

# Fragmented Green Spaces: Wildlife Patterns in New York

What if the effect of golf course fragmentation on animal populations in New York State?

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## BACKGROUND

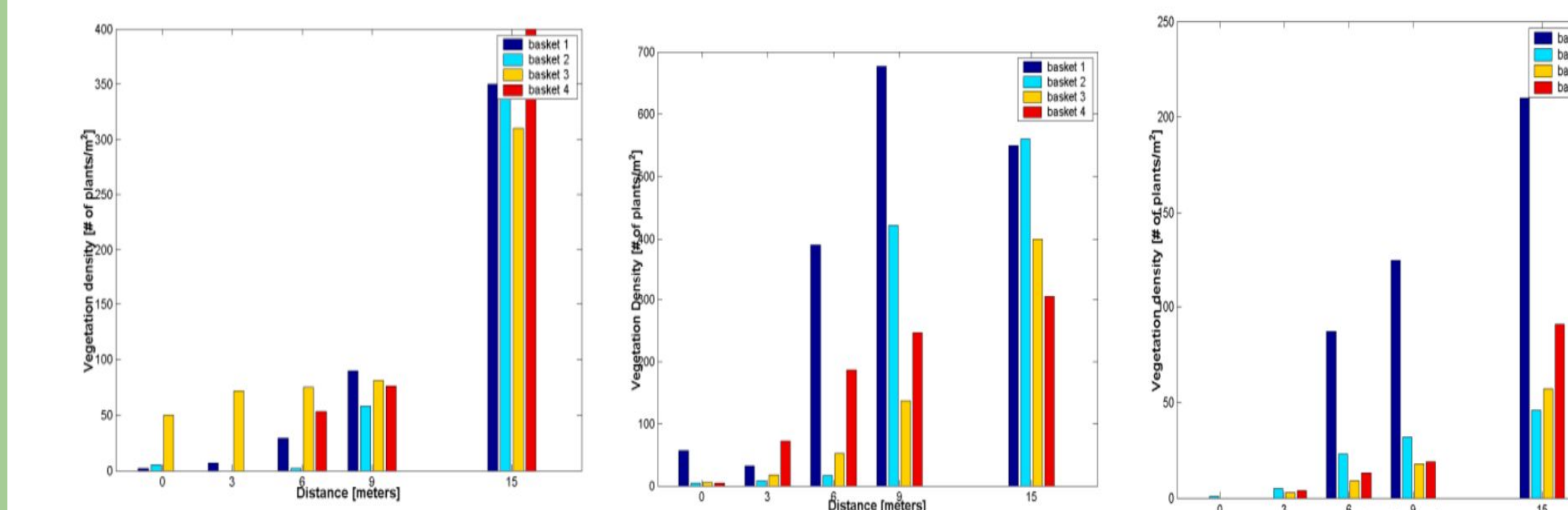
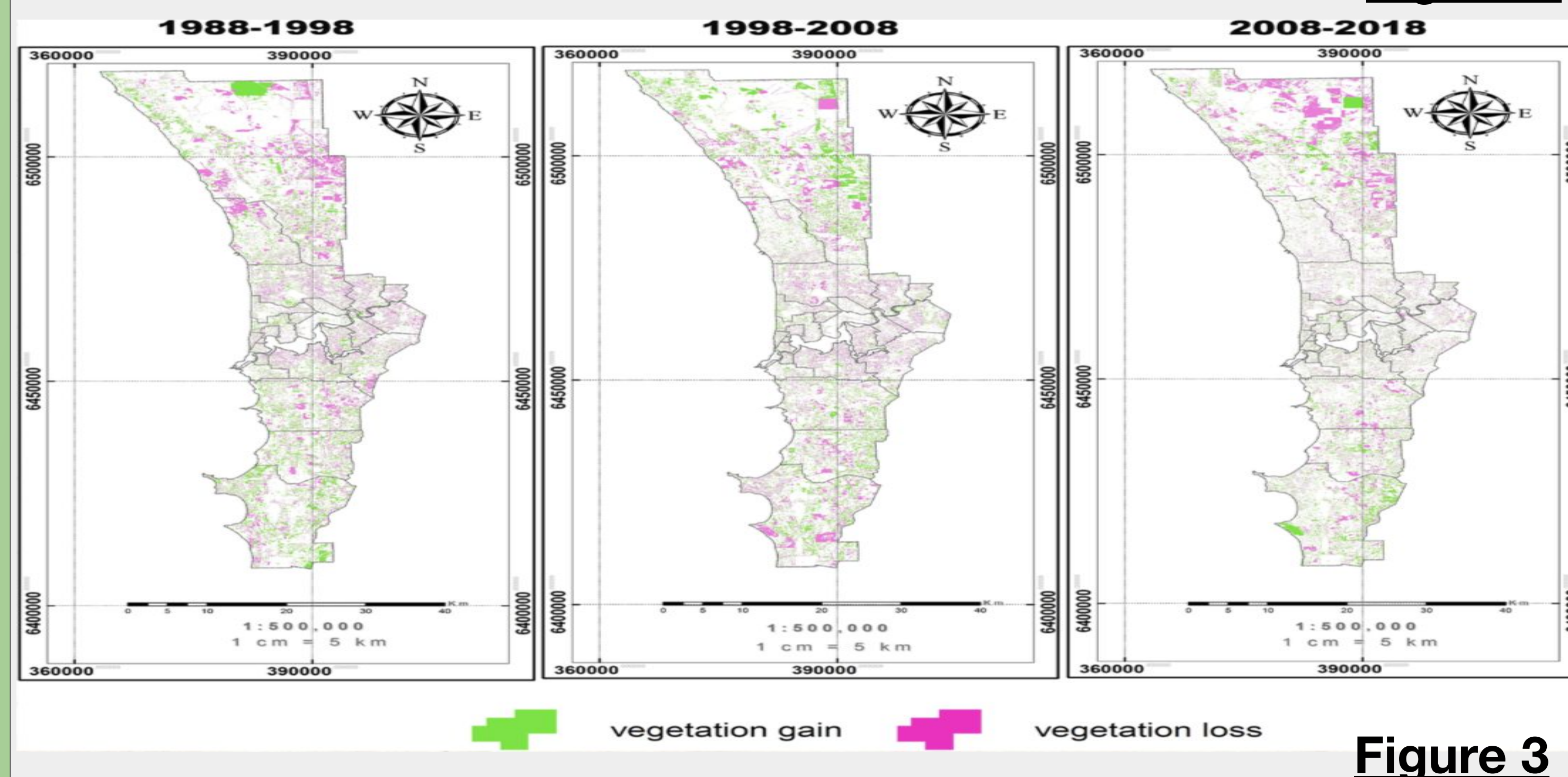
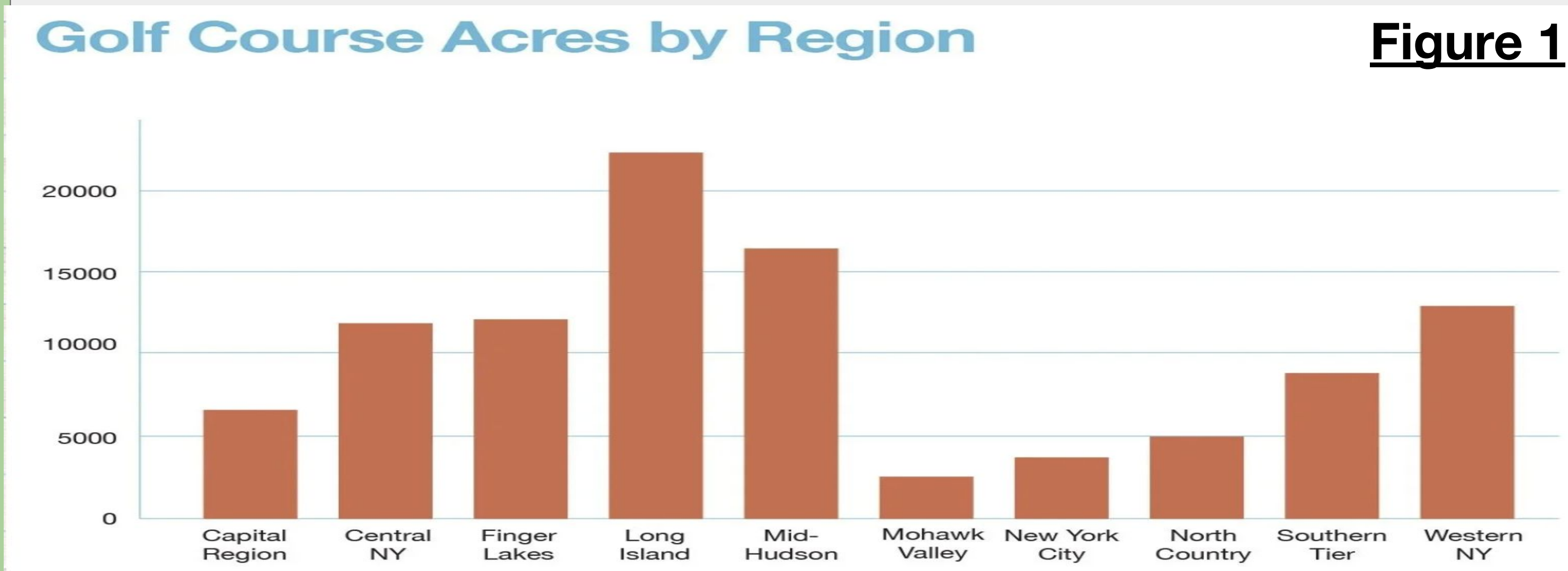
Land fragmentation is the division of continuous land areas into smaller isolated plots of land. This process alters how ecosystems function by disrupting agricultural resources, plant and animal movement, water systems, and the overall habitat connectivity. Before the development of golf courses these landscapes consisted of large fields, forests, wetlands, and dense vegetation. Uninterrupted land that enables wildlife to move freely, access resources, reproduce, and shift between habitats as needed for survival. After a golf course is built the landscape is restructured into fragments of turf fairways, pesticide treated greens, ponds, parking lots, and man-made structures. This transformation fragments habitats into smaller patches of isolated land, changing wildlife interactions within the ecosystem.

## METHODS

A literature review of four major ecological sources was conducted to gather information on golf course habitats and wildlife. Raw data on vegetation and animal populations were extracted to compare trends before and after habitat fragmentation. The structure of the remaining vegetation was analyzed to assess how habitat changes affect wildlife movement and access of resources. The overall impacts of green space fragmentation on wildlife populations were interpreted based on analysis of raw data and comparisons of the observed trends.

## RESULTS

Golf course fragmentation produced mixed ecological outcomes. Sensitive species, particularly amphibians, displayed substantial population declines, with frog survival decreasing 20–40% on fragmented or buffer-free courses. In contrast, some species, such as bumblebees and robins (typically tree-thriving species), showed population increases where native tree cover and flowering vegetation were present. Courses dominated by grass-only areas supported the lowest wildlife diversity, while those maintaining forest patches and native plantings demonstrated significantly higher biodiversity levels.



## DISCUSSION/CONCLUSION

Wildlife areas around Golf courses show an impact on species diversity when compared to surrounding wildlife areas distant to green space fragmentation. This could be explained by the landscape change from a forest to a plain environment. Where certain species with these habitat preferences can thrive in an area with a lack of trees, while other species may be unwelcome to this change. This fragmentation causes a displacement in the wildlife equilibrium, causing a new balance in the species populations.

A disruption in species population is a major problem because it destroys the balance of nature, causing instability that may lead to a collapse. The loss of certain species may cause organism food chains to suffer, resulting in a weaker natural system that is more sensitive to changes.

A possible solution is to alter the qualities of the golf courses to better fit the displaced species, thus better promoting a balance that was disrupted by the fragmentation of the greenspace. Although our results show that greenspace fragmentation leads to species disruption, it is important to keep in mind that there may be some possible errors caused by seasonal occurrences. This data was collected from New York state, so the specific results of species effect may differ between different locations.

## Works Cited

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## ACKNOWLEDGMENTS

This project was supported by guidance from Professor Lisa Manne (Biology) and Professor Charles Liu (Seminar), who provided advice and guidance throughout the project.

ChatGPT was used as an editing and structuring tool for this project.