

The Impact of Wild Bird Feeding on the Bird Community and Health of Individual Birds



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Introduction

- Bird feeding is a popular pastime. In 2011, 53 million Americans over 16 fed birds and other wildlife and spent \$5 billion on the hobby (USFWS 2012).
- Most studies of bird feeding have focused on seed and feeder preferences (Geis 1980, Horn 1999) and population trends (Bonter and Harvey 2008, Robb et al. 2008).



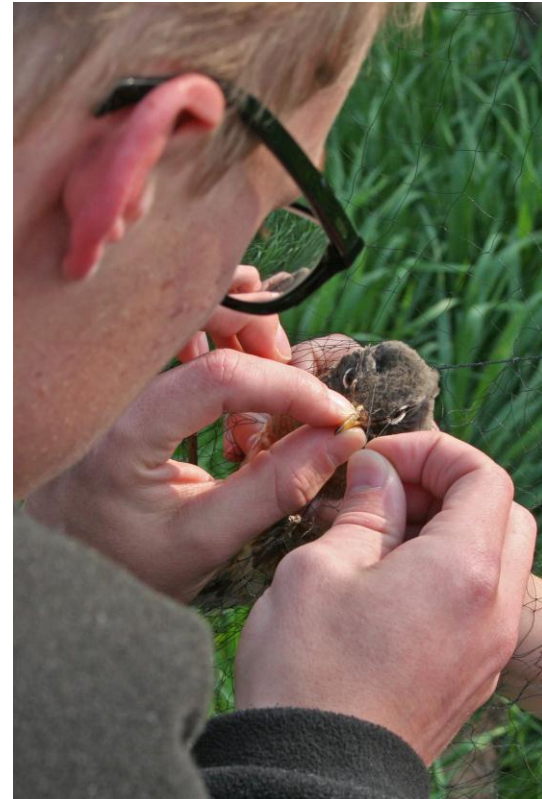
Introduction

- While scientific studies on the impact of wild bird feeding have been conducted, several fundamental questions about the hobby remain.
- Few studies have examined how bird feeding influences the health of individual birds and may change the overall bird community (e.g., Brittingham and Temple 1988, Geis and Pomeroy 1993).



Objective

- We examined how bird feeding impacts individual birds and the overall bird community.



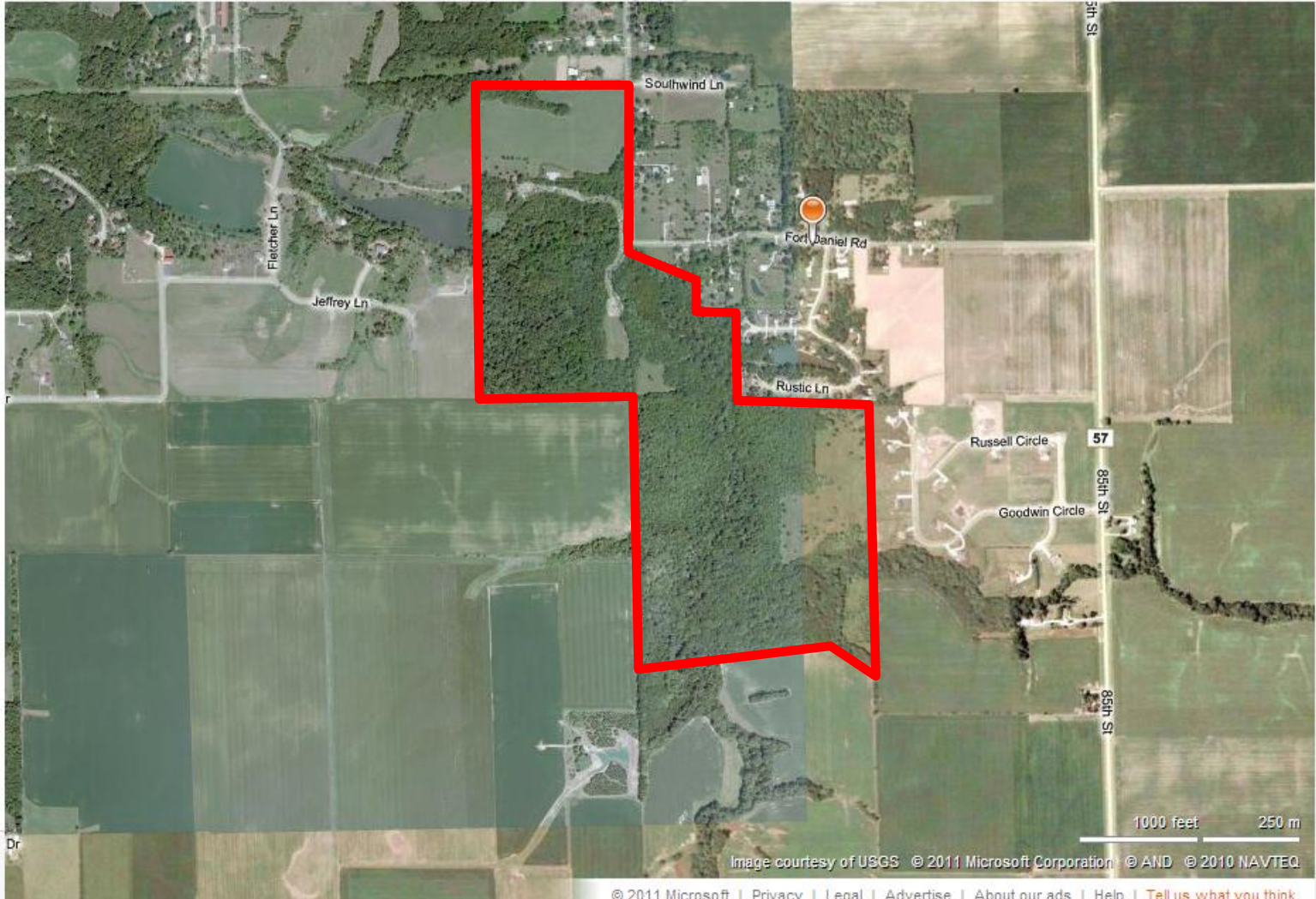


Study Sites

- The study took place from spring 2011 – summer 2012 at six forested sites in central Illinois. Sites ranged in size from 120 – 1,500 acres.
- During spring 2011, no feeders were added to any sites to get baseline estimates of population size and bird health.
- After spring 2011, feeders were added to three of the sites, while the remaining three sites served as controls.

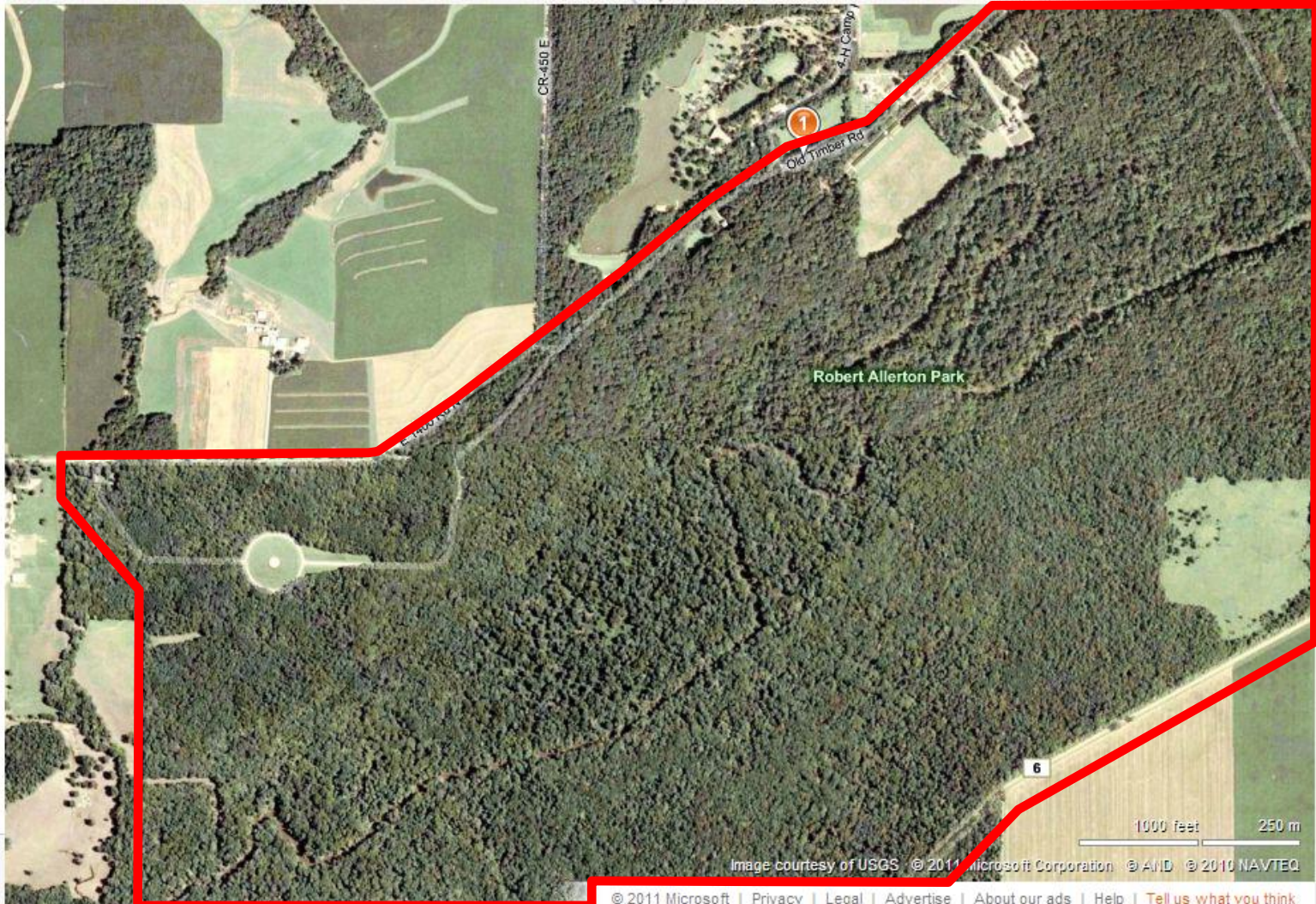


Study Sites – Fort Daniel Conservation Area





Study Sites – Robert Allerton Park





Methods – Bird Populations

- We conducted point counts to estimate the population size of birds at forested sites with and without bird feeders.





Methods – Feeder Use

- We monitored birds at feeders to examine how abundance of birds changed over time.





Methods – Bird Health

- We captured birds in mist nets to examine how bird feeding influences the health of individual birds.





Methods – Bird Health

- Six areas of bird health were assessed: body condition, stress, antioxidant levels, nutritional condition, immune function, and disease.

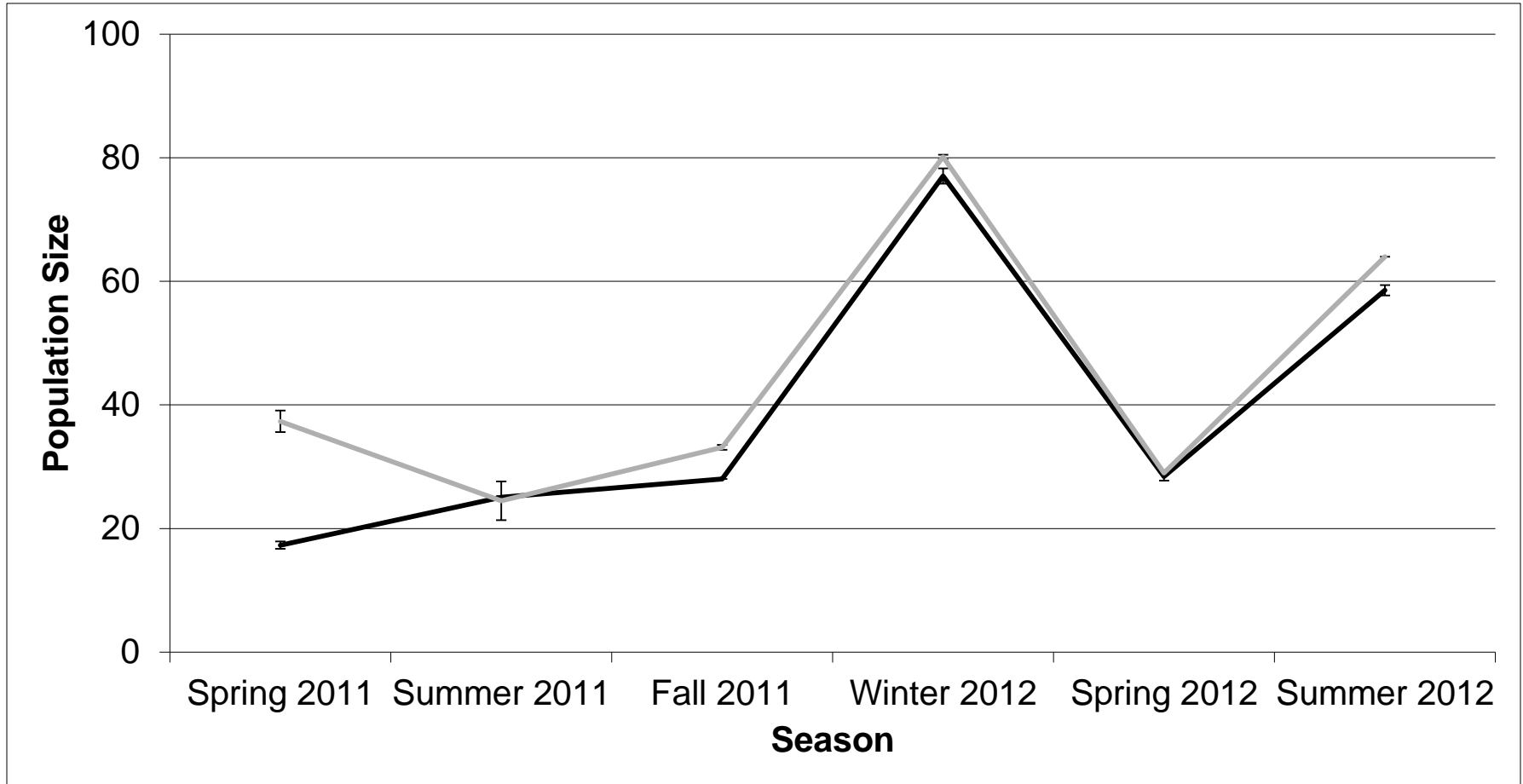




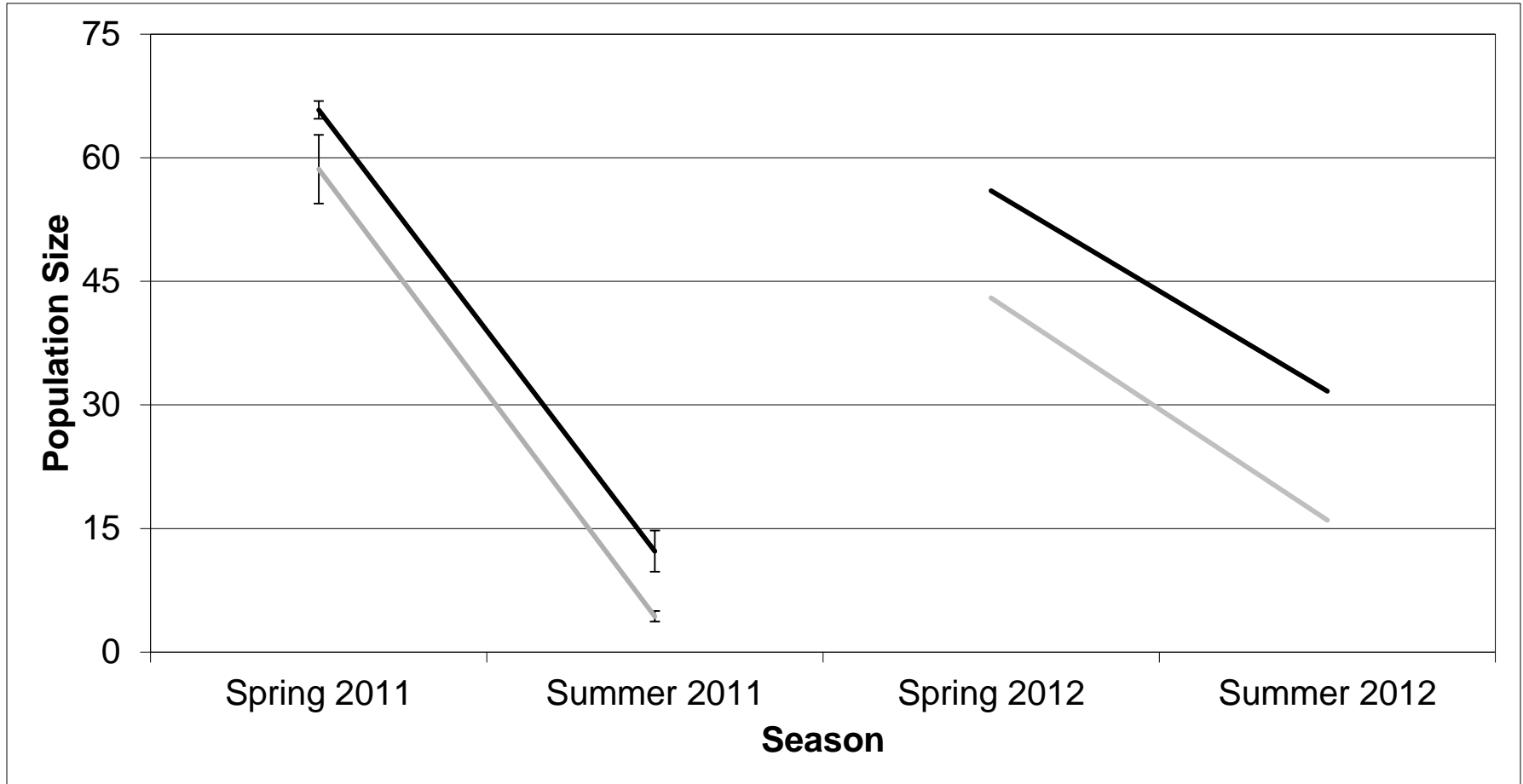
Results – Bird Populations

- Between spring 2011 – summer 2012, there were 17 species we observed >150 times including 9 residents and 8 migrants.
- Population trends of species at sites where bird food was provided were similar to population trends of species at sites for which no supplemental food was present.

Results – Seasonal population size estimates for Black-capped Chickadees



Results – Seasonal population size estimates for Blue-gray Gnatcatchers

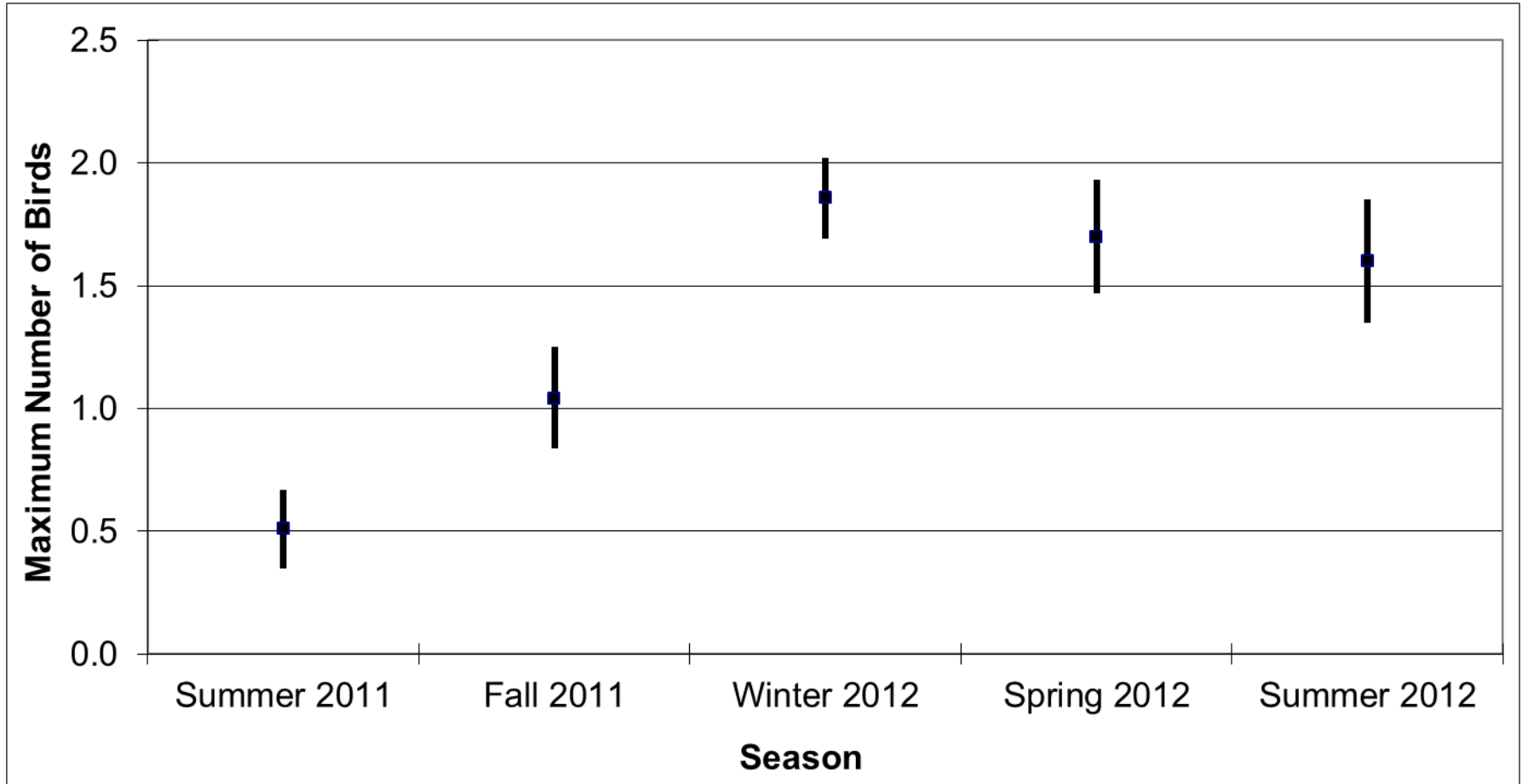




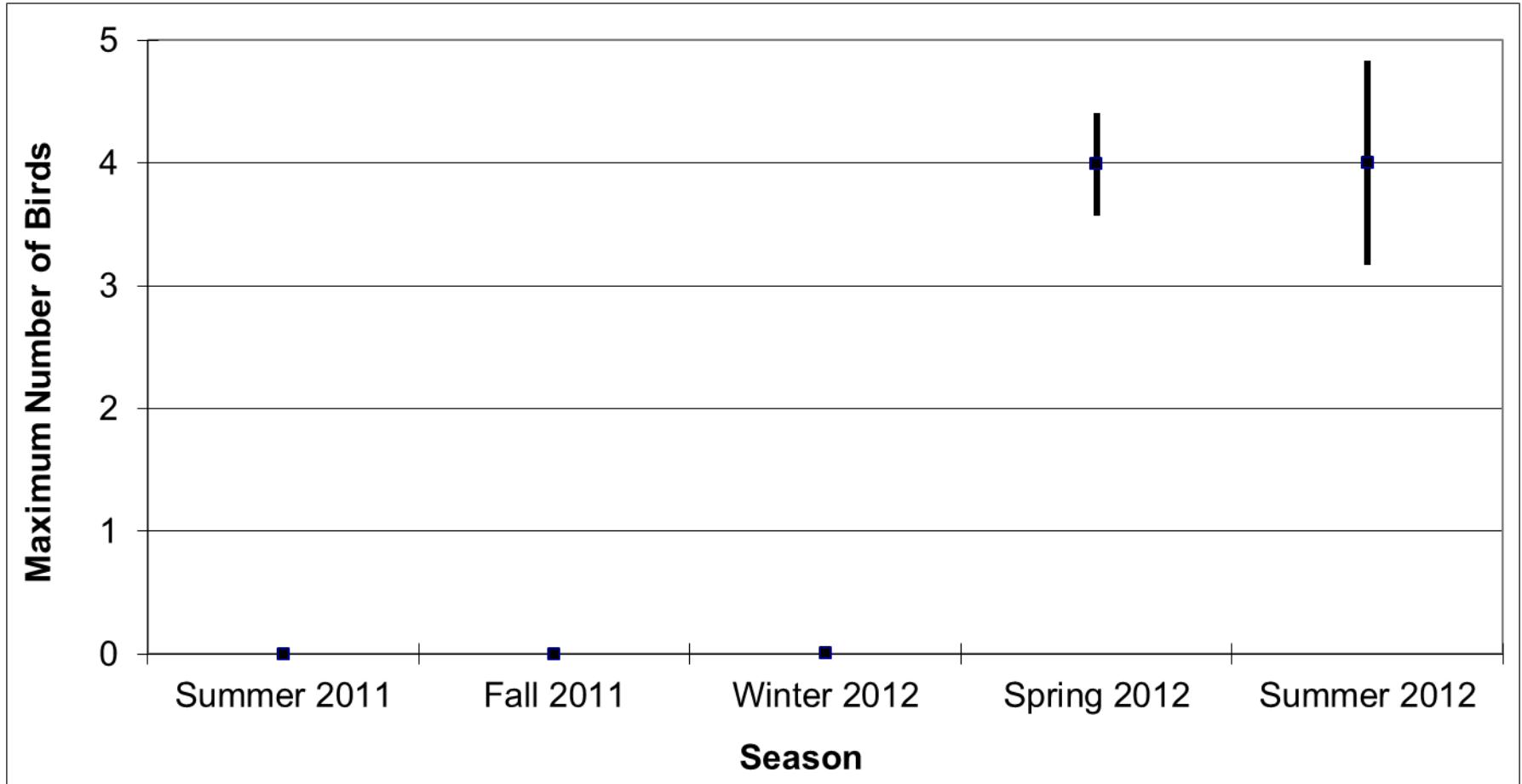
Results – Feeder Monitoring

- Twelve species were observed at least 30 times during summer 2012, and used in statistical analysis.
- With the exception of Black-capped Chickadees, all species had significantly more birds at feeders during summer 2012 than summer 2011.

Results – The maximum number of Downy Woodpeckers per 60-minute observation session



Results – The maximum number of Brown-headed Cowbirds per 60-minute observation session





Results – Bird Health

- From spring 2011 – summer 2012, we captured 1,082 birds from the six study sites combined with 250 (30%) of the captures being recaptures from previous sampling periods.





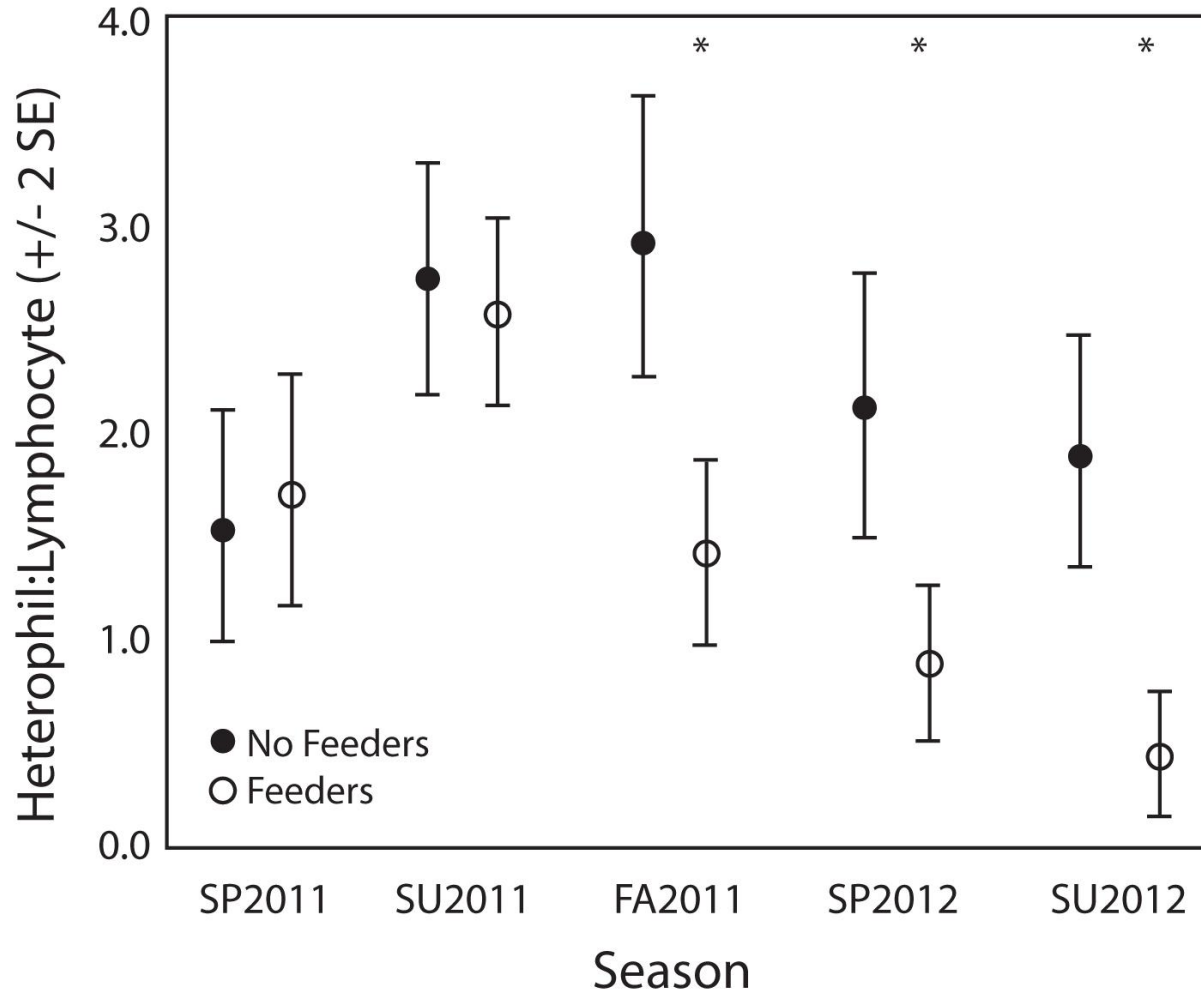
Results – Body Condition

- We found that supplemental feeding improves body condition in three species and fat stores in eight species.



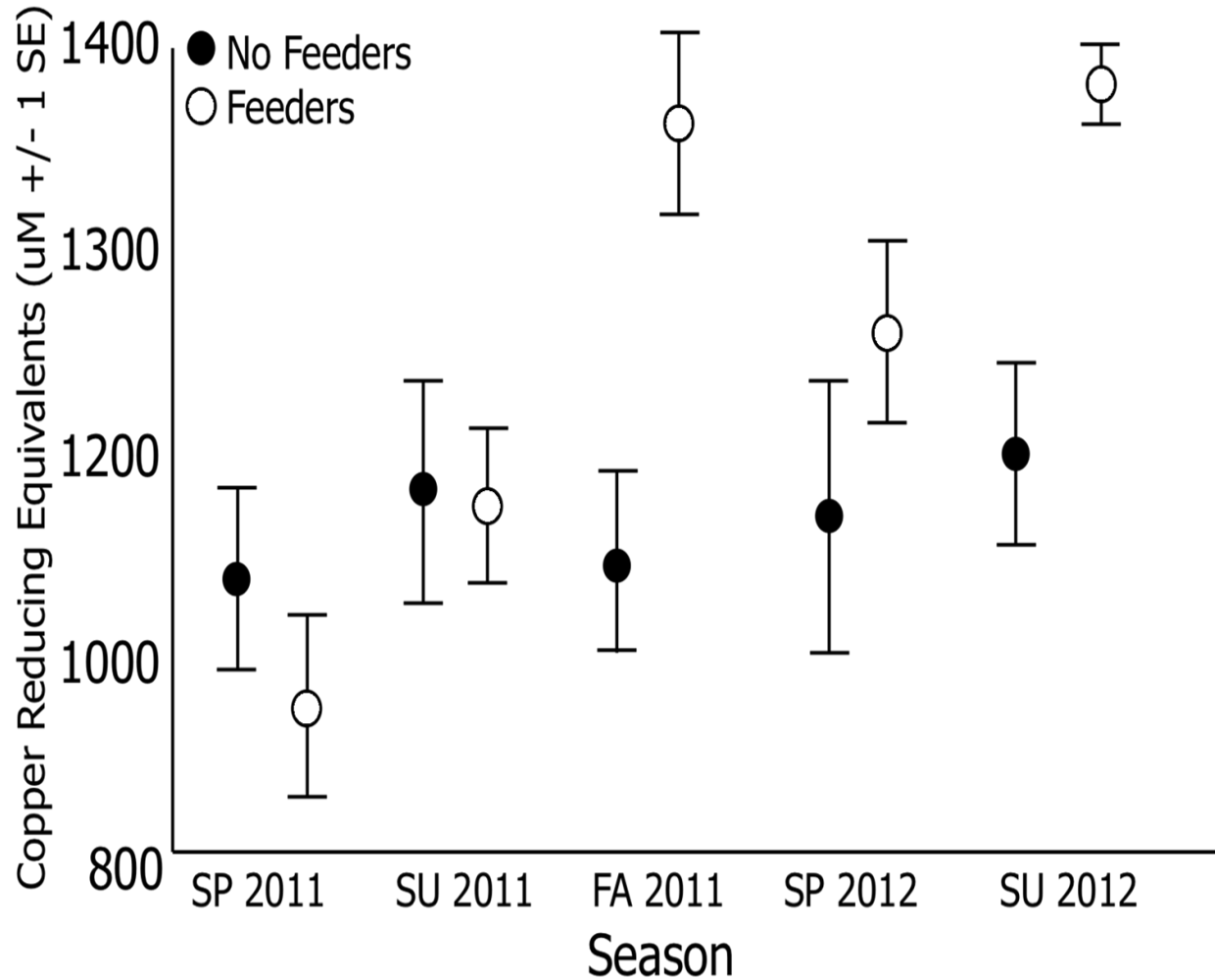


Results – Stress



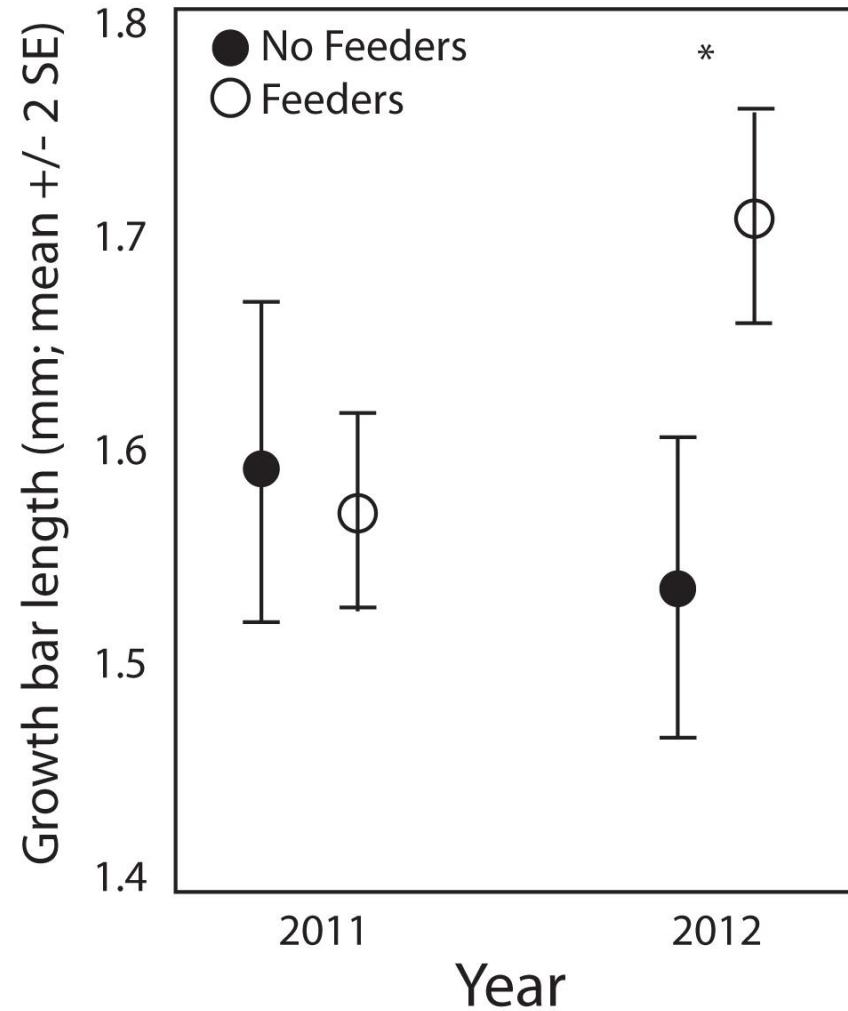


Results – Antioxidant Levels



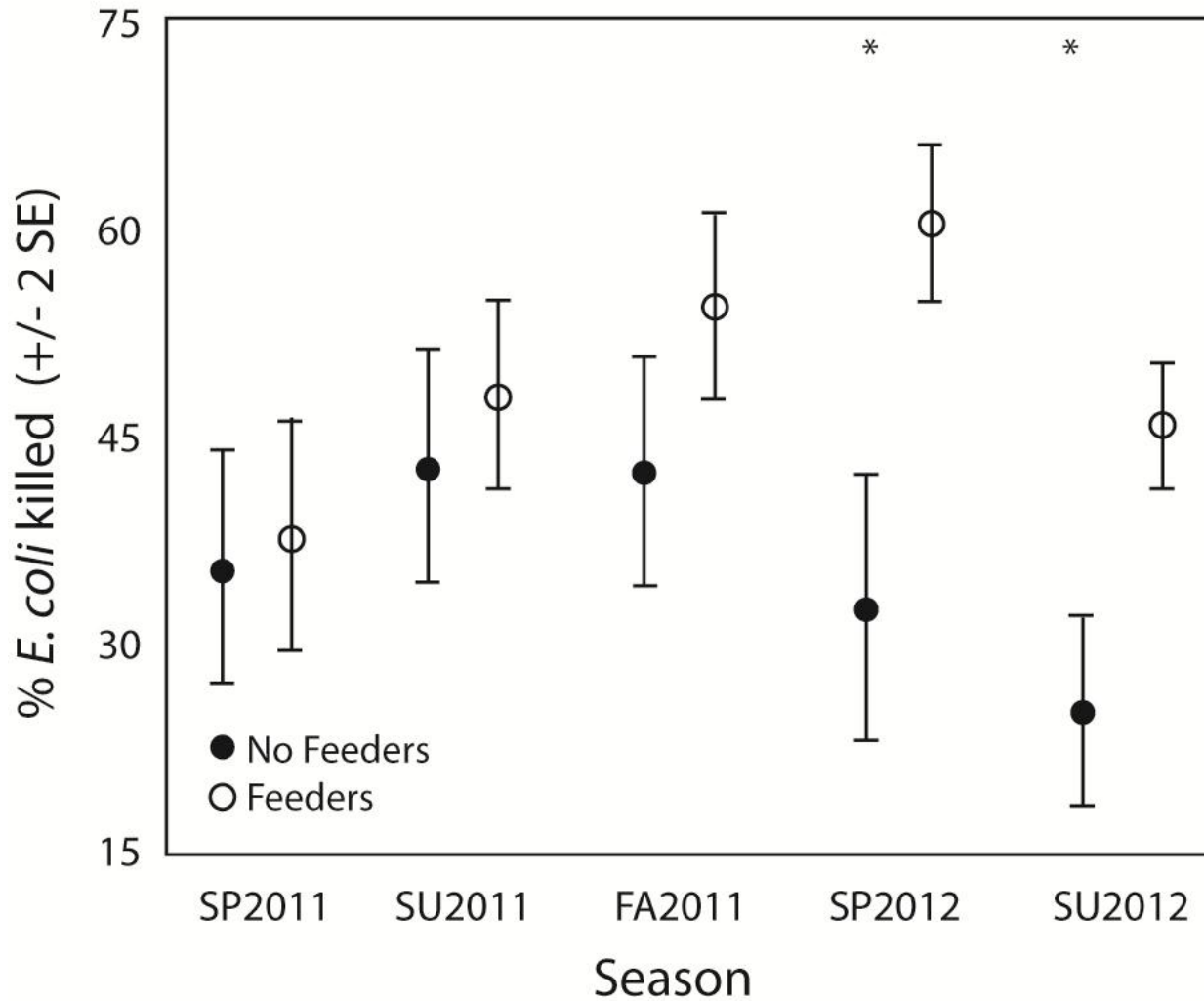


Results – Nutritional Condition





Results – Immune Function





Results – Disease

- More birds were found to have symptoms of disease (8%) at feeder sites compared to non-feeder sites (1%).





Discussion

- The establishment of a feeding station at forested sites resulted in limited changes in population sizes.
- As a feeding station becomes more established, the maximum number of birds visiting feeders increases.
- When compared to birds at sites without bird feeders, there are consistent patterns of birds being in a greater overall health state when feeders are present.
- While some negative effects of bird feeding were also found, these effects can be mitigated.



Importance of Study

- This study is the first to examine the effects of wild bird feeding on the bird community and the individual health of such a broad range of species across multiple seasons.
- If funding can be obtained, we hope to continue this study from winter-summer 2013 in order to determine the impact of bird feeding on survival.



Acknowledgments

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Questions



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