

## LCMR WORK PROGRAM 1993

### Final Status Report

#### I. Program Title: K-12 Prairie Wetland Field Study, Program-Ecology Bus June 30, 1995

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- A. Legal Citation: M. L. 93 Chpt. 172, Sect. 14, Subd. 7(c)  
Total Biennial LCMR Budget: \$270,000  
Balance remaining: \$91,765  
Dollars encumbered: \$153,500  
Balance remaining: \$5,625.02

This appropriation is from the future resources fund to the commissioner of education for a contract with Heron Lake Environmental Learning Center Inc. to purchase, equip and operate an ecology bus to deliver an interdisciplinary K-12 school environmental education program in Southwest Minnesota. This appropriation is contingent on the Learning Center employing a specialist to guide student and teacher participation in the ecology bus.

- II. **Narrative:** The K-12 Prairie Wetland Field Study Ecology Bus Program is an interdisciplinary environmental education program (science, social studies, visual and communication arts) which takes place under direction of a HLELC funded specialist and LCMR funded naturalist-bus driver using an ecology bus in combination with classroom studies. The service area is twelve counties of Southwest Minnesota.

#### III. Objectives of Project

- A. To design, equip and put into operation a retrofitted transit bus (Ecology Bus) to serve as a mobile teaching station and science lab for youth and adult environmental education programs in a twelve-county area of Southwest Minnesota. (Rock, Nobles, Jackson, Martin, Pipestone, Murray, Cottonwood, Watonwan, Lincoln, Lyon, Redwood, and Brown Counties) (LCMR funded)
- B. To design the position of Naturalist Driver and recruit and select one or more individuals to operate the Ecology Bus. (LCMR funded)
- C. To operate the Ecology Bus using soy oil diesel for fuel and with an ongoing alternate fuel research program. (LCMR funded)
- D. To design the position of Ecology Program Specialist and recruit and select an individual to design and oversee the programming aspects of the Ecology Bus Program. (HLELC funded)

- E. To develop individualized school curriculum units and scope and sequence with teachers and curriculum specialists from schools utilizing the Ecology Bus for programming during the 1993-94 school year. (HLELC funded)
- F. To develop long-term program coordination with natural resource management agencies in the 12-county service area by providing curriculum consultation, material development and program coordination services. (HLELC funded)

#### IV. Objectives (Expanded Description)

- A. Design, equip and put into operation, a retrofitted transit bus (Ecology Bus) to serve as a mobile teaching station and science lab for youth and adult programs in a twelve-county service area of Southwest Minnesota. (Funded by LCMR)
1. Narrative: This objective involves the design, outfitting of a transit bus for education purposes of putting it into operation for a wide-range of education programs designed by the Heron Lake Environmental Learning Center.
  2. Procedures
    - a. HLELC education staff will develop and provide design criteria to the bus and science equipment vendors for the Ecology Bus.
    - b. A HLELC committee of education will develop a set of recommended equipment includes electronic microscope, investigation into microorganism biospheres, video cameras and monitors, capture the process and results for future use by other students. Hand held science testing equipment to collect data and analyze collected samples, recording equipment and reference books for instructional reference work by students.
      1. An interim Ecology Bus will be used from August 1994 - January 1995 to test out programs, curriculum, and equipment. This interim bus will have some but not all of the equipment and features found on the permit Ecology Bus.
    - c. Upon delivery of the bus January 1995, the bus operating capacity will be reviewed by HLELC staff, bus driver advisor and mechanics who will be providing vehicle maintenance.
    - d. Upon delivery of the bus, all educational equipment will be tested and reviewed by an HLELC committee of educators to ensure proper functioning in accordance with program requirements.

e. The Ecology Bus will begin to be used in HLELC programs during the summer of 1995.

3. Budget (Funded by LCMR)

|                                       |              |                             |
|---------------------------------------|--------------|-----------------------------|
| Budget                                | \$203,250.00 |                             |
| Balance                               | \$188,218.45 |                             |
|                                       |              |                             |
| a. Ecology Bus                        | \$154,250    |                             |
| Balance as of January 1, 1995:        | \$154,250    |                             |
| b. Bus laboratory and education equip | \$55,200     |                             |
| Balance as of January 1, 1995:        | \$10,968.45  |                             |
| Total Balance of Obj.3.a.b.           | \$188,218.45 |                             |
|                                       |              | Cut off date: June 30, 1995 |
| Balance remaining                     | \$0          |                             |

|                                       |                              |         |
|---------------------------------------|------------------------------|---------|
| 4. Timetable                          | January 95                   | July 95 |
| Ecology Bus delivered                 | XXXXX                        |         |
| Ecology Bus & equipment "checked out" | XXXXX                        |         |
| Ecology Bus put in program operation  | XXXXXXXXXXXXXXXXXXXXXXXXXXXX |         |

5. Status

The design of the Ecology Bus has been complete. It will be delivered in January 1995. From August 1994 - January 1995 an interim Ecology Bus will be used for K-12 programs with an emphasis on curriculum development and analyses of natural areas which can be used for environmental education teaching stations. The use of an interim bus was necessitated because of a delay in the delivery of the Ecology Bus due to the bus distributors error in ordering the Ecology Bus. Additional costs in retrofitting the Ecology Bus which have included a handicapped access lift, lavatory and air conditioning have increased the total Ecology Bus cost to \$150,000. In addition the development of a inventory of science equipment for use on the bus has been calculated at about \$26,000 instead of \$16,000. The work plan amendment is requesting to utilize \$10,000 from the C.2. budget from bus fuel for purchase of additional science equipment. This funding is available from C.2. (fuel expenditures) because the bus will be operating for only one year instead of the two duration of the grant period. Additional cost for retrofitting the Ecology Bus that will include an electric lavatory, outside storage compartment, under seat storage, (exterior paint and design, 3/4 which has been donated) has increased the cost of the Bus by \$4,250. This work plan amendment is requesting to utilize \$4,250 from the C.2. budget from bus fuel. This funding is available from C.2. (fuel expenditure) because the bus will be operating for only one year instead of the two year duration of the grant period. Funding from the C.2. budget for bus fuel has a funding balance of \$15,750 as of January 1, 1995 available to HLELC until June 30, 1995. Because of delays

in the delivery of the bus this amount will be more than needed and we wish to amend this work program and request that \$6,200 of the C.2. funds be used for the purchase of 16 microscopes and one camera, to be used by those students and participates of programs exclusively on the Ecology Bus. The microscopes permit hands-on use by students in the areas of water, plant, animal and soil studies that occur almost daily, therefore making this an essential part of the programs. Also it exposes the students to equipment and their uses that they may never receive. The camera helps demonstrate what they are looking at by helping the instructors use their equipment as demonstrators. The additional camera will be used on the future stereo scope and present day spotting scope and astronomy telescope. Thus allowing more time for learning and less time for setting up equipment, also switching between the camera and equipment is done through simple push buttons, Students then take ownership of their work and less lecturing has to take place. The more equipment capabilities the more we can offer schools etc. The other portion of the unused funds from IVB.3.a. is requested for additional equipment for IV.A.3.b. the ecology bus objective. The areas that we are in need of equipment are as follows:  
 computer/printer/software \$7,000 to be used by the instructors and students while in the field. This allows the students and instructors to compile data, access special environmental programs and research a larger base of up-to-date media. A real hands-on tool. Audio visual materials \$1,000, optical equipment \$2,500, forestry equipment \$2,500, weather equipment \$1,000, water equipment \$4,000, soil equipment \$2,000, Library for bus \$2,000 scientific equipment and wildlife hands-on materials \$1,000. Total amount \$23,000. The construction and retrofitting of the Ecology Bus was complete during the winter of 1995 and the bus was delivered to the Lakefield Office of the Heron Lake Environmental Learning Center (HLELC) on February 20, 1995. Additional work was performed in Minnesota and included the installation of a handicap access and the pictorial illustrating and signage of the exterior of the bus by an area wildlife artist. In June 1995, a structure for protecting the bus and its scientific equipment from the weather was built near the HLELC office.

The final Ecology Bus design reflects several upgrades from the original design based upon "state of the art" product advances becoming available during the construction period. This included the installation of an electric toilet, a non intrusive handicap lift, seat desks and installation of a diesel engine which meets all 1998 federal government emission standards and operates on soy oil diesel.

The equipment of the science laboratory of the bus also expanded to include additional equipment for use both on the fixed location science bench, at students desks and in the field. Some of the equipment includes reference prior paragraphs.

The integrated design of the bus and its equipment have created a portable classroom that provides students access to a wide range of outdoor locations but also, in many cases, to the use of equipment not found in area schools.

Benefits

a. The Ecology Bus permits teachers and students to travel throughout the 12-county

service area and use several hundred outdoor locations for teaching stations.

- b. The Science lab and other educational equipment on the Ecology Bus permits students to participate in a wide-range of interdisciplinary programs. 7(c).1
- c. The Ecology Bus will model the use of a renewable resource fuel (soy oil diesel).
- d. The Ecology bus links classroom and field study program in a time efficient and educationally effective manner.

B. Design the position of Naturalist-Driver and select one or more individuals to operate the Ecology Bus. (Funded by LCMR)

1. Narrative: This objective involves the design of the position of Naturalist-Driver which will be the primary staff person on the Ecology Bus and the conduction of a national recruitment campaign for candidates. The Naturalist-Driver position is modeled after a similar position used in Sweden, where the Ecology Bus concept originated.

2. Procedures

- a. A position description for the Naturalist-Driver position will be designed and used for recruitment through a national search with selection by July 1994.
- b. A project evaluation system will be designed and implemented by the Ecology Program Specialist and Naturalist-Driver for all field trips on the Ecology Bus. This will include daily logs, user satisfaction surveys, subject matter tests and demonstrations and group leader evaluations.
- c. The Naturalist-Driver will develop a field trip schedule in cooperation with the Ecology Program specialist and operate the bus in accordance with this schedule.

3. Budget (Funded by LCMR)

|  |                            |              |
|--|----------------------------|--------------|
| a. Naturalist Driver compensation and expenses | 2yr \$75,000               | 1yr \$37,500 |
| Balance as of January 1, 1995: \$28,184.55     | Cut-off date June 30, 1995 |              |
| Balance as of June 2, 1995: \$3,777.80 B       |                            |              |
| Balance as of June 30, 1995 \$995.77           |                            |              |

4. Timetable

|  |         |         |         |
|--|---------|---------|---------|
|  | July 94 | Sept 94 | June 95 |
|--|---------|---------|---------|

|  |                      |
|--|----------------------|
| Selection and orientation of Naturalist Driver | XXXXX                |
| Naturalist-Driver operates Ecology Bus         | XXXXXXXXXXXXXXXXXXXX |
| in HLELC Programs                              |                      |

5. Status

The position description for the Naturalist Driver position has been designed. Recruitment has been conducted for the Naturalist Driver position and interviews are scheduled for July 12, 13, 1994. Completed, Naturalist/Driver hired September 12, 1994. Position ends June 30, 1995. \$45,277.80 will not be utilized because of delay of bus. Due to injury to the employee, three individuals occupied this position over the grant period. The Naturalist Bus Driver worked in coordination with the Ecology Program Specialist to organize and deliver programs to over 39 schools during the grant period.

Benefits

- a. The Naturalist-Driver position eliminates the need for a separate bus driver in operating the Ecology Bus.
- b. The Naturalist-Driver position permits and encourages flexibility in Ecology Bus educational trips by the Naturalist stopping or varying the planned route to take advantage of "teachable moments" that occur on trips to teaching stations.

C. Operate the Ecology Bus using soy oil diesel for fuel and with an on-going alternate fuel usage research program conducted through a Midwestern college or university. (Funded by LCMR)

1. Narrative: This objective involves using (and evaluating) soy oil diesel, an alternative fuel to power the Ecology Bus with the results of such use being formally evaluated by one or more colleges. 7(c).2

2. Procedures

- a. Arrange for at least four fueling locations throughout the 12-county service area for the Ecology Bus.
- b. Develop and conduct ar 6 month evaluation study regarding the use of soy oil diesel in the bus with the University of Nebraska or other colleges.
- c. Contract for an on-going preventative maintenance program for the Ecology Bus.

3. Budget (Funded by LCMR)

|   |                            |
|---|----------------------------|
| Bus fuel and maintenance                  | \$31,550                   |
| Balance as of January 1, 1995: \$9,162.31 | Cut-off date June 30, 1995 |
| Balance as of June 30, 1995               | \$4,629.25                 |

|   |  |                              |         |
|---|--|------------------------------|---------|
| 4. Tim  | August 94                                    | January 95                   | June 95 |
| Operation of the interim gas powered Ecology Bus on a daily basis | XXXXXXXXXXXXXXXX                             |                              |         |
| Operation of the Ecology Bus on daily basis                       | XX |                              |         |
| Development and start up of preventative maintenance program      |  | XXXXX                        |         |
| Organizing and conduction of soy oil diesel research project      |  | XXXXXXXXXXXXXXXXXXXXXXXXXXXX |         |

5. Status

The Ecology Bus (interim) has been powered on standard 1 and 2 diesel fuel, it does not have the capabilities to use soy diesel. The Ecology Bus will arrive the middle of February 1995 and will use soy diesel.

This work plan amendment is requesting to utilize \$22,000 from IV.A.3.b. budget from Naturalist Driver compensation and expenses for IV.C.3.d. the construction of a garage for the ecology bus, calculated at the cost of \$7,000 for lumber, siding, insulated ceiling, doors, and hardware. Another \$3,000 for electricity, heating and plumbing materials. \$5,000 for a 6 inch concrete floor and \$6,500 for labor. This request is vital for the following reasons: Cost for renting shared space is over \$150 per month. Total control of who, what and where the bus is at all times while in storage is a problem. The owner of the space makes duplicate keys and moves the bus for his own convenience. The ecology bus is larger than most buses and does not fit in most standard garages and few of the size needed are located in the community. Also there is the problem with backing in and out onto a main highway with a steep embankment driveway. This is a unique investment that needs special care, especially during the winter months. Also the bus is left unguarded every night. The cost for the total garage package is \$22,000.

The Ecology Bus which was delivered in February 1995 was designed to operate on soy oil diesel. Storage tanks for this fuel have been obtained and located near the HLELC Office. A final installation of the fuel lines necessary for the Ecology Bus to operate on soy diesel will take place in the summer of 1995.

Benefits

- a. An alternate fuel used by the Ecology Bus provides an environmental sensitive transportation "example" within the twelve-county service area.
- b. The evaluation results of the soy oil diesel will contribute to the development of additional environmental education lessons for use both on the bus and in classroom settings.

c. The preventative maintenance program will ensure that the Ecology Bus will be regularly available for use during the two year period and thereafter.

D. Design the position of Ecology Program Specialist and recruit and select an individual to design and oversee the programming aspects of the Ecology Bus Program. (HLELC funded)

1. Narrative: This objective involves the provision of a program specialist to oversee the design of curriculum and programs for use with the Ecology Bus. This position was required as an LCMR recommendation and will be employed at approximately the same time as the Naturalist-Driver. The Ecology Program Specialist will continue and expand upon the 1990-92 educational planning work with area schools which was performed by HLELC staff and volunteers in anticipation of the securing of an Ecology Bus.

2. Procedures

- a. A position description will be developed for the full-time Ecology Program Specialist position and used for recruitment with selection in the fall 1994.
- b. The HLELC Board of Directors, the Naturalist-Driver and the Ecology Program Specialist will develop a 1994-95 work plan for implementation of an Ecology Bus program.

3. Budget: Provided by the Heron Lake Environmental Learning Center

- a. Ecology Program Specialist \$75,000 for two years  
Balance as of January 1, 1995: \$58,076.48  
Cut-off date June 30, 1995

|              |            |         |
|--------------|------------|---------|
| 4. Timetable | January 94 | June 95 |
|--------------|------------|---------|

|  |  |  |
|--|--|--|
| Employment of Ecology Program Specialist                             | XXXXX  |  |
| Development of programs and curriculum by Ecology Program Specialist | XX |  |

5. Status

The Ecology Program specialist was employed effective January 1, 1994 and development of programs and curriculum for 18 plus schools, along with use by local organizations.

The Ecology Program Specialist was employed for eighteen months during the grant period and provided programs leadership to design of the Ecology Bus and the design and delivery

of programs to over 39 schools and 17 other groups.

**Benefits**

- a. The Ecology Program Specialist will provide an overall program direction and coordination for the use of the Ecology Bus for various audiences.
  - b. The Ecology Program specialist will develop an interdisciplinary focus to the Ecology Bus programming in addition to the primary science programming of the Naturalist Driver.
  - c. The Ecology Program Specialist will become the documenter of all Ecology Bus program experience through quarter, annual and summary project reports.
- E. Develop individualized school curriculum units and scope and sequence with teachers, curriculum specialists, and continuing education directors from schools utilizing the Ecology Bus for programming during the 1993-94 and 1994-95 school year. (Schools with first priority for usage include Jackson, Fulda, Pipestone, Luverne, Heron Lake-Okabena-Lakefield, Comfrey, Saint James, Redwood Valley, Brewster, Westbrook, Walnut Grove, Chandler-Lake Wilson, Redwood Falls, Hills-Beaver Creek, Fairmont, Windom, Worthington, Sanborn-Lamberton, and Slayton. Priority will be based upon participation in 1992 Ecology Bus workshops.) Curriculum will be jointly developed with area teachers involved in the Outdoor Classroom Project in the city of Blue Earth. The Swan Lake Restoration and the School Nature Area Project of Southeast Minnesota sponsored by St. Olaf College. (HLELC funded)
- 1. Narrative: This objective involves the primary work of the Ecology Program Specialist and other HLELC staff and volunteers working on the Ecology Bus curriculum. Individual consultation sessions will be held with schools planning to use the Ecology Bus to develop pre-visit and after-visit curriculum units and post-trip evaluations.
  - 2. Procedures
    - a. Ecology Program Specialist will consult with administrative curriculum development and teaching staff of above school districts during July and August 1993 1994 to develop field trip plans or review planning for Ecology Bus use developed with HLELC staff for the 180 school days of the 1994-95 school year. (see Context)
    - b. A team of teachers from each participating school will be organized to work with the Ecology Program Specialist in developing multi-discipline field trips on the Ecology Bus.
    - c. Consultation would be provided to participating schools by the Ecology Program Specialist in developing coordinated lessons and special environmental education units involving classroom and field study.

- d. An evaluation system will be designed for all educational units involving the Ecology Bus by the Ecology Program Specialist with the advice of teachers and curriculum specialist from participating school districts.
  - e. Quarterly reports on Ecology Bus programming will be developed and published by the Ecology Program Specialist for use in program promotion and in developing curriculum for future school years.
  - f. Curriculum plans will be developed by the Ecology Program Specialist and teachers for additional schools within the service area for the 1994-95 school year and revised programs for schools participating in the 93-94 school year program.
  - g. The Ecology Program Specialist will develop special arts-history-science interdisciplinary curriculum modules for use with junior and senior high students which would encourage half-day and full-day field visits on the Ecology Bus.
  - h. A process would be developed and managed by the Ecology Program Specialist to collect written, illustrated and audio visual samples of student projects on the Ecology Bus for end of the school year production and distribution.
  - i. The Ecology Program Specialist, other HLELC staff, and county extension educators in the twelve-county service area will design individual county and twelve-county programs for adult audiences with connections through volunteer activities to the K-12 programs.
3. Budget Funded by Budget in D.3.a.
- |   |   |  |  |
|---|---|--|--|
| a. Ecology Program Specialist                                   | Provided by HLELC as part of grant matching requirement |  |  |
| b. Curriculum development of materials (\$15,000 for two years) | Provided by HLELC as part of grant matching requirement |  |  |
4. Timetable
- |                                | January 94                 | Sept 94 | June 95 |
|--------------------------------|----------------------------|---------|---------|
| Consultation with schools      | XXXXXXXXXXXXXXXXXXXXXXXXXX |         | XXXX    |
| Curriculum development and use | XXXXXXXXXXXXXXXXXXXXXXXXXX |         | XX XX   |
| Curriculum evaluation          |                            |         | XX XX   |
5. Status
- Teachers in each of the 18 plus schools have worked with the Ecology Bus Specialist in developing curriculum for multi-discipline field trips. An evaluation system was developed

and c to the teachers and schools involved in the use of Ecology Bus (on file for review). A running log of schools participating by the Ecology Bus is published in the HLELC Journal. Audio visual samples of participating schools are on file at the HLELC for use by the school and HLELC. Adult audiences of civic organizations have been done.

Programming on the Interim ("Prairie Scout") Ecology Bus and the Ecology Bus ("Prairie Schooler") took place only during the 1994-95 school year rather than the anticipated two year period. This was due to a late arrival of the Ecology Bus from the manufacturer. curriculum used on the bus consisted of: general introductions to the concept of a mobile science lab Ecology Bus), utilization of the bus as a field headquarters and laboratory for the student study of natural areas and use of the bus on the school ground as a special classroom. All sessions were evaluated by students and teachers with the results along with the trip log being on file at the HLELC Office. Reports on bus use were also regularly published in the HLELC Ecology Journal. Curriculum and site visits were exchanged with the St. Olaf College School Nature Project and the Outdoor Classroom in the City of Blue Earth. Minnesota schools which participated in the Ecology Bus program during the 1994-95 school year were the following:

Jackson Elementary, Jackson Middle, Jackson High, Worthington Jr., Worthington High, Worthington Central Elementary, Balaton Elem, Slayton Elem, Immanuel Lutheran School, Heron Lake Okabena Elm, Granda Huntley East Chain Elem, Cottonwood Elem, Springfield St. Raphael's, Lakeview Middle, Pleasentview Elm, Sleepy Eye Elem, Brewster Elem, Sioux Valley Elem, St. Michaels Morgan, Chandler-Lake Wilson Elem, Hills Beaver Creek Elem, Hills Beaver Creek High School, New Ulm Elm, Winfair Elem, Murray County High School, Westbrook Elem, Westbrook High School, Okabena Jr. High, Fairmont Elem, St. James Jr. High, Mt Lake Elem.

**Benefits**

- a. Individual curriculum design services can be offered to schools to ensure the Ecology bus trips are integrated with classroom curriculum and not just a special event.
- b. Multiple trip visitations to selected natural areas could be undertaken by schools through curriculum designs developed by the Ecology Program Specialist.
- c. The results of Ecology Bus visitation will be collected and widely disseminated through environmental education organizations for future planning by other schools and environmental education centers.

F. Develop long-term program coordination with natural resource management agencies in the twelve-county service by providing curriculum consultation, material development and program coordination services. (HLELC funded)

1. Narrative This objective involves the Ecology Bus program development, educational links with natural resource agencies in the 12-county service area for the primary purpose of creating a wide-range of teaching stations on publicly managed lands. In addition, new curriculum involving Ecology Bus could be developed through committees of natural resource managers.

2. Procedures

- a. The Ecology Program Specialist would consult individually with all Soil and Water Conservation Districts, Watershed Districts and manager of local, state and federal lands in the twelve-county area, to determine their participation in Ecology Bus programs.
- b. The Ecology Bus Program Specialist would organize and periodically convene an advisory committee of natural resource management staff to review Ecology Bus programs conducted on public lands or those of cooperating private land owners.
- c. Natural areas within the twelve-county area which could be monitored (or adopted) by students in multi-year studies through Ecology Bus programs would be identified and developed as teaching stations in cooperation with the staffs of local, state and federal natural resource management agencies.
- d. Quarterly reports would be developed and published by the Ecology Program Specialist regarding the use of the Ecology Bus on publicly managed lands and in conjunction with the resource management activities of natural resource management agencies.

3. Budget Funded by Budget in D.3.a.

Ecology Program Specialist Provided by HLELC as part of grant matching requirements

Consultation and Curriculum Dev. Committee Expenses Provided by HLELC as part of grant matching requirements

|   |  |                              |         |
|---|--|------------------------------|---------|
| 4. Timetable  | January 94                                   | July 94                      | June 95 |
| Individual consultation with natural resource agencies  | XX |                              |         |
| Development of natural resource manager advisory committee involving local, state, and federal resource managers (DNR-USFWS-County Parks) |  | XXXXXXXXXXXXXXXXXXXXXXXXXXXX |         |

5. Status

Meeting with Soil and Water and other agencies have occurred through this time period and the sharing of ideas and materials. Use of their agents as speakers for students using the Ecology Bus. Many Natural Area Teaching Stations (NATS) have been identified and utilized by the HLELC and schools.

HLELC began its development of a continuing working relationship with Soil and Water Conservation Districts of the 12 county service area during the grant period through information exchanges, visits and publishing of SWCD information on the environment programs in the HLELC Ecology Journal. A series of Ecology Open Houses will be held in the 12 county area featuring the Ecology Bus during the fall of 1995 under sponsorship of the Jackson County Water Planning Board.

Ongoing contact was maintained with area offices of the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service. Staff of these agencies will serve as resource specialist on the Ecology Bus during the 1995-96 school year. An advisory committee of area natural resource managers will be organized by the HLELC in early 1996.

#### Benefits

- a. Natural resource management staff will have direct access to the Ecology Bus for educational programs
- b. Additional localized environmental education curriculum can be developed in cooperation with resource management agencies.
- c. Long-term cooperating relationships in environmental education will be developed between school districts, resource management agencies, and HLELC.
- d. Resource management activities conducted throughout the year by agencies can be incorporated into educational programs.

#### V. Evaluation:

Overall program results will be evaluated through the following program indicators and processes.

1. The number of school districts requesting continuation in the program after the grant funded period.
2. Teacher estimation of Field Study Program - Ecology Bus contribution to an impact on subject matter curriculum success.
3. Student evaluation on program participation and its contribution to subject matter understanding.
4. Periodic evaluation of program effectiveness by HLELC Teacher Network.
5. Willingness of natural resource management agencies to continue and preferably expand participation in program.

#### VI. Context

HLELC has an ongoing process of reviewing, developing and making environmental education curriculum available to students in a twelve county area of SW Minnesota. This process includes the development and updating of a curriculum resource guide, the printing of environmental education curriculum in the Heron Ecology Journal (the quarterly publication of the Heron Lake ELC and the facilitation of Teacher Networks of environmental education teachers for training and information exchange purposes. This curriculum development process will permit coordinated design of curriculum for use on the Ecology Bus with classroom instruction.

1992-93 HLELC activities that relate to the development of the K-12 Prairie Wetland curriculum and the start up and operation of the Ecology Bus.

- HLELC is serving as convener of area conferences in the Fall of 92 and Spring of 93 for Natural Resource Management agencies and school districts to develop a SW Minnesota Environmental Education "Cooperative Strategy" that is consistent with the emerging direction in environmental education as being developed through the Minnesota Department of Education. These sessions are an outgrowth of other meetings held by HLELC with natural resource management agencies and teacher networks where a broader cooperative effort was requested.
- HLELC has organized a study team to develop final Ecology Bus specifications, policies, charges for bus use, arrangements on a twelve county basis for the use of one or more alternative fuels in the Ecology Bus and a tentative use schedule for the summer of 1993 and the 93-94 school year. This work will be completed by February 1993.
- HLELC will be placing an order with the bus vendor in February 1993 with a contingency for nonacceptance of the order if the full legislative does not approve the LCMR recommendation. One bus dealer has indicated a willingness to proceed on this basis.
- HLELC will be consulting with individual schools convening a teacher committee in the winter of 1993 to begin preliminary design of the K-12 Prairie Wetland curriculum that will be used on the bus and modified through experience and direction of the Ecology Program Specialist.
- HLELC will commence recruitment and selection of a Naturalist Driver and Program Specialist in February 1993 July 1994 with employment to begin July 1, 1993 August 1994 or sooner if additional HLELC funds available.

#### VII. Qualifications

##### A. Program Manager

Larry Granger - Coordinator  
Heron Lake Environmental Learning Center

Mr. Granger is an education, community development and program development consultant who assisted in the organization of the Heron Lake Environmental Learning Center, Inc. while under contract with the Minnesota Extension Service. Since 1991, he has served as program and administrative coordinator which includes the development of cooperative working relationships with natural resource agencies, curriculum development and the editing of a quarterly HLELC Journal.

Mr. Granger will be assisted by Anne Cunningham, HLELC's Program Director for Youth Education and Ecology Bus Education Consultant. Ms. Cunningham is leading the task force developing Ecology Bus use and regularly facilitates meetings of Environmental Education Teachers in SW Minnesota.

#### **B. Major Cooperators**

The Naturalist/Bus Driver and Ecology Program Specialist called for in this grant will be recruited and selected in the Spring of 1993 with representatives of the State Office of Environmental Education and Minnesota Department of Natural Resources serving on the screening and selection panel.

#### **VIII. Reporting Requirements**

Semiannual status reports will be submitted no later than January 1, 1994, July 1, 1994, January 1, 1995 and a final status report by June 30, 1995.