fhwa.dot.gov/publications/research/safety/08034/08034.pdf

Using data from the Minnesota Department of Public Safety I created the two maps above which show the number of collisions per county. The map to the left shows the data of collisions per county. The map on the right is displayed with county population taken into consideration to help reduce the bias of human population size skewing the data of collisions. Both human population as well as deer population must be taken into account when analyzing the number of collisions per county. Unfortunately, county deer population data does not exist.

Above are examples of a wildlife bridges, the top left photo shows a wildlife overpass in Canada and the lower photo is an example of an underpass being used by deer to safely cross the roadway.

Conclusion

Through the collection and analysis of scholarly journals, articles, and case studies, as well as original research on the topic, I found that each collision site has specific qualities that dictate the most effective solution and due to the sudden increase in collisions, a focus on collision reduction during the fall hunting season could make a significant impact on collision reduction. The issue of deer and vehicle collisions is one that lacks research and as a result there remains a great deal of questions. Another issue that arises is the great deal of variety and differences between each crash site and situation. This creates difficulty when attempting to implement the most effective solution. One of the most significant findings from my research was the extreme spike in deer and vehicle collisions during the fall hunting season. This seasonal spike, along with the fact that most collisions occur between dusk and dawn helps to create a smaller window in which to focus efforts to reduce the number of deer and vehicle collisions. According to our current understanding and research regarding collision mitigation, fencing remains the most reliable and effective solution. However, the potential of other solutions such as temporary signs and deer whistles warrant more research.

Above are examples of a deer crossing sign and deer whistles, both of both of which are used to reduce collisions.