

Heron Lake Sediment Reduction Demonstration Project

Final Report

Jan Voit

September 4, 2014

Project Sponsor:

Heron Lake Watershed District

Contributing Sponsors:

Southwest Prairie Technical Service Area
Minnesota Department of Natural Resources

Grant Project Summary

Project title: Heron Lake Sediment Reduction Demonstration Project
Organization (Grantee): Heron Lake Watershed District
Project start date: 3/1/2010 Project end date: 8/31/2014 Report submittal date: 9/04/2014
Grantee contact name: Jan Voit Title: District Administrator
Address: PO Box 345
City: Heron Lake State: MN Zip: 56137
Phone number: 507-793-2462 Fax: 507-793-2253 E-mail: jan.voit@mysmbs.com
Basin (Red, Minnesota, St. Croix, etc.): Des Moines County: Nobles, Jackson, Murray, and Cottonwood

Project type (check one):

- Clean Water Partnership (CWP) Diagnostic
- CWP Implementation
- Total Maximum Daily Load (TMDL) Development
- 319 Implementation
- 319 Demonstration, Education, Research
- TMDL Implementation

Grant Funding

Final grant amount: \$16,500.00 Final total project costs: \$32,332.20
Matching funds: Final cash: \$0.00 Final in-kind: \$15,832.20 Final Loan: \$0.00
Contract number: CFMS: B41093, Project ID: 7129 MPCA project manager: Katherine Pekarek-Scott

Executive Summary of Project (300 words or less)

Water samples are collected about 25 times each year at Jack Creek, Okabena Creek, and the Heron Lake outlet to determine water quality improvement. Data analysis for 2007 shows average concentrations at each site remained the same or slightly increased. In looking at the loads (the amount of pollutant that passed the sampling site), phosphorus, nitrogen, and sediment decreased at all three sites, indicating improved water quality. While improvements are being made in water quality, more needs to be done. The Heron Lake Watershed District (HLWD) is looking for alternative methods to assist in that effort.

Flooding is a major problem along creeks. Cropland and township roads are being threatened by streambank erosion. Project sponsors implemented the installation and demonstration of two sediment reduction techniques that are new to southwestern Minnesota, tree revetments and J-hook weirs. Both of these practices have documented success in other parts of the country.

Limited information was available regarding use of these techniques in southwestern Minnesota. A common streambank erosion control method is riprap, which is expensive and does not truly solve the problem. Cedar revetments and J-hook weirs are natural, effective, relatively inexpensive, and easily implemented. Benefits include streambank erosion control, restoration, and stabilization, sediment and phosphorus reduction, habitat gain, and improved water quality. The estimated reduction in phosphorus is 329 pounds per year. The estimated reduction in sediment is 407 tons per year.

In order to see a change on the landscape, educational efforts must be undertaken. Project partners believe that providing watershed landowners with demonstration of streambank stabilization practices and their economic and environmental benefits will produce long-term water quality benefits for the watershed. Successful implementation of these demonstration practices could lead to cost-share or incentive programs from the HLWD.

Goals (Include three primary goals for this project.)

- 1st Goal: To install and demonstrate a cedar revetment and a J-hook weir at two locations in the Heron Lake watershed.
- 2nd Goal: To provide educational opportunities through two tours and inform the public about the project through four newspaper articles and newsletters and four meeting updates to each of the four counties.
- 3rd Goal: To provide digital documentation for use on the website and in presentations that illustrates structure capability and success through video footage and photographs before, during, and after installation.

Results that count (Include the results from your established goals.)

- 1st Result: One cedar revetment and one J-hook weir were installed.
- 2nd Result: Two tours were held that provided direct contact with 50 people. Two newspaper articles, three newsletters, and 19 updates were given at HLWD and county board meetings.
- 3rd Result: A webpage was created and contains video footage and photographs, as well as promotional materials.

Picture (Attach at least one picture, do not imbed into this document.)

Description/location: Cedar Revetment, J-Hook Weir

Acronyms (Name all project acronyms and their meanings.)

- HLWD – Heron Lake Watershed District
 - MPCA – Minnesota Pollution Control Agency
 - DNR – Department of Natural Resources
 - SWPTSA – Southwest Prairie Technical Service Area
 - EPA – Environmental Protection Agency
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- BWSR – Board of Water and Soil Resources

Partnerships (Name all partners and indicate relationship to project)

- Heron Lake Watershed District: project sponsor, project staff, project administration, and in-kind contribution
 - Southwest Prairie Technical Service Area: J-hook weir project engineering and installation
 - Minnesota Department of Natural Resources: supplies for cedar revetment project implementation
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Work Plan Review

1. Work Plan Changes

1.1. Work Plan Change #1: July 25, 2013

HLWD staff met with Katherine Pekarek-Scott, Minnesota Pollution Control Agency (MPCA) on July 22, 2013 to review the grant work plan. The second bus tour was originally scheduled for May or June 2013. It will be held between April and August 2014, depending upon weather conditions. The newsletter and newspaper articles will be published to coordinate with the tour.

- Objective 3, Task B: change date for newsletter publication. A newsletter will be written that highlights the demonstration project and location at the conclusion of the project. The grant ends August 31, 2014. The newsletter will be published between April and August 2014, depending upon when the bus tour is held.
- Objective 3, Task C: change date for newspaper articles. A newspaper article will be written about project implementation in August 2013. An article will also be written to highlight the demonstration project and location at the conclusion of the project. The grant ends August 31, 2014. The newsletter will be published between April and August 2014, depending upon when the bus tour is held.
- Objective 3, Task D: change date for bus tour. The second bus tour will be held between April and August 2014, depending upon weather conditions.

1.2. Amendment #1: May 2, 2014

HLWD staff met with MPCA on February 10, 2014 to review the work plan and budget. In order to promote the bus tour, funds remaining in the Demonstration Projects objective will be moved to the Education and Outreach objective.

- Objective 2, Task B: move remaining funds. \$3,056.15 was remaining in the J-hook weir project installation budget. These funds were moved to Objective 3, Tasks B, C, and D.
- Objective 3, Task B: increased by \$1,235.00. Funds were allocated for newsletter publication.
- Objective 3, Task C: increased by \$1,171.15. Funds were allocated for newspaper advertising (\$144) and radio advertising (\$1,027.15).
- Objective 3, Task D: increased by \$650.00. Funds were allocated for bus rental.

2. Activities and Tasks

Objective 1: Administration

Task A: Complete reporting requirements

The semi-annual report was submitted on July 9, 2010. The report was approved by MPCA on August 11, 2010.

The annual report was submitted on December 17, 2010. The report was approved by MPCA on February 10, 2011.

The semi-annual report was submitted on July 28, 2011. The report was approved by MPCA on August 9, 2011.

The annual report was submitted on December 30, 2011. The report was approved by MPCA on January 26, 2012.

The semi-annual report was submitted on July 17, 2012. The report was approved by MPCA on July 23, 2012.

The annual report was submitted on December 13, 2012. The report was approved by MPCA on January 4, 2013.

The semi-annual report was submitted on July 10, 2013. The report was approved by MPCA on July 16, 2013.

The annual report was submitted on October 17, 2013. The report was approved by MPCA on December 3, 2013.

Obstacles and Lessons Learned

There were no problems with reporting procedures during the grant period. Both the change order and amendment processes went well.

Objective 2: Demonstration Sites

Task A: Install one cedar revetment

Ross Behrends met with landowners to determine a site for the cedar revetment demonstration site during the spring of 2010.

Ross Behrends secured the site for the cedar revetment demonstration project in the summer of 2010. The site is located on the Art Olsem property in Section 3 of Seward Township (T104N R40W S3). Cedar trees were provided by the Department of Natural Resources (DNR). The cedar revetment project was installed by Ross Behrends, Patrick Lais, Art Olsem, and Duane Kirchner on September 22, 2010.

Cedar trees had separated from the bank. On September 27, 2011, Ross Behrends and Margaret Peeters spent time reattaching the trees to the bank.

The cedar revetment project was reported in the eLINK program. The estimated reduction in phosphorus is 151 pounds per year. The estimated reduction in sediment is 198 tons per year.

Task B: Install J-hook weirs

Ross Behrends worked with a landowner to secure the site for installing a J-hook weir. Time was spent with Southwest Prairie Technical Service Area (SWPTSA) on the engineering for the project. Plans and specifications were delivered to the landowner to use in getting bids for installation. The site is located on the Dale Bartosh property in

Section 4 of Alba Township (T103N R38W S4). The J-hook weir project was installed by Dale Bartosh, Russ Hoogendorn, and Kenny Williams on September 1 and 2, 2010.

The J-hook weir project was reported in the eLINK program. The estimated reduction in phosphorus is 178 pounds per year. The estimated reduction in sediment is 209 tons per year.

Obstacles and Lessons Learned

The sites were selected with project effectiveness and willing landowners in mind. Both sites were in need of streambank stabilization and showed great improvement over the course of the grant. One site is easily accessible. The other is fairly difficult to reach.

For future projects, locations that are easier to reach would be preferable.

Objective 3: Education and Outreach

Task A: Monitor sites and collect documentation

A video camera and tripod were purchased with HLWD funds and used as in-kind match to the project.

Alyson Buschena was responsible for monitoring and documentation of the cedar revetment site in 2010. Information was gathered as follows:

- 8/4/10: video footage and photos
- 8/17/10: video footage, photos, and transparency tube reading
- 8/24/10: video footage, photos, and transparency tube reading
- 9/16/10: video footage, photos, and transparency tube reading
- 9/22/10: video footage, photos, and transparency tube reading
- 9/23/10: video footage and photos, transparency tube reading was not taken due to severe flooding
- 9/30/10: video footage and photos, transparency tube reading was not taken due to severe flooding
- 10/7/10: video footage and photos
- 10/13/10: video footage, photos, and transparency tube reading
- 10/21/10: video footage, photos, and transparency tube reading
- 11/4/10: video footage, photos, and transparency tube reading

Alyson Buschena was responsible for monitoring and documentation of the cedar revetment site in 2011. Information was gathered as follows:

- 4/4/11: video footage and photos
- 5/5/2011: video footage and photos
- 5/17/2011: video footage and photos

Margaret Peeters was responsible for monitoring and documentation of the cedar revetment site in 2012. Information was gathered as follows:

- 4/4/11: video footage and photos
- 5/5/11: video footage and photos

- 5/17/11: video footage, photos, and transparency tube reading
- 7/21/11: video footage and photos
- 8/1/2011: video footage and photos
- 8/3/11: video footage, photos, and transparency tube reading
- 9/19/11: video footage, photos, and transparency tube reading

Margaret Peeters was responsible for monitoring and documentation of the cedar revetment site in the spring of 2012. Ross Behrends and Jan Voit were responsible for monitoring and documentation in the summer of 2012. Information was gathered as follows:

- 4/12/12: video footage, photos, and transparency tube reading
- 7/10/12: video footage and photos
- 8/29/12: video footage and photos

Ross Behrends and the summer interns were responsible for monitoring and documentation of the cedar revetment site in 2013. Documentation was gathered as follows:

- 6/6/13: video footage, photos, and transparency tube reading
- 6/18/13: video footage, photos, and transparency tube reading
- 7/16/13: video footage, photos, and transparency tube reading
- 8/14/13: video footage, photos, and transparency tube reading

Catherine Sereg and the summer interns were responsible for monitoring and documentation of the cedar revetment site in 2014. Documentation was gathered as follows:

- 5/14/14: video footage, photos, and transparency tube reading
- 6/5/14: video footage, photos, and transparency tube reading
- 7/1/14: video footage, photos, and transparency tube reading

Alyson Buschena was responsible for monitoring and documentation of the J-hook weir site in 2010. Information was gathered as follows:

- 8/5/10: video footage
- 8/18/10: photos
- 8/24/10: video footage, photos, and transparency tube reading
- 8/28/10: photos of project installation
- 9/1/10: photos of project installation
- 9/2/10: photos of project installation
- 9/3/10: photos of project installation
- 9/14/10: video footage and photos
- 9/16/10: video footage, photos, and transparency tube reading
- 10/7/10: video footage and photos
- 10/13/10: video footage, photos, and transparency tube reading
- 10/21/10: video footage, photos, and transparency tube reading
- 11/4/10: video footage, photos, and transparency tube reading

Alyson Buschena was responsible for monitoring and documentation of the J-hook weir site in 2011. Information was gathered as follows:

- 4/4/11: video footage and photos
- 5/5/11: video footage and photos
- 5/17/11: video footage and photos

Margaret Peeters was responsible for monitoring and documentation of the J-hook weir site in 2011. Information was gathered as follows:

- 4/4/11: video footage and photos
- 5/5/11: video footage and photos
- 5/17/11: video footage, photos, and transparency tube reading
- 7/21/11: video footage and photos
- 8/1/2011: video footage and photos
- 8/3/11: video footage, photos, and transparency tube reading
- 9/19/11: video footage, photos, and transparency tube reading

Margaret Peeters was responsible for monitoring and documentation of the J-hook weir site in the spring of 2012. Ross Behrends and Jan Voit were responsible for monitoring and documentation in the summer of 2012. Information was gathered as follows:

- 4/12/12: video footage, photos, and transparency tube reading
- 7/10/12: video footage and photos
- 8/29/12: video footage and photos

Ross Behrends and the summer interns were responsible for monitoring and documentation of the J-hook weir site in 2013. Information was gathered as follows:

- 6/6/13: video footage, photos, and transparency tube reading
- 6/18/13: video footage, photos, and transparency tube reading
- 7/16/13: video footage, photos, and transparency tube reading
- 8/14/13: video footage and transparency tube readings

Catherine Sereg and the summer interns were responsible for monitoring and documentation of the J-hook weir site in 2014. Information was gathered as follows:

- 5/14/14: video footage, photos, and transparency tube reading
- 6/5/14: video footage, photos, and transparency tube reading
- 7/1/14: video footage, photos, and transparency tube reading

Task B: Publicize through newsletters

A newsletter was drafted and distributed to watershed residents, agency personnel, and legislators in June of 2011. The newsletter is contained in **Appendix 4**.

A newsletter was drafted and reviewed by MPCA staff. The newsletter was distributed via email to watershed partners and legislators on July 18, 2012. (See **Appendix 4**)

A newsletter for the project site tour was drafted and sent to Katherine Pekarek-Scott for review on May 14, 2014. The newsletter was revised and approved by Katherine on May 19, 2014. The draft was sent to the printer on May 19, 2014. The newsletter regarding the

Project Site Tour was approved on June 3, 2014. The funds for postage were sent to Page 1 Printers the same day. The newsletter was distributed to partners on June 17, 2014. It is contained in **Appendix 4**.

Task C: Publicize through newspapers and radio advertising

A newspaper article was drafted and submitted to local news media on July 24, 2012. The article can be found in **Appendix 3**.

The advertisement for the Project Site Tour was drafted and sent to the Tri County News on June 9, 2014. Advertisements ran on June 11, June 18, and July 9, 2014. The advertisement can be found in **Appendix 7**.

A newspaper article was drafted and submitted to local news media on July 15, 2014. The article can be found in **Appendix 3**.

On May 20, 2014, Jan Voit contacted Lisa Hieronimus at RadioWorks regarding radio advertising for the event. Advertisements ran on KUSQ-FM, KITN-FM, KZTP-FM, and KWOA-AM from June 2 to June 19, 2014 and July 1 to July 17, 2014. Sonja Langseth, Ag Broadcaster for RadioWorks, interviewed Jan Voit regarding the Project Site Tour on June 17, 2014. The advertising copy can be found in **Appendix 7**.

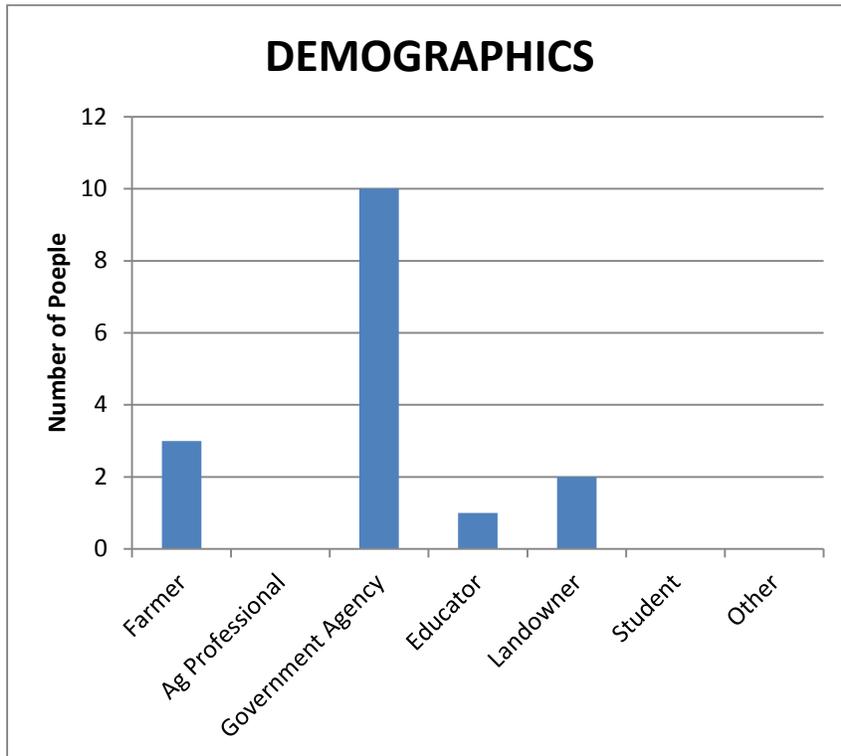
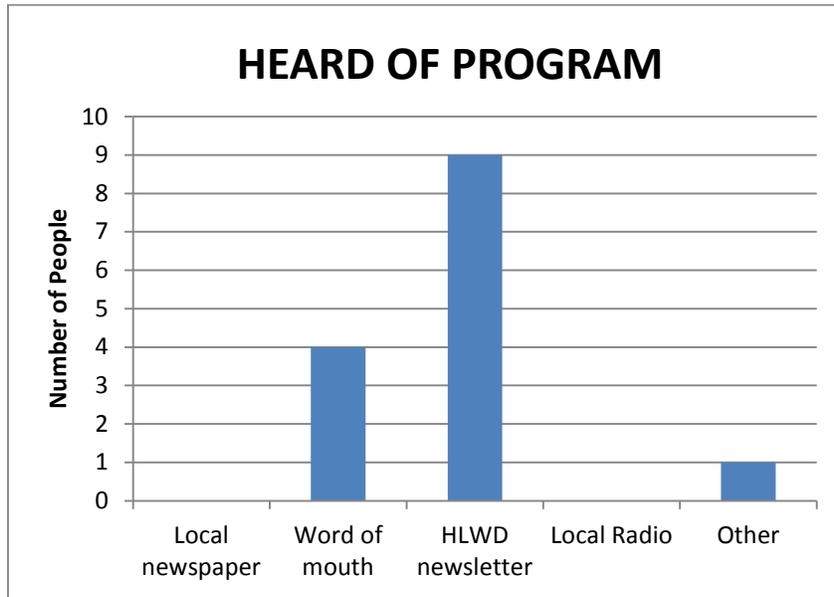
Task D: Plan and host two bus tours

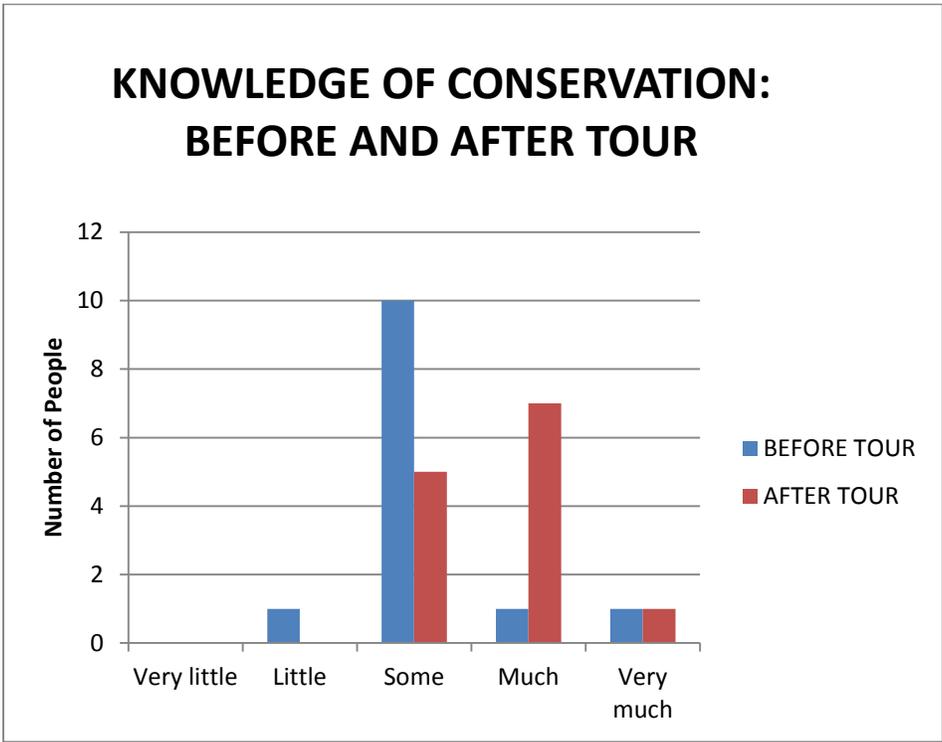
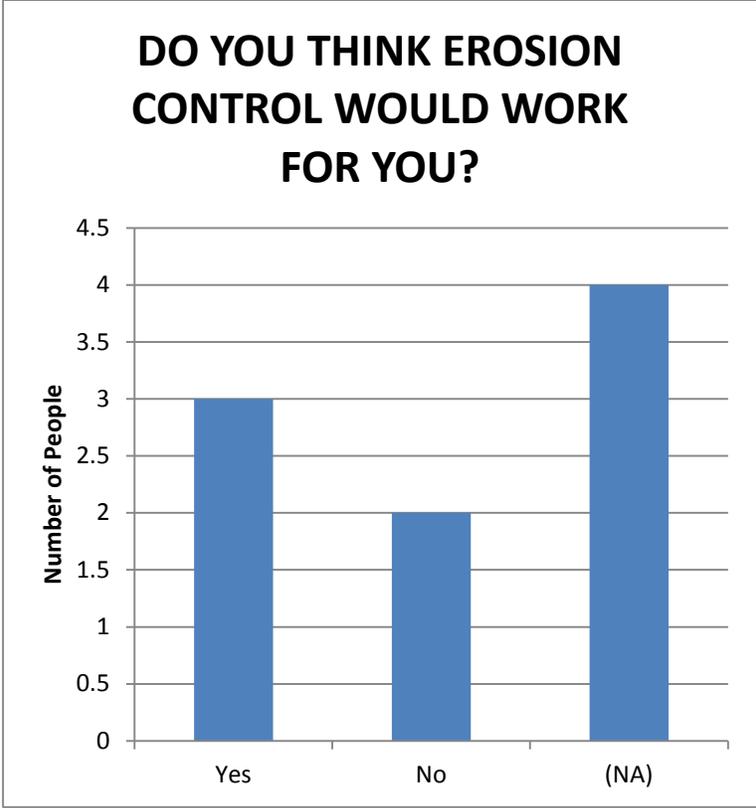
Severe flooding occurred in the watershed during a rain event that lasted from September 22 through September 24, 2010. HLWD staff met to discuss possible dates for a bus tour on September 23, 2010. Jan Voit contacted Kelli Nerem, MPCA regarding the flooding situation and the possibility of postponing the tour until the spring. Permission was granted for this change on September 23, 2010.

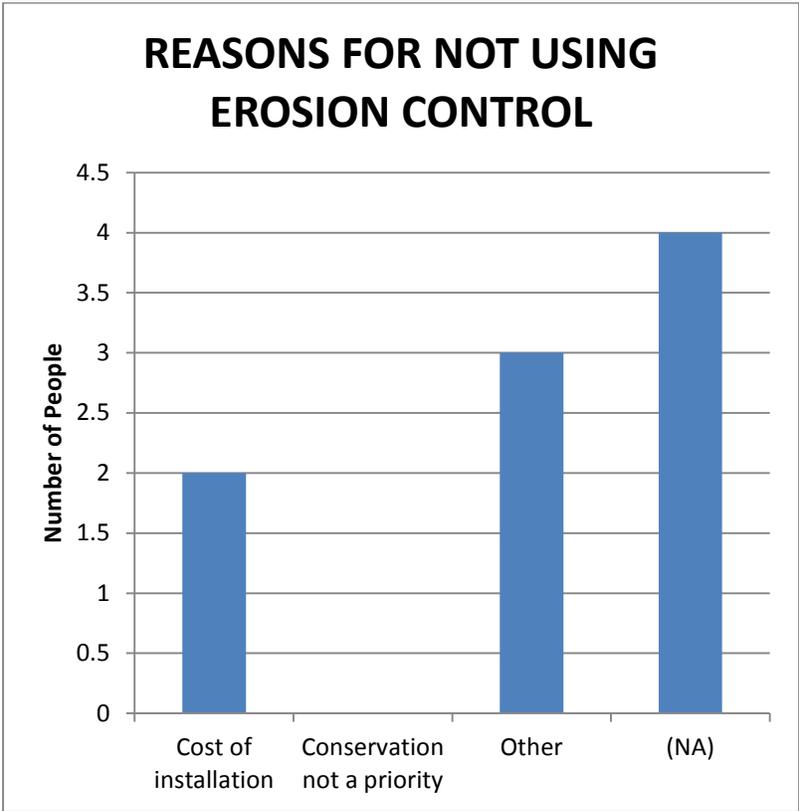
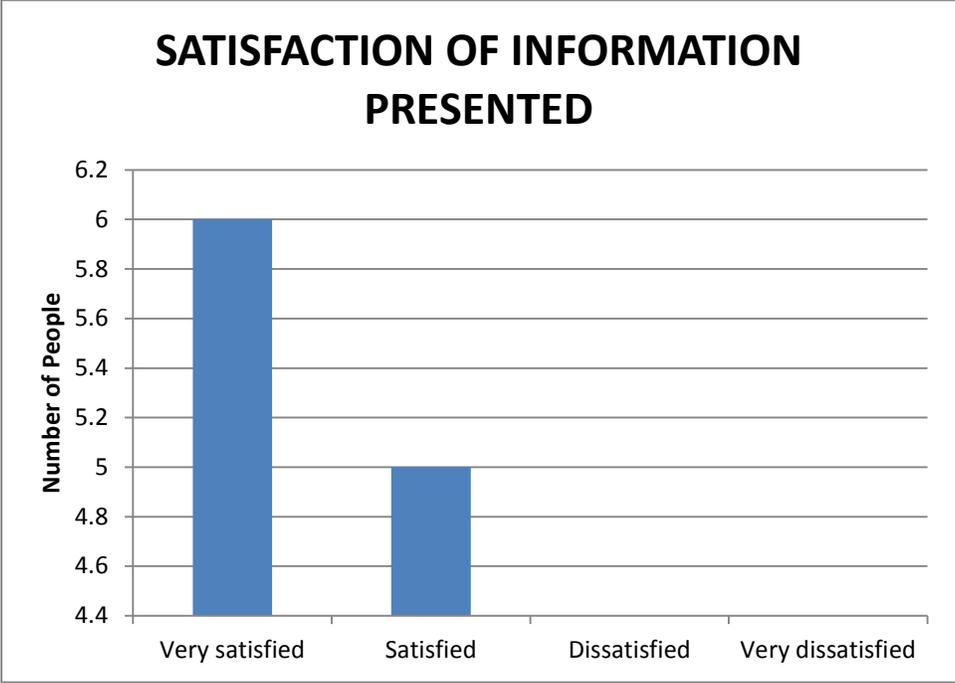
Snow melt and heavy rains occurred in the spring of 2011. HLWD staff requested postponing the bus tour until late spring to allow conditions to be suitable for site access. The date for the first bus tour was set for June 14, 2011. A newsletter promoting the tour was developed and distributed to watershed residents, agency personnel, and legislators. A news release about the event was sent to local news media.

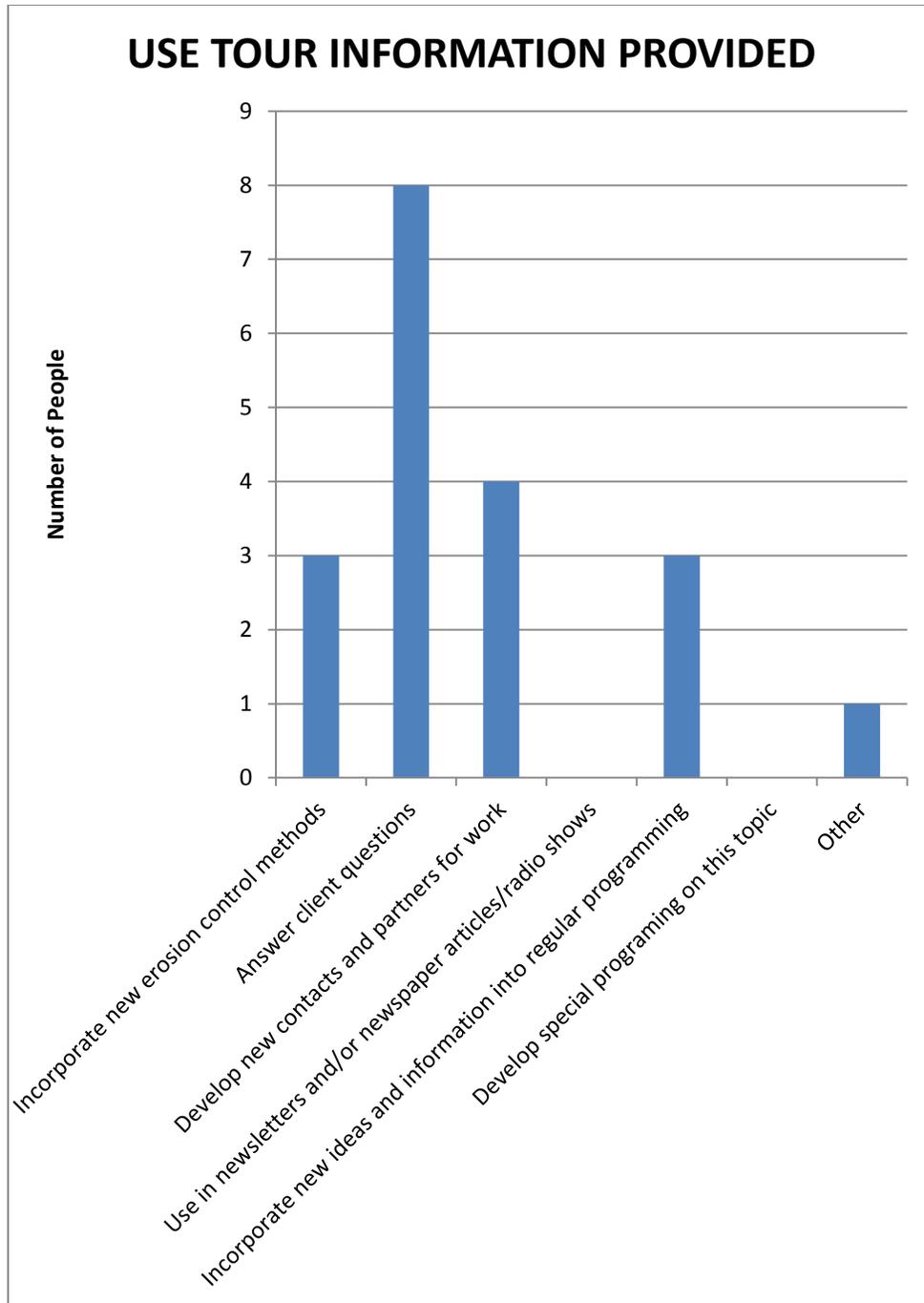
Participants met at the Heron Lake Community Center and traveled to both the J-hook weir and cedar revetment sites. Ross Behrends explained the project installation process at each site. Twenty-two people attended the tour. Because it was raining at the second tour stop, the tour survey was distributed by email to attendees following the event. The survey results are shown in **Figure 1**.

Figure 1. Survey Results 2012









On June 18, 2014, Jan Voit spoke with Dale Bartosh regarding the Project Site Tour. Due to high water levels and difficulty in accessing the sites, we believed it was best to postpone the tour. Jan contacted Chrystal Dunker about setting a new date in July. She also contacted the radio station and Tri County News to stop the advertising.

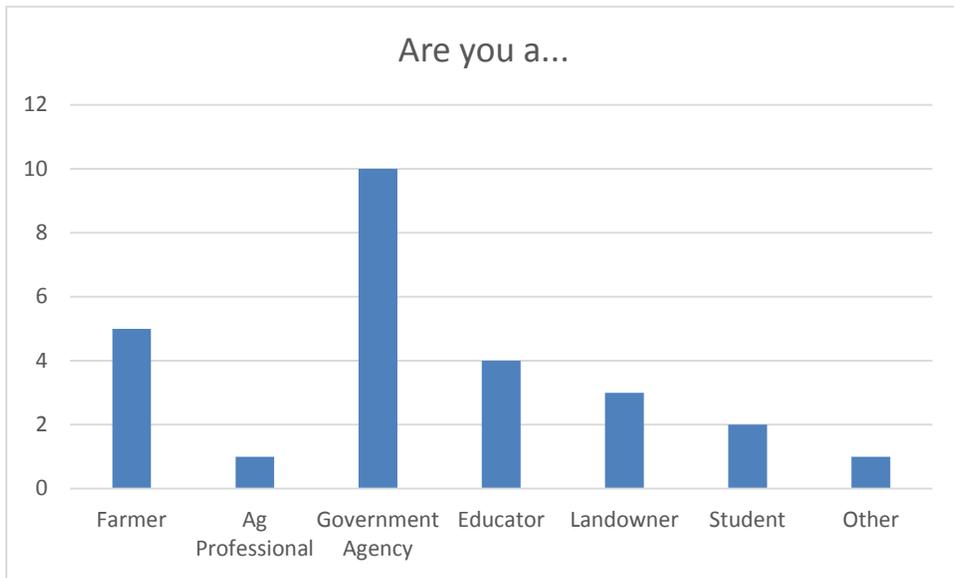
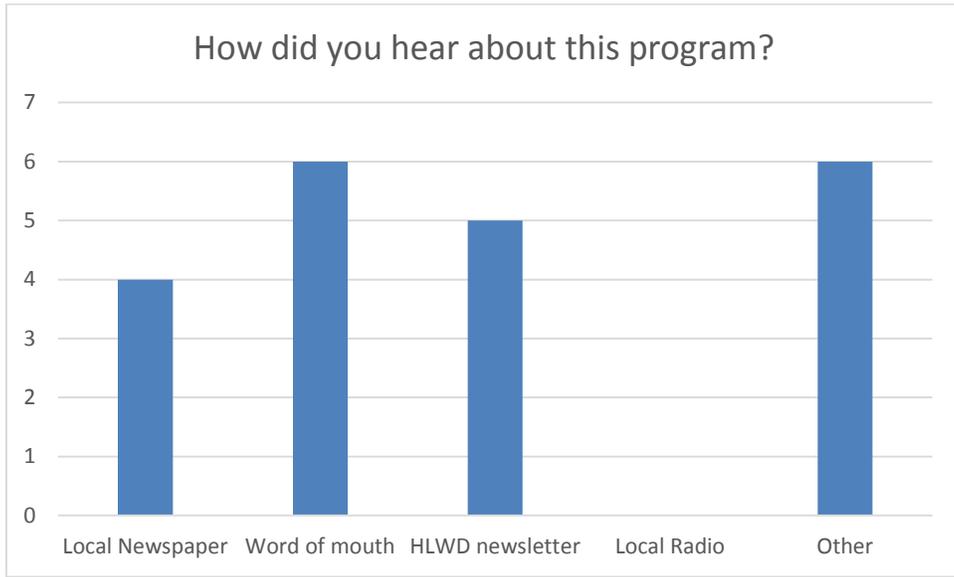
The new date for the Project Site Tour was set for July 21, 2014. The advertising was revised to reflect the new date.

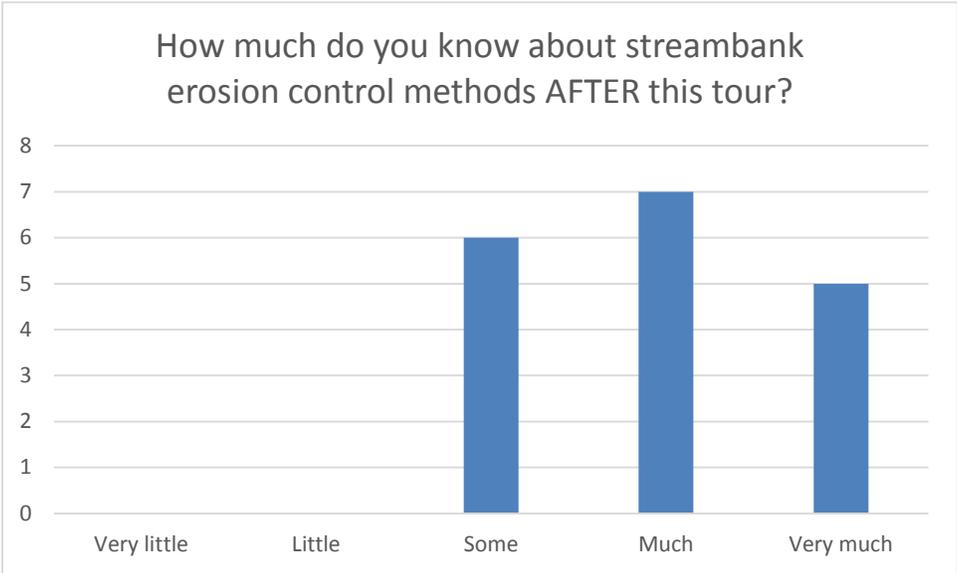
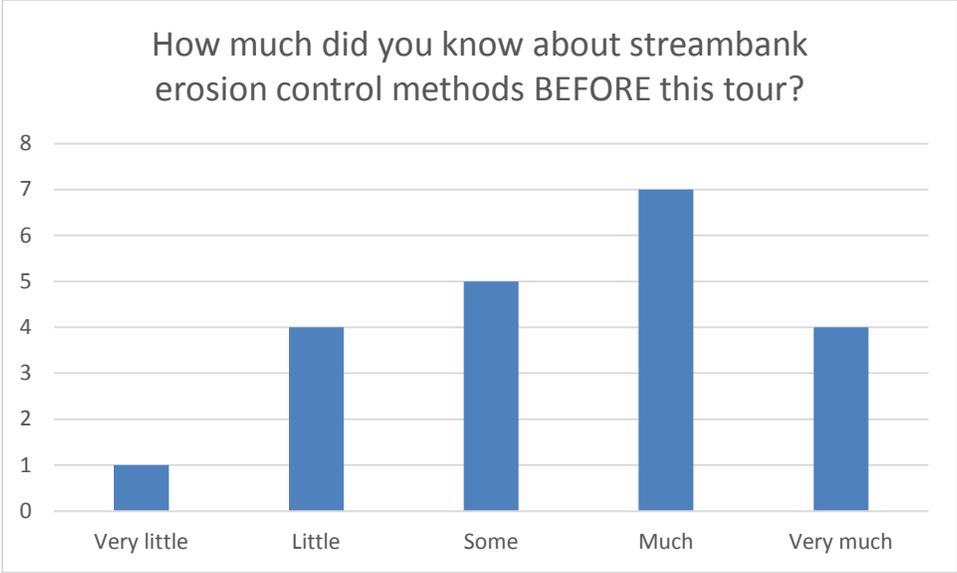
A handout for the tour was drafted. The document was submitted to Katherine Pekarek-Scott, MPCA for review on July 9, 2014. A reminder regarding the tour was sent on July 10, 2014.

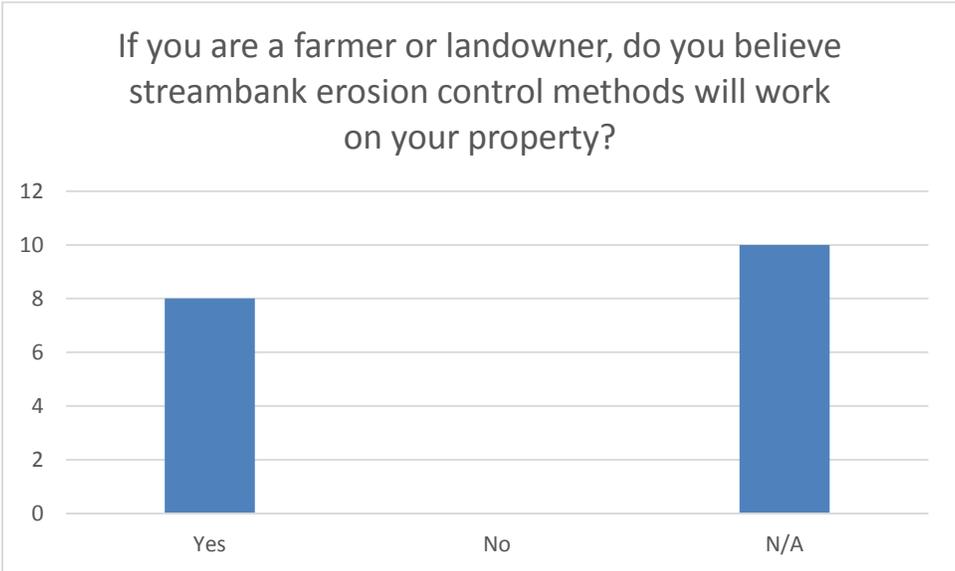
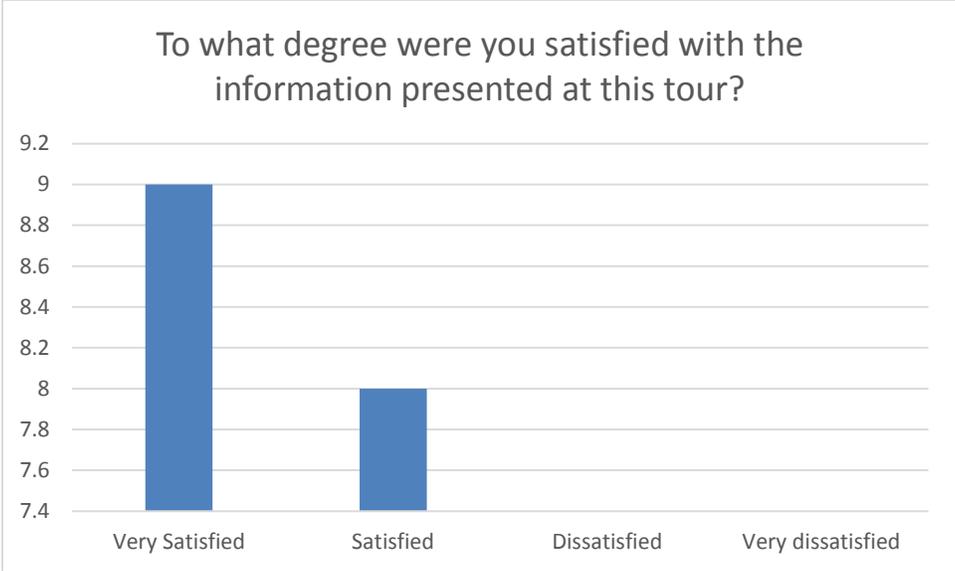
Attendees met at the HLWD office for coffee and rolls. After some conversation, the group boarded the Prairie Ecology Bus. Catherine Sereg presented information about the grant and described the project locations using a map. The first stop was at the J-hook weir project on the Dale Bartosh property. Ross Behrends presented information on the project including cost, engineering behind the project design, and how J-hook weirs protect the banks to reduce erosion. Dale Bartosh described the maintenance involved in the project. Several questions were asked and answered. The group was satisfied on the information they received from the site demonstration. They boarded the bus and headed to the next site.

The second stop was the cedar revetment project site on the Art Olsem property. The site was located in an area that was hard to access with the bus and would require the group to walk a far distance. So, attendees traveled to the site on a trailer loaded with hay bales. Ross Behrends presented information about the cost of the project compared to a J-hook installation and the design and how it traps sediment and reduces the bank from eroding. The group again asked several questions and were very satisfied by the information they received. The attendees boarded the bus to return to the HLWD office. While in transit, surveys were completed. Some landowners expressed interest in using these practices on their land. Some of the agency staff in attendance had not seen practices like this done in their area. They had learned a lot from the tour. Some requested additional information about the projects and the supplies used. Photos were taken of the event. There were 28 attendees. Survey results are shown in **Figure 2**.

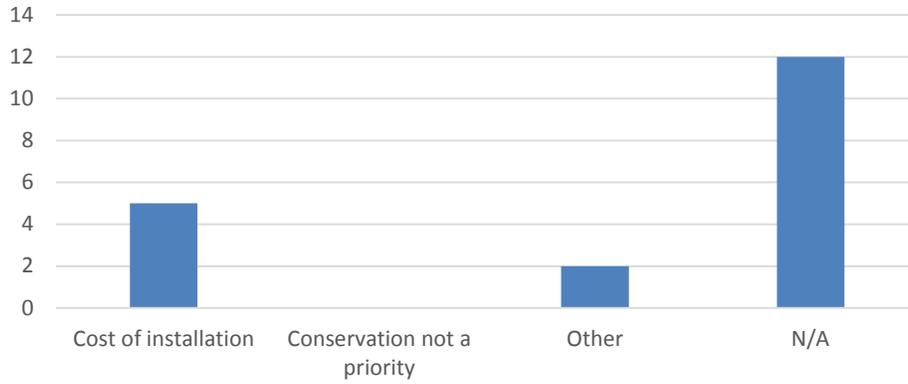
Figure 2. Survey Results 2014



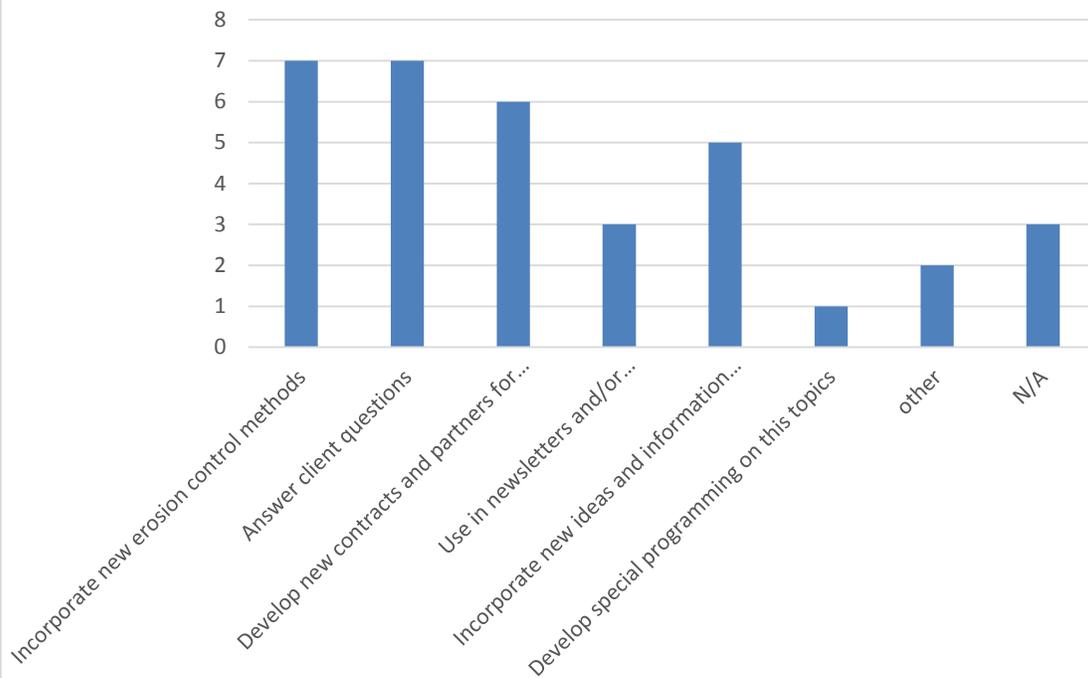


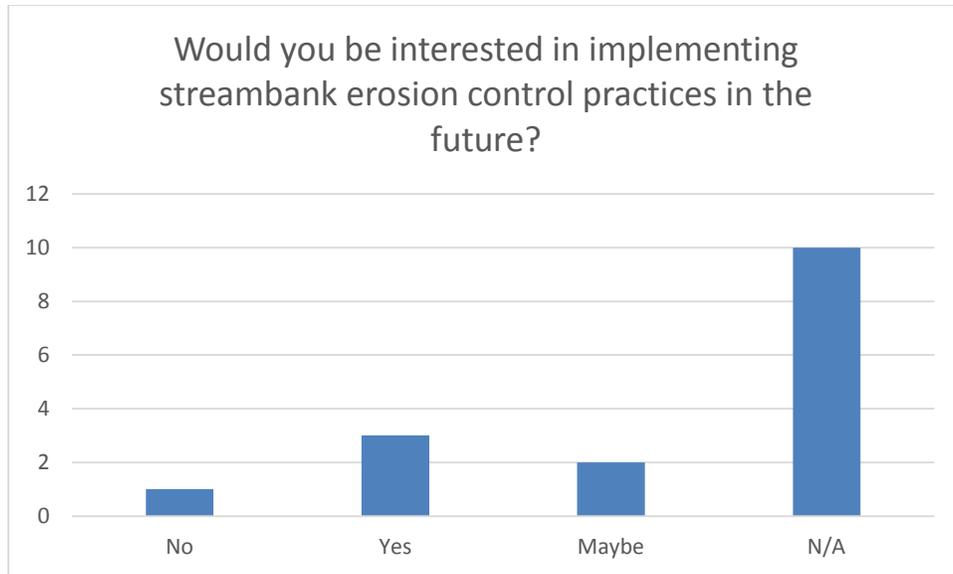


If you are not using stream bank erosion control methods, please check any of the following reasons that apply:



How do you plan to use the information provided at this tour in your work?





Task E: Display information on website

Alyson Buschena posted summary information about the grant on the HLWD website on August 24, 2010. She posted cedar revetment photos on December 9, 2010. (See **Appendix 8**)

Alyson Buschena posted summary information about the grant on the website on May 25, 2011.

Margaret Peeters posted summary information about the grant on the website on July 6, July 21, and August 5, 2011.

The newsletter and newspaper article were uploaded to the website on July 25, 2012. The photos for the project were compiled and uploaded on July 26, 2012 and August 29, 2012.

Jan Voit updated the website on July 17, 2013.

The web page for the grant was updated to include the tour information on June 11 and July 14, 2014.

Task F: Present information at meetings

Jan Voit provided project updates at HLWD meetings on September 21 (19 people in attendance), October 19 (six people in attendance), and December 16, 2010 (13 people in attendance).

Jan Voit provided project updates at HLWD meetings on April 14 (11 people in attendance), May 23 (19 people in attendance), and June 28, 2011 (20 people in attendance).

Jan Voit gave an update regarding the project to the Jackson County board on June 26, 2012. There were 11 people in attendance. An update was given at the HLWD meeting on July 17, 2012. Updates were given at the Nobles County Commissioner meeting on July 3, 2012 (10 people in attendance), Cottonwood County Commissioner meeting on July 10, 2012 (nine people in attendance), and the Murray County Commissioner meeting on July 17, 2012 (10 people in attendance).

Updates were given at County board meetings: Jackson County – March 26, 2013 (10 people in attendance), Cottonwood County – April 9, 2013 (eight people in attendance), Murray County – April 16, 2013 (nine people in attendance), and Nobles County – April 23, 2013 (nine people in attendance).

Updates were given at the following meetings: Jackson County Water Plan – January 23, 2014 (11 people in attendance), Jackson County – April 22, 2014 (nine people in attendance), Nobles County – May 6, 2014 (14 people in attendance), Cottonwood County – April 13, 2014 (nine people in attendance), and Murray County – April 20, 2014 (ten people in attendance).

Copies of the presentations can be found in **Appendix 9**.

Obstacles and Lessons Learned

High water levels after the storm event of August 22 – 24, 2010 made it unsafe to take transparency tube measurements until October 13, 2010. Construction also prevented transparency tube readings from being taken.

Snow melt and heavy spring rains in 2011 made it very difficult to gather data from the sites. It rained the day of the tour, which made completing the surveys at the site impossible.

Heavy spring rains in 2011 made it difficult to gather data at the sites.

Margaret Peeters final day of employment with the HLWD was April 12, 2012. After her departure, Ross Behrends and Jan Voit were responsible for her job duties. Rainfall and weather conditions in the month of May and early June prohibited access to the sites to take photos, video footage, or transparency tube readings. Not having adequate staff made it difficult to complete work plan tasks.

Due to the lack of rainfall, transparency tube readings were not taken. Due to reduced staffing, the video footage was not posted on the website in 2012 or 2013.

Grant Results

7. Measurements

Successful implementation of a grant program requires an extensive effort in recordkeeping. Section 2 summarized the activities completed during the grant period. The methods of measured results and success are varied and dependent upon the tasks. The measurements are described below by objective and task as presented in the work plan.

Objective 1: Administration

- Semi-annual and annual reports were submitted and approved as described in Section 2 above. The reports were uploaded to the web page.

Objective 2: Demonstration Sites

- The cedar revetment project was installed on September 22, 2010.
- The J-hook weir project was installed on September 1 and 2, 2010.
- It is estimated that the cedar revetment project will reduce phosphorus by 151 pounds per year and sediment by 198 tons per year.
- It is estimated that the J-hook weir project will reduce phosphorus by 178 pounds per year and sediment by 209 tons per year.

Objective 3: Education and Outreach

- Photos and video footage were taken and uploaded to the HLWD website as described in Section 2.
- Three newsletters were published during the grant period as described in Section 2. They can be found in **Appendix 4**.
- Two newspaper articles were drafted and distributed during the grant period as described in Section 2. They can be found in **Appendix 3**.
- Three newspaper ads for the 2014 bus tour were run in the Tri County News. The information can be found in **Appendix 7**.
- Eighty-six advertisements for the 2014 bus tour were run on the RadioWorks radio stations. The coverage area for these stations includes over 30 counties and 110 communities in southern Minnesota, southeast South Dakota, and northwest Iowa. The advertising copy can be found in **Appendix 7**.
- Two bus tours were held as described in Section 2. Information regarding the tours can be found in **Appendix 5 and 6**.
- A web page dedicated to the grant was created. Information was posted in 2010, 2011, 2012, and 2013 as described in Section 2. Statistics from the HLWD website are included below. At this time, the website does not have the ability to accurately depict the number of hits on a particular grant page. (See **Table 1**)

Table 1. Website Statistics

▼ Popular		
Most Popular Articles	Created	Hits
Virtual Tour	2009-10-04 22:26:16	28565
About HLWD	2009-08-21 02:42:35	9494
Contact HLWD	2009-08-21 02:46:44	7007
Water Quality Monitoring Data	2009-09-01 05:08:19	4876
Grant Projects	2009-09-30 02:03:54	4760
TMDL Implementation Planning Efforts	2009-09-01 03:29:47	4576
Job Openings	2009-09-01 02:44:32	4181
Education Events	2012-06-07 00:00:00	3852
HLWD Newsletters	2009-09-28 02:05:52	3568
2014 Cost-Share and Loan Programs	2009-08-21 02:46:04	3448

- HLWD meeting (September 2010): 4 HLWD managers, 4 HLWD staff, 2 MPCA staff, 1 commissioner from Jackson, Nobles, Murray, and Cottonwood Counties, and 5 general public.
- HLWD meeting (October 2010): 4 HLWD managers, 2 HLWD staff.
- HLWD meeting (December 2010): 5 HLWD managers, 3 HLWD staff, 1 Nobles County staff, 2 Jackson County Commissioners, 1 MPCA staff, and 1 general public.
- HLWD meeting (April 2011) 5 HLWD managers, 4 HLWD staff, 1 Jackson County Commissioner, and 1 Nobles SWCD Supervisor.
- HLWD meeting (May 2011): 4 HLWD managers, 6 HLWD staff, 1 Cottonwood County Commissioner, 1 Jackson County Commissioners, 1 Nobles SWCD Supervisor, and 6 general public.
- HLWD meeting (June 2011): 3 HLWD managers, 6 HLWD staff, 2 county Commissioners, 1 Nobles County Commissioner, 1 Nobles County staff, 1 MPCA staff, 1 consultant, 1 Nobles SWCD Supervisor, and four general public.
- Jackson County Commissioners (June 2012): 5 commissioners, 2 county staff, 2 news media, and 2 HLWD staff.
- Nobles County Commissioners (July 2012): 5 commissioners, 1 county staff, 2 news media, and 2 HLWD staff.
- Cottonwood County Commissioners (July 2012): 5 commissioners, 1 county staff, 1 Cottonwood County Auditor-Treasurer, and 2 HLWD staff.
- Murray County Commissioners (July 2012): 5 commissioners, 1 county staff, 2 news media, and 2 HLWD staff.
- Jackson County Commissioners (March 2013): 5 commissioners, 2 county staff, 2 news media, and one HLWD staff.

- Cottonwood County Commissioners (April 2013): 5 commissioners, 1 county staff, 1 Cottonwood County Auditor-Treasurer, and 1 HLWD staff.
- Murray County Commissioners (April 2013): 5 commissioners, 1 county staff, 2 news media, and 1 HLWD staff.
- Nobles County Commissioners (April 2013): 5 commissioners, 1 county staff, 2 news media, and 1 HLWD staff.
- Jackson County Water Plan (January 2014): 3 Jackson SWCD staff, 1 county staff, 1 Jackson County Conservation League member, 1 Iowa Great Lakes staff, 1 Jackson NRCS staff, 1 DNR staff, 1 BWSR staff, and 2 HLWD staff.
- Jackson County Commissioners (April 2014): 4 commissioners, 2 county staff, 2 news media, and 1 HLWD staff.
- Nobles County Commissioners (May 2014): 5 commissioners, 1 county attorney, 2 county staff, 1 HLWD manager, 1 Okabena-Ocheda Watershed District staff, 1 Kanaranzi-Little Rock Watershed District staff, 2 news media, and 1 HLWD staff.
- Cottonwood County Commissioners (May 2014): 5 commissioners, 1 county staff, 1 Cottonwood County Auditor-Treasurer, 1 county attorney, and 1 HLWD staff.
- Murray County Commissioners (May 2014): 5 commissioners, 1 county staff, 1 county attorney, 2 news media, and 1 HLWD staff.

8. Products

There have been several products produced through this grant. Below is a list of the products created and the appendices in which the products are located.

8.1. Appendix 1 – Cedar Retement Photos and Video Footage

- 2010: 11 documents containing photos
- 2011: 5 documents containing photos
- 2012: 2 documents containing photos
- 2013: 1 document containing photos
- 2014: 2 documents containing photos
- Cedar Retement Video Links

8.2. Appendix 2 – J-hook Weir Photos and Video Footage

- 2010: 9 documents containing photos
- 2011: 5 documents containing photos
- 2012: 2 documents containing photos
- 2013: 1 document containing photos
- 2014: 2 documents containing photos
- J-hook Weir Video Links

8.3. Appendix 3 – Newspaper Article

- 2012 Newspaper Article
- 2014 Newspaper Article

8.4. Appendix 4 – Newsletters

- 2011 Newsletter
- 2012 Newsletter
- 2014 Newsletter

8.5. Appendix 5 – 2012 Tour

- Handout
- 17 Photos
- Survey

8.6. Appendix 6 – 2014 Tour

- Handout
- 3 photos
- Survey

8.7. Appendix 7 – Advertising

- Project Site Tour Ad
- Radio Advertisement

8.8. Appendix 8 – Web Page

- Project Overview
- Cedar Revetment
- J-hook Weir

8.9. Appendix 9 - Presentations

- 2012: 4 annual updates
- 2013: 4 annual updates
- 2014: 5 annual updates

9. Public Outreach and Education

HLWD staff provided information to landowners, agency personnel, and contractors through the use of newsletters, newspaper articles, the HLWD website, and presentations at meetings. The following section summarizes the education efforts undertaken.

In an effort to inform landowners about the Heron Lake Sediment Reduction Demonstration Project, the June 2011 newsletter highlighted the grant and tour. The newsletter was sent to 3,400 watershed residents, agency personnel, and legislators. In June 2012, a second newsletter dedicated to the project was drafted. It was distributed via email to watershed partners and legislators. The mailing list contained approximately 75 contacts. The third newsletter describing the project and promoting the bus tour was drafted in June 2014. The newsletter was sent to 3,400 watershed residents, agency personnel, and legislators.

Of our target audience, only three attendees were farmers and two were landowners. Ten of those present were agency personnel. The people in attendance cited the HLWD newsletter and word of mouth as the means by which they knew of the tour. While there was interest in these

practices as possible means for streambank stabilization, the farmers in attendance did not incorporate these practices.

Advertising was employed as a means to reach watershed residents. An advertisement for the 2014 Project Site Tour was published in the *Tri County News*. The main coverage for this newspaper is Jackson and Nobles County. Subscriptions total about 575, with about 150 store copies available for purchase at various locations in the immediate area.

Radio advertisements were broadcast on KUSQ-FM, KITN-FM, KZTP-FM, and KWOA-AM from June 2 to June 19, 2014 and July 1 to July 17, 2014. Sonja Langseth, Ag Broadcaster for RadioWorks, interviewed Jan Voit regarding the Project Site Tour on June 17, 2014. The coverage area for these stations includes over 30 counties and 110 communities in southern Minnesota, southeast South Dakota, and northwest Iowa, serving over 650,000 avid listeners.

Two project site tours were held. Twenty-two people attended the first tour. Twenty-eight people attended the second tour.

A webpage devoted to the grant was developed for the HLWD website. Photo and video documentation and promotion materials were uploaded to the page.

Presentations that included information regarding the Heron Lake Sediment Reduction Demonstration Project were given at HLWD and county board meetings throughout the grant period.

Of our target audience, only five attendees were farmers and two were landowners. Ten of those present were agency personnel. The people in attendance cited word of mouth and other as the means by which they knew of the tour. Radio advertising was used for publication, but none of the attendees said they heard about the tour through those ads. Some farmers expressed interest in using these practices for streambank stabilization.

10. Long-term Results

While new partnerships were not established with agency personnel, the working relationship with those entities continued. Contact was made with interested farmers throughout the grant period. However, none of the event attendees implemented J-hook weir or cedar revetment practices on their land.

The final report for the Heron Lake Sediment Reduction Demonstration Project will be submitted to agency personnel, advisory committee members, and legislators. It will also be posted on the HLWD website. The intent of providing this information is to provide information that shows that cedar revetment and J-hook weirs are viable options for streambank stabilization and could be implemented on a watershed basis.

The HLWD's general operating funds are limited and minimal in comparison to what is needed for education and implementation projects. In order to make the best use of general operating funds, the HLWD will continue to put forth extensive efforts to obtain outside funding. The HLWD currently implements the following grant programs:

- Jack and Okabena Creek Sediment Reduction Project – EPA 319 Grant. Through this grant one J-hook weir project was installed on Jack Creek in 2013 and one J-hook weir project is being installed on Okabena Creek in 2014. The sites will be monitored annually through 2016. Information will be posted on the HLWD website. A newsletter and newspaper article will highlight the projects in the fall of 2014.
- Heron Lake Sediment and Phosphorus Reduction Implementation Projects – Legislative-Citizen Commission on Minnesota Resources grant. One J-hook weir streambank stabilization project was implemented through this grant. The site will be monitored annually. A newsletter and field day will be held in 2016 to highlight and promote project efforts.

These grants help HLWD staff with efforts for education and implementation as described in the HLWD WMP. Staff will continue to seek funding to assist with water quality improvement efforts.

11. Final Expenditures

Table 2 on page 29 contains a summary of the cash and inkind expenditures that were made to assist in these efforts during the Heron Lake Sediment Reduction Demonstration Project grant period.

Table 2. Final Expenditures

ITEMIZED PROGRAM OBJECTIVE BUDGET												
Objective 1 - Administration												
Cost Category	Unit Cost	Quantity	Cash-Budgeted	Amended Cash Budget	In-Kind Budgeted	Amended In-Kind Budgeted	Cumulative Cash	Cumulative Inkind	Cumulative Total	Cash Balance	In-Kind Balance	Total Balance
Task A. Complete reporting requirements												
HLWD District Administrator	\$22/hr	77			\$4,408.00	\$1,694.00	\$0.00	\$1,838.74	\$1,838.74	\$0.00	\$144.74	\$144.74
HLWD Education Coordinator Resource Technician	\$18/hr	1.4			\$640.00	\$25.00	\$0.00	\$25.00	\$25.00	\$0.00	\$0.00	\$0.00
HLWD Technician	\$20/hr	2.8			\$676.00	\$56.00	\$0.00	\$56.00	\$56.00	\$0.00	\$0.00	\$0.00
Subtotal Task A			\$0.00	\$0.00	\$2,624.00	\$1,775.00	\$0.00	\$1,919.74	\$1,919.74	\$0.00	\$144.74	\$144.74
Subtotal Objective 1			\$0.00	\$0.00	\$2,624.00	\$1,775.00	\$0.00	\$1,919.74	\$1,919.74	\$0.00	\$144.74	\$144.74
Objective 2 - Demonstration Sites												
Cost Category	Unit Cost	Quantity	Cash-Budgeted	Amended Cash Budget	In-Kind Budgeted	Amended In-Kind Budgeted	Cumulative Cash	Cumulative Inkind	Cumulative Total	Cash Balance	In-Kind Balance	Total Balance
Task A. Install one cedar revetment												
Site selection-HLWD Technician	\$20/hr	11			\$444.00	\$220.00	\$0.00	\$220.00	\$220.00	\$0.00	\$0.00	\$0.00
Installation Supplies	\$1,576.58	1			\$2,600.00	\$1,576.58	\$0.00	\$1,576.58	\$1,576.58	\$0.00	\$0.00	\$0.00
Site installation-HLWD Technician	\$20/hr	28.6			\$900.00	\$571.50	\$0.00	\$571.50	\$571.50	\$0.00	\$0.00	\$0.00
Site installation-DNR	\$20/hr	51.25			\$4,000.00	\$1,025.00	\$0.00	\$1,025.00	\$1,025.00	\$0.00	\$0.00	\$0.00
Subtotal Task A			\$0.00	\$0.00	\$4,544.00	\$3,393.08	\$0.00	\$3,393.08	\$3,393.08	\$0.00	\$0.00	\$0.00
Task B. Install J-hook weir												
Site selection-HLWD Technician	\$20/hr	35.5			\$444.00	\$710.00	\$0.00	\$710.00	\$710.00	\$0.00	\$0.00	\$0.00
Site design-SWPTSA	\$45/hr	116	\$2,000.00	\$1,595.00	\$600.00	\$3,625.00	\$1,595.00	\$3,625.00	\$5,220.00	\$0.00	\$0.00	\$0.00
Installation Supplies	\$11,848.85	1	\$14,500.00	\$11,848.85	\$600.00	\$0.00	\$11,848.85	\$0.00	\$11,848.85	\$0.00	\$0.00	\$0.00
Site installation-HLWD Technician	\$20/hr	31			\$900.00	\$620.00	\$0.00	\$620.00	\$620.00	\$0.00	\$0.00	\$0.00
Site installation-DNR	\$20/hr	26			\$600.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal Task B			\$16,500.00	\$13,443.85	\$2,544.00	\$4,955.00	\$13,443.85	\$4,955.00	\$18,398.85	\$0.00	\$0.00	\$0.00
Subtotal Objective 2			\$16,500.00	\$13,443.85	\$7,088.00	\$8,348.08	\$13,443.85	\$8,348.08	\$21,791.93	\$0.00	\$0.00	\$0.00
Objective 3 - Education and Outreach												
Cost Category	Unit Cost	Quantity	Cash-Budgeted	Amended Cash Budget	In-Kind Budgeted	Amended In-Kind Budgeted	Cumulative Cash	Cumulative Inkind	Cumulative Total	Cash Balance	In-Kind Balance	Total Balance
Task A. Documentation												
Video Camera and Tripod	\$0.486/mile	500			\$600.00	\$1,057.49	\$0.00	\$1,057.49	\$1,057.49	\$0.00	\$0.00	\$0.00
HLWD Education Coordinator Resource Technician/HLWD Adminis	\$20/hr	78			\$0.00	\$1,400.00	\$0.00	\$1,533.57	\$1,533.57	\$0.00	\$133.57	\$133.57
HLWD Technician	\$20/hr	21.6			\$432.00	\$432.00	\$0.00	\$480.00	\$480.00	\$0.00	\$48.00	\$48.00
Subtotal Task A			\$0.00	\$0.00	\$932.00	\$2,889.49	\$0.00	\$3,071.06	\$3,071.06	\$0.00	\$181.57	\$181.57
Task B. Publicize through newsletters												
Newsletter	\$1,235.00	1		\$1,235.00			\$1,235.00	\$0.00	\$1,235.00	\$0.00	\$0.00	\$0.00
HLWD District Administrator	\$22/hr	7			\$176.00	\$154.00	\$0.00	\$446.90	\$446.90	\$0.00	\$292.90	\$292.90
HLWD Technician	\$20/hr	1			\$320.00	\$20.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.00	\$20.00
HLWD Education Coordinator Resource Technician	\$18/hr	8			\$144.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal Task B			\$0.00	\$1,235.00	\$640.00	\$174.00	\$1,235.00	\$446.90	\$1,681.90	\$0.00	\$272.90	\$272.90
Task C. Publicize through newspapers and radio advertising												
Newspaper advertising	\$36/ad	4		\$144.00			\$144.00	\$0.00	\$144.00	\$0.00	\$0.00	\$0.00
Radio advertising	\$12/ad	86		\$1,027.15	\$4.85		\$1,027.15	\$4.85	\$1,032.00	\$0.00	\$0.00	\$0.00
HLWD District Administrator	\$22/hr	4			\$44.00	\$88.00	\$0.00	\$106.21	\$106.21	\$0.00	\$18.21	\$18.21
HLWD Technician	\$20/hr	1			\$80.00	\$20.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.00	\$20.00
HLWD Education Coordinator Resource Technician	\$18/hr	2			\$36.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal Task C			\$0.00	\$1,171.15	\$460.00	\$112.85	\$1,171.15	\$111.06	\$1,282.21	\$0.00	\$1.79	\$1.79
Task D. Plan and host two bus tours												
HLWD Education Coordinator/Administrator/HLWD T	\$20/hr	30			\$600.00	\$600.00	\$0.00	\$990.92	\$990.92	\$0.00	\$390.92	\$390.92
Bus rental	\$1300/day	0.5		\$650.00			\$650.00	\$0.00	\$650.00	\$0.00	\$0.00	\$0.00
Subtotal Task D			\$0.00	\$650.00	\$960.00	\$600.00	\$650.00	\$990.92	\$1,640.92	\$0.00	\$390.92	\$390.92
Task E. Display information on website												
HLWD Education Coordinator Resource Technician	\$20/hr	45			\$320.00	\$900.00	\$0.00	\$854.38	\$854.38	\$0.00	\$45.62	\$45.62
Subtotal Task E			\$0.00	\$0.00	\$320.00	\$900.00	\$0.00	\$854.38	\$854.38	\$0.00	\$45.62	\$45.62
Task F. Present information at meetings												
HLWD District Administrator	\$22/hr	4			\$528.00	\$90.06	\$0.00	\$90.06	\$90.06	\$0.00	\$0.00	\$0.00
HLWD Technician	\$20/hr	8			\$460.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HLWD Education Coordinator Resource Technician	\$18/hr	8			\$144.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Subtotal Task F			\$0.00	\$0.00	\$832.00	\$90.06	\$0.00	\$90.06	\$90.06	\$0.00	\$0.00	\$0.00
Subtotal Objective 3			\$0.00	\$3,056.15	\$3,844.00	\$4,766.40	\$3,056.15	\$5,564.38	\$8,620.53	\$0.00	\$797.98	\$797.98
Subtotal Objective 1			\$0.00	\$0.00	\$2,624.00	\$1,775.00	\$0.00	\$1,919.74	\$1,919.74	\$0.00	\$144.74	\$144.74
Subtotal Objective 2			\$16,500.00	\$13,443.85	\$7,088.00	\$8,348.08	\$13,443.85	\$8,348.08	\$21,791.93	\$0.00	\$0.00	\$0.00
Subtotal Objective 3			\$0.00	\$3,056.15	\$3,844.00	\$4,766.40	\$3,056.15	\$5,564.38	\$8,620.53	\$0.00	\$797.98	\$797.98
GRAND TOTAL			\$16,500.00	\$16,500.00	\$13,556.00	\$14,889.48	\$16,500.00	\$15,832.20	\$32,332.20	\$0.00	\$942.72	\$942.72