



THE UPPER WHITE RIVER REVIEW

*The Newsletter of the South Missouri Water Quality Project, a USDA-NRCS Water Quality Office
Providing Conservation Solutions To Non-Point Source Water Pollution.*

Clear...Concise...and to the Non-Point

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Stewardship Compass by Steve Hefner



*South Missouri Water
Quality Project Team Leader*

For seventy years the USDA's Natural Resources Conservation Service (NRCS) has partnered with people to protect and improve the natural resources of this country. The agency was formed during the dustbowl years of the mid-1930's to address the national problem of soil erosion. In 1935, the Soil Conservation Service (SCS), a predecessor to the NRCS, was organized in the Department of Agriculture to help landowners carry out conservation.

Initial organizers of the agency realized that sustaining natural resources was critical in maintaining independence and national stability. Organizers subscribed to the notion that a nation that degraded its resources was doomed to a life of poverty and decay. Early SCS demonstration projects were largely watershed based and advocated soil conservation to primarily rural

farmers. As the agency established itself, the target audience grew to include other natural resource concerns (air, plants, water, and animals) and groups of citizens.

Today, more than seven decades later, the agency has established itself as the USDA's lead conservation agency. Our agency has a fundamental belief that locally led voluntary conservation activities are the most successful. NRCS continues to use the Conservation Technical Assistance Program, our oldest source of funding, as a means to offer technical assistance to interested parties free of charge.

Locally, the South Missouri Water Quality Project, a NRCS Project office covering the White River Basin, has participated in outreach efforts to attract new clients, such as urban residents. This issue of the Upper White River Review will highlight many urban related conservation articles. Opportunity for urban residents to implement conservation abounds and include lawn management, soil conservation on lots, storm water, and septic tank maintenance. It is our hope this issue of our newsletter will inspire you toward conservation. Contact us if you have questions.

Urban Subdivision Assistance

The South Missouri Water Quality Project staff, in conjunction with USDA-NRCS Soil Scientist, Tom DeWitt, has been working with the Terraces Subdivision in Springfield on a multi-issue conservation plan. Construction of this residential development began in 1988 and currently includes 50 homes. One-third of the development was left in open space to provide a natural and visual buffer between the Terraces and adjacent properties. A two-acre pond within this buffer serves as the primary storm water management facility for the Terraces and upstream development. Due to past developmental and associated hydrologic changes, this water body and associated features have been greatly impaired. Impairments include channel scouring and erosion, accumulation of sediment, and degradation of water quality conditions. Riparian re-vegetation, creation of a wetland forebay, and enhancement of the pond seal through chemical additives have been recommended.

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Rain Barrels: A Simple, Economical Conservation Practice



Photo courtesy of Clearwater Conservancy

Rain barrels currently on the market are designed to attach to residential gutter systems and have faucets installed to attach hoses for irrigation. Many rain barrels are attached to secondary reservoir barrels to increase holding capacity.

Due to the recent drought in Missouri, water conservation has been a topic of local and city-wide discussions for deterring water shortages. For many urban and suburban homeowners, municipal water is used for watering gardens and lawns. According to the University of Missouri Extension, an inch of water per week is adequate to sustain a cool-season lawn such as fescue over the hot summer months. However, vegetable and flower gardens require more water. Though many lawns are watered by timed sprinkler systems, sustaining your lawn or garden can be economically and environmentally inefficient for a number of reasons. Many irrigation systems are not programmed correctly for quantity and time of operation thus wasting water. Irrigation systems may also be costly to construct and the price of municipal wa-

ter rates can be also a factor. Most importantly, vegetation does not respond to municipal water as well as rain water. One alternative that conserves water while enhancing plant growth is the use of properly designed rain barrels.

The concept of rain barrels has been in use for centuries. However, due to the importance of water conservation, especially in arid communities such as Los Angeles and Las Vegas, rain barrels have been designed to meet the needs of suburban homeowners. The use of rain barrels is now making its way to the Midwest and East Coast to address both water quantity and quality issues.

Current rain barrels on the market are designed to attach to residential gutter systems and have faucets installed to attach hoses for irrigation. Many rain barrels are attached to

secondary reservoir barrels to increase holding capacity and are designed to deter the proliferation of mosquito larvae in order to control West Nile viral issues. Rain barrels can also be ordered to match the specific color of your house.

In the Ozarks, a typical summer rainfall event produces a 1/4 inch of rain or less. These smaller rain storms just wet the lawns and gardens and do not provide the adequate amount of infiltration for plant production. With an average-sized house with a roof of 1,500 square feet, a 1/4 inch rain event produces 230 gallons that can be utilized to irrigate the garden and in some instances, smaller lawns. This simple practice is not only economically and environmentally beneficial, but most importantly it is beneficial to your garden or lawn.

Kathryn Braden Named Soil and Water District Commissioner

"We all live downstream from someone and someone lives downstream from us. We need to remember to be a good neighbor."

Kathryn Braden



South Missouri Water Quality Project Steering Committee member, Kathryn Braden, was recently appointed by Governor Matt Blunt and confirmed by the Missouri Senate to serve a three year term as a Missouri Soil and Water District (SWCD) Commissioner. As one of six statewide

commissioners, Kathryn, a Taney county farmer, will govern over policies and programs of Missouri's Soil and Water Conservation Districts, whose purpose is to save and conserve Missouri's soil and water resources.

In addition to serving on the Taney County Soil and Water Conservation District, Kathryn serves as

a member of the Southwest Missouri Resource Conservation and Development Executive Council, and is the Southwest Missouri Regional Envirothon Committee Chairman. She has served on the Roy Blunt Agricultural Advisory Committee and is the past Area IV Missouri Association SWCD Director.

Lawn Wastes Pollutant or Fertilizer?

Grass clippings, twigs, and falling leaves can be a pollutant or fertilizer. If lawn wastes enter surface waters, they can significantly degrade water quality. They contribute nitrogen and phosphorus that encourages the growth of algae and can lead to a host of other problems. But, when properly handled, these organic fertilizers enhance production of both lawns and gardens.

Bagged grass clippings and leaves are often dumped into ditches, road gutters, and storm drains. Most of these drainage systems remove water quickly and are not connected to treatment plants. This means the nutrients move directly into rivers and lakes. Burning lawn waste reduces the size of the pile, but produces a concentrated ash that is easily transported by wind and water. The problem is the same: the nutrient value is lost from your lawn and eventually added to the lakes. It is difficult to

spread ashes uniformly on a lawn or garden. Mixing ashes with other fertilizers or compost gives a more even coverage.

Grass clippings contain about 4% nitrogen, 1% phosphorus, and 2% potassium. When returned to the lawn, they can provide 25% or more of the total nutrients needed for a year. If clippings are "bagged" or raked to reduce thatch build up, the next best choice is to compost for later use. It is fairly easy to set up a compost pile and, with a little maintenance, produce an organic fertilizer that also improves the water holding capacity of the soil. Don't add more than about 2 inches of new (green) material to a compost pile at any one time, or water and air infiltration will be reduced. This slows down decomposition and may cause a sour smell. Turning the pile with a pitch fork increases aeration and reduces odor. The composted material can be returned to the lawn or gar-

den in 6-12 months.

Leaves are easily composted, but if possible, should be shredded to reduce volume and increase contact with the soil. This helps inoculate the material with soil microorganisms that transform "waste" into "compost." If you already have a compost pile, mix the leaves with the existing materials and turn occasionally to increase water and air movement. Layers 4-6 inches thick work well.

Composted leaves and grass are excellent soil "amendment," but woody materials may perform best as an above ground mulch. Shredding twigs and branches makes them easier to handle and produces a material that is useful for landscaping. A 2-4 inch layer of mulch conserves soil moisture and helps control weeds. Woody mulch decomposes more slowly than soft materials. The benefits can last for years.



Photo courtesy of USDA-NRCS

It is fairly easy to set up a compost pile and, with a little maintenance, produce an organic fertilizer that also improves the water holding capacity of the soil.

Becky Day Receives Missouri Women in Agriculture of the Year Award

Becky Day, a Howell County resident and steering committee member for the South Missouri Water Quality (SMWQ) Project, recently received the Missouri Women in Agriculture of the Year award at the 2005 Women in Agriculture Conference held in Joplin, MO. Becky is the owner and operator of a 525 acre farm where she

raises approximately 100 brood cows, a truck vegetable garden, and operates a state certified kitchen.

Becky's commitment to sustainable land stewardship is strong. She practices intensive rotational grazing and has implemented a forestry stewardship plan for her land.

In addition to her service to the SMWQ Project,

Becky is also involved with the Brandsville Volunteer Fire Department, Howell County 911 Emergency, University of Missouri Extension, and the local farmers market.

Becky was nominated by the Howell County Soil and Water Conservation District.



"No farmer is an island. I did not win this award alone. It is the result of many people being there for me, listening patiently, and believing in me."

Becky Day

Urban Areas Addressing Storm Water Impacts

One important contributor of non-point source pollution that is often overlooked by the general public is storm water. Historically, storm water was viewed as a quantity issue that was managed by constructed engineering practices used to minimize flood impacts. However, with the advent of addressing the importance of non-point source pollution, sources from urban areas have been estimated to contribute as much to water quality degradation as other land uses.

Due to the apparent relationship between urban areas and water quality degradation, the United States Environmental Protection

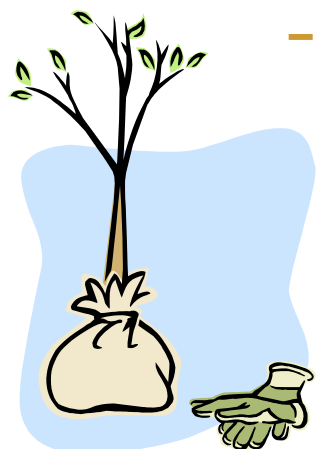
Agency has required urbanized communities to manage their storm water. As part of the National Pollutant Discharge Elimination System (NPDES), municipal communities are required to address these issues by implementing measures such as ordinances, best management practices, and educating the public on practices, homeowner's can implement to deter the impacts of urban runoff.

Municipalities under this rule are those which have a population between 10,000 and 100,000 residents as measured through the 2000 census. In the White River Basin watershed, these include the



Storm water runoff in a construction area in West Plains, MO

cities of Nixa, Poplar Bluff, and West Plains. The South Missouri Water Quality Project is working with the cities of Poplar Bluff and West Plains to facilitate education/outreach, storm water assessment and BMP implementation efforts.



It's time
to think
about
TREES

Planting Season Will Soon Be Here

Even though tree planting season is four or five months away, it's not too early to begin preparing. Fall site preparation will need to be done soon to prepare your site for spring planting. If you are planning to hire a contractor to plant your trees, it is time to schedule. Don't forget about your seedlings! Missouri Department of Conservation's nursery will be taking orders sometime around the week of Thanksgiving.

If you are planting trees this next spring, you need to get your order in as soon as possible. Order forms can be obtained by contacting your local private lands conservationist or the nearest Missouri Department of Conservation office. You may also place your order online at the following address: <http://www.conservation.state.mo.us>. Anyone who is interested in technical assistance is urged to contact the South Missouri Water Quality Project's forester at 417-581-2719 ext. 5.

Training Course Under Development

The USDA-NRCS National Water Management Center (NWMC) in Little Rock, AR is assisting the SMWQ Project in developing an Ozarks Stream Training Course. Aaron Pugh, hydrologist, and Thom Garday, hydraulic engineer, are providing technical assistance. A site in Douglas County, MO has been located and preliminary data is currently being collected for field

and classroom exercises. Curriculum for the course will include geomorphic processes, regional hydraulic curves, sediment movement, and restoration practices. Training sessions are scheduled for spring 2006 with limited space for agency conservationists. Interested individuals should contact the SMWQ Project office at 417-581-2719 ext. 5.



Course will include field exercises in Douglas County, MO

Good Phosphorus Management Leads to Healthier Lawns, Cleaner Streams

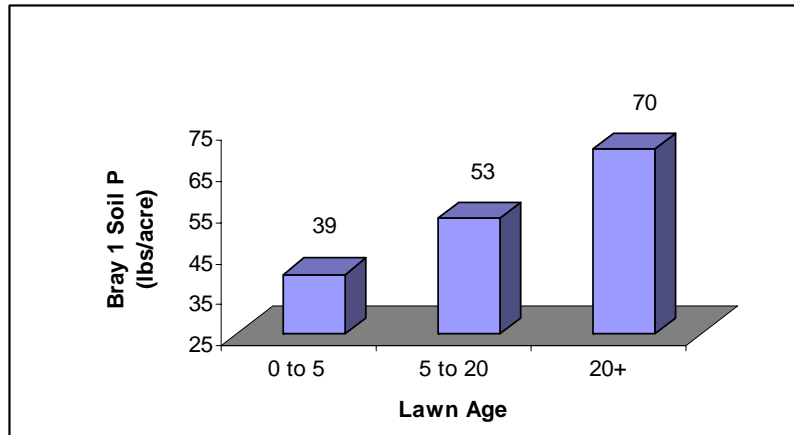


Figure 1. Average effect of lawn age on soil phosphorus levels from 273 samples collected at 0 to 4-inch depths from lawns near Springfield, Missouri, 2002-2005.

For many urban and suburban homeowners in the Ozarks, an attractive lawn is a source of pride. In addition to having aesthetic value, an attractive lawn can also add to the appraised value of a home. Lawns benefit the environment by lowering surface temperature, filtering overland flow and in some areas of the James River watershed, comprise the only significant area of permeable space to absorb storm water.

A beautiful lawn begins with soil management. Soils in the Ozarks are notorious for having a thin layer of topsoil and subsoil with significant rock fragment. Given this setting, managing soil properties such as organic matter, soil acidity, nutrient levels, and compaction are

essential to quality turf production.

One of the most important steps in managing nutrients involves soil testing. A soil test is inexpensive (about \$12 locally) and the information contained in the report is useful for three to four years. Over the last four years, the South Missouri Water Quality Project has prepared lawn fertility plans for approximately 300 urban customers in the James River Basin. Nutrient recommendations from the soil analysis are combined with measurements of coverage area in order to advise homeowners about the type and quantity of specific fertilizers.

Examination of 273 urban soil samples near Springfield, MO revealed the age of the lawn significantly influenced soil phosphorus

levels. Lawns that were classified as at least 20 years old had on average 31 lbs/acre greater soil test P values than new lawns less than 5 years old (figure 1). This suggests that homeowners were building soil phosphorus beyond target values from over fertilization.

As a result of soil testing, 106 of the homeowners received conservation plans that included nutrient recommendations with no phosphate fertilizer. An additional 70 homeowners received phosphate recommendations that required only a small amount of phosphate to maintain soils near target values. The remaining lawns that were found deficient in phosphorus received recommendations with a judicious amount of phosphate fertilizer. In these cases, phosphate application should foster thicker, healthier stands of grass for improved water quality.

If you are interested in learning more about having a urban lawn conservation plan, contact the South Missouri Water Quality Project at 1-800-581-6444 ext. 5.

300 homeowners in the James River Basin now have urban lawn plans.



Earth Team Preschool Education Project

Students from Ozarks Technical Community College and Missouri State University are currently participating in the Earth Team Preschool Education Project. Students are writing curriculum and presenting lesson plans related to water quality at preschool and daycare facilities within Springfield, Ozark, and Nixa. For more information about this project, contact the South Missouri Water Quality Project Earth Team Coordinator at 417-581-2719 ext. 5.

Creek Corner

Hunter Creek

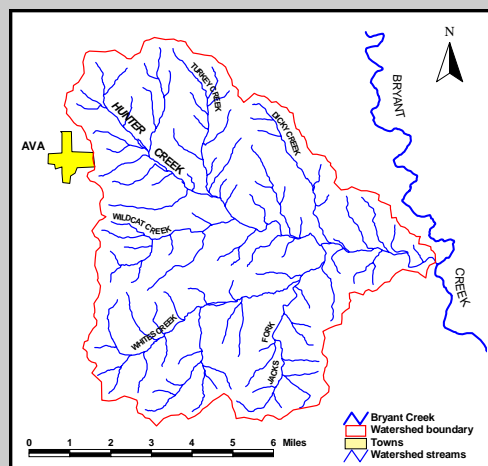
Profiling the small streams of the Upper White River Basin

Hunter Creek drains land east of Ava, MO and outlets to Bryant Creek near the hamlet of Vera Cruz. It is the second largest tributary of the Bryant Creek watershed. This watershed is rural and is comprised predominately of agricultural land uses of pasture, hay, and timber. Historically, Douglas County was established in 1857 with Vera Cruz serving as the first county seat. A civil war battle at Clark's Mill near the confluence of Hunter and Bryant Creeks was fought on November 7, 1862 and resulted in a confederate victory and the death of William Martin, a civilian county commissioner.

Location: Central Douglas County, MO

Drainage: 52.5 Square Miles

Receiving Stream: Bryant Creek



Agricultural SALT Grants Awarded to Two SWCDs

Congratulations to the Wright and Barton County Soil and Water Conservation Districts (SWCDs) on recent grant approvals. Each county has received a Agricultural Special Area Land Treatment (SALT) grant from the Department of Natural Resources for water quality conservation. The South Missouri Water Quality Project provided planning assistance with each district during the application process. Grants will be

administered by the local SWCD staff.

To receive more information about the Little North Fork Spring River SALT opportunity and cost share in Barton County contact Ben Reed at 417-682-3571 ext. 108. Contact Connie Krider at 417-741-6195 ext.4 regarding the Wood's Fork Gasconade SALT opportunity and cost share in Wright County.

International Volunteer Assists SMWQ Project

Barron Obed Benjamin, a native resident of Guadalajara, Jalisco Mexico is presently serving as an Earth Team volunteer for the South Missouri Water Quality (SMWQ) Project. Obed holds a degree in computer engineering and first learned about the NRCS through an outreach presentation at an English-As-Second Language class he was attending. Obed, a skilled graphic designer, expressed an interest in serving the Earth Team program in that capacity. Obed collaborated with South Missouri Water Quality Project staff on the graphic design component of a Conservation Dictionary project. Upon completion, the document will serve as an outreach tool for field offices and will include translations of conservation terms frequently used by agency personnel into other languages. Current planning includes translations for use with Hispanic and H'mong residents.

Obed has provided 620 hours of graphic design volunteer service during the past 5 months and has corresponded with local staff through personal office visits and by electronic methods.



Barron Obed Benjamin