CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
S2407

Project Title
The Effect of Urbanization on a Woodland Bird Community

Abstract

Objectives/Goals
Our objective was to determine the effect of urbanization on woodland bird feeding behavior. Our focus was on two aspects of urbanization: the direct and indirect effects of humans. Indirect effects were pets and new and novel sounds, while direct effects were the presence of both humans walking and talking.

Methods/Materials
Our project took place at a homemade bird feeder positioned at the interface between the woodlands and an urban environment. We had three different experiments regarding our objective:
Indirect Effects:
1. Animal Presence: tested the effect of the presence of cats or dogs (both close and far from the feeder).
2. Domestic Sounds: tested the impact of the sounds of hard rock music and cars (both close and far from the feeder). Used a decibel meter.
Direct Effects:
3. Human Presence: tested the presence of humans walking (continuously and intermittently) and the sound of talking (close and far from the feeder).
To analyze our data better we used statistics (ANOVA test, Tukey test, and Linear Regression Analysis) with a program called "Systat 11".

Results
1. Dogs and cats have a statistically significant effect on bird feeding when they are close to the feeder. Both the number of birds and the diversity of birds decreased.
2. Sounds also had a significant effect on bird feeding. The car traffic sounds had no noteworthy effect, though, probably because its decibel level was equivalent to the sound cars generated from 30 m from a road. The much louder sound of hard rock music produced a very significant decline in number of birds and a tendency towards lower diversity of birds.
3. The sound of humans talking had relatively little effect on bird feeding, but when people were continuously walking within 5 m of the feeder, there was a significant decline in both the number and the diversity of birds that fed at the bird feeder. One bird species was not inhibited by human presence, however, indicating that some birds were more tolerant of people.

Conclusions/Discussion
These results lead to our suggestions of steps humans can take when they live in a woodland bird community to significantly decrease their impact on birds as well as greatly increasing the number and

Summary Statement
Our project investigates the impact urbanization may have on birds in a woodland community by studying the direct and indirect effects of humans.

Help Received
Father gave suggestions and proofread papers. Mother helped cut paper & backgrounds.