

Evaluating How Bird Banding Interpretation Meets Environmental Education Goals

Amy Busch, Klamath Bird Observatory and Southern Oregon University, Ashland, OR; Ashley A. Dayer, Klamath Bird Observatory, Ashland, OR.

Abstract:

Ecological monitoring sites, such as bird banding stations, provide opportunities to share ecological research and monitoring with the public. The primary audience benefiting from such opportunities is often school children. Yet, limited evaluation research has been undertaken to determine if these interpretative programs aid in meeting environmental education goals.

An evaluation of Klamath Bird Observatory 4th-5th grade bird banding interpretative program demonstrates how environmental education goals may be met. This study used both quantitative and qualitative methods to gather a rich understanding of the outcomes of the program, which included surveys, interviews, and observations. 284 students and 11 teachers participated in the study. Results demonstrate how this interpretative program is accomplishing goals in increasing student knowledge and skills, awareness, and but not conservation behavior intentions. To meet its behavior intention goal, we recommend incorporating a hands-on conservation-learning activity to aid in meeting this outcome followed by further evaluation studies to determine whether this additional activity contributes to the success in meeting this environmental education goal.

KEYWORDS: evaluation, bird banding, environmental education

INTRODUCTION

Ecological monitoring sites, such as bird banding stations, provide opportunities to share ecological research and monitoring with the public. The primary audience benefiting from such opportunities is often school children. Yet, limited evaluation research has been undertaken to determine if these interpretative programs aid in meeting environmental education goals to school children. Evaluation provides a mean to understand the impact curriculum and interpretative programs have on their audiences. Using evaluation in a practical application can help strengthen interpretive programs in meeting environmental education goals (Smith-Sebasto 2005, Wiltz 2000). By using evaluation, organizations can systemically understand how their programs work in meeting environmental education goals.

Klamath Bird Observatory (KBO), a 501(c)3 nonprofit organization, developed a process to evaluate their interpretative bird banding program in meeting environmental education goals

of knowledge, skills, awareness, and behavior change. KBO is a conservation organization that emphasizes observation-based science and additionally relies on education for achievement of conservation goals. As such, KBO's mission is to advance bird and habitat conservation in the Americas through science, education, and partnerships. KBO works regionally in the Klamath-Siskiyou Bioregion of southern Oregon and northern California and internationally in Latin America where many of the bioregion's neotropical migrants spend their winter. KBO strives to meet their education and interpretative goals through a variety of programs serving land managers and private land owners, birders, community members, K-12 students and teachers, young biologists and environmental educators.

KBO identified a need for a program evaluation plan for their longest standing and most comprehensive school offering, Songbirds, Science, and Schools, which provides a field trip to an ecological monitoring station, where they band birds. Without evaluation, they did not know how their program was meeting environmental education goals. To determine the effectiveness of this interpretative program in meeting environmental education goals, this study evaluated whether the program increased the students' knowledge and skills, awareness, and behavior intentions at the fourth/fifth grade level.

METHODS

Songbirds, Science, and Schools involves a 60 to 90 minute classroom lesson with a presentation and hands-on activity. The students then take a morning field trip that includes a 75 minute structured visit to an ecological monitoring station where KBO mist nets and bands songbirds and another 75 minutes for exploration of the habitat and its birds using binoculars. Teachers are provided with an optional post activity to follow back in the classroom to analyze

and discuss data collected on the field trip. Lessons and activities vary due to age level in order to have meaningful age-appropriate science lesson. The fourth/fifth grade classroom visit allows students to explore study skins of local birds and teaches ornithological skills of field sketching, field mark identification, field guide usage, and hypothesis development as to whether their birds will be found in the field trip habitat at this time of year. The field visit provides students the chance to test their hypotheses, recording all birds captured at the banding station and seen with binoculars. They practice data collection and two ornithological research methods, bird banding and area searches.

The evaluation of the Songbirds, Science and Schools program for fourth and fifth grade classes followed a goal-oriented approach which allowed us to assess whether the program was meeting its environmental education goals to increase student knowledge and skills, awareness and behavior intentions. A goal-oriented approach which is also known as an objectives-outcomes approach, examines short, medium, and long-term outcomes as a result of program participation (Posavac and Carey 1997, Weiss 1998, Patton 2002). Outcomes refer to participant learning, actions, and conditions the program wants participants to achieve. To assess whether students were increasing their knowledge, skills, awareness, and behavior intentions, multiple methods were used including a pretest-posttest survey of students, a follow-up survey of teachers, teacher interviews, and observer observations. The sample included 11 teachers and 284 students.

RESULTS

The results suggest that knowledge about birds and science was gained, science skills were demonstrated, and awareness of birds increased. Yet, results on the intention to protect

birds following participation in the program were not conclusive. Pre and post-test student surveys demonstrated knowledge and skill increased from as a result of the program and that these knowledge and skills were maintained three months after participating in the program. Teacher surveys and interviews also confirmed that students gained knowledge and science skills and increased awareness of birds. Our observations revealed students recalling bird knowledge and demonstrating science skills in observation and data collection in the classroom and the field visit. We also noticed students being aware of birds by pointing them out to KBO instructors during the field visit. The various tools were inconsistent as to whether the program increased intention to protect birds. In surveys, teachers indicated that student intentions increased but few could offer an example of such changes in intentions in their interviews. Student surveys revealed no change in a conservation behavior intention composite scale created from six Likert-scale items. Further, observations of the classroom visits and field trips did not provide any specific observations related to students discussing future conservation actions.

DISCUSSION

Our results showed this bird banding interpretation program does meet environmental education goals of increasing student knowledge, skills, and awareness but not conclusively the environmental education goal of increasing student intention to protect birds. These evaluation results provide the organization with opportunities to enhance their program to ensure their environmental education goals are met. We noted that the bird banding interpretative program does not allow students to discover bird conservation issues in a hands-on manner as it does science and awareness of birds. This lack of hands-on conservation activity could have influenced why this program did not meet its goal of increasing student intention to protect birds.

Further, the interpreters were not observed to be including conservation messages in their program; yet their interpretive manual directs interpreters to do so. KBO is currently in the process of strengthening their program through several actions. A Youth Education Project Leader has been hired, who will provide consistent and dedicated leadership for this program. KBO has also developed an Instructor Review process that will allow for systematic oversight and ensure that interpreters are conducting interpretation as outlined in the manual, providing all relevant messages and themes. KBO is exploring means to strengthen the lesson plans including incorporation of a hands-on conservation-learning activity and enhancement of conservation messages in the interpretation manual.

This research leads us to recommendations for KBO, and, more broadly, other organizations who currently or plan to conduct interpretation at ecological monitoring stations. The evaluation results demonstrate the effectiveness of the program in meeting many goals, which provides KBO the opportunity to share this success story with board members, other staff, donors, and the environmental education community. It further offers other organizations the opportunity to share this story to find their own justification for similar programs. It also demonstrates the value of evaluation for program enhancement and the organization overall. We suggest KBO continue their evaluation of the program to determine how changes they are making to the program influence its goal to increase student intention to protect birds. We also encourage other organizations to undertake program evaluations to attain such benefits through sharing results internally as well as externally.

LITERATURE CITED

Posavac, E.J. and Carey, R.G. 1997. Program Evaluation: Methods and Case Studies (5th ed.) New Jersey: Prentice-Hall, Inc.

- Patton, M. Q. 2002. Qualitative research & evaluation methods. (3rd ed.) Thousand Oaks, Ca: Sage Publications.
- Smith-Sebasto, N.J. 2005. The pros and cons of research in environmental education. Essential readings in environmental education (3rd ed.) (pp. 329-348). Champaign, Illinois: Stipes Publishing L.L.C.
- Weiss, C.H. 1998. Evaluation: Methods for Studying Programs and Policies (2nd ed.) New Jersey: Prentice-Hall, Inc.
- Wiltz, K. 2000. Proceedings of the Teton Summit for Program Evaluation in Nonformal Environmental Education. Teton Science School, Kelly WY; Ohio State University, Columbus, OH.