

# FINAL REPORT FOR THE COMMUNITY FORESTRY RESEARCH PREDISSERTATION FELLOWSHIP:

WORKING WITH BITTERROOT ENVIRONMENTAL EDUCATION PARTNERS TO IMPROVE  
INTERORGANIZATIONAL COMMUNICATION

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## INTRODUCTION

This final report for the Community Forestry Research Fellowship Program gives details of the research that the predissertation grant supported, “Working with Bitterroot environmental education partners to improve interorganizational communication”. Since I was already working at my present field site, I used the predissertation fellowship to support my research expenses instead of covering summer travel and related expenses to visit potential field sites and communities for subsequent research. In the following report I give a 1) detailed explanation about the how the research questions and methods emerged, 2) research and methods questions addressed, and 3) results and discussions about the research. I intentionally selected the Bitterroot Watershed because it allows me to live where I work, which allows me to invest in the people and the land at a much greater level and longer time period than I could have had I not chosen to work where I live.

## Development of the Research

### *Place of Interest*

The Bitter Root Watershed is located in Western Montana south of Missoula. The federal government U.S. Forest Service owns over 70 percent of property in watershed. Historically the local economy was predominately agriculture up until the early 1900’s. Since then timber harvesting has been the dominant industry in the Bitter Root economy (Smith and Carlson 1996). While agriculture continued to be important, the woods product industry would become the heart of the Bitter Root economy. This continued until the latter part of the century until forest management practices became the point of a large controversy. Since 1969, which was the year of peak timber harvest off of the Bitterroot National Forest, timber harvests have declined 87 percent. That is, only about a tenth of the past harvest is now taking place. There is varied opinion regarding the effect of the mill closings on the Bitter Root Watershed.

Today the Bitterroot Watershed is characterized by an influx of new people with different values and economic means. The valley, its communities and the surrounding mountains and forests offer an abundance of outdoor recreational opportunities including camping,

fishing, hiking, backpacking, horse pack trips, and hunting. Given the abundance of natural resources in the Watershed, environmental educational groups are prevalent and growing. Previous research has identified water, wildlife populations, wildland fire, noxious weed infestations and spread, human population growth, and land settlement, among their major concerns among the Bitterroot Watershed residents.

#### *Community of Interest – Environmental Education Organizations*

In February 8th, 2000, a new actor in the Bitterroot environmental education community called a meeting to introduce themselves to the community, learn about what the different organizations emphasized, and actively begin laying down the groundwork of an education partnership similar to one they had been involved in during a previous job. At the same time, I had recently applied and was awarded a grant to “improve communication among conservation education organizations” in an attempt to push myself outside my knowledge area of ecology. The call for letter of interest that said, environmental education and communication efforts in the Bitterroot Watershed have been described as disconnected, uncoordinated, duplicative, and incomplete. No one group is recognized as a conservation educator, and no one source provides continuous natural resource information about all of the groups (BEMRP Call for the Letter of Interest 2000). I attended the first meeting, shoved a survey in their face and planned to move on to other things at the initial BEEP meeting.

I quickly learned people require a much different approach than the grass I studied during my MS and that traditional research methods were not appropriate for this project. We met again February 22 and again in March 13th. The primary purpose of these initial meetings was to share calendars of upcoming events, discuss planned partnership activities like teacher’s workshops, and discuss the long-term purpose of having an education partnership. The group began to splinter because almost all of the organizations have extremely busy spring schedule, personalities, and over how time should be spent at the meetings. Some members wanted to spend time developing a mission, while others did not want to spend their time at least at that point in time working towards this goal.

Spring 2000 came and went, and the future of BEEP was uncertain. The original actor that spearhead the group was not permanently hired and soon left the Bitterroot Watershed for other employment. At the same time, a separate, but related initiative that has become known as the Bitterroot Watershed Partnership was starting to form as one of the Large-Scale Watershed Restoration Projects sponsored by the U.S. Forest Service. My involvement as an economist was requested by some of the early leaders of this new partnership. Several of us encouraged the involvement of the BEEP members to this larger partnership because education and communication are one of the four main objectives. Please see <http://www.bitterroot.net/wforum/Bitterroot%20Watershed%20Partnership.htm> for more information about the Bitterroot Watershed Partnership. Acceptance into the Large-Scale Watershed Restoration Project allowed the Bitterroot Watershed Partnership to compete for up to \$3 million dollars a year for 5 years. While individual education partners received over \$40,000 The Bitterroot Partnership received initial funding of \$130,000 of

which \$5,400 was to be allocated specifically to BEEP. Since not all of the education projects submitted could be supported by the \$5,400, an emergency BEEP meeting was called to write a proposal for the grant money.

This proposal for a small amount of money was the turning point for BEEP. They met at a river access and hammered out the proposal to be responsible to supervising the community education workshops sponsored by the partners as well as the idea for a 5-year watershed education plan for the Bitterroot Watershed.

The most recent Bitterroot Watershed Partnership proposal included over \$100,000 of BEEP -sponsored projects as well as several other individual education projects. BEEP is in the process of combining a position with Audubon to hire a part-time coordinator to run BEEP's community education program. At this time, no information is available about how much if any funding the BEEP or Bitterroot Watershed Partnership, for that matter will receive funding for this year under the Large-Scale Watershed Restoration Program.

Other similar education partnerships are forming elsewhere around the Montana like in Missoula and Billings. One of the BEEP partners is now a regional representative for the state Montana Environmental Education Association. BEEP will make collective presentations at this year's annual Montana Environmental Education Association meeting. I am working with the state director of Montana Environmental Education Association to secure \$15,000 of grant funding to develop a state-wide searchable online directory for the State of Montana using the education assessment data collected for this project.

#### ENVIRONMENTAL EDUCATION ORGANIZATIONS AND HOW PARTICIPATORY RESEARCH FOUND ME

I knew that they needed a greater investment on my part in them, and I needed to become involved with them over a period of time to make my research relevant to them. In some ways, I tripped into participatory research methods. I had been working with BEEP for over a year when I applied for the predissertation fellowship. I opted for a participatory research method approach, which uses research as vehicle to achieve social change and advocates a much deeper involvement of the participants in the research process. My role in BEEP was as a researcher and participant. In exchange for allowing me to attend the meetings, I offered to help write grants and organized a block of several meetings in the summer 2000 and represented education interests at the larger Bitterroot Watershed Partnership. For example, one of the actors approached me about running an Aldo Leopold Workshop. We spent wrote and received a grant from the Montana Community Foundation. The Aldo Leopold Workshop was offered this past October and received great reviews.

Working with the Bitterroot Environmental Education Partners (BEEP), used a combination of quantitative and qualitative approaches that included an environmental education assessment, participant observation, and social network analysis to: 1) assess

the environmental education efforts in the Bitterroot Watershed, 2) identify the current communication structure among environmental education organizations working in the Bitterroot and Bitterroot and Missoula Watersheds, and 3) determine the challenges and opportunities facing environmental education organizations as a whole.

## METHODS

BEEP played an active role throughout the entire research process. BEEP decided which 15 organizations to survey (see Environmental Education Organizations of Interest). We surveyed the program directors of each organization. While I would develop the initial surveys, BEEP would modify them to suit their specific needs. For example, the survey that I provided from another state did not include a request for topic information about fire ecology, which is an important environmental education topic to the Bitterroot Watershed. I hired one of the local environmental educators to help me conduct the in-person surveys. We had 100% survey participation rate. I entered and analyzed the data and gave each organization a second chance to modify their data. I brought the data to BEEP and we went through several iterations of how they wanted to see the data presented. BEEP and some members of the larger Bitterroot Watershed Partnership received opportunities to comment on /change the reports and several individual educators did this. We will jointly present a poster presentation at this year's Montana Environmental Education Association meetings.

### Environmental Education Organizations of Interest

We primarily focused on environmental education programs in the Bitterroot Watershed that included the following organizations that form BEEP: Bitterroot Ecological Awareness Resources, Bitterroot Audubon, Bitterroot National Forest, Lee Metcalf National Wildlife Refuge, Montana Audubon, and Teller Wildlife Refuge. We also extended portions of the survey's to include Missoula organizations (e.g. Montana Ecosystem Management Learning Center Program, Missoula Outdoor Learning Adventures, Montana Natural History Center, National Wildlife Federation Rocky Mountain Elk Foundation, University of Montana – Education, Lolo National Forest - Watchable Wildlife, Watershed Education Network not included in BEEP but we felt were relevant to the Bitterroot Valley.

### Participant Research Observation

I used participant observation and constant dialogue with BEEP to define questions and interpret results. I also presented information and supplemented it with observations, documents, and recording of appropriate conversations.

### Environmental Education Assessment

I worked with BEEP to refine an environmental education assessment survey where the primary objective was to determine the areas of potential topics and / or audiences that were most (>15) or least represented (<5). Other objectives of the survey included developing a database of specific information about the different environmental education organizations that could be used to develop a regional and statewide online

resource directory and obtaining other detailed information about the types of different programs offered.

### Social Network Analysis

I performed a social network analysis on BEEP's interorganizational communication structure using the social network analysis software and graphing package UCINET. I have completed an initial social network analysis survey and will replicate our sampling of information again this spring, which will enable us to perform a repeated measures analysis or longitudinal analysis. This analysis technique of continual sampling should provide a more accurate measure of the communication structure of environmental education organizations in the Bitterroot. The BEEP and BEEPMEEP dataset is a one-mode with one relation measured. The BEEP dataset consists of a 6 x 6 matrix of environmental organizations in the Bitterroot Watershed that were asked "Which organization they communicate with the most?" Respondents were also asked to rank their responses. This question was also posed to both Bitterroot and Missoula environmental education organizations that were likewise asked to rank their responses.

## RESULTS/DISCUSSION

### Environmental Education Assessment

Environmental education programs varied widely by topic (24.12 \* 14.77, n = 41) (Figure 1). Topics least represented by environmental education programs included ozone depletion (n = 5), technology and society (n = 5), agriculture / farming (n = 6), transportation (n = 8), and air (n = 9). Topics represented in most programs were: plants and animals (n = 55), watershed (n = 50), nature awareness (n = 49), stewardship (n = 46), natural resource management (n = 44), and forestry (n = 44). Approximately the same numbers of environmental education programs are available to individuals of all ages (37.00 \* 9.09, n = 18) (Figure 2). Teachers (n = 46), 5th (n = 46), and 6th (n = 48) graders have the most programs available to them. Children under the age of five have the fewest environmental education programs available to them (n = 9).

### Participant Observation

#### *1) Inadequate or Uncertain Funding*

Environmental education organizations receive relatively little funding relative to other fields within natural resources like management and research. Most of the positions and/or programs are dependent on grant monies, which in turn leads to variable programs offered. One of the possible explanations for the inadequate funding for environmental education efforts is that while the benefits of environmental education in terms of conservation and increased awareness are very real, they are difficult, if not impossible to measure economically and/or over the long-term.

#### *2) High Rate of Employee Turnover*

High employee turnover, attributed primarily to funding issues rather than a lack of interest by the local community, has contributed to some of the communication challenges between the Bitterroot and Missoula education organizations. Within the timeframe of this project (2000-2001), a position at Lee Metcalf National Wildlife Refuge was filled, and there was turnover in the position of conservation education

position for the Bitterroot National Forest as well as the position of program director at the Montana Natural History Center (multiple times). The executive director of Bitterroot Ecological Awareness Resources position was vacated and remains so, and there has been a loss of the education position at the Rocky Mountain Elk Foundation and the National Wildlife Federation. This type of uncertainty and change can pose serious hurdles for achieving long-term inter-organizational education partnerships that are needed to work on large collective projects like joint programs, long-term planning, and education centers.

### *3) Past Politics*

Past politics have an obvious impact on communication and cooperation between environmental education organizations. There has been a significant influx of people moving into environmental education positions in the Bitterroot and Missoula areas during the past several years, and there remains a fundamental core of individuals that have been involved with environmental education efforts in the region for decades. In some cases, past politics may pose additional challenges to overcoming communication issues.

### Results of Social Network Analysis

All of the organizations in the Bitterroot and Missoula that we identified to survey are connected to each other (Figure 3). Some of these organizations are more and less connected to each other than others. Several organizations like Lolo National Forest, Montana Natural History Center, and Lee Metcalf National Wildlife Refuge are highly connected. Most organizations are moderately connected to each other. Few organizations, like Raptors of the Rockies and Bitterroot Audubon, are least connected. A core-periphery analysis confined to BEEP revealed that Lee Metcalf National Wildlife Refuge is the distinct core of the group. While no one group communicated with Lee Metcalf National Wildlife Refuge the most, they communicated with them second or third most. This analysis reveals only one period in time, we plan to repeat the analysis Spring 2002 to determine if any stronger patterns emerge.

The research has created a baseline of information that identifies what topics, audiences, types of activities environmental education programs cover in the Bitterroot and Missoula Watersheds as well as which organizations communication with each other. The education assessment will also serve as the information needed to develop a state wide online environmental education directory. What the assessment does not do is assess the effectiveness of these programs or whether or not these programs are meeting objectives of environmental education across a large-scale.

BEEP proposes to use this assessment in the upcoming year to develop a comprehensive five-year Bitterroot Watershed Education Plan, which will serve to establish these large-scale education objectives and work collectively to achieve these large-scale objectives through an organized education effort. A variety of needs have been discussed, and these must be organized into a systematic, sequential educational approach that serves students, teachers, and the greater community. BEEP will be able to tackle large projects like a nature center and community education course that they may not have been able to

achieve by acting along. For example, a community education course to be offered one Saturday per month for six months. This proposal will continue the development of the community education partnership. Classes will be approximately ½ day to full day in length and will be offered outdoors on a variety of applicable sites. Our primary goal for offering classes is to provide participants a greater understanding of the complexity of the natural world surrounding their communities, and the role of humans in that natural world, through outdoor, hands-on learning opportunities. BEEP is using available data from the Bitterroot Watershed Partnership, February 3rd Community Conversation, and input from teachers and other community members to develop broad-based objectives. Perhaps one of these objectives might be the value of agriculture and open space. The assessment only identified that there were only 6 programs that addressed agriculture / farming issues. Upon deeper inquiry of those six programs, we would find that none of these six programs addresses agriculture and open space directly and that a partner effort would be develop a program(s) to meet their objective. Some BEEP members are interested in making a distinction between audiences after the age of 18 in order to determine the programs offered to individuals greater than 55 years of age.

## CONCLUSION

BEEP serves as a model for other education partnerships like those forming in Missoula and Billings. More importantly, BEEP serves as a model collaborative partnership that can succeed despite the competitive realities facing each of the partners individually for scarce resources. Although my original scale of interest was the Bitterroot Watershed, early successes have launched BEEP into a regional discussion. BEEP plans to use avenues like the Montana Environmental Education statewide meetings to simultaneously present our activities and results. This study demonstrated the power of participatory research methods and how they can contribute to social change.