A PRAIRIE STOMP: DEVELOPMENT OF AN OUTDOOR ENVIRONMENTAL LEARNING SITE ON THE CAMPUS OF ARROWHEAD HIGH SCHOOL

By John A. Rhude

Project submitted in partial fulfillment of the requirement of the degree
MASTER OF SCIENCE IN NATURAL RESOURCES:
ENVIRONMENTAL EDUCATION

College of Natural Resources
University of Wisconsin – Stevens Point
Stevens Point, Wisconsin

July 2004
APPROVED BY:

Richard Wilke
U.W. System Distinguished Professor of Environmental Education
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>iv</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>I. THE PROBLEM AND ITS SETTING</td>
<td></td>
</tr>
<tr>
<td>a. The Problem Statement</td>
<td>2</td>
</tr>
<tr>
<td>b. The Sub problems</td>
<td>2</td>
</tr>
<tr>
<td>c. The Significance of the Project</td>
<td>2</td>
</tr>
<tr>
<td>d. The limitations</td>
<td>3</td>
</tr>
<tr>
<td>e. The definitions and Terms</td>
<td>3</td>
</tr>
<tr>
<td>f. Assumptions</td>
<td>4</td>
</tr>
<tr>
<td>II. REVIEW OF RELATED LITERATURE</td>
<td></td>
</tr>
<tr>
<td>a. Infusion of Environmental Education</td>
<td>6</td>
</tr>
<tr>
<td>b. Barriers to EE infusion</td>
<td>7</td>
</tr>
<tr>
<td>c. Value of the Outdoors as a Teaching Tool</td>
<td>8</td>
</tr>
<tr>
<td>d. Summary</td>
<td>9</td>
</tr>
<tr>
<td>III. PROJECT METHODOLOGY</td>
<td></td>
</tr>
<tr>
<td>a. Subproblem One</td>
<td>11</td>
</tr>
<tr>
<td>b. Subproblem Two</td>
<td>11</td>
</tr>
<tr>
<td>c. Subproblem Three</td>
<td>12</td>
</tr>
<tr>
<td>d. Subproblem Four</td>
<td>12</td>
</tr>
<tr>
<td>IV. RESULTS</td>
<td></td>
</tr>
<tr>
<td>a. Subproblem One</td>
<td>14</td>
</tr>
<tr>
<td>b. Subproblem Two</td>
<td>16</td>
</tr>
<tr>
<td>c. Subproblem Three</td>
<td>17</td>
</tr>
<tr>
<td>d. Subproblem Four</td>
<td>17</td>
</tr>
<tr>
<td>V. CONCLUSIONS AND RECOMMENDATIONS</td>
<td></td>
</tr>
<tr>
<td>a. Subproblem One</td>
<td>19</td>
</tr>
<tr>
<td>b. Subproblem Two</td>
<td>19</td>
</tr>
<tr>
<td>c. Subproblem Three</td>
<td>20</td>
</tr>
<tr>
<td>VI. WORKS CITED</td>
<td>21</td>
</tr>
<tr>
<td>VII. APPENDICES</td>
<td>23</td>
</tr>
<tr>
<td>Appendix</td>
<td>Page</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
</tr>
<tr>
<td>Appendix A</td>
<td>24</td>
</tr>
<tr>
<td>Appendix B</td>
<td>26</td>
</tr>
<tr>
<td>Appendix C</td>
<td>27</td>
</tr>
<tr>
<td>Appendix D</td>
<td>28</td>
</tr>
<tr>
<td>Appendix E</td>
<td>30</td>
</tr>
<tr>
<td>Appendix F</td>
<td>32</td>
</tr>
<tr>
<td>Appendix G</td>
<td>33</td>
</tr>
<tr>
<td>Appendix H</td>
<td>34</td>
</tr>
<tr>
<td>Appendix I</td>
<td>35</td>
</tr>
<tr>
<td>Appendix J</td>
<td>36</td>
</tr>
<tr>
<td>Appendix K</td>
<td>41</td>
</tr>
<tr>
<td>Appendix L</td>
<td>47</td>
</tr>
<tr>
<td>Appendix M</td>
<td>48</td>
</tr>
<tr>
<td>Appendix N</td>
<td>49</td>
</tr>
<tr>
<td>Appendix O</td>
<td>50</td>
</tr>
<tr>
<td>Appendix P</td>
<td>51</td>
</tr>
<tr>
<td>Appendix Q</td>
<td>52</td>
</tr>
<tr>
<td>Appendix R</td>
<td>53</td>
</tr>
<tr>
<td>Appendix S</td>
<td>54</td>
</tr>
</tbody>
</table>
ABSTRACT

October 4, 2002 a prairie stomp was held on the campus of Arrowhead High School to develop over an acre of mesic prairie around the perimeter of a newly formed retention basin. The project also included a teacher in-service and workshop to develop activities that high school students could use in the newly developed site.

The project had many goals. First, to incorporate native vegetation around the perimeter of the retention basin, this would act as a buffer to slow the processes of erosion and the effects of herbicides and fertilizers from adjacent athletic fields. Second, to provide a diverse habitat for a multitude of organisms. Third, to provide opportunities for students to achieve state mandated environmental education goals. Fourth, to provide a site for all people to learn about prairies and their associated benefits.

The teacher in-service and workshop was incorporated into the project to give teachers hands on experience with activities that could be used in the developed site. One of the greatest barriers to environmental education is teacher's misgivings about their competencies in teaching environmental education (Ham, Taylor, Krumpe, 1987). To help alleviate some of those misgivings an in-service was held that allowed teachers to perform some of the activities in the outdoor site. By teachers actually performing the activities outside it was hoped that they would become more knowledgeable and more comfortable in teaching environmental education.
CHAPTER 1

THE PROBLEM AND ITS SETTING
The Statement of the Problem

The prairie stomp project had two goals. The first was to develop an outdoor environmental learning area through a massive prairie stomp. The second was to hold a teacher in-service to develop curriculum for use in the outdoor site.

The Subproblems

Subproblem 1: To determine the feasibility of a prairie stomp with the district superintendent, principals and staff.

Subproblem 2: To secure funding for a prairie stomp.

Subproblem 3: To present a teacher workshop with the intention of developing student activities for use in the outdoor educational site.

Subproblem 4: To organize and initiate the development of the outdoor school site by elementary and high school students.

The Significance of the Project

The Wisconsin Department of Public Instruction has required that all school districts develop a written, sequential K-12 environmental education (EE) plan. This plan must include strategies by which the EE infusion will occur. Though many school districts insist that they have plans to accommodate the DPI requirement, actual infusion of EE is limited. The list of barriers to infusion of EE is long. Sewing (1986) described four categories of barriers:

1. *Conceptual* – barriers stemming from lack of consensus about the scope and content of EE.
2. *Logistical* – barriers stemming from a perceived lack of time, funding, instructional resources, suitable class size, and so forth.
3. *Educational* – barriers stemming from teachers’ misgivings about their own competence to conduct EE programs.
4. *Attitudinal* – barriers stemming from teachers’ attitudes about science and EE instruction.

The state of Wisconsin has developed EE goals and standards which school districts can follow. The state has also developed EE mandates for teacher training programs. Therefore all teachers certified in Wisconsin
must have knowledge on EE issues, attitudes and values, and have the ability to incorporate the study of environmental problems into whatever subject they teach. It is, however, still a struggle for teachers and school districts to infuse EE into the curriculum. Continued efforts to carry out EE infusion must be made and it is hoped by developing an outdoor education site that the Arrowhead High School staff and students will see the importance of natural landscapes and that further educational opportunities can take place with the use of the site.

The Limitations

1. The project will not determine, nor evaluate, the ability of Arrowhead High School staff to incorporate the use of the outdoor education site into their curriculum.
2. The project development will be limited to students from surrounding feeder schools and Arrowhead High School.
3. The project will not evaluate the use of the environmental site by Arrowhead High School staff or students.

The Definition of Terms

AHS: Arrowhead High School

DPI: Department of Public Instruction

Environmental Education (EE): The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (Hungerford, Peyton & Wilke, 1980).

Feeder Schools: The Arrowhead School district is a unified district, with eight k-8 grade schools feeding into the high school. These schools include Stonebank Elementary, North Lake Elementary, Merton Middle School, Merton Elementary, Hartland North and South, St. Charles, Lake Country Elementary and Richmond Elementary. These schools are referred to as feeder schools.

Outdoor Education Sites: An outdoor area or parcel of land that can be used for educational purposes.
Mesic prairie: Grassland community that occurs on rich, moist garden like soils between streams, ponds, lakes and upland biomes.

Prairie Stomp: An idea generated by Mr. Greg Bisbee and I where 300 students would spread by hand prairie seed and trample the seed into the soil.

Assumptions

1. The first assumption is that the property needs to be developed as an outdoor education site.
2. The second assumption is that the outdoor site plan will be approved by the AHS administration.
3. The third assumption is that the local feeder schools and AHS students will be willing to donate their time and effort to build the outdoor education site.
CHAPTER 2

THE REVIEW OF RELATED LITERATURE
The Review of Related Literature

**Infusion of Environmental Education into the Curriculum**

Wisconsin has a tremendous history of environmental activism and education. Leaders in the field that have called Wisconsin their home include Aldo Leopold, John Muir, Frances Hammerstrom, Gaylord Nelson and Mel Ellis, just to name a few. The strong commitment to environmental education has continued with the guidance of these individuals and many others. Today we as educators look to accomplishments such as the DPI requirement that every school district develop and implement a written and sequential curriculum plan incorporating instruction in environmental education into all subject areas, with emphasis in art, health, science and social studies, to guide us into the future. The sub – goals of EE provide an opportunity to create environmentally responsible citizens who can use knowledge, attitudes, and skills to make better choices for the environment and the world in years to come (Engleson and Yockers, 1994).

Environmental education is such an interdisciplinary subject that it lends itself to infusion into subjects such as social studies, art, science and math. According to Ramsey, Hungerford and Volk, "infusion refers to the integration of content and skills into existing courses in a manner as to focus on that content (and/or skills) without jeopardizing the integrity of the courses themselves" (1992, 40). Therefore it is important that educators from all subject areas meet to discuss topics that can be incorporated into their own curriculum. Ramsey, Hungerford and Volk (1992) identify topics in environmental education and infusion possibilities within the subject areas (see table 1). Other guides to infusion include *Avoiding Infusion Confusion* (Hayden et al. 1987). By infusing environmental topics into many areas of the curriculum more students become exposed to environmental themes in many subject areas and teachers with expertise in each field can emphasize their topics at the appropriate grade level.

There are however, concerns that must be overcome when trying to infuse EE into the curriculum. First it requires greater communication between teachers of different subject areas. In the elementary level, this may be easier, due to the fact that many teachers teach a variety of subjects and they often team teach numerous topics. In the secondary level, communication between subject areas can be more challenging as teachers and students become more specialized and isolated. So, according to Volk, it may be appropriate to have a little of both. Infusion being a better choice in the younger grade levels and specific, single EE courses in the upper grade levels (1993). Many other advantages and disadvantages of infusion into the whole curriculum versus single, EE courses have been outlined by Hungerford and Peyton (1986).
Table 1. Environmental Education Topics and Skills: An Infusion Inventory

<table>
<thead>
<tr>
<th>The Skill</th>
<th>Science</th>
<th>Social Studies</th>
<th>Math</th>
<th>Language Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sensitivity</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ecological Concepts</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Issue Information</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Environmental Implications</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-Cultural Implications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Beliefs/Values</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Examining Values</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Analysis</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Identifying Problems/Issues</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Accessing Secondary Information</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluating Information for Bias</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Synthesizing Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing Research Questions</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Developing Survey Instruments</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducting Interviews</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sampling</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Collecting Data</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Recording/Organizing Data</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Graphing</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Data Interpretation</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Communication (written)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Communication (oral)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Citizenship Action Skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Action</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Action</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Persuasion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecosystemal Management</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Analysis/Evaluation</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


**Barriers to EE infusion**

Many educators, especially at the secondary level, have ignored infusing environmental issues into their curriculum. A great deal of research has been done on the issue of EE infusion and many barriers have been identified. Sewing (1986) found that many teachers believe that EE is only relevant to science curricula, de-emphasizing the possibilities of EE in language arts, social studies, and all the other usual subject areas. Lane and others (1994) surveyed Wisconsin teachers and found that the most common response to lack of infusion was a perception that EE is unrelated to their particular subject area. The second
most frequent response was a lack of background in EE. Ham, Taylor and Krumpe (1987) went as far as to categorize the barriers to infusion as follows:

1. **Conceptual** – barriers stemming from lack of consensus about the scope and content of EE.
2. **Logistical** – barriers stemming from a perceived lack of time, funding, instructional resources, suitable class size, and so forth.
3. **Educational** – barriers stemming from teachers' misgivings about their own competence to conduct EE programs.
4. **Attitudinal** – barriers stemming from teachers' attitudes about science and EE instruction.

The method most often employed to alleviate the perceived barriers to EE infusion is the teacher workshop or in-service. The way in which the in-service or workshop is handled is important to the success of the infusion. Innovative ideas are more likely to become part of the curriculum if staff workshops are accompanied by frequent meetings, teacher participation in decisions, classroom assistance, and on – giving feedback.

**Value of the outdoors as a teaching tool**

Howard Gardner outlined seven natural intelligences that people possess. Those include the verbal-linguistic, the logical – mathematical, the visual – spatial, the musical – rhythmic, the bodily – kinesthetic, the intrapersonal and the interpersonal. The discovery of these intelligences has molded education in terms of what is taught in the classroom. The verbal linguistic area of intelligence is covered in English and social studies, the logical – mathematical is covered in the sciences and math, the musical – rhythmic is covered in band and choir, the bodily – kinesthetic is covered in physical education and the intrapersonal and interpersonal are covered in all curricular areas. In 1995, Gardner, identified the eighth intelligence, the naturalistic. This new “intelligence” would seem to be most appropriately covered in the sciences and more importantly in the out of doors. As Glock, Wertz and Meyer (1999) point out, “doing field studies allows one to see patterns in nature that are no different from the pattern blocks children use in math class. By observing outside, we can understand these connections.”

The outdoors also helps to build an environmental sensitivity, which according to the Tbilisi Declaration is the first category of environmental objectives. Louise Chawla, professor of psychology at Kentucky State University, said that the experiences that people most remember as significant in motivating their care and concern for the natural environment were outdoor experiences (Chawla, 1998). Hungerford
and Volk also point out that frequent interaction with the natural, rural, or other relatively pristine habitats, exploring or playing in the outdoors, alone or with one or two friends builds environmental sensitivity (Engleson and Yockers, 1994).

Outdoor education offers experiential learning, team building opportunities and the potential to develop environmental knowledge, ethics and personal responsibility. Research shows that when “students learn in the outdoor settings as compared to staying in the classroom, they learn more quickly, appreciate the experience more, and retain skills and knowledge longer” (Sharp, 1973).

Summary

In summary, exposing students to the outdoor world can and does enhance children’s acquisition of knowledge. The constructivist learning theory that Piaget formulated described that children construct knowledge from their actions on the environment. Physical knowledge is constructed through actions on objects. Concepts, such as “trees” can only be acquired from children “acting on” trees (Engelson and Yockers, 1994). This implies that children will benefit tremendously from getting outside.

The focus of this project is to develop an outdoor education site and to give students the opportunity to experience the natural world in an informal educational setting. Through the development of the site it is hoped that students and teachers will be able to frequently enjoy the out of doors and gain a better appreciation for the natural environment.
CHAPTER 3

PROJECT METHODOLOGY AND TREATMENT OF THE SUBPROBLEMS
Project Methodology and Treatment of the Subproblems

Subproblem 1. August 2000. A voluntary meeting was held to determine the feasibility of a project with the district superintendent, principals and staff.

A flyer (see Appendix B) was placed in all staff mailboxes, Wednesday, August 23rd, soliciting interest in developing an outdoor environmental education site. A personal invitation was also given the week prior to the meeting to the building principals, head of maintenance and Dr. Dave Lodes, school superintendent.

The meeting was held August 30th, in the north campus library (see agenda, Appendix C). The goal of the meeting was to develop enthusiasm for outdoor education by pointing out reasons for developing outdoor sites, showing what AHS has to offer (through a power-point presentation), and discussing how future development could occur.

The ideas generated from this meeting were then forwarded to Dr. Lodes, who then contacted the engineers and architects responsible for the school’s latest additions and renovations. All potential plans were then discussed at length between Dr. Lodes, the engineering firms and I.

Subproblem 2. Fall of 2001. The second problem was to secure funding for a project.

The initial proposal for constructing an outdoor education site did not include any district funds. Due to the fact that all Wisconsin schools are strapped for funds I proposed any development would be done with volunteers and donated or grant money. Mr. Gregg Bisbee, biology teacher, and I discussed at length various projects and methods by which we could secure funding for such projects. Greg took the initiative to look into outside grants for money. It was decided that we would apply for the C.D. Besadny Conservation Grant from the Natural Resources Foundation of Wisconsin, Inc (see appendix J). We would also apply for a National Wildlife Federation Schoolyard Habitat grant. Additional funds would be secured from the school’s environmental club, The Save the Earth Club, and a small amount from the biology department’s annual budget.
**Subproblem 3. August 21, 2002. A teacher workshop and in-service was held with AHS science staff. The goal of which was to develop student centered activities for use in the outdoor education site.**

A teacher workshop was planned for all local feeder schools and Arrowhead High School staff. As part of the application for the C. D. Besadny grant, local Eisenhower funds would be used for the in-service. Local feeder school teachers and the high school staff were invited to participate in the workshop. Invitations were mailed to all local feeder schools and flyers were placed in all AHS staff mailboxes a month prior to the workshop.

The agenda for the in-service was put together by Greg Bisbee and I. The history of the North American prairie along with practices and techniques for prairie restoration were presented. The second half of the workshop was devoted to developing labs that could be used in the outdoor education site (see appendix K).

**Subproblem 4. Fall of 2002. The fourth problem was to organize and initiate the development of the outdoor school site by elementary and high school students.**

April 17th, 2002, a letter was sent to administrators of all the local feeder schools (see appendix L) in an attempt to gather interest for the prairie stomp. The letter included an explanation of the prairie stomp and the purpose for holding the event.

The fall of 2002, another letter, dated August 26, 2002, was sent to the local feeder schools (see appendix M) to stimulate interest and outline the purposes for holding the event. A self-addressed, stamped postcard was included in the mailing (see appendix N) for teachers to reply. A brochure and drawing of a flag that students could produce for the actual stomp was included in the mailing (see appendix O and P).

Return postcards were due back to AHS by September 15th, 2002. The prairie stomp was scheduled for October 4th from 11:30 am to 1:30 pm. The date was determined by the weather pattern that was most conducive for planting prairie seeds.
Chapter 4

RESULTS OF GRADUATE PROJECT
Results

(Subproblem 1. Hold an initial, voluntary meeting to discuss a potential project)

The initial meeting of staff and administration was held August 30, 2000 (see appendix C and D). The goal of this first meeting was to initiate enthusiasm for a project, discuss why outdoor education sites are valuable, view the campus grounds and discuss options for areas of development. I used a power-point presentation to show the many potential areas of development for native, natural landscaping and we discussed the advantages of using such techniques for drainage ditches, the ends of parking lots and areas not dedicated to athletic fields.

The initial reaction from the staff and administration was quite positive. Input was gathered from many curricular areas, including art, English, science and family and consumer education (FACE) departments. Twelve individuals attended the meeting including Dr. Lodes and the north campus principal, Dr. Bonnie Laugerman. After this first meeting it was decided that we would propose to put in a prairie garden at the ends of the teacher parking lot at north campus. These areas are approximately one acre in size and were connected to each other by a drainage ditch, which could also be planted in wet/mesic prairie.

I discussed the ideas with Dr. Dave Lodes and he suggested that I contact the engineers involved in the recent, twenty three million dollar, addition to the school. What Dr. Lodes did was set up a hierarchy that I was to follow in order to get the plans approved. At the top of the hierarchy was Mr. Gary Woodward, engineer for Eppstein Uhen Architects, Inc. Second to Mr. Woodward was Mr. Brian Boeding, Landscape Architects, Inc. Dr. Lodes was third in line and the AHS school board fourth. Any plans for developing an outdoor education site had to follow this hierarchy.

The first step was to then discuss the ideas with Mr. Brian Boeding, Landscape Architects, Inc and Mr. Gary Woodward, Eppstein Uhen Architects, Inc. I sent Mr. Boeding an email with our ideas and was surprised to learn that he was less than receptive to native landscaping outside of our current prairie location (see appendix E). The project generated from our first meeting was to incorporate native landscaping throughout the campus, especially in the drainage ditches and ends of parking lots. These areas were chosen due to their close proximity to the classrooms and due to the fact that a tremendous amount of erosion was occurring in them. We also had chosen an area of land directly south of the new science rooms at the north campus location. Again due to the proximity of this location to the science classrooms this appeared to be an ideal location. The email from Mr. Boeding and from Mr. Woodward (see appendix F) were less than positive. Both individuals maintained that a minimum of a 100’ buffer strip would have to be located.
between the outdoor education site and any building. This would allow for controlled burns and prevent unintentional fires from jumping to the school building. In addition, “the minimum width of the prairie should be 50 feet to promote a healthy stand of prairie” (Boeding, Fax 2000).

The only area that the engineers would recommend for development was the new retention basin adjacent to the current prairie. The prairie is currently located behind the north campus soccer stadium, a fifteen minute walk from south campus and a twelve minute walk from north campus. Not the most ideal location, due to the long walk.

The project sort of bogged down at this point in time. I became frustrated with the “higher” ups and gave in to the idea that our initial proposal was not going to fly. Dr. Lodes proposed that we develop a planting for the two “planter boxes” in front of each campus (see appendix G). These boxes were concrete enclosures in front of the main entrances at both campuses, which are great for aesthetics but have little educational value due to their small size. I discussed my frustrations with the building principal and she suggested that we plant the “planter boxes” and use that as a showcase to move up to the larger project. So the environmental club and I prepared and planted the north campus planter box (see appendix H and I). The south campus planter box was prepared and planted by the biology students and Mr. Greg Bisbee.

A twist from the initial proposal

After the completion of the north and south campus planter boxes we decided to pursue the area adjacent to the retention pond that was recommended by Mr. Woodward and Mr. Boeding (see appendix F). Due to the administrative resistance we encountered in the past we chose to incorporate a massive prairie stomp performed by elementary and high school students. The area directly adjacent to the retention pond would be appropriate for wet/mesic prairie, would help with erosion and would involve a tremendous number of students. All of which would make our administrators smile.

The fall of 2001 Greg Bisbee and I began to lay out the area for development, write the C.D Besadny and NWF Schoolyard Habitat mini-grant. We chose not to discuss our ideas with the administration at this point in time, instead decided to wait until we received the grants. It is very difficult for our administration to turn down free money.

The spring of 2002 flyers were sent out to all the local feeder schools (see appendix L) to gather interest in the upcoming prairie stomp. The remainder of the spring was time that Greg and I prepared the prairie stomp day itself, discussed ideas with other departments and in general laid the ground work for the stomp. We met again during the summer to work out the details for the in-service.
The fall of 2002 we sent out a second set of flyers to all the local feeder schools (see appendix M) with return postcards which were due back by 9/15/02. Four schools replied with a total of 286 students (see appendix Q). A great turn out!

(Sub problem 2. Discuss ideas as to how to fund the project.)

The initial meeting brought up the issue of money, who was going to pay for any future development? Dr. Lodes made it perfectly clear that no monies were set aside for landscaping with the recent addition and renovation. The committee and I assured Dr. Lodes that the majority of work could be done with volunteers and any money necessary could come from potential grants, donations and the school’s environmental club, The Save the Earth Club.

Gregg and I were informed that we received the C.D. Besadny grant, and that Eisenhower funds were approved for the teacher workshop. The school’s environmental club also donated funds, Retzer Nature Center donated a small amount of seed for the project and a limited amount of money was donated by the biology department (see table 2).

Table 2. Funds for prairie stomp

<table>
<thead>
<tr>
<th>Number</th>
<th>Item</th>
<th>Total Cost</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mesic prairie mix, 1 acre</td>
<td>1,150.00</td>
<td>Grant money (C.D. Besadny) and Retzer Nature Center</td>
</tr>
<tr>
<td>1</td>
<td>Retention pond mix, .5 acre</td>
<td>675.00</td>
<td>Grant money (NWF) and Arrowhead High School</td>
</tr>
<tr>
<td>15</td>
<td>Bulk flats, plants</td>
<td>480.00</td>
<td>AHS Earth Club</td>
</tr>
<tr>
<td>5</td>
<td>Annual rye, 1 lb</td>
<td>15.00</td>
<td>AHS Earth Club</td>
</tr>
<tr>
<td>6</td>
<td>Superfine germinating mix</td>
<td>47.22</td>
<td>AHS biology</td>
</tr>
<tr>
<td>6</td>
<td>Fafard 3-B planting mix</td>
<td>42.50</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>4.5&quot; SVD pots, case</td>
<td>60.50</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>4.5&quot; x 12 tray, case</td>
<td>47.00</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>Teacher training</td>
<td>1200.00</td>
<td>Eisenhower Grant</td>
</tr>
<tr>
<td>1</td>
<td>Printing, copying</td>
<td>50.00</td>
<td>Arrowhead High</td>
</tr>
</tbody>
</table>
(Subproblem 3. Present a teacher workshop and in-service to develop student centered activities to use in the outdoor education site.)

Greg Bisbee and I met in June of 2002 to prepare the teacher workshop and in-service for interested staff and elementary teachers to learn about the history of the North American prairie, prairie restoration and to develop activities that could be used in the outdoor site (see appendix K).

We were a bit disappointed when only a handful of individuals signed up for the workshop. Not one elementary teacher participated and only the science department was represented by five of its members. The staff that did participate was enthusiastic and much was accomplished. We spent time in the existing prairie performing quadrat studies of vegetation and collecting insects using a pollinator method. The data was then analyzed back in the classroom by creating species area curves. Overall the activities that were learned were excellent.

(Subproblem 4. Develop the outdoor education site with the help of local feeder schools and AHS students.)

The date for the actual prairie stomp was set, October 4, 2002. 287 students showed up on a rainy, dreary day. The Earth Club paid for and ordered a large tent that was placed near the site in the early morning. The local Rotary club donated liquid refreshments and our high school special education department baked cookies for the students after the stomp was complete. A local Irish band came to serenade us with fine music during the event, but due to the nasty weather had to cancel. Many of the feeder schools came with drums and banners, and a small parade was led into the existing prairie where students were allowed to pick some of the seed still standing and carry over to the newly seeded area.

The Save the Earth Club members each took a five gallon pale of seed to a particular location and taught the elementary students how to spread the seed and stomp it into the ground. Within an hour all of the seed was dispensed and stomped in.

Due to the inclement weather most of the other activities were cancelled. The students quickly darted for their busses and sped off to their various schools. From start to finish it only took a little over an hour to seed the entire area.
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS
**Conclusion and Recommendations**

The prairie stomp was a success. Over an acre of wet/mesic prairie was planted around one half of the retention pond. A tremendous number, 287 elementary and 26 high school, students participated and were given the opportunity to experience a little bit of the outdoors and to give back something to nature. The goals of environmental education are awareness, knowledge, attitudes and values, citizen-action skills, and citizen-action experience. I think that through this prairie stomp each of the goals was addressed. The students got outdoors to experience a bit of nature and were given the opportunity to make it just a little bit better. The area will not only be aesthetically beautiful, but will help reduce erosion into the retention pond, reduce the runoff of fertilizers and herbicides from the adjacent athletic fields, and create habitat for wetland insects, amphibians, reptiles, birds and mammals. The success can be measured in many ways, one of which was a female mallard that successfully nested along the shores of the pond this past spring. Her seven ducklings are now using this habitat to its fullest extent.

(Subproblem 1. To determine the feasibility of a project with the district superintendent, principals, and staff.)

The Arrowhead School District is one of the most conservative districts in the state, and I have first hand experience with their conservatism. The administration, especially the superintendent, has little use for the environment or outdoor education. His entire demeanor throughout was that this was an unnecessary project and a bother to him. We did everything possible to point out the advantages of doing this project, from educational (meeting the goals of EE), to aesthetic, to preventing erosion and filling in of the retention basin and other drainage ditches. The areas around the parking lots and the ditches are today as I speak ugly, unused space with tremendous erosion problems. I do not think anything we did or could have done was going to change his mind. The only reason he allowed the planting around the retention basin was that it is out of sight, hidden behind the soccer stadium, and away from the main traffic area.

The only way in which future development of unused space would occur on the grounds of AHS is if an influential community member or community groups were involved. Dr. Lodes does listen to and “jump” to the voices of the community. His lack of respect for the staff is quite evident.

(Subproblem 2. To secure funding for a particular project)

Greg Bisbee and I knew from the beginning that no district funds would be allowed to enhance or develop outdoor education sites, so we decided from the get go to apply for grants and to solicit the help of
local groups and students. This was probably the most important factor in getting final approval for the project. Dr Lodes cannot say no to grant money. Therefore for future projects it would also be wise to solicit outside funding and volunteers.

With the status of school funding in limbo, contracts a mess, and teachers leaving for better paying jobs elsewhere, no district is going to fund what they consider extra, unnecessary development of outdoor education sites. The future of environmental education is bleak without financial support.

(Subproblem 3. To present a teacher workshop with the intention of developing student activities for use in the outdoor education site.)

The workshop itself was a success, but the lack of participants was disheartening. The barriers to teaching environmental education are many. The barriers to taking students outside are many. The workshop is one way to combat a teacher's misgivings about taking students outside to study EE. By getting teachers outside to participate in activities themselves they can begin to feel more comfortable in the outdoors and overcome some of their fears.

The only staff that participated was the science staff, and so the workshop was geared toward biology teachers. What was also a bit disheartening was that the environmental science teacher chose not to participate.

Future workshops would need to be advertised with much greater enthusiasm and perhaps be held on days that teachers have to be at school instead of an extra day. More incentives need to be given to get teachers to participate (even though we were paid through Eisenhower funds, teachers chose not to join in). I was most amazed that no elementary staff participated. Again I would assume because we held the workshop on a non school day. I would also assume that the participation was low because of the conservative attitudes that prevail in this community. Environmental education and the natural world is not important to many folks in this area.


Appendix A
Graduate Project Log

8/30/00 AHS first meeting to develop interest in creating an outdoor environmental site with staff and administration.

9/11/00 Memo (email) sent to Brian Boeding, Landscape Architects, Inc. to ask for input on native landscaping on the AHS grounds.

9/19/00 Second meeting of AHS staff, administration and student representatives from north campus student senate to discuss outdoor school site and response from Brian Boeding, Landscape Architects, Inc.

3/12/01 Memo Received from Dr. Dave Lodes regarding outdoor school site. He recommends we concentrate on the north and south campus planter boxes in front of school before we tackle a larger project.

5/15/01 I met with north campus principal, Dr. Bonnie Laugerman to discuss options for north campus planter box.

9/15/01 Planted north campus planter box with native perennials purchased from Sandy Bottom Nature Center, Hartland, Wisconsin. AHS Save the Earth Club paid for plants and did the planting.

10/22/01 Met with Greg Bisbee, biology teacher, south campus, to discuss writing C.D. Besadny Conservation Grant from the Natural Resources Foundation of Wisconsin, Inc. and National Wildlife Federation Schoolyard Habitat mini-grant.

1/15/02 National Wildlife Federation Schoolyard Habitat mini-grant due.

1/18/02 C.D. Besadny Conservation Grant from the Natural Resources Foundation of Wisconsin, Inc. Due.

3/04/02 Begin raising prairie plants in north and south campus greenhouse with the help of biology students and Save the Earth Club members.

5/12/02 Maintenance crew begins site preparation, spray roundup from now until fall.

6/12/02 Greg Bisbee and I met to develop Prairie Restoration workshop and in-service for AHS and feeder school teachers. Workshop was paid for by Eisenhower funds.

8/21/02 Prairie Restoration workshop and in-service held at south campus. Greg Bisbee, Quentin Cartier, Jeff Gross, Dennis Mechenich and John Rhude attended.
Memos were sent out to AHS feeder schools to solicit help with the prairie stomp.

Replies from feeder schools due back to AHS.

Final list of participating feeder schools
- North Lake elementary 4th/5th grades...87 students
- Stone Bank elementary 4th/5th grades...70 students
- Lake Country elementary 4th grade......40 students
- Richmond elementary 5th/6th grade......89 students

Prairie Stomp held from 11:30 am until 1:30 pm in a steady rainfall.
INTERESTED IN USING THE OUTDOORS IN YOUR CURRICULUM?

Come to a meeting to discuss the ideas of native, natural landscaping around the AHS campuses. Take some pride in our outdoor sites and help develop;

- Native prairie areas
- Butterfly gardens
- Medicinal plant gardens
- Vegetable garden
- Native, mid-western trees
- Outdoor amphitheater and bench seating

Teachers in all curricular areas are asked to participate, especially art, science, math, English, social sciences, tech ed., foods. Let’s make our grounds aesthetically and academically pleasing and useful.

Meet in the north campus library 3:00 PM
Wednesday, August 30th

Sponsored by John Rhude and the AHS science department

Treats will be provided
Appendix C

Outdoor School Sites and Landscaping Meeting Agenda

Wednesday, August 30, 2000  3:00 pm North Campus Library

I. Why Develop Outdoor School Sites
   a. Educational
      i. Collection of samples for biological science classes
      ii. Soil profile pit
      iii. Compost display area
      iv. Vegetable garden
      v. Fruit trees
      vi. Bluebird house trail
      vii. Bat house
      viii. Outdoor seating/benches/amphitheater
   b. Erosion and flood control
   c. Reduction in maintenance cost
      i. Reduced amount of fertilizer
      ii. Reduced time spent mowing/weeding
   d. Aesthetically pleasing

II. What does the school site currently have to offer (power-point slides)
   a. Prairie restoration area
   b. Retention ponds and drainage ditches
   c. Pine/Ash plantation
   d. Medians
   e. Grassy areas adjacent to all buildings
   f. Box elder woods south of prairie
   g. Tree line surrounding entire campus

III. What enhancement could occur on the campus
   a. Native plant species around retention ponds and ditches to hold water and reduce erosion
   b. Butterfly gardens
   c. Medicinal plant gardens
   d. Vegetable garden
   e. Fruit trees
   f. Cross country trail (line with native flowers/prairie)
   g. Expanded native prairie areas
   h. Amphitheater and bench seating for outdoor classroom
   i. Native/mid-western tree species
   j. Shed for tool storage near current prairie
   k. Signage for gardens etc.
   l. Bird/bat houses for entire campus

IV. How do we accomplish these goals
   a. Develop a steering committee
      i. Administrative approval
      ii. Moneys for seed, transplants, wood (shed, benches, bird/bat houses)
      iii. Water source for vegetable gardens
Appendix D

Outdoor Education Sites Minutes from meeting on 9/19/00

Meeting Date: 9/19/00

Present: John Rhude, Mike Hall, Cheri Kaiser, Bonnie Laugerman, Steve Melzer, Bill Anderson, Jeff Gross, Joel Pfeifer, Dr. Dave Lodes, Dr. Bonnie Laugerman, Student Senate Representatives Heidi Ginter and Scott Schneider

Minutes:

- The meeting began with a review, for our student representatives, of what occurred in the first meeting. Overview of proposed outdoor educational sites, location of those sites and reasons for having natural landscaping.
- Discussion on differences between types of prairies (short grass, tall grass, oak Savannah) butterfly gardens, medicinal plant gardens.
- Where will snow be piled up in the winter?
  
  I will ask Mike Miller from maintenance where they will push snow.

- How will road salt effect plantings?

  Tremendously, salt will kill any plants, be it prairie or Kentucky bluegrass, within 2 - 4’ of the roads. These areas along the roads are currently filled in with gravel each year. Proposed plantings would need to be away from the roads to avoid the salt. Medians will not be used for prairie plantings, perhaps trees (maples, oaks or other tall deciduous trees can be planted in the medians, as their branches can be trimmed high enough to avoid blocking sight paths.

- The group would like to landscape the north and south ends of the east parking lot along with the swale that connects the two grassy areas. In addition, the north and south ends of the east side of the building are appropriate for outdoor sites as science is located on the south side and art/home economics and English are on the north end. The west end of south campus, around the retention pond and on the hill leading to the softball fields. The planter boxes in front of north and south could also be incorporated into the landscaping plan (however, these have little educational value due to the small size).

- Joel Pfeiffer expressed his concern for a teaching station at the north end of north campus. Outdoor sculpture garden with drawing stations or outdoor walkway with benches or brick seating area would be great for art, English etc.

- John Rhude received an email from Brian Boeding, Landscape Architects, Inc. in reply to his email regarding ideas for natural landscaping. John read the email which recommends natural landscaping @ north end of the current prairie only. Reasons for not landscaping medians, swales, and adjacent to buildings include;
- Salting of roads
- Excess heat from pavement
- Compaction of plants and soil from inadvertent foot traffic
- Aesthetics due to the nature of prairies taking a few years to establish themselves

- Dr. Lodes recommended that we contact Brian Boeding, Landscape Architects, Inc. to get further ideas for landscaping. NO LANDSCAPING can be done without going through these channels

  - Mr. Gary Woodward (Eppstein Uhen, Architects, Inc.
  - Mr. Brian Boeding (Landscape Architects, Inc.
  - Dr. Dave Lodes (Superintendent AHS)
  - AHS school board
• John Rhude talked with Mr. Herb Rasmussen, Sandy Bottom Nature Center, about lending a helping hand with design etc. Herb is all for helping out and very positive about natural landscaping. He has expertise in this area and has recently used some native plantings @ the Delafield Brewhaus.

• No date was set for future meeting. John Rhude will try to contact Brian Boeding and Gary Woodward to set up a time for discussion of our plans and their recommendations.
Appendix E

Email to Brian Boeding, Landscape Architects, Inc. and his reply about potential outdoor education sites.

From: "Landscape Architects, Inc." <lainc@execpc.com>
To: "John Rhude" <Rhude@ahs.k12.wi.us>
Date: 9/19/00 12:12PM
Subject: Re: Arrowhead High School landscaping

Mr. Rhude,

Native landscaping and prairie planting is a great idea but is inappropriate in many situations because of safety concerns and the ability for the plant material to flourish. In our experience we have found that prairie, moist meadows, butterfly gardens etc. grow best in large masses away from high traffic areas. High traffic areas do not let the prairie seeds germinate properly because of salt, excess heat from pavement and compaction from inadvertent foot traffic. These conditions do, however, allow weed seed to germinate and invade the small prairie plots. The fact that prairies take approximately 3 years to become fully established also makes small prairie plots difficult to establish.

I typically like to have a minimum width of 50' for these types of plantings. Areas less than 50' wide typically have a woody and patchy appearance that is often offensive to the general public while the larger areas allow for a diversity of plant species and are reminiscent of the native prairie community with its large waves of plant massings. Larger areas also provide a habitat for butterflies, insects and animals that small areas can not provide. Lastly the larger areas are more easily maintained with mowings and controlled burns away from buildings, people and vehicles.

I would recommend that prairie, moist meadows, butterfly gardens etc. be avoided at medians, below exit to access roads and areas directly adjacent to the school. I would concentrate your prairie landscaping efforts on large areas a minimum of 50' wide and at least 100' away from buildings. An ideal location would be west of the soccer field at the north campus building around the proposed infiltration basin. Being adjacent to the existing woodland at the west property line, and the infiltration basin providing water, offers opportunities for wildlife to utilize the prairie plot as habitat.

Sincerely,
Brian Boeding
Landscape Architects, Inc.

—— Original Message ——
From: John Rhude <Rhude@ahs.k12.wi.us>
To: <lainc@execpc.com>
Sent: Monday, September 11, 2000 9:50 AM
Subject: Arrowhead High School landscaping

> Hello Brian Boeding,
>
> My name is John Rhude, I am a biology teacher at AHS interested in the landscaping that is occurring hear at our school. Dave Lodes had forwarded my request to put more of our school grounds into natural landscaping and prairie. Dave forwarded the information that you gave him regarding prairies, and suggested that I discuss some of my ideas with you.
We would like to take some of the medians and areas of grass adjacent to the school and develop butterfly gardens, medicinal prairie plant gardens, etc...

Dave was a bit nervous about maintenance that would be required and the proximity to the school, due to burning. We assured him that the maintenance cost is less (no fertilizers necessary, no mowing etc). We also mentioned that not all of these gardens need to be burned. We will also put a 10'-20' border of grass around the various gardens.

What I would like from you is any suggestions you may have and I guess your approval for such landscaping.

Thanks

John Rhude
AHS

CC: "Gary Woodward" <garyw@eppsteinuhcn.com>
Appendix F

Memo received from Mr. Gary Woodward regarding native plantings and outdoor education sites at the north campus location.

Transmittal

DATE: 6-2-00
TO: Eppstein Uhen Architects, Inc.
333 East Chicago Street
Milwaukee, WI 53202-5809

ATTENTION: Gary Woodward

RE: Arrowhead High School Addition & Renovation – Prairie Comments

We Are Sending:
X Enclosed
□ Under Separate Cover

Via:
□ First Class Mail
□ UPS
X Messenger
□ Will Pick Up
□ Other: 

Copies Description of Materials Date of Materials
1 Prairie/Moist Meadow Seed Specifications (5 sheets) 

Remarks: I have read the proposal from John A. Rhude regarding prairie areas in lieu of seeded turf areas and have the following comments.

From a strictly functional standpoint, prairie/moist meadow seeding is an acceptable alternative to seeded turf in areas that are a minimum of 100 feet from any and all buildings and are not intended for use as programmed and/or non-programmed field events. The 100-foot buffer from buildings is to allow for controlled prairie burns and prevent unintentional burns during dry periods from inadvertently jumping to the building. In addition, the minimum width of the prairie should be 50 feet to promote a healthy stand of prairie.

- Prairie/moist meadows generally require less maintenance as stated in Mr. Rhude’s memo
- The costs of prairie/moist meadow seeding is more expensive than turf seeding. Turf seeding is generally around $1300 per acre while prairie/moist meadow seeding is around $3000 per acre. Although these additional costs could be offset if installed by students as a part of school project (No labor costs, material costs only).

If the prairie/moist meadow alternatives are pursued, please find the attached sheets showing specifications for prairie and moist meadow seed mixtures.

The only area that we would recommend as a potential site for prairie/moist meadow seeding options would be in and around the infiltration basin west of the North Campus building. All other areas are either too close the the building, planned for athletic events or simply not large enough to support a healthy prairie/moist meadow. Contact me with any questions or comments.

Copies: 1
Signed: Brian Boeding
Appendix G

Memo from Dr. Dave Lodes regarding outdoor education sites and his request that we emphasize working on planter boxes at north and south campus before we tackle larger projects.

**District Administrator Memo**

Date: 03/12/2001  
To: John Rhude  
Cc: Bonnie L., Gregg W., Geoff S., and Cheri K.  
From: David E. Lodes, Ph.D.  
Re: Outdoor Educational Sites

As a follow-up from John’s memo dated 3/01/01, I have better information based on feedback from the construction/architect group and potential Board action. The recent proposal emphasizes the southeast corner of North Campus. Let me talk about the planning issues.

Brian Boeding stated in a memo on 6/2/00 that a 100-foot buffer from the buildings is to allow for controlled prairie burns. I don’t care to be in the middle of poor planning versus our history . . . so I think we need to work together on this. Also, we may need to install some sidewalk so that students can go to the Ice Center on a sidewalk through this area.

The planter boxes are an immediate need. I think that we should move forward and develop a plan for approval that will become immediate this spring. What we need is a proposal for review and implementation.

I agree with John in that some of these projects would be great athletic, academic and extracurricular group activities.
Appendix H

Memo to Dr. Lodes proposing development of planter box and south side of north campus

Memorandum

To: Dr. Dave Lodes
CC: Bonnie Laugerman, Gregg Wieczorek, Geoff Steinbach, Cheri Kaiser
From: John Rhude
Date: 4/12/01
Re: Outdoor Education Sites

Dave,

Spring is fast approaching and I would like to get cranking on the proposal of a couple outdoor education sites and the planter boxes in front of both North and South Campus.

Attached is a proposal for an outdoor education site on the south side of north campus. This would be an excellent area to begin development. I have listed a variety of species that grow no taller than 3’ when full grown. This would include a variety of native flowers with a few native grasses mixed in. The entire area could be bordered by mowed grass and or split rail fence.

I would also like to get involved in development of the planter boxes. My expertise is not in formal plantings so I would not feel comfortable designing these boxes, but Herb Rasmussen (Sandy Bottom Nature Center, Hartland) may be willing to help if we would purchase some plants from him.

Please let me know what I can do to get these sites rolling. I think these would be excellent service projects for our athletic, academic and extracurricular groups to get involved in.

Sincerely,

John Rhude
Memo to Dr. Dave Lodes and Administrative team regarding planter box at north campus

Memorandum

To: Administrative Team
From: John Rhude
Date: 5/021
Re: Planter boxes at both north and south campus

I met with Herb Rasmussen, Sandy Bottom Nature Center, Hartland, on Monday evening to discuss plants for the planters and the circle in front of south campus. Herb has quite a bit of experience with formal and informal plantings. He landscaped the Dalafield Brewhaus.

His suggestions, in lieu of the fact that both of these face south, are protected from the elements and have no access to a water supply;

Various native Wisconsin Forbes (flowers) and grasses. These are quite hardy, require little maintenance once established and will flower or show tremendous color in the spring, summer and fall. He would recommend taller plants to help soften the large expanse of glass in front of the buildings and so that they will be visible from the parking lots. He would not recommend low creeping plants, as they would not be visible without standing directly over the planters. Species recommended include;

- Big bluestem, little bluestem, Indian grass etc. Purple coneflower, yellow coneflower, Bee Balm (Monarda species) Rudbeckia (black eyed susan), Asters, Liatris species (blazing star) etc. Roses Bulbs (tulips, daffodils) for spring color.

The rough square footage for each bed is attached. He would recommend planting larger plants (4" to 8" pots) so that the beds would look mature more quickly. We could supplement purchased plants with some that we have growing in our greenhouses at south and north. Pots would be planted at 3’ centers; therefore we would need roughly 52 plants at north and 340 plants at south, excluding the circle. An average price of $6.00 per pot, adds up to $2,400.00. This is a rough estimate. Does not include the circle or soil amendments. He would also recommend that the top be mulched, but no landscape fabric be used.

The beds would need to be planted by the end of May and would require watering the first few months to ensure quality growth. Once they establish themselves little maintenance would be required. A weeding a few times a year, new mulch every other year or so for added nutrients and keeping weeds down.

The earth club would be willing to put in a few dollars, perhaps $300 or more. I would suggest other organizations pitch in for funding along with the school itself. The beds could possibly be maintained by a class or organization as a community service project. Gregg Bisbee and I along with other interested science staff could lend our expertise in the maintenance of the beds.

Thanks much

John Rhude
Appendix J

C.D. Besadny Grant Application

Request for a
C.D. Besadny Conservation Grant
from the
Natural Resources Foundation of Wisconsin, Inc.
P.O. Box 2317
Madison, WI 53701-2317

Instructions: Complete this form or copy this format with a word processor. Return seven copies of the completed application to the Natural Resources Foundation office on or before January 18, 2002. For more information, call 608/266-1430 or e-mail conservation@nrfwis.org.

1. Project Title: Prairie/wetland Restoration Project

2. Principal Investigator/Contact: (include address, phone number and email address)

   Gregory D. Bisbee
   Arrowhead High School
   700 North Avenue
   Hartland, Wisconsin 53029

   (262) 369-3611 ext. 4605
   bisbee@ahs.k12.wi.us

3. Type of Project: (check one or two that most apply)

   □ Education   □ Applied Research   □ Recreation
   □ Restoration   □ Management

4. Amount Requested ($1,000 maximum): $1,000

5. Government projects only: Explain why private sector funds are needed for this project. Have you requested funds for this project from your agency's budget?

6. Geographic Impact of Project (county, school district, state-wide, etc.):

   School district and community

7. Population Served (landowners, recreationists, hunters, students, etc., estimate number of people benefiting from the project):

   Students and community; approximately 800 – 1000 students per year plus elementary students and public will benefit from the project.
8. **Resource Benefiting from Project:** (e.g., fish, birds, prairie, specific lake or property, etc.)

Prairie, wetland/pond, wildlife

9. **Duration of Project:** (Include estimated beginning and ending date.)

February 1, 2002 through June 2004 plus continued monitoring and maintenance

10. Have you or has your organization applied for grant funding from the Natural Resources Foundation in the past? If so, state the date applied, the project title, and the amount of the grant awarded, if any.

   No.

11. Would you accept a partial grant? Yes.

12. Grant will be payable to: **Arrowhead High School Prairie Education**

13. **Project Description:** Briefly (three pages or less) describe the proposed project, using the following format:
   
   a) Summary (one paragraph description of project and request)
   
   b) Introduction (applicant’s qualifications and credibility)
   
   c) The problem or need this project addresses
   
   d) Objectives (measurable benefits of the project)
   
   e) Methods to be used to achieve the objectives
   
   f) How the project will be evaluated
   
   g) Detailed budget (note total cost of project, including donated time, etc., source of matching funds, how Besadny funds will be used, and other grants applied for):

To the best of my knowledge, all information provided in this request for funding is true and accurate. I understand that if this proposal is approved for funding, the person(s) implementing this project will be required to submit a final report to the Natural Resources Foundation no later than December 1, 2002.

Name ___________________________ Date 11/14/02

Please return this completed form to:

Mr. Dan Flaherty, Chairman
Besadny Conservation Grants Program
Natural Resources Foundation of Wisconsin
PO Box 2317
Madison, WI 53701-2317

* The purpose of this report is to document project progress and/or completion and should include a copy of all publications and press releases associated with the project. (Refer to the 2002 program brochure for additional applicant requirements.)
Prairie/Wetland Restoration Project
Arrowhead High School

a) Recent construction projects at our high school resulted in the creation of a one acre retention pond abutting the small prairie restoration site used by our biology classes. Through this prairie/wetland restoration project, students will convert the retention pond, drainage ditches, and surrounding area into prairie, wet prairie, and wetland habitat. This restoration project will involve sophomore biology students, elementary schools, various clubs and sports teams, as well as adult members of our community over the next several years. We request funds to help purchase seed mixes, plants, greenhouse supplies, and additional tools for the project.

b) The restoration project will be organized by a group of biological sciences teachers at Arrowhead High School and will be planned and implemented by the teachers and their classes. The team leader, Greg Bisbee, has had ten years of experience working with prairie restoration at schools and in the classroom. His biology classes raise thousands of prairie plants each year in the school's greenhouse for transplanting into areas of the campus. Mr. Bisbee received his initial training through the Earthkeeping Program (now the Earth Partnership Program for Teachers) at the University of Wisconsin-Madison Arboretum in June of 1991. He has gone on to assist other schools and individuals in prairie restoration projects and has worked as an instructor with the Earth Partnership Program. In addition, Greg has presented curricular material involving restoration at science teacher conventions throughout the country and has authored several articles related to this work.

c) This project will fulfill several needs of our campus, school, and students as follows:

i. Educational. Through the restoration process, students learn about interrelatedness of organisms with each other and with the physical environment. The new restoration area will provide a place for students to study the environment and to compare the diversity of a native landscape with a non-native landscape (i.e., lawn). Students can conduct research on real-life problems and challenges in a way that connects them to the land. Part of this area will be set up as a series of research plots—one area with seeding only, one with transplants only, and one with both seeding and transplants. Over the next several years, students will monitor the plots using quadrats to determine the effectiveness of each restoration method. Some students will also conduct independent research projects for their biology class requirements. The site will be an asset for both for students and for the surrounding community. Close proximity to the school building, roads, and sports fields will make the area visible and easily accessible to students, parents, and the public.

ii. Ecological/aesthetic. Our campus is eighty-five acres of lawn, athletic fields, buildings, and pavement. While we do have a small (about 1 acre) prairie restoration site near the proposed project, overuse has resulted in serious damage to the plot. Approximately seven hundred students use the site at least once during the school year; many classes use it repeatedly throughout the year. This project will address the need for a larger natural area and for more biological diversity on our campus. The greater plant diversity will, in turn, attract and support a greater variety of insects, birds, and other animals.

iii. Drainage/water flow. The design of the recently added drainage ditches results in fast flow of water from the buildings and parking lots to the retention pond. As a result, the
retention pond is quickly filling in with sediment. The planting of swamp milkweed, Joe Pye weed, prairie dock, and associated wet prairie plants will improve the porosity of the soil, reduce the rate of water flow, and provide habitat and food for various organisms. If this is successful, the school may allow us to expand the planting into more of the drainage pathways around campus. This portion of the project will also be worked into the education/research aspect.

iv. Links between elementary and middle schools and the high school. By involving the teachers and students from the elementary and middle schools, we hope to provide a link between the schools. Hopefully, this will result in the schools and personnel working together to produce prairie gardens at elementary and middle schools. This will also give the students something of familiarity when they become high school students at Arrowhead.

d) Our objectives are:

i. to give students a chance to experience the process of restoration,
ii. produce a native habitat containing mesic prairie, wet prairie, and wetland species as determined by ongoing quadrat studies,
iii. to increase biological diversity as determined by quadrat studies, insect diversity studies, and transects conducted by biology students,
iv. to facilitate student research in botany, ecological restoration, and associated disciplines,
v. to provide an area for biological study as well as relaxation for students and the community,
vi. to involve area elementary and middle schools in the restoration process and to generate interest by elementary and middle schools in restoration as measured by requests from those schools to host their own programs
vii. to involve local community organizations such as Kiwanis and Rotary Clubs in this project
viii. to decrease the flow of surface water and sediment to the retention pond and to reduce or eliminate the amount of filling

e) The methods used to achieve our objectives are:

January 2002—submit proposals for the Prairie/wetland restoration project
—begin raising native plants in the school greenhouse
—presentation to Core Committee to include project as part of citizenship initiative and as part of community service requirement for student groups
April/May 2002—contact elementary and middle schools, community organizations, school clubs about project and the fall event (written flyer surveying interest)
June 2002—article about the restoration project and planned fall celebration in the school/community newsletter
July 2002—teacher inservice training on restoration methods and curricular applications
May through September—site prep
September 2002—students transplant wet prairie plants into drainage ditches and pond edge; do initial quadrat and transect studies of site; put in split rail fence; install two Leopold benches (donated by Student Senate)
October 2002—Fall Planting Celebration including elementary and middle schools, high school classes and clubs, community; children will seed and stomp the site; programs
offered to educate the public about native plants; high school students will transplant into the site and set up research plots

March 2003—student research conference presentations
Fall 2003 and beyond—monitor and survey the site; maintain as necessary; continue to collect seed; continue to raise plants in the greenhouse

f) Students and instructors will evaluate the progress of the restoration effort through the use of quadrat and transect studies over the next several years. As part of the biology classes, we will survey the plant species present in the site and will also monitor insect, amphibian, and bird species.

We would like to involve at least four of the eleven local public elementary/middle schools; success will be measured by participation and by the number of schools subsequently doing their own native gardens or restorations.

Students will measure the amount of silt transported through the drainage ditches before, during, and after planting to determine the effects of the wet prairie planting on the water flow and siltation of the retention pond.

g) Detailed budget

The total cost of this project will be approximately $3500.00 for necessary materials.

<table>
<thead>
<tr>
<th>number</th>
<th>item</th>
<th>cost/item</th>
<th>total</th>
<th>GRANT REQUEST</th>
<th>MATCHING SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mesic prairie mix, 1 acre</td>
<td>$1,150.00</td>
<td>$1,150.00</td>
<td>$650.00</td>
<td>seed Retzer N.C.</td>
</tr>
<tr>
<td>1</td>
<td>retention pond mix, 0.5 acre</td>
<td>$675.00</td>
<td>$675.00</td>
<td>$350.00</td>
<td>$325.00 Arrowhead</td>
</tr>
<tr>
<td>15</td>
<td>bulk flats, plants</td>
<td>$32.00</td>
<td>$480.00</td>
<td>$480.00</td>
<td>ecology club</td>
</tr>
<tr>
<td>5</td>
<td>annual rye, 1 lb</td>
<td>$3.00</td>
<td>$15.00</td>
<td>$15.00</td>
<td>ecology club</td>
</tr>
<tr>
<td>6</td>
<td>superfine germinating mix</td>
<td>$7.87</td>
<td>$47.22</td>
<td>$47.22</td>
<td>AHS biology</td>
</tr>
<tr>
<td>6</td>
<td>Fafard 3-B planting mix</td>
<td>$7.10</td>
<td>$42.60</td>
<td>$42.60</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>4.5 in SVD pots, case</td>
<td>$60.50</td>
<td>$60.50</td>
<td>$60.50</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>4.5 X 12 tray, case</td>
<td>$47.00</td>
<td>$47.00</td>
<td>$47.00</td>
<td>AHS biology</td>
</tr>
<tr>
<td>1</td>
<td>teacher training</td>
<td>$1,200.00</td>
<td>$1,200.00</td>
<td>$1,200.00</td>
<td>Eisenhower</td>
</tr>
<tr>
<td></td>
<td>printing, copying</td>
<td>$50.00</td>
<td>$50.00</td>
<td>$50.00</td>
<td>Arrowhead</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>$3,767.32</td>
<td>$1,000.00</td>
<td>$2,767.32</td>
</tr>
</tbody>
</table>

Much of the planting and greenhouse material will be provided by Arrowhead High School, the AHS biology department, student senate, and the ecology club. Retzer Nature Center in Waukesha, Wisconsin has agreed to donate some seed and technical support to the project. The teacher training will be funded by Eisenhower funds through Arrowhead High School. Students, teachers, and volunteers will donate hundreds of hours of time during the Fall Planting Celebration and the initial planting of the site. Students will donate time monitoring and maintaining the site for at least three to five years.

The funds from the Besadny Grant will help to cover the cost of seed, transplants, and materials in setting up the restoration site. These materials will be a necessary part of the Fall Planting Celebration—the day that we will involve and educate elementary, middle, and high school students, teachers, parents, and community members about the value of native plants and restoration efforts.

We have also applied for a National Wildlife Federation Schoolyard Habitat grant to cover $250.00 of the cost of seeds and transplants.
Appendix K

Agenda for prairie restoration workshop

Prairie Restoration Workshop
August 21, 2002
7:00 am-3:00 pm

AGENDA (more or less)

7:00 am  Slides of prairie plants
          History of the North American Prairie
          Prairie Restoration

8:00 am  Quadrat Data collection—lawn and prairie

9:00 am  Analyze quadrat data
          Species-area curve
          Analyze past classroom data and compare

10:00 am Insect diversity—pollinator sampling protocol
          Collect samples
          Analyze data—by order
          Species-area curve compared with vegetative data

11:15 am Plant collection and pressing

12:00 – 3:00 pm  Curriculum writing
The North American Prairie
A Brief History

65-70 mya the rise of the Rocky Mountains and the demise of the dinosaurs
54 mya European and North American plates separated
25 mya 1st ancestors of grasses appeared; these looked a lot like coarse bamboo
7 mya modern grasses appeared; development of basal meristems
15 tya glacial period and accompanying climate change
10 tya human influence on the landscape → use of fire to manage succession and ecosystem types
15th century invasion of European settlers; the most devastating, rapid changes ever seen on the continent

The Great Plains—comprised of short, mixed, and tallgrass prairie—historically covered 40 percent of North America (roughly 1.4 million square miles) and extended from Canada across the Mexican border, from the foothills of the Rocky Mountains to western Indiana and Wisconsin. The prairie evolved in the rain shadow of the Rocky Mountains, causing these landscapes to be dry, with annual rainfall increasing from about 12 inches per year in the shortgrass prairie to about 22 inches per year in the tallgrass prairies.

The prairie declined due largely due to the advance of agriculture, urban sprawl, and other land use practices. Less than 0.1% of the original prairie remains making it one of the most endangered of our ecosystems.

Prairie Restoration Practices

Ecological restoration is the process of returning an area to a previous ecological condition—usually defined as before European settlement. Our purpose for doing restoration is to use the process and the product with students as an educational tool.

Students may begin with the big picture—ecology and the ecosystem—or may look at the individual parts and see how they fit together.

1. Survey the Site
   • map the area
   • survey the existing vegetation
   • slope
   • soil
   • sun
   • moisture

2. Consider the Educational Uses for the Site
   • ecological processes
   • research
   • theme gardens
   • field work
   • populations
   • seed dispersal
3. Determine the appropriate plant community for the site
   • sunlight
     --prairie requires about 12 hours direct sunlight per day during the growing season
   • moisture
     --sand/dry to dry mesic
     --mesic
     --wet mesic to wet prairie to wetland
   • slope/drainage

4. Site Preparation
   • Tilling
     --needs to be done every few weeks during an entire growing season
   • Smothering
     --good for small areas...very labor intensive
   • Chemical applications
     --some limitations for school grounds
     --often requires several applications

5. Planting Techniques
   • Seeding
     --less expensive
     --more variety
     --faster & easier
   • Transplanting
     --plants go where you want them
     --much more expensive (usually $4.00 or more per plant)
     --faster results
     --labor intensive
     --tougher to control weeds

6. Plant Choices
   • Stick with the plant communities/ecosystems appropriate to your site
   • Combination of seeds and transplants along with an annual cover crop such as Canada wild rye

7. Timeline
   • the first two years will not look like much
     --prairie plants spend their energy on roots
   • the third year will start to look like a prairie
   • good time for monitoring plant community composition
     --rapidly changing
     --invasive weeds disappearing
     --find out if everything was done correctly
Insect Population Survey:

1) Windshield Method:
   a. Materials
      i. Plastic Sheeting (Plexiglass)
      ii. Wash tub
      iii. Soapy water
      iv. PVC conduit
      v. String
   b. Set-up
      i. Install PVC and hang plexiglass from string attached to PVC
      ii. Put wash tub with soapy water underneath plexiglass
   c. Collection
      i. Flying bugs hit plexiglass and fall into soapy water, drown
      ii. Collect bugs after a day
   d. Analysis
      i. Rinse dead bugs in ethanol (to preserve)
      ii. Identify bugs and measure #’s of species
   e. Variations
      i. Try experiment in different locations (woods vs prairie vs lawn, etc.)
      ii. Formal lab write up possibilities
      iii. Graphing data
      iv. Others?

2) Pollinator collection method:
   a. Materials
      i. Styrofoam (white) bowls
      ii. Soapy water
      iii. Food coloring
      iv. Aquarium fish net
      v. Collection stand (optional)
   b. Set-up
      i. Fill bowls with soapy water
      ii. Dye water blue, yellow, red, and leave one clear
   c. Collection
      i. Pollinators are attracted to colors, get trapped in soapy water, drown
      ii. Collect bugs after a day
   d. Analysis
      i. Rinse dead bugs in ethanol (to preserve)
      ii. Identify bugs and measure #’s of species
   e. Variations
      i. Try using colored bowls to remove the chemicals in dye bias
ii. Add sugar to water
iii. Use scented soaps to check variety of species
iv. Formal lab write up possibilities
v. Graphing data
vi. Others?

3) Crawling Insects collection method
   a. Materials
      i. Soup can size tin can
      ii. Plastic cups
      iii. Soapy water
      iv. Funnels
      v. Drift netting of some sort
   b. Set-up
      i. Dig holes and place tin can in hole with top level with ground
      ii. Place plastic cup inside tin can, pour soapy water in cup
      iii. Place funnel on top of plastic cup
      iv. Place drift netting in ground on either side
      v. Place additional tin can/plastic cup/ funnel set-up on other end of drift netting
   c. Collection
      i. Bugs hit drift netting, are redirected toward cans, fall into soapy water, drown
      ii. Collect bugs after a day
   d. Analysis
      i. Rinse dead bugs in ethanol (to preserve)
      ii. Identify bugs and measure #'s of species
   e. Variations
      i. Try experiment in different locations (woods vs prairie vs lawn, etc.)
      ii. Formal lab write up possibilities
      iii. Graphing data
      iv. Others?

4) Scavenger collection method
   a. Materials
      i. 2 liter bottle
      ii. Alpo
      iii. Ethyl acetate
      iv. Cotton balls
   b. Set-up
      i. Cut top of 2 liter bottle, place moist Alpo in bottom
      ii. Replace top of 2 liter bottle with top inverted in a funnel like position
   c. Collection
      i. Scavengers will be attracted to scent of Alpo, enter bottle through central funnel opening, become trapped as they attempt to exit along the sides
      ii. Kill bugs with ethyl acetate. (Introduce cotton ball soaked in ethyl acetate to two liter bottle)
      iii. Collect bugs after a day
   d. Analysis
      i. Rinse dead bugs in ethanol (to preserve)
      ii. Identify bugs and measure #’s of species
   e. Variations
i. Try experiment in different locations (woods vs prairie vs lawn, etc.)
ii. Formal lab write up possibilities
iii. Graphing data
iv. Others?

5) Amphibian collection method
a. Materials
   i. 5 gallon pail
   ii. Moist sand
   iii. Shading mechanism
   iv. Drift netting of some sort
b. Set-up
   i. Dig holes and place 5 gallon pail in hole with top level with ground
   ii. Place moist sand in bottom
   iii. Set up shading device to prevent dessication
   iv. Place drift netting in ground on either side
   v. Place additional pails on other end of drift netting
c. Collection
   i. Frogs hit drift netting, are redirected toward pails, fall into pail get trapped
   ii. Collect frogs after a day
d. Analysis
   i. Identify frogs and measure #’s of species
e. Variations
   i. Measure weight, length, use capture/recapture methods
   ii. Formal lab write up possibilities
   iii. Graphing data
   iv. Others?

6)
April 17, 2002

Dear Administrator:

Enclosed please find brochures and return postcards for an event that we are hosting next fall. The purpose of this mailing is to determine which schools, teachers, and classes might be interested in participating in this event.

The Prairie Stomp has several purposes including:

- to give students a chance to experience the process of restoration,
- to produce a diverse native habitat,
- to facilitate student research opportunities,
- to provide an area for biological study as well as for relaxation for students and the community,
- to involve area elementary and middle schools in the restoration process.

Most importantly, we want to involve students in restoring a part of nature and to encourage them to take positive roles in their relationships with the natural world.

Please take a look at the enclosed brochure and forward copies to those teachers that you feel may be interested in this opportunity. I would like to have responses no later than May 31, 2002.

Thank you for your time and attention to our Prairie Stomp.

Sincerely,

[Signature]

Gregory D. Bisbee
Biology teacher/project coordinator
Arrowhead High School
700 North Avenue
Hartland, WI 53029

(262) 369-3611 ext. 4605
bisbee@ahs.k12.wi.us
Appendix M

Letter to feeder schools looking for interest in the prairie stomp.

The Arrowhead Union High School District
700 North Avenue
Hartland, Wisconsin 53029
(262) 369-3611
http://www.ahs.k12.wi.us

August 26, 2002

Dear Teacher:

Enclosed please find brochures and return postcards for an event that we are hosting this October. The purpose of this mailing is to determine the number of students participating in the event so that we can plan accordingly. If you received the Spring packet, please note the change of date—the October 4 scheduling of this event should result in better weather conditions!

The Prairie Stomp has several purposes including:

- Give students a chance to experience the process of ecological restoration,
- Produce a diverse native habitat,
- Facilitate student research opportunities,
- Provide an area for biological study as well as for relaxation and recreation,
- Provide elementary and middle school students a link to the high school.

Most importantly, we want to involve students in restoring a part of nature and to encourage them to take positive roles in their relationships with the natural world. The Prairie Stomp can simply be a short afternoon event or it can be a part of a larger unit on prairies or Wisconsin history or seeds and germination.....the possibilities are endless! I have numerous activities and curriculum ideas for all educational levels. Two activities we would like to see are to have students make drums and/or banners for the parade and the stomp. These add visual and aural components to the Stomping!!

Please take a look at the enclosed materials. If you or another teacher are interested in participating, please return the enclosed card, e-mail, or call me at 369-3611 ext. 4605 (Greg Bisbee) before September 15.

Thank you for your time during this busy period of the school year. We hope to see you at the Stomp!!!

Sincerely,

Gregory D. Bisbee
Biology teacher/project coordinator
Arrowhead High School
700 North Avenue
Hartland, WI 53029

(262) 369-3611 ext. 4605
bisbee@ahs.k12.wi.us

District Office Fax (262) 367-7406
South Campus Office Fax (262) 367-4693 • North Campus Office Fax (262) 367-1870

48
Appendix N

Post card sent to local feeder schools

ARROWHEAD HIGH SCHOOL

c/o Greg Bisbee
700 North Avenue
Hartland, WI 53029

YES!!! I am interested in having my class participate in this celebration.
Please send me more information.
Name ____________________________
School ____________________________
phone # ____________________________
grade level _______________________
estimated # of students ____________

Please check the activities in which you may be interested:

___ Opening ceremony
___ student parade to the site
___ stomp
___ making and bringing drums
___ other (specify)
___ seed collecting
___ seeding
___ ceramics pit fire demo
___ making and bringing banners

49
Appendix O

Sample banner for Prairie Stomp

Sample banner (flag) for the Prairie Stomp

Just make it fun!

We will be producing a video of the Stomp—we're looking for lots of good visuals!
Due to recent construction and the generosity of several granting agencies, Arrowhead High School will be planting more than an acre of prairie and wetland habitat on October 4, 2002.

During the summer we were hard at work preparing our site by killing the grass and preventing the growth of weedy invasive species. In October, it will be time to put the seeds safely to bed for the winter. When the site is established, it will add to our present area for a total of more than three acres of prairie, wet prairie, and wetland habitat. It will include butterfly gardens, trails, and a pond.

We would like to invite you and your students to collect seeds, distribute them across the site, stomp them into the ground, and have a fun time helping us plant our prairie!

Arrowhead High School invites you to a

**PRAIRIE STOMP!**

Friday, October 4, 2002

at Arrowhead High School’s
Prairie Restoration Area
(near the Soccer Field)

Approximately
11:30 am - 1:30 pm

(students may want to bring sack lunches; we will schedule time for students to eat)

Students are invited to make drums and create banners for the parade to the restoration site and for use during the planting.

We plan to set up a large tent with music and to have water or punch and snacks available.

We will meet in the tent for a brief introductory welcome followed by a parade (about two hundred yards) to the site. Arrowhead students will guide small groups of students through the prairie to gather seed. Accompanied by drummers, we will then distribute seed over the entire site and will stomp it into the ground.

Thank you to our supporters:

- Natural Resources Foundation of Wisconsin, Inc.
- National Wildlife Federation
- Arrowhead High School’s Earth Club
Appendix Q

Final list of participating feeder schools, including grades and numbers of students.

Thank you for your participation in the Arrowhead High School Prairie Stomp! This event is only possible because of the involvement of teachers like you. We are excited to have almost three hundred students expected for the Stomp. Following is list of teachers and classes attending on October 4th. Please check the information for your class; you do not need to contact us unless there have been dramatic changes in numbers, etc.

<table>
<thead>
<tr>
<th>School</th>
<th>Teacher</th>
<th>Grade</th>
<th># of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Lake Elem.</td>
<td>Ambacher</td>
<td>4th</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5th</td>
<td>49</td>
</tr>
<tr>
<td>Stone Bank Elem.</td>
<td>Reich</td>
<td>4th</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Hedrick</td>
<td>5th</td>
<td>40</td>
</tr>
<tr>
<td>Lake Country Elem.</td>
<td>Peterson</td>
<td>4th</td>
<td>40</td>
</tr>
<tr>
<td>Richmond Elem.</td>
<td>Koeppen/Landis</td>
<td>5th</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Carlson/Bellanti</td>
<td>6th</td>
<td>37</td>
</tr>
</tbody>
</table>

Just to confirm: the event will take place on October 4, 2002 from 11:30 am until 1:30 pm. Classes should meet in the tent (see attached map) by 11:30. There will be a short explanation of activities followed by a parade to the stomping site. Students are encouraged to bring drums and banners for use during the parade and during stomping. Each class will have an assigned section for which it is responsible. Arrowhead High School students will assist in guiding the students; please let them know what they can do to help out.
Appendix R

Agenda for prairie stomp

Tentative Agenda for Prairie Stomp
Friday, October 4, 2002

Music by Rira; opening ceremony in Activity tent; prepare for Stomp

11:45 Parade to the stomping site; AHS students will assist in collecting seed

12:00 Ceremonial throwing of the student-collected seed onto the site; begin seeding
   and stomping
   Ceramic pit fire demonstration in progress

   Lunch (students should bring sack lunches) and snacks on grounds or in the tent

1:00 Closing activities

1:15 – 1:30 Departure

Students are encouraged to bring drums and banners (flags) for use during the parade and
during the Stomp. These could be made by the students in Art class and decorated with images
of prairie flowers or pioneer or Native American symbols. A prairie seed catalog has been
included so your students can see what prairie flowers and grasses are found in our area—contact
me (Greg Bisbee) if you would like more copies of the catalog. If you are interested in other
curricular ideas relating to the prairie, please contact me...I would be happy to send any useful
materials.

Parents are invited to participate as well; the more people we have, the better we stomp! We will
have prairie seeds and plants available for purchase in the tent after the stomp.

Participating teachers, parents, and students will receive a certificate and a packet of wildflower
seeds (with planting instructions).

There will be music in the tent and at the stomping. A pit fire demonstration (AHS ceramics
classes with instructor Joel Pfeiffer) will be located near the stomp area. Everyone is invited to
check out the firing and learn about the excellent AHS ceramics program.

We need you and your students to make this an exciting, memorable event.
AHS to host 1st prairie stomp

By Amanda Anderson

On Friday, from 11:30-1:30, AHS will host the very first Prairie Stomp near the varsity soccer field.

"They'll be doing little dances and playing drums as the seeds are stomped into the ground," said Bisbee. The event will be giving students a chance to witness and take part in an ecological restoration. Bisbee explained how it is also going to provide a biological study as well as relaxation and recreation.

Two hundred students from local elementary and middle schools will be joining AHS students in the Prairie Stomp. Many different seeds will be planted in the acre of land prepared for the restoration.

"Not only will it be a sight to see, but it will be a natural wildlife restoration for many different species of bugs, butterflies, and birds," explained Bisbee.

Bisbee also indicated that during the Prairie Stomp between 50 and 75 different species of flowers will be planted.

Some flowers Bisbee plans to grow include: Goldenrod, Asters, and Prairie Paintbrush. Annual Rye will also be planted to reduce and eventually eliminate the growth of annual weeds.

The Prairie Stomp is supported by the Natural Resource Foundation of Wisconsin, who donated a $1,000 grant, and by the National Wildlife Federation, who donated a $250 grant. All of the money was used to purchase the seeds that will be used on Friday.