St. Joseph County Soil & Water Conservation District

CONSERVATION KALEIDOSCOPE

Today's Visions for Tomorrow's Future

Jul/Aug/Sep 2006 | 5605 U.S. 31 South, Suite 4 *South Bend, IN* | Telephone (574) 291-7444 Ext.3 | Editor: Troy Manges
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Calendar of Events

July 4
Independence Day Holiday
Office Closed

July 17
SWCD Monthly Board
Meeting 6:30 PM – Farm
Bureau Mtg. Room

July 31
St. Joseph County 4-H Fair
Begins

August 21
SWCD Monthly Board
Meeting 6:30 PM—Farm
Bureau Mtg. Room

September 4
Labor Day Holiday
Office Closed

September 18
SWCD Monthly Board
Meeting 7:30 AM – Farm
Bureau Mtg. Room

THE BIG TREES of ST. JOSEPH COUNTY

Help find the
BIGGEST
trees in
St. Joseph County

Nominate a tree near you!

The deadline for submitting your entry is September 1, 2006.

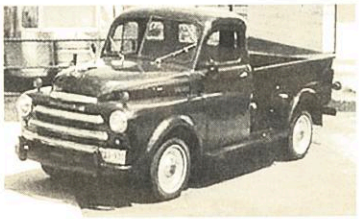
The Big Trees
of
St. Joseph County
is a cooperative program of:

St. Joseph County Parks
Purdue Extension: St. Joseph County
St. Joseph County SWCD
Rum Village Nature Center
The University of Notre Dame
Department of Biological Sciences

Entry Forms are available at the office.

What's Inside . . .

OLD PICKUP TRUCKS AND RIPARIAN AREAS



SAN ANGELO, Texas - - You may be surprised to find out that old pickup trucks and riparian areas actually share much in common. I began discovering this truth after acquiring a 1950 Dodge pickup. Please don't ask for a logical explanation about why this truck was needed. Maybe it was the fact that it is a stout, no frills vehicle; a link to a more simple era. No plastic, no power steering, no power brakes, no power windows, no AC, no computer, no radio. Maybe it was a pragmatic notion that old trucks increase in value each year, while newer trucks decrease in value. Maybe it was the challenge of taking an old broken truck that no one else wanted and seeing its potential.

Unfortunately, the truck had to be towed to the house since it was completely non-functional at the time of purchase. The first job was to become familiar with all the parts and components and assess the condition of each. Hours and hours were spent crawling underneath or with head buried under the hood, looking carefully, trying to take note of everything. The list of things that needed replacement or repair was long: radiator hoses, fan belt, clogged fuel line, busted brake line, brake cylinders, master cylinder, brake shoes, bad wiring, bad muffler, bad tires, leaky fuel pump, and the list could go on and on. It all seemed a bit overwhelming; but there are priorities when doing such work. It can't all be fixed at one time.

After getting a new 6 volt battery and rebuilding the carburetor and rigging up an auxiliary fuel system, the old flat head engine started right up. It was amazing that the old thing sounded as good as it did after so many years of neglect and non use.

It was equally amazing to discover all of the things that were still in working order, including the starter, generator, water pump, oil pump, distributor, headlights, gauges, wipers, and even the heater. This gave new hope that this truck could actually be restored to a basic level of function without spending a small fortune.

So how does this relate to creeks and riparian areas? Like the old truck, some creeks are ugly, neglected and non-functional. The list of riparian problems and limitations sometimes seems monumental: down-cutting, channel widening, poor access to floodplain, poor sinuosity, poor width/depth ratio, lack of stabilizing grasses and sedges, poor recruitment of riparian woody plants, overgrazing, mowing, human trampling, etc. Where does one start in trying to restore a broken creek? It can't all be fixed at one time.

Like the amateur truck mechanic, the riparian mechanic will first need to become familiar with the basic parts and operation of creeks. A keen sense of observation is needed to learn the parts and dynamics and how the parts work together and how the systems are interrelated.

In some cases, merely changing one or two little things is all that is needed to start an amazing recovery process. A change in grazing or mowing, for example, will lead to an improvement in vegetation, which will in turn help stabilize banks, slow floodwaters, drop sediment, build floodplains and improve sinuosity. As the natural processes are allowed to occur, creek restoration begins to take place.

The difference of course, is that a creek is much more than a machine. Creeks consist of living components and natural ecologic, hydrologic and geologic processes that work together in an amazing way to restore themselves. Human intervention is often needed to tweak and adjust the processes, but major long term inputs of labor, capital and energy are usually not required. Like old trucks, creeks are special in the eyes of those who understand and appreciate such things. And both will continue to increase in value as time goes on.

Article by Steve Nelle, NRCS Wildlife Biologist

ENVIRONMENTAL SCHOOL PROGRAMS

RESERVE YOUR PROGRAM BEGINNING ON August 14, 2006

Visit our web site for a complete listing of programs.

WOODLAND TIMES

Forestry News Updates for St. Joseph County

DISTINGUISHING ASH FROM OTHER COMMON TREES

Identifying Ash Trees

Due to the destruction of the emerald ash borer (EAB), It is important to be able to recognize and identify ash trees. To date, emerald ash borer has only been found on ash trees. Not sure if your tree is an ash? This simple key is intended to help you distinguish between some common deciduous landscape trees frequently confused with ash, including: elm, boxelder, mountainash, walnut and hickory.

Using the Identification Key

Begin at number 1 on the key and choose (a) or (b). Then proceed to the number listed in italics at the end of your choice. This number will give you a new set of choices. Continue this way through the key. We have listed enough characteristics to help you determine whether or not your tree is an ash. If it doesn't match the characteristics in the key, relax; it most likely isn't an ash.

Identification Key

1. a) Branches alternate - (Fig. 1) - *go to 2*
   b) Branches opposite - (Fig. 2) - *go to 4*
2. a) Simple leaves, with irregular leaf base and toothed edge - (Fig. 3) - *See elm*
   b) Compound leaves, with 9 to 15 leaflets, finely toothed around edge of leaf - (Fig. 4) - *go to 3c*
3. a) Cut open twig lengthwise, chambered pith - (Fig. 6) - *See Black Walnut*
   b) If pith is not chambered, but has white flowers in May, orange or red berries in fall - *See Mountainash.*
   c) If pith is not chambered, but has three leaflets at end of leaf larger than the rest - *See Hickory*
4. a) Compound leaves, 3 to 5 leaflets, smooth or finely toothed around outer edge - *See Ash*
   b) Compound leaves, 3 to 5 leaflets, few coarse teeth or none, end leaflet pointed - *See Boxelder*

Fig. 1 Alternate Branching

Fig. 2 Opposite Branching

Fig. 3 Simple Leaf (American Elm)

Fig. 4 Compound Leaf, 7 Leaflets (White Ash)

Fig. 5 Compound Leaf 3 Leaflets (Boxelder)

Fig. 6 Chambered Pith (Black Walnut)

Definitions

- Alternate - leaves/branches that are staggered or not directly across from each other, Fig. 1.
- Opposite - leaves/branches that are directly across from each other, Fig. 2.
- Simple - a single leaf blade joined by its stalk to a woody stem, Fig. 3
- Compound - a leaf with more than one leaflet. All leaflets attached to a single leafstem, Fig. 4 - 5.

American Elm

Siberian Elm

Elm, *Ulmus spp.*

Branches and buds are alternate and leaf bases are unequal. The leaves are simple, serrate (toothed) and 3 to 6 inches long and 1 to 3 inches wide (American Elm) or 3/4 to 3 inches long and 1/3 to 1 inch wide (Siberian Elm). The fruit is a winged seed.

Shagbark leaf

Shagbark Hickory Bark

Hickory Fruit

Hickory, *Carya spp.*

Shagbark hickory has distinctive bark - long, loose, shaggy strips. Leaves are compound, 8 to 14 inches long with 5 to 7 leaflets. The three terminal leaflets are larger than the other leaflets.

WOODLAND TIMES

Forestry News Updates for St. Joseph County

Black Walnut Fruit

Black Walnut leaf

Black Walnut, *Juglans nigra*
Branches and buds are alternate. Leave are compound, 15 to 24 inches long, with 9 to 15 leaflets/ leaf. Crushed leaflets and stems have a distinct odor - similar to turpentine. Twigs, split lengthwise, have chambered pith. Fruit is a large dark brown nut inside a green husk.

Mountain Ash Leaf

Mountainash Berries

Mountainash Flowers

European Mountainash,
Sorbus aucuparia
Leaves are compound, 5 to 9 inches long with 9 to 15 leaflets per leaf. Leaflets are a toothed, rounded oval shape. Flowers are five-petaled, white and similar to cherry or apple blossoms but in clusters. Fruits are fleshy, red-orange berries in clusters - they are found in the fall.

Green Ash Leaf

Ash Seeds

White Ash Leaf

Ash, *Fraxinus spp.*
Branches and buds are opposite with a single bud at the end of the branch (terminal bud). Twigs are gray to brown and do not have a waxy coating. Leaves are compound, 8 to 12 inches long, 5 to 9 leaflets/leaf. Leaves may be finely toothed or have smooth edges. The most common ash trees planted in the landscape are White Ash (*Fraxinus Americana*) and Green Ash (*Fraxinus pennsylvanica*). Individual fruits are shaped like single wings and occur in clusters; many ash cultivars are seedless.

Boxelder Leaf

Boxelder Fruit

Boxelder, *Acer negundo*
Boxelder is sometimes called ash-leafed maple. The twigs and buds are opposite; with a single bud on the end of the twig (terminal bud). Twigs are green to purplish brown, and often have a waxy white coating that can be rubbed off the stem. Leaf scars beneath the buds are narrow, and join in a point. Leaves are compound, 4 to 10 inches long, with 3 to 5 leaflets/leaf. Leaves may have a few coarse teeth, or none. The end leaflet is sharply pointed. Fruit is a paired winged seed, occurring in clusters.

SUMMER INTERNSHIP

Since 2001, the St. Joseph County Soil and Water Conservation District has been able to provide an internship to a college student studying in the field of natural resources.

Each year the internship allows these students to obtain valuable information and hands on experience for their continuing education.

This year our summer intern is Hilary Barnhart. Hilary is from Pendleton, Indiana and will be a junior at Ball State University in the fall. She is studying Natural Resources focusing on Land Management. She became interested in this area after working for a public park in her hometown for five consecutive summers.

Hilary enjoys being outside and learning anything she can about the environment, and what can be done to improve it.

By working at the SWCD, she hopes to obtain the skills needed for her future career. Hilary is excited to learn new things, and gain much more experience to help her in the planning of her career.

BALL STATE UNIVERSITY

TREE SALE ORDER FORMS

The 2006 - 2007 tree sale order forms will be mailed at the beginning of October. If you have ordered trees from the district in the past, you should receive your copy by mail. If you have not received an order form by the middle of October, but would like to, please call the office and we will mail you a copy.

NRCS Natural Resources Conservation Service

HOW INDIVIDUAL PRODUCERS CAN SAVE ENERGY AND MONEY

- **Switch from conventional tillage to no-till** - and save up to 3.5 gallons of fuel per acre with a current value of $6.83 per acre.
- **Move to low-pressure irrigation systems** - and save $40 per acre for medium-pressure systems and $52 per acre for high-pressure systems.
- **Replace old or inefficient irrigation pumps** - and if producers achieve a 10-percent improvement in water use efficiency, they could reduce diesel consumption by 8 gallons per acre, saving $15,600 on 1,000 acres.

- **Use manure instead of petroleum-based fertilizers** - and reduce corn fertilizer costs up to $55 per acre.
- **Better manage pesticide applications through precision agriculture - or precision conservation** - and pay for the cost of a basic "auto-steer" guidance system in two years by saving $2000 in pesticide costs per year on 3,000 acres of cropland.
- **Improve pesticide use with scouting, spot spraying and integrated pest management** - and potentially realize significant savings in pesticide application costs.
- **Plant windbreaks and shelterbelts to reduce heating and cooling costs** - and save up to 20 percent on energy bills for the farmstead.
- **Adopt management intensive grazing practices** - and save up to $6.50 per acre in energy costs and another $38.00 in reduced harvest costs.

HEALTHY WETLANDS HELP TO CONTROL MOSQUITO POPULATIONS

Contrary to popular belief, healthy, functioning wetlands can actually reduce mosquito populations.

Mosquito control programs commonly recommend that wetlands be drained to control mosquitoes. This is because mosquitoes require standing water to breed. If there is no standing water, there will be no mosquitoes. While this is true, it may not be the answer to your buzzing, biting pest problems. Mosquitoes have a very short life cycle (from 4 days to a month) and their eggs can remain dormant for more than a year, hatching when flooded with water. Therefore, even after a wetland has been drained, it may still hold enough water after a rain to breed mosquitoes. The drained area may actually produce more mosquitoes than it did when it was a wetland!

A healthy wetland provides habitat for many unique animals, including natural enemies of mosquitoes. These natural predators keep the mosquito population low.

Mosquitoes become a problem in areas that are wet or have standing water, such as old tires, cans, and other containers that can collect rainfall, including hollow logs or low spots in the ground where water pools. And because these places do not provide good homes for those beneficial insects and other kinds of wildlife that feed on mosquitoes, the mosquitoes can quickly reproduce out of control.

Mosquito populations are held in check in healthy wetlands by certain birds, frogs, fish and insects living in the wetland that feed on mosquito larvae and/or adults. Examples of these predatory insects include Dragonflies, Damselflies, Water Strays, Backswimmers, and Predacious Diving Beetles.

Wetland restoration decreases mosquito populations in two ways; by providing proper habitat for the natural enemies of mosquitoes, and by preventing or reducing flooding (in areas that aren't normally wet and thus support mosquitoes but not their predators). As an example, an Essex County, Massachusetts Mosquito Control Project restored a 1,500 acre wetland, and the mosquito population dropped by 90 percent! Proof positive that a healthy wetland does reduce mosquito populations. In Indiana, the most serious mosquito problems tend to occur in floodwaters and woodland pools. So by restoring healthy wetlands, we really can do ourselves and all Hoosiers a big favor!

Storm Water Basins: How they Work

Where does all the storm water runoff go at your house? Many people realize that their storm water leaves their property by exiting their driveway or down a french drain and onto an adjacent street or a road side swale. Very few people realize where it exits from that point. In most of the newer developments, dry and wet basins or ponds are in place to catch their community's storm water runoff. These are usually connected to a series of storm sewer pipes or swales which are fed by storm drain inlets typically on streets and curbs. All these conveyance measures direct storm water to basins and ponds. Depending on your neighborhood's storm water needs you may have a retention basin or a detention basin or you may have a wet or a dry pond. Let's see how these basins and ponds work and how they are designed to eliminate pollutants from storm water runoff.

Wet Ponds

We will start with wet basins or ponds. Wet ponds are constructed basins that have a permanent pool of water throughout the year or at least during the wet weather season. These ponds remove pollutants and nutrients by methods of settling in the pond's sediment layer and biological removal through aquatic plantings within the pond. These ponds are widely used throughout the nation except for arid climates due to their inability to maintain a permanent pool of water to treat pollutants.

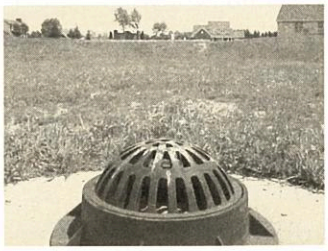
Besides improving water quality, wet ponds are designed for flood control in communities and designed to reduce the velocity of storm water to protect downstream channels. Wet ponds are not recommended to be used if they are connected to a cold water trout stream because of the potential for thermal pollution. According to the United States Environmental Protection Agency (US EPA), a study in Maryland found that a wet extended detention pond's temperature varied nine degrees from the inlet (source for incoming storm water) to the outlet (where treated storm water exits).

In order for wet ponds to work, they must be designed to have a constant volume of water. Wet ponds can be designed to achieve this by intersecting with the groundwater table unless it is receiving heavily polluted storm water runoff from an industrial site or a similar site. A clay soil blanket may also be used to promote ponding of storm water if the soil is highly permeable.

The two most common types of wet ponds are retention ponds and wet extended detention ponds. Retention ponds are designed to retain or hold the water in that particular basin. There are no outlets leading away from the basin. The wet extended detention pond stores storm water for a limited time above the permanent pool of water thus promoting settling to treat pollutants and then discharging the treated storm water to an outlet.

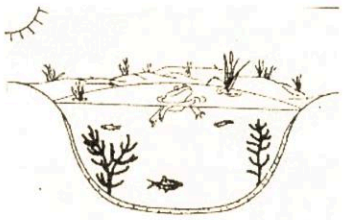
Dry Ponds

Dry extended detention ponds are designed to detain storm water runoff for a minimum of twenty-four hours to allow particles and pollutants to settle out on the basin's floor. They are also helpful in assisting to provide flood control for communities to prevent downstream channel erosion from storm water velocities. Unlike wet ponds, dry extended detention ponds are the most widely applicable form of storm water management throughout most areas of the nation.



If these ponds are connected to a cold water trout stream the US EPA recommends that the design of the dry basin should allow for a short storm water detention time of less than twelve hours reducing any threat of thermal pollution to the stream. The same study in Maryland found that dry extended detention ponds have the ability to raise the temperature of a cold water trout stream by about five degrees.

Unlike wet ponds, the bottom of a dry extended detention pond should not intersect the ground water table. This will create the potential for a mosquito breeding area. According to the US EPA, research in Southwest Florida found that dry extended detention ponds produced more mosquitoes than other pond systems especially when they retained water for three days or longer following a significant rain event. Wet ponds have a great pond ecosystem (like frogs, fish, and other aquatic



organisms) to deal with mosquito populations because they have a constant water level to support that type of an aquatic environment.

Dry ponds are not designed to support that type of an ecosystem; however, if they are designed properly they will not harbor breeding grounds for mosquitoes.

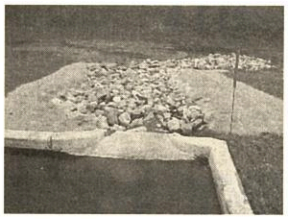
Some similarities of dry and wet ponds include five basic design categories: pretreatment, treatment, conveyance, maintenance reduction, and landscaping.

Pretreatment

In both types of ponds, a forebay is often added to help settle out coarse sediment before it ends up in the larger containment area. A forebay is a small pool, typically about ten percent of the volume of the entire basin, located at the inlet or outfall area entering the pond. Forebays will help in reducing long term maintenance of dredging ponds down the road.

Treatment

Treatment techniques of pollutants in wet and dry ponds include increased retention times in both types of ponds. Wet ponds can achieve that by increasing their volumes and by creating underwater berms to channel the storm water through a longer, meandering route rather than a straight shot to an outlet. Both wet and dry ponds can benefit from greater pollutant removal by increasing a pond's length-to-width ratio at least 1.5:1.0. According to the US EPA, the pollutant removal rates in wet ponds for the following pollutants include: total suspended solids 67%), total phosphorus (48%), total nitrogen (31%), nitrate nitrogen (24%), metals (24% to 73%), and bacteria (65%). Dry pond removal rates (for the following pollutants include: total suspended solids (61%), total phosphorus (19%), total nitrogen (31%), nitrate nitrogen (9%), and metals (26% to 54%).



Conveyance

Both dry and wet ponds should have the ability to convey storm water away safely without the threat of erosion. Outfalls that enter into a pond should have a rip rap pad underneath them to prevent scouring of the basin floor. Also emergency spillways for large, flooding storm events should be installed in each type of pond. In addition, dry ponds need a pilot channel to direct low storm water flows through the basin floor to an outlet.

Maintenance Reduction

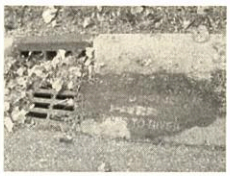
Both wet and dry ponds have maintenance measures built into their design. They both share similarities like forebays (mentioned earlier) to catch coarse sediment and outlet risers with grates to prevent trash and vegetative debris from clogging pipes.

Landscaping

The landscaping design for a wet pond should include a vegetated buffer around the pond to prevent erosion and provide a form of pollutant removal before the storm water runoff from overland flow reaches the pond. An aquatic bench or shelf should be created around the pond for wetland plants to filter any pollutants that will enter the pond's ecosystem, to protect the pond's shoreline from erosion and to add aesthetic values to neighboring properties. Dry ponds will require a vegetated buffer around the entire basin, especially the side slopes.

These side slopes should have a smooth contour. Planting a type of vegetation that can withstand dry and wet conditions is essential when designing a dry pond.

Now that you know more about storm water basins, you can now locate them in your neighborhood. Pay close attention to storm drains that feed into them or other bodies of water. Set good examples in your neighborhood by promoting good practices when performing outdoor activities. When gardening and landscaping, do not use fertilizer, pesticides or herbicides close to basins or storm drains. Never place brush and lawn clippings into basins. Place them in a compost pile or utilize your community's lawn and garden recycling program. Never stockpile dirt or mulch on pavement or sidewalks. Wash your car on the lawn instead of the driveway. Never pour automobile fluids down into storm drains. Use your community's recycle program. For more helpful information and tips go to www.epa.gov/nps.



St. Joseph County Soil and Water
Conservation District
5605 U.S. 31 South, Suite 4
South Bend, IN 46614

St. Joseph County Soil And Water

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MISSION

To provide guidance and education to the youth and adults of St. Joseph County and to administer programs to preserve, protect and improve soil, water, air, plant, and animal resources for future generations.

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