

Lake Hendricks
Watershed Project
#1118-007

Final Report

January 1, 2012 to June 30, 2013

Preparer's Signature: _____ **Date** _____

SWCD Chairperson's Signature: _____ **Date** _____

Financial Accountability

Table A: Watershed Improvement Funds

Grant Agreement Budget Line Item	Total Funds Approved	Total Funds Approved/Amended	Total Funds Expended	Available Funds
Personnel	\$29,460	\$29,460	\$29,460	\$0
Travel/Training	\$350	\$350	\$199	\$151
Information/Education Activities (75% C/S)	\$4,000	\$4,000	\$2,346	\$1,654
Streambank Stabilization (75% C/S; ft.)	\$9,200	\$0	\$0	\$0
Timber Stand Improvement (75% C/S; ac.)	\$18,750	\$18,750	\$13,856	\$4,894
Totals	\$61,760	\$52,560	\$45,861	\$6,699
Difference				\$6,699

Table B: Total 4.5 Year Lake Hendricks Project Funding (January 2009-June 2013)

Grant Agreement Budget Line Item	Cash		In-Kind Contributions		Total	
	Approved Application Budget	Actual	Approved Application Budget	Actual	Approved Application Budget	Actual
WIRB	\$61,760	\$45,861	\$0	\$0	\$61,760	\$45,861
WPF	\$53,046	\$53,046	\$0	\$0	\$53,046	\$53,046
WSPF	\$70,184	\$70,184	\$0	\$0	\$70,184	\$70,184
319	\$140,528	\$134,994	\$0	\$0	\$140,528	\$134,994
CRP	\$70,440	\$70,440	\$0	\$0	\$70,440	\$70,440
WPS	\$2,500	\$3,316	\$0	\$0	\$2,500	\$3,316
Howard CCB	\$80,937	\$73,794	\$0	\$0	\$80,937	\$73,794
Totals	\$479,395	\$451,635	\$0	\$0	\$479,395	\$451,635

Watershed Improvement Funds contribution: Approved application budget: **13%**

Actual: **10%**

There were two significant differences between the approved application budget and the actual amounts contributed by the various funding sources over the 4.5 year length of the Lake

Hendricks Watershed Project (LHWP). First, two completed project final costs came in under budget. The total cost of the Timber Stand Improvement (TSI) projects completed June 2013 were \$6,525 below the estimated cost and the six installed interpretive kiosk panels cost \$2,205 less than the original estimated amount.

Second, the planned streambank stabilization project which was estimated to cost a total of \$12,270 was not completed due to the lack of a resource concern. During the WIRB application process in 2011 approximately 350 feet of eroding streambank above Lake Hendricks was identified as a resource concern by Natural Resource Conservation Service (NRCS) technicians. If not mitigated, the eroding streambank had the potential to deliver an estimated 28 tons of sediment to the sheet-pile wetland structure and Lake Hendricks every year. However, once the wetland structure was completed in December of 2011, the eroding streambank became almost entirely submerged by the pooled water. NRCS technicians determined that the submerged eroding streambank was no longer a resource concern and that stabilizing the bank with limestone riprap was no longer needed. The \$9,200 originally awarded by WIRB for the streambank stabilization project was returned to WIRB as part of an amended budget.

Environmental Accountability

Water Monitoring

Previously, the in-lake water monitoring results have not yet shown a significant decrease in nutrients present in Lake Hendricks (Lynette Seigley 2012). However, in 2012 IDNR in-lake monitoring recorded a decrease in total phosphorus (P) in Lake Hendricks. The IDNR attributed the decrease in total P to the conservation efforts of the LHWP and included the project in the IDNR annual watershed success story publication called “Working for Clean Water”

In addition to in-lake monitoring, a total of 12 water quality monitoring sites were established in 2009 at the onset of the IDALS/319 portion of the LHWP in order to monitor the condition of the water sources entering the lake. Water flowing from the 11 drainage tile outlets along with an additional site on the main drainage tributary were collected and tested for impairments. Upon completion of the grade stabilization structure, two bioreactors, and two sediment basins, five additional sampling sites were implemented at the outlets of these structures to monitor any resulting impairment reductions. Water monitoring data collected in 2011 showed a 55% nitrate (N) loading reductions.

Practices Installed

During the WIRB funded portion of the LHWP (January 2012-June 2013) a total of 13.2 acres of timber stand improvement were completed (Photos 1 & 2) and a total of five interpretive kiosk panels were installed (Photo 3). Also, three news releases were published, one fair booth display was erected, four watershed tours were conducted, three project presentations were given, two

school classroom tours were given, and one Northeast Iowa Project Coordinator Meeting was held.

The TSI practices differed from the initial approved application by including 7.2 acres of tree planting and 6.0 acres of invasive species removal as part of an agreed amendment between WIRB and the Howard SWCD. The approved application budget planned for 25 acres of mechanical invasive species removal. Snow accumulation restricted the contractors from accessing several planned removal sites with the forestry mower so the HCCB and IDNR District Foresters met to discuss the active forestry plan to see where other practices could be applied. It was proposed that 6.0 acres of invasive trees could safely be removed with the forestry mower and a separate 7.2 acre clear-cut could be planted with trees to provide native woodland cover. The 7.2 acre previously clear cut area was planted with 105 5'-6' tall swamp white oak, burr oak, and red oak trees, 35 4'-5' white oaks trees, and 2,100 seedlings of the same four species.

Table C: WIRB Funded Installed Practices and Activities (January 2012-June 2013)

Practice or Activity	Unit	Approved Application Goal	Accomplishments	Percent Completion
News Releases	No.	2	3	150
Fair Booth Display	No.	1	1	100
Watershed Tours	No.	1	5	500
Presentations	No.	2	3	150
Host Project Coordinator Mtng.	No.	1	1	100
School Classroom Tour	No.	2	2	100
Informational Kiosks	No.	2	5	250
Timber Stand Improvement	Ac.	25	13.2	53

Pollutant Reductions

An estimated 15 tons of sediment and 19 lbs of phosphorus will be prevented from entering Lake Hendricks every year according to the Sediment Delivery Calculator. The initial approved project sediment loading reduction goal was 56 tons every year with a 28 ton reduction coming from the proposed streambank stabilization and another 28 tons coming from the proposed 25 acre TSI project. As described above the eroding streambank was no longer a resource concern after the implementation of the sheet-pile wetland structure so the 28 ton yearly reduction was achieved but was credited to the wetland structure. The 28 ton sediment reduction goal of the TSI project was reduced to the accomplished 15 tons due to the reduction of implemented TSI acres. As part of the amendment the original approved project goal of 25 acres of TSI was reduced to 13.2 acres because of weather and accessibility factors.

Table D: Estimated Environmental Benefits (Sediment Delivery Calculator)

WIRB Funded Practices	Units Installed (ac.)	Acres Treated	Annual Sediment Reduction (tons/year)	Annual Phosphorus Reduction (lbs)
TSI (Invasive Specie Removal)	6.0	6.0	7.0	9.0
TSI (Tree Planting)	7.2	7.2	8.0	10.0
Totals		13.2	15	19.0

Program Accountability

The practices and activities completed during the WIRB portion of the LHWP expanded the impact of the entire project by providing additional loading reductions, improving natural aesthetics, and educating the public about water quality improvements. The TSI practices enhanced the LHWP project by reducing sediment loading but also improved the overall attractiveness and accessibility of Lake Hendricks Park. The invasive common buckthorn had become so dense that park users could not see into the woodlands beyond the recreational trail. By removing the buckthorn and opening up the woodlands, park users can now enjoy the aesthetics of healthy woodlands comprised of native tree species and woodland plants that are now thriving due to the improved habitat.

The techniques that were used to remove the buckthorn are new to this area and the Iowa DNR District Foresters are using the LHWP forestry practices as a template for future woodland management plans. “The Lake Hendricks Watershed project has been a tremendous success. Not only have they created wetlands and sediment control structures to filter the water coming in to the lake, they are taking care of one of the best natural filters they have, the forest! Many different timber stand improvement activities have been completed to improve forest health on the property. I see us building on these practices and continuing this in the future. This has been a great project”, says IDNR District Forester Greg Heidebrink.

The completed interpretive kiosk panels, publications, and public outreach efforts are continuing to work to increase the public awareness of the water quality improvement efforts of the LHWP. The kiosk panels provide park users with information about the implemented conservation practices at Lake Hendricks as well as knowledge about preserving Iowa’s native habitat. The multiple field days that were held worked show project partners and community members firsthand the positive impact that partnerships can have in improving water quality.

The limited availability of a forestry mower and adverse weather conditions were the greatest challenges of this project. At the onset of the project the main goal was to locate a forestry mower to grind down the invasive common buckthorn as a method of removal. The project planners had seen the machine used to eradicate brush at a forestry field day but finding one in the area was a challenge. A machine and contractor were located but with only one known forestry mower in the area scheduling became the next challenge.

Unfortunately by the time the contractor was available to come to Lake Hendricks the winter weather made a turn for the worse and the accumulated snowfall made accessibility nearly impossible. We had to wait until the snow receded before the contractor was able to work. The conditions were not ideal so some of the steeper slopes that were part of the proposed area were inaccessible but the rest of the planned acres were completed in a quality manner.

The valuable lesson learned from this project is the importance of protecting a resource that the community values. At times this project almost seemed effortless because the public and project partners involved cared deeply about Lake Hendricks and saw the lake as a valuable asset to the community and surrounding area. When people truly have a passion and a heart to see a resource improved and protected, anything is possible.

Photo 1: Forestry Mower Grinding Common Buckthorn



Photo 2: The 7.2 acre tree planting



Photo 3: The “Wetland Creation” Interpretive Kiosk Panel

