Noble Woods Environmental Education Project

The Noble Woods Environmental Education Project consisted of two phases: plant identification / ecological inventory and development of educational materials for Noble Woods Park. The two are interrelated; the plant inventory effort helped to identify unique aspects of Noble Woods that could be highlighted in the educational materials.

Phase 1: Plant Inventory

Field Biologist Esther Lev was hired to lead the plant inventory efforts. The goal was to conduct a detailed inventory of the plants and habitats at Noble Woods to learn what resources existed at the site. This information would then be utilized in developing both environmental education materials and a master plan for the park site. Metro suggested that the inventory effort in itself be a learning process, and include volunteers as much as possible. Several groups and individuals helped with the inventory effort, with tasks appropriate to their skill levels.

Esther structured her field work to include orientation and training sessions with volunteers, both in the spring and fall. Separate training sessions were given to adult and youth volunteers. She also worked closely with education coordinator Jan Curry so that the inventory and education project components were well integrated.

The Tualatin Valley Garden Club provided 8 volunteers who accompanied biologists Esther Lev and Peter Zika on a field trip/ orientation and training session in May. They were given instruction on the selection and use of various field guides to help with identification, and taught how to recognize many of the key plants at Noble Woods. Along with learning the names of plants, information about the plants (ethnobiology, uses, growth habits etc.) was presented.

Although this several hour orientation session was useful to the volunteers, they did not feel as if they had been transformed into skilled field biologists, and were reluctant to conduct detailed plant inventories on their own. Instead, several of the participants indicated they hoped to continue to learn about Noble Woods so that they could someday teach others and work with school groups in leading tours.

Other volunteers came forward to help with plant inventory work, including college students from Pacific and Portland State Universities, and a junior high biology teacher. PSU student Barbara Johnston conducted wildflower inventories throughout the spring and early summer, with notes as to location and proliferation of the various species. Pacific University student Kimberly Tom embarked on preparation of an herbarium for Noble Woods. The herbarium will be useful in future educational efforts as it will enable people to study the plant specimens in advance of park visits, and provide a year round resource for learning. (The herbarium will be completed in 1994.)

Junior High teacher Sandy Ingraham came during the spring and summer to identify plants, monitoring new varieties as they came into season. She worked with a corps of advanced biology students who helped with general environmental assessments at the site. The students also received training and orientation from Esther Lev during the spring and fall field work sessions.

One valuable aspect of involving young people in the inventory phases was that they could let the educators know what things they found interesting and wanted to learn more about. This influenced the development of educational materials. In response to her students' interests, Ingraham researched the ethnobiology of common plants at Noble Woods. This information was later incorporated into the plant inventory report and lesson plan catalog.

The point of view of children and young people is quite different from adults. Adults were very interested in learning about native plants, various woodland species and how to identify them. They wanted to learn the names of plants and add to their specific knowledge base. Children seemed to be more interested in learning concepts, whys and hows about the natural world, ie how specific plants are valuable to wildlife, how they were used by pioneers, why some plants grow in some locations, etc. Both adults and young people found that learning some of the whys and hows about a plant helped them to remember the name of the plant. Moreover, it led to a larger understanding of the woodland and floodplain ecosystems and the interelationships of plants, habitat, animals and humans.

Findings of the plant inventory show that Noble Woods has diverse vegetation within two major vegetation associations: second growth forest and riparian zone. (See attached.) A wide variety of understory plants are well distributed throughout the upland portions of the site. Of special interest is a plant known as "western wahoo", a woody shrub now considered uncommon in the metro area.

Phase 2: Educational materials

The development of educational materials started with the plant inventory training sessions, and included asking young people and adults directly some of the things they wished to learn. Later, there were meetings with interested educators from elementary and junior high schools. Our goal was to acquaint them with Noble Woods and its potential as a close-to-home field trip location, and to determine what types of material would be most useful to them in terms of content, format, etc.

The logistics of field trips was also discussed, including the duration of field trips, the number of students that would need to be accommodated for each group, whether or not to have fixed learning station locations, and guidelines for handling groups in the outdoor setting.

It was recognized that educational uses and programs would continue to evolve as the park underwent development. Lessons and activities prepared would not be heavily facility or equipment dependant because facilites and equipment do not yet exist at the park. However, in the future, these types of activities could be considered as the park is developed. For example, when pedestrian bridges are in place, both sides of the site can be accessed, and students can conduct water studies without damaging sensitive riparian zones.

One goal was to develop a set of educational materials that would be workable at the park in its undeveloped state, yet also be suitable when the park begins to undergo improvements. The lesson plan should establish a framework in which future programs could be included.

Teachers from five school districts, Washington County Educational Service District, Saturday Academy and OMSI, Jackson Bottom and Seventh Day Adventist Academy participated in the project, including helping to set goals, evaluating draft materials, and field testing the materials with classes at the park.

In meetings with educators, several goals, desires, concerns, and project parameters were identified:

1. At the elementary level, few teachers have knowledge and skills dealing with outdoor education / science. Materials developed have to be basic, make teachers comfortable with the subject, and not be too technical. This is also in keeping with the Oregon Common Curriculum Goals, which focuses on the teaching of concepts rather than rote learning.

2. At the junior high and high school levels, students and their teachers are more advanced. Teachers are specialists and can more freely adapt classroom texts and suggested lessons for their students. They need to know what kinds of learning opportunities exist at Noble Woods.

3. Most teachers will feel more comfortable with some sort of guide or trip leader at Noble Woods, at least until individual teachers have been there several times and feel comfortable with being there on their own. Since the Parks Department may have difficulty staffing numerous field trips, an arrangement with

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volunteers should be sought, such as having a corps of docents or other tour leaders who can help. (This is where Garden Club members may fit in. Some junior high students also wanted to be able to lead tours and activites at the site, particularly for younger students, and are looking forward to doing this when the park is developed.)

4. There is a great range of learning opportunities at Noble Woods. The learning materials developed as part of this grant will serve as a foundation for future learning materials that could be developed. The focus should be on selecting a few topics and doing them well, rather than having a tremendous collection on a wide variety of topics with little depth.

5. Teachers liked having suggestions for before and after field trip activities, so that learning can be integrated into the classroom learning. The field trip should be more than just a one time outing. This would help to prepare the students so the field trip is more valuable.

6. Good teachers will take ideas for lessons or activities and adapt them to the skills and needs of their students and the focus of their curriculum. There should not be a single "canned" field trip to Noble Woods, but a range of opportunities from which users may choose.

Many excellent environmental education resources already exist; instead of re-inventing activities, select and consolidate materials particularly appropriate to Noble Woods and organize them in an easy-to-use format. The "Lesson Plan Catalog" concept was suggested as a framework for these materials.

7. Learning opportunities at Noble Woods should be more than just science and biology. Integrated learning is valued, for example, using Noble Woods as a theme for creative writing, arts, history, etc.

8. Noble Woods can augment, but not replace, the Elementary Outdoor School Programs. Because Noble Woods is fairly small (37 acres), it can not handle large numbers of students at the same time without diminishing the resource or the experience. A decision was made to focus on "look-see" or "look and learn" types of learning, with a minimum of interactive activities (eg. insect collections, digging up area for soil studies.)

While junior high teachers would prefer to bring all of their biology classes at one time (up to 150 students) because that is easier for them to juggle administratively, the quality of experience would diminish and the resource would be degraded. At least initially, the policy would be for group size to be limited to 30 students (plus teachers and adults as needed). As the park is developed, it may be able to accommodate large groups of students at one time, and this policy could be adjusted. Having a smaller group is in itself a lesson to participants, that humans have real impacts, even when they don't intend to.

9. Noble Woods is a public park, and is not exclusively reserved for education. Permanent learning stations are not likely to be developed; however, future park facilities may serve that purpose. Educational use is a major use that will be considered in the park's planning, is need for a group shelter, a storage facility on site for equipment and learning materials, etc.

10. Information from the plant inventory and from the educational materials will carry over to serve general public users on the site. Interpretive signs and self guiding brochures will utilize information from this project, as will future recreation programs such as guided nature walks or day camps for children. Materials developed for secondary students, such as the plant identification cards, can also be used for adult learning.

Patterns at Noble Woods: the Lesson Plan Catalog

Preparation of the lesson plan catalog began in the summer, carrying over to the fall and early winter of 1993. Educator Jan Curry was selected to lead the effort.

Purpose: To develop Noble Woods educational materials which will help learners understand and value nature so they can make wise eco-decisions.

Goals:

- * Understand ecological concepts (energy flow, cycles, change, diversity and relationships.)
- * Develop interdiscliplinary skills (observing, questioning, recording, analyzing...)
- * Clarify values about nature (foundation for decision making.)

The lessons prepared include a range of material geared toward a variety of grade levels, but perhaps most predominately for the upper elementary grades. Original materials were supplemented with sample activities from other published works, including "copycat" material. A full bibliography of suggested teacher references is included in the notebook, along with commentary on the types of activities from each source.

A supplement to the lesson plan catalog is a file of laminated plant identification cards providing information on the plant including a drawing, scientific and common names, information about the growth habits, ethnobiology, and general locations within Noble Woods. Cards are grouped by category including wildflowers, shrubs, vines, deciduous trees, and coniferous trees. These were

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specifically requested by teachers for use with more advanced students and adult learners. They are simpler to use than a standard field guide, because only those species found in the park are included.

Evaluation of Educational Materials

The draft lesson plan catalog was circulated for review in October. Teachers evaluated the lesson plans as to content, format, suitability for their age group, etc. Response to the catalog was overwhelmingly favorable and enthusiastic. Several teachers requested field trips to the site to try out the new materials.

The Lesson Plan Catalog was displayed to the general public at a Noble Woods Open House held in October, 1993. In addition to having an opportunity to walk the trails, the public was invited to review the educational materials developed for the park. Visitors of all ages tried out the "scavenger hunt," an activity designed to heighten observation skills and awareness of the diversity in Noble Woods.

Brown Junior High Students, who had been visiting and learning about the park for several months, were on hand as tour leaders. A festive atmosphere was created with demonstrations of an antique cider press and display of a sampler quilt created to raise funds for the park. The event received excellent publicity in both the <u>Oregonian</u> and <u>Hillsboro Argus.</u> Overall, public response indicates enthusiasm for future environmental education programs at the site.

Several field trips were scheduled in early winter to "field test" the educational materials on site. Field trips were set for both elementary and junior high school age groups. Each field trip resulted in suggestions for refinements and additions to the lesson plans and plant identification cards, for example, making simplified plant cards for upper elementary students.

The lesson plans will most likely continue to be refined over the next several years, as the park is developed and as more groups have the opportunity to "field test" the materials. It is hoped that future units can be added to the lesson plan catalog as resources permit.

Summary of Products

Noble Woods Plant Inventory Plant identification / ecological training sessions for adults, teachers and students Noble Woods Lesson Plan Catalog Noble Woods Plant Identification Cards Herbarium for Noble Woods (completion in Spring 1994)

Project Match: Noble Woods Environmental Education Grant

Review of Educational Materials by Teachers:

14 teachers at Farmington View Elementary	28	hours
Diane Kinion, Henry Elementary	2	hours
Renee Hegberg and Pam Mackintosh, Jackson Elementary	4	hours
Rick Patrick, David Hill Elementary	3	hours
John Gordon, Evergreen Jr. High	4	hours
Lin Howell at Saturday Academy / Glencoe High	6	hours
Sandy Ingraham, Brown Junior High	30	hours
Bob Mann, Washington County ESD	2	hours
Len Miller, Karen Jaka and Karen Sprecher, Brookwood Elementary	6	hours
Diane Dow, McKinney Elementary School	2	hours
Karen Harvey, Minter Bridge, Elementary	2	hours
Linda Coble, Hillsboro Elementary District	2	hours
Sue Widecamp, Glencoe HS	2	hours
Willie Collins, Thomas Junior High School	2	hours
Phil Kahler, Tualatin Valley Academy	4	hours
TOTAL TEACHERS TIME	99	hours

99 hours x \$15/ hour* = \$1,485

Teacher involvement included meetings, review of educational materials, and site visits, site orientation and training.

*(\$15 / hour is the flat rate typically paid teachers for involvement in extracurricular activities, according to Marilyn McGlasson, Superintendent, Farmington View Elementary School District.)

City of Hillsboro match:

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Parks Department - project coordination Mary Ordal 108.5 hours x \$17.53 / hr = \$1,902 Jackson Bottom - project scope, review of materials Susan Cross 15 hours x \$12 / hour = 180 Copy machine and materials draft notebook: 50 pages x 20 copies = 1000 pages x \$.03/ page = Ŝ 30 Notebooks 35 x \$1 35 final notebook 1000 pages x .03/ page 30 Other copy pages 300 x \$.03 / page 9 Lamination pouches 50 x \$0.50 25 Total City match \$2,211 Field Trips to site: 5/93 Allison Charbonneau, 3 hours* assist with leading tour groups 5/93 Bill Jones and Marsha Lancaster 5 hours* 50 students x 2 hours = 100 hours (Farmington View Elementary) 12/93 Bill Jones 6 hours* 20 students x 4 =80 hours 12/93 Sandy Ingraham 3 hours* 10 students x 1.5 hours 15 hours 1/94 Phil Kahler 6 hours* 15 students x 2 hours 30 hours Totals: 23 hours 235 hours

Teacher time: 23 x \$15 = \$345 Student time: 235 x \$4.75 = \$1,116.25

(Field trip time include pre and post trip activities in classroom.)

Plant Identification:

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Barbara Johnston and Carol, Portland State University	40 hours
Kimberly Tom, Pacific University	140 hours
Dr. Rob Stockhouse, Pacific University	6 hours
Tualatin Valley Garden Club Members Arden Sheets Judith Emerson Merrill and Betty Ludlum Jim and Helen Sullivan Margaret Tilden John Haide	20 hours
Hillsboro Beautification Committee Jim and Lory Harp J.J. O'Donnell	6 hours
Brown Junior High Students (biology class) Ryan Shaw Kelli Shaw Kim and Stephanie Martinez Amber Lynn Robby Bogardus Carrie Reynolds Amanda Mallare others (*site orientations, plant ID, led field trips at Open House etc)	77 hours
Janna Holquin and Girl Scouts trail work in prep for open house, field trips, educational materials)	40 hours
Soroptomists Club of Hillsboro trail & site preparation work for field trips	10 hours
Total:	339 hours

339 x \$4.75 per hour = \$1,610.25

Noble Woods Environmental Education Grant

Total Match	Ac
City Match	\$2,211.00
Field trips Plant identification	\$1,461.25
PROJECT MATCH SUMMARY Teacher review of educational materials:	\$1,485.00

Total Project Cost:	\$10,516.50
Local Match:	\$ 6,584.50
Metro Grant:	\$ 3,700.00