



Murray students observing birds at Belwin Outdoor Science Center

Murray Middle School Bird Immersion Project

Minnesota Ornithologists' Union — 2017 Savaloja Grant Final Report

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EXECUTIVE SUMMARY

Objective

At Murray Middle School, and particularly the Environmental Inquiry Immersion Program, the objective is to increasing the number of students of color, and students who receive free and reduced lunch to enroll in challenge level classes in high school grades in SPPS.

Goals

The goal is to enroll students in an academically rigorous elective science class called Environmental Inquiry Immersion (e2). This course will have students working outside in nature, meeting the standards in the 7th, 8th, and 9th grade sections of the Minnesota Academic Standards of Science K-12, and will be considered for high school elective science credit.

Solution

The project proposed by Murray Middle School had e2 students monitor bird activity (counts and species) once a month from January to June for 2018 and 2019. This project exposed students to the process of collecting data outside, observing the natural world, adding to the collective knowledge of science, and growing the appreciation of the bird diversity and migration patterns of birds through Minnesota.

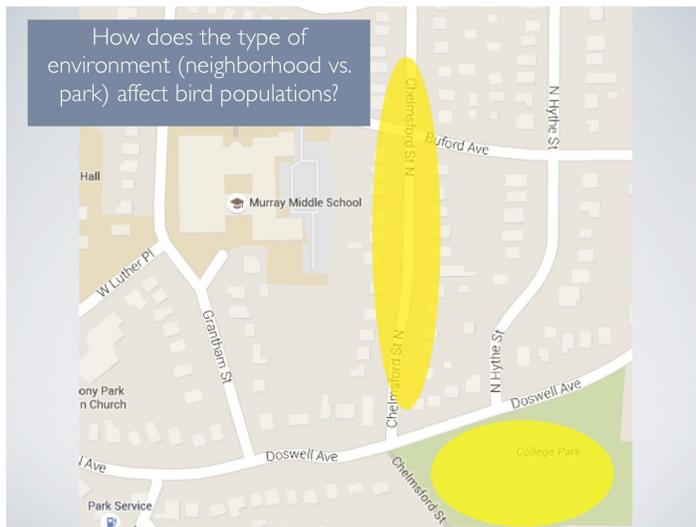
The project has four parts taking place in four locations, Belwin Outdoor Learning, College Park Outdoor Classroom, Como Woodland Outdoor Classroom (CWOC), and Wolf Ridge ELC. At these locations e2 students study birds and build understanding and appreciation for the diversity of birds found in Minnesota and the role a healthy ecosystem and environment plays in their success. The grant provided transportation to Belwin Outdoor Learning for the training and to CWOC to complete the bird study alongside an ongoing phenology study.

Belwin Outdoor Learning: Students work with the staff at Belwin Outdoor Learning on proper bird counting and identification through sounds, size, profile, and color through a day long lesson. The e2 classes visited Belwin in the early fall of 2018 spending a full day on learning and practicing birding skills, and at the end of the day, recording their counts on eBird, a global tool for birders, and critical source of data for citizen science.

College Park: Students collect data on an experimental question comparing bird populations in the local neighborhood and College Park Outdoor Classroom. They use the skills learned at Belwin to compare the bird counts in a park setting versus a residential setting on two different days. In addition to providing a chance to

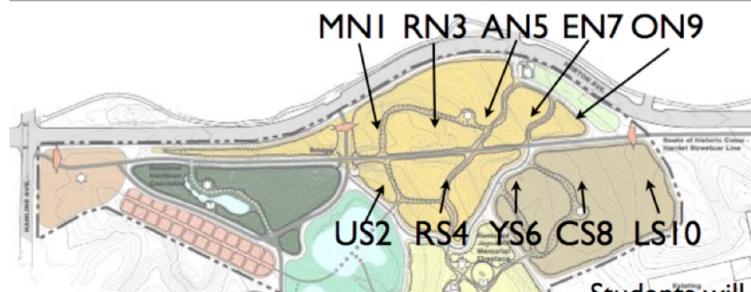
MURRAY MIDDLE SCHOOL

practice birding skills learned at Belwin, it gives a chance to discuss experimental error and factors that influence experimental outcomes.



Como Woodland Outdoor Classroom (CWOC): Students observe the bird migration through the Twin Cities, building a database that will enhance a phenology study currently in its fifth year. For the past five years students have been assigned a site (MN1, US2, RN3...) in the Como Woodland Outdoor Classroom to monitor to collect biotic and abiotic data from their designated sites. In 2018 and 2019, e2 students will add bird counts and species data to the phenology data collected.

Student Plot Assignments



Wolf Ridge: Students observed and participated in a banding day at Wolf Ridge, where staff and local wildlife specialists use mist nets to catch, count, and weigh, birds, according to methods used in national studies in which Wolf Ridge has continually participated in for many years.

Project Outline

The following was the planned outline for the course:

October

- Inquiry experience at Belwin Outdoor Science Center with Josh Leonard

January

- Visit Murray science fair to discuss “What is an experimental question?”
- Raptor Center visit/tour
- Start viewing the [Decorah Eagle Nest](#) at the start of each class making daily observations and inferences in class notebook.
- 1st CWOC Bird Count & Phenology documentation - Measurements & pics in field journal specific to site (i.e. MN1 or RS4). Journal will be saved for following year's classes to use as a reference.
 - pics in all four directions N,S,E,W
 - pics and counts of types of all vegetation found in the 1 square meter that is 10 meters off path from mark on pathway.
 - counts of types of any birds seen from the 10 meter point
 - measure air temperature, soil temperature, snow depth, cloud cover...

February

- U of M Magrath Library tour and research for primary sources - How to read research papers
 - ~three days of tours and introductions - Small groups alternate between stations
 - ~ three days of individual research on ecology related projects/surveys
- 2nd CWOC Bird Count & Phenology documentation - Measurements & pics in field journal specific to site (i.e. MN1 or RS4). Journal will be saved for following year's classes to use as a reference.
 - start development of inquiry project for CWOC

March

- 3rd CWOC Bird Count & Phenology documentation (same measurements & pics as done in January and February)
- Create Display Boards - phenology comparison from January through March (measurements & pics) with plans to add to them in May.

April

- 4th CWOC Bird Count & Phenology documentation (same measurements & pics as done in January, February & March)
- finalize CWOC inquiry project - collect data

May

- Spring CWOC field investigation
- 5th CWOC Bird Count & Phenology documentation (same measurements & pics as done in January, February, March, & April)
- Use second Belwin trip to start collecting CWOC Inquiry Project data (potential ideas students might develop)
 - soil temperature



The Raptor Center visits Murray Middle School to teach students about the physical adaptations of raptors.

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- insect pitfall traps
 - soil salinity
 - plant distribution
 - worm survey
 - other student generated topics

June

- present findings on CWOC Inquiry Project
- Have Adam Robbins from St. Parks and recreation Department present on what has been done and what will be done for restoration of this area. How did you use indicator species to determine the biome to represent? Activity using the “Field Guide to the Native Plant Communities of MN Eastern Broadleaf Forest Province”



Murray students observe birds in local park to compare bird count with nearby neighborhood.

The Objective: was to expose students to the process of collecting data outside, observing the natural world, adding to the collective knowledge of science, and growing the appreciation of the bird diversity and migration patterns of birds through Minnesota.

Summary of success:

- Students collected phenological data of Como Park and added to the documentation of the last 5 years.
- Students observed and learned about bird migration, and helped set out Bluebird houses at Belwin Outdoor Science Center
- Students observed birds in College park vs. neighborhood streets comparing bird counts in the two different environments.
- Students meet with staff and birds from The Raptor Center to learn about physical adaptations specific to raptors

Summary of shortcomings:

- Time was too short to get quality bird counting and observing done at Como Woodland Outdoor Classroom (CWOC). I needed to plan for more time, sometimes the weather did not cooperate, sometimes the birds did not cooperate. School schedules and taking students out for longer was not feasible.
 - Teaching students how to count and observe birds should have been worked into the process and I should have allowed for more practice and feedback on their observation skills.
 - Instead of learning about reading research papers, the U of M librarians and I had students work on making info graphics regarding environmental research.
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BUDGET/EXPENSES

Description	Quantity	Unit Price	Cost
Bus to Belwin	4	\$ 225	\$ 900
Bus to CWOC	8	\$ 225	\$ 1,800
The Raptor Center Visits (supplemented with other grant \$\$)	2	\$ 100	\$ 200
Total			\$ 2,900

\$2730 grant in 2017
