PUBLIC PARTICIPATION IN ORNITHOLOGY: AN INTRODUCTION TO ENVIRONMENTAL RESEARCH

SUMMARY OF COMPLETED PROJECT

The project “Public Participation in Ornithology” consisted of two parts. First, it evaluated and improved an already existing Lab of Ornithology science education program, Project FeederWatch, a volunteer-conducted survey of birds at backyard feeders. As a result of the improvements, participation in the project was increased from about 7,000 to about 12,000 individuals, and participant satisfaction and learning was greatly increased. Second, this project supported the development of three “National Science Experiments,” the Seed Preference Test, Project PigeonWatch, and Project Tanager. All of these projects involved participants in actual research as they gathered data to answer questions of real scientific interest while learning about birds, the environment, and the scientific process. The Seed Preference Test determined what seeds North American birds like best. It involved about 17,000 participants, many of whom have since joined Project FeederWatch. Project Tanager has gathered critical data that is helping to shape national bird conservation projects. It involved at least 4,000 people and has evolved into a new and larger project, called Birds in Forested Landscapes, funded by participants’ fees and the National Fish and Wildlife Foundation. Project PigeonWatch continues to gather data on pigeon biology in cities nationwide, and now involves about 300 youth groups as well as several hundred individuals. All of these projects have garnered significant media attention, and evaluations show that participants have learned a great deal about both ornithology and scientific methodology.

TECHNICAL INFORMATION

"Public Participation in Ornithology" was awarded for two purposes:

1) to evaluate and improve an existing Lab of Ornithology science education program—Project FeederWatch, a volunteer-conducted survey of birds at backyard feeders—and 2) to develop three nationwide “National Science Experiments” (NSEs), designed to teach non-scientists about the scientific method by involving them in meaningful scientific research.

Project FeederWatch was first evaluated through a series of focus groups and telephone interviews (Hezel, 1992). These evaluations suggested numerous improvements that could be made to the instruction booklet, data forms, and project newsletter. These included simplifying the data forms; expanding the instruction booklet, especially to include more information about how to count the birds and how participant data would be used; and increasing the amount of reporting back to the participants. The evaluations also suggested methods for increasing the number of participants in the project. When new marketing strategies were undertaken, participation increased from about 7,000 to about 12,000 individuals. After the improvements were made, the project was evaluated again. The new evaluations suggested that participants had become very satisfied with the project and were learning a great deal about both ornithology and the process of science (Cornell Office of Communication Strategies 1994, 1995).

The National Science Experiments

All three NSEs developed under this grant followed the same basic model. First, Cornell biologists identified bird-related questions of significant scientific interest, answers to which could be obtained only by collecting a large number of observations from a wide geographic area. Next, Cornell biologists and educators worked together to develop a research kit for participants, which included an explanation of the questions to be addressed by the study, instructions for data collection, computer-readable data forms, and a series of education aids. These kits were based on the FeederWatch model.

Participants in the projects followed the protocols for data collection, recorded data on the forms, and returned them to the Lab. Participants who had questions or needed help called or e-mailed the Lab for assistance. Lab staff analyzed the composite data, wrote reports of the findings, submitted the results to scientific journals, and reported the findings at scientific meetings. They also published results in the Lab's newsletter, *Birdscope,* which all participants received.

*The Seed Preference Test*

What types of seeds do ground-feeding birds like best? TheSeed Preference Test (SPT) was designed to answer this question, for three reasons. First, bird-seed preferences had never been studied for a large number of species over a wide geographic area. Second, the protocol was simple, but clearly showed how a scientific experiment is designed and carried out. Third, the question was thought to have wide public appeal.

During the Winter of 1993/1994 more than 17,000 people signed up for the SPT, and the next Spring the Lab received nearly half-a-million feeding observations, which clearly showed seed preferences for many species of North American birds. The Lab also received more than 1,000 notes and letters from participants describing their data-collecting experiences and suggesting ways to improve the experimental protocol.

The scientific results of the SPT were reported at the 1995 meeting of the American Ornithologists’ Union (Rosenberg et al. 1995), and a manuscript has been submitted to a refereed ornithological journal (Rosenberg et al. in review). A second manuscript is nearly complete (Rosenberg et al. in prep.).

An independent evaluation of the SPT, conducted by Hezel Associates of Syracuse, New York (Hezel Associates 1994b), showed that participants rated the project very favorably. It was perceived as very interesting or interesting by 72 percent of respondents, and as very enjoyable or enjoyable by 66 percent. Written comments suggested that many participants increased their skills of scientific observation.

*Project Tanager*

Studying the effects of landscape structure on wildlife populations has become a central theme of conservation biology. Project Tanager was designed to answer the question, "How are North American tanagers affected by forest fragmentation?" Tanagers were chosen as study species because the birds are colorful, conspicuous, and found nearly everywhere in North America.

Project Tanager is the first study of the effects of habitat on populations ever attempted at the continental scale. Despite the complexity of the protocol, after two field seasons the Lab has received data from thousands of study sites across North America. These data represent more information about the effects of landscape features on breeding biology than has ever before been collected, and Project Tanager has attracted significant interest from the scientific community. Several papers reporting results have been presented at scientific meetings (Dhondt et al. 1994, Bonney et al. 1995, Dhondt et al. 1995, Dhondt and Rosenberg in press, Gregory in press).

Like the SPT, Project Tanager has been well received by its participants. A final report from Hezel Associates (1995) stated that participants found the project and its component parts to be clear, attractive, interesting, enjoyable, and successful. More than 90 percent would participate again, and 82 percent were interested in additional data-collecting projects. Although Project Tanager completed its final season of data collection during the summer of 1996, it is evolving into a new project involving many more bird species, tentatively called “Birds in Forested Landscapes,” which will collect important data for the National Bird Conservation Plan being developed through Partners in Flight.

*Project PigeonWatch*

Why do pigeons exist in so many different colors? How and why does the color composition of pigeon flocks vary across the continent? Project PigeonWatchwas designed to involve inner-city youths in helping to answer these and other questions by conducting real science in their own neighborhoods. Project participants find flocks of pigeons, count how many pigeons of each color are in each flock, and make experimental observations of pigeon behavior.

After three years of pilot and field testing, Project PigeonWatch is just getting under way at the national scale, but dozens of youth groups and classrooms are already signed up. The first round of PigeonWatch data submission, in April 1996, showed that definite differences do exist in the color composition of flocks across the country. But the data barely hinted at the wealth of information that will be collected and sent to the Lab as the project grows during the next few years.

In the meantime, it’s clear that participants are enjoying the project and seeing more than they ever imagined in the oft-maligned bird. Said one youth from New York City: “I never knew anything about pigeons. Now I know a lot, and they have taught me something about life ... They’re part of the wildlife of the city.” Echoed another participant from Denver, Colorado: “The pigeon project helped us find beauty in our own neighborhood and taught us respect for city wildlife.”

Publications

Bonney, R. E. Jr., K. V. Rosenberg, A. A. Dhondt, and M. A. Barker. 1995. Amateurs in ornithology revisited: How to conduct a study with 4,000 field assistants. American Ornithologists' Union, 113 Stated Meeting, Book of Abstracts, 70.

Dhondt, A. A., K. V. Rosenberg, P. Senesac, J. D. Lowe, and D. Tessaglia. 1994. Project Tanager: An attempt to measure the effect of forest fragmentation on a continent-wide scale. Page 671 *in* The Ornithological Notebook of the XXI International Ornithological Congress.

Dhondt, A. A., K. V. Rosenberg, P. Senesac, J. D. Lowe, S. Gregory, and D. Tessaglia. 1995. Variation in the effect of patch size and landscape structure on the possible breeding of tanagers (*Piranga spp.*) in different parts of their range. American Ornithologists' Union, 113 Stated Meeting, Book of Abstracts, 289.

Dhondt, A. A. and K. V. Rosenberg. In press. Project Tanager: Using volunteer birders to study the effects of habitat fragmentation. *In* Bonney, Pashley, Niles, and Cooper: Strategies for Bird Conservation: the Partners in Flight Planning Process. Cornell University. 400 pages.

Gregory, S. In press. Volunteers conducting research. *In* Bonney, Pashley, Niles, and Cooper: Strategies for Bird Conservation: the Partners in Flight Planning Process. Cornell University. 400 pages.

Rosenberg, K. V., A. A. Dhondt, R. E. Bonney, Jr., and D. Tessaglia. 1995. Seed preferences in North American birds. American Ornithologists' Union, 113 Stated Meeting, Book of Abstracts, 298.

Rosenberg, K. V., A. A. Dhondt, R. E. Bonney, Jr., and D. Tessaglia. In review. Seed preferences of North American birds in relation to morphology, natural diet, and phylogeny. *Condor*.

Rosenberg, K. V., A. A. Dhondt, and D. Tessaglia. In prep. Geographic variation in seed choice of North American birds.

In addition, many articles about the projects were printed in *Birdscope*, the Cornell Lab of Ornithology newsletter, which all project participants received. Copies of these articles are enclosed. And, many articles about the projects were published in newspapers and magazines. A representative sampling of these articles also is enclosed.

Evaluations

Cornell Office of Communication Strategies, 1994. “Focus Group Analysis: Project FeederWatch/Seed Preference Test.” 77 pp.

Cornell Office of Communication Strategies, 1995. “Project FeederWatch Survey: Report of Findings.” 139 pp.

Hezel Associates, 1992. “First-Year Evaluation of Project FeederWatch.” 1201 East Fayette Street, Syracuse, New York 13210. 23 pp.

Hezel Associates, 1992. “BirdWatch Radio Programs Focus Group Summary.” 1201 East Fayette Street, Syracuse, New York 13210. 15 pp.

Hezel Associates, 1993. “BirdWatch Listeners Survey.” 1201 East Fayette Street, Syracuse, New York 13210. 13 pp.

Hezel Associates, 1993. “Project Tanager Evaluation: Pilot Participants’ Profile and Pretest.” 1201 East Fayette Street, Syracuse, New York 13210. 17 pp.

Hezel Associates, 1994a. “Seed Preference Test Participant Profile and Pretest.” 1201 East Fayette Street, Syracuse, New York 13210. 8 pp.

Hezel Associates, 1994b. “Evaluation of the Seed Preference Test Posttest Report.” 1201 East Fayette Street, Syracuse, New York 13210. 16 pp.

Hezel Associates, 1994c. “Project Tanager Participant Profile.” 1201 East Fayette Street, Syracuse, New York 13210. 8 pp.

Hezel Associates, 1995. “Evaluation of Project Tanager: Post-Project Report.” 1201 East Fayette Street, Syracuse, New York 13210. 18 pp.

Note: Evaluation of Project PigeonWatch is still incomplete.

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