

MOTOR VEHICLES VS. WHITE TAILED DEER IN SUBURBAN/URBAN AREAS

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Background

- Deer populations are high in numbers in urban/suburban areas(Seagle & Close, 1996, #), and this is due to the highly restrictive hunting policies in place, but deer are still being brutally killed or injured by motor vehicles also causing harm to the people’s vehicles and possibly harm or fatality to the people in the vehicle. (Gkritza et al., 2010, #). Therefore, hunting policies need to be examined and adjusted to the point there is a healthy deer population which will lead to less deer being hit by motor vehicles.

Hypothesis

- The research hypothesis is that there is a relationship between overpopulation of deer in urban/suburban areas, and this overpopulation leads to more deer vs. motor vehicle accidents.
- The prediction of the research is that the increase population of deer there is then there will increase in deer vs. motor vehicle accidents, due to the restrictive hunting policies in place.

Research Background

- The research study used to test the hypothesis was a study done in Iowa's higher populated suburban areas. The purpose of the study was to determine if higher whit-tailed deer populations correlate with higher amounts of motor vehicle accidents. Before presenting the evidence, it is important to note that Iowa designates special deer population management zones to manage higher populated areas. These cities are permitted to set the population limit for white-tailed deer per square mile (Iowa Department of Natural Resources, 2020) The three areas that are used in the study are areas with human populations that range from 50,000-121.000 people, these places being Iowa City, Cedar Rapids, and Dubuque (Gkritza et al., 2010, #).

City deer population regulation

- Iowa City (25 per sq-mile)
- Cedar Rapids (30 per sq-mile)
- Dubuque (20 per sq-mile)

Conclusion

Throughout this study the assumption was made that these were caused by the harsh hunting restrictions made in these highly populated areas. After some further research, the opinion of the cause seemed to change. The state of Iowa along with other states have designated hunting areas that more suited for hunting where hunters can hunt deer certain times a year(DeNicola et al., 2000, #). Instead, the study believed that there were more human policies may produce more risk for potential deer vs. motor vehicle accidents. Factors that contribute towards this stem from lack of consideration we have towards the dangers of animal vs. motor vehicle accidents(Blackwell BF, Seamans TW, & DeVault TL. 2014). If there were better regulations such as more warning signs and slower speed limits, and possibly barriers to stop the deer from entering the roadways in the first place then these types of accidents would be less common, human and animal lives would be saved in the process.

Methods/Approach

Three databases were used to acquire the information in the three areas of study:

Deer population from 1997-2008 (Iowa Department of Natural Resources)

Deer carcass’s removal 2002-2007 (Iowa Department of Transportation)

Deer-vehicle crash 2002-2007 (Iowa Department of Transportation)

Sampling protocol

Online databases

Experimental design

Two tables were created to show the correlation between population per square mile of white-tailed deer and number of deer vs. motor vehicle crashes.

Major variables

Deer per square mile

Number of deer-vehicle car crashes

Year

Timeline

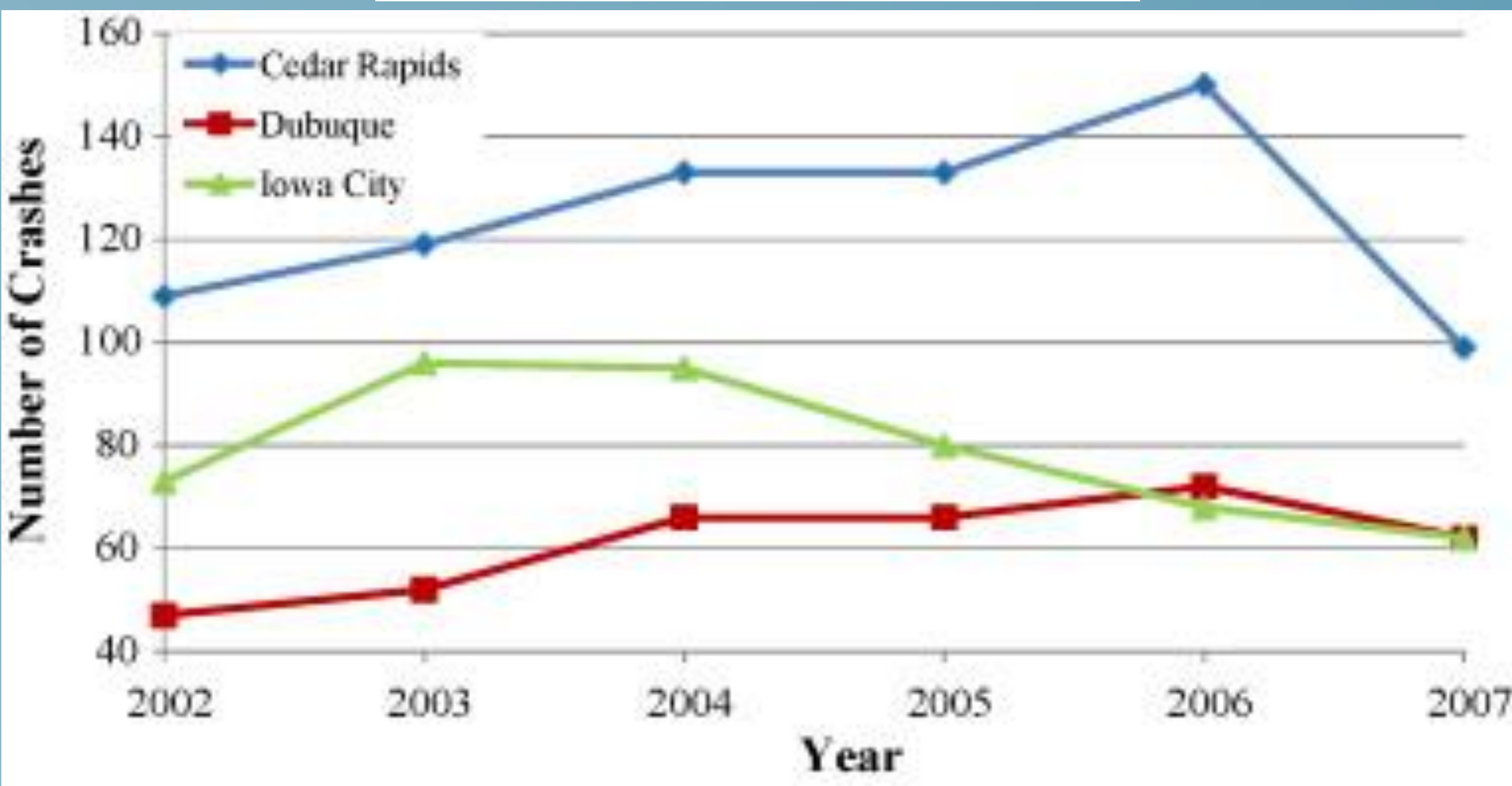
2002-2007

Results

Observing the two charts to the left it shows that there is a correlation between average deer density in an urban area and motor vehicle vs deer accidents(Gkritza et al., 2010, #). When the density increases there are more car accidents caused by deer and there is significantly more accidents when the population is over the recommended deer per square mile.

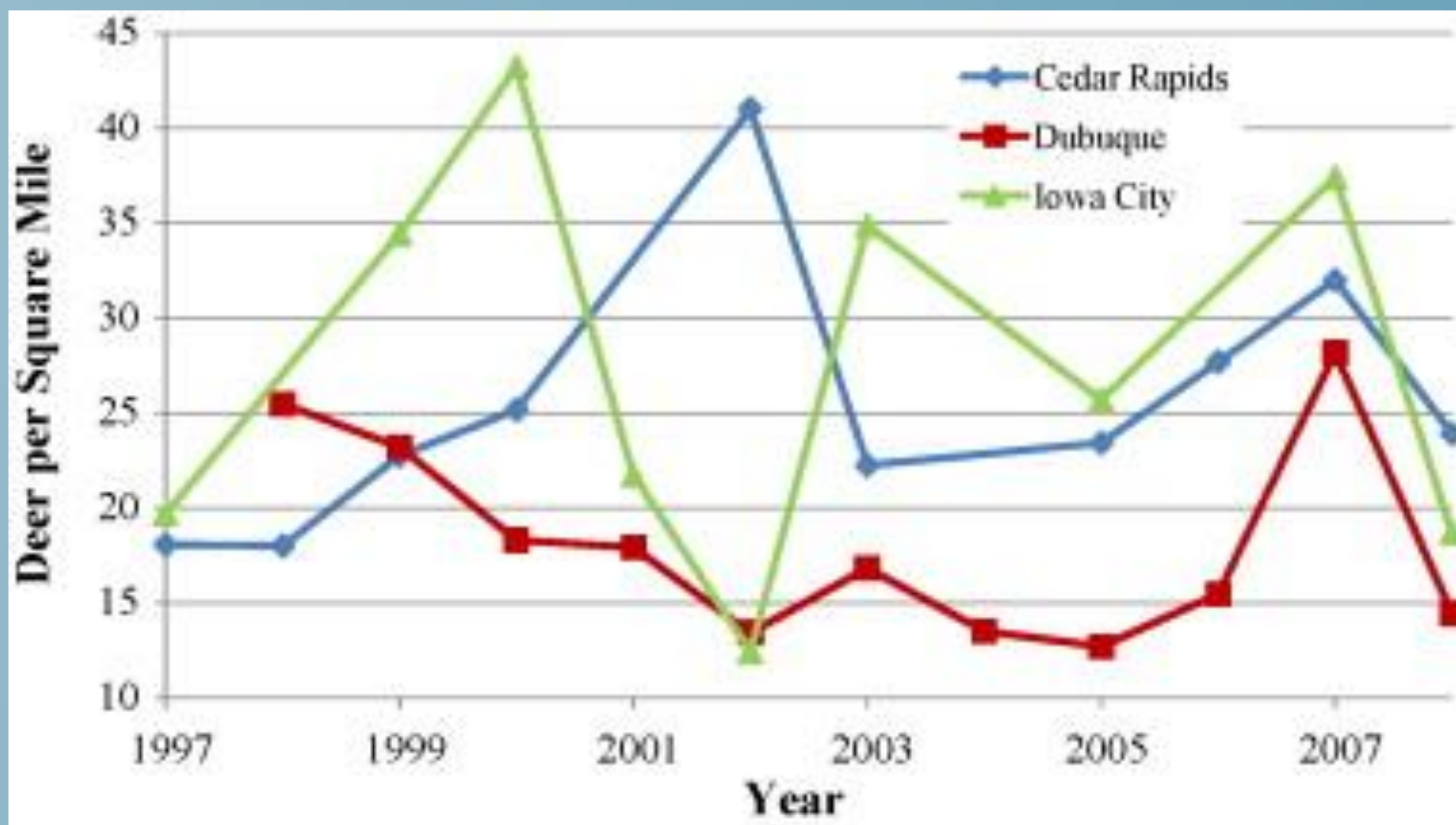


(DeNicola et al., 2000, #)



(Gkritza et al., 2010, #)

Frequency of Deer-Vehicle Crashes by Urban Area, 2002 to 2007



(Gkritza et al., 2010, #)

Average Deer Density by Urban Area, 1997 to 2008

(1)Blackwell BF, Seamans TW, DeVault TL (2014) White-Tailed Deer Response to Vehicle Approach: Evidence of Unclear and Present Danger. PLoS ONE 9(10): e109988. <https://doi.org/10.1371/journal.pone.0109988>. (2)DeNicola, A. J., VerCauteren, K. C., Curtis, P. D., & Hygnstrom, S. E. (2000). *Managing White-Tailed Deer in Suburban Environments*. Cornell Cooperative Extension. file:///C:/Users/sorok/AppData/Local/Temp/Managing%20White-tailed%20Deer.pdf, (3)Gkritza, K., Baird, M., & Hans, Z. N. (2010). Deer-vehicle collisions, deer density, and land use in Iowa's urban deer herd management zones. *Accident Analysis & Prevention*, 42(6), 1916-1925., (<https://www.sciencedirect.com/science/article/pii/S0001457510001491>), (4) Iowa Department of Natural Resources. (2020). *Iowa Hunting, Trapping & Migratory Game Bird Regulations*, 41. file:///C:/Users/sorok/AppData/Local/Temp/huntingregs.pdf, (5)Seagle, S. W., & Close, J. D. (1996). Modeling white-tailed deer *Odocoileus virginianus* population control by contraception, *Biological Conservation*. 76(1), 87-91. (<https://www.sciencedirect.com/science/article/pii/0006320795000895>)