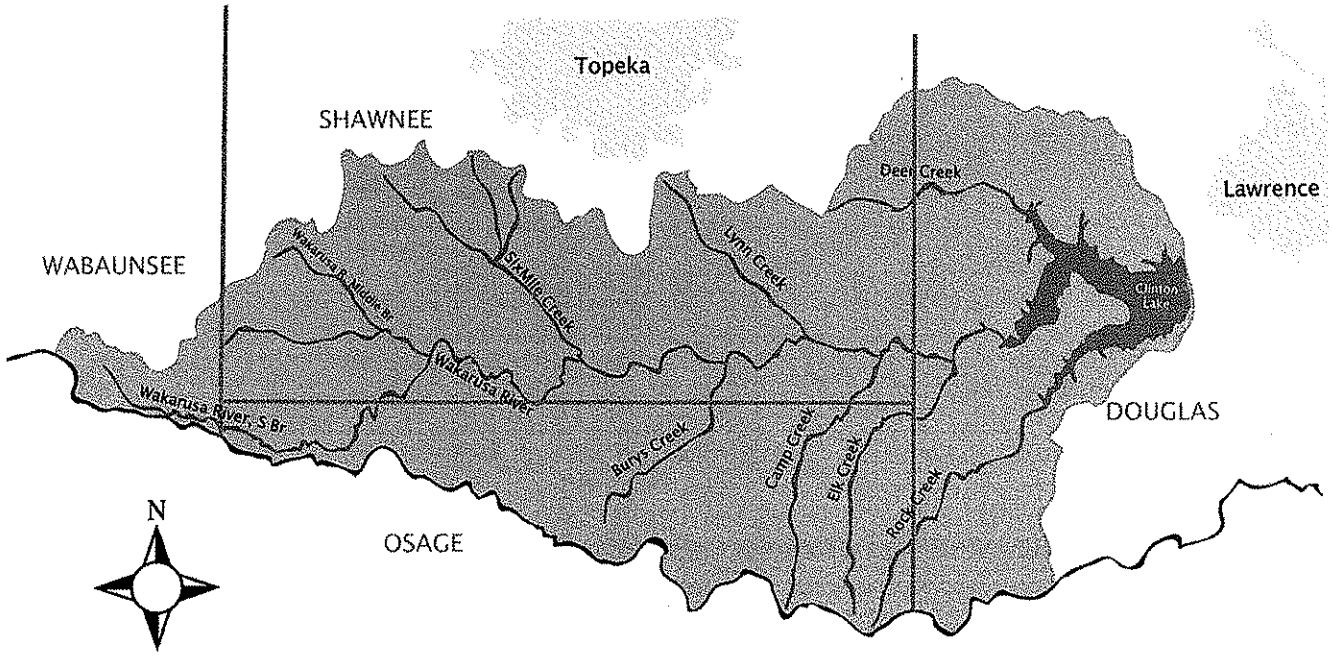
Upper Wakarusa Watershed Restoration and Protection Strategy

Kaw Valley Heritage Alliance

final report

2005

2003-0013



Product of the Upper Wakarusa WRAPS Project

April 3, 2006

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Overview

As the United States was settled, creation of political boundaries only occasionally reflected geographic markers and less so watershed boundaries. Watersheds can span many jurisdictions, municipalities, counties, and states. Therefore, implementation of a Watershed Restoration and Protection Strategy (WRAPS) requires the cooperation and support of many organizations and agencies that may not typically have cause to work with one another.

In completing the Kansas Unified Watershed Assessment as federally mandated in the *Clean Water Action Plan,* KDHE identified the Lower Kansas Watershed (HUC 10271204) as the #1 priority watershed in the State of Kansas. The Upper Wakarusa Watershed (UWW) (HUC 10270104010) is located along the southern boundary of the Lower Kansas. The UWW drains into Clinton Lake, a reservoir built in the mid 1970's and managed by the United States Army Corps of Engineers. In the UWW, Total Maximum Daily Loads[1] (TMDLs) exist for biological oxygen demand and total suspended solids in the main branch of the Wakarusa River. A TMDL for fecal coliform bacteria has been developed for the main branch as well as the south and north branches of the Wakarusa River and Sixmile and Burys Creeks; Clinton Lake has a TMDL for eutrophication[2] stemming from excessive nutrient (phosphorus) loads.

The watershed, located just south of Topeka and west of Lawrence, is 367 square miles or 235,400 acres in size. It crosses 4 counties, encompasses 9 towns, and houses 25,000 people and 33,000 cows. The landscape is predominantly agricultural with 56% of the area comprised of grassland/rangeland and 27% cropland. The lake has a gross storage capacity of 394,117 acre-feet and travels an average of 8 miles up the Wakarusa Valley, extending to 13 miles when at maximum capacity. The shoreline around the multipurpose pool is 85 miles around the perimeter.

Clinton Lake is the most heavily used Federal reservoir for water supply and for recreation in the State of Kansas. The City of Lawrence pumps up to 10 million gallons of water per day from Clinton. The Lake's principle benefits are:

1. Flood control for 156 square miles of the Wakarusa Valley below the dam.

2. Primary drinking water source for over 125,000 people in 7 counties.

3. A recreation destination for 1.6 million people in 2005. It provides more than $17.1 million in increased revenue for the area. It is also home to the burgeoning Wakarusa Music Festival, an event that drew an estimated 50,000 people to the lake over a 4 days period in 2005.

In 2000, the Kaw Valley Heritage Alliance (KVHA) requested and received funding from KDHE to create a Watershed Restoration and Protection Strategy (WRAPS) for the Upper Wakarusa Watershed. The Natural Resources/Water Quality Subcommittee[3] of KVHA identified three reasons for the development of a single comprehensive watershed strategy:

1. The participating stakeholders all share common goals but have different mechanisms to contribute to the achievement of these goals.

2. By recognizing and working together under a single, comprehensive plan the stakeholders formalize and sustain their working relationship.

3. Having a single, comprehensive plan documenting and recognizing the contributions of each stakeholder will help other stakeholders obtain technical and financial assistance in the future since, as a group, there is greater chance that the overall goals of the watershed plan will be met.

The Upper Wakarusa WRAPS was completed in February 2003. The plan identifies 10 TMDL "endpoints" relating directly to the reduction of sediment, nitrogen, phosphorus, chlorophyll a, and fecal coliform bacteria. It also provides guidance on how best to achieve these endpoints such as stream bank restoration, increased participation in cost share programs by farmers, and urban/suburban growth management.

In order to achieve the desired TMDL endpoints, land within the watershed was prioritized based largely on proximity to the lake, and 13 goals were identified with a series of objectives or suggestions on how best to achieve them. These goals cover a variety of topics including riparian restoration, suburban growth management, nutrient reduction, and onsite wastewater system management.

A successful watershed protection effort requires many active participants. First and foremost are the residents and landowners within the watershed. There are also those who use Clinton Lake and the Wakarusa River as a source of recreation and drinking water, those who benefit from the flood protection the dam provides, nonprofit organizations, and city, county, state, and federal agencies. Given the diversity of stakeholders involved, KVHA was identified to act as the coordinating agency for all stakeholders involved.

KVHA identified four basic goals for coordinating implementation of the Upper Wakarusa WRAPS:

A. Track the status of each WRAPS goal.
B. Coordinate WRAPS efforts.
C. Facilitate and strengthen stakeholder cooperation.
D. Assess and address concerns in the WRAPS priority areas.

"Tracking the status of each WRAPS goal" is largely achieved by:

1) Tracking implemented projects to ensure that maximum benefits are reaped.
2) Monitoring policies and practices that may impact water quality.
3) Encouraging decision-makers to consider watershed health ramifications.

"Coordinating WRAPS efforts" involves:

4) Focusing and increasing fiscal and technical support for WRAPS.
5) Assisting partners in the development of WRAPS implementation projects.
6) Improving coordination of water quality monitoring efforts.
7) Obtaining implementation resources.

"Facilitating and strengthening stakeholder cooperation" includes:

8) Serving as a public information clearinghouse.
9) Educating key groups of people.
10) Strengthening public awareness of issues.
11) Creating a system for investment of time/money in UWW restoration/protection.
12) Continuing partner development.

"Assessing and addressing concerns in WRAPS First Priority Areas" is accomplished by:

13) Identifying problem areas.
14) Recruiting landowner participation in WRAPS.
15) BMP project development.

Please summarize the accomplishments for each goal and objective for this project.

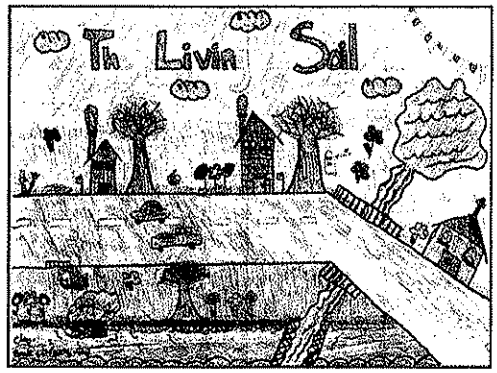
TRACK THE STATUS OF EACH WRAPS GOAL

1) Track implemented projects to ensure that maximum benefits are reaped.

♦Accumulated information on all BMP projects that have been implemented by Shawnee, Douglas, and Osage Counties dating back to 2003, the year the Upper Wakarusa WRAPS was completed. Each project has been broken down according to HUC 14 so that work done in priority areas can be tracked. Each contributing agency or organization has also been included. (KVHA, CCD's, KSU Extension, KRC, NRCS, CORP, KDWP)

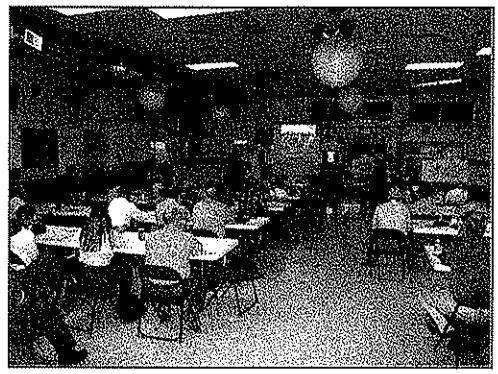
2) Monitor policies and practices that may impact water quality.

♦Conducted NRCS spot checks of installed BMP's. ♦Met with SN CO Comm. to discuss flooding issues and building in flood zones. ♦Compiled riparian ordinances from other communities. (SCCD, NRCS, KVHA)



3) Encourage decision-makers to consider watershed health ramifications.

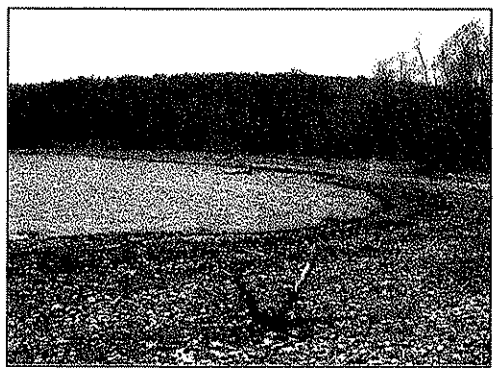
♦ Co-hosted/displayed at Legislative Conservation Fair. Expanded upon existing communication with County and City Commissioners. ♦Hosted a meeting at the request of Commissioner Schauner concerning the status of Clinton Lake. ♦Lawrence Mayor Highberger (also a KDHE atty) attended a 3-day Environmental Decision-Making workshop with active WRAPS stakeholders. ♦Presented to the Kansas House of Representatives on the service that watershed specialists provide to the Kansas citizenry. ♦Discussed WRAPS and watershed issues with Kansas State Senator Marci Francisco. Senator Francisco is on both the Senate Agriculture and Natural Resources Committees. In a recent letter identifying important legislative issues she addresses the State's water resource concerns, specifically referencing the Upper Wakarusa WRAPS as something that will affect the voters in her district. ♦Held 7 meetings with the urban/interjurisdictional WRAPS subcommittee. ♦Organized an annual VIP Bus Tour of various BMP practices that were being implemented in Shawnee County. State Representatives, County Commissioners, City Council Members, and other decision-makers such as representatives from KDHE, Shawnee County Health Agency, NRCS, City/County Public Works officials, township trustees, local bankers, Parks & Rec., engineers and contractors, and local media were invited. (KVHA, KWO, KBS, City of Lawrence Dept. of Utilities, SCCD, KSU Extension)



COORDINATE WRAPS EFFORTS

4) Focus and increase fiscal and technical support for WRAPS.

♦Discussed options with the Mayor of Lawrence and with the County Commissioner who represents Douglas County's 3rd District. ♦Gave a presentation on the status of Clinton Lake and



drinking water to the Lawrence City Commission. ♦Worked with KARS to set up a mobile GIS system with a variety of layers including parcel ownership. (KWO, KARS, KVHA)

5) Assist partners in the development of WRAPS implementation projects.

♦Held 7 meetings with the rural WRAPS subcommittee. ♦ Held 7 meetings with the urban/interjurisdictional subcommittee. (KVHA, KSU Extension, SCCD, OCCD, KAWS, KWO, DCCD, KDHE, KWO, KGS, City of Lawrence Dept. of Utilities, KBS)

6) Improve coordination of water quality monitoring efforts.

♦Assembled a pollutant inventory identifying all pollutants that have been tested in the watershed, their sources, impacts, desired levels, and remediation possibilities. ♦Held meeting with City Utilities Director, Lawrence City Commissioner, Urban Subcommittee, TWI, and Corps leaders to determine existing water quality status of lake and future testing sites. (KVHA, KSU Extension, Corps)

7) Obtain implementation resources.

♦Received funding to supplement the UW WRAPS and get local landowner involvement and BMPs installed in the SixMile and Lynn Creek subwatersheds. ♦Was awarded $7,000 from a 5-Star US Fish & Wildlife Grant to help the Corps with the construction of the Coon Creek Wetlands. Applied for EPA and Kodak grants. ♦ Received $1000 for project implementation utilizing tools gained in the Environmental Decision-Making Workshop Training. (SCCD, KVHA)

FACILITATE AND STRENGTHEN STAKEHOLDER COOPERATION

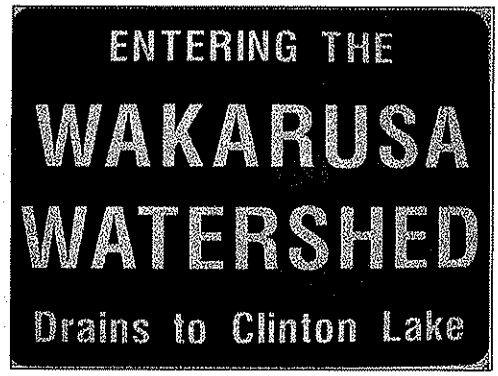
8) Serve as a public information clearinghouse.

♦Compiled information on most commonly used cost share programs available to landowners. ♦Assembled large notebook on most resources available to people interested in installing BMP practices on their property. ♦Hosted organic agricultural workshop. ♦Initiated the archival process for all UW watershed related documents pertaining to land use and water quality. ♦Answered inquiries from area newspapers and other media outlets. (KVHA, K-State Extension)

9) Educate key groups of people.

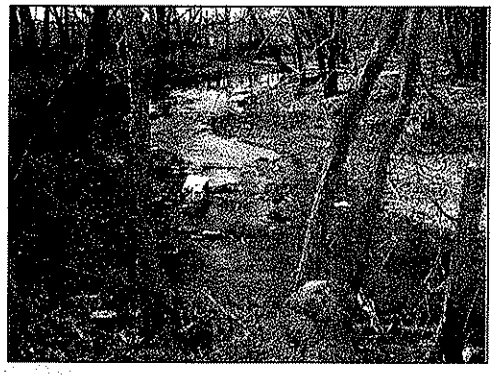
♦Held inaugural watershed wide water quality discussion and workshop. ♦Designed brochure dealing with issues related to working with the public. ♦Hosted booths at Topeka Farm Show and Kansas Garden Show. ♦Lead a Crop School, where farmers come and talk about different trends and updates in farming. 30 attendees in 2005. ♦Had informational booths/outreach for water conservation workers at the KDHE Technology Fair, Water and the Future of Kansas conference, and 2 WRAPS conferences. ♦Began project with KSU Environmental Planning Graduate

Student to devise a driving tour of the watershed that focuses on the variety of habitats that exist. ♦ Hosted Stream Assessment Workshop for area water quality professionals and others interested in learning more about how to determine the health of their aquatic environment. ♦Hosted annual Clinton Lake Stakeholder's meeting. (KVHA, SCCD, Corps, KSU, K-State Extension, KAWS)



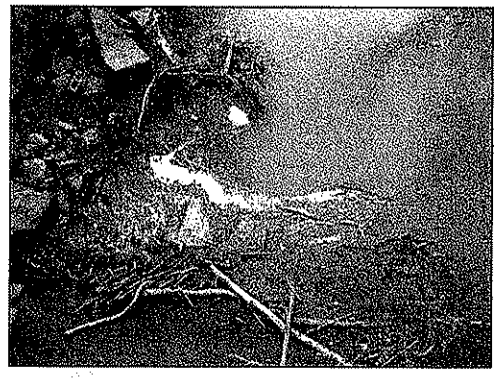
10) Strengthen public awareness of issues.

♦Received grants to do *Ag in the Classroom* as a school assembly program, two were done in 2005. ♦Co-hosted/sponsored History & Environmental Fair and Topeka Water Festival. ♦SCCD newsletter, 2100 issues 4 times/year. ♦Set up informational booths for the public at Eagle's Day, the Shawnee Mission East Earth Fair, and Lawrence Earth Day. ♦Website development. ♦Organized "From Farm to You," an expo center program for all Shawnee County 2nd Graders go through 8 stations and NRCS members talk about grass and hay. ♦Organized poster and limerick contest for students in Osage County. ♦KVHA published two newsletters that were sent to watershed landowners who owned 50 acres or more (more than 1500 per newsletters). Future newsletters will hopefully include every resident/landowner within the watershed. ♦Organized Clinton Lake Cleanup that drew over 80 people. (SCCD, OCCD, Corps, KVHA, Dennis Brinkman)



11) Create a system for investment of time/money in UWW restoration/protection.

♦Database development of residents and landowners in the watershed. Information includes landowner name and contact information, property location if different from landowner contact, land manager name (if applicable), land use, county, subwatershed, HUC number, cost-share participation, group affiliations, and any other pertinent notes. ♦Held a meeting with the Lawrence City Manager to discuss raising funds to offset BMP costs incurred by watershed residents. (KVHA)



12) Continue partner development.

♦Assisted with the creation of a brochure to facilitate the installation of road signs along perimeter of watershed. ♦Stakeholders meeting. ♦Hosted 4 Shawnee County Partners in Conservation (SCPiC) meetings. There are approximately 80 members in this group. They have directed much of their efforts to identifying needs and projects in the Upper Wakarusa Watershed. ♦Participated in KSU's Environmental Decision-Making workshop with the Mayor of Lawrence, SCCD Water Quality Coordinator, Heartland Sustainable Ag Network Coordinator, and a local architect working on a housing development in the Upper Wakarusa. From the Environmental Decision-Making organized a project to be implemented with the help of K-State Watershed Specialist, and SCCD Water Quality Coordinator. ♦Held appreciation breakfast for donors and funding sources. ♦Recruited a developer to co-host workshop local decision-makers on efforts that can be taken to preserve

waterways and minimize erosion due to development. ♦ Presented at the 2006 Dam Safety Conference. ♦ Hosted display booths at the 2005 & 2006 WRAPS Conferences. ♦ Presented at the 2006 WRAPS Conference. ♦ Initiated work the KU Journalism Department to conduct a broadcast class featuring stories about the Upper Wakarusa Watershed. (KVHA, KDHE, KWO, City of Lawrence, KBS, SCCD, USGS, KSU Extension, KRC, KAWS, WaterLink)

ASSESS AND ADDRESS CONCERNS IN WRAPS FIRST PRIORITY AREAS

13) Identify problem areas.

♦An application system was outlined and developed for landowners to apply to KVHA for cost-assistance in BMP implementation projects. ♦Worked with The Watershed Institute to perform an analysis of the Deer Creek watershed. Areas within the watershed have been identified and will be more thoroughly reviewed to determine optimum sites for riparian restoration/conservation work. (KVHA)

14) Recruit landowner participation in WRAPS.

♦Worked with 16 livestock producers to address fecal coliform TMDL and other nutrient runoff. ♦ Sent postcards to residents and landowners in the watershed promoting cost share opportunities with the Conservation District ♦Prepared for and co-hosted 2 house parties in the watershed. These will be held throughout the next two years at a minimum to continue communication between watershed residents and water quality workers. (KSU Extension, SCCD, KVHA)

15) BMP project development.

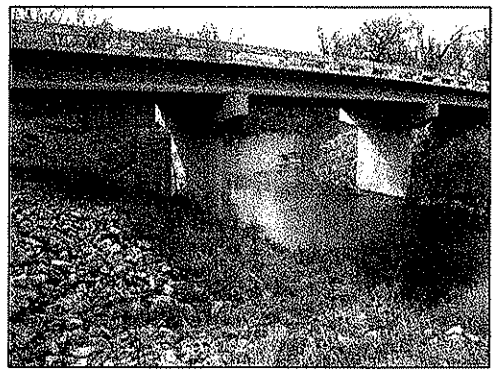
♦Implemented a minimum of 43 BMP projects in 2005, 29 BMP projects in 2004, and 33 in 2003. Years 2003 and 2004 are considered as well since no BMP or land management data has been collected since completion of the UW WRAPS in 2003. (SCCD, DCCD, OCCD, Corps, KDWP, KVHA)

What lessons were learned during the project?

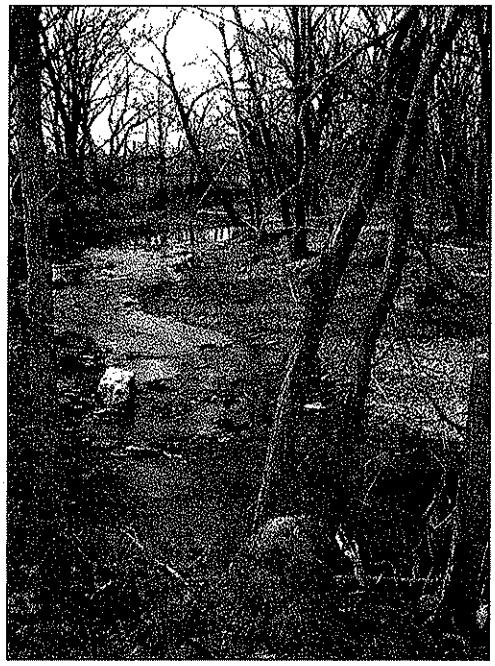
The most critical realization is that much more work is needed to fully bring residents and landowners in the watershed into the project. Knowledge of KVHA and the UW WRAPS is growing, but there is a long way to go. KVHA won't get anywhere without the support of its partners. We have no standing among residents and little trust. To that end, it is extremely important to maintain good relationships with conservation districts and other agriculturally related agencies that work with producers in the watershed.

Additionally, it is easy for people to feel left out of the process. If someone believes that her/his contribution is not respected or appreciated, s/he will withdraw from the process and potentially contribute to its disruption. A primary task that is fairly daunting and absolutely essential if we are to fulfill the above goals is to get contact information for all stakeholders in the watershed. At the very least people want to be included in the educational process. They may choose to disregard the message, but they need to have the opportunity to decide for themselves the level of interaction that they put into any process, project, or action that affects them. This means that they have to be aware that there is something for them to know and one mailing, one article, one newsletter, or one meeting will not do the trick.

Finally, the WRAPS document should be revisited on a regular basis to evaluate the efficacy of strategies outlined for goal completion. Goals need to be written for a broad audience, and tasks need to be set up so as to effectively focus the efforts of a small group of participants on one area of a goal, for a specific period of time. This allows participants to select issues they believe are important and provides an organization framework to achieve the goals.



What are the remaining project needs, if any?



The Upper Wakarusa WRAPS is just coming out of its infancy and much of the original project needs remain.

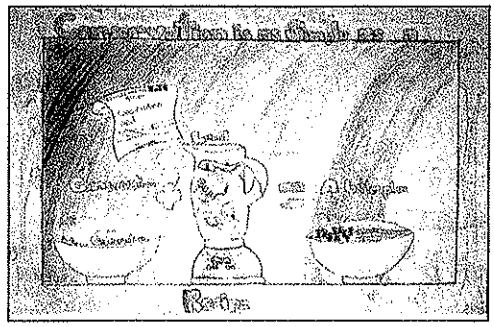
Inventories of the Deer Creek subwatershed (1st priority) began in 2005. More ground-truthing and BMP installation will happen in 2006 and 2007, with a possibility of expanding into Rock Creek to the south. Also, work is set to begin in the Sixmile and Burys Creek subwatersheds (2nd priority areas).

There needs to be a resident-based advisory committee that influences how and where money is spent. Currently the decision-makers are predominantly people who live outside the watershed and whose profession is directly linked to natural resource management.

Conservation efforts in the watershed will be an ongoing process. The ultimate goal is to get a system in place that can largely run on its own and which has a primary focus on maintenance.

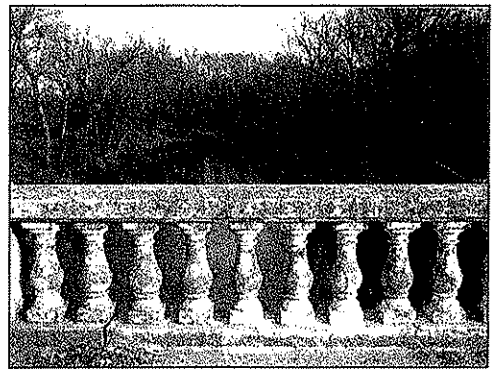
What actions are needed to address these remaining needs?

Most importantly we need to get input on the WRAPS from residents and landowners in the Upper Wakarusa Valley. Once this is achieved, residents of the watershed will be more inclined to view it as a legitimate document worth utilizing.



Also, the WRAPS document should be reformatted to be more accessible to the general public. For example, minimize the use of acronyms whenever possible. The WRAPS goals should be structured to contain tasks with definable endpoints. Although good land management is an ongoing process, it is important to have small successes along the way that people can embrace.

The task force model focuses the efforts of a small group of participants on one area for a specific period of time. The work should be accomplished as efficiently as possible, so the participants will see an end to the process. Landowners, farmers, residents, developers, and other stakeholders can select the issues in which they are most interested. The Wakarusa Review newsletter will be one of the progress reporting mechanisms for watershed residents.



A task force is identified to achieve one or more of the WRAPS goals. Each primary goal is followed by a series of tasks. In a task force, a leadership group is identified, as well as other groups who can provide support or resources to the effort. In some cases, the leadership involves a partnership of multiple agencies or institutions.

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[1] A TMDL is the maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under Clean Water Act section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls. 2) The TMDL process provides a flexible assessment and planning framework for identifying load reductions or other actions needed to attain water quality standards (ie, water quality goals to protect aquatic life, drinking water, and other water uses).

[2] Eutrophication is a process where water bodies receive excess nutrients that stimulate disproportionate plant growth. This enhanced plant growth, often called an algal bloom, reduces dissolved oxygen in the water when the dead plant material decomposes and can cause other organisms to die. Nutrients can come from many sources, such as fertilizers applied to agricultural fields, golf courses, and suburban lawns; deposition of nitrogen from the atmosphere; erosion of soil containing nutrients; and discharge from sewage treatment plants.

[3] **Core Group Participants**

Julie Coleman, Chair, Kansas Department of Health and Environment, District Environmental Administrator
Paul Liechti, Kansas Biological Survey, Assistant Director
Dennis Brinkman, Natural Resources Conservation Service, Shawnee County
Jason Fizell, Kaw Valley Heritage Alliance, Executive Director
Shari Stamer, City of Lawrence, Water Quality Director
Doug Musick, Kansas State Research and Extension, Watershed Specialist
Robert Wilson, Kansas State Research and Extension, Office of Local Government
Patty Ogle, Douglas County Conservation District, NPS Coordinator
Debra Baker, Consultant

ESTIMATED COUNTY POPULATIONS IN WATERSHED	
Douglas	3,825
Osage	2,831
Shawnee	17,958
Wabaunsee	345
Total population in unincorporated areas	**24,959 (88%)**
Total population in incorporated areas	**3,546 (12%)**

DISTANCE TO / POPULATION OF MAJOR METROPOLITAN AREAS FROM CLINTON DAM SITE		
Metro Area	**Distance**	**Population**
Lawrence	1 mile	80,098
Topeka	20 miles	122,377
Kansas City	45 miles	146,866
Manhattan	74 miles	44,831

Upper Wakarusa Watershed Landuse Inventory

	AREA (acres)	% of TOTAL
CROPLAND TOTAL	**62.560**	**26.6**
Terraced	34.720	14.7
Non-Terraced	27,840	11.8
GRASSLAND TOTAL	**131,896**	**56**
Pasture	83,480	35.4
Terraced	2,792	1.2
Hay	13,360	5.7
Terraced	3,368	1.4
CRP	4,096	1.7
Terraced	1,184	0.5
Misc.	30,960	13.1
OTHER TOTAL	**41,072**	**17.4**
Woodland	28,800	12.2
Water	8,656	3.7
Residential*	1,104	0.5
Alfalfa	920	0.4
Pavement*	800	0.3
Farmstead	528	0.2
Quarry	264	0.1

* These categories are probably underestimated due to minimum lot size requirements and the proliferation of rural sprawl in the area.

Total Nitrogen

Nitrogen is an essential nutrient to aquatic life. However, excessive concentrations result in algal blooms, low DO levels, taste and odor issues in drinking water, and even fish kills. Total nitrogen concentrations at all sites routinely exceed proposed EPA nutrient criteria (0.36 mg/L). The highest concentrations are measured from the Wakarusa River (CL-16) site. Annual variability within sites is very common, and is dependent upon rainfall – more rain results in higher sediment runoff.

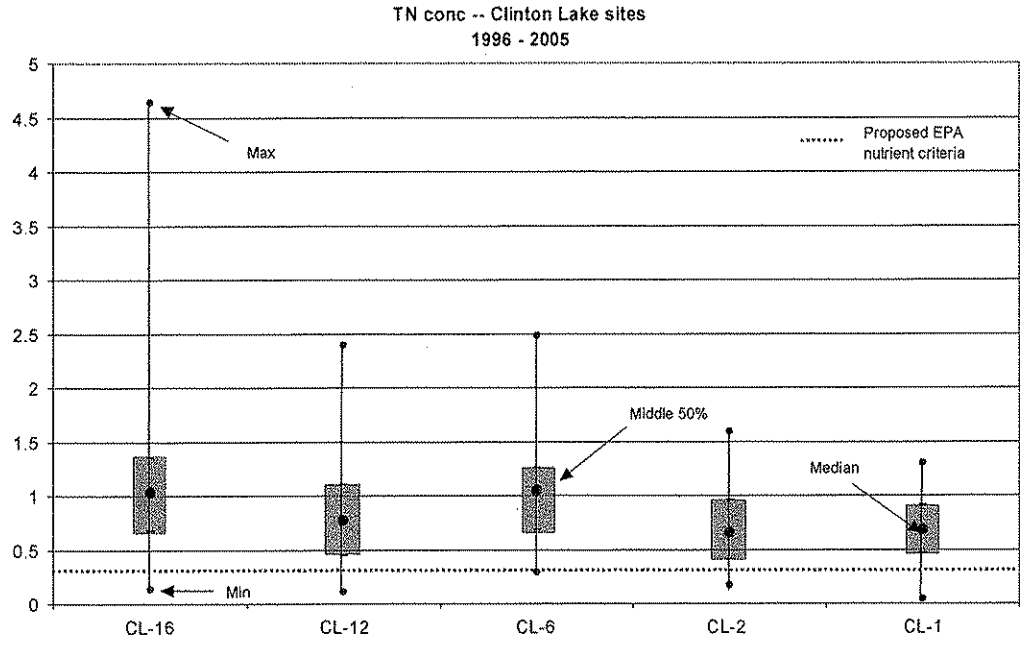
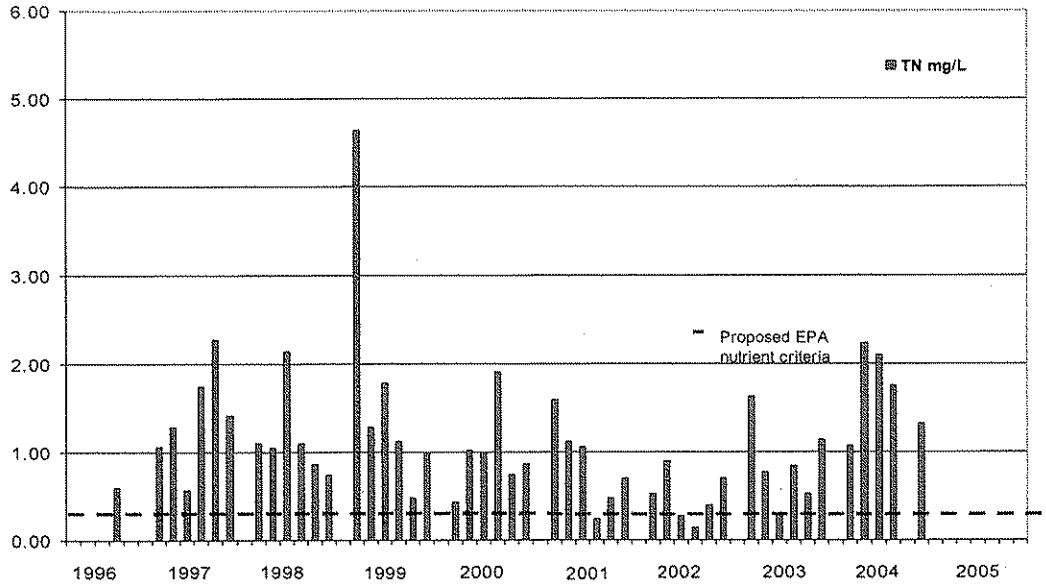
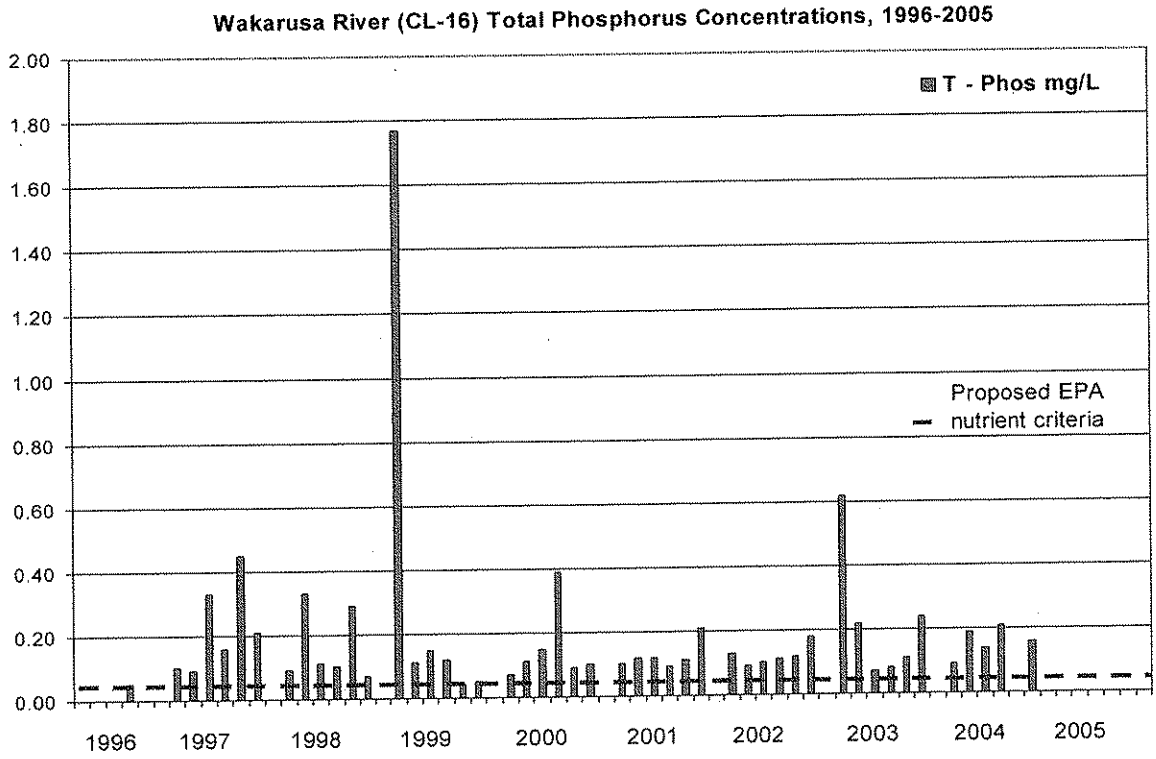


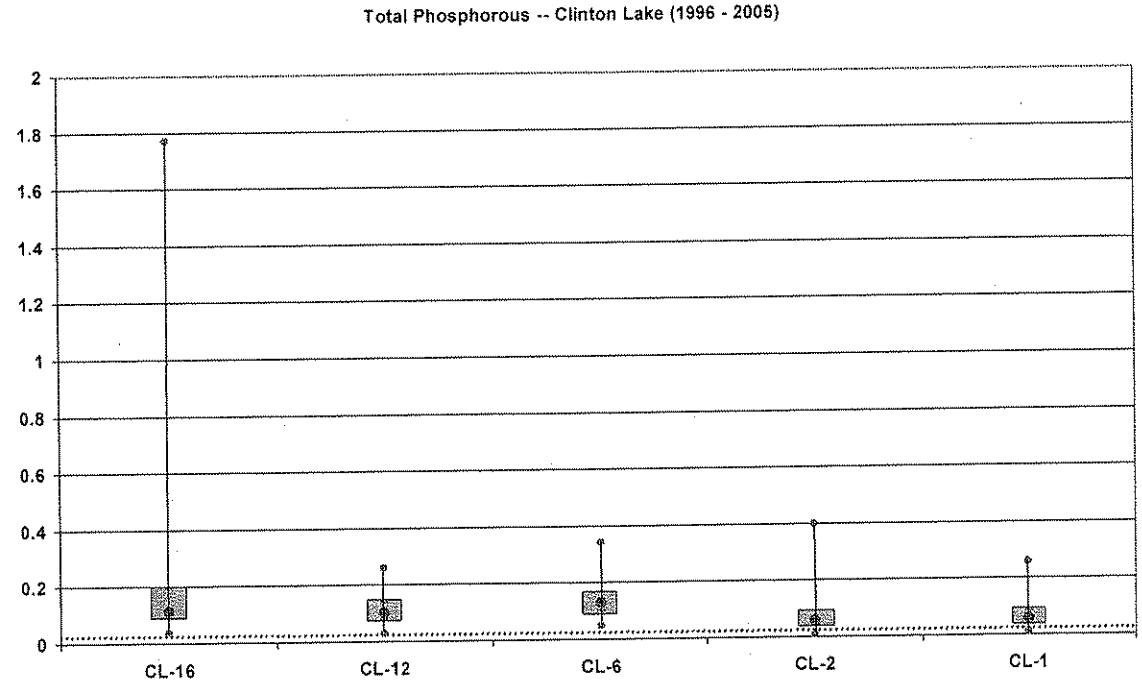
FIGURE 1: Wakarusa River (CL-16) Total Nitrogen Concentrations, 1996-2005



Total Phosphorous

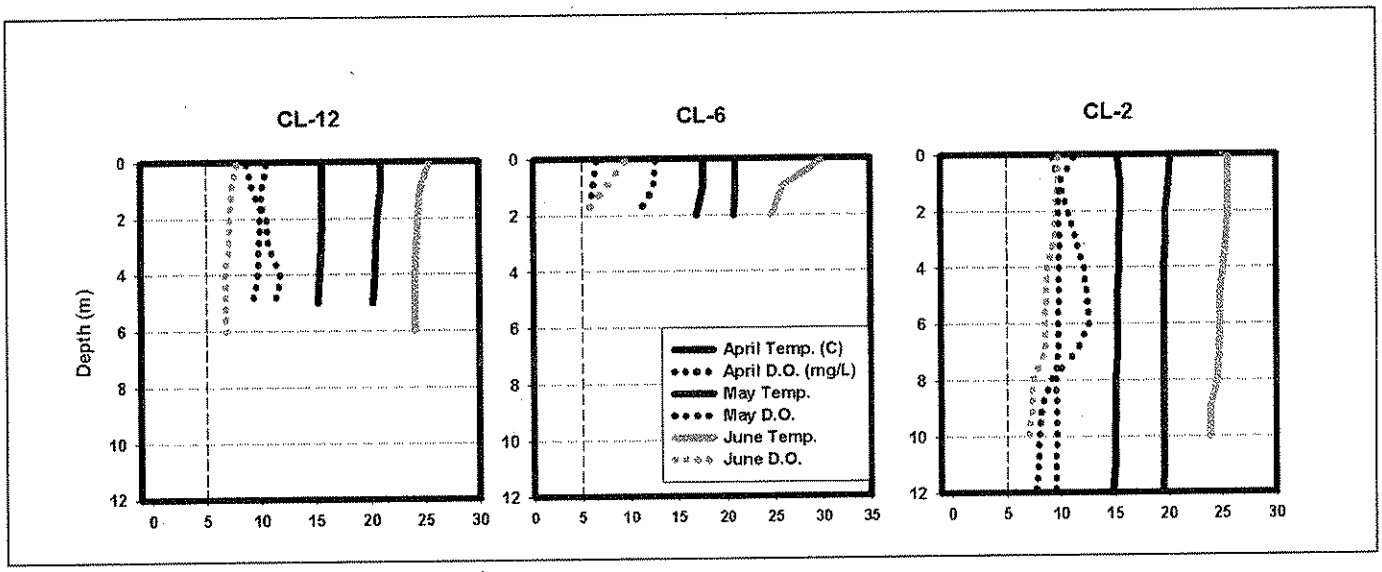
Phosphorous is another essential nutrient for aquatic life. This nutrient also exceeds proposed EPA nutrient criteria (0.02mg/L) for all sites. Annual and seasonal variability is also detected by our sampling.

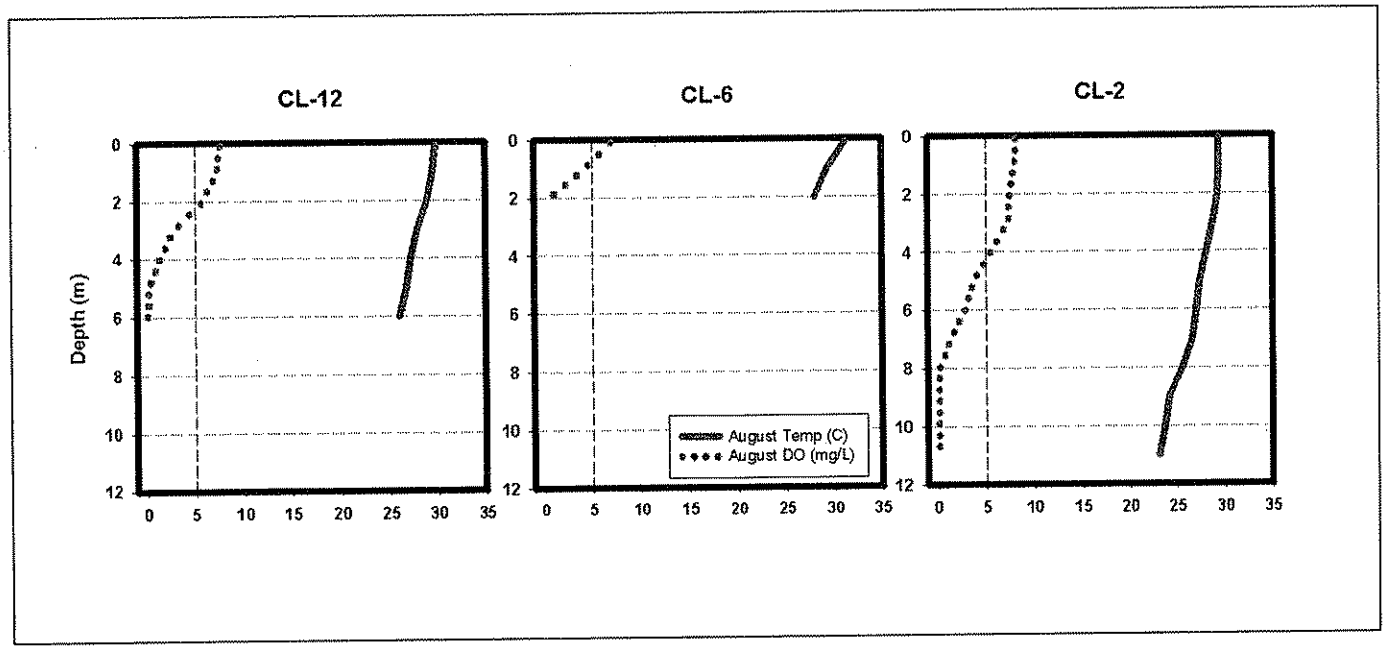




Dissolved Oxygen

Oxygen is a critical element to all aquatic life processes. Lakes undergo a process called stratification – develop layers based on temperature and oxygen. This begins in late spring, remains throughout the summer, and breaks apart (destratifies or 'turns over') in the fall. Increased nutrients increase the overall 'productivity' of a lake, resulting in shallower depth of stratification. This results in low oxygen concentrations with increasing depth – impacts fishing and drinking water! The top graph shows oxygen and temperatures are uniform throughout the water column during spring. However, stratification is very apparent during summer.





Upper Wakarusa Watershed

GOALS

WATER QUALITY OBJECTIVES

It is clear that additional measures are needed to restore and protect water quality in the Upper Wakarusa Watershed and in Clinton Lake, a critical resource which must be protected. The lake is a drinking water source for 100,000 people, with the potential to serve even more, noteworthy as the population of the area continues to grow. Well over a million people a year use the lake for recreational purposes and this number is increasing annually. Sedimentation is resulting in loss of storage space at a faster rate than planned. Consistently moderately eutrophic, the lake approaches hyper-eutrophic conditions at times. Cyanobacteria are becoming the dominant primary producers and have already caused several instances of taste and odor problems in the finished drinking water. The banks of the Wakarusa River are eroded, and fish species and overall ecological integrity are being impacted. Habitat can be improved along most of the riparian area. Beneficial uses are being impaired, and if pollution loads continue at their present rate, the problems will intensify as the lake ages at an accelerated rate.

Sediment, Nitrogen, Phosphorus, Chlorophyll *a*

Clinton Lake has a TMDL for eutrophication which establishes desired endpoints of water quality at Clinton Lake during the period 2004 – 2008. To be consistent with the TMDL, the primary focus of the WRAPS recommendations will be reduction of in-lake concentrations of phosphorus, nitrogen and chlorophyll *a*, based on the desired lake condition of slightly eutrophic. *To effectively mitigate eutrophic conditions, the input of both P and N must be reduced in order to achieve concurrent and measurable reduction in cyanobacterial/phytoplankton growth as measured by chlorophyll a concentrations.*

Endpoint 1.	Maintain chlorophyll *a* concentrations at 12 ug/L, allowing a slightly eutrophic condition with a TSI of 53 - 54.
Endpoint 2.	Reduce the proportion of blue green algae to fewer than 10% of phytoplankton biomass.
Endpoint 3.	Reduce P loads by 50 - 60% leading to an annual load of 70 tons per year of phosphorus.
Endpoint 4.	Reduce N loads by 60% leading to an average in-lake concentration of 0.65 mg/L.
Endpoint 5.	Reduce sedimentation within the arms of the lake.
Endpoint 6.	Maintain N:P ratio at 10:1.
Endpoint 7.	Maintain average phosphorus concentrations below 100 mg/L in the river and maintain average nitrogen concentrations below 200 mg/L, at flows below 10 cfs.

Fecal Coliform Bacteria

The water quality standard for secondary contact recreation, the designated use that is impaired for the Wakarusa River, is 2000 colonies per 100 mL. The KDHE TMDL established for the Wakarusa River establishes goals for concentrations of fecal coliform bacteria during three flow regimes: spring, summer/fall, and winter. The TMDL is expressed as a percentage of samples exceeding the concentration goal during those flow regimes. KDHE will be monitoring the concentrations under the specified seasonal flow conditions to determine the achievement of the desired endpoints of the TMDL. These are:

Endpoint 1.	Less than 10% of samples taken in spring exceed 200 cols/100 mL at flows less than 630 cfs, with no samples exceeding the criterion at flows under 110 cfs.
Endpoint 2.	Less than 10% of samples taken in summer or fall exceed 200 cols/100 mL at flows less than 630 cfs, with no samples exceeding the criterion at flows under 14 cfs.
Endpoint 3.	Less than 10% of samples taken in winter exceed 2000 cols/100 mL at flows under 630 cfs.

CLINTON LAKE WATER QUALITY RESTORATION AND PROTECTION STRATEGY

Overview

The overall goal of this strategy is to protect, enhance, and restore the water quality of Clinton Lake and the Upper Wakarusa Watershed. There must be a broad-based recognition that the UWW and Clinton Lake have TMDLs established and there is a federal/state mandate to restore designated beneficial uses of these waters. Approximately 25,000 people live in the watershed, most of them rural landowners. Rural landowners and agricultural producers will be the most important participants in restoration and protection of the watershed and their collective individual actions in response to this plan is a critical element of its success. Municipal, institutional, and agricultural entities having wastewater discharge permits from KDHE will also be important participants to achieve water quality goals. The forging of partnerships between citizens, agriculture, scientists and government, while balancing competing uses, will be necessary.

Implementation

A streambank/riparian protection and restoration program, coordinated with targeted watershed/land-use management improvements, is outlined in this plan. These include improvements in grassland, livestock-waste, onsite-wastewater system, cropland conversion, and nutrient/pesticide management, wetland installation, and suburban growth management. Over time, actions taken to implement these recommendations will lead to measured decreases in fecal coliform, sediment, nitrogen, phosphorus and chlorophyll *a* concentrations, to achieve water quality objectives. Incentives and financial assistance should be targeted to address the highest priority subwatersheds in a systematic restoration and protection program. Conservation easements, acquisition of open space, overlay protection zones and other institutional mechanisms could also be used as tools to accomplish the restoration and protection work.

Implementation Time Frame

KDHE has established the following implementation time frame to measure the success of achieving TMDL goals:

"Pollution reduction practices should be installed in areas within one mile of the priority stream segments over the years 2000 - 2004. The year 2004 marks the mid-point of the ten-year implementation window for the watershed. At that point in time, milestones should be reached which will have at least two-thirds of the landowners responsible for the facilities and sites needing pollution controls participating in the implementation programs provided by the state. Sample data should indicate evidence of reduced bacteria levels at moderate to low-flow conditions relative to the conditions seen during 1990 - 1998.

The milestones established under the TMDL are intended to gauge the level of participation in those programs implementing the TMDLs. Should participation significantly lag below expectations over the next five years, or monitoring indicate lack of progress in improving water quality conditions from those seen during 1990 - 1998, the state may employ more stringent conditions on agricultural producers in the watershed in order to meet the desired endpoints expressed in the TMDL. The state has the authority to impose conditions on activities with a significant potential to pollute the waters of the state under K.S.A. 65-171. If overall water quality condition in the watershed deteriorates, a Critical Water Quality Management Area may be proposed for the watershed, in response."

Priorities

In order to achieve these TMDL goals, given limited resources, prioritization of activities and sub-watersheds is necessary. The sub-watersheds can be grouped into four priority categories to reflect the potential pollution input and their impact on water quality, based on results of studies described previously.

- First Priority is land immediately surrounding the lake, and Deer Creek and Rock Creek subwatersheds.
- Second priority subwatersheds are Burys Creek, Camp Creek and Sixmile Creek.
- Third priority subwatersheds are Lynn Creek, Strowbridge Creek and Elk Creek.
- Fourth priority watersheds are Towhead Creek, South Branch Wakarusa River, North Branch Wakarusa River, Middle Branch Wakarusa River, and the Wakarusa River near Auburn.

The goals and objectives described in the following section should be implemented according to the schedule below.

Activity	**Goal**	**Location**	**Year(s)**
Inventory areas within one mile of streams to determine actions needed to prevent pollution. Focus on • Facilities without water quality controls. • Un-permitted permanent feeding/holding areas for livestock. • Sites where drainage runs through or adjacent to livestock areas. • Sites where livestock have permanent access to a stream and the stream is the primary water supply. • Feeding areas within 300 ft of a stream. • Grazed acreage, overstocked acreage and acreage with poor range condition. • Poor condition riparian sites. • Near stream feeding sites. • Failing onsite waste systems/discharges to streams.	1, 2, 3, 4	First Priority areas first, followed by others in sequence.	2002 -2004
Target information/education programs, cost share assistance and enforcement first to areas within one mile of streams.	5	Follow above priorities	2002 -2004
Develop detailed subwatershed management plans to address other areas further from streams	6, 7, 8, 9, 10, 11, 12, 13	First Priority Second Priority Third Priority Fourth Priority	2002 – 2004 2005 – 2006 2007 – 2008 2009 - 2010
Target information/education programs, cost share assistance and enforcement to implement subwatershed plans as they are developed.	5	First Priority Second Priority Third Priority Fourth Priority	2003 – 2004 2005 – 2007 2008 – 2009 2010

Goals and Objectives

Goal 1. Stream Bank/Riparian Restoration

The river system has lost extensive native vegetation resulting in unstable banks and loss of habitat. Streambank and riparian restoration efforts are important factors, in addition to land treatment, to effectively manage the rate of sediment deposition, and consequent reduction in P concentrations, to ensure the design life of the sediment pool of Clinton Lake. Reduction in degree of bank erosion, miles of stream bank restored, and percent of healthy riparian coverage are measures of implementation.

Objectives already in progress

1.1 Increase the miles of riparian forest buffers/filter strips from the current level of 1 mile/12 acres to 50 miles/455 acres in five years.

1.2 Construct wetlands and other vegetated buffers to reduce erosion, provide habitat, trap sediments and filter pollutants. need figure #

1.3 Reduce livestock access to riparian areas from the current 300 tracts to 150 tracts in five years. not tracts should be acres. or livestock #'s

1.4 Locate feeding areas away from streams - remove feeding sites in proximity to streams. #

1.5 Control cattle access to waterways by developing off-stream watering sites. #

1.6 Provide stable stream watering points.

1.7 Provide alternate shelter away from riparian areas.

Objectives not yet occurring

1.8 Use a combination of bioengineering techniques and riparian restoration to restore eroded stream banks.

1.9 Develop contiguous corridors of habitat, buffer areas and large wetland areas through a river corridor program.

Goal 2. Increase Percentage of Agricultural Land Covered by a Resource Management Plan (RMP) and Promote the River Friendly Farms Program

In a Resource Management Plan, all acreage in both cropland and grassland is adequately protected from pollution-causing activities or influences. In a fully implemented RMP, soil erosion is at or below the tolerance level, and good soil health is evident. Water quality and quantity issues are addressed and goals are met. Plants are adapted for the site and are in proper balance with the landscape. Animal concerns, both domestic and wildlife, such as food, water, and cover needs, are met.

Objectives already in progress

2.1 Develop improved grazing and brush management plans to prevent overgrazing.

2.2 Rotate feeding areas.

2.3 Work with KDHE registered livestock producers with <300 au to ensure best-management practices are in place.

2.4 Install livestock-waste management systems on un-permitted/unregistered facilities as needed.

2.5 Support EPA Section 319 demonstration projects for reduction of pollution from livestock operations including sediment and nutrients.

2.6 Educate livestock producers on riparian and waste management techniques, and sediment, nutrient and pasture management.

2.7 Promote nutrient injection on cropland to reduce nutrient loss.

2.8 Promote maintenance of 50% residue cover on all cropland.

Objectives not yet occurring

2.9 Coordinate with USDA/NRCS EQIP in providing education, technical and financial assistance to agricultural producers in priority subwatersheds and stream segments.

2.10 Require that a RMP be developed and implemented as a requirement for participation in cost-share programs.

2.11 Ensure that practices installed with cost-share assistance are maintained for the life of the practice through periodic inspections. SCC, NRCS

Goal 3. Management of KDWP Land Surrounding the Lake

Objectives already in progress

3.1 Promote wetland construction to assimilate nutrient loadings.

Objectives not yet occurring

3.2 Require certain BMPs to be used on land leased for crop production such as fertilizer injection, no-till, soil testing.

3.3 Increase buffer area between the river and the cropped land.

3.4 If criteria are met, convert cropland to CRP or wetlands.

Goal 4. Onsite Wastewater System Management

Objectives already in progress

4.1 Ensure that all new onsite wastewater systems are designed, installed and maintained according to state regulations and local codes. [illegible]CH,

4.2 Provide technical and financial assistance to install replacement onsite wastewater systems in proximity to streams. HD.

Objectives not yet occurring

4.3 Ensure that all existing onsite systems are properly maintained through periodic inspections. [illegible]

4.4 Determine need for advanced onsite wastewater treatment systems in critical areas. HD

4.5 Establish wastewater management districts for onsite wastewater systems. Proliferation of onsite systems and the potential for loading of bacteria is highly probable in the Upper Wakarusa Watershed due to projected population growth in Douglas and Shawnee counties.

Goal 5. Increase Landowner Participation in Cost Share Programs through Information and Education.

Objectives already in progress

5.1 Develop and deliver workshops, demonstrations, tours, conferences.

5.2 Take advantage of radio and television opportunities.

5.3 Use direct mailings, printed literature, one-on-one contacts.

5.4 Provide information on livestock management to commodity advocacy groups.

Goal 6. Establish High Quality Prairie Conditions.

Substantial data indicate that native prairie produces the highest attainable quality of runoff water. Native prairie allows greater infiltration of rain water, which helps maintain hydrologic stability and prevents channel stabilization/stream bank erosion problems.

Objectives already in progress

6.1 Increase nutrient management applied or being implemented on pastureland from the current 5,000 acres to 9,000 acres in five years. Maintain existing rangeland in the best possible condition by using native prairie ecosystems as a benchmark for comparison.

6.2 Adopt management techniques to improve vegetative cover for erosion control and water quality management on pasture and rangeland.

6.3 Ensure appropriate cattle-stocking densities to simulate native prairie with native mammalian grazing. For grazed forages to remain productive, grazing pressure must be matched to the pasture's carrying capacity on a pasture-by-pasture basis and adjusted for short-term climactic changes.

6.4 Maintain existing CRP in as high a quality as possible and avoid conversion to cropland or other uses. Leverage the program to hold riparian land out of agricultural production.

Objectives not yet occurring

6.5 For new CRP participants, promote establishment of native prairie grasses and forbs rather than brome fields by establishing a point system that gives higher weight to native grasses in all counties.

Goal 7. Renew Necessary State and Federal Permits and Monitor Permitted Facilities for Permit Compliance

Objectives already in progress

7.1 Review municipal and institutional wastewater discharge permits for needed capacity upgrades, disinfection requirements, and minimization of discharges.

7.2 Inspect NPDES-permitted livestock facilities for integrity and effectiveness of pollution prevention technologies and require upgrades as needed.

7.3 Develop/Implement manure-management plans as required in permits NRCS

Goal 8. Install Water Quality Protection Measures that Simulate Native Prairie Conditions for Cropland

Cropland with terraces to reduce slope length, riparian buffers between the bottom terrace and the stream, vegetative buffers surrounding locations where concentrated flow occurs, and residue management, including no till, within the field to protect the soil and reduce runoff, would likely approach native prairie conditions.

Objectives already in progress

8.1 Increase nutrient management applied or being implemented on cropland from 15,000 acres to 46,000 acres in five years.

8.2 Maintain necessary conservation tillage and contour farming to minimize cropland soil erosion. Increase acreage employing this practice to 32,464 acres.

8.3 Increase no-till acreage from 6,500 acres to 20,000 acres.

8.4 Decrease the soil loss on 32,464 acres from the current greater than "T" level to less than "T" level in five years.

8.5 Install grass buffer strips and reduce cultivation along streams.

8.6 Promote installation of wetland filtering systems.

8.7 Restore and maintain terraces. Maintenance of existing terraces is more important than construction of additional terraces.

8.8 Install runoff controls.

8.9 Implement annual soil sampling/testing to recommend appropriate fertilizer applications on all cropland.

8.10 Properly time fertilizer and pesticide application/incorporation on all cropland.

8.11 Educate landowners on methods to reduce P runoff concentrations through improved application methods.

Goal 9. Reduce the Amount of Atrazine Leaving Application Sites.

Objectives already in progress

9.1 Encourage crop rotation to reduce amount needed to control weeds.
9.2 Install field edge buffers to filter runoff.
9.3 Properly time applications.
9.4 Continue education on following label directions.

Goal 10. Clarify the Effect of Watershed Structures on Phosphorus Loading

Objectives not yet occurring

10.1 Determine need for modification of outlet structures

Goal 11. Urban/Suburban Growth Management

Objectives not yet occurring

11.1 Develop and encourage the use of institutional mechanisms to promote cluster development in rural areas. This development technique is beneficial in preserving riparian areas, wetlands, and existing hydrology, while minimizing impervious area in new developments.
11.2 Encourage improvement, maintenance, and restoration of native prairie species in favor of conversion to turf grass in residential developments. The incremental conversion of prairie and treated cropland to turf grass has the potential for negative cumulative impacts on a subwatershed level.
11.3 Develop zoning and subdivision regulations to enhance riparian, wetland, and native grass preservation.
11.4 Work with developers and land owners to promote the use of conservation easements to preserve habitat, open space, and riparian corridors.
11.5 Develop a stream setback protection ordinance.

Goal 12. Establish a Clinton Lake Protection Area with Specific Standards.

Objectives not yet occurring

12.1 Consider establishment of a state-designated Critical Water Quality Management Area.
12.2 Decisions concerning all land-use activities in the watershed should be made to maintain and improve water quality.
12.3 Update County NPS Control Plans to establish the UWW as a priority for financial assistance.

Goal 13. Increase Incentives for Organic Farming

Objectives not yet occurring

13.1 Develop incentives such as more and expanded local markets to promote organic farming in the watershed.
13.2 Promote Integrated Pest Management (IPM) which provides both economic and environmental benefits since pesticides are used only when pest populations exceed an economic threshold level that justifies the costs of application.

Upper Wakarusa Watershed

QUARTERLY REPORTS

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Kansas Department of Health and Environment
Grant Quarterly Status Report
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Project Information

Report Date	04/2005	**Reporting Period**	Jan-Mar 2005
Project Name	Upper Wakarusa WRAPS Implementation		
KDHE Project #	2003-0013		
Project Start	01/2005	**Project End**	06/2009

Project Management

★ 1. Did the Project Management Team meet during this quarter?

Yes

★ 1a. When did they Meet?

03/14/2005Enter date mm/dd/yyyy

★ 1b. How many attended?

10

★ 1c. How long did the meeting last?

3 hrs

★ 2. Summarize any significant project management issues from the quarter?

The grant components and corresponding "actions" are implemented within the context of the overall WRAPS document goals. The Project Committees and KVHA staff members develop and expand cooperative concept strands. Below, each of the four grant components and the grant delineated "tasks" frame the project's current "primary issues."
Goal A : Coordinate WRAPS Implementation Plan
Task 1 – Focus and increase fiscal and technical support for WRAPS implementation.
Task 2 – Assist partners in the development of WRAPS implementation projects.
Task 3 – Improve coordination of water quality monitoring efforts.
Task 4 – Obtain necessary implementation resources.)
To address these tasks, project staff and partners are....
* Preparing proposals to augment funding for various partner projects.
* Identifying the priorities of different stakeholder groups to find common ground.

Goal B : Facilitate and strengthen stakeholder cooperation
Task 1 – Serve as an information clearinghouse for implementation partners, stakeholders, and the general public.
Task 2 – Educate key groups.
Task 3 – Strengthen public awareness of UWW issues.
Task 4 – Create a system for citizens and stakeholders to invest time and money in UWW restoration and protection.
Task 5 – Continue to develop implementation partners.
To address these tasks, project staff and partners are....
* Preparing tools to strengthen partner endeavors.
* Developing a cross-watershed publicity strategy to boost the water quality/lake ecology knowledge base of landowners, lake users, and the general public.

Goal C : Track the status of the WRAPS goals
Task 1 – Monitor, maintain, and evaluate projects to ensure maximum implementation benefits are attained.
Task 2 – Monitor policies and practices that may impact water quality.

Task 3 – Improve decision makers understanding of policies that have positive/negative watershed health ramifications.
To address these tasks, project staff and partners are....
* Clarifying the purpose and implementation timeline of the urban subcommittee's work on a Shawnee County water user survey. The survey is the next step towards sound zoning regulations and interjurisdictional cooperation.
* Locating and organizing cross-disciplinary information about the watershed.

Goal D : Assess and address concerns in WRAPS first priority areas
Task 1 – Conduct a comprehensive problem identification assessment for the subwatershed.
Task 2 – Build partnerships with interested riparian area landowners.
Task 3 – Develop and complete restoration/protection projects in the Deer Creek subwatershed.
To address these tasks, project staff and partners are....
* Prioritizing high impact areas using a variety of partner resources.
* Expanding the circle of dialogue to address barriers to bmp implementation and landowner use of conservation programs.

I & E

★ 1. What Number of Notification Tools were used this quarter? 6

Notification Tool	When Used (mm/dd/yyyy)	# Contacted
meetings	01/18/2005	27
meetings	03/15/2005	8
meetings	03/10/2005	18
exhibits	01/23/2005	400
exhibits	01/24/2005	150
exhibits	03/17/2005	250

★ 2. How many Educational Materials were Produced this quarter? 2

Educational Material	# Produced	# Distributed	Date Distributed (mm/dd/yyyy)
brochure	60	50	03/16/2005
web site	1	1	03/14/2005

★ 3. How many Educational Events took place this quarter? 1

Educational Event	Event Date (mm/dd/yyyy)	# Attendees
Public Meeting	03/15/2005	45

★ 2. Summarize the I/E activities from the quarter

* A website for the Upper Wakarusa Watershed is up and running, it still needs some work. The website caters to both the general public and stakeholders. General information about the watershed and water quality will be available, as well as ongoing projects. Information about the WRAPS document and the goals within it is included as well. Partners involved are identified, descriptions of what they do, and how they contribute to the UWW WRAPS are included.
www.wakarusawatershed.org
* Designed and produced and KELP initiated brochure intended to facilitate the installation of road signs identifying the watershed.
* Continuing the process of informing landowners of land management services and assistance

available to them.
* The most thorough mailing, landowner and landuse list possible is being compiled and organized for any partners desiring such information, as well as for KVHA information mailings.
* KVHA's display board was enhanced with more interactive water quality information.
* A brochure/driving tour outlining the various habitats or ecosystems within the watershed has been initiated.
* Outlining of a newsletter to be printed and mailed in the 2nd quarter.

BMP Implementation

★ 1. How many BMPs where implemented this quarter? 0

★ 2. Summarize BMP activities from this quarter

* A 5-Star grant application was submitted to aid in the establishment of a wetland adjacent to Coon Creek in the Clinton Lake area. The Corps of Engineers partnered with KVHA to procure preliminary funding for the project.
* An application system was outlined and developed for landowners to apply for cost-assistance in BMP implementation projects. The application will be made available by the end of April, with funds going out in June/July.
* Survey work has been started to identify the land use within the Upper Wakarusa Watershed.
* Discussions have taken place with Deke Hobbick and the Corps regarding streambank needs within the Corp/KWP managed land.

Other

Describe accomplishments to date

★ In addition to the above... * A program director and intern were hired to facilitate implementation of the UWW WRAPS document. The director has established working relationships with stakeholders in the watershed, concentrating on those people working within the 1st priority area. * A website was created specifically addressing the Upper Wakarusa Watershed and the work being done within it. * The mayor of Lawrence, a Shawnee County water quality coordinator, architect, and ag network coordinator, and the UWW WRAPS program director are going to participate in K-State's Environmental Decision Making workshop. The anticipated project for the group will be to create a framework for interjurisdictional cooperation that includes rural/urban, development/open space, and county/county concerns.

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Kansas Department of Health and Environment
Grant Quarterly Status Report
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Project Information

Report Date	07/2005	**Reporting Period**	Apr - Jun 2005
Project Name	Upper Wakarusa WRAPS Implementation		
KDHE Project #	2003-0013		
Project Start	01/2005	**Project End**	06/2009

Project Management

★ 1. Did the Project Management Team meet during this quarter?

No

★ 2. Summarize any significant project management issues from the quarter?

The "Project Management Team" did not meet during the 2nd quarter, but the Rural and Urban/Interjurisdictional subcommittees met several times each during the quarter. The committees are continuing to follow the general goals of coordination, facilitation, tracking, and assessing. Actions taken towards attaining these goals will be addressed in the I&E and BMP sections of the report. There were also many partner initiated meetings and events throughout the watershed.

I & E

★ 1. What Number of Notification Tools were used this quarter? 6

Notification Tool	When Used (mm/dd/yyyy)	# Contacted
Stakeholder Committee	04/21/2005	7
Stakeholder Committee	05/16/2005	8
Stakeholder Committee	05/17/2005	8
Stakeholder Committee	06/13/2005	8
Stakeholder Committee	04/21/2005	25
Stakeholder Committee	05/17/2005	35

★ 2. How many Educational Materials were Produced this quarter? 1

Educational Material	# Produced	# Distributed	Date Distributed (mm/dd/yyyy)
Web Site	1	1	06/24/2005

★ 3. How many Educational Events took place this quarter? 2

Educational Event	Event Date (mm/dd/yyyy)	# Attendees

Display/Booth	04/09/2005	600
Field Tour of Demo Projects	06/15/2005	20

★ 2. Summarize the I/E activities from the quarter

* The Shawnee County Conservation District organized a Tour of various land management practices that had been implemented by residential, rural, public and private entities. Many of these projects were within the boundaries of the Wakarusa Watershed.
* Some WRAPS partners and KVHA are working together to organize three separate events in the upcoming months.
1) A series of six house meetings hosted by residents within the Wakarusa Watershed. Attendees would be selected and invited by the host of the meeting. There will be approximately 10 guests per meetings. Participants would participate in a "study circle" or listening session to share thoughts and experiences either directly or indirectly related to water quality in their community. One goal of these meetings is to generate interest and identify people who would be willing to be on a landowners advisory committee that would work with the already established WRAPS partners.
2) A workshop for residents and producers in the watershed is being organized to continue the momentum of the house meetings, but on a larger scale. It is basically an open, public meeting to share information and ideas for progressing with the WRAPS.
3) A workshop geared towards political decision-makers and city/county officials is being planned that will provide information on tools available for ensuring sustainable riparian corridors and a healthy water system. Currently, we are researching the area communities that have implemented some of these tools as well as tools utilized by communities outside the region.
* Work continues on the Clinton Lake Watershed marker signs. Currently Beth Rowlands in compiling packets that can be given to various political or public works entities to aid in approval of sign installation.
* KVHA & StreamLink are entertaining the possibility of leasing the future Coon Creek Wetland from the Corps of Engineers (see BMP summary) to use as an educational tool for children and adults who pass by. The wetland is near a boat ramp on the northern shore of Clinton Lake. There are two things that could contribute to the appeal of leasing the land. First is that at the western end of Stull Road is the Raeta Development and having a project on either end of a relatively busy road would help provide greater awareness and publicity for the project. Secondly, it would create a more interactive wetland in the Upper Wakarusa. Currently the Baker Wetlands in the Lower Wakarusa has raised walkways leading through the wetlands to encourage people to get out in it and have a more direct experience. The fact that the proposed wetland is located adjacent to a boat ramp also promotes its usage as a learning tool.
* KSU Extension Agent Will Boyer and KVHA's Aimee Polson toured the watershed and met with the Wakarusa Watershed Joint District #35 manager Shirley Wray updating her on what is going on with the WRAPS and getting her input on hosts for house meetings. Will and Aimee also met with the NRCS and CD to share projects and goings-on.

BMP Implementation

★ 1. How many BMPs where implemented this quarter? 0

★ 2. Summarize BMP activities from this quarter

* KVHA was awarded a $7,000 5-Star grant from the EPA. The Clinton Lake / Cook Creek Streambank and Habitat Restoration project involves the conversion of approximately 20 acres of agricultural grazing land along Coon Creek to wetland habitat. The project funding will also be used to restore 10 acres of degraded streambanks through a deliberate tree-planting effort along the southern shore of Clinton Lake. Several partners are working together on this project including the Corps of Engineers, KVHA, StreamLink, The Watershed Insitute, KAWS, WestStar Green Team, KDWP, and University volunteer organizations.
* Efforts have been initiated to absorb a residential developer more directly into the WRAPS process. Raeta Development on Stull Road in Douglas County is a housing development that hopes to utilize or encourage environmentally conscientious design into their plan. While landowners are not required to take advantage of conservation tools, they are awarded a $7,500 rebate if they institute a specified number of conservation practices. KVHA is hoping to work with the Raeta manager to implement a conservation tool similar to a biofilter or a horse community land management tool that can be used as a demonstration project for future developments.

* The Watershed Insitute, KBS GIS Coordinator, and KVHA are working together to inventory the streambanks and water quality status within the Deer Creek Watershed.

Other

Describe accomplishments to date

* Conversations were initiated with Mike Wildgen, Lawrence City Manger, regarding water quality and Clinton Lake. * The City of Lawrence invited Earl Lewis, Kansas Water Office, to give a presentation on the status of Clinton Lake and drinking water at the Lawrence City Commission Meeting. * A new intern was hired to assist with WRAPS implementation. * Continued development of the Wakarusa Watershed website. * Continued work on the Clinton Lake Watershed signs with KDHE and Shawnee County NRCS. Currently Beth Rowlands is putting together packets to give to the various granting agencies in installing the signs. * Attended an environmental decision-making workshop with Lawrence Mayor Highberger, Evelyn Davis of Shawnee County Conservation District, Jerry Jost of the Kansas Rural Center, and Katie Nichols, architect with firm working on Raeta Development. This team is cooperating with KSU Extension and KVHA in organizing the house meetings. * StreamLink is hosting a Wakarusa Stream Assessment Workshop. The sign-up for the workshop is going briskly. KVHA StreamLink is partnering with The Watershed Institute, SCC, NRCS, KDWP, Conservation Districts, Melvern Watershed Project, K-State Research & Extension, and KAWS. * KVHA commissioned a coloring book entitled Wings over the Wakarusa. The book is currently undergoing final edits and will be ready for publication in the upcoming months.

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Kansas Department of Health and Environment
Grant Quarterly Status Report
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Project Information

Report Date	10/2005	**Reporting Period**	Jul-Sep 2005
Project Name	Upper Wakarusa WRAPS Implementation		
KDHE Project #	2003-0013		
Project Start	01/2005	**Project End**	06/2009

Project Management

★ 1. Did the Project Management Team meet during this quarter?

Yes

★ 1a. When did they Meet?

08/19/2005Enter date mm/dd/yyyy

★ 1b. How many attended?

15

★ 1c. How long did the meeting last?

3

★ 2. Summarize any significant project management issues from the quarter?

Much of this quarter focused on three things:
1) Organizing a large, public workshop for residents/farmers in the watershed.
2) Identifying and pursuing a plan of action for implementing BMPs in the Deer Creek subwatershed.
3) Organizing house meetings for residents within the watershed.
While many other things have been happening, these are the large projects on the immediate horizon. More people are being incorporated in the project management team and everyone is working together very well to accomplish objectives within the WRAPS.

I & E

★ 1. What Number of Notification Tools were used this quarter? 10

Notification Tool	When Used (mm/dd/yyyy)	# Contacted
E-mail	07/14/2005	17
E-mail	08/10/2005	3
One-on-one Contact	07/26/2005	5
One-on-one Contact	08/18/2005	3
Stakeholder Committee	07/18/2005	10
Stakeholder Committee	07/19/2005	12
Stakeholder Committee	08/19/2005	15
One-on-one Contact	08/19/2005	4
One-on-one Contact	08/29/2005	3
Stakeholder Committee	08/18/2005	9

*** 2. How many Educational Materials were Produced this quarter? 2**

Educational Material	# Produced	# Distributed	Date Distributed (mm/dd/yyyy)
Web Site	1	124	08/30/2005
Other	1		07/13/2005

*** 3. How many Educational Events took place this quarter? 0**

Educational Event	Event Date (mm/dd/yyyy)	# Attendees

*** 2. Summarize the I/E activities from the quarter**

* We have been working on a notebook and summary sheet of cost share options in the watershed. That was recently completed for the workshop.
*Progress is continuing in the coloring book. There are just a few details to work out before production can begin.
*Much of the 3rd quarter I&E efforts were directed at preparing for house parties and the workshop that are taking place in the fall.

BMP Implementation

*** 1. How many BMPs where implemented this quarter? 0**

*** 2. Summarize BMP activities from this quarter**

The BMP portion of this year's grant has been accounted for. Approximately half will be used to help fund a windbreak and alternative feeding site for a small cattle operation that repored to KDHE. The other half is being spent to do an riparian assessment of the Deer Creek subwatershed.
Deer Creek is a priority subwatershed within the Upper Wakarusa watershed and it is one of the largest. To aid in effective cost share and land management decision-making, the watershed has been broken up into 7-8 distinct areas, those areas will then be reviewed based on riparian land cover, slope, potential development, stream bank conditions, and soil type. This information will be used to identify where efforts will be most productive.
In addition to a riparian inventory, a public works infrastructure (bridges, roads, culverts) and a land use (agricultural, residential, public, etc.) inventory will be taken and used in guiding future decision making.

Other

Describe accomplishments to date

* Lots of planning has been taking place concerning the house parties and water quality discussion & workshop. This is the first workshop of its kind in the area, and we want to take care to make it as successful as possible. To that end, the core group of UWW WRAPS stakeholders has been working closely with one another, with facilitators from K-State, and with residents in the watershed to ensure that the event is as successful and productive as possible. The workshop will offer a demonstration tour, discussion and breakout sessions, an overview of cost share opportunities to landowners in the watershed, and a meet and greet, booth/fair at the end. Lunch and a small breakfast will be served. Day to day coordination

activities involve continuing to develop and refine the mailing list of people within the watershed for partner use; assisting partners with anything they might need; updating and enhancing the Wakarusa website; various trainings and workshops; record keeping; grant writing; record keeping; stakeholder updates; watershed awareness and branding efforts; newsletter writing, production, and mailing; meeting potential stakeholders; and recruiting the idea of watershed management and water quality issues to local leaders.

Cancel Print

Kansas Department of Health and Environment
Grant Quarterly Status Report
Authorized

Project Information

Report Date	12/2005	**Reporting Period**	Oct-Dec 2005
Project Name	Upper Wakarusa WRAPS Implementation		
KDHE Project #	2003-0013		
Project Start	01/2005	**Project End**	06/2009

Project Management

★ 1. Did the Project Management Team meet during this quarter?

Yes

★ 1a. When did they Meet?

11/09/2005Enter date mm/dd/yyyy

★ 1b. How many attended?

9

★ 1c. How long did the meeting last?

3 hours

★ 2. Summarize any significant project management issues from the quarter?

- The main purpose of this meeting was to review the previous year's work, discuss the November workshop, and determine what positive and negative things occurred during the year. There was some discussion concerning the organizational structure of the stakeholder's group, but no decisions were made regarding changes.
Goals for the upcoming year are:
1) to continue outreach efforts to watershed residents (through newsletters and house meetings);
2) to ramp up the work with city/county officials and others to begin incorporating riparian conservation guidelines into long range plans and development guidelines;
3) and to re-establish efforts in documenting and sharing the "heritage" of the Wakarusa Watershed.

I & E

★ 1. What Number of Notification Tools were used this quarter? 12

Notification Tool	When Used (mm/dd/yyyy)	# Contacted
Newsletter	10/10/2005	2000
Press Release	10/01/2005	17
Letter	10/20/2005	32
One-on-one Contact	10/05/2005	1
Letter	10/25/2005	3500
One-on-one Contact	10/06/2005	1
Brochures/pamphlets	10/05/2005	450
Stakeholder Committee	10/18/2005	3

Stakeholder Committee	10/26/2005	6
Stakeholder Committee	11/09/2005	9
Stakeholder Committee	11/14/2005	2
Press Release	10/23/2005	1

*** 2. How many Educational Materials were Produced this quarter? 7**

Educational Material	# Produced	# Distributed	Date Distributed (mm/dd/yyyy)
Exhibit Display	1	2	11/02/2005
Fact Sheet	200	50	11/02/2005
Web Site	1	118	10/01/2005
Newsletter	2500	2450	10/10/2005
Poster	3	3	11/02/2005
Poster	1	3	10/17/2005
Notebook	16	9	12/02/2005

*** 3. How many Educational Events took place this quarter? 3**

Educational Event	Event Date (mm/dd/yyyy)	# Attendees
Workshop	11/02/2005	60
Focus Group	10/28/2005	14
Focus Group	10/16/2005	12

*** 2. Summarize the I/E activities from the quarter**

1) - Much of the first part of the 4th quarter and last part of the 3rd quarter was directed at the organization of the Upper Wakarusa Watershed's first watershed-wide discussion & workshop. The workshop had 5 general components: 1) demonstration tour of riparian site, 2) Cheney Lake Watershed introduction and discussion, 3) facilitated discussion of watershed history, 4) cost-share availability, and 5) booth fair.
- The workshop was held in the Carbondale VFW, which is centrally located within the watershed just south of Topeka, KS. Lunch and small breakfast were provided for participants.
- Turnout was about as high as could comfortably fit in the building - 60 people. Unfortunately, 40 of these people were not watershed residents but already active participants within the KDHE WRAPS program. It is believed that a primary reason turnout wasn't greater was the weather...it was gorgeous. The workshop was scheduled for the middle of fall, but recent wet weather pushed crop work into November.
- While we have not abandoned the possibility of having another workshop next year, the productivity of the workshop relative to the cost makes major adjustments a necessity. Regardless of the cost and relatively low turnout of residents, the workshop seemed a success with 92% of the respondents rating the workshop as "good" or "excellent." 100% of the watershed residents who responded gave a "good" or "excellent" rating and 82% of the residents believed that they learned more about their watershed. One interesting note is that the residents favored the Cheney Lake presentation over the other workshop components, while outside stakeholders preferred the facilitated discussion.
2) - Perhaps the most productive work (in terms of public relations and education) that started this quarter is the house party. The watershed was divided into 6 zones. One or more persons from each zone were then identified by Conservation District and NRCS employees as well as the area Watershed Specialist and a Douglas County Commissioner. These people were then asked to host a house party.
- For those who agree(d), we provide them with "house party" invitations, stamps, and money for food. The hosts invite whomever they wish, be it neighbors, friends, other ranchers, people who own 50-acres or less, etc. To an extent, the hosts are invited to direct the topic of discussion. One host wanted to discuss land management and cost-share opportunities that were available to smaller landowners who were not farming their land. Another house party spent a fair amount of time talking about rural water issues, and another party with an older guest list spent a fair amount of time talking about their lives growing up in the area and how the land and general environment had changed over time.
- Guests are introduced to the Upper Wakarusa WRAPS, but the focus of the house parties is to give

residents of the watershed the opportunity to speak. It is hoped that as more and more house parties are held, an extensive range of knowledge will be accumulated about not only the physical landscape of the watershed, but its history, and the lives, priorities, and values of its residents. Once this knowledge is accumulated and assessed, it can be incorporated into the WRAPS. In doing this, there will be greater reflection of resident perspectives in the objectives set forth in the document.
3) - KVHA began work with a KSU graduate student to work on a driving tour of the watershed. The anticipated outcomes include: a) an online education tool that will be hosted by KVHA; b) a documented model for creating a driving tour for a watershed; c) pamphlets, posters, and maps that foster a better understanding of watersheds and their linkage to environmental health.
4) - The Watershed Institute was contracted by KVHA to do an assessment of the Deer Creek watershed (HUC 10270104010070). Numerical data related to stream length, stream density, subwatershed area, and land cover percentages were provided by the Kansas Biological Survey as was an aerial photograph of the watershed with topographic lines and a riparian inventory outlined along the streams. To make the project more manageable, the watershed was divided (mostly along topographic lines) into 9 parts, none more than 7 square miles in size.
- Each subwatershed was analyzed for percent channelization, percent cropland or forest, stream density, proximity to Clinton Lake, and area among other things. Each area received a score, and the higher the score, the greater the chances of riparian work having a positive outcome on the quality of the water flowing into Clinton Lake.
- The Watershed Institute is in the process of doing a deeper analysis of 4 of the 9 areas within Deer Creek. From there, we will be able to identify areas where more intense evaluation and ground truthing should occur and also where specific BMP's and demonstration projects can be implemented.
5 - The WRAPS Coordinator, in partnership with Evelyn Davis, SCCD, Will Boyer, KSU Extension, and Dennis Highberger, Mayor of the City of Lawrence, and Jerry Jost, KRC, completed the goals set forth from the spring's Environmental Decision-Making Workshop. Additionally, she is enrolled in the 2006 KELP Program.
6 - KVHA has been in negotiations with publisher, Modern Authors, to publish "Wings over the Wakarusa."

BMP Implementation

★ 1. Enter Information for each BMP implemented this quarter

Cooperator	HUC 14	BMP	Quantity	Funding
Needham, Ellis	10270104010020	Fence - 382	40	319 $528 Owner $132
Needham, Ellis	10270104010020	Livestock Waste Management System - 312	40	319 $758.4 Owner $189.6
Needham, Ellis	10270104010020	Well - General - 642	40	319 $3864 Owner $966
Needham, Ellis	10270101010020	Access Road - 560	40	Owner $1339.65
Needham, Ellis	10270104010020	Pipeline - 516	40	319 $416 Owner $104
Needham, Ellis	10270104010020	Livestock Waste Management System - 312	40	319 $3381 Owner $1505
Needham, Ellis	10270104010020	Windbreak Renovation - 650	40	SCC $1070 Owner $458

★ 2. Summarize BMP activities from this quarter

* Ellis Needham was KVHA's inaugural BMP cost-share partner.
* Plans addressing many of the issues faced by Deer Creek are in the works. The initial report has been completed and several target areas have been selected. After closer study, sites for BMP implementation will be selected and acted upon.
* Continued work with partners to facilitate implementation and awareness of the cost-share opportunities available.

Other

Describe accomplishments to date

* Website www.wakarusawatershed.org
* Comprehensive landowner database
* Premiered Wakarusa Watershed Review
* Awarded $7,000 from 5-Star Grant to assist with Coon Creek wetland Corps project
* Hosted 2 house parties
* Watershed-wide workshop and discussion
* "Wings over Wakarusa" Coloring book
* Many display boards
* Cost-share partnership
* Deer Creek prioritization report
* Improved partner relations with with Conservation Districts and the Corps
* Cost share notebook
* Cost share summary sheet
* Started KELP
* Began extensive tracking of all BMP's implemented in the watershed.
* Pollutant testing inventory

Upper Wakarusa Watershed

APPLIED LAND MANAGEMENT

Year	ORG	Practice	Acres Impacted	Feet	Sq. Ft.	Contributing Program	Actual Cost	Cost Share	%age	Owner Balance
2003	Corps	Trash & Area Control								
2003	KDWP	Conservation Tillage	1141			farmer			0%	
2003	KDWP	Wetland Construction	20			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 8,000.00	$ 8,000.00	0%	
2003	KDWP	wetland buffer	10			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 650.00	650	0%	
2003	KDWP	Grass planting	336			KDWP	$ 22,000.00		100%	
2003	KDWP	Wildlife - Upland Area Management	2500			KDWP	$ 1,000.00		100%	
2003	KDWP	Brush Management	2500			KDWP	$ 5,000.00		100%	
2003	KDWP	Nutrient Management	1141			farmer			0%	
2003	KDWP	Trash & Area Control	9200			KDWP	$ 1,000.00			
2003	KDWP	Vehicle Fueling Spill Control Prevention	2			KDWP	$ 2,500.00			
2003	KDWP	Wildlife - Wetland Management	125			KDWP	$ 4,000.00		100%	
2003	KDWP	Wetland Construction	40			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 10,000.00		100%	
2003	KDWP	wetland buffer	5			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 325.00		100%	
2003	SCCD	Pasture & Hayland Planting	50			WRCSP	$ 4,031.30	$ 2,418.78	60%	$ 1,612.52
2003	SCCD	Unpermitted Dump Site Remediation	NA	NA	NA	NPSCSP	$ 1,082.00	$ 756.57	70%	$ 325.00
2003	SCCD	Pond	52			WRCSP	$ 7,239.68	$ 2,392.46	33%	$ 4,847.22
2003	SCCD	Pond	54			WRCSP	$ 3,555.00	$ 2,133.00	60%	$ 1,422.00
2003	SCCD	Fencing	40	5562		NPSCSP	$ 7,875.00	$ 5,000.00	63%	$ 2,875.00
2003	SCCD	Pond Restoration	74			WRCSP	$ 2,936.53	$ 1,453.44	49%	$ 1,483.09
2003	SCCD	Pond	40			WRCSP	$ 4,480.00	$ 2,591.97	58%	$ 1,888.03
2003	SCCD	Pond	21			WRCSP	$ 7,629.50	$ 4,577.70	60%	$ 3,051.80
2003	SCCD	Onsite Watewater System	NA	NA	NA	NPSCSP	$ 2,300.00	$ 1,473.99	64%	$ 826.00
2003	SCCD	Grassed Waterway or Outlet	99			WRCSP	$ 1,809.00	$ 1,041.73	58%	$ 767.27
2003	SCCD	Pasture & Hayland Planting	10			WRCSP	$ 1,428.84	$ 676.01	47%	$ 752.83
2004	Corps	Trash & Area Control								
2004	KDWP	Conservation Tillage	1141			farmer			0%	
2004	KDWP	Grass planting	231			KDWP	$ 15,000.00		100%	
2004	KDWP	Wildlife - Upland Area Management	2500			KDWP	$ 1,000.00		100%	

Year	ORG	Practice	Acres Impacted	Feet	Sq. Ft.	Contributing Program	Actual Cost	Cost Share	%age	Owner Balance
2004	KDWP	Brush Management	2500			KDWP	$ 5,000.00		100%	
2004	KDWP	Nutrient Management	1141			farmer			0%	
2004	KDWP	Trash & Area Control	9200			KDWP	$ 1,000.00			
2004	KDWP	Critical Area Planting	15			KDWP	$ 975.00			
2004	KDWP	Terracing	20	200		FSA			0%	
2004	SCCD	Pond Restoration	147			WRCSP	$ 3,813.32	$ 2,287.99	60%	$ 1,525.33
2004	SCCD	Fencing		822		WRCSP	$ 4,056.44	$ 1,093.26	27%	$ 2,963.18
2004	SCCD	Filter Strip				WRCSP	$ 88.95	$ 36.86	41%	$ 52.09
2004	SCCD	Fencing	160	5280		WRCSP	$ 8,706.98	$ 5,000.00	57%	$ 3,706.98
2004	SCCD	Pond Restoration	85			WRCSP	$ 3,333.96	$ 1,560.00	47%	$ 1,773.96
2004	SCCD	Pond Restoration	200			WRCSP	$ 3,072.00	$ 1,670.40	54%	$ 1,401.60
2004	SCCD	Pond Restoration	212			WRCSP	$ 5,075.85	$ 1,825.20	36%	$ 3,250.65
2005	CORPS	Grass Planting	18			DCRCS	$ 1,845.00		100%	
2005	Corps	Trash & Area Control								
2005	CORPS	Wetland - Constructed	15			DCRCS, KVHA, KAWS	$ 57,298.00	$ 37,298.00	65%	
2005	CORPS	Grass Planting	10			DCRCS	$ 1,125.00		100%	
2005	CORPS	Grass Planting	24			DCRCS	$ 2,365.00		100%	
2005	CORPS	Grass Planting	22			DCRCS	$ 2,154.00		100%	
2005	CORPS	Grass Planting	12			DCRCS	$ 1,145.00		100%	
2005	KDWP	Conservation Tillage	1141			farmer			0%	
2005	KDWP	Grass planting	131			KDWP	$ 8,500.00		100%	
2005	KDWP	Wildlife - Upland Area Management	2500			KDWP	$ 1,000.00		100%	
2005	KDWP	Brush Management	2500			KDWP	$ 5,000.00		100%	
2005	KDWP	Nutrient Management	1141			farmer			0%	
2005	KDWP	Trash & Area Control	9200			KDWP	$ 1,000.00			
2005	KDWP	Pumping plant	135			KDWP Clinton Wildlife Area Agricultural Funds, KS Wildscapes, Marsh funds from state waterfowl stamp	$ 40,000.00		100%	

Year	ORG	Practice	Acres Impacted	Feet	Sq. Ft.	Contributing Program	Actual Cost	Cost Share	%age	Owner Balance
2005	KDWP	Wetland Construction	75			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 35,000.00		100%	
2005	KDWP	wetland buffer	5			KDWP, KC Safari Club Int'l, DCCD, KAWS	$ 325.00		100%	
2005	KRC	Fencing	60	500		CWF				
2005	KVHA	Fencing		300		WRAPS	$ 660.00	$ 528.00	80%	$ 132.00
2005	KVHA	Livestock Waste (feed site)	40		5000	WRAPS	$ 4,886.40	$ 3,381.12	69%	$ 1,505.28
2005	KVHA	Well		100		WRAPS	$ 4,830.00	$ 3,864.00	80%	$ 966.00
2005	KVHA	Pipeline		400		WRAPS	$ 520.00	$ 416.00	80%	$ 104.00
2005	KVHA	Livestock Waste (Waterer)	40			WRAPS	$ 948.00	$ 758.40	80%	$ 189.60
2005	SCCD	Pipeline	40	304		NPSCSP	$ 2,126.00	$ 462.00	22%	$ 1,664.00
2005	SCCD	Watering Facility	40			NPSCSP	$ 781.00	$ 581.00	74%	$ 200.00
2005	SCCD	Onsite Watewater System	NA	NA	NA	NPSCSP	$ 3,890.00	$ 1,500.00	39%	$ 2,390.00
2005	SCCD	Onsite Watewater System	NA	NA	NA	NPSCSP	$ 2,638.00	$ 1,500.00	57%	$ 1,138.00
2005	SCCD	Terrace Restoration	10			WRCSP	$ 1,920.00	$ 683.40	36%	$ 1,236.60
2005	self	Access Road (230'x12'x9')					$ 1,339.65	$ -	0%	$ 1,339.65
2009	KDWP	Grass planting (retired fields)								
2005	DCCD	Range Planting	8.5			NPS	$ 1,285.55	$ 899.89	70%	
2005	DCCD	Range Planting	50			NPS	$ 5,412.71	$ 3,530.72	65%	
2005	DCCD	Fencing	1217			NPS	$ 3,100.00	$ 2,170.00	70%	
2005	DCCD	Fencing	616			NPS	$ 1,600.00	$ 1,120.00	70%	
2005	DCCD	Fencing	789			NPS	$ 1,600.00	$ 1,120.00	70%	
2005	DCCD	Well Decommissioning		17.5		NPS	$ 647.50	$ 453.25	70%	
2005	DCCD	Grassed Waterway Restoration	3.4			WR	$ 4,228.80	$ 2,960.16	70%	
2005	DCCD	Terrace		500		WR	$ 370.00	$ 259.00	70%	
2005	DCCD	Grassed Waterway	0.4			WR	$ 603.00	$ 324.61	54%	
2005	DCCD	Grassed Waterway	0.4			WR	$ 457.00	$ 244.57	54%	
2005	DCCD	Grassed Waterway	1.44			WR	$ 6,899.00	$ 2,113.83	31%	
2005	DCCD	Wetland Creation	12.1			RW	$ 30,962.00	$ 20,000.00	65%	
2004	DCCD	On-Site Wastewater System			2500	NPS	$ 7,500.00	$ 2,000.00	27%	
2004	DCCD	Range Planting	10			NPS	$ 727.90	$ 419.72	58%	
2004	DCCD	Range Planting	40.4			NPS	$ 1,081.60	$ 757.12	70%	
2004	DCCD	Range Planting	11.3			NPS	$ 751.41	$ 474.29	63%	
2004	DCCD	Terrace & Underground Outlet	2.1			WR	$ 8,286.00	$ 4,009.71	48%	

Year	ORG	Practice	Acres Impacted	Feet	Sq. Ft.	Contributing Program	Actual Cost	Cost Share	%age	Owner Balance
2004	DCCD	Grassed Waterway	2.5			WR	$ 1,665.00	$ 1,165.50	70%	
2004	DCCD	Wetland Creation	75			RW	$ 37,468.34	$ 10,000.00	27%	
2003	DCCD	Livestock Waste Management	40	2681		NPS	$ 5,937.04	$ 4,155.93	70%	
2003	DCCD	Well Decommissioning		24.5		NPS	$ 385.82	$ 270.07	70%	
2003	DCCD	Range Planting	20			WR	$ 794.99	$ 556.49	70%	
2003	DCCD	Grassed Waterway	1.2			WR	$ 3,885.87	$ 2,720.11	70%	
2003	DCCD	Terrace	4183			WR	$ 2,802.61	$ 1,932.55	69%	
2003	OCCD	Onsite Watewater System	NA	NA	NA	NPSCSP	$ 3,327.00	$1,632.60	49%	$ 1,694.40
2003	OCCD	Pond, pipeline	160			NPSCSP	$ 3,823.73	$2,676.61	70%	$ 1,147.12
2003	OCCD	terrace	7	309		WRCSP	$ 340.00	$109.39	32%	$ 230.61
2003	OCCD	Critical Area Planting, waterway	3			WRCSP	$ 3,849.00	$2,007.90	52%	$ 1,841.10
2004	OCCD	Tile terrace	26	1326		WRCSP	$ 2,150.00	$1,193.40	55%	$ 956.60
2004	OCCD	underground outlet	26	388		WRCSP	$ 2,787.10	$1,255.20	45%	$ 1,531.90
2004	OCCD	gradient terrace	14	2358		WRCSP	$ 1,532.70	$919.62	60%	$ 613.08
2004	OCCD	soil tests				NPSCSP	$ 98.00	$98.00	100%	$ -
2004	OCCD	soil tests				NPSCSP	$ 518.00	$518.00	100%	$ -
2004	OCCD	soil tests				NPSCSP	$ 931.00	$931.00	100%	$ -
2005	OCCD	fencing		2515		NPSCSP	$ 6,930.28	$4,000.00	58%	$ 2,930.28
2005	OCCD	soil tests				NPSCSP	$ 553.00	$553.00	100%	$ -
2005	OCCD	soil tests				NPSCSP	$ 497.00	$497.00	100%	$ -
2006	OCCD	soil tests				NPSCSP	$ 456.00	$456.00	100%	$ -
2006	OCCD	terrace	27	5221		WRCSP	$ 3,915.75	$2,349.45	60%	$ 1,566.30

Upper Wakarusa Watershed

MATERIALS PRODUCED

The Upper Wakarusa Water Quality Discussion & Workshop

LEARN about state sponsored watershed protection initiatives.

DISCUSS local water quality issues, needs, and impacts. Share your thoughts on the importance of water in your community.

HEAR from area agencies and organizations on cost share opportunities.

INFLUENCE land management priorities and conservation efforts in your community.

The Upper Wakarusa Water Quality Discussion & Workshop

is sponsored by:

County Conservation Districts

Kaw Valley Heritage Alliance

K-State Kansas State University Research and Extension

Upper Wakarusa Watershed

KAWS

NRCS

FOR MORE DETAILS, CONTACT

Aimee Polson 785-840-0700
aimee@kvha.org

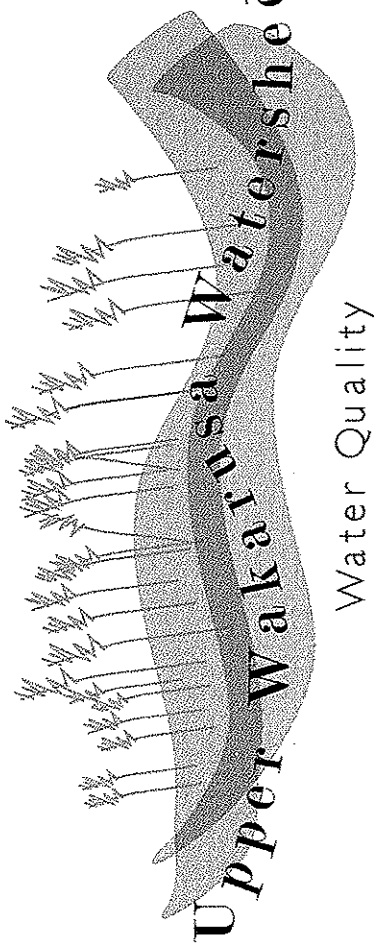
Will Boyer 785-843-7058
wboyer@oznet.ksu.edu

Evelyn Davis 785-267-5721
evelyn@sccdistrict.com

Increase local awareness of and involvment in watershed restoration and protection.

Wednesday
November 2, 2005
9:30 am to 4 pm

VFW
422 Ridgeway Street
Carbondale, Kansas
(off HWY 75)



Upper Wakarusa Watershed

Water Quality
Discussion & Workshop

Agenda

8:00 am (optional)
Demonstration Tour at 3431 SW 97th St. in Wakarusa, KS

9:30 am
LEARN about Clinton Lake/Upper Wakarusa watershed restoration & protection efforts.

10:00 am
DISCUSS how your watershed has changed, what its future looks like, and how we as a group can make a difference.

12:00 pm
lunch and mingling

1:00 pm
HEAR from residents from the Cheney Lake Watershed, located upstream from Wichita, who will share their experiences with watershed management and with urban/rural partnerships.

1:45 pm
LEARN about cost share funding opportunities.

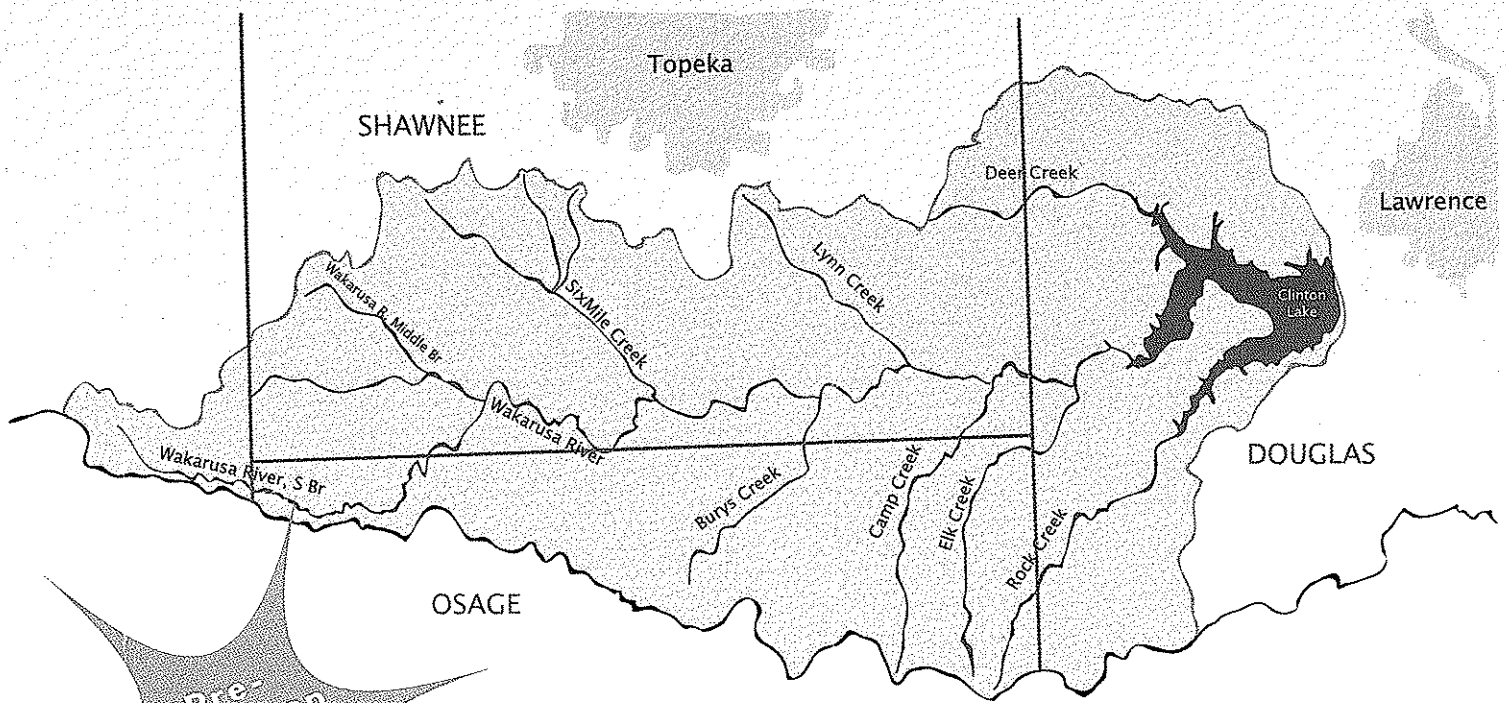
2:30 pm
Summary discussion.

3:00 pm
Booth and poster fair

Free lunch & a small breakfast will be provided at the workshop.

There will be a prize drawing before the poster fair.

Upper Wakarusa Watershed



Pre-Workshop DEMONSTRATION SITE

A streambank restoration & field buffer tour will take place between 8 & 9 am prior to the workshop.

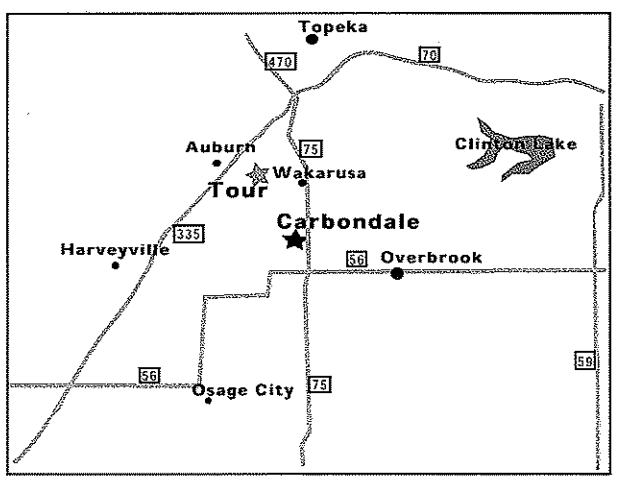
The tour will take place at 3431 SW 97th St. near Wakarusa.

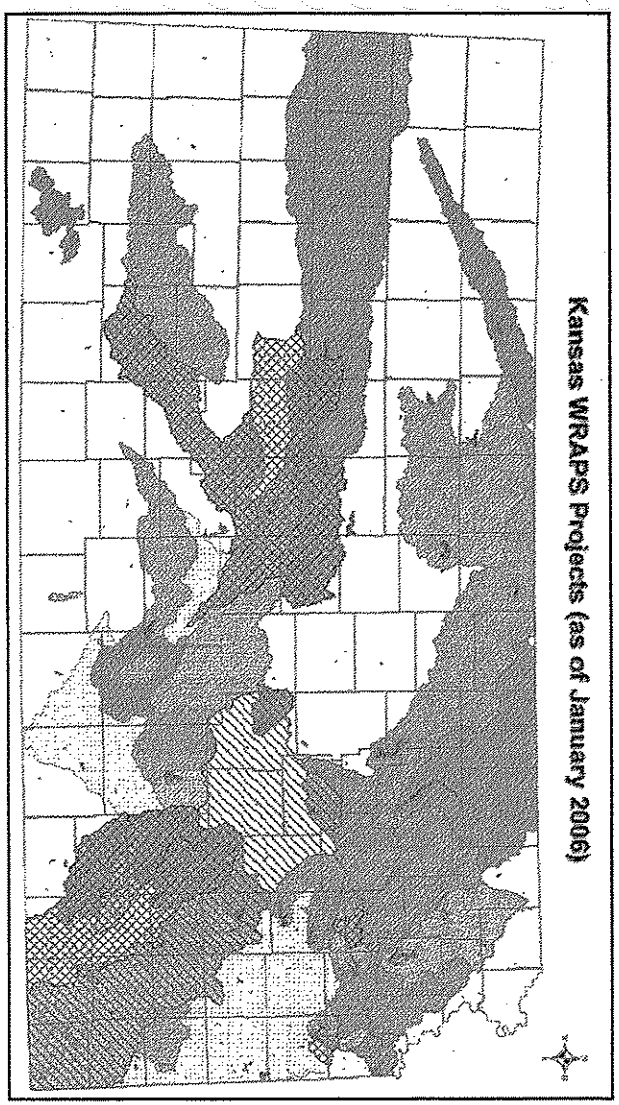
Meet representatives from:

County Conservation Districts, NRCS, Cheney Reservoir Restoration Project, East Central No-Till, Kaw Valley Heritage Alliance, K-State Research & Extension, Kansas Alliance of Wetlands & Streams, Kansas Rural Center, Wakarusa Watershed District, Rural Water Districts, County Farm Bureaus, and Kansas Dept. of Wildlife & Parks.

Wednesday
November 2, 2005
9:30 am to 4 pm

VFW
422 Ridgeway Street
Carbondale, Kansas
(off HWY 75)





What is a Watershed?
An area of land that drains water toward a downhill point. The point can be a stream segment, river, lake or pond, or the lowest place within the watershed where rain always collects. Since the movement of water is directed by gravity, a watershed will be separated from other watersheds by land with higher points of elevation.

What does HUC 8 mean?
HUC stands for Hydrologic Unit Code. The USGS developed a classification system for dividing hydrologic regions and assigning them a code based on their region (represented by the first and second digit in the code), sub-region (third and fourth digit), accounting units (fifth and sixth digit), and cataloging units (sixth and seventh digit).

There are approximately 90 Huc 8 watersheds in the state of Kansas and approximately 66 of the 90 watersheds have surface waters violating state standards. There are 37 HUC 8s with 1 or more WRAPS projects.

Resources

Adopt Your Watershed. www.epa.gov/adopt/

Democracy in Practice: Public Participation in Environmental Decisions, Thomas C. Beierle and Jerry Cayford.

The Facilitator's Fieldbook: Step-by-Step Procedures, Checklists and Guidelines, Samples and Templates, Tom Justice, et al.

Facilitator's Guide to Participatory Decision-Making, Sam Kaner, et al.

Getting In Step: A Guide for Conducting Watershed Outreach Campaigns
www.epa.gov/owow/watershed/outreach/documents/getnstep.pdf

Getting in Step: Engaging and Involving Stakeholders in Your Watershed
www.epa.gov/owow/watershed/outreach/documents/stakeholderguide.pdf

Handbook for Developing Watershed Plans to Restore and Protect Our Waters
www.epa.gov/owow/nps/watershed_handbook/.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
www.epa.gov/owow/nps/urbanmm/index.html.

The Skilled Facilitator, Roger Schwarz, et al.

Water Safety Plans: Managing Drinking Water from Catchment to Consumer, Annette Davidson, et al. World Health Organization
www.who.int/water_sanitation_health/dwq/safetyplans/en/

Contact

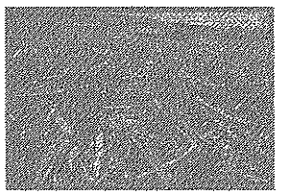
KDHE
Bureau of Water
Watershed Mgmt. Section
1000 SW Jackson St.
Suite 420
Topeka, KS 66612-1367
(p)785-296-4195
NPS@kdhe.state.ks.us
www.kdheks.gov

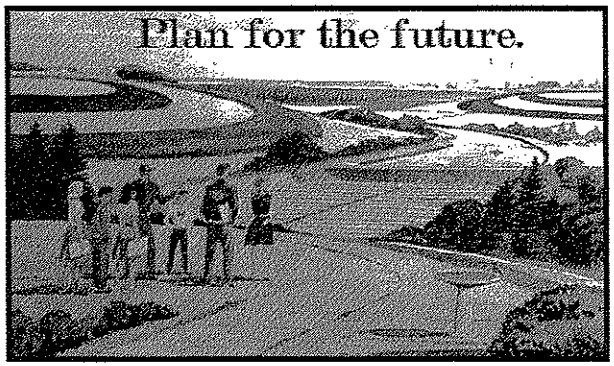
Aimee Polson
Upper Wakarusa WRAPS
412 E. 9th Street
Lawrence, KS 66044
(p)785-840-0700
wakarusawatershed.org
aimee@kvha.org

Peggy Blackman
Marion Reservoir WRAPS
303 Eisenhower Drive
Marion, KS 66861
(p)620-382-3520
(f)620-382-3714
peggy.blackman@ks.nacdnet.net

Katie Miller
Twin Lakes WRAPS
116 Fox Street
Council Grove, KS 66846
(p)620-767-5111 ext. 110
(c)620-767-3187
katie.miller@ks.nacdnet.net

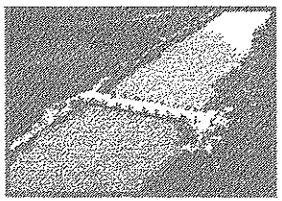
KDHE has provided financial assistance to this project through EPA Section 319 Nonpoint Source Pollution Control Grant #2003-0013.

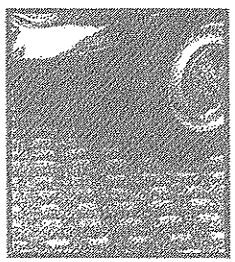


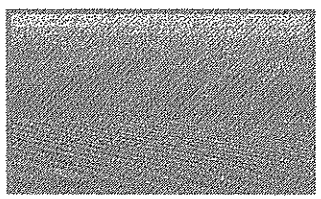


Cultivating a watershed community

fostering citizen support and action for a WRAPS







1 Public Participation in the WRAPS Writing Process

Public participation: The involvement of citizens in decision-making processes. Participation ranges from being given notice of public hearings to being actively included in decisions that affect communities.

Why work with the public: The public may improve the substantive quality of decisions in several ways, such as by offering local or site-specific knowledge, discovering mistakes, or generating alternative solutions that satisfy a wider range of interests. Plans may take longer and cost more money to write, but the implementation stage should be much faster and effective as a result of these efforts.

Trust of an agency or project increases when there is greater public involvement. Increase and sustain trust by promoting as much transparency and communication as possible.

Do not be overly concerned if you find yourself preaching to the choir. These people, sometimes referred to as *innovators* or *early adopters*, can become effective advocates, working within their own spheres of influence.

Continue to revisit the final WRAPS document and make necessary revisions, updates, or corrections. Likewise, there will be outcomes to actions taken that need to be integrated into your Plan.

Upper Wakarusa Watershed

367 square miles
Douglas, Shawnee, Osage, Wabaunsee Counties
56% grassland, 27% cropland
Clinton Lake
Built: 1977
Capacity: 269,000 acre feet
Public Water Source for over 100,000
WRAPS initiated in 2003

Project Highlights

- Elk Creek Wetland complex.
- Water Quality Discussion & Workshop in November.
- House Parties hosted by watershed residents where water and watershed issues and histories are shared.
- Kansas State University Bacteria Study.

2 Education

Education: The knowledge or skill obtained or developed as the result of a learning process. Education varies from public meetings, tours, and literature, to discipline through workshops, festivals, and demonstrations.

Why educate the public: Education is vital to the success of a WRAPS. Adults and children alike are present and future stakeholders in a WRAPS, and need proper knowledge of local watershed issues, problems, and possible solutions. Linking watershed knowledge to everyday life and actions will form a web of background information that leads to environmentally sound decision-making.

Educating the public is an ongoing process that will last throughout the life of the WRAPS. Developing good quality, user-friendly materials will be beneficial. Keep in mind that watersheds and water issues may be foreign concepts to many people, so know your target audience, and develop and deliver information accordingly. Since different people learn through different avenues, don't limit yourself on ways of distributing materials. Press releases, flyers, newsletters, radio spots, workshops, tours, public meetings, and personalized mailings are all effective, but never underestimate the power of a 1-on-1 conversation.

Neosho Watershed Twin Lakes Water Quality Project

259 square miles
64% grassland/, 30% cropland
Public Water Source for 35,000
Council Grove Lake
Built: 1964
Drainage Area: 246 sq. miles
Capacity: 346,655 acre feet
Council Grove City Lake
Built: 1940
Drainage Area: 8 sq. miles
Capacity: 9,982 acre feet
WRAPS initiated in 2001

Project Highlights

- Installing BMP's to improve water quality in the watershed that double as demonstration sites.
- Educational activities targeting all stakeholders focusing on local water issues and concerns.
-First annual Twin Lakes Water Festival hosting 700 students from 4 counties.

3 Reaching the Producer

BEST MANAGEMENT PRACTICES

Soil saved is money earned.
Farmers and ranchers now have more incentives than ever to voluntarily conserve natural resources on privately owned farmland. Conservation Practices or Best Management Practices (BMP's) can help reduce erosion , guard streams and rivers, restore and establish fish and wildlife habitat, improve air, and save dollars with nutrient and pesticide management and conservation tillage for the farmer.

BMP's are the most practical and effective way to prevent soil erosion and the contamination of our water sources with sediment.

Soil determines a farm's productivity.

Grass is the forgiveness of nature - her constant benediction. John Ingalls, U.S. Senate 1890

Food, water, and shelter are the basics of livestock production. Through the WRAPS program a livestock producer can implement: Grazing Management Systems, Fencing, Move Livestock wintering pens and watering, feeding facilities away from Creeks, Rivers, etc., Range Seeding, Pasture and Hay land Planting, Develop alternative Water Sources, and Brush and Weed Control

WRAPS is a voluntary project designed to improve the water quality in Kansas rivers, streams and lakes, but can add to the Bottom Line or Profit Margin on producers' farms and ranches.

Marion Reservoir Watershed

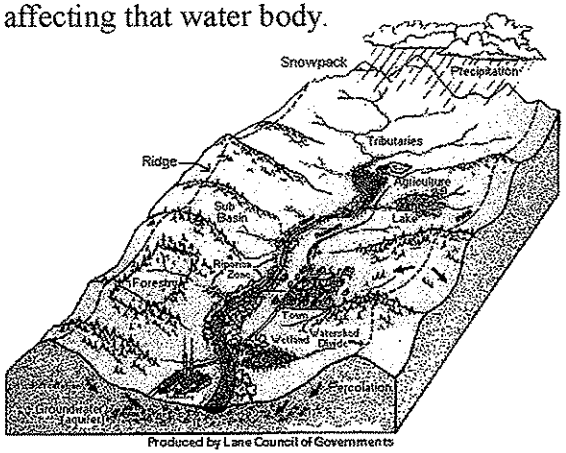
200 square miles
52% cropland, 48% grassland
Marion Reservoir
Built: 1968
Capacity: 141,802 acre feet
Public Water Source for over 15,000
WRAPS initiated in 2002

Project Highlights

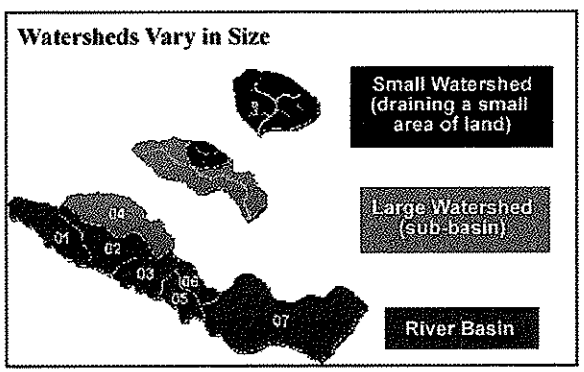
2003-2005
BMPs Implemented: 99
Actual Cost: $221,136.00
WRAPS funds: $ 93,398.67
In-Kind Contribution: $103,701.41
Terraces Implemented: 193,155 feet (36.6 miles)

What is a Watershed?

A watershed is defined as an area of land that drains to a common location such as a lake or point on a stream. Everyone lives in a watershed! The rainfall that runs off your yard and roof of your house eventually drains into some type of water body (i.e. lake or stream). Fertilizer or pesticides that you put on your lawn or cropland can be washed into a lake or stream if not applied properly, negatively affecting that water body.



Watersheds vary in size and are part of a hydrologic system of interconnected watersheds in which small watersheds are combined to form larger watersheds that drain an increasingly larger area of land. Every piece of land on the earth is part of a watershed.



Acknowledgements

This project is a cooperative effort of the following agencies. Visit their websites to find out more about your watershed and how you can get involved.

Kaw Valley Heritage Alliance
www.kvha.org

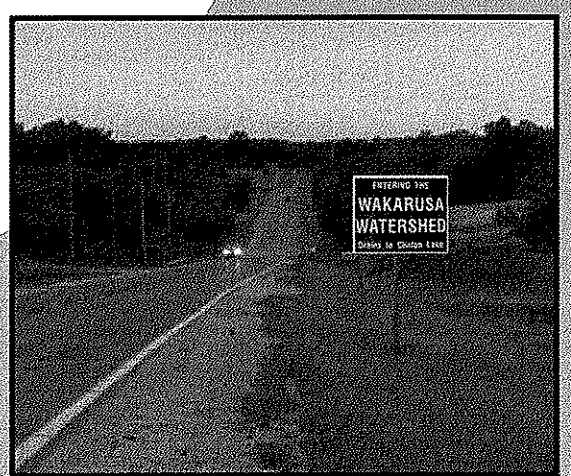
Kansas Dept. of Health & Environment
www.kdhe.state.ks.us/nps/index.html
Watershed Conditions Report
www.kdhe.state.ks.us/nps/index.html
Total Maximum Daily Loads (TMDL)
www.kdhe.state.ks.us/tmdl/index.html

Kansas Water Office
www.kwo.org

Natural Resource Conservation Service & Conservation Districts
www.ks.nrcs.usda.gov
www.accesskansas.org/kscc

Extension Offices
www.oznet.ksu.edu/main/maps.asp

EPA - *Surf Your Watershed*
cfpub.epa.gov/surf/locate/index.cfm



This project was developed by Class 4 (2003) of the Kansas Environmental Leadership Program (KELP) - www.oznet.ksu.edu/kelp

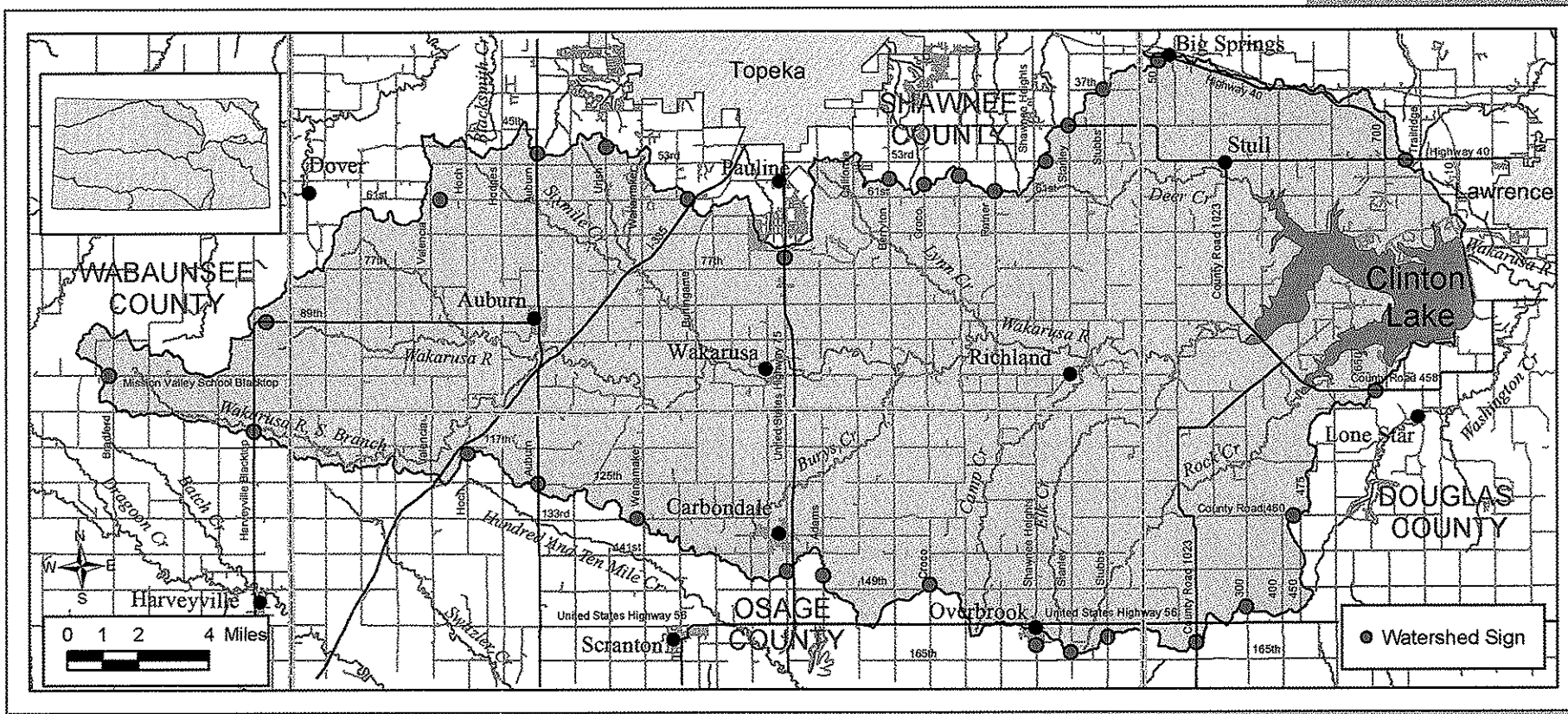
Funding for this project was provided in part through a grant from the Kansas Water Plan Fund.

ENTERING THE
WAKARUSA WATERSHED
Drains to Clinton Lake

WAKARUSA WATERSHED and Clinton Lake AWARENESS PROJECT

Once individuals become aware of and interested in their watershed, they often become more involved in efforts to protect and restore the watershed and the waters within it. Signs like the one above are being placed along roadways near the boundaries of the Upper Wakarusa River Watershed to promote watershed partnerships between landowners, homeowners, local businesses, developers, recreational users, governmental agencies, elected officials, media, teachers, civic groups, conservation groups, environmentalists, church groups, youth groups, and others.

Get informed! Get involved!



Upper Wakarusa Watershed

The Upper Wakarusa Watershed drains into Clinton Lake. The watershed covers approximately 367 square miles and extends about 40 miles west from the predominately forested Douglas County area out into the Tallgrass Prairie and cropland areas of southern Shawnee, northern Osage, and eastern Wabaunsee counties. Kansas has twelve major river basins. The Upper Wakarusa Watershed is part of a larger watershed called the Kansas-Lower Republican River Basin. The Unified Watershed Asessment gives the Upper Wakarusa Watershed a high priority ranking for restoration work.

Clinton Lake

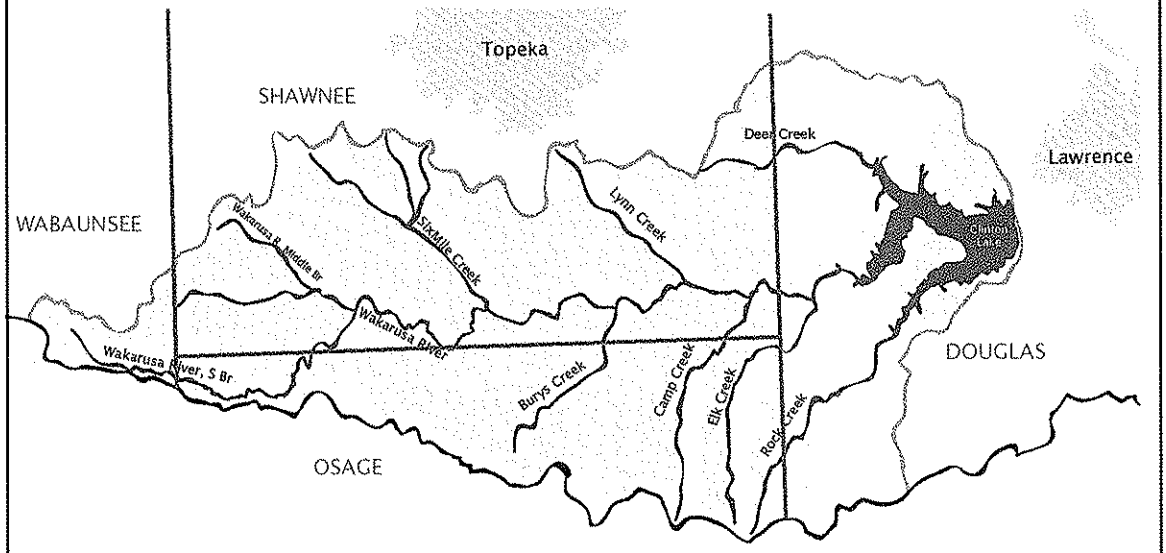
Clinton Lake covers approximately 7,000 acres in Douglas County and provides a variety of benefits including flood control, drinking water supply, recreation and water quality enhancement. The lake is the source of drinking water for the City of Lawrence and 15 other cities and rural water districts in the surrounding counties. Over 100,000 people drink treated water from Clinton Lake.

While one person can make a difference, it is only through the shared and organized efforts and commitment of citizens that long term, sustainable change will occur.

Water Quality

The Kansas Department of Health and Environment (KDHE) has identified water quality problems affecting the Wakarusa River and Clinton Lake. Problems include nutrients (phosphorus and nitrogen) in Clinton Lake and bacteria and sediment in the Wakarusa River. A watershed management plan has been developed by the Kaw Valley Heritage Alliance. Several agencies and organizations are working with landowners and residents in the watershed to address water quality concerns through the implementation of best management practices identified and recommended in the plan.

Upper Wakarusa Watershed



Water Quality Discussion & Workshop

Wednesday November 2, 2005
9:30am-4pm

VFW 422 Ridgeway St. Carbondale, KS

LEARN about state sponsored watershed protection initiatives.

DISCUSS local water quality issues, needs, and impacts.
Share your thoughts on the importance of water in your community.

HEAR from area agencies and organizations on cost share opportunities.

INFLUENCE land management priorities and conservation efforts in your community.

There will be a prize drawing before the poster fair.

FOR MORE DETAILS, CONTACT
Aimee Polson
785-840-0700
aimee@kvha.org

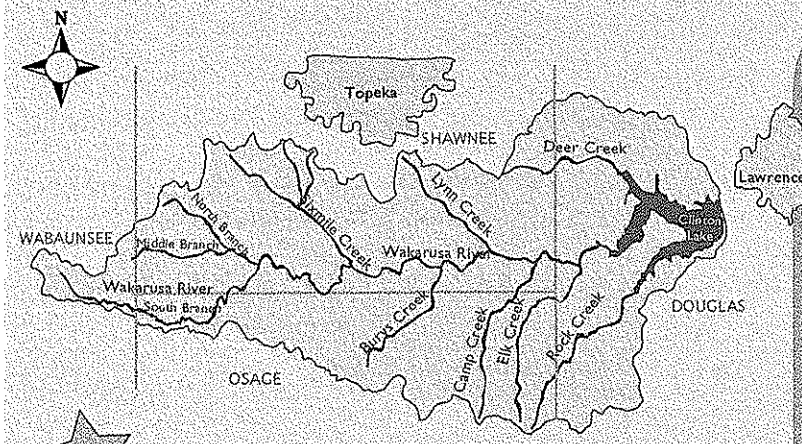
KAW VALLEY HERITAGE ALLIANCE
Upper Wakarusa Watershed

www.wakarusawatershed.com

contact aimee@kvha.org ... 785-840-0700 ...

USA

Upper Wakarusa Watershed



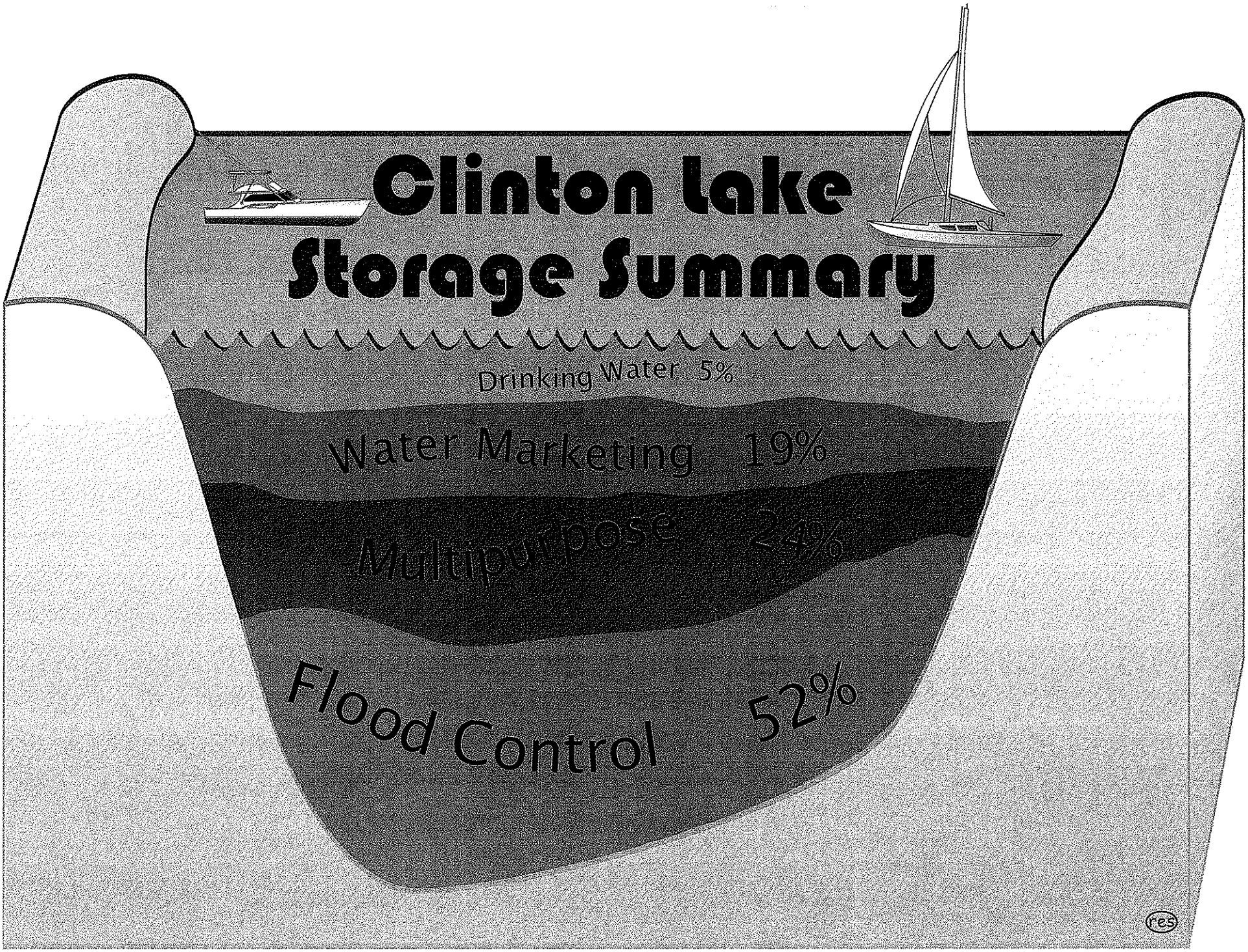
House Party

LEARN about state sponsored watershed protection initiatives.

DISCUSS water quality and land use issues, needs, and impacts.

SHARE your thoughts on the importance of water in your area.

INFLUENCE land management priorities and conservation efforts in your community.


Clinton Lake
Storage Summary
Drinking Water 5%
Water Marketing 19%
Multipurpose 24%
Flood Control 52%

Wakarusa Review

June 2005 **CULTURE** **HISTORY** **ECONOMY** **ENVIRONMENT** Vol 05 - UWW1

Welcome to the first edition of the Wakarusa Review! Published by the Kaw Valley Heritage Alliance (KVHA), this new publication focuses on the people, land, water, and history of the Wakarusa River Valley. KVHA is a 501c(3) non-profit organization dedicated to protecting and enhancing the cultural and natural resources of the Kansas (Kaw) River Valley. There's more information about the Alliance and the work we're doing in the Wakarusa Valley further on in the newsletter. We sincerely hope you enjoy this issue and look forward to establishing a biannual publication cycle.

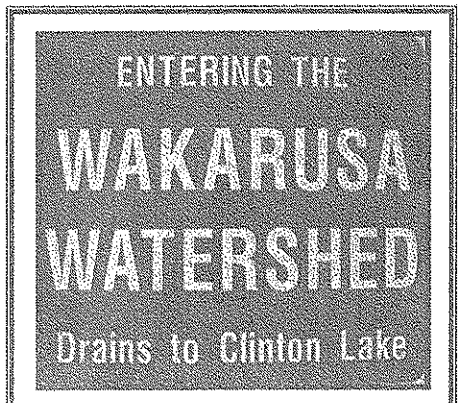
Icebergs and Mud

In northeastern Kansas hidden rock layers resonate with the legacy of glacial scouring. Moving and melting glaciers transformed the landscape into an area of rich ecological diversity. The Kansas River carried melt water and icebergs east. Occasionally, ice jams caused water to backup and flood over the river's banks. An ice jam near Wamego caused melt waters to breach the river's natural levee and rush along a parallel path—the Wakarusa River. The floodplain of the Wakarusa River was broadened and limestone hills were sculpted by melt water. When the inundation slowed, wide stream channels gently narrowed as silt and small particles of debris dropped from the stream flow.

This glacial history of silt drop-out is the watershed's strength and weakness. Soft, nutrient rich silt supports a strong diversity of flora and fauna. The most productive agricultural areas are traditionally found in floodplains.

However, floodplains flood and the Wakarusa

(Continued on page 3)



Signs like this are ready to be placed along roadsides in the watershed.

Bridging the Past and Present

The Wakarusa River is a tributary of the Kansas River, approximately 50 miles long draining an agricultural area of rolling limestone hills south of Topeka and Lawrence.

Unraveling a watershed's history is like watching leaves blowing in the wind and trying to remember which tree each came from. Many of the articles planned for the *Wakarusa Current* are solid attempts to **bridge** the past and present. To know what is and what was, is to know what we're trading for the future. *-ALR*

Play Hard, Drink Water!

Clinton Lake was built in the 1970's for the primary purpose of providing flood control, recreation, and drinking water for surrounding communities. Today the lake provides flood protection for 156 square miles of the Wakarusa River valley downstream from the dam, and is part of a network of lakes that helps control flooding on the Kansas, Missouri, and Mississippi Rivers. A portion of the lake is used to provide water, up to 10 million gallons per day, for Johnson, Osage, Franklin, and Shawnee county residents and nearly everyone in Douglas County. The most heavily used Federal reservoir for water supply in Kansas, the lake and surrounding areas are also used by over one million people annually for recreation. Clinton Lake provides many important benefits for Kansans, but as Bret Michaels of the legendary rock band *Poison* tells us, "Every rose has its thorn." Unfortunately, the lake is an artificial structure within an unusually erosion-prone river system. Intensified land

(Continued on page 3)

Wakarusa Review

...a biannual production of the Upper Wakarusa Watershed Restoration and Protection Strategy (UWW WRAPS).

UWW WRAPS
is a project of the
Kaw Valley Heritage Alliance
412 E. 9th Street
Lawrence, KS 66044
(785) 840-0700
Fax: (785) 843-6080
www.kvha.org
www.wakarusawatershed.org

KVHA is a federally recognized 501c(3) non-profit organization. Donations are tax deductible.

Funding for the UWW WRAPS Project is currently provided by the through grants from the KS Dept. of Health & Environment (KDHE) and by the contributions of partners and program users.
KDHE Assistance #2003-013

Exploring the Kaw Valley : *A Guide to Natural and Historic Resources on the Kaw River Valley*

By Lynn Byczynski

Guides the reader and traveler through the important cultural, historical, and natural resources in the Kansas (Kaw) River Valley. Oraganized in 10 half-day tour chapters. Suggested activities range from trails and parks, museums, natural wonders and children's activities. **To Order:** Individual copies can be ordered directly from KVHA by sending a check for $14.95 (includes tax and shipping) to KVHA; 412 E. 9th Street, Lawrence, KS 66044-2629.

KVHA and Partners to Host Workshop in the Fall

Kaw Valley Heritage Alliance is working with its partners including K-State University Extension, County Conservation Districts, and K.A.W.S. to organize a fall workshop geared towards agricultural producers and others whose primary or secondary occupation involves working the land. The purpose of this event is to generate a discussion among those within the Upper Wakarusa Watershed centering on issues of water quality and sustainability and economic security.

Who is the Alliance?

The Kaw Valley Heritage Alliance was formed in 1996 as a project of the Kansas Rural Center (KRC). The Alliance was officially recognized as a 501c3 non-profit in 1998. KVHA is built around the philosophy that quality of life and economic health are dependent on the ecologically responsible, economically viable, and socially acceptable use of resources. KVHA is a touchstone for many organizations and individuals interested in parallel projects.

KVHA Vision Statement

The people of the Kaw Valley will maintain a strong sense of place and community. The valley will be a land of farms and families, of neighborhoods, towns, and cities. It will be a place where industry and business thrive; where natural and historical places are preserved; and where clean, healthy rivers and streams support aquatic life and offer recreational opportunities. People will build consensus for resource conservation and will promote responsible use of air, water, and land, while supporting a healthy economy.

To learn more about the area and the project see www.wakarusawatershed.org

To make a submission to the next Wakarusa Review newsletter, please call Aimee at 785-840-0700 or e-mail her at aimee@kvha.org.

Hands On Experiences : Communities Get Involved

"I am a firm believer in the elegant logic of community-based stewardship, a powerful catalyst for proactive watershed protection and restoration initiatives, and in the necessity of strong public/private partnerships." - Lysle Sherwin

Lysle Sherwin, the current Director of the Center for Watershed Stewardship at Penn State, spoke at a KDHE conference on watershed protection earlier this spring. The Center's project in the Maiden Creek watershed (near Reading, PA) mirrors efforts in the Upper Wakarusa watershed. Steadily increasing non-point source pollution to Maiden Creek is impacting Lake Ontelaunee— the water supply for approximately 125,000 residents

Throughout his presentation, *Community Based Watershed Planning*, he shared stories and anecdotes of success. He advised the audience to maximize working relationships to keep the public aware and educated. "Politics may trump science but publicity trumps politics."

Sherwin encouraged people to think creatively to find resources. For example, school districts and universities are packed full of eager young minds who are willing to provide manpower for little more than the valued experience that employers crave. It is a win-win situation when the students are involved. -Travis M. Daneke

Kansas StreamLink, a KVHA Education Program, helps schools and civic groups connect with local water resources through stream observations and stewardship activities such as tree planting. Contact Travis Daneke, travis@streamlink.org for more information.

Basic Stream Assessment Workshop to be held in Wakarusa Watershed August 25th & 26th

This workshop is designed for landowners, educators, and civic group leaders. Topics include stream bank restoration, stream protection strategies, non-point source pollution prevention and identification, and follow up support to make these things happen in your community. Go home with fresh ideas, new friends, and only a little mud under your nails. Registration is $100 (includes take-home materials, food & housing). Educator scholarships are available. Contact Travis at 785-840-0700 or travis@streamlink.org for more information.

The Melvern Lake Water Quality Project

KAWS

KANSAS

KSTATE Research and Extension

Kansas StreamLink

THE WATERSHED INSTITUTE

("Icebergs and Mud" continued from page 1)

River is disproportionately sensitive to flooding. The channel of the river can change over a short period of time, leaving sections of steep muddy banks. Stream channels meander from one side of their maximum glacial width to the other, easily eroding away glacial silt deposits.

Most of the time, though, the river is shallow and flows gently around limestone bluffs. It has been used by people for respite and relaxation for generations. It's also been the backdrop for both inspiration and negotiation. -ALR

("Play Hard, drink water" continued from page 1)

use along the Wakarusa River has resulted in an increase of contaminants including fecal coliform bacteria flowing into the Wakarusa River and a rise in sedimentation rates into Clinton Lake. In other words, the "bowl" that holds the water is shrinking in size.

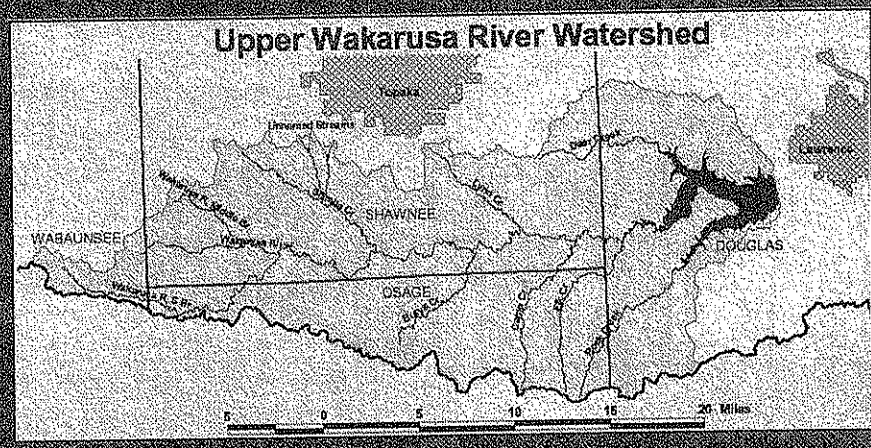
A group of organizations, government agencies, educational institutions, and concerned citizen are working together to address these issues. See page four for more information about the process being used and opportunities to get involved.
-AEP

Watershed Restoration and Protection Strategy
WRAPS

The WRAPS approach focuses on facilitating a locally-led, watershed-based planning and management process that embodies a collaborative problem-solving approach involving all key stakeholder groups. The process involves assessing resource issues and opportunities within a watershed; developing a plan that outlines goals, objectives, and strategies to address priority needs; and securing adequate resources to implement the proposed plan. This watershed approach has been applied successfully in Kansas and throughout the country.

Historically, incentive based programs, which have been driven in part by the level of volunteerism available and the equitable distribution of program resources, have been widely used to assist landowners in implementing watershed restoration and protection practices. In recent years, targeting of program resources to geographic priority areas has become more widely adopted. A community level, watershed-based planning and management framework is needed to integrate program resources

Listed on the state's 303(d) report to Congress, the Upper Wakarusa Watershed and Clinton Lake are both designated high priority restoration and protection areas through the Kansas Department of Health and Environment's (KDHE) implementation of Total Maximum Daily Load (TMDL) goals. The watershed has a TMDL for fecal coliform bacteria and the lake has a TMDL for eutrophication, caused by excess nutrients. Sedimentation is resulting in loss of storage space at a faster rate than planned. Consistently moderately eutrophic, the lake approaches hyper-eutrophic conditions at times. Cyanobacteria are becoming the dominant primary producers and have already caused several instances of taste and odor problems in the finished drinking water. Habitat can be improved along most of the riparian area. Beneficial uses are being impaired, and if pollution loads continue at their present rate, the problems will intensify as the lake ages at an accelerated rate.



Kansas Water Plan Projects Initiative

There are currently several water projects ready to be put into action by the state's water agencies and partners. Areas of concern focus on the Ogallala aquifer in the Western part of the state, protection and restoration of the state's watersheds, and *securing the future of water storage in the state's federal reservoirs.* Projects focus on the control of non-native species, like salt cedars, that stress the grounds ability to retain water, irrigation management for state agriculture, pollutant control in state waters, and *extending the future of drinking water supply*. A good amount of funding is already available for project implementation, though problems do exist, especially in the drinking water supply areas.

Information provided by the Kansas Water Office, available online at www.kwo.org

Beulah Tenbrink wins the 2004 Shawnee County Grassland Award

This year, the Shawnee County Conservation District presented the 2004 Grassland Award to Beulah Tenbrink. Beulah and Robert Tenbrink married in 1950 and bought 136.5 acres from Ray Buchanan in 1958. Over the years they increased their holdings to its current size of 682 acres with approximately 300 acres in native grass. The rest of the farm is dedicated to pasture and cropland with 40.2 acres enrolled in the Conservation District's CRP Program. During their years on the farm, Robert worked at the Supply Depot on the Forbes Air Force Base until he retired in 1976 while Beulah worked for the State and the Shawnee Heights School District, in addition to raising a family.

Beulah Tenbrink and her award winning grassland.

Robert passed on in 2000, so Beulah no longer winters the cattle, instead opting to pasture them from May 1 to October 1. John Mohler share-crops her 94 acres of cropland. The crops are all sold, instead of putting them in the silo. Her children who live nearby help her maintain the acreage that was enrolled in CRP in 1997. Beulah has 203 acres of her own and has willed the rest to her children. She also gave their double bar T brand to her son, Gary.

While Beulah does her share of work on the farm in SE Shawnee County, she has help from her two sons, Gary and Joe, and her daughter and son-in-law Debra and Dennis Wyckoff. They run steers in the summer but stock lightly to avoid overgrazing. In this year of abundant rainfall, there was so much grass that a few acres of pasture were hayed. Beulah follows the sprayer on her 4-wheeler and takes care of any weeds or brush missed by the big sprayer.

She recalls one time when she was loading her 4-wheeler on an incline, she misjudged the slope, gunned it a bit too much, and put a big dent in her tool box in the back of the pickup. She's thankful that nobody ever got seriously hurt while working the cattle.

As anyone with cattle knows, good fences not withstanding, cattle do get out on the road occasionally. Beulah is a good neighbor and serves as the contact with the sheriff's office for any cattle out in her area.

Beulah attributes the health of her grasslands to adjusting stocking rate to annual conditions and keeping the weeds and brush down. She's never had a problem with sericia lespedeza, Chinese Bush Clover, in the pastures, but has fought it in the CRP ground.

Beulah enjoys having her children near and the beautiful view from her kitchen window overlooking the pond, crops, and native grass. The dedication and continuing hard work of Beulah and her family has made that possible.

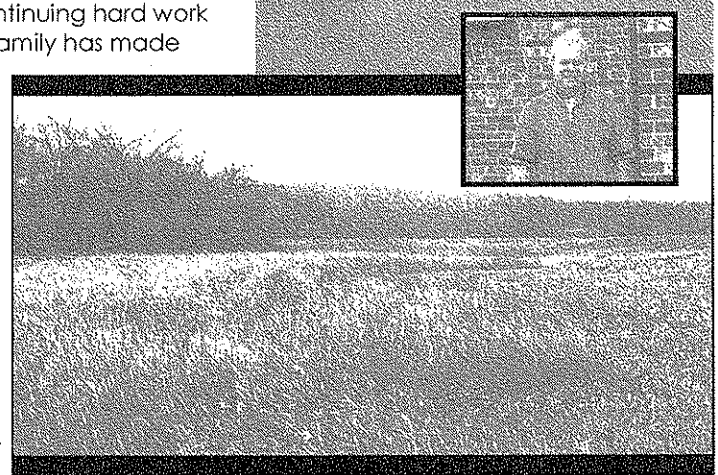
Funding for Conservation District cost-share programs is provided by the State Conservation Commission through appropriation from the Kansas Water Plan Fund. If you would like to learn more about what is available in your area, please contact your County Conservation District.

Dr. & Mrs. Hrenchir win the 2004 SN County Soil

Dr. Donald and Mrs. Cindy Hrenchir own 289 acres in Shawnee County's Wakarusa Valley. Most of it was purchased in 1994 with about 60 contiguous acres added a few years later. The Hrenchirs also own 75 acres of re-established native grass in northern Shawnee County which they use for pasture and 80 acres south of Topeka where they live has virgin grassland which they hay.

Hoping it would help with erosion control, Hrenchir was one of the first to utilize the buffer program offered through the Shawnee County Conservation District. He used the maximum width feeling that would provide the best benefit. He also allowed the District to install a promotional sign on his first buffer. He has a total of 35.7 acres of filter strips. He also enrolled 10.1 acres of highly erodible land in the general Conservation Reserve Program (CRP) sign-up.

His cropland of 125 acres is enrolled in the Environmental Quality Incentives Program (EQIP). Dr. Hrenchir's operator, Raymond Vitt, approached him about enrolling in the Program, and he concurred that it was a good conservation move. Underground outlet terraces where already in place when he bought the land and they are maintained. EQIP allowed Raymond to employ conservation tillage. They also practice crop rotation. The Hrenchirs are enthusiastic agrarian conservationists.



Dr. Hrenchir's farm in the Wakarusa Valley.

Funding provided by the State Conservation Commission through appropriation from the Kansas Water Plan Fund.

The Legacy of Boxed Natural Boundaries

By Linda McCoy, Guest Writer

The following article based on a presentation by Dr. Donald Worster, "The Waters of Kansas, Past and Present") Dr. Worster spoke at the Kansas Land Trust's 15th Anniversary Dinner in February.

Water – how could something so pure and simple generate such a complex undercurrent of problems, issues, disagreements and legal battles? The Midwest was molded by the glacial invasion and retreat over 10,000 years ago, but the biggest changes in our water landscape have occurred in the just the past 200 years.

Dr. Worster contrasted the transplanted European concepts for natural resource management with the watershed based concepts proposed by John Wesley Powell, a late 1800's engineer turned cartographer. Our current relationship with water has a history marred by a continuous series of miscalculations and mistakes surrounding its use and distribution.

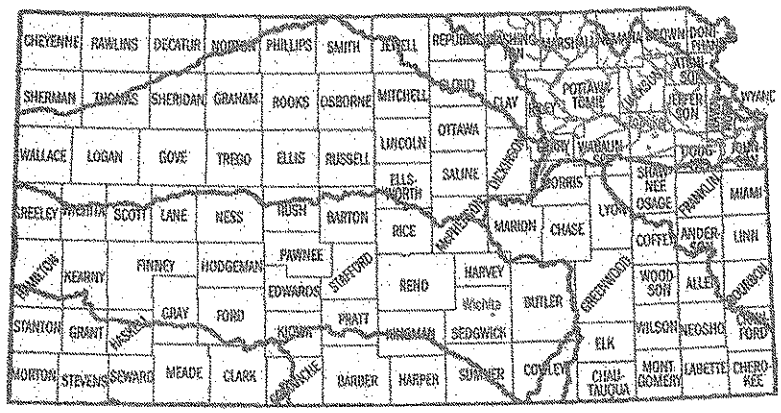
In 1878 John Wesley Powell used the 100th meridian to identify the "arid" and "humid" regions of the country. The 100th meridian bisects the country nearly down the center, heading straight through the Oklahoma panhandle. The region to the west of the meridian receives an average of less than 20 inches precipitation per year, while that to the east receives more than 20 inches. When an area receives more than 20 inches of precipitation, irrigation is often not necessary.

Geological maps illustrate how western Kansas not only has half the annual rainfall, but almost none of the underground water source of that of the eastern half of the state. Powell warned politicians that there would be problems for future generations if these natural patterns were ignored.

Had we established political boundaries based on the (9) watershed areas of the state instead of the (105) artificially drawn counties, we might have made more environmentally informed decisions over the past 2 centuries regarding the management of our water resources. Instead, we deluded ourselves into thinking that we could create a drought-proof "garden of the world." We adopted farming technologies that employ plowing shallow-rooted, annual crops and groundwater irrigation systems, instead of relying on native vegetation with deep root systems, which require minimal irrigation and maximum use of watersheds.

The price of this "climate-free agriculture" is that we are running out of water. Parts of Kansas have experienced total withdrawal of ground water, which is, in turn, impacting surface water. The water that does exist is too often laden with contaminates such as nitrites and atrazine.

But it is not just the farmer who is culpable. Those in urban areas have contributed to the problem in their efforts to control flooding – a natural phenomenon that farmers often benefit from, but city folks do not. With over 40% of the United States flood prone, much money has been spent by the federal government on "river control schemes." The long-term impact of these short-term solutions is now being tested as we have begun to realize that "controlling nature" is not that easy.



Kansas has 9 principle watersheds and numerous subwatersheds.

For solutions we might look to the wisdom of Abraham Lincoln who suggested that we cannot escape history nor the consequences of what we have done. We should, however, recognize that mistakes have been made, determine how to live with the history that we have made, and search for ways to change. It may be that this will require government involvement, money, a more informed citizenry, coalition building, and solutions that are "resilient", like the native grasses of the prairie which have endured over thousands and millions of years.

Dr Donald Worster holds an esteemed teaching position at KU entitled The Joyce and Elizabeth Hall Distinguished Professorship in American History. Worster won the Byron Caldwell Smith Award for his publication entitled "A Journey West: John Wesley Powell and His America"
Find more information on the Kansas Land Trust at www.klt.org

Stories from the Valley

South of Berryton, an old stone bridge crosses the Wakarusa. Near the bridge is a special place — flat enough to be ideal for camping and next to a natural spring of "sweet, beautiful" water. This was not merely a *camping* spot where one would be leaving in the morning, but a place of conference and consultation on the past and future. In the oral tradition, elder generations shared the wisdom of the ages. Here's a story we found....a resonating parable about humility and generosity. - AMD

The Fable of The Field Mouse and The Buffalo

A field mouse was preparing his winter home in the grass, by gathering wild beans. A buffalo was grazing nearby and the mouse, fearing losing the protection offered by the grass, became perturbed by the buffalo's presence. So bravely, the mouse declared to the buffalo, "Ho, there friend buffalo, I challenge you to a fight!" But the buffalo paid no attention to the small, squeaking voice. Again the mouse exclaimed his challenge.

By now the buffalo had noticed the mouse and became angry at such a small nuisance saying, "you had better keep still, little one, or I shall trample you with my foot." The mouse was not frightened by the buffalo and said, "I dare you to do it!" With that the buffalo clumsily tramped down on the soil and tore up the earth, but he could not see the mouse.

The mouse had climbed up to the buffalo's ear, without the buffalo knowing it. The buffalo said, "I told you mouse that I would trample you!" At that moment the mouse began to gnaw inside the buffalo's ear. At first it felt like just a little scratching, but soon it became raw with pain. The buffalo ran wildly in anger and pain, thrashing his head back and forth.

The mouse said, "do you not see now that I am your master?" "No!" proclaimed the buffalo as he thrashed some more. But the mouse moved the other ear and began to gnaw on the other side until the buffalo fell dead. The mouse, proud of his accomplishment, yelled into the air, "bring me a knife, so that I may dress my game!"

In another part of the prairie, there was a hungry red fox, hunting for food. Hearing a faint call in the distance, he walked toward the sound, and found a mouse standing atop a buffalo. The mouse said to the fox, "dress this buffalo that I have slain and I will share with you some of the meat."

The fox did as asked and the mouse gave him a piece of liver for his work. The fox said, "I have six little ones at home, may I have a little more meat, so that I can bring some home for them?" The mouse sneered, "how greedy you are, I already gave you such a large piece," so he told the fox that he could take home the blood clots of the buffalo.

After that the fox said, "dear mouse, I also have a wife at home, and we are almost starved there, could I have some more so that we can all eat?" "Why?," the mouse said, "I have already overpaid you for the work that you have done, but you may take the head home as well."

With that, the fox jumped on the mouse. The mouse let out a squeak and was eaten by the fox.

Moonrise. My husband and I canoe
where the Kaw braids into the Wakarusa,
water confused with crumbled banks.
Last month's rains have dried
from a new expanse of sand and silt.

The power of thunderstorms remains
in solid waves and sharp gullies.
Our tracks are the first to stitch across,
to mar the Zen garden of beach,
though a deer left its markings of crecents.

We separate. Wind ruffles the river.
In the distance back
blends into washes of gravel.
Cirrus clouds over us trace
the wind's path, slow waves
of frost in indigo night.

I am surrounded by water pounding
through intricately plaited veins.

Excerpted from Denise Low's "The Physics of Waves," in her 1988 poetry anthology Starwater.

412 E. 9th Street
Lawrence, KS 66044

ADDRESS SERVICE REQUESTED

Insect pest spray for plants

In a blender mix:
1/2 garlic bulb
1/2 small onion
16 ounces water

Add 1/2 tsp powdered cayenne pepper and steep one hour.

Strain well.

Add 1 Tbsp liquid dish soap.

Pour into spray bottle and spray plants thoroughly, including underside of leaves. Use on leaf-cutting insects. Recipe will store in refrigerator for 1 week.

Farms in (or nearly in) the Upper Wakarusa Watershed

Earth Flowers, 785-331-0671 *(Brian Henry & Jozie Schimke, 2503 E. 27th Terrace, Lawrence, KS 66046)* - Fresh cut flowers, specialty vegetables, ornamental flowering shrubs & roses. Garden design, installation, and maintenance.

Fieldstone Enterprises, 785-665-7643 *(Nancy & Ken Krause, 7139 E. 149th St., Overbrook, KS 66524)* - Asparagus, blackberries, cherries, apples (Heritage, contemporary, summer & fall apples), Asian and European pears, table and jelly grapes. Hard Cider and Cider Slushes.

Greenbriar Farms, 785-887-6300 *(John & Patricia Solbach)* - Raise & sell beefalo-cross yearling bulls for butchered beef. They are raised without growth hormones, insecticide tags, or antibiotics in a closed herd. All cattle were born on farm.

Henry's Plant Farm, 785-887-6344 *(Roy & Marcia Henry, 248 N. 1700th Road, Lecompton, KS 66050)* - Bedding plants, annuals, perennials, grasses, herbs, vegetable plants, & hanging baskets.

Lone Star Lake Bison Ranch, 785-594-2926 *(Don & Jared Gibbs, 588 N. 300 Rd, Overbrook, KS 66524)* - Bison/buffalo meat (bison burger, patties, roasts, steaks, and sometimes jerky). Tanned hides and skulls upon request.

Prairie Elf Christmas Trees, 785-748-0992 *(Kathy Heeb, 765 E. 750th Rd, Lawrence, KS 66047)* - Choose and cut Christmas trees. Fresh handmade wreaths and greenery pieces. Free hay wagon rider, hot cider, and cookies. Craft area for children.

Strawberry Hill Christmas Tree Farm, 785-841-0916 *(Lyn Walther, 794 US 40, Lawrence, KS 66049)* - Choose and cut Christmas trees, gift shop. Hot cider, hayrides. Church & business decorations.

Sunset Ridge Bison Ranch, 785-331-7087 *(Daniel & Megan Fisher, 802 Randall Rd, Lawrence, KS 66049)* - Produce naturally-raised, high-quality bison meat. The bison is raised on native prairie grass near Clinton Lake Wildlife Area.

Wild Onion Farm, 785-748-0959 (Lynn Byczynski & Dan Nagengast, 966 E. 800 Rd, Lawrence, KS 66047) - Sustainably grown, specialty cut flowers.

Area Farmer's Markets

Lawrence
1000 block of Vermont Street
April 30 - November 12
Tuesdays & Thursdays 4 - 6:30 pm
Saturdays 6:30 - 10:30 am

Topeka
SE Corner of 10th & Topeka Blvd (State parking lot)
April - November
Saturdays 7:30 am - sell out

Garfield Park (N. Kansas Avenue)
June - October
Saturdays 7:30 am - sell out

Wakarusa Review

October 2005 **CULTURE** **HISTORY** **ECONOMY** **ENVIRONMENT** Vol 05 - UWW2

Welcome to the second edition of the Wakarusa Review! Published by the Kaw Valley Heritage Alliance (KVHA), this publication focuses on the people, land, water, and history of the Wakarusa River Valley. KVHA is a 501c(3) nonprofit organization dedicated to protecting and enhancing the cultural and natural resources of the Kansas River Valley. There is more information about the Alliance and the work we're doing in the Wakarusa Valley within the newsletter. We sincerely hope you enjoy this issue.

StreamLink Hosts Stream Assessment Workshop in Wakarusa Watershed

by Aimee Polson, KVHA

August 25-26 marked the occurrence of StreamLink's final Stream Assessment Workshop of the year. The workshop, located in Dover's Camp Daisy Hindman, was hosted by Kaw Valley Heritage Alliance and featured presentations by Kansas Alliance of Wetlands and Streams (KAWS), The Watershed Institute, K-State Research & Extension, Melvern Lake Water Quality Project, and the State Conservation Commission.

Participants of the Stream Assessment Workshop listen to Paul Ingle, hydrologist in the Melvern Lake Watershed, discuss items to bring along for a stream assessment.

The workshop covered topics such as the life cycle of a stream with basic hydrology and aquatic biology, how to pull off a sampling event, water analysis, stabilizing stream banks and the role of conservation districts.

Despite ample rainfall, attendees were led by state experts in the fields of ecology and riparian management through several field site visits to analyze stream bank stability and to search for macroinvertebrates.

What is a TMDL?

A Total Maximum Daily Load, TMDL, is the maximum amount of pollution a water body can receive without violating water quality standards. A TMDL establishes a range of acceptable values that vary with flow conditions. For example, a TMDL for atrazine for a lake may state that the Water Quality Standard of 3 parts per billion can only be exceeded in the April through September period 1 day every 3 years at seasonal flood pool levels, and in less than 10% of samples during spring flood conditions. If one or more pollutants are found to exceed the water quality standards for a given body of water, the state is required to establish a TMDL for that body of water.

Tributaries within the Upper Wakarusa watershed and Clinton Lake have TMDL plans for total suspended solids, fecal coliform bacteria, nutrient and oxygen demand, and eutrophication.

Wakarusa, the Town

by Evelyn Davis, SCCD

Nestled in the beautiful Wakarusa Valley lies the little town of the same name. It is situated on the brink of a meander of the Wakarusa River which enfolds the south edge of the town, then curves north cradling the town on two sides.

Wakarusa is now a sleepy little bedroom community, but it wasn't always so. Like dozens of other once thriving Kansas communities, it has lost its business base and all that remains is a cluster of houses lining the main street through the town with a few one block side streets and a post office. The entrepreneurial spirit still exists however, with several residents working out of their homes.

Paralleling the main street is the main line of the Burlington Northern Santa Fe Railroad tracks. It was the Atchison, Topeka and Santa Fe Railroads that put Wakarusa on the map. Founded in 1858, Wakarusa was originally named

continued on page 3

Wakarusa Review

...a biannual production of the Upper Wakarusa Watershed Restoration and Protection Strategy (UWW WRAPS).

UWW WRAPS
is a project of the
Kaw Valley Heritage Alliance
412 E. 9th Street
Lawrence, KS 66044
(785) 840-0700
Fax: (785) 843-6080
www.kvha.org
www.wakarusawatershed.org

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Rachael Sudlow, Project Assistant
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VACANT
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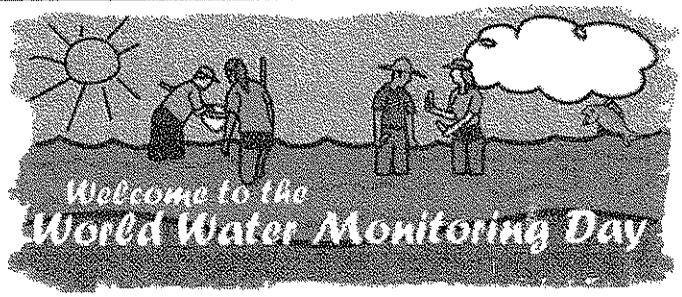
Shari Stamer, City of Lawrence
Margaret Townsend, Ks Geo. Survey

KVHA is a federally recognized 501c(3) non-profit organization. Donations are tax deductible.

Funding for the UWW WRAPS Project is provided by the through grants from the KS Dept. of Health & Environment (KDHE) and by the contributions of partners and program users.
KDHE Assistance #2003-013



World Water Monitoring Day, is a month long event that reaches its zenith on October 18th. An educational event, whose main purpose is to invite citizens within the global community to experience water monitoring firsthand and evaluate conditions within their watershed. Volunteers will enter their monitoring results into a global database that stores all information collected during the monitoring period from September 18 through October 18.

The Kansas Department of Health and Environment (KDHE) will be available to help test waters and to serve as guides for those who join this effort. The day's efforts will be relatively easy and fun to carry out. Volunteers will be asked to perform and submit data from four key tests: dissolved oxygen, pH, turbidity/clarity, and temperature.

Experienced monitors may also complete more technical analyses such as macro-invertebrate counts (insects), nitrogen content, phosphorus, and the speed of water flow. Data collected by all participating monitors can be viewed at www.worldwatermonitoringday.org.

If you are interested in participating, contact Jaime Gaggero, KDHE, at 785-296-5509, or email at jgaggero@kdhe.state.ks.us.

Forest Land Enhancement Program

The Forest Land Enhancement Program (FLEP), a cost share program run by the Kansas Forest Service, promotes active management of Kansas woodlands and windbreaks by providing financial incentives to landowners to implement forestry practices. FLEP covers 75% of the cost to plant trees and implement management practices in woodlands and windbreaks.

Eligible participants must be private landowners with 40 or more contiguous acres of land, and who have a management plan prepared by a Kansas Forest Service district forester.

FLEP Practices include:

1) Afforestration/Reforestation: tree planting for commercial timber production and other objectives such as wildlife.
2) Forest Stand Improvement: thinning, release, pruning, or protecting woodlands to increase tree growth and quality.
3) Agroforestry: tree planting for windbreak systems; renovation of mature windbreaks.
4) Water Quality Improvement and Watershed Protection: tree planting adjacent to streams and rivers to improve water quality and protection of riparian areas.

To apply, contact area forester Connie Popkey at 785-267-2275. For those in Wabaunsee County, contact Thad Rhodes at 785-776-5182. This may be the final year for the program, so take advantage of it while you can!

KVHA Vision Statment

The people of the Kaw Valley will maintain a strong sense of place and community. The valley will be a land of farms and families, of neighborhoods, towns, and cities. It will be a place where industry and business thrive; where natural and historical places are preserved; and where clean, healthy rivers and streams support aquatic life and offer recreational opportunities. People will build consensus for resource conservation and will promote responsible use of air, water, and land, while supporting a healthy economy.

KVHA hires new staff members

Patricia Graves is a new intern at Kaw Valley Heritage Alliance. She has been assisting on the UWW WRAPS project and working closely with Aimee Polson, Program Director. Patricia is currently in the Environmental Science Bachelor's Program at Haskell Indian Nations University. Her background in education, biology, and personal interest in conservation are utilized by KVHA. Patricia is a native of Lawrence, both born and raised. She has a 6 year old daughter, Ella, and fiancé, Douglas Redding, who both were born in Lawrence as well. All reside in east Lawrence as well as both of Patricia and Douglas's parents.

Christine E. Boller is a new addition to the KVHA staff. She is currently a program assistant for the StreamLink program. She graduated from Kansas State University with a Bachelor of Science degree in Life Sciences with an emphasis in Wildlife Biology in 1999. While at KSU, Christine was a student lab assistant in the Entomology department working in livestock entomology & integrated pest management. She has also worked at Slone Epidemiology Unit at Boston University Medical Center as a research assistant on a long-term clinical drug study. Since being back in Kansas, she has worked at the Higuchi Biosciences Center at the University of Kansas as a grant monitor.

New KVHA employees Gabe Iversen, Patricia Graves, and Christine Boller

Gabrielle Iversen is a new program assistant at KVHA, working primarily with StreamLink. She is a Lawrencian by birth with a background in art and ecology. She studied ceramics at Humboldt State University in Arcata, California, where she fell in love with big mountains and clean rivers. She worked as a wilderness ranger for the forest service in the Shasta-Trinity mountain range and for various non-profits in Humboldt County including the Redwood Interpretive Association and the Northcoast Environmental Center. She became an avid participant in various water sports including surfing, kayaking and canoeing. Nowadays she likes to wade in Buck Creek. She also teaches children's art classes at the Lawrence Art Center and makes art in her spare time.

Coon Creek to gain a wetland

The US Army Corps of Engineers is partnering with KVHA, KAWS, Kansas Wildscapes, and Westar Green Team, to construct a 2-cell, 15-acre wetland on the Coon Creek Tributary in the northeastern Clinton Lake Corps grounds.

The goal of the wetland will be to promote the understanding of the diverse natural resource components of ecosystems within a watershed and wetlands area. The education component will focus on the implementation of sound ecosystem management and principles.

Berm with Clinton Lake in background.

Take a mini-wetland quiz

1. The presence of crawfish/crab holes in a landscape may suggest,
A. Nothing in particular
B. It's time to plan a crab boil/steam
C. Presence of wetland hydrology

2. Wetlands must be wet a majority of the year.
A. True
B. False

3. Vernal ponds
A. Are always found near swamps
B. Are only found in cold climates
C. Are seasonal wetlands that usually occur in the spring

4. Which of the following food crops are grown in wetland areas?
A. Legumes
B. Cranberries
C. Rice
D. A & C
E. B & C
F. All of the above

5. What percent of the earth's land surface is classified as wetland?
A. 10%
B. 50%
C. 6%
D. 23%

6. How have plants adapted for wetland life?
A. Buttressed trunks
B. Prop roots
C. Floating
D. Hollow stems
E. All of the above

7. Wetlands play an important role in
A. Controlling flood waters
B. Filtering pollutants out of the water
C. Increasing local economies
D. All of the above

8. Wetlands are among the most productive ecosystems in the world.
A. True
B. False

Answers: 1-C, 2-B, 3-C, 4-E, 5-C, 6-E, 7-D, 8-A

Wakarusa, the Town *continued from page 1*

Kingston in honor of one of the parties interested in developing the town, but the post office had already been established under the name of Wakarusa and so that name prevailed. It was referred to by locals as Wakarusa Station for many years when it was a large shipping hub of the railroad.

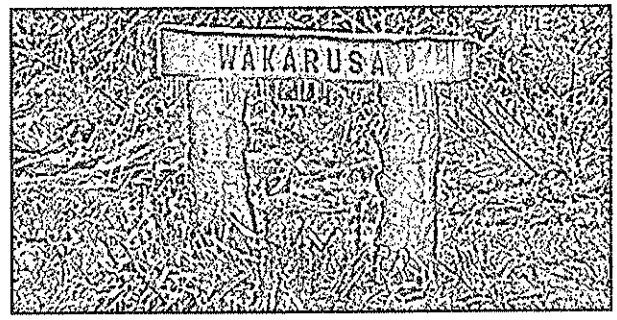
Because so many passenger trains were running, folks in and around Wakarusa could board a train for Lawrence, Topeka, or Carbondale in the morning and return in the evening. The automobile sounded the death knell for passenger rail service and a fine mass transit system faded away.

Where did the name Wakarusa come from and what does it mean? There is no clear answer. Wakarusa appears to be an Indian word. One tale says that a young Indian maiden was fording the river on horseback during high water and exclaimed, "Wakarusa!" which translates to "hip deep."

The only known written history of the town was compiled by Mary (Dyche) Garrett Haller from research collected mostly from old newspapers.[1] A copy is available at the Kansas History Center in Topeka. Her interest came from the fact that her great grandfather, Alexander Dyche, owned several lots and a store in.

Alexander Dyche was the father of Lewis Lindsay Dyche for whom the Dyche Museum of Natural History on the Kansas University campus is named. In fact, the Museum was built especially to house the specimens he collected. He became a taxidermist and a hunter and explorer of Arctic regions, completing more than 27 expeditions. He was shipwrecked off the coast of Greenland on his quest to discover the North Pole. Lewis Dyche was the first professor of zoology at KU. He was also the first Fish and Game Warden for the state of Kansas as well as an author and lecturer.

In 1912, Wakarusa "has a grain elevator, a cider mill, a number of stores, telegraph and express offices, and a money order post office with two rural routes. It is a popular summer camping place for Topeka people, and a large camp is maintained throughout the season by the Young Women's Christian Association. This is a receiving and shipping point for a large and prosperous farming district. The population in 1910 was 150."[2]



Snyder's Grove, a park sandwiched between the river and the Presbyterian Church on the south edge of town, was a popular picnic area. From a Topeka newspaper article published August 31, 1894: *All day Republican Rally and Picnic for Shawnee and Osage Counties to be held at Snyders Grove in Wakarusa on August 31. John J. Ingalls is to speak and all the State Officials are to be there.*

A follow up article appeared on September 7: *A Great Rally was held. Five railroad coaches from the south and twelve coaches from the north came into Wakarusa Station... By noon there were 7,000 to 8,000 people there. Ingalls was the main speaker. The "Larned Coyotes" sang, two bands played, a drum corps played and there was a parade. A total crowd of 10,000 people was very orderly.* It is hard to imagine so many people in this small town.

Still standing is the old hotel built in 1871. It is not currently occupied but is owned by a local man who repaired it and got it listed on the National Register of Historic Places.

The Presbyterian Church was built in the late 1870s, is well maintained and still has an active congregation.

About a half mile west of Wakarusa is the Shawnee Center Cemetery, established in the mid-1870s. It is the final resting place of many of the early settlers. A half mile southwest of the cemetery is the site of the first schoolhouse built in Shawnee County. It was called Shawnee Center School and was so named because it was within a quarter of a mile of the geographical center of old Shawnee County.

A remnant of the school still exists in the form of an outbuilding made of limestone. The site is covered with native prairie plants that have survived much trampling and activity over the years. Now this fragment of prairie lies mostly undisturbed except for an annual clipping with the resulting hay baled and removed. It's a revealing reminder of what this entire valley must have looked like in pre-settlement days with the exception of wooded streams and ravines.

The name Wakarusa is sprinkled up and down the valley. The river rises in eastern Wabaunsee County, flows through Clinton Reservoir, and empties into the Kansas River near Eudora. Lawrence lays claim to the name for a school, a street, and

continued on page 5

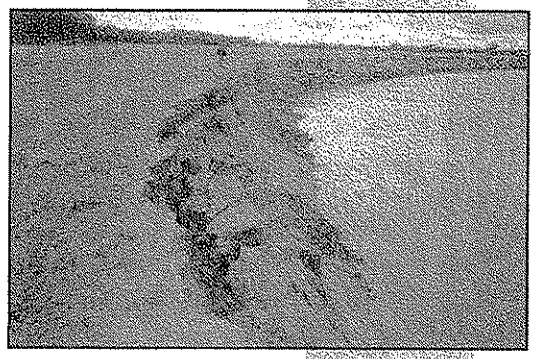
Stream Stabilization Projects Needed Above Clinton Lake

by John Bond, K.A.W.S.

A new focus is underway in the watershed above Clinton Lake to begin stabilizing eroding stream banks. The effort is a part of an overall Watershed Restoration and Protection Strategy (WRAPS). The Clinton Lake or Upper Wakarusa WRAPS was completed by many individuals, agencies, and organizations to protect the Lake as well as the rivers and streams that feed it. One tactic is the stabilization of eroding stream banks on the major tributaries of the upper Wakarusa River. These stabilization projects usually occur on the cut banks along the outside bends in the stream or river. At right is an example of a protection measure on the Little Blue River above Tuttle Creek Lake in Washington County.

During high flows, large amounts of soil are lost into the river, which eventually end up in the lake, causing increased nutrient loading and sedimentation of the lake as well as lost land values to the landowner. In order to stabilize these areas, the bank is usually re-sloped, rock vanes or weirs placed in the river (see right). The bank is then revegetated with native plants and placed in the Continuous Conservation Reserve Program. Once the area is stabilized, it tends to trap sediment rather than lose it. The lower right photos show the same area right after the rock and dirt work were completed and then after the third flood event.

The WRAPS Committee is looking to complete similar projects on the Deer Creek, Rock Creek and Wakarusa arms above Clinton Lake. Our first demonstration project is underway on property just south of Topeka. The project will be completed through a partnership with the landowner, Shawnee County Conservation District, USDA Natural Resources Conservation Service, Kansas Alliance for Wetlands and Streams (KAWS), and The Watershed Institute. This project is scheduled to be completed at ***no cost*** to the landowner and will be highlighted at the WRAPS Workshop scheduled for November 2 in Carbondale. If you are interested in protecting your land from eroding into the river or stream, contact your local Conservation District Office or call John Bond, KAWS, at 785-463-5804. Plan to join us at the workshop for more on WRAPS and how it can benefit you.



John Bond, Northeast Coordinator for the Kansas Alliance for Wetlands and Streams (KAWS) lives in Clay Center, KS. He managed a large farm operation for 7 years prior to working as a Regional Supervisor for Kansas Dept. of Wildlife and Parks.

Wakarusa, the Town *continued from page 4*

perhaps other things unknown to this writer. Wakarusa is even coupled with war. Occurring near Lawrence during pre-Civil War years the Wakarusa War wouldn't even qualify as a skirmish much less a war. It was a powder keg conflict that never ignited but was magnified by the press both locally and in the East.

While the community of Wakarusa is only a ghost of its former thriving self, those who now call it home find it to be a peaceful, quiet, charming, and friendly little town still hugging the banks of the Wakarusa River in the heart of the Wakarusa valley.

[1]History of Wakarusa Kansas by Mary (Dyche) Garrett-Haller, 1995, unpublished.

[2]Page 854 from volume II of Kansas: a cyclopedia of state history, embracing events, institutions, industries, counties, cities, towns, prominent persons, etc., ... / with a supplementary volume devoted to selected personal history and reminiscence. Stand Pub. Co. Chicago: 1912.

Evelyn Davis, a former elementary school teacher at Lyman Elementary, is Water Quality Coordinator for the Shawnee County Conservation District and a lifelong resident of the Wakarusa Valley.

Stories from the Valley

South of Berryton, an old stone bridge crosses the Wakarusa. Near the bridge is a special place — flat enough to be ideal for camping and next to a natural spring of "sweet, beautiful" water. This was not merely a *camping* spot where one would be leaving in the morning, but a place of conference and consultation on the past and future. In the oral tradition, elder generations shared the wisdom of the ages. Here's a story we found about imagination and adventure.

Leaf Boy

On a cool, autumn day the mailman struggled to deliver his mail against the blustery wind. With every step challenged, he eventually made his way up to the Crabapple's residence. Mrs. Crabapple opened the door just as he was about to slip the mail into its slot. "Oh, hello Mr. Fresno," she said, surprised by her timing. She put her hand out to take the mail and thank him, and as she was doing so, a huge gust of wind blew the mail out of her hand and into the house slamming the door on Mr. Fresno. "PHEW! What a forceful wind!" she exclaimed.

Oblivious to what just occurred, Oscar Crabapple sat entranced as he watched the curtains float above his head. "Mommy," he said in a daze, "may I go play outside?" Mrs. Crabapple was still trying to retrieve the mail, which seemed to be skipping away from her. "Yes dear, but be careful. The wind is very strong and chilly so you need to put on your jacket." Oscar heard only part of what his mom said, as he was out the back door by the time she said 'dear.'

The fresh air outside carried yellow, gold, and soft red leaves that spun above his head. Many leaves landed on the swing set, slid down the slide, and flipped back up into the air as if they were inviting Oscar to play. Wishing he was a leaf, Oscar stood still, amazed at the performance of the boisterous leaves skyward. "If I was one of those leaves, I would glide across the world, over the seas and volcanoes!" Spreading his fingers like the veins in a leaf, he ran around his yard, pretending to float.

Mrs. Crabapple stepped onto the front porch. "Oscar, you forgot your jacket." She went inside to get his jacket, but when she returned Oscar was not there. "Oscar?"

In that moment she turned her back, Oscar's wish came true. He became a beautiful gold and red leaf dancing in the sky with all the others. The wind carried Oscar along with the other leaves down his block, past his school towards the city. Other leaves flew by him brushing against him and tagging him. One yellow leaf kept close and played with him continuously. The sunlight shone through the yellow leaf as he blew in front of Oscar. Oscar could see the details of the leaf's veins. The bright sun made the veins glow; they appeared as bolts of sunrays blasting throughout the leaf.

"Where is the wind taking us?" Oscar asked the yellow leaf. The leaf replied "Doesn't matter. Our time is so short." An older leaf piped up, "I disagree. Our journey is short but when it settles it opens a new beginning."

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Make Plans to attend Lawrence's 5th Annual **Home Energy Conservation Fair and Sustainable Homes Tour** on October 9th at the Douglas County Fairgrounds, Building 21. Exhibits at the fair will include alternative fuel vehicles and those of energy-minded engineers, architects, heating, cooling and insulation experts, builders and remodelers.

Featured speakers will include Bill Hanlon, author of "Building Outside the Box" and Representative Tom Sloan to address energy-related legislative issues. Also slated to speak are Rich Wenzel, on the most practical and economic efficiency upgrades for our area, and David Johnson on wind energy technology and applications.

The Fair is sponsored by the **City of Lawrence Recycling and Resource Conservation Advisory Board**. It will take place in conjunction with the **Douglas County Sustainable Homes Tour**, a part of the American Solar Energy Society's National Solar Tour. Busses for the Douglas County tour of sustainable homes will leave from the fairgrounds at 2 pm. Homes and structures on this year's tour include a thermal mass concrete/foam high efficiency home, a straw-bale art studio and other affordable and highly efficient homes. Passive solar, radiant heat, and solar hot water technologies and designs will be featured.

Sponsors of this year's Fair and Tour include BPH Productions, Hughes Consulting Engineering, the Sierra Club J. Stephen Lane, Architect, and the Heartland Renewable Energy Society.

For more information call the Waste Reduction & Recycling Division at 832-3030 or visit www.LawrenceRecycles.org .

Leaf Boy, *continued from page 6*

Ahead of them the wind separated the large group of leaves, some going east and others west. "Which way should we go?" Oscar asked openly. The yellow leaf said, "Follow me west to the city trash site, all my friends are there. It'll be fun!" That did not appeal to Oscar. The older leaf said, "Going east will take you to places you've never seen before." But the yellow leaf kept saying his way would be loads of fun. "Ok, I will go with you," Oscar declared, his urge to continue playing overruling other options.

The older leaf, already heading west, shouted, "The view from over here is great! I see smoke though. I think it's a fire!" Oscar and his new friend ignored the old leaf and continued onward. "I don't see anything. We are almost there!" exclaimed the yellow leaf.

They approached the fence surrounding the trash site just as a car pulled up next to the entrance. Mrs. Crabapple jumped out of the car, "Wait a minute, Oscar. There's smoke coming from there, besides a trash site is not a playground for children."

Just as fast as Oscar turned into a leaf, he turned back into a boy when his mother pulled up. Mrs. Crabapple led him into the car and noticed he kept watching the yellow leaf as it struggled to fly up the fence. Oscar's mom went over, grabbed it, and brought it back to the car. "I bet this leaf will be much safer in our home," she said as she handed Oscar the bright yellow leaf.

As they drove towards home, Oscar opened the window wondering where the older leaf flew, and hoping that one day, he too would experience the eastward path.

Adapted by Patricia Graves from Mike Krath's High and Lifted Up.

Fall Forestry Field Day 2005

Thursday, October 13th, 8:30 • K-State Forest Service State Office • 2610 Claflin Road, Manhattan, KS

"Fifty million in 50 years", is the theme of the 2005 Fall Forestry Field Day which celebrates the distribution of 50 million conservation trees and shrubs to the people of Kansas. Scheduled for **Thursday, October 13th, in Manhattan**, the Field Day provides a broad variety of educational opportunities with a big focus on conservation tree and shrub planting.

Participants will begin gathering at the Kansas Forest Service State Office at 8:30 AM where they will be divided into two groups. One will tour the State Office, and the other will be bussed to the Tuttle Creek Forestry Research site. The groups will reconvene for a delicious BBQ lunch under the pines and switch locations for the afternoon session which will end by 3:30 PM.

At the Kansas Forest Service State Office people will have the opportunity to tour the tree packing room, cooler and green house where containerized seedlings are grown. Josh Pease, who directs the Conservation Tree Planting Program, will describe the process of growing trees from seed to sale, correct handling of seedlings, and seedling quality. Judy O'Mara, KSU Plant Pathologist, will be on hand to provide the latest information on pine diseases and treatment.

Foresters will also lead tours through the State Office to see the beautiful wood paneling that represents over 13 different native Kansas woods. Interesting information will be provided about the tree species the paneling was made from during the tour.

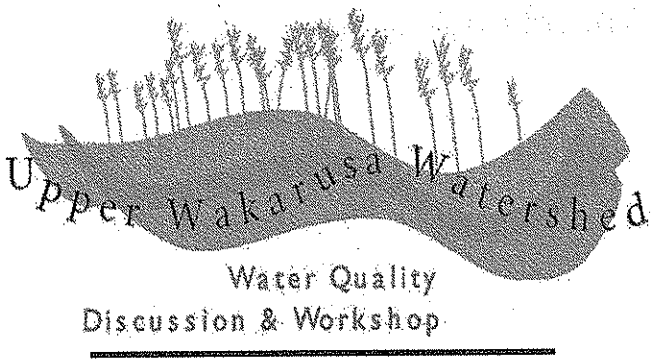
Dave Bruton, Utilization Marketing Specialist, will demonstrate a portable sawmill and post peeler.

At the Tuttle Creek Forestry Research site Troy Bratton, District Forester, will demonstrate proper tree planting techniques using machine planters and dibble bars for hand planting. Participants will learn first-hand how to operate a weed barrier machine and apply the plastic mulch over the top of newly planted seedlings. Dennis Carlson, District Forester, will discuss the use of herbicides to control competing vegetation in young tree plantations. Deer damage in tree plantings is a big problem for many Kansas tree growers. Charles Barden, KSU Extension Forester and Charlie Lee, Wildlife Damage Control Specialist, will exhibit the best deer damage prevention techniques using tree shelters, fencing and repellents. Dr. Wayne Geyer, KSU Silviculture Professor, and Gary Naughton, retired KFS forester and consultant, will use a 14 year old black walnut plantation to demonstrate how and when to thin black walnut using a "crown-touching" release.

A $13 registration fee will be charged to help cover the cost of lunch. Information may be found on the Web at www.kansasforests.org/rural/index.shtml or by calling the Kansas Forest Service State Office at 785-532-3300. Please mark your calendars for October 13th. It is a great opportunity to learn more about forestry and to celebrate the accomplishments of woodland owners and the Kansas Forest Service Conservation Tree Planting Program.

Kaw Valley Heritage Alliance
412 E. 9th Street
Lawrence, KS 66044

To learn more about the area and the project go to www.wakarusawatershed.org
To make a submission to the next Wakarusa Review newsletter, please call Aimee at 785-840-0700 or e-mail her at aimee@kvha.org.



Wednesday, November 2, 9:30 am - 4:00 pm
VFW, 422 Ridgeway Street, Carbondale off Old HWY 75 (Topeka Blvd.)

Pre-Workshop Demonstration Tour
8:00 am - 9:00 am
3431 SW 97th Street, near Wakarusa

What will happen:

- 8:00 am — View Demonstration Site at 3431 SW 97th St., near Wakarusa, KS.
- 9:30 am — Learn about Clinton Lake/Upper Wakarusa watershed restoration and protection efforts.
- 10:00 am — Discuss how your watershed has changed, what its future looks like, and how we as a group can make a difference.
- 12:00 pm — LUNCH PROVIDED
- 1:00 pm — Hear from people, upstream from Wichita, who have experience with watershed management and urban/rural partnerships.
- 2:00 pm — Learn about cost share funding opportunities.
- 2:30 pm — Booth and poster fair.

Door Prizes!!

SPONSORED BY:
Kaw Valley Heritage Alliance, K-State Research & Extension, County Conservation Districts, Kansas Alliance of Wetlands & Streams, NRCS, and KS Dept. of Wildlife & Parks

Increase local awareness of and involvement in watershed restoration and protection.

Upper Wakarusa Watershed

TEAM PROJECTS

- Deer Creek Study
- House Parties
- Water Quality Discussion & Workshop
- KDHE Watershed Presentation
- "Entering Wakarusa Watershed" promotion
- Coon Creek Wetland

Deer Creek Study

Partners[1] Kaw Valley Heritage Alliance
Corps of Engineers
K-State Extension
Kansas Biological Survey
Kansas Dept. of Health & Environment
Kansas Water Office
Kansas Alliance of Wetlands and Streams
The Watershed Institute

The Deer Creek Study aims to identify, through photographic, statistical, and onsite analysis, those stream banks that are in the greatest need of restorative work. Once identified, a team will work together to stabilize and enhance these banks.

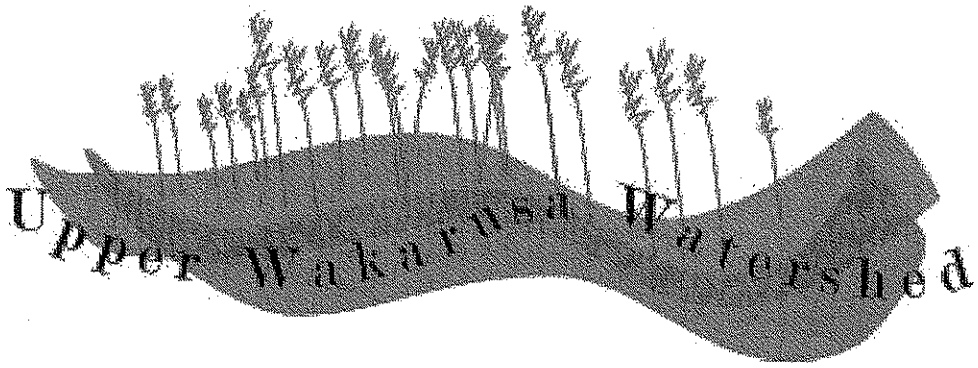
This is an example of a deliberate or targeted approach to stream bank and watershed management.

[1] As of the publication of this document.

DEER CREEK SUBWATERSHED PRIORITIZATION

DOUGLAS COUNTY, KANSAS

Submitted to



Kaw Valley Heritage Alliance
412 E. 9th Street
Lawrence, KS 66044

Prepared By

THE WATERSHED INSTITUTE

1200 S.W. Executive Drive
Topeka, Kansas 66615

TABLE OF CONTENTS

1.0 INTRODUCTION

Non-point source pollution is a major negative impact on the water quality of the Upper Wakarusa Watershed (UWW) and Clinton Lake in Douglas County, Kansas (Kaw Valley Heritage Alliance 2003). Of particular concern are inputs of sediment, phosphorus, nitrogen, and fecal coliform bacteria from the watershed into the Wakarusa River feeding Clinton Lake. The Kansas Department of Health and Environment (KDHE) assigned the UWW and Clinton Lake a high priority for restoration and protection through implementation of Total Maximum Daily Load (TMDL) goals (KDHE 1999). In response, the Kaw Valley Heritage Alliance (KVHA) developed a comprehensive Watershed Restoration and Protection Strategy (WRAPS) to restore and protect UWW water quality.

KVHA (2003) identified streambank stabilization and riparian restoration as Goal No. 1 to reduce erosion, lake sedimentation, and nutrient loading. Additionally, KVHA identified Deer Creek and Rock Creek as first priority watersheds within the UWW. Previous studies (Mankin and Koelliker 2001) indicate these watersheds, along with lands immediately surrounding Clinton Lake, have the greatest potential non-point source pollution input and negative impact on water quality. To address Goal No. 1, KVHA contracted the Watershed Institute, Inc. (TWI) to review existing information and identify subwatersheds of Deer Creek having the greatest potential for pollutant contribution to Clinton Lake. Additionally, KVHA asked TWI to identify potential best management practices (BMPs) for proposed residential developments in the Deer Creek watershed. These BMPs are provided in Appendix C.

2.0 METHODOLOGY

Using off-site techniques, TWI developed a simple multi-metric scoring system to prioritize streambank erosion potential for subwatersheds of Deer Creek and its tributaries. Through aerial photography, topographic maps, land use within the riparian corridor, and other physical watershed characteristics, TWI identified subwatersheds to initiate implementation of BMPs meeting WRAPS goals.

2.1 *SOURCE DATA*

From the Kansas Biological Survey (KBS 2005), TWI acquired color aerial photography with topographic contours and riparian land use overlays (see Figure 1). Riparian land use data originated with the USDA Natural Resources Conservation Service (2001) and is currently distributed by the Data Access and Support Center located at the Kansas Geological Survey in Lawrence, Kansas (DASC 2005). The overlay is a polygon drawn 100 feet around the 1:24,000 hydrography layer and includes the land next to streams. Each polygon is categorized according to 11 land use codes (Appendix A) reflecting a combination of land cover/use. Additionally, KBS divided the Deer Creek watershed into nine subwatersheds and calculated the drainage area, stream length, stream density, and riparian land use area of each (Appendix B).

2.2 *SCORING SYSTEM*

Using the source data, TWI selected eight criteria that influence streambank erosion and the potential pollutant contribution to Clinton Lake:

- subwatershed drainage area,
- % cropland in the riparian corridor,
- % pasture and animal production in the riparian corridor,
- % forest in the riparian corridor,
- stream density within the subwatershed,
- % stream channelization within the subwatershed,
- number of crossings/stream mile within the subwatershed,
- distance to Clinton Lake from subwatershed outlet.

TWI calculated numerical values (see Table 1) and developed a scoring range (see Table 2) for each prioritization criteria. Using values from Table 1, TWI applied a score of 0, 1, or 2—with 0 indicating low potential streambank impacts and 2 indicating high potential streambank impacts—for each prioritization criteria (see Table 2). No criterion was weighted higher than another. TWI calculated a total subwatershed score as the sum of respective prioritization criteria scores (see Table 3).

TABLE 1. SUBWATERSHED – CALCULATED VALUES

Prioritization Criteria	A	B	C	D	E	F	G	H	MB
Drainage Area	2.40	1.00	1.90	3.40	3.80	4.40	3.50	2.40	0.40
% Cropland	2.20	3.00	2.70	3.10	4.20	4.20	3.30	3.10	5.10
% Pasture-Animal Prod	1.40	3.00	1.00	3.30	4.80	3.60	4.10	1.10	1.30
% Forest	5.00	2.20	3.40	2.50	2.90	3.60	2.50	5.20	29.30
Stream Density	2.30	1.80	1.70	1.80	2.90	2.50	2.70	2.40	8.60
% Channelized	9.40	53.00	5.00	16.00	8.80	9.20	11.00	4.00	0.00
No. Crossing/Mile	0.56	1.00	1.00	1.00	1.50	0.90	0.75	0.67	0.57
Distance to Clinton Lake	0.00	0.00	1.90	1.60	2.70	3.50	3.50	2.40	0.00

Table Notes:
Drainage Area = Acres within Subwatershed/1000.
% Cropland = (Acres Cropland + Acres Crop-Tree) [within riparian buffer]/Drainage Area (total acres).
% Pasture-Animal Prod. = (Acres Pasture + Acres Pasture-Tree + Acres Animal Production) [within riparian buffer]/Drainage Area (total acres).
% Forest = Acres Forest [within riparian buffer]/Drainage Area (total acres).
Stream Density = Stream Length (mi.)/Drainage Area (sq. mi.).
% Channelized = Channelized Length (mi.)/Stream Length (mi.).
No. Crossings/Mile = No. of Bridges/Stream Length (mi.).
Distance to Clinton Lake = Stream Length (mi.) from Subwatershed outlet to Clinton Lake.

TABLE 2. SUBWATERSHED – SCORING RANGE

Prioritization Criteria	0	1	2
Drainage Area	<2.0	2.0 – 3.0	>3.0
% Cropland	<2.5	2.5 – 4.0	>4.0
% Pasture-Animal Prod	<2.5	2.5 – 4.0	>4.0
% Forest	>4.0	2.5 – 4.0	<2.5
Stream Density	<2.0	2.0 – 3.0	>3.0
% Channelized	<5.0	5.0 – 10.0	>10.0
No. Crossing/Mile	<1.0	1.0	>1.0
Distance to Clinton Lake	>2.0	1.0 -2.0	<1.0

3.0 RESULTS

We note that these scores neither reflect known negative impacts, nor actual subwatershed conditions. Rather, they offer a quick tool to differentiate subwatersheds by land uses that have the greatest potential non-point source pollution impact on Clinton Lake. Total scores for each subwatershed are provided in Table 3. Of the nine subwatersheds, SW-E, a 3,842 acre area draining the northwest portion of the Deer Creek watershed, scored highest—12.0 of 16.0 possible points. The large drainage area, and percentage of cropland, pasture/animal production, and stream crossings contributed to the high score. SW-G, a 3,472 acre area draining directly into Clinton Lake scored 11.0 points. The high score is influenced by a large drainage area, percentage of pasture/animal production and channelization. TWI recommends either SW-E or SW-G for on-site assessment of streambank conditions and identification of priority locations for BMP implementation.

TABLE 3. SUBWATERSHED – PRIORITIZATION SCORE

Prioritization Criteria	A	B	C	D	E	F	G	H	MB
Drainage Area	1.00	0.00	0.00	2.00	2.00	2.00	2.00	1.00	0.00
% Cropland	0.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00
% Pasture-Animal Prod	0.00	1.00	0.00	1.00	2.00	1.00	2.00	0.00	0.00
% Forest	0.00	2.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Stream Density	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	2.00
% Channelized	1.00	2.00	0.00	2.00	1.00	1.00	2.00	0.00	0.00
No. Crossing/Mile	0.00	1.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00
Distance to Clinton Lake	2.00	2.00	1.00	1.00	1.00	0.00	2.00	2.00	2.00
TOTAL SCORE	5.00	9.00	4.00	9.00	12.00	8.00	11.00	5.00	6.00

4.0 LITERATURE CITED

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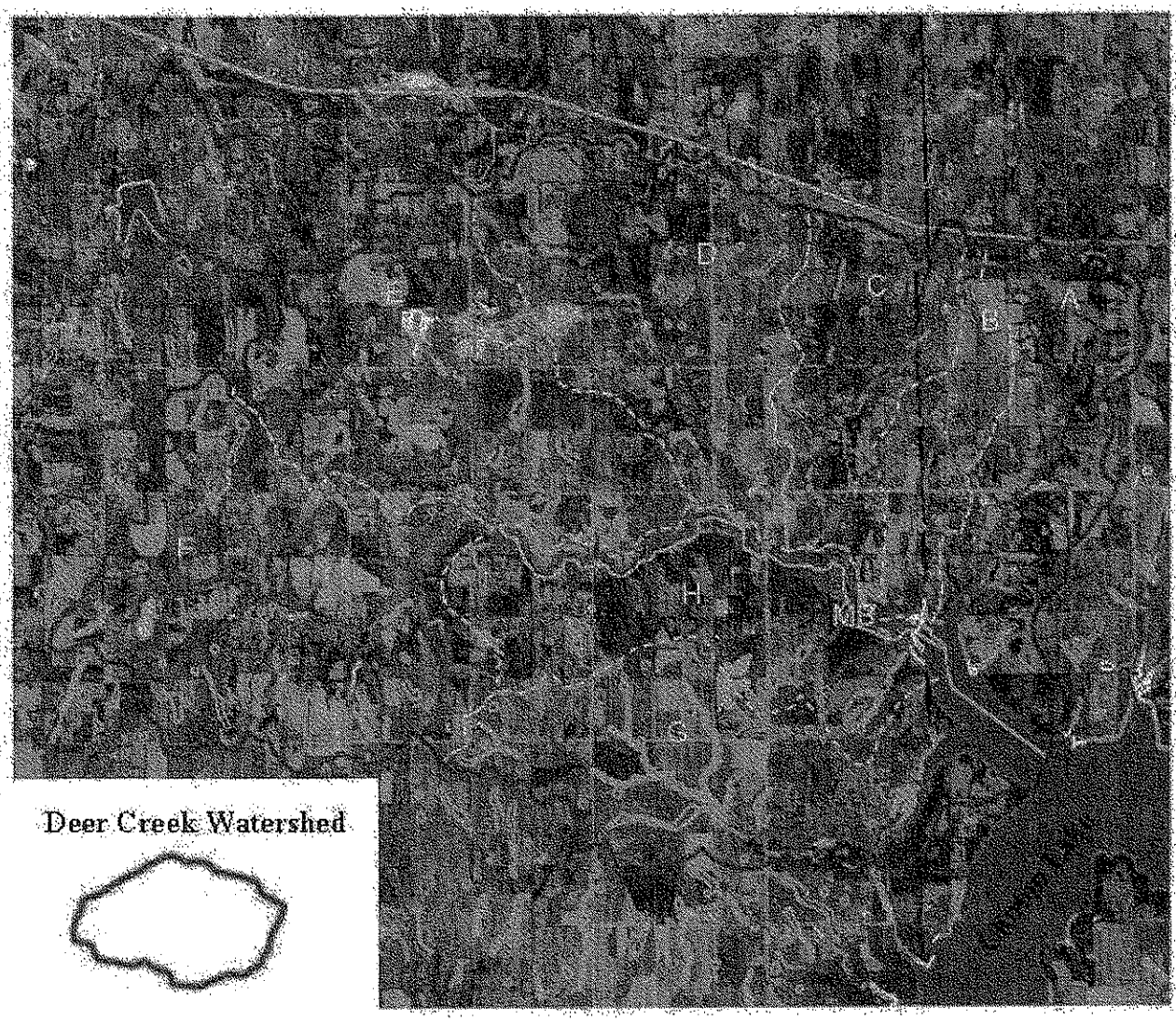


Project: Subwatershed Prioritization

Upper Wakarusa WRAPS

FIGURE 1

Riparian Area Inventory

Map Source: Kevin Dobbs – Kansas Applied Remote Sensing Program/Kansas Biological Survey

THE WATERSHED INSTITUTE

APPENDIX A

LAND USE CODES FOR RIPARIAN AREAS INVENTORY

Forest Land: Areas adjacent to a stream that contains trees with a canopy cover greater than 51% of the 100 foot buffer zone.

Crop Land: Areas adjacent to a stream where no trees area present and in which 51% of the 100 foot buffer is planted or was planted during the pervious growing season for the production of adapted crops for harvest, including row crops, small-grain crops, legume, hay crops, nursery crops, and other specialty crops.

Crop/Tree Mix: Cropland landuse areas that contain a tree canopy cover of less than 50% of the 100 foot buffer zone.

Grass Land (Pasture): Areas adjacent to a stream in which 51% or more of the 100 foot buffer contains pastureland, native pasture, or rangeland.

Pasture/Tree Mix: Grassland landuse areas that contain a tree canopy cover of less than 50% of the 100 foot buffer zone.

Urban Land: Areas adjacent to a stream where 51% or more of the 100 foot buffer contains dwellings or is located in an urban area without trees adjacent to the stream. Highways, railroads, and other transportation facilities are considered to be part of the urban & built-up land base if they area surrounded by other urban and built-up areas.

Urban/Tree Mix: Urban landuse areas that contain a tree canopy cover of less than 50% of the 100 foot buffer zone.

Shrub/Scrub Land: Areas adjacent to a stream that contain shrubs or brush/scrub vegetation with a canopy cover greater than 51% of the 100 foot buffer zone. Areas are composed of multi-stemmed woody plants, shrubs, and vines.

Animal Production Area: Areas adjacent to a stream that include barns, pens, or corrals used for the storage, feeding, processing, and production of livestock animals with a landuse cover of greater than 51% of the 100 foot buffer zone.

Barren Land: Areas adjacent to a stream where 51% of the 100 foot buffer contains land without any discernible vegetative cover, including quarries, borrows pits, and dry ponds.

APPENDIX B

SUBWATERSHED DATA

SUBWATERSHED DATA

Riparian Land Use/Land Cover																
SubWatershed	Stream Length (m)	Stream Length (mi)	Area (m^2)	Area (mi^2)	StreamDensity (mi/mi^2)	Barren (m^2)	CropLand	Crop/Tree	Forest	AnimalProd	Pasture	Pasture/Tree	Shrub/Scrub	Urban	Urban/Tree	Water
A	14162	8.8	9741385	3.8	2.3	10640.79	48524.38	162265.24	453802.44		58831.08	75173.95	87116.94		37081.74	627844.76
B	4973	3.1	4382200	1.7	1.8	22274.41	32906.58	99319.51	97512.92		31269.28	111404.07	49141.95			33025.52
C	8170	5.1	7555219	2.9	1.7		62104.14	147455.47	259504.62		34534.74	43232.62	68873.66		7879.32	14612.78
D	15185	9.4	13743766	5.3	1.8		137675.42	286742.18	342490.92	13967.58	219844.59	218561.20	25263.48	19204.37	18090.64	53105.06
E	27778	17.3	15548988	6.0	2.9	8589.95	327589.96	331449.79	458721.00	11627.98	275784.39	454126.58	39084.16	5721.10	8717.15	108731.57
F	28099	17.5	17997079	6.9	2.5		353924.82	406787.29	650013.58		226168.20	421843.37	45760.37	34170.35	40832.15	178290.40
G	23421	14.6	14051942	5.4	2.7		283753.19	185587.43	352955.78		475912.84	100911.71	111754.48		5239.29	985551.20
H	14480	9.0	9711913	3.7	2.4	22859.32	175101.62	130858.27	502032.62		51155.26	55539.24	18467.32	7626.91	11323.94	196664.74
MB	8451	5.3	1590712	0.6	8.6	4146.38	15971.47	65786.47	464879.01	9917.34	13343.69	136.26	25619.95	5564.02	9960.49	31977.27
		Stream Length (mi)		Area (acres)	StreamDensity (mi/mi^2)	Barren (acres)	CropLand	Crop/Tree	Forest	AnimalProd	Pasture	Pasture/Tree	Shrub/Scrub	Urban	Urban/Tree	Water
A		8.8		2407	2.3	3	12	40	112	0	15	19	22	0	9	155
B		3.1		1083	1.8	6	8	25	24	0	8	28	12	0	0	8
C		5.1		1867	1.7	0	15	36	64	0	9	11	17	0	2	4
D		9.4		3396	1.8	0	34	71	85	3	54	54	6	5	4	13
E		17.3		3842	2.9	2	81	82	113	3	68	112	10	1	2	27
F		17.5		4447	2.5	0	87	101	161	0	56	104	11	8	10	44
G		14.6		3472	2.7	0	70	46	87	0	118	25	28	0	1	244
H		9.0		2400	2.4	6	43	32	124	0	13	14	5	2	3	49
MB		5.3		393	8.6	1	4	16	115	2	3	0	6	1	2	8

Data provided by the Kansas Biological Survey.

APPENDIX C

BEST MANAGEMENT PRACTICES TO REDUCE STORMWATER RUNOFF FROM RESIDENTIAL DEVELOPMENT

BEST MANAGEMENT PRACTICES (BMPs) TO REDUCE STORMWATER RUNOFF FROM RESIDENTIAL DEVELOPMENT

Opportunities to control stormwater runoff and pollutant export from residential development are available by reducing the amount of impervious cover, conserving undisturbed land, and utilizing common best management practices (BMPs). Techniques that concentrate housing density on one portion of a site—while conserving open space elsewhere—provide numerous natural resource benefits. In general, open space design techniques include:

- Using narrower, shorter streets and rights-of-way.
- Applying smaller lots and setbacks and narrow frontages to preserve significant open space.
- Reducing the amount of site area devoted to residential lawns.
- Spreading stormwater runoff over pervious surfaces.
- Using open channels rather than curb and gutter.
- Protecting stream buffers.
- Enhancing the performance of septic systems, when applicable (rural or large-lot settings).

In addition, the following non-structural and structural BMPs are common approaches to control stormwater runoff, protect water quality, and conserve natural habitats.

NON-STRUCTURAL

Preserve Native Vegetation: Vegetation conservation maintains predevelopment ground cover to minimize construction-site soil erosion. If not possible, or the site is already disturbed, restoring the predevelopment soil profile and reestablishing native vegetation will slow surface runoff, filter sediment and sediment-bound pollutants, and promote infiltration.

Wetland/Stream Buffers: Preserving or restoring a 100-foot riparian buffer limits development in the floodplain, controls streambank erosion, removes pollutants from adjacent properties, can serve as a greenway park, and may increase adjacent property value.

Soil Preservation: Minimizing disturbance and compaction preserves the soil's capacity for precipitation infiltration reducing peak flows, surface erosion, and sediment-bound pollutants.

Existing Waterbodies: Preserve undisturbed streams and wetlands—as well as existing ponds and lakes—rather than replacement with storm sewers or concrete channels during development. Preserving the natural and existing drainage system maintains wildlife habitat and reduces downstream degradation from increased runoff.

STRUCTURAL

Vegetated Swales: Vegetated swales are broad shallow channels having dense vegetation on the side slopes and bottom. Swales reduce stormwater runoff velocities, filter pollutants, and promote infiltration. Vegetated swales can be either wet or dry.

Filter Strips: Filter strips are grassed areas that receive overland sheet flow from adjacent surfaces such as parking lots and construction areas. They distribute storm flows, slow runoff, filter out sediment and sediment-bound pollutants, and enhance infiltration of surface water runoff.

Infiltration Basins: Infiltration basins are earthen structures that capture and hold a stormwater runoff volume allowing it to soak into the ground over a period of time. These structures are used to restore or maintain predevelopment watershed hydrology and can reduce flooding, remove pollutants, and increase the water table and baseflow to streams.

Pervious Pavement: Pervious pavement allows stormwater infiltration through a permeable layer of pavement or other stable permeable surface. These systems can include porous asphalt, porous concrete, and cobble pavers with porous joints or gaps. Advantages of pervious pavement are reduced runoff and pollutants leaving the area.

Bioretention Areas: Bioretention areas are vegetated depressions that collect diverted surface water. Stormwater flow ponds on the surface allowing gradual infiltration into the soil.

Rain Gardens: Particularly useful in residential developments, rain gardens are small depressions planted with native vegetation (rather than a turfgrass lawn) to collect and infiltrate overland sheet flow. Rain gardens function similar to larger-scale bioretention areas but are typically sited on residential yards and community common areas.

Constructed Wetlands: Constructed wetlands use natural processes and native vegetation to treat effluent or stormwater runoff. These areas provide wildlife habitat, reduce flooding, and improve water quality.

Reduce Impervious Surfaces: Techniques to reduce impervious surfaces—narrower streets, one-sided sidewalks, reduced parking areas, cul-de-sacs with vegetated islands, etc.—reduce the hydrologic, water quality, and habitat impacts of residential development.

INFORMATION SOURCES

Several resources are available to provide more specific information on the BMPs mentioned above:

Center for Watershed Protection. 2000. The Practice of Watershed Protection. Full document or single articles available through the Stormwater Manager's Resource Center http://www.stormwatercenter.net/.

Mid-America Regional Council and American Public Works Association. 2003. Manual of Best Management Practices for Stormwater Quality. Available on-line at http://www.marc.org/watershed/q2.htm. 235pp.

Schueler, T.R. 1995. Environmental Land Planning Series: Site Planning for Urban Stream Protection. Metropolitan Washington Council of Governments. Publication Number: 95708. Available on-line at http://www.cwp.org/SPSP/TOC.htm. 232pp.

House Parties

Environmental Decision-Making Workshop

Partners
Kaw Valley Heritage Alliance
K-State Extension
Shawnee County Conservation District
Watershed Residents
Kansas Rural Center
Mayor, City of Lawrence
Sabatini & Associates Architects

House parties resulted from a Kansas State University sponsored decision-making workshop in which several of the partners participated. These are small gatherings hosted by watershed residents where people have an opportunity to share their thoughts and concerns regarding either the Watershed Plan or community experience.

Wakarusa Watershed Group

PROJECT

Goal:
Get landowners involved as active stakeholders in the Upper Wakarusa WRAPS

Objectives:
- To bring out local leadership to help direct Upper Wakarusa WRAPS initiatives.
- To identify the values of citizens in watershed.
- To increase awareness of WRAPS.
- To motivate landowners to do something before KDHE comes in.

Background Information:
Clinton Lake is a critical resource for water supply, flood control, and outdoor recreation. However, the Lake is also an artificial construct with a finite lifespan. The Upper Wakarusa Watershed Restoration and Protection Strategy (WRAPS) Committee coordinates partner efforts to protect the resource. The committee reviewed nearly sixty years of research on the Upper Wakarusa River and compiled a set of goals to guide protection efforts.

Objectives of the WRAPS include:
- *Acknowledge and bring together the efforts of all* people and *agencies doing work in the watershed to improve the water quality of Clinton Lake and the Upper Wakarusa Watershed River and its tributaries.*
- *Recommend water pollution control practices and policies to further improve water quality.*

Environmental Decision-Making Strategy:
The Wakarusa Watershed Group's goal was to co-host six house meetings in which residents/ producers within the watershed were invited to a familiar, nearby location to discuss issues surrounding water quality and land stewardship. The primary tools that were used during these meetings were listening sessions (to help identify the social, political, and economic setting) and goal development. Two questions articulate information that was sought:

1. What matters most to you as a stakeholder with regard to this issue or problem?
2. What (if anything) do you want to have "happen" in your community in regard to this issue or problem?

An organizational infrastructure asset map for the Upper Wakarusa Watershed was completed in 2003, and agencies are poised to act or react accordingly. Before this can happen however, the watershed's residents need to be brought into the mix. We hope to introduce landowners to the WRAPS project and get their input. More specifically, we want to collaborate with house meeting participants in developing a personal cost-benefit analysis to discover what measures people within the watershed are willing to take to improve water quality in Clinton Lake, and what they require to get it done.

One objective of this project is to lay the groundwork necessary to facilitate good decision-making in the future. The WRAPS is a costly and timely endeavor that requires citizen participation and commitment to ensure success. This project will start a dialogue within the watershed community about water quality issues. From this, it is hoped that leaders emerge who are interested and willing to represent the watershed in an advisory capacity.

PROCESS

There were two things that needed to happen before a successful house party could occur:

1. Identification of potential hosts for the party. There were few guidelines for selecting hosts. Principally, we started with people we knew, and tried to identify people who had varied connections with the land and who were geographically spread across the watershed.
2. A plan for sharing information and encouraging a dialogue with the residents.

To accomplish the first, a K-State Extension Watershed Specialist and Shawnee County Conservation District Water Quality Agent drew up a list of people with whom they had worked and were familiar. Additionally, a Douglas County Commissioner, Osage County District Conservationist, Wakarusa Watershed District Manager, Shawnee and Osage County Agricultural Agents, and watershed residents were solicited for suggestions of potential hosts. Contact information was obtained for all of the people and a map was drawn up to show where in the watershed they lived. The watershed was divided into six geographic zones and hosts were prioritized based on land use, familiarity, and interest.

To outline a plan for facilitating a discussion with watershed residents, the Wakarusa Watershed Coordinator met with the Sustainable Ag Network Coordinator for the Kansas Rural Center. After reviewing the Environmental Decision-Making Handbook and other resources and determining that a basic, introductory information exchange would be the most constructive, options for facilitating this exchange were discussed and compiled.

By the time this project is completed, there will have been at least 1 house party in each zone of the watershed. Within the existing watershed restoration plan priority areas have been designated. The plan is to host a couple of house parties in lower priority zones to provide practice before getting to the priority zones where more immediate action is desired.

OUTCOME

One concern of workshop participants was that it would be difficult to identify and get agreement from residents within the Upper Wakarusa Watershed to host house parties and that they could be poorly attended. This has not occurred as there are currently 36 people identified as interested in hosting parties. Furthermore, residents who are unable to host their own have been recruiting friends and neighbors.

The process of facilitating the house parties has been at least as beneficial if not more so for the organizers than for the watershed residents from historic, cultural, and interrelational perspectives. The first party was dry, filled with facts, and awkward timing; the guests were fairly reserved and the event was far from provocative. By the second party, organizers came equipped with specific strategies for encouraging discussion. Likewise the party guests were quite gregarious, had a long history with the local community and the watershed, and were quite willing to talk and share their experiences and opinions.

A workshop is tentatively schedule for the next couple of weeks in one of the priority areas to be hosted by what could be considered a matriarch of

TOOLS

Tools that were reviewed for use in the house parties included study circles, story telling, and "values on the line." A list of questions were drawn up that could be used as prompting tools for the guests. Tools that have not been used, but that could be very useful are values mapping, inventory assessment/mapping, and resource mapping. These assessments could be taken from party to party with the previous groups responses available for people to review and comment.

Given the small size and transient nature of these house parties, it may be important to string them together with the mapping results so that there is constant forward progress and momentum rather than repetition with each group. Possibly every four to six months a larger meeting could be held where these things are discussed in a more public fashion.

To aid in the promotion of the parties, postcards have been produced that are given to hosts who can write a small note stating the time and place of the event and then mail or give it to potential guests. Each host is allotted approximately $125 to spend on food so that a meal can be provided for group.

NUMBERS

To date there have been two house parties with 12 and 14 guests for a total of 26 people. There is a constantly growing list, currently resting at 36, of potential house party hosts. Plans are being made for five house parties with an average attendance of 10-15 people. 500 invitation postcards have been printed and it is expected that house parties will be the preferred method for primary contact with watershed residents and landowners.

IMPACT ON COMMUNITY'S ENVIRONMENTAL DECISION-MAKING PROCESS

Total impact on environmental decision-making has not yet been determined. The two meetings have clearly demonstrated however that there is great diversity within watershed residents. While the diversity is expected, it appears in sometimes surprising populations and circumstances. The house parties have allowed for the discussion of certain issues where consensus may have been presumed, but is not necessarily or even commonly the case.

Interestingly, a workshop was scheduled in among the house parties. The workshop involved six months of preparation, thousands of dollars, lots of work by many people, tons of stress, and took a full day to host. There were 19 watershed residents present. The two house parties cost approximately 200 dollars, involved little stress, lasted no more than 3 hours, and reached 26 watershed residents. This boils down to approximately $10/person for house parties and $250/person for workshops. Slightly more information was obtained at the workshop, but greater familiarity was gained between agency people and residents at the house parties. With some tweaking, these parties could provide just as much if not more information.

While each forum serves a valuable function, perhaps the early decision-making stages would be better served in the more intimate setting of a house party. Once the various mapping tools have been utilized, along with discussions of area water quality problems and potential solutions, the workshop or larger-scale public meeting would be a useful environment for local environmental decision-making.

Upper Wakarusa Watershed
Water Quality Discussion & Workshop

Partners
Kaw Valley Heritage Alliance
K-State Extension
Kansas Alliance of Wetlands & Streams
Shawnee County Conservation District
Douglas County Conservation District
Osage County Conservation District
Wabaunsee County Conservation District
State Conservation Commission
Kansas Water Office

The first water quality discussion organized to include all known stakeholders with special emphasis on watershed residents and landowners. The day included a discussion of the Upper Wakarusa Watershed Restoration & Protection Strategy (WRAPS) and Clinton Lake protection efforts, how the watershed has changed and how it's likely to change, and how we as a community can impact the future of the watershed and Clinton Lake. Residents of the Cheney Lake area shared their experiences in watershed management and working with municipalities, and cost share opportunities were shared.

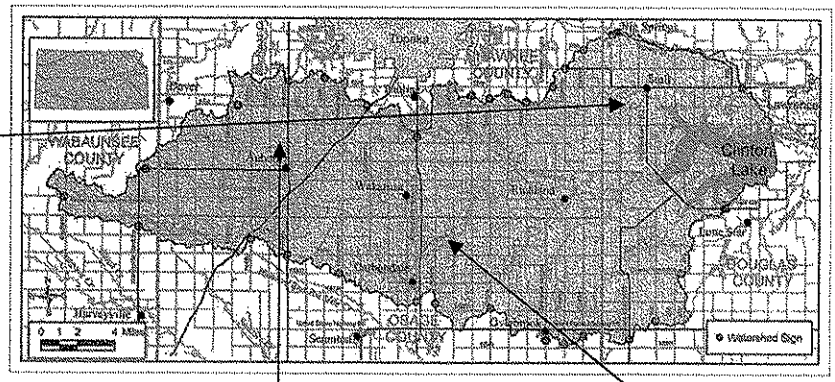
Upper Wakarusa Watershed Discussion & Workshop

Facilitation Results

DEER CREEK

40's – 60's

- Fewer homes
- Fewer trees
- No rural water
- No deer
- Mostly ag
- No septic systems
- "lived on it / worked on it"
- Very few ponds
- Less native grass
- No terraces or grassed waterways
- Low water crossings vs. bridges
- Fewer roads / dirt roads



DEER CREEK

70's - 05

- "Changed for better" except for urbanization
- BMP's installed
- Rural water added
- Population increase
- Change in farming practices
- More corn / less milo & wheat
- More wooded land
- Rural development increase
- More absentee landowners
- More turkey and deer
- Fewer snakes, quail, and rabbits
- CRP programs

DEER CREEK

In 10 years

- Controlled development (expen-sive homes)
- Sedimentation continues (who funds clean up?)
- Water quality issues (drinking water, fishing, recreation)
- Less agriculture
- Increased runoff
- Habitat favors deer & turkey
- More septic tanks and more pets / horses leads to increase in fecal bacteria
- More ponds (development)
- Increase non-traditional farming (buffalo, emu)
- Reduction in fertilizers & herbicides related to decrease in farms

DEER CREEK

Needs

- Increase sediment retention ponds
- Increase buffer strips
- Increase wetlands
- Meet neighbors

WILDCAT / AUBURN

40's – 60's

- Site 16 on Jean's property
- 1939 – dry. Wells would go dry every year.
- No deer, turkey; lots of quail, doves, rabbit
- When it rained, took water longer to flow downstream in lowlands
- More meanders in Creek
- Called Wildcat because of amount of water that came down creek when it rained
- Grew alfalfa, corn, soy beans, NOW grass, pasture, CRP

WILDCAT / AUBURN

70'S – 05

- Hard time keeping people off
- High taxes
- More beaver/fewer quail
- No fish in Wakarusa below Auburn
- Noxious weeds – lespedeza
- Most lakes built in '80's; now only 8-10 = who will pay to dredge?
- Lots of green algae in ponds & cattails
- Now grass & cattle
- CRP
- Less gullies, erosion

WILDCAT / AUBURN

In 10 years

- Ponds silted in...(where's it coming from), erosion in old pastures, moss in ponds/lakes
- More trees in pasture; want more "productive" trees: walnut, cherry, pecan
- Want to see it looking like a park
- More cattle grazing
- Need to manage red cedars in pasture (keep them cut back)
- Control noxious weeds/geese
- Improve how park kind is managed

BERRY CREEK

40's – 60's

- Cattle fed on creeks
- Lots of floods – sediment
- No terraces
- Fish in creeks
- Most private septic systems
- Washing away of creeks
- Swim
- Birds – wildlife, quail

BERRY CREEK

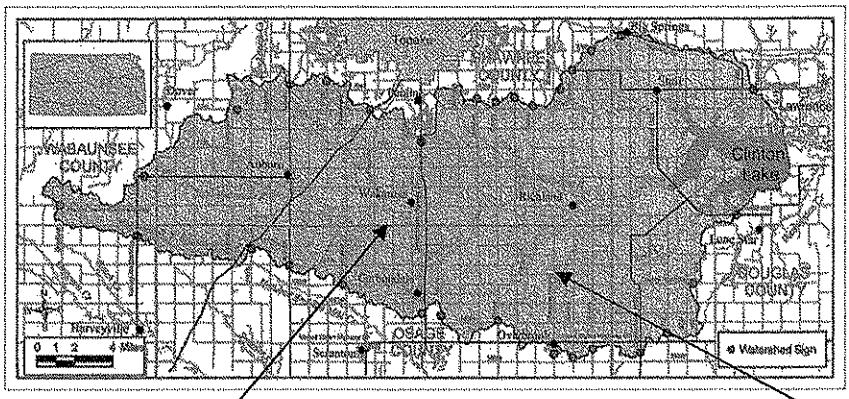
70's – 05

- Watersheds
- Flood control dams
- Filter strips
- No-till
- Corn & soybeans
- Go-back ground; go back to grass
- Wildlife – too much. Need more control – turkeys & deer

BERRY CREEK

In 10 years

- More quail – wildlife
- Age of watersheds in state – need maintenance
- Ponds silting in
- Terrace repair
- Move livestock operation away from streams
- New technology
- Education about clean water



WAKARUSA

40's – 60's

- Fished
- Swimming, drinking
- Hand fished
- Trapped
- Boated
- Drank from it straight as a kid
- Hunting
- Picked Paw Paws

WAKARUSA

70's – 0's

- Not as many trees & drifts
- Straightened
- Fishing not as good now (no bullheads, no channels)
- Not as many deep holes
- Lagoons at Auburn caused pollution downstream
- Bigger population in watershed
- More septic systems, development of family houses not farmers, horse/hobby farmers; fewer dairies
- Erosion-more in general
- Lots of turkeys & deer
- More small ponds-doesn't flood as much

WAKARUSA

In 10 years

- More urban development
- More brush & weed and trees, more cedars
- Buffer strips will go to brush
- Less production ag.
- More non-ag. Chemicals
- Less ag NPS but more non-ag. NPS
- More storm water runoff from development
- No-till & filter strips

WAKARUSA

Needs

- More info/education
- More grassroots involvement
- Build a dam/pond instead of bridges
- Policy in place to address development and storm water runoff from development

CAMP & ELK CREEK

40's – 60's

- Fewer trees, more grassland
- Fewer houses, less development
- Diversified farming
- Fewer paved roads
- Wells were major domestic water sources
- Less domestic water use
- More conscious of water consumption
- Smaller lawns, less intensive management
- Little chemical use
- Larger families
- Population the same, distribution different
- More flooding
- Smaller farms, smaller equipment
- Same livestock numbers, less concentration
- Less beef, more dairy, hogs, & chickens
- More interaction with the environment/wildlife
- More milo, corn, wheat, alfalfa, oats, & red clover

CAMP & ELK CREEK

In 10 years

- More small acreage homesteads, land purchases for hunting
- More traffic, horses
- Osage county will be even more of a bedroom community
- Fewer services available
- Different services available
- More crime, demand for rural water
- Higher priced water
- More no-till farming, buffer strips & other conservation work
- Less agriculture diversification: livestock vs crops
- More wildlife, lease hunting, changes in income sources

CAMP & ELK CREEK

Needs

- Address issues associated with small acreages
- Expectations: rural water/sewer systems, paved roads, more privacy, pride in land ownership, more land for the money, less crime, & high speed internet
- Issues: herbicide drift from farms, overgrazed horse pastures, & better roads.

Upper Wakarusa Watershed Discussion & Workshop

Evaluation Remarks

The main reason I came to this meeting was:

- Learn more about WRAPS.*
- Find out more info of activities of KVHA & Wakarusa WRAPS.*
- To learn more about water quality.*
- I farm in watershed.*
- Learn more about our watershed.*
- My watershed.*
- Learn.*
- Learn more about issues and hear what locals think is important.
- More knowledge of water protection.
- To learn more about improving our water quality.
- To be involved.
- To learn more about the Wakarusa Watershed.
- Work with natural resources.
- Presenter.
- To participate in booth fair.
- Learn more.
- General interest.
- To obtain ideas for discussions for future meetings in regard to the watershed in which I will be participating as a WRAPS resource.
- Was invited.
- I work for a watershed.
- General information.
- To learn more about WRAPS.
- A WRAPS member.

I would like to see a community watershed group focus on the following things.

- Cost share of City of Lawrence and those who use Clinton for drinking water.*
- Storm water management.*
- Local input to water quality in Clinton and Wakarusa watershed.
- Water quality.
- Increasing landowner participation.
- Work more closely with farmers and landowners to make water resources better for all residents of the watershed.
- Water quality, wildlife.
- Wildlife habitat.
- Water quality.
- Yes.
- Private wastewater systems and planning for some.
- Smart urban growth. Riparian management.
- Buffer zones.
- Water quality.
- How to organize committees to start progress. Hold local meetings.
- Future land use to protect habitat.
- Education and proven practices.
- Put conservation practices on the ground. Less $$ to education.

* Indicates watershed resident response.

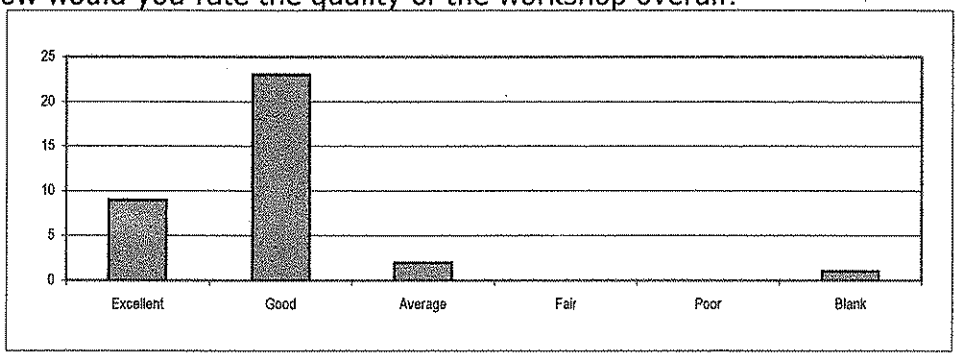
As a result of this meeting, I will...

- Put in buffer strips! *
- Keep involved in the issue and involved with KVHA and help inform others.
- Try to educate landowners of their options for long-term practices.
- Tell others.
- Participate a professional resource in the watershed in which I work.
- Review some of our farming practices, look into programs with fencing to help separate streams and livestock.
- Try to initiate progress in 6-Mile Creek.
- Keep on doing what I'm doing.

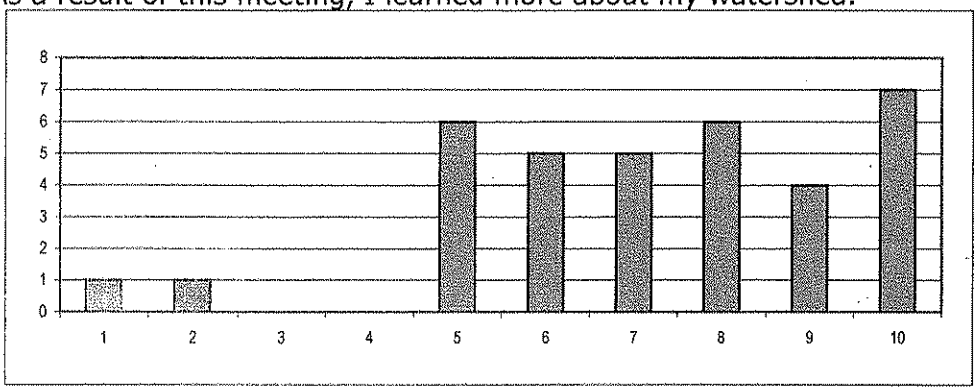
Upper Wakarusa Watershed Discussion & Workshop

Evaluation from Entire Workshop Sample n-35

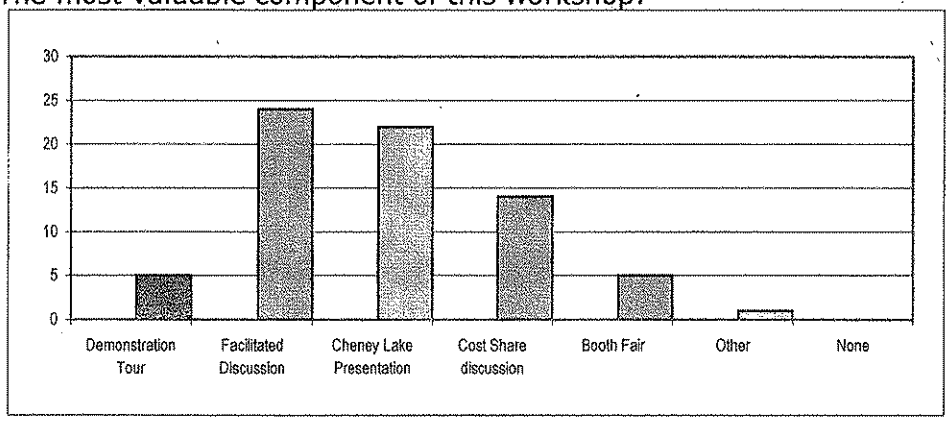
1. How would you rate the quality of the workshop overall?



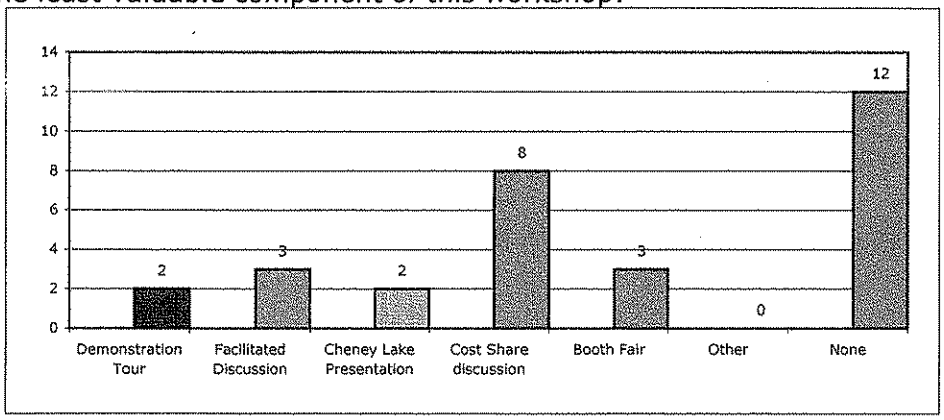
2. As a result of this meeting, I learned more about my watershed.



3. The most valuable component of this workshop:



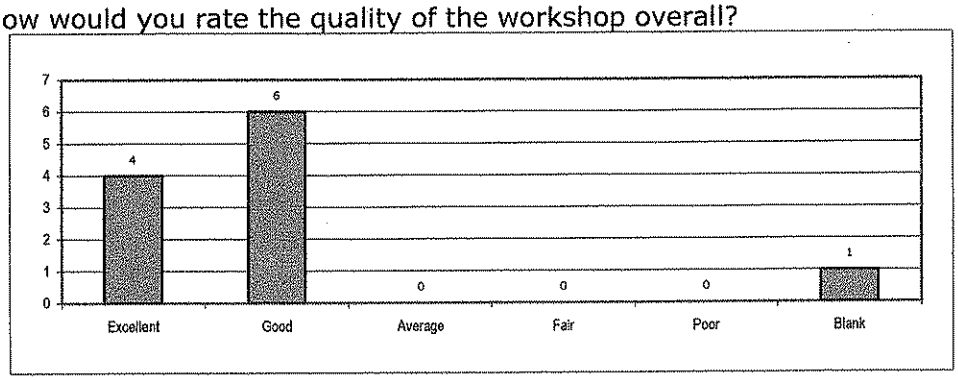
4. The least valuable component of this workshop:



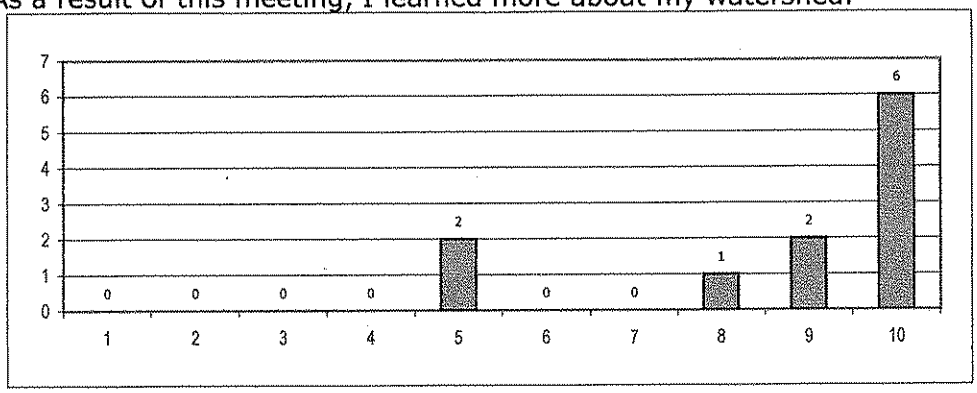
Upper Wakarusa Watershed Discussion & Workshop

Evaluation from Watershed Resident Sample n=11

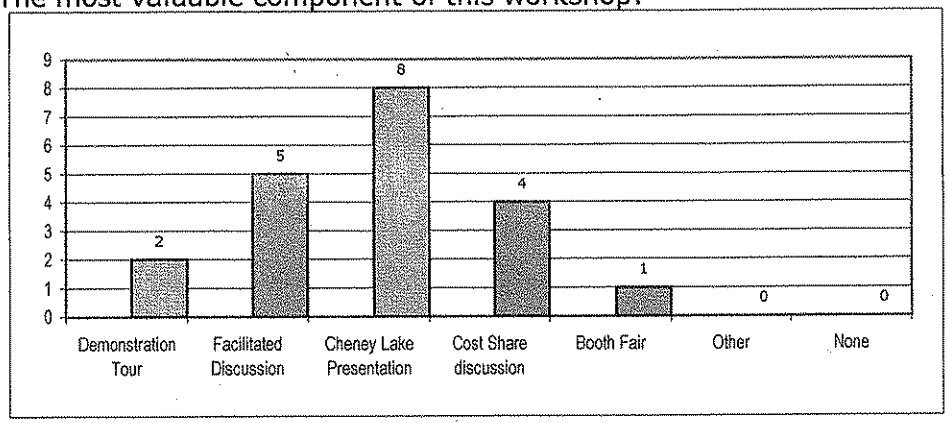
1. How would you rate the quality of the workshop overall?



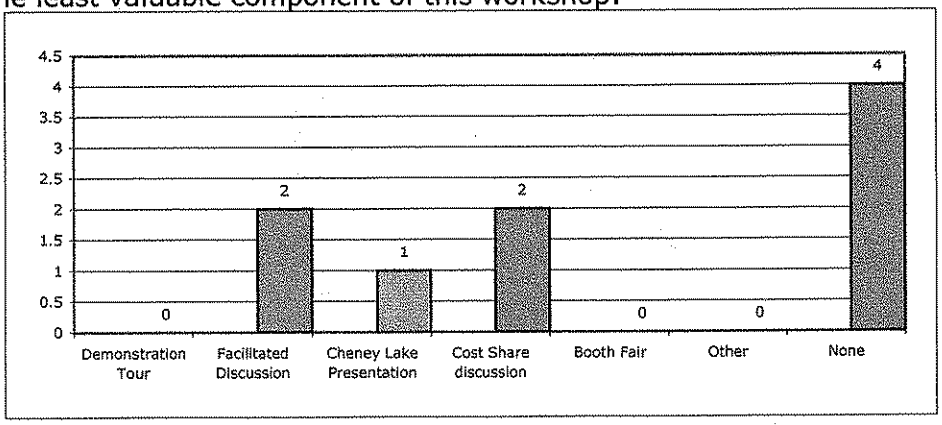
2. As a result of this meeting, I learned more about my watershed.



3. The most valuable component of this workshop:



4. The least valuable component of this workshop:

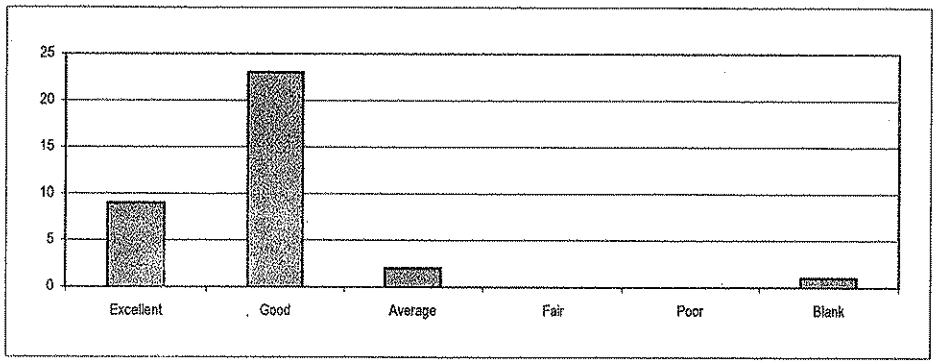


Upper Wakarusa Watershed Discussion Workshop
Evaluation

1. How would you rate the quality of the workshop overall?

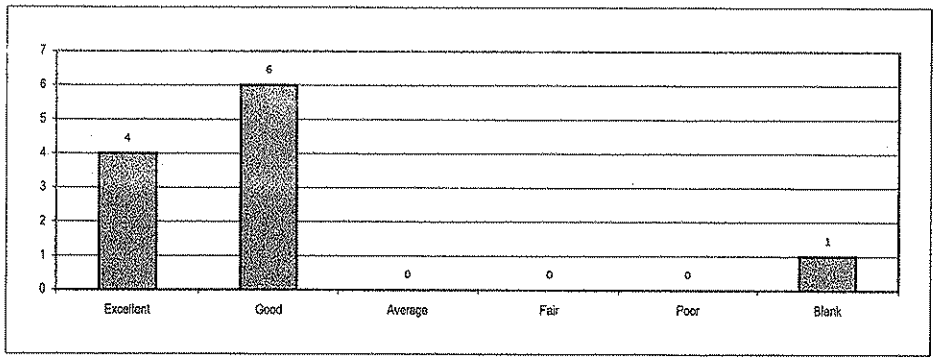
total

Excellent	Good	Average	Fair	Poor	Blank	n= 35
9	23	2	0	0	1	
26%	66%	6%	0%	0%	3%	



farmers

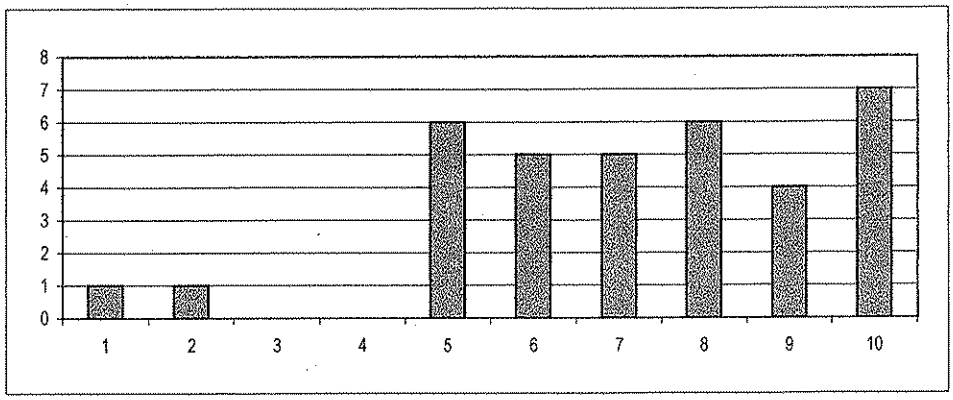
Excellent	Good	Average	Fair	Poor	Blank	n= 11
4	6	0	0	0	1	
36%	55%	0%	0%	0%	9%	



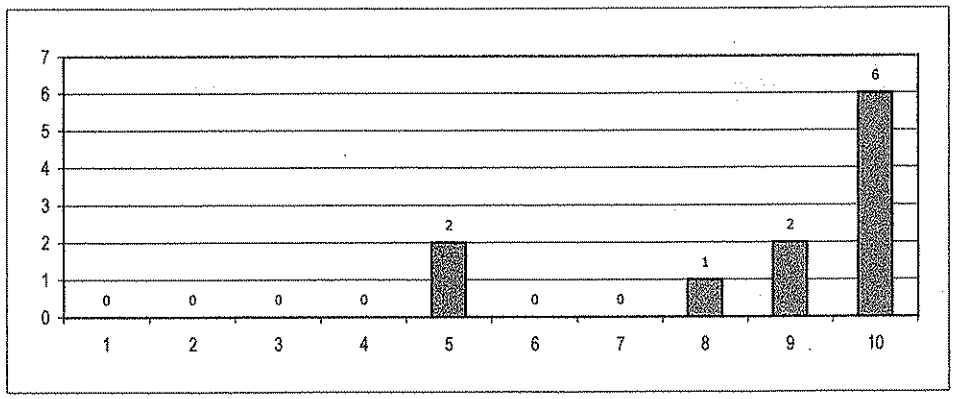
Upper Wakarusa Watershed Discussion Workshop
Evaluation

2. As a result of this meeting, I learned more about my watershed.

total	1	2	3	4	5	6	7	8	9	10
	1	1	0	0	6	5	5	6	4	7
	3%	3%	0%	0%	17%	14%	14%	17%	11%	20%



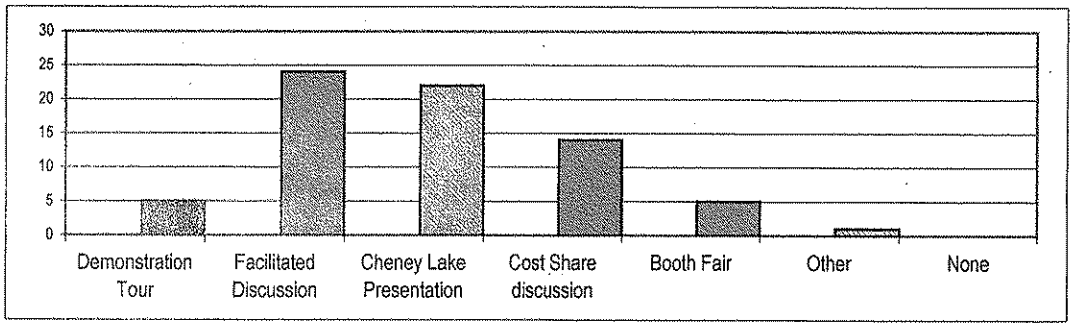
farmers	1	2	3	4	5	6	7	8	9	10
	0	0	0	0	2	0	0	1	2	6
	0%	0%	0%	0%	18%	0%	0%	9%	18%	55%



3. The most valuable component of this workshop:

total

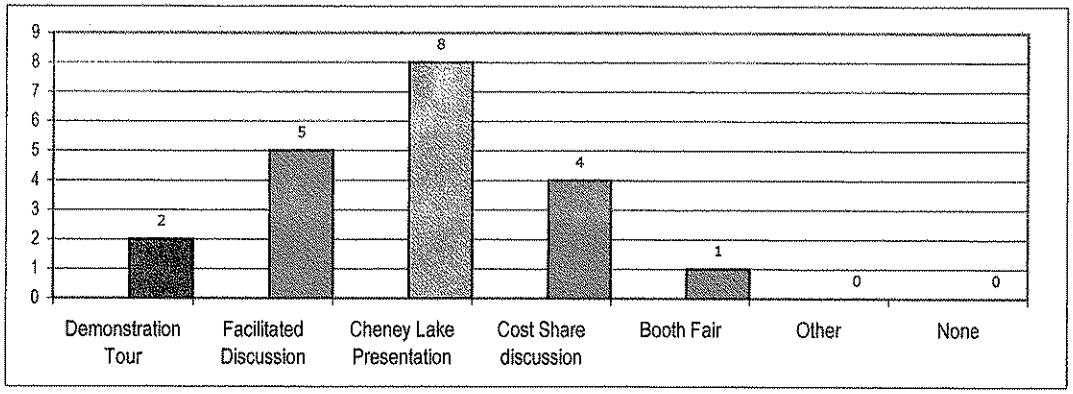
Demonstration Tour	5	7%	n= 71
Facilitated Discussion	24	34%	
Cheney Lake Presentation	22	31%	
Cost Share discussion	14	20%	
Booth Fair	5	7%	
Other	1	1%	
None	0	0%	



farmers

Most Valuable Component

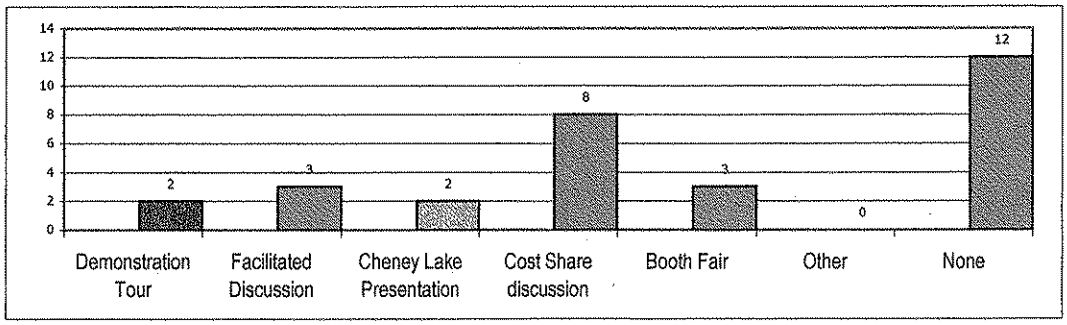
Demonstration Tour	2	10%	n= 20
Facilitated Discussion	5	25%	
Cheney Lake Presentation	8	40%	
Cost Share discussion	4	20%	
Booth Fair	1	5%	
Other	0	0%	
None	0	0%	



4. The least valuable component of this workshop:

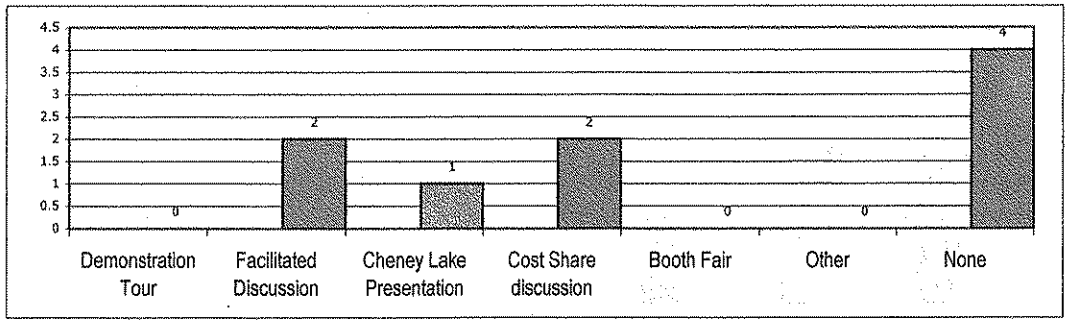
total

Demonstration Tour	2	7%	n= 30
Facilitated Discussion	3	10%	
Cheney Lake Presentation	2	7%	
Cost Share discussion	8	27%	
Booth Fair	3	10%	
Other	0	0%	
None	12	40%	



farmers

Demonstration Tour	0	0%	n= 9
Facilitated Discussion	2	22%	
Cheney Lake Presentation	1	11%	
Cost Share discussion	2	22%	
Booth Fair	0	0%	
Other	0	0%	
None	4	44%	



Wakarusa Watershed Discussion & Workshop

Attendance

Name	Notes	
Jan Koehler	farmer; Osage County Farm Bureau	*
Ellis Needham	watershed landowner; cattle; cost share	*
Vernie Tucker	watershed landowner; cattle farmer	*
Dan Potter	watershed landowner	*
Jean Wachter	landowner; cattle farmer; cost share	*
Evelyn Davis	watershed landowner; SCCD	*
Wayne Lukert	cattle farmer; SCCD board member	*
Jagger Swisher	farmer; RWD #5	*
Dale Carls	watershed landowner; cattle farmer; cost share	*
Jeanne Stous	watershed landowner	*
Shirley Henderson	watershed landowner; farmer	*
Charles Shepard	watershed landowner; cattle farmer	*
Robert Henderson	watershed landowner; cattle	*
Leon Green	watershed landowner	*
Beulah Tenbrink	watershed landowner; cattle farmer	*
Hayden Wood	watershed landowner; cattle farmer; watershed lake	*
Helen Wackter	watershed landowner; cattle	*
Duane Renyer	watershed landowner	*
Larry Woodson	Osage County Commission	*
Courtland Carls	watershed landowner; farmer	*
John Atwood	watershed landowner; cattle farmer	*
Dennis Brinkman	NRCS - Topeka	
Jaime Gaggero	KDHE - Topeka	
Shirley Wray	Wakarusa Watershed Joint District #35	
Tim Christian	KAWS	
Will Boyer	KSU Extension	
Aimee Polson	KVHA	
Gabrielle Iverson	KVHA	
Christine Boller	KVHA	
Jerry Derfler	SCCD	
Judy Boltman	SCCD	
Steve Swaffer	KFB	
Jeff Zacharakis	KSW (facilitator)	
John Piskac	NRCS	

Wakarusa Watershed Discussion & Workshop

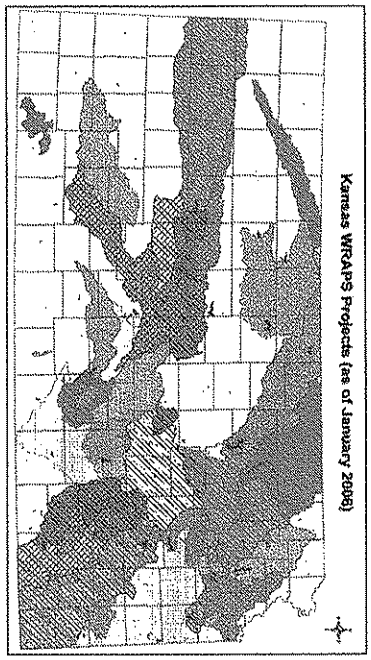
Attendance

Name	Notes
Deke Hobbick	KDWP
Jerry Jost	Kansas Rural Center
Alison Reber	KVHA
Dean Davis	KSU Extension, SNCO
Paul Liechti	KBS
John Bond	KAWS
Herb Graves, Jr.	SAKW
Gary Satter	NRCS
Guy Crabill	NEKES
Bruce Smith	RWD #3
Beth Rowlands	KDHE
Rob Reschke	SCC
Kent Askren	KS Farm Bureau
Bill Wood	DG CO Extension
John Schoenick	Wakarusa Watershed Joint District #35
Rob Schamb	Osage County Extension
Carol Blocksome	KSU
Roxann Maike	Wabaunsee County Conservation District
Lori Griffith	Osage County Conservation District
Tim Gogolski	USDA NRCS, Osage County
Steve Fischer	USACE
Julie Coleman	KDHE
Debra Baker	KWO
Jon Ungerer	NRCS, SCC
Granville Davidson	SCCD Board
Lew Ruona	USACE
Chris Lavergne	KSU WaterLink
Joe Hoffman	DCCD
Lisa French	Cheney Lake Watershed; presenter
Sig Collins	Cheney Lake Watershed; presenter
Shari Stamer	City of Lawrence Utilities

KDHE 2006 WRAPS Presentation

Partners Kansas Department of Health and Environment
Kaw Valley Heritage Alliance
Twin Lakes WRAPS
Marion Reservoir WRAPS

At KDHE's request, coordinators from the Upper Wakarusa, Twin Lakes, and Marion Reservoir WRAPS worked to put together a presentation and handout on education and working with the public within a watershed community.



There are approximately 90 Hut 8 watersheds in the state of Kansas and approximately 66 of the 90 watersheds have surface waters violating state standards. There are 37 Hut 8s with 1 or more WRAPS projects.

What is a Watershed?
An area of land that drains water toward a downhill point. The point can be a stream segment, river, lake or pond, or the lowest place within the watershed where rain always collects. Since the movement of water is directed by gravity, a watershed will be separated from other watersheds by land with higher points of elevation.

What does HUC 8 mean?
HUC stands for Hydrologic Unit Code. The USGS developed a classification system for dividing hydrologic regions and assigning them a code based on their region (represented by the first and second digit in the code), sub-region (third and fourth digit), accounting units (fifth and sixth digit), and catalogging units (seventh and seventh digit).

Resources

Adopt Your Watershed. www.epa.gov/adopt/

Democracy in Practice: Public Participation in Environmental Decisions, Thomas C. Beierle and Jerry Cayford.

The Facilitator's Fieldbook: Step-by-Step Procedures, Checklists and Guidelines, Samples and Templates, Tom Justice, et al.

Facilitator's Guide to Participatory Decision-Making. Sam Kaner, et al.

Getting In Step: A Guide for Conducting Watershed Outreach Campaigns
www.epa.gov/owow/watershed/outreach/documents/getnstep.pdf

Getting in Step: Engaging and Involving Stakeholders in Your Watershed
www.epa.gov/owow/watershed/outreach/documents/stakeholderguide.pdf

Handbook for Developing Watershed Plans to Restore and Protect Our Waters
www.epa.gov/owow/nps/watershed_handbook/.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
www.epa.gov/owow/nps/urbanmm/index.html.

The Skilled Facilitator. Roger Schwarz, et al.

Water Safety Plans: Managing Drinking Water from Catchment to Consumer, Annette Davidson, et al. World Health Organization
www.who.int/water_sanitation_health/dwq/safetyplans/en/

Contact

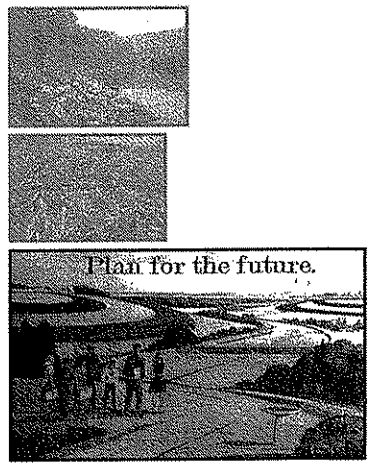
KDHE
Bureau of Water
Watershed Mgmt. Section
1000 SW Jackson St.
Suite 420
Topeka, KS 66612-1367
(p)785-296-4195
NPS@kdhe.state.ks.us
www.kdheks.gov

Aimee Polson
Upper Wakarusa WRAPS
412 E. 9th Street
Lawrence, KS 66044
(p)785-840-0700
wakarusawatershed.org
aimee@kvha.org

Peggy Blackman
Marion Reservoir WRAPS
303 Eisenhower Drive
Marion, KS 66861
(p)620-382-3520
(f)620-382-3714
peggy.blackman@ks.nacdnet.net

Katie Miller
Twin Lakes WRAPS
116 Fox Street
Council Grove, KS 66846
(p)620-767-5111 ext. 110
(c)620-767-3187
katie.miller@ks.nacdnet.net

KDHE has provided financial assistance to this project through EPA Section 319 Nonpoint Source Pollution Control Grant #2003-303.



Cultivating a watershed community

fostering citizen support and action for a WRAPS

1 Public Participation in the WRAPS Writing Process

Public participation: The involvement of citizens in decision-making processes. Participation ranges from being given notice of public hearings to being actively included in decisions that affect communities.

Why work with the public: The public may improve the substantive quality of decisions in several ways, such as by offering local or site-specific knowledge, discovering mistakes, or generating alternative solutions that satisfy a wider range of interests. Plans may take longer and cost more money to write, but the implementation stage should be much faster and effective as a result of these efforts.

Trust of an agency or project increases when there is greater public involvement. Increase and sustain trust by promoting as much transparency and communication as possible.

Do not be overly concerned if you find yourself preaching to the choir. These people, sometimes referred to as *innovators* or *early adopters*, can become effective advocates, working within their own spheres of influence.

Continue to revisit the final WRAPS document and make necessary revisions, updates, or corrections. Likewise, there will be outcomes to actions taken that need to be integrated into your Plan.

Upper Wakarusa Watershed

367 square miles
Douglas, Shawnee, Osage, Wabaunsee Counties
56% grassland, 27% cropland
Clinton Lake
Built: 1977
Capacity: 269,000 acre feet
Public Water Source for over 100,000
WRAPS initiated in 2003

Project Highlights

- Elk Creek Wetland complex.
- Water Quality Discussion & Workshop in November.
- House Parties hosted by watershed residents where water and watershed issues and histories are shared.
- Kansas State University Bacteria Study.

2 Education

Education: The knowledge or skill obtained or developed as the result of a learning process. Education varies from public meetings, tours, and literature, to discipline through workshops, festivals, and demonstrations.

Why educate the public: Education is vital to the success of a WRAPS. Adults and children alike are present and future stakeholders in a WRAPS, and need proper knowledge of local watershed issues, problems, and possible solutions. Linking watershed knowledge to everyday life and actions will form a web of background information that leads to environmentally sound decision-making.

Educating the public is an ongoing process that will last throughout the life of the WRAPS. Developing good quality, user-friendly materials will be beneficial. Keep in mind that watersheds and water issues may be foreign concepts to many people, so know your target audience, and develop and deliver information accordingly. Since different people learn through different avenues, don't limit yourself on ways of distributing materials. Press releases, flyers, newsletters, radio spots, workshops, tours, public meetings, and personalized mailings are all effective, but never underestimate the power of a 1-on-1 conversation.

Neosho Watershed Twin Lakes Water Quality Project

259 square miles
64% grassland/, 30% cropland
Public Water Source for 35,000
Council Grove Lake
Built: 1964
Drainage Area: 246 sq. miles
Capacity: 346,655 acre feet
Council Grove City Lake
Built: 1940
Drainage Area: 8 sq. miles
Capacity: 9,982 acre feet
WRAPS initiated in 2001

Project Highlights

- Installing BMP's to improve water quality in the watershed that double as demonstration sites.
- Educational activities targeting all stakeholders focusing on local water issues and concerns.
- First annual Twin Lakes Water Festival hosting 700 students from 4 counties.

3 Reaching the Producer

BEST MANAGEMENT PRACTICES

Soil saved is money earned.
Farmers and ranchers now have more incentives than ever to voluntarily conserve natural resources on privately owned farmland. Conservation Practices or Best Management Practices (BMP's) can help reduce erosion , guard streams and rivers, restore and establish fish and wildlife habitat, improve air, and save dollars with nutrient and pesticide management and conservation tillage for the farmer.

BMP's are the most practical and effective way to prevent soil erosion and the contamination of our water sources with sediment.

Soil determines a farm's productivity.

Grass is the forgiveness of nature - her constant benediction. John Ingalls, U.S. Senate 1890

Food, water, and shelter are the basics of livestock production. Through the WRAPS program a livestock producer can implement: Grazing Management Systems, Fencing, Move Livestock wintering pens and watering, feeding facilities away from Creeks, Rivers, etc., Range Seeding, Pasture and Hay land Planting, Develop alternative Water Sources, and Brush and Weed Control

WRAPS is a voluntary project designed to improve the water quality in Kansas rivers, streams and lakes, but can add to the Bottom Line or Profit Margin on producers' farms and ranches.

Marion Reservoir Watershed

200 square miles
52% cropland, 48% grassland
Marion Reservoir
Built: 1968
Capacity: 141,802 acre feet
Public Water Source for over 15,000
WRAPS initiated in 2002

Project Highlights

2003-2005
BMPs Implemented: 99
Actual Cost: $221,136.00
WRAPS funds: $ 93,398.67
In-Kind Contribution: $103,701.41
Terraces Implemented: 193,155 feet (36.6 miles)

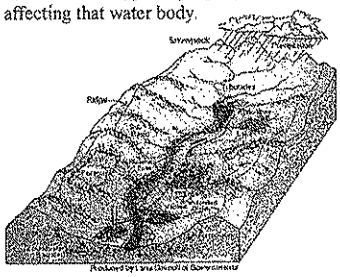
"Entering Wakarusa Watershed" Promotion

Partners
Kansas Department of Health & Environment
Shawnee County Environmental Health Agency
Northeast Kansas Environmental Services
Kansas Water Office
Natural Resource Conservation Service, Shawnee CO
Shawnee County Conservation District
Kansas Environmental Leadership Program
Kaw Valley Heritage Alliance

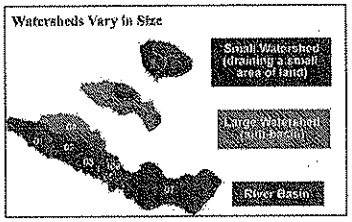
As part of a 2004 KELP project, signs identifying the boundaries of the Upper Wakarusa watershed were made. In an effort to get these signs installed, a brochure was created which gave an overview of the watershed and the positive impact that awareness can have on human actions.

What is a Watershed?

A watershed is defined as an area of land that drains to a common location such as a lake or point on a stream. Everyone lives in a watershed! The rainfall that runs off your yard and roof of your house eventually drains into some type of water body (i.e. lake or stream). Fertilizer or pesticides that you put on your lawn or cropland can be washed into a lake or stream if not applied properly, negatively affecting that water body.



Watersheds vary in size and are part of a hydrologic system of interconnected watersheds in which small watersheds are combined to form larger watersheds that drain an increasingly larger area of land. Every piece of land on the earth is part of a watershed.



Acknowledgements

This project is a cooperative effort of the following agencies. Visit their websites to find out more about your watershed and how you can get involved.

Kaw Valley Heritage Alliance
www.kvha.org

Kansas Dept. of Health & Environment
www.kdhe.state.ks.us/nps/index.html
Watershed Conditions Report
www.kdhe.state.ks.us/nps/index.html
Total Maximum Daily Loads (TMDL)
www.kdhe.state.ks.us/tmdl/index.html

Kansas Water Office
www.kwo.org

Natural Resource Conservation Service & Conservation Districts
www.ks.nrcs.usda.gov
www.accesskansas.org/kscd

Extension Offices
www.oznet.ksu.edu/mainframes.htm

EPA - *Surf Your Watershed*
cfpub.epa.gov/surf/locate/index.cfm

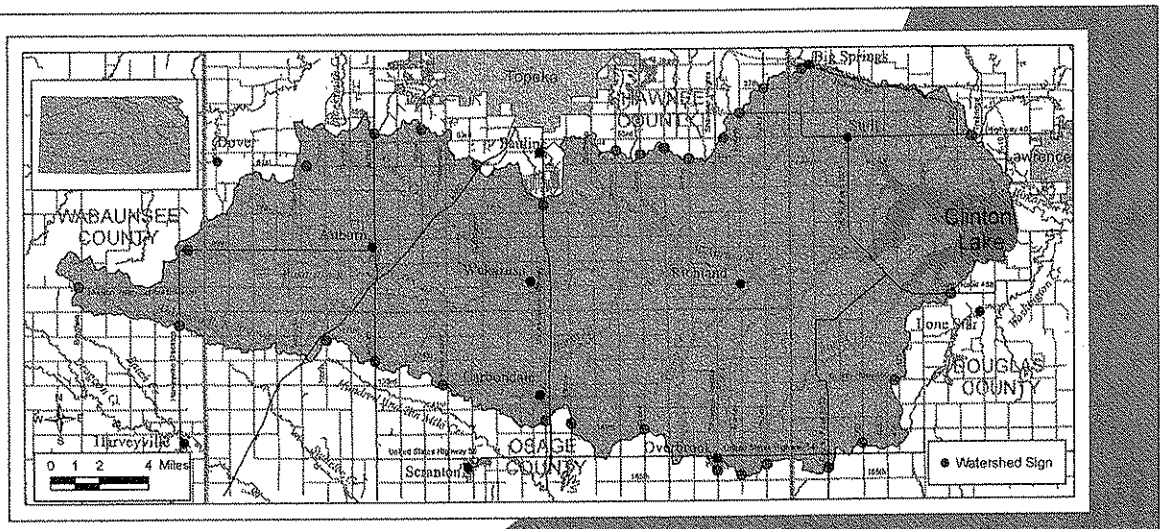
Funding for this project was provided in part through a grant from the Kansas Water Plan Fund.

ENTERING THE WAKARUSA WATERSHED
Drains to Clinton Lake

WAKARUSA WATERSHED and Clinton Lake AWARENESS PROJECT

Once individuals become aware of and interested in their watershed, they often become more involved in efforts to protect and restore the watershed and the waters within it. Signs like the one above are being placed along roadways near the boundaries of the Upper Wakarusa River Watershed to promote watershed partnerships between landowners, homeowners, local businesses, developers, recreational users, governmental agencies, elected officials, media, teachers, civic groups, conservation groups, environmentalists, church groups, youth groups, and others.

Get informed! Get involved!



Upper Wakarusa Watershed

The Upper Wakarusa Watershed drains into Clinton Lake. The watershed covers approximately 367 square miles and extends about 40 miles west from the predominately forested Douglas County area out into the Tallgrass Prairie and cropland areas of southern Shawnee, northern Osage, and eastern Wabaunsee counties. Kansas has twelve major river basins. The Upper Wakarusa Watershed is part of a larger watershed called the Kansas-Lower Republican River Basin. The Unified Watershed Assessment gives the Upper Wakarusa Watershed a high priority ranking for restoration work.

Clinton Lake

Clinton Lake covers approximately 7,000 acres in Douglas County and provides a variety of benefits including flood control, drinking water supply, recreation and water quality enhancement. The lake is the source of drinking water for the City of Lawrence and 15 other cities and rural water districts in the surrounding counties. Over 100,000 people drink treated water from Clinton Lake.

While one person can make a difference, it is only through the shared and organized efforts and commitment of citizens that long term, sustainable change will occur.

Water Quality

The Kansas Department of Health and Environment (KDHE) has identified water quality problems affecting the Wakarusa River and Clinton Lake. Problems include nutrients (phosphorus and nitrogen) in Clinton Lake and bacteria and sediment in the Wakarusa River. A watershed management plan has been developed by the Kaw Valley Heritage Alliance. Several agencies and organizations are working with landowners and residents in the watershed to address water quality concerns through the implementation of best management practices identified and recommended in the plan.

Coon Creek Wetland

Partners Corps of Engineers
Kansas Alliance of Wetlands and Streams
Kansas Wildscapes
Kansas Department of Wildlife & Parks
Kaw Valley Heritage Alliance
Westar GreenTeam

This project entails the conversion of approximately 20-acres of low-lying, eroded, grazing land owned by the US Army Corps of Engineers into productive habitat for waterfowl, migratory birds, and other wetland wildlife. An informational kiosk will be sited at an overlook point across the stream from the wetland where visitors can learn about the history, mechanics, and benefits of the Coon Creek Wetland.

Application Form: Five-Star Restoration Challenge Grants

APPLICANT INFORMATION:

Organization (to be named as Grantee): Kaw Valley Heritage Alliance

Street: 412 E. 9th Street

City, State, Zip: Lawrence, KS 66044

Tax Status: nonprofit Tax ID#: 48-1203780 Fiscal Year: 06 / 05 To: 05 / 06

(e.g., government agency , 501(c)(3) non-profit)

Project Contacts

Project Officer: Alison Reber
Tele: 785-840-0700
Fax: 785-843-6080
E-Mail: alison@streamlink.org

Financial Officer: Alison Reber
Tele: 785-840-0700
Fax: 785-843-6080
E-Mail: alison@streamlink.org

PROJECT INFORMATION:

Project Name: . Clinton Lake Streambank and Habitat Restoration

Ecosystem Restoration: _X_ wetland _X_ riparian ____ coastal (check all that apply)

Project Location(s): City: _____

State: Kansas

County: Douglas

Congressional District: 2nd District Longitude/Latitude (if known): _____

Project Start Date: November 2005 Project End Date: November 2006

Application Submission Date: March 1, 2005

GRANT REQUEST:

Five-Star Funds Requested: $ 7,000

Additional Partner Contributions (total): $ 7,100

Total Project Cost: $ 14,100

PARTNER CONTRIBUTIONS: Please list the names of project partner organizations, the value of their contribution, and indicate whether the contribution is cash or in-kind.

Project Partner	Amount	Cash/In-Kind
1. KVHA	$ 2255	Cash
2. StreamLink	$ 1545	In-Kind
3. Kansas Alliance of Wetlands and Streams	$ 495	In-Kind
4. US Army Corps of Engineers	$ 495	In-Kind
5. The Watershed Institute	$ 495	In-Kind
6. Kansas Department of Wildlife & Parks	$ 495	In-Kind
7. E.A.R.T.H. / Center for Community Outreach	$ 1320	In-Kind
Total	$ 7,100	

Can we circulate your application to other potential funding sources? _X_(yes) ____(no)

APPLICANT SIGNATURE: Alison Reber _____ _____

Name of Project Officer Signature Date

PROPOSAL NARRATIVE: (Total narrative length not to exceed three pages of single-spaced text; please include as an attachment the proposed budget and any maps, figures and or photographs as needed.)

A. Project Summary and Objectives

The *Clinton Lake Streambank and Habitat Restoration* program involves the conversion of approximately 20 acres of agricultural grazing land along Coon Creek, a tributary running directly into the Lake to a wetland habitat, and the restoration of roughly 10 acres of degraded streambanks through a deliberate tree-planting effort along the southern shore of Clinton Lake (please see Attachment 1).

This exercise is part of a larger effort to improve the health of the Upper Wakarusa Watershed (UWW). This watershed is in northeastern Kansas, immediately south of Topeka. All waters within the UWW flow into Clinton Lake, a manmade lake constructed in the mid-1970's to provide flood control, recreation, fishing, and wildlife opportunities, as well as drinking water for over 150,000 people.

The goals of this project are to a) enhance the integrity of the lake's shoreline, b) decrease the rate of sedimentation into the lake, c) improve the quality of sedimentation that does occur, d) augment the lake ecosystem, and 5) educate the watershed community about water quality and action impacts.

B. Project Description and Need

Since its creation, Clinton Lake has developed into a vital commodity and natural resource for much of northeast Kansas, however lake sedimentation is resulting in loss of storage space at a faster rate than planned. The UWW and Clinton Lake are assigned high priority by the State of Kansas for restoration and protection through implementation of Total Maximum Daily Load (TMDL) goals. The *Clinton Lake Streambank and Habitat Restoration* project is part of a larger collaborative effort of more than twenty agencies to ensure the health and longevity of not only Clinton Lake, but also the Upper Wakarusa Watershed.

The most recent comprehensive studies of the lake and associated watershed were completed in 2001 and conclude that land use practices in the watershed contribute to impaired water quality in the Wakarusa River and in Clinton Lake. Primary concerns are excess inputs of sediment, phosphorus, nitrogen, and fecal coliform bacteria from the watershed and stream banks, into the river and lake. 319 funding has been procured to assist with implementation of conservation techniques.

In an effort to mitigate the impacts of varied and intensified land uses, a Watershed Restoration and Protection Strategy (WRAPS) was developed through a partnership of public and private local, state, and federal agencies. The WRAPS strategy is based upon a combination of riparian/stream bank restoration measures to reduce sediment and nutrient input, and installation of best management practices throughout the watershed to simulate native prairie grassland conditions, which produce the highest quality runoff possible. General water quality objectives for the entire watershed are established, based on achievement of TMDL goals. There are thirteen goals housing 67 objectives within the WRAPS document. Goals and accompanying objectives that the Five-Star Restoration Matching Grants Program would help to satisfy include:

- Streambank/Riparian Restoration – (1) Increase the miles of riparian forest buffers/filter strips from the current level of 1 mile/12 acres to 50 miles/455 acres in five years. (2) Construct wetlands and other vegetated buffers to reduce erosion, provide habitat, trap sediments and filter pollutants. (3) Develop contiguous corridors of habitat, buffer areas and large wetland areas through a river corridor program. (4) Use a combination of bioengineering techniques and riparian restoration to restore eroded streambanks.
- Management of Land Surrounding Lake – (1) Promote wetland construction to assimilate nutrient loadings.
- Establish a Clinton Lake Protection Area Overlay with Specific Standards – (1) Decisions concerning all land-use activities in the watershed should be made to maintain and improve water quality.

There are two aspects to this grant. First there is the wetland construction, where the proposed action is to convert low-lying, eroded grazing land owned by the US Army Corps of Engineers into productive habitat for waterfowl, migratory birds, and other wetland wildlife. This will be accomplished by planting warm season grasses to provide cover and berry producing shrubs for food. This will be done with professional guidance from the Corps, the Kansas Department of Wildlife and Parks (KDWP), the Watershed Insitute, and Kansas Alliance of Wetlands and Streams (KAWS). The Kaw Valley Heritage Alliance, StreamLink, and E.A.R.T.H. volunteers will perform the actual planting and other physical aspects of the project. We anticipate the average 2-4 years of frequent maintenance for the vegetation to make a stand. Thereafter, the wetland is

virtually self-sufficient. We anticipate a 60% increase of wildlife diversity to the acreage, a 70% reduction in sedimentation from the proposed acreage, and an immeasurable increase in aesthetic value.

The second action deals with an eroded section of the lakeshore stretching up a tributary arm. The proposed plan is to stabilize the banks with slope reduction and tree planting. The Army Corps and KDWP will again provide the technical guidance and assistance with slope stabilization. KVHA and E.A.R.T.H. volunteers will then plant the woody and herbaceous vegetation. We anticipate 2-4 years for the grasses and trees to take a stand. The expected results are to convert a highly eroded and unstable bank with a 70° slope into a tightly rooted bank with a slope of approximately 45°.

The basic premise within the WRAPS is to start with the lake and work upstream. First priority areas identified within the UWW WRAPS include land immediately surrounding the lake. Consequently, the lake will continually be monitored to test watershed siltation and nonpoint source pollution improvements. One goal within the WRAPS document is *Establish a Clinton Lake Protection Area with Specific Standards*. A "protection area" would cover all land that directly impacts Clinton Lake in addition to the Lake itself. This would assist in preservation and conservation efforts within area. The US Army Corps of Engineers is the agency directly responsible for the health and maintenance of the lake, additionally, the Corps is an active and enthusiastic partner with the Upper Wakarusa Watershed (UWW) WRAPS. The Corps, with the assistance of its WRAPS affiliates would help to maintain all improvements made in the area.

C. Final Products

Upon completion of this project, an expected 20 acres of land will be converted from grazing land to wetland and 10 acres of streambank and shoreline will be restored with a variety of trees and other plant matierials to reduce bank erosion. Both actions will serve to enhance wildlife habitat and mitigate siltation into Clinton Lake. The outcome will have hundrends of thousands of direct (recreation and drinking water) and indirect (flood control) beneficiaries. The wetland will be used as a demonstration for the Corps and KAWS on the impact that a healthy wetland can have on natural habitats. Additionally the wetland and streambanks' ability to more effectively control sedimentation quality and rates into the lake will impact those who use the lake for recreation, flood-control, and drinking water.

The partnerships with StreamLink and E.A.R.T.H. are especially important in serving the goal of educating the watershed community by equipping student volunteers with the tools necessary for informed decision-making throughout their lives. Likewise, one important hallmark of the WRAPS has been its utilization as a capacity building tool in which the inclusion of community in stewardship efforts has fostered a foundation for sustainable community involvement.

D. Partner Justification

Kaw Valley Heritage Alliance was founded in 1996 with a vision of preserving and enhancing the cultural and natural heritage of the Kaw River Valley. KVHA initiated the UWW WRAPS and is the primary organization responsible for overseeing its execution. KVHA is the organizing partner and will initiate and organize all work on this project.

StreamLink has built an extremely successful program, educating both adults and youth in stream health impacts and water quality issues. Established in 1998, StreamLink has quickly grown into a prominent water education organization in the state of Kansas, hosting workshops and stream assessments throughout the State. StreamLink emphasizes the importance of stewardship through comprehensive action-reaction strategies and stimulating hands-on activities. StreamLink will organize the volunteer recruitment and implementation of the project.

Kansas Alliance of Wetlands and Streams (KAWS) was organized in 1996 to promote the protection, enhancement, restoration and establishment of these important areas in Kansas. In 2003, KAWS implemented about 30 projects using grant sources amounting to nearly $205,000 and non-federal match valued at $1,090,000 or about $1.3 million to get this work completed. The completion of those projects resulted in: 189 acres of wetland development, 99 acres of buffers, 14,550 linear feet (2.76 miles) of stream restoration, and one alternative water supply and riparian fencing project. 1,900 acres impacted for water quality and wildlife habitat benefits. KAWS projects are used as demonstrations to show local landowners and others the value of wetlands and streams and methods they can use to create, protect, or restore them.

US Army Corps of Engineers planned, designed, constructed, and today manages Clinton Lake, located in central eastern Kansas. The Corps of Engineers is authorized to operate Clinton Dam and Lake to benefit the nation by providing flood damage reduction, recreation, water supply storage, fish and wildlife management, downstream water quality improvement, and navigation flow supplementation. The Corps of Engineers team at Clinton Lake includes people with knowledge and skills in many different areas.

The Watershed Institute is a not-for-profit Kansas corporation founded in 2003 and incorporated in 2004 to advance the science of natural resource conservation, holistic watershed management, and habitat restoration. The TWI team provides a multidisciplinary approach with staff skilled in stream analysis and restoration, fluvial geomorphology, stream ecology, wildlife biology, endangered species conservation, and environmental and water rights law. TWI staff has over 100 year cumulative experience in streambank stabilization, wetland, stream, and riparian restoration, aquatic and terrestrial ecological assessments, threatened and endangered species surveys and management plans, critical habitat mitigation and restoration, and ecological monitoring.

Kansas Department of Wildlife & Parks has as its mission to conserve and enhance Kansas's natural heritage, its wildlife and its habitats--to ensure future generations the benefits of the state's diverse, living resources; to provide the public with opportunities for the use and appreciation of the natural resources of Kansas, consistent with the conservation of those resources; and to inform the public of the status of the natural resources of Kansas to promote understanding and gain assistance in achieving this mission.

E.A.R.T.H., Environmental Action to Revitalize the Heartland, is part of the University of Kansas's Center for Community Outreach whose mission is to provide students with a foundation for life-long service by challenging, educating, and empowering them to meet community needs through volunteering. The Center for Community Outreach is a student-run, student-funded organization comprised of 14 volunteer programs and partnerships with many campus and community agencies. They serve as a referral agency for community and national service organizations, and provide group or one-time service opportunities for KU students. They now serve more than 7,000 student volunteers by placing them in volunteer opportunities in the Lawrence community.

E. **Project Budget** – *on a separate page, prepare a proposed project budget, including both Five Star funds requested and anticipated partner contributions, in accordance with the following guidelines. Note: preference will be given to projects requesting financial support to implement on-the-ground restoration activities; grant funds may not be used for general administrative overhead or indirect expenses.*

SUBMISSION: (to be postmarked no later than March 1, 2005)
Please mail one original application, including any attachments, and six copies of the complete application package to:

National Fish and Wildlife Foundation
attn: Five Star Restoration Program
1120 Connecticut Avenue, N.W. Suite 900
Washington, DC 20036

CONTACTS:

Jason Shedlock
jshedloc@naco.org
National Association of Counties
440 First Street, N.W., 8th Floor
Washington, DC 20001
(202) 393-6226
(202) 661-8871 (fax)

Elizabeth Bookwalter
ebookwalter@wildlifehc.org
Wildlife Habitat Council
8737 Colesville Rd., Suite 800
Silver Spring, MD 20910
(301) 588-8994
(301) 588-4629 (fax)

Sarah Ellgen
sarah.ellgen@nfwf.org
National Fish and Wildlife Foundation
1120 Connecticut Ave., N.W., Suite 900
Washington, DC 20036
(202) 857-0166
(202) 857-0162 (fax)

For coastal projects:
Lindsay Rape
lindsay.rape@noaa.gov
NOAA Restoration Center
(301) 713-0174
(301) 713-0184 (fax)

For more information on the Five Star Restoration Program, please visit EPA's website (www/epa.gov/owow/wetlands/restore/5star)

PROJECT BUDGET GUIDELINES

Please prepare a proposed project budget that accounts for both the Five Star funds requested and anticipated partner contributions (both cash and in-kind goods and services). Budgets must conform to the following budget categories that specifically describe project costs, not program items or acronyms (e.g., workshops, education).

Budget Category

Project name: Clinton Lake Streambank and Habitat Restoration
Organization: Kaw Valley Heritage Alliance

I. National Fish and Wildlife Foundation Project Budget and Phasing:

The "Expense per Category" column reflects the total project costs; this category is then broken into the matching funds **and/or** federal (NFWF) funds requested for the project. **Indirect costs, overhead, contingencies, and miscellaneous costs** are not allowed. All costs must be directly related to project activities and broken down into distinct line items.

Overall Budget:

Budget Category	Expense per Category	Matching Funds	NFWF Funds
Salaries & Benefits:	$1,904	--	--
Equipment:	--	--	--
Other**:	$47,548	10,000	$7000
TOTAL	**$49,452**	**$10,000**	**$7,000**

The **"Other" category represents a summary of all the expenses **other** than salaries, benefits, and equipment. The total dollar amount noted in this category should include a summary total of all expenses; individual expenses will be outlined in the detail below.

Budget Detail:

Salaries & Benefits: List each position with the annual or hourly rate and percentage or number of hours to be spent on the project. Include only those who are employed by the recipient organization (salaries/benefits for anyone not employed by the grant recipient should be described under "Other" as contractual services). The Foundation cannot pay for the salaries of permanent federal employees, but may be able to fund seasonal labor.

Salaries & Benefits	% Time	Salary	Benefits	Match $	NFWF $
Position title and brief description of project related duties.	% time or number of hours to be spent on project	Total salary or hourly rate	Rate and total $ amount	Total dollars to be contributed from matching sources	Total dollars to be contributed from NFWF award
Project Manager	32 hrs	$22	--	--	--
StreamLink Coordinator	60 hrs	$20	--	--	--
			Total	**--**	**--**

Equipment: List individual items and the per-unit costs. Equipment is defined as tangible nonexpendable property having a useful life of more than one year and an acquisition cost of **$5,000 or more** per unit. As the management and disposition of equipment purchased with Federal funds is governed by OMB Circular A-110, applicants are encouraged to allocate matching funds for equipment purchases.

Equipment	Per Unit Cost	Total # Units	Match $	NFWF $
		Total		

Other: Include all other Project expenses in this Budget category. For example:

Contractual Services: List and provide a brief description for each service to be contracted. Include hourly rates and total hours when applicable.

Contractual Services	Total Cost of Service	Match $	NFWF $
Description			
Cultural & Natural Resource Specialists (58/hr)	$8,926	--	--
Contract earthwork (2/yard3)	$21,086	$5,000	--

Supplies and Materials: Give examples of types of supplies and materials included. Supplies are expendable items that are used up by end of project. Materials are items which are in another form at the end of the project.

Supplies and Materials:	Per Unit Cost	Total # Units	Match $	NFWF $
Description				
Kiosks	$1250	2	--	$2500
Informational materials for display	100	8	--	$800
Regionally appropriate deciduous trees and misc. field supplies.	$250/acre	13.2	--	$3300
ILWCS 6" (stop log)	370	2	--	--
ILWCS 8" (stop log)	385	1	--	--
Bar Guard 6"	18	2	--	--
Bar Guard 8"	19	1	--	--
Rat Guard 6"	4.48	2	--	--
Rat Guard 8"	5.67	1	--	--
A2000 6"	1.85	150	--	--
A2000 8"	3	125	--	--
Antiseep Collars 6" (4'x4')	75	2	--	--
Antiseep Collars 8" (4'x4')	79	1	--	--

Printing: List each type of item being printed with the number of items of that type and the per-unit cost. NFWF may not be able to cover printing expenditures, depending on the source of the federal funds for your grant. Please try to use your matching funds to cover printing costs.

Printing:	Per Unit Cost	Total # Units	Match $	NFWF $
Description				
Project signage at Lake Outlet; printed information flyers about project.	$0.20	3500	--	$400

Travel: Describe all travel expenses. Include the number of trips, number of travelers, mode of transportation, per diem expenses, mileage and rates (hotel, airline, rental car, etc.). Mileage and gas costs cannot both be counted for the same trip. International travel to be paid for with federal funds must occur on U.S. carriers to the extent possible.

Travel:	Cost / Trip	Total # Units	Match $	NFWF $
Description				

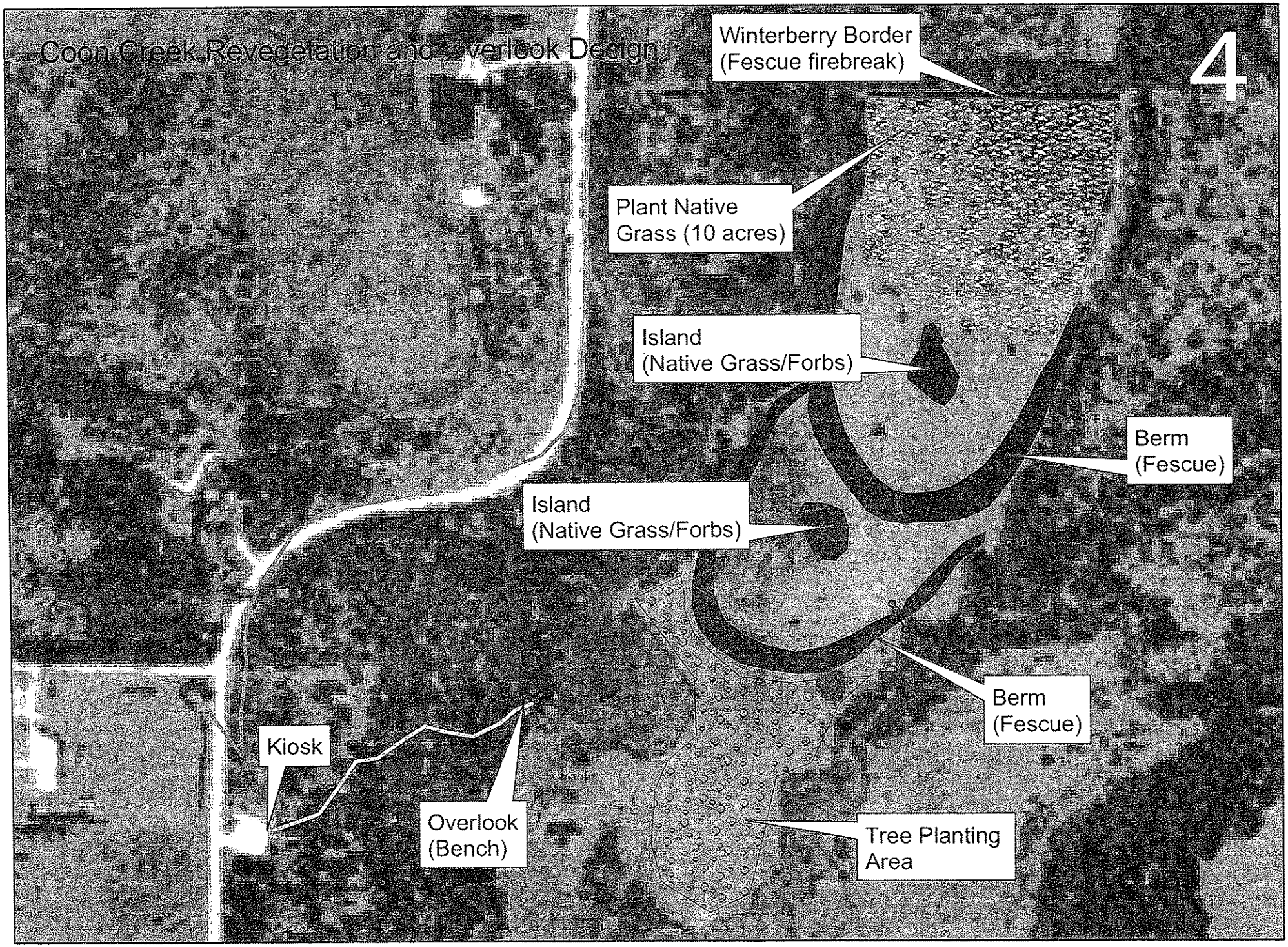
Contributed Goods and Services: Please describe all goods and services contributed to this project as match from project partners.

Contributed Goods and Services:	Match $
Description	
Westar Agency Greenteam: wetland & educational component development; planting	$5,000

Additional line items: Describe any additional costs that do not fall within the line items listed above. For instance, equipment rental, utilities and rent for office space, etc.

Additional categories:	Cost per Unit	Total # Units	Match $	NFWF $
Description				
Equipment Rental: backhoe	150	52		--
Equipment Rental: ground impactor	30	12		--

	Match $	NFWF $
Total of all "other" costs listed above:	$10,000	$7,000


Coon Creek Revegetation and Overlook Design
4
Winterberry Border
(Fescue firebreak)
Plant Native
Grass (10 acres)
Island
(Native Grass/Forbs)
Berm
(Fescue)
Island
(Native Grass/Forbs)
Berm
(Fescue)
Kiosk
Overlook
(Bench)
Tree Planting
Area

Upper Wakarusa Watershed

NEWSPAPER ARTICLES

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Clinton crappie count lowest since '96 sampling

Largemouth bass also on decline, but channel catfish, white bass abundant

Sunday, February 13, 2005

Surveys in 2003 showed that 51 percent of all fishermen on Clinton Lake were seeking crappie.

"It's no secret that Clinton is thought of as a crappie lake," said Richard Sanders, area fisheries biologist for Wildlife and Parks, "but samples taken in 2004 indicate the crappie fishery is down."

In fact, the number of adult crappie was lower than in any year since 1996.

Where did all the crappie go?

"Certainly drought played a role," Sanders said. "Lack of runoff in 2002 and 2003 limited nutrient replenishing inflows, and resulted in less food production. Less food equaled less crappie."

Sanders predicts Clinton's crappie population will rebound quickly if spawning, survival and growth conditions are favorable.

For example, gizzard shad was abundant in 2004 and shad is a crappie food staple. Another factor could be the 10-inch minimum length and 20-fish daily creel limits that went into effect Jan. 1.

"Even though Clinton's crappie characteristics were lower than normal," Sanders said, "it still is one of the better reservoirs in the state for crappie."

According to data, Clinton ranks ninth among the state's 24 reservoirs for crappie.

Meanwhile, Clinton remains a hotbed for channel catfish. Numbers for that species have leveled off after climbing for four straight years, but catfish are still abundant.

Sanders sampled more catfish longer than 16 inches in 2004, and figures that may relate to fewer small catfish in the lake competing for food.

However, walleye fishing should be only fair, said Sanders, who noted the reservoir was stocked with 3.5 to 7 million fry every year.

"Stockings are required because the survival of young walleye is too low to provide a self-sustaining fishery," he said.

One of the major factors limiting walleye at Clinton is reservoir discharge. During periods of high discharge, walleye frequently go with the flow through the dam and out of the lake. Heavy runoff in 2004 produced high discharge conditions.

"Fortunately, most high discharges occurred later than the peak spawning period when walleye are particularly vulnerable," Sanders said. "Sampling actually showed walleye numbers improved slightly over 2003 levels, although sample catch was still low."

Largemouth bass number haven't improved. They've declined. In fact, Sanders' sampling found few young or juvenile bass.

"That's been a problem at Clinton for the past 20 years, due to habitat limitations," Sanders said.

The existing bass population has generally been stable, but at a low level. According to data collected in 2004, Clinton ranked 12th for largemouth bass among Kansas reservoirs.

"Anglers will be challenged by the low-density fishery, and most will find largemouth bass fishing to be poor," Sanders said.

Clinton ranked No. 2 in the state for white bass in 2001, then the population declined in 2002 and 2003.

However, that species is on the rise again. Sanders' sampling found the most white bass since 1997.

"Although large white bass are present, almost two-thirds of fish sampled were less than nine inches long," Sanders said, adding that 2006 could be a great year for white bass fishing. "Just like crappie, good shad production is a key."

Fishing forecasts for Clinton and other state lakes are available at Wildlife and Parks offices or on the Web at www.kdwp.state.ks.us.

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Silt threatens drinking water

Report predicts eventual trouble with Clinton Lake supply

Thursday, June 23, 2005

Surprise, we're out of drinking water.

That's exactly the type of shock Lawrence City Commissioner David Schauner doesn't want city leaders to face about 30 years from now.

A new report suggests city and state leaders should spend more time now thinking about water issues as Clinton Lake — one of two water sources for the city — ages and fills in with silt.

"This really is a classic 'pay me now or pay me later' situation," Schauner said.

Schauner, who requested the report from the Kansas Water Office, said city and state officials must begin thinking about how they'll afford to keep aging reservoirs viable as drinking water sources.

One possible solution: a small user fee for water customers.

"The question is, are we going to pay enough now through some sort of relatively painless charge," Schauner said, "or are we going to wait until 2030 and say, 'Unless we do something in the next 10 years, we all are going to be thirsty?'

"At that point, the bill would be huge."

According to the Water Office report, it would cost roughly $1.5 million per year to dredge out all the silt that goes into Clinton Lake each year. If state and city leaders decided to do nothing for the next 20 years, that would be about $30 million worth of dredging, in today's dollars, to get the lake back to its current condition.

But Earl Lewis Jr., manager of hydrology and evaluation at the Water Office, said the numbers shouldn't scare people.

At least, not yet.

Lawrence clearly isn't in any danger of having a water shortage anytime soon, he said.

"But absolutely it is good that they're thinking about this now," Lewis said. "It would be about 35 years from now that our backs could be up against the wall on this, but if we work on it now, we might be able to push that back even more."

A payment plan

The Water Office report predicted that based on current growth trends and sedimentation rates, 2040 would be the earliest that the amount of dedicated drinking water would fall below the amount of water that Clinton water users are guaranteed through state water contracts. But Lewis said that even then, the shortage would only happen if the state happened to be in a significant multi-year drought.

Lewis, though, agreed that now was the time for state and city leaders to think about how to preserve lakes like Clinton.

"It has been the mantra of engineers like myself that these lakes were only built for a certain life span, so it is not a surprise that sedimentation is happening," Lewis said. "But when we started looking at this, it is obvious that Kansas is going to be around a lot longer than a hundred years. And it is clear that there isn't going to be any easy way to get water.

"So we can't just give up on Clinton Lake because it reaches its design life. We have to treat these lakes like infrastructure. They're permanent facilities that we're going to have to maintain as part of our water system."

Schauner said he was not sure what that plan should be, but that a small user fee for water customers should be discussed. The fee could be as small as a few cents per month, he said, that could gather interest over the course of the next several years.

Statewide solution

Schauner said any solution should have a statewide component. That's because sedimentation is occurring across the state in reservoirs such as Perry, Milford and Tuttle Creek.

The state currently is setting aside some money for future water issues. Cities and other water utilities for years have paid the state a fee of 3 cents per thousand gallons in exchange for not paying sales tax on the variety of water distribution supplies — everything from pipe to chemicals — that they purchase.

Historically, all that money has gone straight into the state's general fund. But new legislation, some of it championed by Rep. Tom Sloan, R-Lawrence, will allow some of that money to be earmarked for future water issues.

Lewis said there was plenty of work the state could do now rather than wait until the lakes need large-scale dredging.

A current focus, he said, is stabilizing stream banks so less dirt and sediment flow into the lakes. He said usually the most effective way to do that was to encourage farmers to plant trees and grasses along stream banks, which often means farmers have to give up valuable farm ground.

It may become necessary for governments to provide landowners with some money to carry out those types of projects, Lewis said.

"It becomes a question of economy," he said. "Are you going to spend money to reduce sediment coming into the lake, or are you going to spend that money, plus more, to dredge the lake later on?"

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Developers floating idea of lakeside properties

Proposal on the waterfront

Sunday, July 31, 2005

Topeka — Does waterfront property in landlocked Kansas sound like a put-on?

Fact is, there are many housing developments around small, mostly private lakes in Kansas.

But officials are taking that concept a step further and investigating development potential on public lands at federal reservoirs across the state. Clinton Lake, outside Lawrence, is considered in the top tier for potential residential and resort development.

"The goal would be to encourage development while also preserving the attributes that make the area attractive to start with," said Earl Lewis, manager of hydrology and evaluation at the Kansas Water Office.

The Kansas Water Office just completed a preliminary study of the economic potential at Kansas' 24 federal lakes.

Also in the works is a study commissioned by the Kansas Department of Commerce on the market demand for residential development, outdoor recreation and resort destinations at the same locations.

Clinton, Perry high on lists

Nationwide, the drive toward the water is increasing as baby boomers retire, and upper-income families seek second homes or vacation homes, according to the authors of the preliminary draft by the Water Office.

Clinton Lake ranks in the top tier for possible residential and resort development; and Lake Perry is among the top groups for a possible resort, according to the report.

Clinton Lake is identified for its beautiful vistas, its location, which is within 50 miles of major cities, and proximity to highways.

But developers and planning officials say dreaming of lakeside development and building it are two different things.

"In terms of a bird's-eye view, that would be a great place," Mark Buhler, broker with Stephens Real Estate Inc., said of Clinton Lake.

But he said there would be a lot of obstacles, such as extending utilities and putting in place a sewage system.

Linda Finger, director of city-county planning, said major development around the lake would require miles of water lines.

"You couldn't just dead-end them. You would have to loop them," she said.

Considered before

The idea of building on public lands around the federal lakes is not new, but not much has happened.

In 1989, the Kansas Legislature approved a bill to allow resorts to be developed at federal lakes, but no development occurred.

Of Kansas' 24 federal lakes, 17 are operated by the U.S. Army Corps of Engineers, including Clinton and Perry, and seven by the U.S. Bureau of Reclamation.

The Water Office study indicates that any use of public lands for a private development would likely require leasing land for a public use that would tie in to the larger development effort. Any change in land use would require federal approval.

The federal agencies are developing criteria to guide them for potential economic development projects, the study said.

An example of private-public use approved by the federal government is at the Skiatook Reservoir, 20 miles north of Tulsa, Okla., in which plans call for a conference center, entertainment, and boating and dining facilities, the study said.

In 2001, a proposed resort at Clinton Lake State Park died. Developers complained local officials showed little interest in helping subsidize the project.

Since the lands around the federal lakes are public lands, the federal government has allowed limited private use over the years.

But whether that would work in Kansas remains to be seen.

Still, officials said they need to explore the issue.

"The goal is to make sure that we are not missing out here on what is both an economic and quality of life issue as well," Lewis, with the Water Office, said.

Buhler agreed for the need to keep studying this issue.

"We need a reason for people to come here and stay. This is absolutely what we need to be doing," he said.

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Future of water supply murky

State lakes filling with sediment as they get older, hurting quality

Monday, August 22, 2005

Topeka — Kansas lakes aren't aging gracefully.

Many of the reservoirs in the state used for drinking water are filling up with sediment, which reduces their capacity and can harm the quality of the water.

"This is potentially a huge problem that is going to confront the state in the next 20 to 40 years," said Edward Martinko, director of the Kansas Biological Survey.

There are 93 reservoirs in Kansas used for drinking water for approximately 60 percent of the state's population.

Those lakes are an average of 51 years old.

Big lakes — such as John Redmond Reservoir, Perry, Tuttle Creek and Cheney — have lost anywhere from 23 percent to 30 percent of their capacity to hold water.

Clinton Lake's storage capacity has only decreased by six percent due to sedimentation, but even that figure is greater than was originally projected, Martinko said.

"The bottom line is that the situation with respect to Clinton is that it has been sedimenting in faster than has been anticipated. The original life expectancy was 100 years, and now it is projected at only 70 years," Martinko said.

Many smaller lakes have lost 50 percent. Mission Lake near Horton has silted in so much it can't be used anymore as a public water supply.

"This is not a sleeping giant anymore," said Horton Mayor Dale White.

The Kansas Water Office is seeking legislative permission to use $400,000 to conduct a pilot project to determine how these lakes can be rehabilitated.

Tracy Streeter, executive director of the Water Office, said the upkeep of lakes is necessary "just like we fix old streets and sewer lines."

Martinko said lakes experience a life cycle where sediment from runoff accumulates in the lake bed. This increases the nutrient level in the water leading to more algae blooms, taste and odor problems in drinking water and will limit recreational uses. The sediment deposit also reduces the water supply yield of the lake.

The state needs to act now because the potential cost of rehabilitating lakes is staggering, he said.

For example, he said, it is estimated that nearly 3 million cubic yards of silt fills in Lake Perry every year. Dredging typically costs about $5 per cubic year, bringing the annual bill at Perry to about $15 million per year just to keep up.

"It's important for us to start doing pilot project studies to deal with some of these issues and look for the most cost-effective method," Martinko said.

In Horton, residents are having to rely on wells because of problems with their lake. They have approved a $4 million bond issue that would double their water bills in order to dredge the lake that was built in the 1930s.

White, the Horton mayor, said he hopes to partner with the state to be part of the pilot project.

Rep. Tom Sloan, R-Lawrence, has been at the forefront in the Legislature for trying to address the issue.

"The quantity and quality of water available 100 years from now for the people of Kansas depends on actions we take now to preserve our drinking water supply lakes," Sloan said.

"Reducing the rate of siltation is important, but so is addressing the sediment already present in the lakes. The sediment affects water storage capacity, water quality, and flood control and recreation opportunities," he added.

Sloan spearheaded legislation that takes effect in two years that essentially will move fees paid by water suppliers from the state's general fund to the state water fund, which can be used on projects such as dredging lakes.

But until that money starts kicking in, state water officials are asking to use some existing water funds to do the pilot project.

Martinko said there is no time to waste.

"Fifty years ago, people thought ahead to build these lakes, now we have to do something to keep them up," he said.

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Tapped out?

Without some action, Kansas may soon face a serious decline in the water it obtains from lakes across the state.

Wednesday, August 24, 2005

When Clinton Dam was completed about 25 years ago and a city water treatment plant was built to draw water from the new federal reservoir, it seemed that Lawrence's municipal water supply concerns were over. The combined water resources of the Kansas River and Clinton Lake seemed able to serve even a growing city for the foreseeable future.

Unfortunately, a future that includes water supply and quality issues now is in sight for many Kansas cities that draw water from reservoirs like Clinton. Experts always have known that even large reservoirs eventually would start filling with sediment that would affect the quality and amount of water available from those sources. Now, those experts are saying that sedimentation is occurring much quicker than expected.

Clinton Lake had a life expectancy of 100 years; now that lifetime looks more like 70 years. Older lakes across the state are even further along in the sedimentation process. Experts now estimate that, without remedial action, the state will face a huge water supply problem in 20 to 40 years.

Steps can be taken to reduce sedimentation and dredge away or otherwise remove silt that already has settled in the lakes, but it will be costly. For example, an official with the Kansas Biological Survey said enough dredging just to keep Perry Lake stable would cost an estimated $15 million a year. Multiply that amount across the state's 93 reservoirs of various sizes and you get an idea of the problem.

On the other hand, what choice does the state have? Those 93 reservoirs supply drinking water for about 60 percent of the state's population. Allowing them to fill in simply isn't an option.

State officials are right to attack this problem now. The Kansas Water office is seeking legislative permission for a $400,000 pilot project on lake rehabilitation. That amount is the proverbial drop in the bucket, but it's a start.

So often, we take our precious water supplies for granted. The recent news about the condition of Kansas reservoirs reminds us how vital and basic it is to make sure that water keeps flowing from the tap.

"It's good for both the environment and the farmer," Johanning said.

Hayden said he hoped more farmers would take advantage of such programs to shrink the size of the Dead Zone.

"The problem is clearly coming from agriculture and clearly coming from the cornbelt. We all have an obligation. We all live downstream," he said.

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Fertilizer runoff from Midwest creates a barren sea

Nutrients actually feed 'Dead Zone' in Gulf

Monday, September 26, 2005

Topeka — The Dead Zone.

Not the Stephen King thriller, but an environmental horror story, lies beneath the surface of the Gulf of Mexico.

Because of oxygen depleted from the water, an area that grows in the warm gulf waters every summer, at times to the size of New Jersey, is unable to sustain life.

What causes this?

Researchers say it is heartland farmers, including those in Kansas, who feed the nation producing corn and soybeans.

Nutrients from millions of tons of fertilizers the farmers use run off into the watersheds that feed the Mississippi River and are washed into the Gulf.

There, the nutrients feed algae. When those organisms die, the decaying process reduces oxygen levels in the bottom waters. Any organism that can't swim out of the area dies. Nothing lives.

First discovered in 1974 in the Gulf, the phenomenon is called hypoxia and usually occurs in the summer months before dissipating in the fall, when more oxygen-rich surface waters and bottom waters mix.

"Fertilizer needs to stop from going into the streams," said Mike Hayden, a former Kansas governor who served on the Pew Oceans Commission, an independent policy group that studied the problem.

In 2002, the commission issued a report that said Midwestern agriculture was contributing significantly to the Dead Zone that sits off the coast of Louisiana in the middle of some of the most important recreational and commercial fisheries in the nation.

Reduction plans

The Mississippi River basin — the third largest in the world — drains 31 states, 40 percent of the continental United States. Drainage from Kansas enters the Gulf via the Missouri and Arkansas drainage basins, which feed to the Mississippi.

Hayden, who now serves as secretary of the Kansas Department of Wildlife and Parks, said most people don't understand the effects of runoff downstream.

"Their eyes generally glaze over," when you talk about it, he said.

The federal government has proposed plans for reducing hypoxia through voluntary incentives. That is in keeping with policies where runoff pollution from farm sources are largely unregulated.

The Mississippi River-Gulf of Mexico Watershed Nutrient Task Force has set a target of reducing the Dead Zone by 30 percent.

"We are in the midst of looking at the action plan developed in 2001 and reassessing those actions and determining whether they are making a difference and whether EPA and the states need to tweak them," said Maureen Tooke, who is an EPA spokeswoman for the task force.

There are practices that can be used to stop the runoff, experts say.

Nancy Rabalais, a professor with the Louisiana Universities Marine Consortium and Dead Zone expert who measures and records its extent, said farmers and researchers throughout the country are trying different ways to reduce nutrient runoff, such as establishing wetlands as filtering systems.

"There are all kinds of things that they're trying," Rabalais said.

"The whole issue revolves around too many nutrients, and they are just as harmful to freshwater systems in Kansas, Iowa and Illinois as they are to the marine systems in the Gulf of Mexico," she said.

Taking land on the banks of streams out of production and planting native grasses and trees there filters the runoff and acts as a natural buffer zone.

"Water quality improves dramatically," said Clyde Mermis, district conservationist in Douglas County with the Natural Resources Conservation Service.

'We all live downstream'

The federal government has a program that pays farmers to stop farming up to the stream banks and create buffers.

The government will pay the farmer rent for the land and most of the cost of replanting the area with native plants.

"We try to get it back to the way Mother Nature had it thousands of years ago," Mermis said.

Many farmers resist participating because they say their lowlands nearest a stream are usually their most productive, he said.

But, he said, the rental payments and cost-sharing usually provide more money to the farmer than the crop.

"The economics are there, and the environment is there," Mermis said. Several calls to federal officials to find out the extent of the program in northeast Kansas went unanswered.

Bruce A. Johanning, a farmer from Lawrence, participates in the program and has developed a buffer on his property in Stull.

His corn crops go right up to the buffer of grasses and trees.

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River pollution report may be key to improvements

Runoff main source of contamination

Friday, September 30, 2005

The Kansas River is polluted, and a major culprit is runoff from vast farmlands and city streets. Nothing new there.

But a just-released study gives perhaps the most comprehensive look yet into the problem, and it can be used to try to find solutions, officials said Thursday.

"It's all about getting a better understanding of how the stream works," said Teresa Rasmussen, a hydrologist for the U.S. Geological Survey in Lawrence.

Rasmussen was one of three authors of the approximately $1 million study that continuously monitored water in the Kansas River since July 1999.

The 126-page report gives a detailed account of sediment, nutrients, bacteria and other water characteristics flowing through the river and measured hourly at gauges at Wamego, Topeka and De Soto.

The study concluded that water quality in the Kansas River, a source of drinking water for hundreds of thousands of people in northeast Kansas, including Lawrence, is primarily affected by nonpoint source pollution during storm runoff.

Nonpoint sources of pollution are things on the ground, such as pesticides, fertilizers and animal waste, that get washed into rivers and streams during rains and snow melts.

"If there are going to be water quality issues, there's a pretty good chance that is going to happen during storm events," Rasmussen said.

On average, 64 percent of the total amount of sediment, 40 percent of nutrients and 83 percent of the Escherichia coli (E. coli) bacteria transported in the Kansas River at De Soto during 2000-03 occurred during storm runoff, the study showed.

E. coli bacteria indicates the sanitary health of a river for recreation, while excess sediment and nutrients may adversely affect aquatic life.

If there were any surprises in the study, it was how quickly water quality could worsen during periods of heavy rains, she said. The level of turbidity, measuring sediment and also showing evidence of bacteria, could increase 100–fold within an hour, she said.

Tom Stiles, chief of the water planning section at the Kansas Department of Health and Environment, which co-funded the study, said the report "points out the tremendous variability in water quality we see

in the Kansas River along its length, season-by-season and year-by-year."

He said cities and towns along the Kansas River have made great strides in recent years to improve the quality of treated wastewater going into the Kansas River.

"The big challenge that has been there and confronts us is the nonpoint side and trying to focus resources to mitigate the water runoff impacts. That will be a long-term battle," he said.

When asked if farm and ranching interests should fear the possibility of attempts to regulate runoff, Stiles said no.

"There is a whole arsenal of techniques and practices that can be applied to corralling runoff from agricultural working lands," he said, such as establishing wetlands to absorb nutrients. "It's just a function of getting farmers to participate and making resources available to help those farmers."

A spokesman for the Kansas Livestock Assn. said the group had not had time to analyze the report yet.

Chat with state Rep. Tom Sloan about legislative issues

Thursday, January 19, 2006

Welcome to our online chat with state Rep. Tom Sloan about legislative issues.

The chat took place on Thursday, January 19, at 1:00 PM and is now closed, but you can read the full transcript on this page.

Moderator: Welcome to this afternoon's Newsmaker Chat with state Rep. Tom Sloan, a Republican from Lawrence.

I'm Dave Toplikar, World Online editor, and I'll be moderating today's chat.

We're doing this chat today from Rep. Sloan's fourth floor office in the Kansas Statehouse in Topeka.

Tom, thanks for being with us today. We have a lot of questions already and I know you're squeezing this in between committee meetings.

So we'll go ahead and get started.

Rep. Tom Sloan: Thank you Dave, I appreciate the opportunity to interact with the people of Lawrence.

Diane, Lawrence: What ideas do you have for adequate funding for the public schools?

Photo by Dave Toplikar

Rep. Sloan talks with readers online.

Rep. Tom Sloan: State revenues are slightly more than $200 million greater for the current fiscal year. Much of these funds can and likely will be available to support K-12 education.

It is unlikely that any significant tax increases will pass in 2006 to provide additional funds for K-12, higher education, or other desired state programs.

Alex, Lawrence: Do you support in-state tuition for illegal immigrants? Isn't it causing a strain on our education system?

Rep. Tom Sloan: Two or three years ago the Legislature and Governor approved a measure by which undocumented students who graduate from a Kansas high school after at least three years as students in the local school would qualify for in-state tuition rates at higher education institutions.

This was challenged in the courts and the Federal Court ruled that the law measure was reasonable. The LJW recently printed a report showing that less than 30 students are enrolled in higher education institutions in KS under this plan and (I think) 22 are at community colleges. As I recall, 4 students are at KU.

This is not a financial burden to the state and a majority of legislators believe that these children

came to Kansas with their parents, will earn degrees and work in Kansas, and generally contribute more to our state's economy as college-educated than otherwise.

Nathan, Lawrence: I read the article in the J-W today about the bank report encouraging privatization of the Turnpike. It seems this would amount to a stealth tax for those of us who rely on that highway. What are your thoughts?

Rep. Tom Sloan: Immediately prior to signing on to this on-line chat, I was in a meeting of committee chairpersons. This matter came up during our discussion and there is not strong support for the proposal.

I currently do not support the sale of the Turnpike to private interests. The Turnpike Authority could accept the bankers' proposal, but are not likely to do so without strong support from legislators and the Governor.

Ryan also asked about this issue, so my response is to both sets of questions.

John, Lawrence: Tom, what can Kansas do to alleviate the energy problem--with solar, wind, and especially hydrogen? More with ethanol?

Rep. Tom Sloan: John, Dan, and others interested in energy policies - I recently served as Chairman of the Special Joint Committee on Energy. The committee members heard extensive testimony on petroleum, renewable, bio-fuel, energy conservation, and other issues.

We have a report that should be available late Friday (tomorrow) that summarizes our deliberations and provides information on our policy recommendations.

Briefly, we examined how do we promote greater production of existing KS energy sources (oil, gas); promote renewable energy (wind, biomass); promote biofuels (ethanol, biodiesel); promote energy conservation and efficiency investments; and promote the "export" of energy from KS to meet national needs (and create jobs in KS).

We have recommended introduction of almost 20 bills ranging from tax credits for investment by individuals and landlords in energy conservation products (insulation, more efficient furnaces, etc.); to incentives for the private sector to construct one or more unit train (110 identical cars) terminals to transport ethanol and biodiesel fuels to population centers around the country; to incentives for the development of community wind projects in support of schools.

The full report will be available soon, but the committee members worked very hard to create a structure and process for long term energy planning, as well as to offer specific legislative proposals to assist energy production in KS.

Kathy - Lawrence: State employees have not had salary step increases for almost 5 years. Moral is low and what little increase in salary has not kept pace with inflation. When are state employees going to get a decent salary increase like schools are giving to teachers and administrators?

Rep. Tom Sloan: Kathy,

State employees frequently are not a high priority for many legislators because there are so few living in their legislative districts.

As you may know, last year the legislature approved a bill allowing KU state classified employees to convert to University classified service. That bill came through the Higher Education Committee that I chair and was the collaborative offering of KU's classified employee organization and the university. The objective was to permit the university to supplement state wage dollars with other money (just as they can do for faculty and unclassified employees).

I understand that increasing wages and reducing the restrictions on reclassifying employee jobs will make employment more rewarding and attractive.

If this experiment works, it may well serve as a model for discussing how other classified state employees can be more appropriately rewarded. It is not commonly noted, but no state services are provided without state classified employees and those folks need to be appropriately compensated.

Steve, Lawrence: What energy-related legislation do you think has a good chance to be passed during the current Legislative session?

Rep. Tom Sloan: Steve, Michelle, and others asking energy policy questions:

I expect the legislature will pass legislation increasing incentives for the production of biofuels to increase farm incomes, reduce the need for taxpayer dollars to support rural schools, and to reduce the need for imported oil.

At another time we can discuss global issues like the effect that increasing demand from China and India for oil place on prices that we pay.

We should also pass legislation that provides incentives for refineries in KS to expand, improve incentives for the production of electricity using wind power, increased funding for KU research efforts to increase production of oil from existing wells, provide tax credits for installing more efficient heating systems in homes and apt. dwellings, and more.

Jackson; Lawrence: You speak of advancing the "....state's economy..." but you make no mention of a decent and honorable wage for the working person. When will you support a meaningful pay raise for State workers that is not a spit in the face? Teachers get a 8% pay raise frequently and get all the attention. Why don't you support State workers?

Yes, you supported a 1.5% "increase" but that doesn't even keep up with inflation. Aren't you really a member of the "good ole' boy club", which includes KU, whose classified staff can now get raises exclusive of regular civil servants because you are owned by the KU Lobby.

Have you given consideration to quitting and letting a person who represents the common working person actually have a shot at being in the legislature or are you too arrogant to realize you've been bought and sold?

Rep. Tom Sloan: Jackson,

I have regularly supported efforts to increase compensation to state employees. I have offered amendments during budget debates to provide those resources and you may note the response to a previous question about state employee pay.

The budget as proposed by any Governor is essentially passed by the Legislature. We need a Governor who will make state employees a higher priority - again because no state programs operate without state employees.

Richard H., Eudora: Hello Tom:

I can see so many schools have their problem with money tight budget every years. My kids were complaint that school have to cut some sport events.

I visited several states and noticed that states have the casinos to support the schools money fund. It is big help!

In Kansas, I am understand that Kansas didn't like that idea about gambling and school money don't mix. In other states, they said "High Property Tax and Public Schools don't work out that way!"

I don't understand why Kansas didn't pass the gambling bill every years, then our Kansas people still coming to Kansas City or Colorado or Iowa to play the casinos. How much money do our Kansas people spend a year? That is a lot of money than earn from our Kansas people pay the

property tax.

What do you think? If you believe that property tax should increase, then many people will not buy a new house!

Thanks for your time.

Rep. Tom Sloan: Richard and others interested in the gaming issue,

The legislature will again address gaming issues in 2006. The state constitution requires the state to own any gaming activities/facilities. If the state legislature and Governor expand gaming to include casinos, there are two options: 1) contract with an experienced gaming company to operate the casino(s) on our behalf, or 2) expand opportunities for the tribes to operate additional casinos.

At the present time, I do not think that sufficient votes exist in the Legislature to pass a casino bill. I understand that the Senate committee studying this issue continues to struggle with where casinos might be located.

There is a reluctance to fund education using gaming dollars (remember that the lottery money funds economic development investments). With the state's economy improving, there is even less likelihood that gaming will pass in 2006.

Edward, Lawrence: What can the state do about our reservoirs filling with sediment and becoming useless over time ?

Rep. Tom Sloan: Edward,

I have worked over several years to develop and fund a program to address siltation/sedimentation in our state's lakes. The silt effectively reduces flood control, drinking water supply, and recreation opportunities.

We now have a program to address lake restoration and preservation for the state's small lakes. This is a cost-share program between the state and the local government.

I have now turned my attention to the Corps. of Engineer reservoirs (e.g., Clinton). I was successful in December in securing support from the Council of State Governments for a resolution calling upon the Corps. of Engineers to work with states on this problem.

As you may know, KS has committed to purchasing the water and reservoirs form the Corps. My efforts are directed toward securing Corps. acceptance of a policy that state investments in preserving the reservoirs will count as payments toward the purchase price.

The discussion process is only starting, but I believe that addressing the state's long term water supply is one of the most important issues facing us.

Moderator: That will be our last question for today. I'd like to thank our readers for their many questions today.

And Tom, thanks for taking time our of your legislative schedule to fit this in today.

Rep. Tom Sloan: I appreciate the opportunity to respond to questions. I regret that my need to rush to another Committee meeting means that I cannot respond to all the questions.

My state email address is sloan@house.state.ks.us

Perhaps later this session we can again discuss energy, water, tax, school funding, and other issues important to our community and state.

Annual event puts all eyes on eagles

Viewing of birds at Clinton Lake, educational programs set for Sunday

By Dave Ranney (Contact)

Friday, January 20, 2006

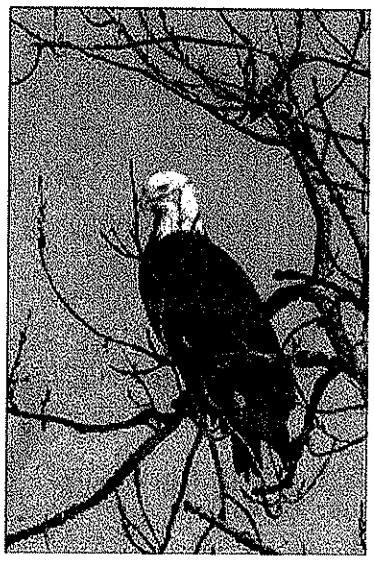

Photo by Richard Gwin

Free Eagle-viewing tours at 10 a.m. and 2 p.m. Sunday at Clinton Lake will be part of the 10th annual Eagles Day celebration. Educational programs will also be offered during the day at the Douglas County 4-H Fairgrounds, Building 21.

Kipp Walters is ready to help people find a bald eagle.

"I've been seeing them (the birds) every morning," said Walters, a park ranger with the U.S. Army Corps of Engineers Office at Clinton Lake.

He'll be leading free tours at 10 a.m. and 2 p.m. Sunday as part of the Eagles Day celebration.

"We'll meet at the Corps office at the north end of the dam," Walters said. "We'll talk a little bit about the eagles, and then we'll go find some perched in a tree. We'll set up a spotting scope so everyone can see them."

Now in its 10th year, Eagles Day organizers use the event to familiarize people with bald eagles and to promote environmental awareness.

Most of the day's activities will be at the Douglas County 4-H Fairgrounds, Building 21, where a dozen or so groups will have information booths and exhibits. Doors open at 11 a.m. and close at 4 p.m.

"There will be eagles there and some other raptors as well," said Cynthia Shaw, who's coordinating the event with her husband, Ed, on behalf of the Jayhawk Audubon Society.

Eagles Day co-sponsors include the Corps of Engineers, Kansas Department of Wildlife and Parks, ICL Performance Products, and Westar Green Team.

"This is our biggest education project of the year," Shaw said, noting that more than 1,000 people — parents and children, mostly — attended Eagles Day 2005.

Eagles also may be seen from the Kansas River bridge, either perched in the nearby cottonwood trees or feeding on fish in the river.

The Riverfront Plaza promenade is closed, but viewing is allowed from inside the plaza or the SpringHill Suites by Marriott.

The University Daily Kansan

Kansas River deserves care from Lawrence residents

Jeff Vincent

Friday, January 20, 2006

The Kansas River has made Kansas' list of impaired waters again. A body of water is deemed to be impaired when it fails to meet standards of cleanliness and general health approved by the Environmental Protection Agency. These standards are based, in part, upon the water's designated uses.

Common uses include drinking water supply, wildlife preservation, primary and secondary contact recreation (e.g., swimming and boating) and agriculture.

The Kansas River supports all of these. In doing so, it is a part of the life of everyone in Lawrence. As such, it is the right and responsibility of every citizen — even those who only live here for part of the year — to enjoy and protect it.

Contaminants that threaten waterways are divided into two categories, based upon their respective origins. Point-source contaminants come from a single, identifiable point, such as a wastewater treatment plant. Non-point sources are generally the result of storm runoff.

The Clean Water Act is a major piece of legislation aimed at protecting the nation's waters.

Alison Reber, executive director of the Kaw Valley Heritage Alliance, a local non-profit organization that works to preserve and enrich the Kansas River Watershed, said the act had "allowed for incredible improvements in the quality of our waterways, but we still have a long haul ahead of us."

The act has been most effective at combating point-source contamination. Don Hamera, environmental protection specialist with the EPA, said "point source contaminants haven't been eliminated, but they have been dealt with to the extent that current technology allows."

Still, Kansas' impaired waters list consists of more than 1,600 segments of rivers, lakes and streams throughout the state. The primary cause of this is non-point source contamination.

The major difficulty in addressing non-point sources is the vastness of the problem. Non-point source pollution is washed into waterways from the entire area that drains to them, or to their tributaries.

In order to deal with such a problem, relatively simple practices need to be implemented, and their success monitored, on a grand scale. This is where we come in.

"We know what needs to be done, it's just a matter of getting out there and doing it," Reber said.

This includes things like planting trees and grasses along waterways in order to slow erosion and to filter runoff before it enters the water, and monitoring waters in order to measure success and thereby encourage more action.

There are many opportunities to become involved through this type of volunteer work. These are organized through a grassroots approach, in the form of conservation districts in every county in the state, as well as organizations such as the KVHA.

These entities coordinate the many interested parties, as well as educate and appeal to local populations of private landholders who are generally encouraged to implement environmentally friendly land management techniques.

We, the student body, are in a unique position to carry knowledge and energy from the Lawrence community to our homes during breaks. We can encourage our local communities to act for the preservation and enrichment of the State's waterways, which naturally lends itself to the enrichment of the Kansas River.

Other than volunteering, we have the power to effect real change by living conscientiously every day.

"Pick up after your pet," said Hamera. "It's not glamorous, but it makes a difference."

Maintain your vehicle to avoid fluid loss. This stuff ends up in the river.

However we choose to do it, and whatever level of energy we commit to it, it is imperative that we all become aware of this problem and address it in some way.

Brothers proud of efforts

Buffer Award: Bruce & Scott Johanning

By Joshua Seiden - Special to the Journal-World

Monday, January 30, 2006

Photo by Nick Krug

Scott Johanning, left, and Bruce Johanning have been awarded the Soil and Conservation Buffer Award.

Bruce and Scott Johannings' efforts in environmentally sound farming have not gone unnoticed.

The brothers received this year's Buffer Award for the buffer strip they planted along the creek at Stull on their land.

A buffer strip can consist of native grasses, trees or both along a waterway. The purpose of the strip is to promote clean water while mitigating soil erosion.

Bruce Johanning said the decision to go with a buffer strip was based on water quality.

"We need to be environmentally sensitive," he said. "Since it is right next to the creek, it does really keep your fertilizer inputs from washing into the stream, which goes directly into — in our case — the Clinton reservoir."

The process is not without its difficulties.

"The first couple of years are the most intensive, in terms of the tree planting and keeping the weeds out," he said.

Walnut and Oak trees comprise the majority of the Johannings' buffer, which they started in 2001.

In addition, Bruce Johanning noted the financial constraints associated with such a project. "It is hard for some farmers, as usually your most productive ground is along those creek beds."

While serving environmental purposes, buffers can also be aesthetically pleasing. Of their development, he said it was a good demonstration plot, as well, noting that it is visible from a nearby highway, where it affords drivers an opportunity to witness the project while passing by.

Bruce Johanning stays current on techniques through trade publications and resource offices. He hopes to incorporate a small wetland in their territory at some point. In addition, the brothers would like to add a buffer to the bank on the opposite side of the lake.

Scott Johanning is proud of the recent award.

"It's mainly a recognition thing and allows people to see what you've done," he said. "It's a good honor to have, where you feel like you're doing something good and someone's recognized you for it."

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New path will blaze trail to lake landmark

Proposed walkway would link Sander's Mound at Clinton to South Lawrence Trafficway trail

Tuesday, January 31, 2006

Rebecca Snyder on Monday could only wonder how beautiful the view was from atop Sander's Mound, which overlooks the blue-gray waters of Clinton Lake.

"We didn't make it to the top today," said Snyder, who was walking with a friend along a beaten-down grass trail near the Clinton Lake Dam. "It was just too muddy."

Soon, mud shouldn't stop anyone from partaking in what some area nature buffs have said is the most striking vista of Clinton Lake available. The U.S. Army Corps of Engineers, along with the city's Parks and Recreation Department and the Kansas Trails Council, have been awarded a $171,000 federal grant to build a new one-mile concrete trail to the site.

The new trail will connect with the city's existing trail system that runs along the South Lawrence Trafficway, but ends before it crosses the west side of the Clinton Lake Dam Road. The new trail — which will be 10 feet wide like the existing SLT trail — also will provide an easy way for hikers and bikers to access the lake's 23-mile Northshore Trail system that runs throughout the state park area.

"I think the most positive benefit will be that it will link two trails together and link two sets of recreational areas together," said Mike Goodwin, president of the Kansas Trails Council. "Once it is completed, somebody would be able to hike or bike all the way from south Lawrence deep into the Clinton Lake area."

Willem Helms, a park ranger who planned the project for the Corps of Engineers, said construction on the trail likely would begin in late summer and be completed before the end of the year. He said he thought the trail would open the mound up to many new users because it is adjacent to the lake's Overlook Park area. Many users of the Overlook Park see the mound but don't venture to the top of the hill because cutting through the tall native grasses that surround the mound can be difficult.

"You need to bring your boots," Snyder said.

But once you get to the top, the view is worth it, Helms said. The mound gives visitors a birds-eye view of much of the lake's 7,000 acres of water and its shore that is lined with woods and patches of prairie.

"In my book, the mound offers the most breathtaking vistas of the entire area," Helms said.

The trail, though, will only take hikers to the base of the mound. Helms said the project partners decided against taking the trail up the hill because they were concerned about damage it could do to the grasses, which include remnants of the area's native prairie.

Some visitors to the site on Monday, though, said they liked the primitive nature of the area.

"I kind of like it the way it is," said Erin Stanley, who was visiting the area Monday from Seattle. "A concrete path would maybe be a little too manicured for me."

Several nonconcrete trails, including some up to the top of the mound, will remain.

The trail will be funded through a program administered by the Kansas Department of Wildlife and Parks, which receives funding for the grant program from the Federal Highway Administration.

What would be the ideal festival for Lawrence?

Leader seeks ideas for new celebration

By Chad Lawhorn (Contact)

Wednesday, February 1, 2006

Clenece Hills likes to imagine Lawrence residents gathering each year at Sesquicentennial Point to celebrate the city's birthday and watch what she calls "Art in the Air."

Hot air balloons would gracefully float over the point with the waters of Clinton Lake as a backdrop. Kites, flags and anything else that can be enhanced by the nearly constant wind of the point would be there, too.

"It could just be a spectacularly beautiful and unique event," Hills said.

That's her idea for a Lawrence celebration. Now she wants to hear yours.

Hills is trying to build momentum with elected officials and community leaders to create some sort of annual celebration that captures the attention of Lawrence residents.

Photo by Nick Krug

Lawrence resident Clenece Hills, who led many of the city's efforts to celebrate its sesquicentennial in 2004, is advocating an annual weeklong celebration of Lawrence's birthday. Hills thinks that Sesquicentennial Point and the surrounding area would provide a great atmosphere for events that bring people

"Downtown Manhattan (Kansas) has done that with New Year's Eve," Hills said of the celebration that mimics the larger celebration in the Big Apple. "It just kills me that Manhattan got on CNN and we didn't."

Hills said she wasn't "locked into" any specific idea. She said something around the city's birthday in mid-September could be nice because there are already several events during that time, including the Haskell Indian Art Market, Fall Arts and Crafts Show and speeches at the Dole Institute of Politics as part of the events surrounding its Dole Leadership Prize.

Hills said events like those — and perhaps a new "marquee" event — could be packaged together and marketed to form a communitywide, weeklong celebration.

"There is nothing that makes you feel more a part of a community than becoming involved in it in some special way," said Hills, who led many of the city's efforts to celebrate its sesquicentennial in 2004. "I would just like the community once a year to call special attention to everything that makes this place special."

Other community leaders are intrigued. Judy Billings, director of the Lawrence Convention and Visitors Bureau, said other communities had found major success with events. An arts show in Ann Arbor, Mich., draws more than

together, such those pictured at top right and below.

Photo by Mike Yoder

Lu Zimmer, Tecumseh, performs during the hammered dulcimer competition at South Park during the Kansas State Fiddling and Picking Championships in 2004.

100,000 people and the South by Southwest music and film festival attracts thousands each March to Austin, Texas. Even on a smaller scale, area communities like Baldwin and Lecompton both have events — the Maple Leaf Festival and Territorial Days — that serve as communitywide celebrations.

"Having a major event that your entire population identifies with and that outside people would be interested in would be good," Billings said. "But everybody needs to understand that it is a major, major undertaking."

Billings was among a group of people in the early 1980s who put together Independence Days, a two-day Lawrence festival that featured music, food and crafts. After about five years, the event faded away.

"You have to have something that is sustainable," Billings said. "Something as major as Clenece is talking about needs somebody thinking about it or working on it in one way or another every day. But I'm hearing there is a lot of interest, so maybe now is the time to really talk about it."

Photo by Scott McClurg

Civil War re-enactors drill at an encampment at South Park during events for Civil War on the Western Frontier.

Billings said the area's Civil War history and its art and film communities all lent themselves to celebrations.

City Commissioner Mike Amyx said he was open to the discussion, but he needs to know one important point: Who is going to pay for it all?

"Anything that brings more people to town would be a positive," Amyx said. "But if we're going to use a lot of private resources, that is one thing. If it is a lot of public resources, that is a different thing. I do have to say that money is tight. We get a lot of good requests that we can't fund."

Hills said she didn't have any idea how much an event might cost because it would depend on what type of celebration the community wants to have. But she said many communities found corporate sponsors for their festivals.

Comments

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Posted by lunacydetector (anonymous) on February 1, 2006 at 4:38 a.m. (Suggest removal)

since lawrence is known as "The People's Republic of Lawrence," why not build on this theme instead of a birthday party? the birthday party is a good idea, but maybe we could have two weeks for celebrating - one week for lawrence's birthday and another to commemorate something that happened almost a century ago on the other side of the world.

in 1917, there was the "october revolution" otherwise known as the "Bolshevik revolution" in russia. we could have a celebration to commemorate all the great things the atheist communists have done to the world and more importantly, our city. build a park or change a park's name.

we could have a 'who has the best goatee?' to commemorate lenin or a 'best mustache' for stalin, then again we could have some KU professors and perhaps some city commissioners dress up in military fatigues and portray good sandinistas.

we need to expand on the "People's Republic of Lawrence" theme because that is what everyone else in this state (and Missouri, possibly the Midwest) calls Lawrence.

signs as you enter lawrence could say, "Welcome to The People's Republic of Lawrence, Kansas."

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Failure to properly plan likely to hamper progress in city

By Dolph C. Simons Jr.

Saturday, February 11, 2006

Lawrence is a great place to live. It has a proud history, and opportunities for the future are almost unlimited. With the proper leadership, vision and courage, there is every reason to believe Lawrence could indeed merit the title of "America's Finest University City."

For many years, this writer has been suggesting this should be the city's goal. Such a title would suggest Lawrence has good job opportunities, good schools, good health care, good law enforcement, good housing, a good town-gown relationship, a clean environment and good government. To justify the title, the city cannot settle for merely being "good" but must try to be "excellent," the "best," way above average. The city should be looked to as a model for other college communities.

In many categories, Lawrence already stacks up fairly well, but there is no room to relax or think Lawrence has it made. The competition will become even more intense, and there is nothing automatic about Lawrence's future. There must be continuous effort to improve and be an even better city for all its residents.

One area that is becoming increasingly worrisome is the delivery of basic city services: the infrastructure and personnel to make sure Lawrence is a convenient, attractive and safe place to live. Water and sewer service, well-maintained streets and adequate law enforcement are basic responsibilities of a city's government, but recent stories have indicated that Lawrence officials may not be keeping up with the needs of a growing city. The money needed to catch up in these basic areas may hamper spending on other projects like a community sports center, a state-of-the-art library or other facilities that a truly great city should have.

The city's sewer system has raised many legitimate concerns. The obvious lack of sewer planning is likely to cause a severe slowdown in residential and commercial development in the city. Population estimates used in planning sewers in northwest Lawrence were far too low and, as a result, development in that area may be delayed.

It is understood city officials were surprised several days ago to learn that the city's existing sewer capacity may be insufficient for a major "New Urbanism" development recently approved by city commissioners for the northeast corner of Sixth Street and Wakarusa Drive. While the city is figuring out whether there is a problem and, if there is, how long it will take to fix, development may be stalled.

What kind of planning is this? Where is the vision? Is this the fault of Black and Veatch consultants, on whom the city has relied for years for water and sewer projects? Is someone in City Hall not measuring up? How can a city such as Lawrence, which prides itself in so many areas, have such a fouled-up situation with its sewer system? It's an embarrassment, and the public should demand to know what's going on. Would this kind of performance be tolerated in private business? Wouldn't changes be made?

Add to this the question of what the city is going to do about another sewage treatment plant, projected

to be the largest public works project ever undertaken by the city. Some at City Hall said the new plant must be in operation by 2011, but no site has been selected. That decision likely will turn into a typical Lawrence public debate with various individuals having conflicting ideas about whether the city should build a traditional treatment plant or be a pioneer in new techniques using lagoons, special worms to devour the waste or other means. Where should it be placed in relation to the Wakarusa River and how might this location be affected by the long-delayed South Lawrence Trafficway?

The SLT is a major embarrassment for the city and should have been completed years ago. While the debate has continued, the costs of the project have skyrocketed. The road should follow the route just south of 31st Street. Baker University officials have been more than generous in working with the city, county and state in setting a route along the north edge of the Baker Wetlands, and it is time to move ahead.

Within the past few days, news stories have reported the terrible condition of a high percentage of Lawrence streets. It is estimated that as many as 31 percent of the city's streets have deteriorated to the point they will require major repairs or rebuilding. The cost will be tremendous and this does not include streets that are in bad shape but still able to be repaired.

Why have the streets deteriorated so fast? Why haven't city officials been on top of this situation? Who is supposed to be checking the quality of street construction? Is anyone demanding top-quality work? Is there anyone checking specifications or the quality of the aggregate rock and other materials being used in street construction?

The city's current public works director said the new streets that will be built will last much longer than many existing streets because of new building standards implemented since he came on the job in 2002. For instance, the city now is using more concrete, rather than asphalt in street construction. Older standards allowed streets like Wakarusa Drive to be build directly on Kansas clay that frequently shrinks and expands, causing cracks and potholes. Kansas clay has been around since Lawrence's founding. Why are we just now upgrading standards to compensate for the problems it causes?

Sewers, sewer treatment facilities, massive street replacement costs, a lack of planning for future city needs and other questionable actions — or inactions — should be a concern to all residents. Another key responsibility of city government is the city's police force. Recent incidents in Lawrence may raise questions about whether the city has enough officers.

Concern should be focused on the lack of planning and vision in City Hall as well as how much it will cost the city and its residents in higher taxes and fees to make up for the lack of proper planning.

This writer often has quoted a friend who years ago suggested signs should be placed at all entrances to Lawrence with the message, "Welcome to Lawrence, Home of the Little Hitters."

Even though the city has an excellent history of accomplishment, it isn't known as a city that thinks "big" or far enough ahead. The Horizon 2020 long-range plan that already is out of date is an example of the limited vision of many in City Hall.

There is more than one way to "think big." In Lawrence, far too many people judge bigness by how much money they can spend on a project, whether or not that much money is essential. Officials should remember it is someone else's money.

The other way to "think big" is to have residents and officials looking ahead to what is best for the city,

giving taxpayers the best use and return on their tax money and having the vision and courage to think smart about the future.

Lawrence needs big thinkers who also are smart and visionary thinkers. There is reason to question whether this is the current situation in City Hall and among some of our elected officials.

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City wants to get jump on plan for western growth

By Laura McHugh

Tuesday, February 14, 2006

Lawrence city leaders have said they want to get ahead of growth. At their weekly meeting tonight, they'll have a chance.

City staff plan to ask the Lawrence City Commission for permission to start developing an area plan for 7.5 square miles west of Kansas Highway 10. The area is bounded on the north by U.S. Highway 40 and extends to Clinton Lake on the south.

"It's a fairly natural assumption to think that's where the city will grow," Lawrence City Manager Mike Wildgen said.

Wildgen met last week with the owner of 400 acres west of K-10. According to a staff memo, the property owner does not have immediate plans to develop the land, but will seek building permits later this decade. Wildgen said that means now would be the right time to start planning for the water, sewer and road systems expected to fill the area.

"Being ahead of time, two or three, or even more years, is still better than waiting until it's too late," Wildgen said.

In addition to infrastructure, Wildgen said the city commission should keep in mind the need for public works, police and fire services as they consider planning for the area.

City commissioners will meet at 6:35 p.m. today at City Hall, Sixth and Massachusetts streets.

Upper Wakarusa Watershed

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