

## 4-H Wildlife Stewards

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### Program of Distinction Category

- Natural Resources Education

### Sources of Funding that Support this Program

- National Science Foundation (NSF) \$890,636 competitive grant
- Multnomah County Title III Grants. \$10,000 competitive grant.
- Weyerhaeuser Foundation, \$2000 competitive grant.
- Earth Day Every Day Foundation, \$600 competitive grant.
- METRO Regional Government Greenspaces Grant, \$20,895 competitive grants.
- Oregon 4-H Foundation, \$1400 competitive grant.
- OSU Water Quality Initiative, \$19,150 grant.
- OSU Extension Innovative Grants, \$10,000 competitive grant.

### Knowledge and Research Base

This project has established a methodology for improving the quantity and quality of science education through the use of trained Master Volunteer 4-H Wildlife Stewards. The evaluation of our current NSF-funded project has revealed a preliminary conceptual model of how science learning is enhanced through the presence of trained adult volunteers who work with teachers, schools, and students to construct wildlife habitats on school grounds that are used for informal science inquiry.

This new 4-H model is in line with emerging research on school and community connections. Creating and supporting strong school and community connections is a critical component of building capacity. These studies have found that connections between the student's primary environments—school, community, and family—are key elements of this developmental approach. Several authors (Lewis & Henderson, 1998; Shirley, 1997) suggest that the increased leadership capacity which results from parent and community engagement in school innovations and reform results not only in improved schools, but also in stronger social networks and capacity throughout the community.

The 4-H Wildlife Stewards Program Model also supports new research on family and community connections. In the past, research on family and community connections has generally emphasized formal and programmatic approaches to creating connections. However, there is also evidence that more one-on-one,

relationship-oriented interactions between educators, parents, and community members are a key factor in making connections and effectively supporting student achievement, school reform, and community development (Wynn, Meyer, & Richards-Schuster 2000; Adams & Christenson, 2000; Mapp, 1999; Scribner, Young, & Pedroza, 1999; Setisinger, 1996). Research has suggested that relationship building and trust are at the core of successful school outreach and community involvement. Community-based education reformers also observe that effective school-community connections depend on building strong, trusting, relationships between schools and parents and between parents and community advocates (Lewis & Henderson, 1998; Wynn et al., 2000).

Evidence suggests that 4-H Wildlife Stewards volunteers alone cannot drive a successful program. 4-H Wildlife Stewards volunteers must work collaboratively with each of the stakeholders represented in the model. The role of staff is critical in this model. According to the Southwest Educational Development Laboratory 2001 report, an emerging concept from the literature is that of an intermediary organization or individual as a bridge builder between schools, families, and the community (Honig, 2001; Cordiero & Kolek, 1996). These intermediaries are also referred to as "cultural brokers" and "boundary spanners."

It is clear - responsibility for providing rich and varied opportunities to develop essential skills and competencies for youth is not the school's alone. Parents and communities play an important role as well. Learning and development take place and are equally affected by what happens in and out of school. The 4-H Wildlife Stewards Program Model provides the system, training and support for both families and educators to ensure that all children and youth have access to diverse developmental opportunities in their homes, neighborhoods, and schools by helping parents overcome barriers and get involved in schools.

### **Needs Assessment**

The 4-H Wildlife Stewards program began as a response to two critical issues facing Oregonians:

- 1) A growing public concern over the deterioration of our environment and the resulting loss of wildlife habitat
- 2) The Oregon Education Act which was boldly adopted in 1996

This act set new, high standards for students and was designed to prepare them for the challenges they face after high school. Classroom teachers today are working hard to meet these new standards, and at the same time, are facing shrinking financial resources and rising class sizes. Teachers were and continue to feel overwhelmed and overworked. Parents and community members were looking for a way to become actively involved in caring for the environment as well as supporting their schools. Families and communities realize that the education of our youth is the responsibility of all, not just schools.

As teachers respond to the demands of educational reform and strive to meet the increasing pressures of educational benchmarks and assessment, a counter reality is occurring: teachers are finding less and less time to utilize innovative teaching techniques in their classroom due to budget cutbacks and crowded classrooms. The result is that while teachers may receive training on new and innovative ways to teach, few are able to implement these strategies in the classroom. Others leave out of frustration. Nowhere is this truer than among science teachers. A recent survey sponsored by National Science Teachers Association

(May/June 2000), shows that a surprising number of teachers are considering leaving the profession and that the frequent turnover of science teachers is common in schools and districts nationwide.

The 4-H Wildlife Stewards Program model, a new model for delivering 4-H education, demonstrates that volunteers trained in building community capacity and how to work collaboratively with schools and community partners are making a difference in the lives of thousands of youth and helping youth become good stewards of our environment.

### **Goals and Objectives**

- To improve science and math skills, knowledge and attitudes among youth
- To increase school and community capacity to deliver high quality science education programs for youth through trained 4-H Wildlife Stewards
- To increase the quality and quantity of wildlife habitats by promoting stewardship among youth and supporting teachers, students, parents and community members to create and sustain wildlife habitat education sites.

### **Target Audience**

- Youth in grades K-12 in urban, rural and suburban communities
- Parent and community volunteers

### **Program Design and Content**

#### ***Type of program***

- School enrichment program

#### ***Methods used to deliver the program***

4-H Wildlife Stewards pay on average \$75 to undergo a 30-hour 4-H Wildlife Stewards training, and commit to a minimum of 50 hours of service to a local school community site. The training course sessions include tours to demonstration sites, training in staged pedagogy, principles of wildlife management, landscape design, wildlife habitat requirements, techniques on how to teach science to children, curriculum demonstrations, mobilizing community support, science benchmarks and standards, managing science kits and supplies, developmental needs of children, teaching methodologies, the experiential learning model, building a community science team, grant writing, working with media and project sustainability.

4-H Wildlife Stewards work in teams of two or more and are assigned to a "member" school. To become a Member School, a representative from the local school must complete an application and be interviewed. Applicant school sites are screened and selected for their commitment to informal science education, natural science projects and their ability to support volunteers. Member Schools must secure funds for garden and habitat supplies and materials, recruit additional parent and community volunteers, attend a community member site representative orientation, gain site approval from the school district, city, or other appropriate jurisdiction and ensure that the project is planned, designed, and sustained in collaboration with youth. Each Member School receives a minimum of 100 hours of volunteer support from the 4-H Wildlife Stewards.

4-H Wildlife Stewards are trained parent and community volunteers. They are trained to support culturally diverse community-based programs in both urban and rural communities by:

- Participating in community site planning committees to ensure project longevity
- Working in teams with small groups and large classes to research and develop a wildlife habitat project such as a wetlands restoration, bird garden, interpretive trails, nest boxes or others
- Recruiting and scheduling the support of science professionals to serve as student mentors.
- Assisting youth in the design, development, and evaluation of research experiments
- Assisting teachers in presenting lessons and activities in or about the project
- Helping youths keep portfolios of their work and document their project

### ***Curricula and/or educational materials***

There are many educational resources and curricula that support the 4-H Wildlife Stewards program. A sampling of the resources and curriculum pieces include:

- 4-H Wildlife Stewards Project Handbook (over 300 pages)
- 4-H Wildlife Stewards Classroom Curriculum (over 40 hands-on science lessons)
- 4-H Wildlife Stewards Training Curriculum (3-day training program)
- 4-H Wildlife Stewards Web course (20 learning modules)
- Project Sustainability Certification Curriculum (four levels of certification)
- Teen Stewards Training Program (8 hour training program)
- 4-H Wildlife Stewards Member School Teacher and Parent Curriculum Training (3-6 hour training program)
- One-week Summer Camp Program for Junior Wildlife Stewards (3-12 grade students)
- 95-minute training video series, a one-day 4-H Wildlife Stewards Statewide Student Summit
- Trainers guide for local program staff
- Three-day tour and exchange of Eastern Oregon Rangeland.

### ***Partnerships or collaborations***

Currently the OSU Extension 4-H Youth Program, in collaboration with local school districts, parent groups and community partners, mobilize parent and community support for raising youth achievement toward higher math and science skills and increase public understanding for challenging science programs through the 4-H Wildlife Stewards Program. Through support from the National Science Foundation, this program is designed to become a national model for training and supporting science education parent volunteers to work with community-based science programs.

## **Program Evaluation**

### ***Process***

In 2005, focus groups were conducted with a total of 40 5th grade students from seven schools in five counties to measure the long-term impacts of this program on elementary school students. OSU Institutional Review Board (IRB) approval was obtained for the sessions which were recorded with video, audio and written transcription. Students invited to these focus groups were selected randomly and had a minimum of two or more years experience with the program. These focus groups revealed that 4-H Wildlife Stewards Volunteers enabled students to get outside, do hands-on science, do work which helped the environment and school, and learn about nature. They had fun and saw other students in a new and positive setting. Students learned how to do science, and reported that it was interesting, fun, not as difficult as they previously thought, and enabled them to study things they cared about.

When challenged that outdoor learning was not as important as school science, the students disagreed. They pointed to more learning because of the reality they encountered. They said that classroom learning was enhanced by the 4-H Wildlife Stewards activities. Specific activities, payoffs, and outcomes were strong in every setting examined, but they varied in specificity by site.

Each site reported specific, memorable, thematic activities: a pond habitat, a bioswale habitat, a community garden, stream rehabilitation, bat study, or cataloging trees and plants. The specific activities and topics learned varied by site—each had a clear focus that the students could describe. Specific habitats, school histories, volunteer interests, and teacher emphasis were well exploited for program development at each site.

Focus group results found unexpected support for separate standardized testing programs (e.g., state benchmark tests) in some, but not all, sites. In some sites students were virtually unanimous in reporting positive effects on their standardized (and class) testing as a result of their 4-H Wildlife Stewards experience. Students said that their attitudes toward science, school, and each other were improved as a result of their 4-H Wildlife Stewards experience. A common theme was that, as a result of 4-H Wildlife Stewards, students saw science to be less distant, difficult, boring, and inaccessible. Students also reported that 4-H Wildlife Stewards gave them a chance to be successful in school, and with classmates, in ways that were different from conventional classroom activity.

### ***Outcomes and Impacts***

In 2004 the impact of the program on student science learning was measured in three ways:

1. Classroom assessments with 7 participating classrooms at 5 active schools.
2. End of program evaluation given to student participants at each of two 4-H Wildlife Stewards Summits held in the spring of 2004.
3. The reports of 4-H Wildlife Stewards and teachers.

Self-report data from students, volunteers and teachers all indicated that the 4-H Wildlife Stewards program has a worthy impact on student interest and skill in science. It is clear that the Habitat Education projects makes science learning fun for

the students and they feel skilled at making observations and collecting science data using the habitat. In addition, many of the students report that the program helped them to enjoy science and perform science better. Furthermore, teachers gave fairly high ratings of the program's impact on student science interest, and to a slightly lesser degree, the impact of the program on student science skills. In addition, teachers revealed that the 4-H Wildlife Stewards program had helped them to teach science differently, primarily though providing resources and opportunities for hands-on science learning.

*Impact on the use of volunteers to increase community capacity for providing quality science education in schools*

One-hundred and eight-four new 4-H Wildlife Stewards volunteers were trained between October 2001 and May 2004. Participants included 107 adult volunteers, 62 classroom teachers and 15 OSU Staff members. At the conclusion of the trainings, 4-H Wildlife Stewards self reported they felt well prepared to teach science informally (4.06 on a 1-5 scale with 5 high), how to locate resources (4.04) and how to develop school habitats (4.17).

Follow up surveys were sent to 55 trained volunteers who were identified as currently active (6 months or more) 4-H Wildlife Stewards. Surveys were returned by 75% of participants. Participants reported significant positive changes in 13 areas including teaching science informally, creating a successful habitat project, project-based learning, and science inquiry. Forty-one percent of the teachers who returned surveys gave high ratings to the active use of the habitat to teach science.

One of the goals of the program is to increase the level of parent, family and community involvement in the school as a result of the project. On a 1-5 scale with 5 being the highest, 64% of teachers and 68% of volunteers rated the increase in parent involvement a 3 or higher. 64% of teachers and 63% of volunteers rated the increase in family involvement a 3 or higher. Lastly, 74% of teachers and 70% of volunteers rated the increase in community involvement a 3 or higher.

In 2005, 35 out of 41 schools completed the report. Of these schools:

- 24 schools reported securing grant funds to support their school habitat project for a total of \$48,172
- ten schools conducted fundraisers for a total of \$8585
- 15 schools reported receiving in-kind donations for a total of \$12,510
- 8 schools reported cash donations for a total of \$11,750. In total, out of the active schools who submitted their reports, 4-H Wildlife Stewards raised \$81,557 to support science education in Oregon schools.

Six month follow up surveys, with seven key site personnel (principals, teachers, etc) indicated that on a scale of 1-5, with 5 being excellent, there was an average score of 4.57 on the schools' receptivity to the idea of a wildlife habitat as an informal science classroom. They reported average scores above 4.0 on the ability of 4-H Wildlife Stewards to work with teachers, students and people from different cultures. They also reported an average score of 4.0 for 4-H Wildlife Stewards' effectiveness in garnering resources for the site and 4.0 for 4-H Wildlife Stewards' overall effectiveness in the school.

### ***Communication to stakeholders***

Today, the program is communicated to stakeholders, including National Science Foundation, community partners, volunteers and school districts, through an annual program summary.

### **Program Sustainability**

In 1997, the first class of 14 4-H Wildlife Stewards was trained with a small grant of \$1500. How did this small program with a few dollars and a handful of dedicated volunteers spread into a program that has grown almost tenfold? A key aspect is that the program is based on facilitative change, not just skill acquisition. 4-H Wildlife Stewards volunteers are the organizers, dreamers, visionaries and catalysts for change in their local communities.

By recruiting and supporting other parent volunteers and teachers 4-H Wildlife Stewards impact an entire community. As an example, one Oregon 4-H Agent works with 350 club-based volunteers, and these volunteers in turn work with 1400 youth. Another agent, using the 4-H Wildlife Stewards model, works with 11 volunteers. These 11 volunteers recruit and support 134 teachers and 50 parent volunteers to deliver hands-on science education to 2843 youth.

Through new methods of delivering youth education, 4-H demonstrates that in the end what underlies successful unified programs of change is a bedrock belief that change is possible and that people can radically transform their behavior, beliefs, policies and practices with the right kind of impetus. 56% of 4-H Wildlife Stewards Member Schools responded to a survey. On average, each week, 42% of students spent 1-2 hours in hands-on learning related to this project, 33% spent 3-5 hours a week in hands-on science and 25% spent 6-15 hours per week in hands on science. This is significantly higher than traditional 4-H club members spend each week in 4-H hands-on learning.

Project sustainability is a key ingredient to the success of this program. One-third of the training 4-H Wildlife Stewards receive is devoted to project sustainability. Unlike traditional 4-H volunteers, 4-H Wildlife Stewards volunteers are trained in many aspects of sustainability including how to secure grants and resources, how to recruit and manage community partners and other parent volunteers, how to form and run a school habitat team and how to work with the media. 4-H Wildlife Stewards Member schools also participate in the program Project Sustainability Certification Program. There are four levels of project sustainability in the 4-H Wildlife Stewards Program. Each level includes 25-30 requirements that schools must meet to demonstrate their efforts to deliver increasingly sophisticated science education, self-sustainability and growth. A team of 4-H and Extension staff and other local experts conduct certification visits at each school when they complete the requirements for each level of certification. Mini grants, awards and media press releases are used to reward the schools for reaching a new certification level. The Project Sustainability Certification Program not only gives schools and volunteers a roadmap of steps to take to ensure program sustainability, but it also rewards those schools who work toward certification. It also provides 4-H staff with the tools they need to manage and support school programs to reach self-sufficiency.

### **Replication**

4-H Wildlife Stewards can easily be replicated at the local or county area on a small scale. 4-H Extension faculty can purchase the 4-H Wildlife Stewards Volunteer Handbook, Project Certification Handbook, Habitat Education Site Toolkit DVD, and Trainers Guide. These tools will provide local 4-H staff with the information and resources they need to develop the program in their area. 4-H volunteers in any part of the state can also take the on-line 4-H Wildlife Stewards web course and begin the program in their community as long as they have buy-in from the county 4-H staff. An initial investment for printing promotional materials will be necessary. Training fees cover the costs of curriculum and teaching supplies.

However, in order to be truly effective and to make a system-wide impact, it is recommended that this program will need to have buy-in at the state 4-H office level. Additionally, the state office will need to commit to the following resources:

- send a training team to Oregon or bring an Oregon team to their state to participate in a "Train the Trainers Workshop"
- commit a minimum of .25 to .50 FTE for a statewide coordinator
- purchase and use the the 4-H Wildlife Stewards Volunteer Handbook, 4-H Wildlife Stewards Trainers Guide, 4-H Wildlife Stewards Habitat Education Site Toolkit DVD, and 4-H Wildlife Stewards Project Certification Handbook to develop this program.

### **Rationale and Importance of Program**

This program explores whether we can build skill levels by challenging students with more experiential problems and situations using an approach that integrates teaching conceptual and procedural knowledge with concrete problem solving and hypothesis testing. This approach involves collaboration among teams of volunteers, teachers and researchers and key partnerships involving schools, universities and public and private enterprises.

4-H Wildlife Stewards has established a methodology for improving the quantity and quality of science education through the use of trained volunteers. This model demonstrates that a school or community that enlists the support of 4-H Wildlife Stewards will more likely demonstrate a successful, viable and sustainable program. Informal science education programs that involve community partnerships with schools are not only more likely to be sustained for a longer period of time, but they also improve student skills, knowledge and interest in science. When taken nationally, the model will be an effective tool for increasing the effective use of trained volunteers in informal science education. Furthermore, this trained cadre of informal science educators is the delivery mechanism for reaching youth with some of the high quality science curriculum already developed by 4-H staff across the nation.

A strong investment in high-quality science education is essential if we are to prepare our children for productive employment, healthy lifestyles, knowledgeable and contributing citizenship, strong family formation and other adult responsibilities. A great deal of experimentation in the area of school-community collaboration is already underway. Although this rich base of activity is promising, much work remains if collaboration among education and other organizations is to truly enhance



our investment in children's sustained development and success. The 4-H Wildlife Stewards Program is a demonstrated viable and successful model for bringing informal science education to our nation's youth through clearly defined roles for parent and community partners.

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