



# DEEP PORTAGE

EXPLORING  
WOODS • WATER • WILDLIFE

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Association of Colleges and Schools*

## ABSTRACT

### MULTIPLE-USE FOREST LEARNING KIT

June, 1995

JUL 05 1995

#### Statement of Objectives

This project was directed toward the creation of an educational kit appropriate for school children, grades five through twelve, and adult visitors to Environmental Learning Centers (EEC's). Its content focuses on building understandings about basic processes in the forest ecosystem that are the foundations for current forest management. Lessons also demonstrate the compatibility of human outdoor activities that recognize the forest processes by impacting minimally on a renewable resource.

#### Overall Project Results

The completed kit contains eight lessons, five that focus on forest ecology and three videos: one on multiple-use, the second on forest management and the third uses Deep Portage as an example of a multiple-use forest. Two additional lessons are used as assessment activities for students who have completed the unit.

#### Project Results Use and Dissemination

The kit will be used as a pre-visit unit of study for our residential school program. It will also be used in summer camp and Interpretive Center programs. Unit lesson plans will be made available to EEC's. The multiple-use and forest management videos are available through the Minnesota Forest Industries at no cost. Lesson manipulatives are inexpensive and can be fabricated by the users. Each EEC will have to make their own video that focuses on multiple-use aspects of their Centers.

JUL 05 1995

REPORT: JULY 1, 1995 WORK PROGRAM AMENDMENT

LCMR Final Work Program Updatde Report

I. Project Title: Subd 7(n) Multiple-Use Forest Management Learning Kit.

Program Manager: Mike J. Naylon, Executive Director  
Agency Affiliation: Deep Portage Conservation Reserve  
Address: Route 1, Box 129, Hackensack, MN 56452  
Phone: (218)682-2325

A. Legal Citation: M.L. 93 Chpt. 172, Sec. 14, Subd. 7(n).

Total Biennial LCMR Budget: \$15,000  
Balance: \$15,000

B. LMIC Compatible Data Language: n/a

C. Status of Match Requirement:

Match required: \$5,500  
Funds Raised to Date: \$5,500 authorized by Deep Portage Board, 6/8/93.

II. Narrative: A hands-on, interactive, outcome-based learning kit will be developed depicting the Deep Portage multiple-use forest and wildlife management plan. Lessons will be developed and field tested by classroom teachers advised by professional resource managers. The Learning Kit will be used with school children, adults and participants in youth camps. Geographic Information System (GIS) data provided by the Cass County Land Department will be used to keep the kit current. The kit will be used on-site and loaned to schools at no charge.

III. Statement of Objectives: Create a traveling Multiple-Use Forest Management Learning Kit based on the actual Deep Portage planting and harvest plan to be used by schools, tourists and area property owners.

IV. Objectives:

A. Title of Objective: Multiple-Use Forest Management Learning Kit.

A.1 Narrative: Deep Portage is a 10-square mile multiple-use demonstration forest. A learning kit based on a real working forest and GIS-updated each year, will help people gain a better understanding of the forest and wildlife management lessons taught at the Reserve.

A.2 Procedures:

- a. Professional resource managers and project team identify 10 significant concepts essential to understanding multiple-use management and how they relate to Deep Portage.
- b. Teachers and project team rework concepts into language and sophistication appropriate to grades 5 and 6.
- c. Teachers and project team draft OBE lesson and assessment for each of the concepts.
- d. Professional resource managers, teachers and project team critique/modify lesson materials.
- e. Artist and project team develop prototype materials for lessons.
- f. Teachers field test with their classes and modify where appropriate.
- g. Artist and project team prepare modified prototype lesson materials if appropriate.
- h. Learning Kit evaluated by other schools and in Deep Portage programs.
- i. Teachers and project team prepare finished lesson and kit materials.

A.3 Budget

- a. Amount budgeted: \$15,000 LCMR, \$5,500 match.
- b. Balance: \$15,000

A.4 Teaming ( dates show completion.) 9/15/93 Start.

- a. Concepts DONE 3/15/94
- b. Language and level DONE 3/15/94
- c. Lessons and assessment 7/15/94, DONE 9/1/94
- d. Critique 7/31/94, DONE 9/1/94
- e. Prototype materials 9/1/94, DONE
- f. 1st field testing 9/15/94, DONE 12/1/94
- g. Modification/Assessment 10/1/94, 2/15/95 DONE
- h. 2nd field testing 1/31/95, 5/1/95 DONE
- i. Kit completed 4/1/95, 6/1/95 DONE

A.5.1 Status: Project is behind schedule, but will be tested and completed on time.

- a. Anticipated Start Date for Project was 7/1/93. Contract received last of August and unable to schedule work session until 9/15/93. Two and one-half month delay put Teacher Developers back in school.
- b. The original concept of "Multiple-Use" is no longer a dominant concept of resource management. It is now subordinate to the evolving principles of "Ecosystem Management". Multiple-Use is now the resultant of a much more comprehensive and complex planning process.

We, (Pam Landers and I), felt that it was both appropriate and important that the Multiple-Use Learning Kit teach the basics of Ecosystem

Management at the upper elementary level. The result was a time-consuming attempt to formulate ten concepts from the differing sets of definitions and "landscapes" used by the Forest Service and the MN Department of Natural Resources. In October, we met with Dave Shadis, USFS, Cass Lake. He provided us with a negotiated Ecosystem Management hierarchical system that was being cooperatively formulated by the USFS and the respective DNR's of Minnesota, Wisconsin, and Michigan. For better or for worse, this is what we must work with, realizing the fact that the system may change. Shadis didn't think there would be significant changes, however. We did several lesson brainstorming sessions. December would have been the end of the first work quarter.

- c. In January, I was notified by the Department of Education that Landers was appointed contract manager for the LCMR project. This placed Pam in a conflict of interest situation. She resigned and donated all labor and expenses incurred during the first work quarter. I lost my principal developer and was left alone on the project. (The artist we had, went free-lance and didn't want to do the Learning Kit.)
- d. I began assembling a new team in February, '94. An artist and two teacher developers have joined the project. A fourth has declined and the fifth has not yet responded. (Developers have been sent the enclosed materials.)
- e. The first field testing of each of the ten concept stations will be done with youth campers and summer schools at Deep Portage. School testing will commence after September, 1994.
- f. Writer/developer team assembled. Team consists of four teachers, two science, one upper elementary, and one art instructor. An additional artist may be brought on as the project develops to hasten the development of hands-on items.
- g. Additional meetings were held with resource people to help focus the project on the "big ideas" that could be presented simply at the upper elementary levels.
- h. Decision was made to include only Province, Section, and Subsection Landscape considerations in the Unit. (See Hargrave's Map in the Addenda.)
- i. A scheme/format was developed to accommodate the Department of Education's current version of the Graduation Rule requirements and the mandated Environmental Education requirements established by the

State School Board. Related items are shown as bold italics in the unit summary and lesson plans. This may change if we can find a more user friendly format, including graphics. Currently, we work off Microsoft 3.0 which is compatible with the Addendum Units currently being prepared for statewide dissemination by computer disk through the Governor's Environmental Education Advisory Board.

- j. A lesson format was devised that incorporated all of the above considerations.
- k. The unit summary, in accordance to the GreenPrint format was completed.
- l. Basic resource materials were obtained from DNR Forestry.
- m. Although the number of lessons grew larger than previously anticipated, four lesson plans have been completed and are ready for testing in July. A fifth will also be ready shortly after 7/1/94. The video for Lesson 9 is done.
- n. The Graduation Rule continues to be a "moving target". The decision was made to revise the lesson plan format, eliminating reference to the Graduation Rule, but retaining reference to the mandated contexts and goals as described in GreenPrint.
- o. Lesson 3, "What is a tree and how does it work?" was dropped. A significant number of schools introduce these concepts in grade four. It was felt that there were more cost effective ways to review these concepts.
- p. No further testing is needed for Lessons 1, 9, 11, and 12. Final student worksheets for these lessons will be completed in January.
- q. The Subsection puzzle map for Lesson 4 needs to be supplemented with aerial oblique photos of the various landscapes. Students can't visualize from map alone. Will acquire from DNR Bureau of Information and Education in January.
- r. The scope of Lesson 5 will have to be reduced to comparing Deep Portage to only one other contrasting landscape.
- s. Lessons 7 and 10 are redundant in some aspects. Rewrite in January will test feasibility of combining into one lesson.

- C. Past Project. On-going evaluation of the kit is provided by users via an instrument provided in the kit that is referenced to the OBE assessment (IV.A.2) and other standard assessment items included in learning kits of this type.

VI. Context:

- A. Need. Forests and wildlife populations are dynamic and changing entities. Educational materials traditionally present theoretical models or research findings. These are abstract and "not real" to a citizenry lacking the training of resource management professionals. The proposed learning kit is as dynamic and changing as the multiple-use forest it depicts. People using Deep Portage for education or recreation purposes will gain comprehensive understandings of how a quality environment is maintained to provide a quality outdoor experience.
- B. Supplementary. The kit will enable people to build understandings of ecological systems based on lessons pertaining to a real multiple-use forest ecosystem. Using the kit to relate the historical and current forest status will help people better understand how the management plots they visit are parts of a larger managed forest ecosystem. Individual teaching stations provided by the kit will be multi-disciplinary, emphasizing science and math skills used by resource managers. The Deep Portage Curriculum Assessment Process will assure that the kit meets Department of Education requirements.
- C. Accomplishments. No previous LCMR funds have been received by the project. LAWCON funds helped build the 24-mile network of recreational/management unit access trails and the Interpretive Center which began its first full program year in 1980. Deep Portage received \$800,000 from the Legislature through bonding for the \$2.5 million dorm and classroom complex.

During 1991, Deep Portage conducted 27,829 participant days of conservation instruction for adults and school age children. The Land Department and Department of Natural Resources are in the 12th year of implementing a sustained-yield, multiple-use demonstration forest management plan. Demonstration plots of two to one hundred acres allow visitors and students to study "real scale" forest management. FY 1991, Deep Portage Foundation revenue of \$634,000 was from the following sources: Cass County 11%, grants 4%, contributions 20%, fees, memberships and sales 65%.

Potential future proposals to LCMR may be related to curriculum applications of dispersion/displacement of game and non-game species in relation to

multiple-use practices and/or the effects of preserving old forest lands on the aforementioned. Capital requests for campus improvement depend on the Commission's formal policy relative to the DNR's EEC 2,000 study.

VII. Qualifications :

1. Program Manager

- a. Michael J. Naylor, B.S., M.A., Biology, Spanish, Chemistry; 5 years secondary teaching, 25 years full time conservation education, 10 years experience development and use of learning kits.
- b. Deep Portage Conservation Reserve, administration, curriculum and instruction.

2. Cooperators/Investigators

- a. Margaret Elizabeth Medin, artist, teacher, Brainerd.
- b. Letitia Laske, teacher, Brainerd.
- c. Dan Clabo, teacher, Brainerd.
- d. Jo Zaiser, teacher, Brainerd.

VIII. Reporting Requirement: Semi-annual status reports will be submitted not later than 1/1/94, 7/1/94, 1/1/95, and a final status report by 6/30/95.

- t. Prototype teacher developers have been released from project with the exception of Jo Zaiser. She will develop student worksheets and rewrite lesson plans. Local crafts persons will be hired to facilitate finalization of manipulatives.
- u. **Kit complete after extensive editing and revision. Final unit consists of eight lessons and two former lessons reassigned to post-unit assessments. Manipulatives were made less complicated and less expensive. All lessons formatted as best as possible to comply with GreenPrint environmental education goals and contexts.**

Deep Portage intends to use this unit as a pre-visit unit of study for our 87 resident schools. It complements the curricular intent of the Graduation Rule. We will also use it with our summer camps and community education programs.

A.5.2 Difficulties. (A section I think you should add to your reporting system. Separately, it stands out and is not buried in "progress". Promotes focus for your Commission.)

- a. Although the jury is still out on Outcome Based Education, we have been able to accommodate it by using a modified format for the format developed for the Addendum to GreenPrint. A major problem is that the Graduation Rule is still in a state of flux. We have taken the latest version and incorporated it into a unit and lesson format. It's probably going to change...
- b. We are still getting conflicting information about "ecosystem management units" and their reference criteria. It was decided to go with what we have and change when, and if, it gets settled.
- c. "Ecosystem Management" is a far more complicated concept than "multiple-use". We have used more than the usual time deciding just which "big ideas" are going to last long enough to turn into layman's language.
- d. Normal work days don't complement the creative process. We are probably going to have to program a residential marathon session to keep this project on schedule. It's a matter of the artists having time to work with the teachers to develop the manipulatives.
- e. Keeping the cost of developing the hands-on portions of the kit low-budget is of prime importance. We don't want to make it expensive for other Centers and schools to duplicate the kit and modify it for their own purposes. This means that it may take us longer to design a cost effective package.

f. Classroom teachers are the logical choice as developers of curriculum, but they are not reliable after school starts. Product deadlines in all cases were readjusted because of this.

g. It was a mistake bringing the artist in to work with the teachers. This caused the teachers to focus on the "gee whiz" instead of good science. Teacher developers tended to focus on specifics and invention of the manipulatives. The result was a collection of sketchy lesson plans that contained some good science, but were not part of an overall strategy of moving the student progressively from a beginning to an end that helped the student understand the concept of a multiple-use forest in terms of a better understanding of ecological systems.

I recommend in future projects of this type, that an entirely different group develop the central concepts and a set of specific understandings needed to grasp the concept. Classroom teachers then develop outcome-based lesson plans to build the understandings needed. Artists and crafts people then work with the developers.

This would have avoided the massive rewrite I went through in May and June.

Watch for this weak point in planning in the proposals you evaluate for this kind of project.

A.6 Benefits: Hands-on lesson materials modeling a real forest that people will actually experience complements the Department of Education's emphasis on Outcome Based Learning. Kit users will gain meaningful insights pertaining to multiple-use management and how forest harvest and plantings influence non-game species distribution in the managed unit. The kit will be used with tourists, area property owners, and youth campers June through August. During the school year, the kit will be used by weekend adult visitors and to prepare schools for their visit to Deep Portage. With small modification, it will serve as a model for other ELC's to enhance the impact of their community and school programs.

V. Evaluation: This will be accomplished by Formative, Summative, and post project processes.

A. Formative. Check points are provided during the development phase of the project. These checkpoints are provided for in IV.A.2 Procedures, items c, d, f and h.

B. Summative. Project performance evaluation is provided by items a through i in part IV.A.4 of this workplan.