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Submitted by : Richard K. Kessler, Green River Director
The Nature Conservancy

Acknowledgments

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Executive Summary

The Nature Conservancy's goal for this project was to protect water quality and therefore ecosystem biodiversity, improve water quality through non-point source pollution abatement and promote consensus among stakeholders and inhabitants of the Green River watershed. This project achieved its goal by successfully achieving a number of objectives. A project director was hired from the site. Additional capacity was also added, in part, to assist in the implementation of this project. The community-based conservation efforts of TNC were complemented by the project promoting interaction of local, state and federal officials regarding the protection of Green River and its water quality. The project has allowed us to implement demonstrable best management practices in the Green River watershed. These practices both reduce non-point source pollution and provided an outreach to local landowners demonstrating to them how clean water objectives can be met on their property. Water quality was protected with acquisition of a tract of land along Russell Creek, a major tributary of the upper Green River. This acquisition resulted in the removal of many cattle from the stream and streambanks as well as the conversion of pasture and cropland to bottomland hardwood forest riparian buffer along 1.2 miles of the stream. In addition the project allowed us to reach thousands of local students and citizens via site visits, classroom programs and landowner visits exposing them to the problems of non-point source pollution, enhancing their awareness of the importance of clean water to the Green River and empowering them to make a difference by sharing solutions to clean water challenges. The numerous educational opportunities provided for students, teachers and citizens of the watershed, explained the impact of non-point source pollution on the Green River and demonstrated how it can be prevented in an effort to not only protect the Green River and its magnificent biodiversity but also to improve the quality of life of its citizens.

Introduction and Background

The Conservancy wishes to protect water quality and therefore ecosystem biodiversity, improve water quality through non-point source pollution abatement and promote consensus building among the stakeholders and inhabitants of the Green River watershed. With the establishment of the Green River Bioreserve, it is the goal of The Nature Conservancy to protect water quality and therefore ecosystem biodiversity, improve water quality through non-point source pollution abatement and promote consensus building among the stakeholders and inhabitants of the Green River watershed. The following objects were cited in the original application:

Objective 1: Employ a Green River Bioreserve Director to implement conservation objectives and develop a trust relationship with the local community. Strong emphasis will be placed on hiring someone from the area. It is intended for this director to be in place before the grant begins and remain once 319 funds are expended so that NPS management will continue based on the groundwork and successes that this grant accomplishes so that targeted NPS problems will continue to be remediated.

Objective 2: Establish demonstration sites on a minimum of eight high priority sites as identified in the 1997 "Green River Stress Analysis Report" and hold field days on a minimum of six of these sites to demonstrate BMP's that will include examples of non-point source abatement such as planting tree seedlings and native grasses, fencing cattle from streams and bank restoration.

Objective 3: Provide long-term protection for the watershed via land acquisition, conservation easements, and landowner contact.

Objective 4: Work with city, county, and state agencies to assure that there is a coordination of efforts in the watershed and an efficient flow of information relating to current and proposed projects that will affect water quality of the Green River watershed. This would include contingency plans for hazardous waste spills.

Objective 5: Implement bioreserve program by developing a broad constituency through non-point source education in the local communities and school systems.

Objective 6: Work with local citizens to establish a grassroots group for the purpose of discussion and consensus building about water issues and advocacy of conservation initiatives in the watershed that will serve to improve water quality.

The Green River is without question Kentucky's crown jewel of rivers and a national treasure in terms of its diversity of freshwater life. This river is home to some 70 mussels and 150 fishes- more than any other river in our state and among the richest in our country. For those of us who grew up in places like Greensburg, Horse Cave or Munfordville, we just call it "home". For most of us the Green River is where we camped, fished, farmed or were baptized. Likewise, before our generation our own ancestors and the native Americans drank from its waters, fished from its shores and

played along its gravel bars. It truly is our natural heritage, a thread of life that connects us all like it connects the towns of Greensburg and Munfordville. We continue to be blessed with a largely rural landscape and relatively good water quality from the Brush Creek Hills of Taylor and Green counties to the sinkhole plain of Barren and Hart counties. However, with the continued loss of family farms and the decline of water quality in many areas we are challenged to preserve our natural heritage and the clean water we all depend upon so directly. The Green River truly is a river of life- it supports and sustains many forms of life including our own. Through The Nature Conservancy's Green River Bioreserve Project, established in 1999, TNC has been working with many partners from landowners to local, state, and federal agencies to ensure that future generations will have the same opportunity at the quality of life enjoyed by those who came before us. Our goal is not merely to enhance the survival of the many unique plants and animals that call Green River home, but to enhance the total quality of life for citizens who benefit from the various uses of the river. Indeed, to conserve the Green River is to conserve our very quality of life.

The Green River faces many of the same challenges as other watersheds in the the country in terms of threat and stress of non-point source pollution. The Clean Water Act has been more effective in controlling "end of pipe" (point source) industrial and municipal discharges than the diffuse, nonpoint sources of sediments and pollution that are now the greatest cause of degraded water quality.

Agricultural lands are critical for protection of water quality and streamlife because fields and pastures can deliver vast quantities of sediments, chemicals, and nutrients to receiving waters. The 2000 President's Council on Environmental Quality reported total soil erosion losses at 2.1 billion tons nationwide, or 5.6 tons per acre per year (Master, L. 1998). Approximately 65 percent of the sediment washed into U.S. streams, rivers, and lakes comes from cropland, pastures, and rangeland. Often bound to this eroded sediment is phosphorus, the nutrient primarily responsible for eutrophication in freshwater systems. Eutrophication can cause "blooms" of algae that virtually kill some stream reaches.

Urban and residential areas not only contribute nonpoint source pollutants but alter natural water flows within watersheds by increasing the percentage of roads, driveways, parking lots, and other impermeable ground surfaces. Pollution in residential areas is caused by failing septic systems, septic system additives, improper disposal of household chemicals, stormwater runoff, construction activities, and inappropriate use of fertilizers and pesticides. Stormwater runoff from impermeable surfaces carries large amounts of sediment, heavy metals, oil, and oxygen-demanding organic matter. Urban or industrial development may actually contribute much more sediment to stream systems than agriculture—perhaps as much as 50 times more (Waters 1999). Moreover, an increase in impermeable surfaces increases the intensity of stormwater runoff, hastening the erosion of streambanks and further degrading stream systems.

The Nature Conservancy recognizes non-point source pollution, especially sediment, as a primary threat to the biodiversity and integrity of this great river ecosystem and as

adopted numerous strategies, including partnering with state and federal agencies, to reduce this threat.. Non-point source pollution can and has affected the life of Green River in many ways in over the past decades. The good news is proper land management can protects our river's water quality. Well-tested and readily available best management practices can greatly limit losses of valuable topsoil and nutrients from agricultural areas while reducing farmers' investments in chemical additives. Education at all levels is also a key component and represents hope for a clean future for Green River**.**

Materials and Methods

Project Area

The Nature Conservancy focuses its efforts on the upper Green River watershed for a number of reasons. We focus on the watershed because, by definition, it includes all the functional and physical components necessary for a healthy river system. The upper Green River watershed from Green River dam to and including Mammoth Cave National Park encompasses ~ 850,000 acres or roughly 1,350 sq. miles. (see map in Appendix C). The area is comprised of a varied and beautiful, largely rural landscape ranging from the undulating hills of Taylor and Green Counties to the relatively flat sinkhole or karst plain of Barren and Hart Counties. Important tributaries dissect much of the hilly uplands including Russell Creek and Little Barren River to the south and Pitman, Brush and Lynn Camp Creeks from the north. Much of this landscape is dotted with sinkholes and underlain by vast limestone cave systems like Mammoth Cave. Impressive springs like Gorin Mills Spring and Three Hundred Springs and blue holes can be found all along the river and on many of its tributaries. Eight of the top ten springs, by volume, in Kentucky are actually located in Hart County.

This ~100 mile long stretch of the Green also represents the most biologically diverse segment of Kentucky's longest river (300+ miles). The entire Green River contains about 150 species of fishes—more than the Salt River and Kentucky River combined and more than all the rivers of Europe. It also contains nearly 70 species of freshwater mussels- a true global hot spot for this group of organisms. Interestingly the ~100 mile stretch represents a mere 1/3 of the total river length but contains roughly 70 % of the fish species and over 80% of its freshwater mussel species. The area contains roughly 110 known fish species, 59 mussel species, and countless other invertebrate life forms, including many rare or endangered species and many unique (or **"endemic"**) to the Green River watershed (Cicerello 1998). These may range from the extremely rare and endangered ring pink mussel to endemic species like the rare Mammoth Cave shrimp, or more common bottlebrush crayfish or Kentucky darter.

This project used a variety of approaches to affect best management practice implementation and to conduct environmental education and outreach in the watershed. Landowner contacts were made in an effort locate willing landowners for bmp installation. Landowner contacts were also used to discuss non-point source issues and to assist farmers and landowners in identifying ways to combat soil loss and water pollution on their properties. Efforts were made to identify other program support such as USDA or other state or federal programs. Outreach materials were also circulated to landowners including the Kentucky Forest Landowner's Handbook and the Kentucky Erosion and Sediment Control Field Guide. Once bmps were complete field days were held at the Little and Wisdom tracts to demonstrate the bmps and answer questions from other landowners in the watershed. Literature was consulted regarding bmp efficacy, where possible. Best management practices were also quantified, i.e., acres buffered, stream miles affected, number of cattle removed, etc. Likewise, landowner contact influence in community was quantified by counting number of landowner contacts made, number of

materials distributed, etc. Qualitative analysis was provided in some cases with before and after photograph.

Educational outreach was achieved by field days, site visits to the watershed, classroom or assembly programs, and distribution of materials such as those listed above or others like the "Watersheds- Where We Live" posters or "Living on Karst" publications. Outreach was targeted to all age groups. In one case a watershed citizen survey was conducted to gain insight into citizen concerns/awareness of the Green River watershed. In many cases classroom programs or site visits paralleled a teacher's lesson plan, but in all cases issues such as watershed awareness and non-point source pollution were discussed. For instance, one class site visit focused on the pH parameter. pH was discussed and tied to non-point inputs which could influence pH. In many cases teachers were conducting water units that included water quality and rapid bioassessmant as a tool. These were opportunities to discuss the biodiversity of the Green River ecosystem and the demonstrate the potential effects of non-point source pollution on that biodiversity. On some occasions an underwater camera was used to show biodiversity in its natural habitat and to show the effects of sedimentation on habitat quality. Educational outreach was quantified by counting the number of site visits, classroom and assembly programs and by counting the number of individual students, educators or citizens involved at each. Further, educational outreach was quantified with many students participating in a pre- and post survey of topics ranging from what is a watershed to name a bmp. Other outputs include numerous photographs of educational activities, student letters, educator letters and student drawings of related topics.

Results and Discussion

A major step towards implementation of bmp's in the watershed was the development of a plan. The following BMP Implementation Plan was developed in cooperation with the Kentucky Division of Water.

Well-tested and readily available management practices can greatly limit losses of valuable topsoil and nutrients from agricultural areas while reducing farmers' investments in chemical additives. Best management practices can achieve this goal and can be demonstrated to others.

Five BMP's were completed under this grant. Projects were diverse by design and in location. One project each took place in the Little Barren River watershed (Metcalfe County), Green River (Hart County). Two or more projects were completed on Russell Creek (Adair and Green Counties). Following is a brief discussion of each.

Shaw BMP Project

The Shaw project consisted of fencing off a portion of Roger's Creek, a tributary of Little Barren River, and providing alternative water cattle. A fenced pond with restricted access, line and tank and fencing were all completed according to NRCS specifications. The project was located in Metcalfe County and eliminated ~ 30 cattle from regularly entering and watering in the stream.

Qualls/Logsdon Project

The Qualls/Logsdon project included fencing 50 cattle from ~ 3,100 feet of the Green River including the mouth of one of the region and state's largest springs, Gorin Mills Spring.

Little Project

Two projects were completed on the TNC Little tract (a.k.a. Big Rock Nature Preserve). The purchase of the tract removed ~30-40 head of cattle which had regular access to the bank of Russell Creek and regularly watered there. Subsequently, 45-acres of riparian habitat were restored. This included 15 acres formerly in cattle pasture and 30-acres of former crop ground. The new buffer will reduce runoff sediment from entering Russell Creek via overflow or runoff into sinkholes in the crop field. Both of these buffers were planted to native bottomland hardwood species. These buffers are a minimum 300 feet wide and represent ~ 2,500 feet of a total 1.2 miles now contiguously buffered at this site by planting trees or allowing fields to naturally regenerate to bottomland hardwoods Another 5-acres of hillside pasture was planted to native hardwoods to reduce future runoff into Russell Creek. Before and after photographs allow a qualitative assessment to be made. Before these buffers were instituted we had fields in closely grazed or recently reverted pasture with little capacity to slow runoff. The crop field was bare dirt along the creek and around sinkholes. After the bmp's we have observe significant increases in

ground cover as trees mature at both the pasture and crop field sites. (see before and after photos in Appendix C)

Wisdom Project

The Wisdom project was a streambank restoration project on Russell Creek. Designed to stop erosion and eliminate sedimentation from this source, the project was designed by NRCS to maintain natural channel design with instream rock placement and to work with existing stream dynamics to maintain/restore this bank. The streambank was sloped and bioengineered with grass plantings, straw blankets willow stakes and native shrub plantings. The project appears stable at this time. Shrubs are growing and willows are establishing at the low water mark. In addition, woody debris has collected on the bank itself. The landowner contributed personal labor and equipment to the project and subsequently enrolled his bottomland field in a 300-ft. wide riparian buffer under the Green River Conservation Reserve Enhancement Program (CREP). Before and after photographs also provide a qualitative view of this project (see Appendix C).

It is very possible that without the 319 restoration project, this landowner may not have participated in the CREP program. These bmp's should be viewed in the larger context of all conservation activitiy in this large watershed, which includes many other programs like EQIP, CREP, etc. A large scale monitoring effort is underway by Western Ky. University and other partners at this time. It will take many years before improvements or trends in water quality resulting from these and other practices can be scientifically discerned. (See Appendix C for BMP map and photos).

BMP Summary:
Fencing = 3400 feet- 80 cattle excluded from streams by fencing
Streambank restoration – 300 feet restored to grass cover and native shrubs
Riparian buffer- 50 acres (newly established) + 50 acres (naturally regenerating), 2,800 feet (newly established) or 1.5 miles (newly established + naturally regenerating)
Cattle removal – A total of 120 cattle removed from waterways via fencing or acquisition.
1 pond and tank for alternative watering.

The Nature Conservancy recognizes sedimentation as a primary threat to our biological diversity. Sediment can affect biota both directly and indirectly. Directly, sediment can foul the gills or reduced feeding or physiological efficiency of fishes or filter feeders like freshwater mussels. Excessive sediment can lead to increased turbidity which can interfere with feeding efficiency of some fishes and can also compromise reproduction in others. Sediment and resulting damage can originate from numerous sources. Sediment stored in streams may cause high turbidity. Riparian buffers probably have little impact on this source. Other sources would include terrestrial inputs (i.e., from development, agricultural activity like cropping) and instream contributions from streambank or channel erosion. Cattle intrusion into riparian zones can lead to both erosion and degradation of water quality from biological contamination. This project's bmps addressed two major sources of sedimentation by (1) preventing terrestrial sediment

originating from cropping and pasturing and (2) reducing the contribution of sediment via livestock access to streambanks and by the stabilization/restoration of a streambank. Given the USDA estimate for soil loss from cropping nationally ~ 5 tons per acre(Waters 1995) our planting of native bottomland hardwoods on 30 acres of crop land along Russell Creek could result in reducing up to 150 tons of sediment from entering this waterway. Buffers established under this project were >300 feet. A buffer of this width is sufficient to removed all total suspended solids (TSS) and will trap up to 100 of phosphorous from a site (Dillaha et al 1988). Similarly, studies have shown reductions in nitrogen of up to 79-99% with a 150-foot buffer (Peterjohn and Correll 1985). Similar studies document the effectiveness of buffers by trapping and thus reducing total suspended solids in water (Peterjohn and Correll 1985). Tree plantings have also been known to reduce nitrogen from shallow groundwater (Wenger 1999). Improvements from these and other recent activities in the watershed will have to be assessed over a long period of time in order to determine any trends in water quality. However, there is no question that the bmp's established under this project represent an important benefit to the Green River watershed. The demonstration of the TNC Little and Wisdom projects has likely paid conservation dividends we cannot measure. A number of those attending have established buffers under other programs including CREP. Therefore, it can be concluded that our bmp's not only improved water quality directly but also indirectly by demonstration to other landowners who may have found other ways to get similar bmp's implemented on their property.

Education

Educational outreach was achieved by conducting field days to bmp sites, site visits to the watershed, classroom or assembly programs and through the distribution of various approved educational materials.

A. Field Days

Three field days were conducted. Two of these occurred at bmp implementation sites. One took place at Campbellsville University's Clay Hill Memorial Forest (CHMF). At the Little tract riparian buffer practices were discussed. Water quality benefits and wildlife benefits of buffers were discussed and the ~ 20 participants were able to view recently planted bottomland hardwoods. Establishment and maintenance of buffers was also discussed. At the Wisdom tract, ~ 40 landowners learned about the associated stream bank restoration project and the EPA319 program. The CHMF field day did not take place at a bmp site of this project but took advantage of local woodlot owners' interests in forest management by discussing with them forestry bmp's and sustainable timber harvest and their importance to water quality.

B. Site Visits

Site visits were a major component of this project. Overall 22 site visits were conducted. Site visits are critical for connecting people with the aquatic resource and bring a "hands-

on" understanding of the importance of water quality and the problems associated with non-point source pollution. All site visits involved people immersing themselves in the resource either on the Green River or one of its tributaries. Examples of how the resource depends on clean water were discussed. In most cases the immense biodiversity of Green River was displayed by sampling fishes and invertebrates including freshwater mussels. Discussion followed regarding the effect of non-point source pollutants on the biodiversity as well as the human component. Whenever possible real life examples of non-point sources were often identified with a discussion on mitigation of impacts from those sources. Audiences ranged from students to educators and local landowners. Of the ~768 individuals attending, many, including most children, were experiencing the Green River for the first time. Making this "hands-on" connection the experience of a lifetime will surely influence personal decision-making in the future with regards to clean water and how to maintain it. Photographs, letters and other materials relating to site visits can be found in Appendix C.

C. Classroom or Assembly Programs

A total of 37 classroom or assembly programs were conducted between 2000 and 2005. Over 2000 individuals attended these programs. These programs involved classes from the pre-K and kindergarten, elementary, middle school and secondary levels as well as some adult programs. School programs often paralleled teaching units or topics but always focused on non-point source pollution. A variety of pictures, slide presentations, books posters and live displays were used to impress upon the classes the diversity of the Green River and the negative effects of sedimentation other non-point pollutants. Positive responses like bmp implementation was also discussed. It is difficult to quantify the effect of educational outreach, however, it can be assumed based on our 133 pre- and post surveys and follow-up letters that many students and educators did retain much of the knowledge imparted to them. For instance, 33% knew what watershed they lived in before our program. Only 10% knew what a bmp was. After our classroom visits or assembly programs, 83% knew what watershed they lived in and 93% knew what a bmp was and many of those could cite an example. If this knowledge is shared with family members and subsequent classes our results could be greatly magnified throughout the watershed. Photographs, surveys, presentations and other exhibits relating to classroom and assembly programs can be found in Appendix C.

D. Material Distribution

Many materials were distributed to students, educators and citizens during this project. A number of these materials remain in use today and represent important resources for future reference. Examples of distributed materials can be found in Appendix D. We presented ~ 200 Aquatic Macroinvertebrate Placemats, 30 Living on Karst publications, 30 Kentucky Forest Landowner Handbooks, 30 Kentucky Erosion Prevention and Sediment Control Field guides and 20 "Watersheds: Where We Live" posters.

E. KERA Goals and State Program of Studies

It is evident that via our classroom and site visits our project assisted local teachers and students in meeting 5 of 6 KERA goals including: Goal 1- students learned to communicate and use math in the field to solve problems; Goal 2- both in the class and the field students were able to draw from the experience and see how science has direct application to life, i.e. a better understanding of the water quality of Green River and how to protect it is directly related to our quality of life; Goal 4- site and classroom visits demonstrated the importance of being responsible for your environment; Goal 5- students were often asked to solve problems relating to water quality issues usually directly related to their own watershed; Goal 6- many classroom visits were followed by site visits to a stream so that students could process and integrate the information we had given them in a real world setting. Similarly, our outreach included groups subject to the following State Programs of Study: Primary Science, Intermediate Science, Middle Science, and High School Science. In all cases our classroom and site visits promoted and facilitated hands-on, minds-on learning for the respective levels of instruction. Although our project presented these opportunities at each classroom or site visit, it was up to the individual teacher to determine to what degree they would implement the Goals and Programs.

Conclusions

It can be concluded that most of our objectives were either met or exceeded. Similarly, most of our project milestones were met or exceeded (see Appendix A).

Objective 1: Employ a Green River Bioreserve Director to implement conservation objectives and develop a trust relationship with the local community. Strong emphasis will be placed on hiring someone from the area. It is intended for this director to be in place before the grant begins and remain once 319 funds are expended so that NPS management will continue based on the groundwork and successes that this grant accomplishes so that targeted NPS problems will continue to be remediated.

A Green River director was hired in 1999. The director is from the watershed and continues to be employed by The Nature Conservancy after the 319 grant.

Objective 2: Establish demonstration sites on a minimum of eight high priority sites as identified in the 1997 "Green River Stress Analysis Report" and hold field days on a minimum of six of these sites to demonstrate BMP's that will include examples of non-point source abatement such as planting tree seedlings and native grasses, fencing cattle from streams and bank restoration.

The Green River project has not occurred in a vacuum. Because of new programs and involvement by other partner agencies in the watershed it became evident that other programs with lower cost-share requirements and incentives may be preferred by landowners for bmp implementation. As a result it was determined that the original 8 bmp's would be reduced. Five bmp projects were completed at 4 sites. Two of these served as formal demonstrations (see Results and Discussion). Additional measures were discussed in the Results and Discussion section.

Objective 3: Provide long-term protection for the watershed via land acquisition, conservation easements, and landowner contact.

Long-term protection for the watershed has been provided by the purchase of the Little tract (a.k.a. Big Rock Nature Presere), 127 acres occurring along 1.2 miles of Russell Creek. This site will be preserve and the bmp's maintained on the site (Appendix C-8). Although not directly related to this 319 project, TNC has purchased numerous other tracts in the watershed for protection and numerous easements under the CREP program have been purchased, providing for long-term protection of established riparian buffers. In many cases, landowner contacts done as part of this project may have led to such additional successes.

Objective 4: Work with city, county, and state agencies to assure that there is a coordination of efforts in the watershed and an efficient flow of information relating to current and proposed projects that will affect water quality of the

Green River watershed. This would include contingency plans for hazardous waste spills.

TNC has established a good working relationship with local, state and federal agencies during this project. This relationship has led to an increased awareness among local entities regarding the Green River and its significance. We have fostered cooperation among local, state and private stakeholders by holding meetings, providing technical assistance, etc. We have directly assisted Greensburg and Green County by providing opportunities to learn about non-point source abatement strategies. In Campbellsville, Taylor County we assisted the city in hosting an erosion control workshop attended by 20+ contractors, city and county employees, etc. Many counties already have contingency plans for hazardous waste spills.

Objective 5: Implement bioreserve program by developing a broad constituency through non-point source education in the local communities and school systems.

We have has great success in reaching out to the community through providing educational opportunities that did not exist before our project. Including our site visits, classroom programs and landowner contacts over 3,100 children, educators and landowners learned about the Green River and non-point source pollution. Based on the milestone measures, the project greatly exceeded its expectations for meeting this objective.

Objective 6: Work with local citizens to establish a grassroots group for the purpose of discussion and consensus building about water issues and advocacy of conservation initiatives in the watershed that will serve to improve water quality.

During a site visit with DOW it was determined that the formation of a grassroots organization may not be one of best uses of the grants resources. The Kentucky Waterways Alliance, Green River Watershed Watch and PRIDE are already very active in the watershed. The Nature Conservancy will continue to monitor this situation in the future and will respond appropriately as needs arise.

This project greatly enhanced The Nature Conservancy's community-based conservation effort in the area and has provided a certain amount of momentum for conservation in the watershed (Butler et al, 2003). The project was also a great learning experience for TNC and provided a great example of the need for adaptive management when implementing such a large program. For instance, when the application was originally submitted programs like the USDA CREP program were not in existence. Once this program was established it became obvious that the greatest need to be met by the grant was the educational component. Therefore, it was decided to use the bmp's strategically placing them in multiple counties. While we conducted fewer bmp's , they were very diverse in nature. In one case, the Wisdom bmp, once the bmp was completed the landowner enrolled the maximum allowable in the CREP program at the same site. This was a great example of cooperation, leverage and complementary effort to achieve a higher conservation goal. At the same time we continued to increase our educational outreach,

something that was missing, to a large degree, in our watershed. Teachers in our area are desperate for assistance and quality professional input in their classrooms. Many are not able to get students in the field due to lack of funding or partnerships and this should continue to be a focus of future 319 programs. Hopefully TNC will be able to continue to provide some assistance to schools in the watershed so that we all will have a more informed, better equipped generation of stakeholders in the future. A number of great relationships were established during this project—with teachers, students, local officials and landowners- relationships that will help us all successfully conserve this great resource we call Green River.

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Appendix A