

The effects of the Natural Vegetation Buffer on the Canadian Geese Population during the Fall and Summer Months

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ABSTRACT

We studied the effects of a natural vegetation buffer in Vilas Park in Madison, WI, planted in 2005 in order to help alleviate problems with geese in this park. The Canadian geese population has increased over the past years in North America. Vilas Park has seen a sharp increase in geese which has caused numerous problems. Besides being a nuisance to park visitors, they have disrupted the health of the nearby lake. Because of these concerns, the buffer was planted along part of the Vilas lagoon in 2005 as a deterrent. To measure the effectiveness, we compared the use of the area of the park adjacent to the vegetation buffer with their usage of the rest of the park, before and after the buffer was planted. Our findings showed the buffer did reduce the number of geese in this zone. One potential source of error within this study is the times and dates of data collected, this may have caused variation with the data.

INTRODUCTION

During the 1940s, Giant Canadian Goose (*Branta Canadensis maxima*) was over-hunted and close to extinction. Now protected by the Federal Migratory Bird Treaty Act (IL, EPA) the bird has found a permanent home in many Midwestern states. The goose population has skyrocketed over the past ten years. Under the umbrella of the Federal Migratory Bird Treaty Act (FMBTA), the geese and their young are protected on a federal level. It is illegal to harm them, their young or their eggs. Vilas Park, in Madison, Wisconsin, is a habitat for many resident geese due to the surrounding bodies of water.

As the population of geese has grown, so have the problems associated with them. The resident geese can be territorial and have been known to act aggressively towards humans (Smith et al. 1999). In the Lake Wingra area, many of the geese reside near the water and defecate in the recreational facilities, including nearby soccer fields. Their feces have disturbed the health of Lake Wingra. The population of geese has become a nuisance in additional ways: they have damaged the surrounding turf, spread disease to animals (Lorman, 2003) and have a tendency to congregate in large flocks, which can cause disturbances for cars.

Our study focused on the success of a natural vegetation buffer that was planted to reduce the amount of geese in a popular Madison park. Vilas Park covers 42 acres and includes walking/ biking paths, tennis and soccer courts, playgrounds, beaches and trails (City of Madison Parks). The park is a popular destination year round. Residents have been complaining about problems associated with the geese. The buffer planted consists of native prairie species that helps deter geese from the water, and was planted in 2005 as a measure to reduce the number of geese specifically in zone 2. Since 2005, more vegetation has been added.

Vilas Park can be divided into nine different zones (Figure 1). Zone 2 is a popular recreational spot located near soccer fields and a lagoon. The long term goal of City of

Madison Parks Division along with the Friends of Lake Wingra was to implement techniques to reduce the geese population in Vilas Park. Our group focused on the percentage of geese in zone 2 compared to the rest of the park. Our hypothesis was as more vegetation was added to the buffer in 2006, it would continue to reduce the number of geese in zone 2. We compared the percentages during both the summer and fall months. Our goal was to assess how the buffer affects the number of geese seasonally.

METHODS

In order to determine the continued effectiveness of the vegetation buffer planted in 2005, we utilized data that had been collected by Edgewood College students on occasional days since October 2001. The data recorded include the number of geese in different zones in Vilas Park, time of day, weather conditions, and number of young. Vilas Park is divided into 9 zones (Figure 1). We also counted geese in all nine zones on September 24, 2007. On this day, we walked through the park and took a count of all the zones and recorded our observations. This data was added to the spreadsheet described above.

Specifically, we focused our attention on the number of geese in Zone 2 compared to the total population in all other zones during the summer months (June, July, and August) and the fall months (September, October, and November) during the years 2003 through 2007. We focused on these years to determine the effects of the vegetation barrier planted in the summer of 2005 on the geese population.

We then organized our specific data for Zone 2 into a spreadsheet including the dates the data was taken, time of day and total number of geese in Zone 2 compared with the rest of the park. We used this data to determine the percentages of geese in Zone 2. Finally, we compiled the percentages by year and created graphs in order to compare the summer and fall months before and after the vegetation buffer was planted.

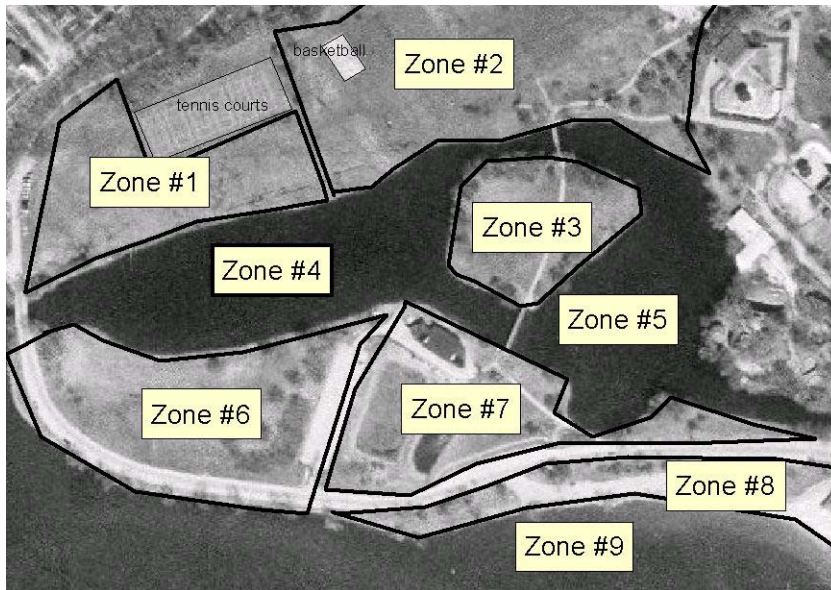


Figure1. Map of zones in Vilas Park

RESULTS

Our studies show that overall; the number of geese in Zone 2 during the fall and summer months was reduced by the vegetation buffer (Figure 2). The fall timeframe results indicate the average went from 34% of geese in zone 2, down to 21% after the buffer was planted. In determining this number we took into account the number of geese in zone 2, before the buffer was added 2003-2004, and separated it from the three years after the buffer was planted 2005, 2006 and 2007. The summer results yielded similar outcomes; the amount of geese went from 25% down to 12% (Figure 2).

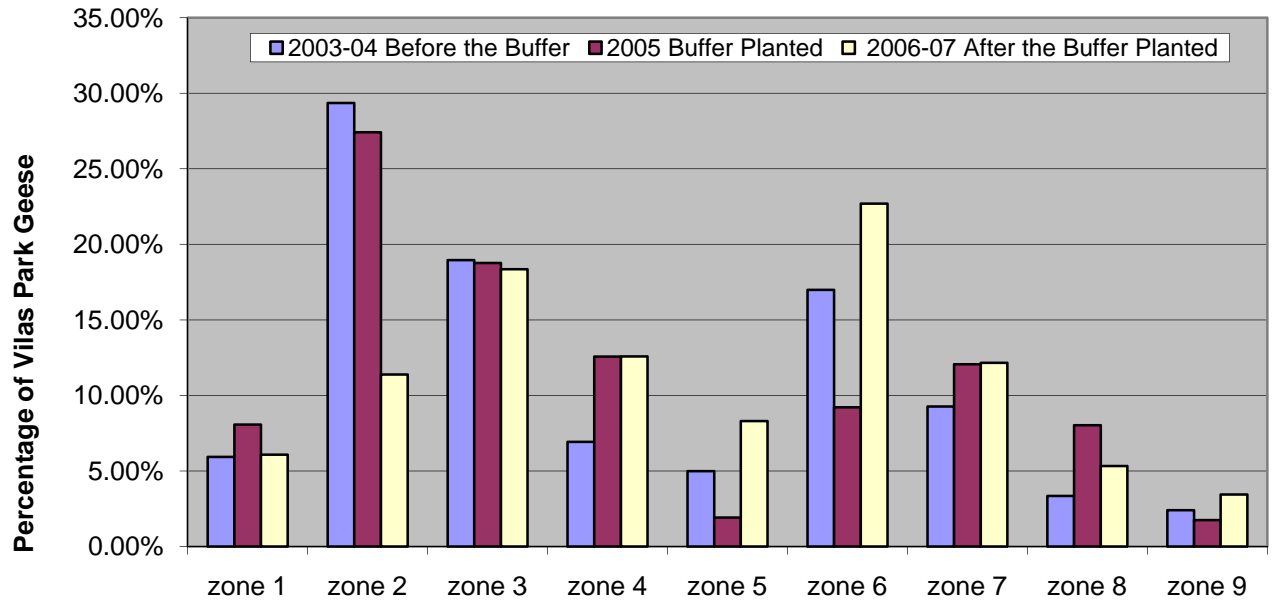


Figure 2. Percentage of geese in Vilas Park observed in different zone, before, during and after the buffer was planted.

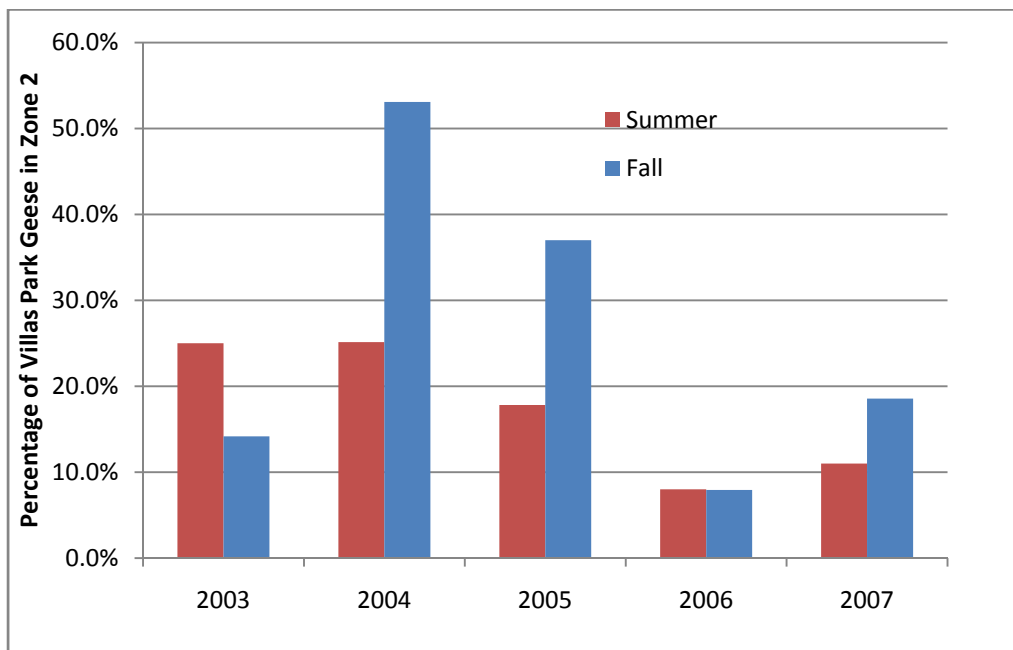


Figure 3. Percentage of Geese in Zone 2 during the summer and fall months 2003-2007.

Based on the data collected, the biggest decrease in zone 2 was during the fall, 2006, one year after it had been planted, during the fall season 2005, went from 53% down to 37%.

We also took into account and compared overall trends in seasonal data. Our findings indicate that more geese were present during the fall months, overall average 21.80% compared to 11.50% during the summer. (Figure 4)

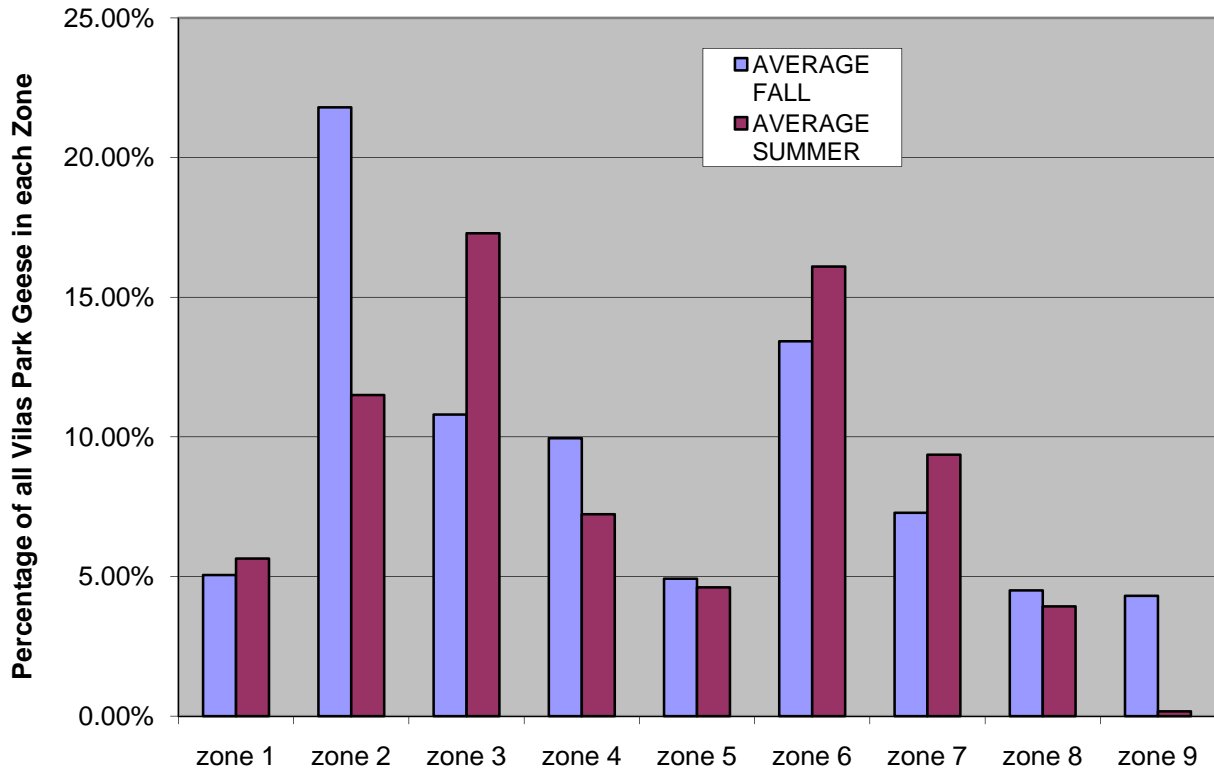


Figure 4. The average percentage of Vilas Park geese during the summer and fall months.

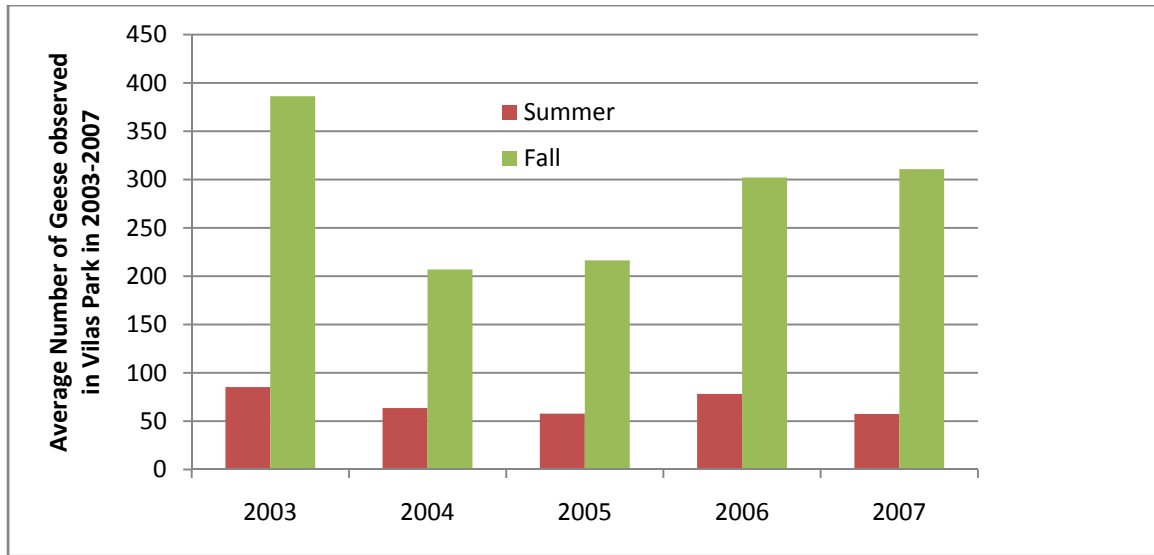


Figure 5. The average total geese in Vilas Park during the summer and fall months 2003-2007. Results represented in figure 5, show a five year average of 280 geese during the fall months compared to 70 during the summer.

DISCUSSION

Our results support the hypothesis that the natural vegetation buffer has reduced the population of geese in zone 2. Our results support findings stated by previous studies, (Adkins et al, 2005). Prior to the buffer, the average population of geese in zone 2 was 29%, and after the buffer was placed it was reduced to 17%. Our findings show the greatest decrease in this zone occurred in 2006, one year after it was planted. During this year, the percentages for both the fall and summer were 8%. During the time frame between August 2006 and September 2007, we saw a slight increase in zone 2 from 8% up to 19%, which does not support our hypothesis. The increase could be attributed to the buffer re-growing after being mowed during the winter 2006. Another explanation for the increase is that the geese may have become desensitized to the barrier. We feel that other factors such as weather or human population may be altering the geese's choice in zones. Even with this variation, the buffer has successfully reduced the percentage of geese in zone 2. Separating the results by season indicates the fall population in zone 2 is larger because of geese migrating.

Some possible sources of error in this study are the dates and times of counting. The data was collected at different times of the day and this may have skewed the trends. There may be different counts of geese at different times of the day. Our hypothesis was that added vegetation would further reduce the geese numbers in 2007. Future studies should be extended in order to monitor the buffer's effectiveness.

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