

Watershed Update



Clark County Soil and Water Conservation District

Partners helping to make our project happen:

- > Clark/Jefferson/Scott County Health Departments
- > Jefferson and Scott County SWCDs
- > IDNR Division of Nature Preserves
- > Chicks on the Farm
- > Indiana State Department of Agriculture
- > Natural Resources Conservation Service

Water Quality and Animals

Americans have a love affair with animals. It seems the more we have the more we want. Whether a person has



one animal or operates a large livestock facility, all owners play an important role in assuring that our watershed is healthy and our creeks are clean.

All human activities including livestock keep-

ing, can potentially affect both land and water resources. Water resources include small seasonal drainages, creeks, ponds, and both near-surface and deep ground water. As rainwater flows across the land, it can pick up and transport pol-

lutants such as chemicals, and soil and animal wastes, which can be deposited into our water resources.

Degradation of water resources can affect our drinking water supplies, recreational areas and wildlife habitat, as well as cause flooding and property damage. What may appear to be a small action at the top of a watershed, can in fact have tremendous consequences for downstream neighbors.

We are all aware that development is slowly creeping its way up through the Fourteen Mile/Goose Creek watersheds. As it does so, the landscape is being transitioned and the face of agriculture is being transformed. As our neighbors move closer and closer, it will become more important for livestock owners to become stewards of the environment. Stewardship means taking care of land and water resources on your property. Three basic stewardship

objectives for livestock owners to remember are:

1. Control erosion—keep soil in place.
2. Keep “clean water” clean.
3. Manage “polluted water”.

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Stewardship Objective #1—Control Erosion—Keep Soil in Place

When soil is bare and unprotected from the forces of rainfall, flowing water, wind and gravity, erosion occurs. Although some sediment is needed to bring nutrients and substrate materials to aquatic eco-systems, excessive sediment causes problems and is considered a pollutant. The number one water pollutant in Indiana is sediment. Vegetation, geology, soil characteristics, steepness and length of slope, rainfall, and human activities contribute in varying degrees to the erosion rate at each site. Severe erosion can form gullies, destabi-

lize creek banks, and damage roads. Excess sediment fills in pools, eliminates shelter and fish spawning habitat, diminishes food supplies for fish and aquatic insects, reduces the amount of sunlight reaching aquatic plants, increases water temperature, and can clog fish gills. Accelerated erosion can also pollute drinking water supplies when herbicides, pesticides, chemicals and organic compounds bind to sediment. Although some erosion occurs naturally, humans can cause accelerated erosion by altering natural processes with livestock practices.

A healthy watershed will maintain:

- High water quality
- Provide fish and wildlife habitat
- Control erosion
- Maintain dry season creek flows
- Reduce flash flooding
- Provide safe drinking water from wells
- Thriving riparian corridor
- Stable well vegetated land

A manure pile from a dairy cow covers less than 1 square foot and a urine spot covers 4 to 7 square feet

Stewardship Objective #2—Keep “Clean” Water Clean

Rain water flowing across the land is called stormwater runoff and is often considered “clean” water. It is important to keep this “clean” water clean by diverting it away from areas that can be a source of pollutants. Keeping water “clean” is easier than managing and treating it once it becomes “polluted” with manure, sediment, or chemicals.

Keeping stormwater runoff away from areas with pollu-

tants also promotes animal health. Reducing the amount of manure and mud will help eliminate insect and worm breeding grounds, reduce bacteria and fungi that cause disease and hoof problems, and improve footing. It will also reduce the amount of energy that animals spend trying to keep warm while standing in mud. Managing mud and manure can make tending animals more pleasant, as well as im-



prove aesthetics for a facility, neighborhoods, and communities.

Stewardship Objective #3—Manage “Polluted” Water

Stormwater becomes polluted if it picks up physical, chemical, or biological elements as it flows. Polluted water must be managed to prevent it from reaching creeks and/or to minimize leaching (moving downward into soil) into ground water. It is easier to minimize the amount of polluted water generated, rather than treat or dispose of it.

Manure and urine can add ex-

cessive nitrogen and phosphorus to creeks. Those nutrients can enhance algae blooms. The algae’s subsequent death and decay can consume much of the water’s oxygen that is necessary for fish to breathe. High concentrations of ammonia from animal waste is toxic to fish and other aquatic life. Salts from animal waste can change the variety of insects that a stream can support.

During the rainy season, salts and nutrients in manure can leach through soils into ground water. Pathogens in livestock waste may produce fecal coliform contamination levels that may potentially impact drinking water. Manage any polluted water generated by your facility so it does not impact downstream neighbors.

Basic Ways to Prevent Erosion

- ◆ **Keep areas well vegetated.** Vegetation helps dissipate the force of rainwater hitting the ground, which detaches soil particles. Plant roots hold soil in place and help water infiltrate into the ground rather than run off.
- ◆ **Avoid concentrating water.** Concentrated runoff can be highly erosive. Try to disperse runoff by spreading it out in a thin, shallow “sheet”. Any impermeable surface sheds water quickly increasing the amount and velocity of runoff.
- ◆ **Control animal access and human activities in vulnerable areas.** Limit access, especially during wet periods, to wetlands, creek banks, and steep hillsides.
- ◆ **Manage pastures to prevent heavy grazing.** Avoid soil compaction and excessive removal of vegetation by timing the use of pastures and controlling livestock numbers. Rotate pastures to allow them to rest from grazing, which gives grasses time to regrow and mature so they will reseed.
- ◆ **Use filter strips and riparian buffers.** Maintain a strip of dense grass downslope of bare areas to help trap sediment. Riparian buffers provide valuable wildlife habitat, and should contain a variety of plants.
- ◆ **Use proper construction techniques.** During construction, install and maintain proper erosion control practices. Avoid soil disturbing activities just before and during the rainy season.

Basic Ways to Keep “Clean” Water Clean

- ◆ **Divert “clean” water** around areas with pollutants. Use berms, grassed waterways, underground pipelines, or other methods. Consider where water will be diverted to, and make sure you do not cause new problems.
- ◆ **Locate** buildings and confinement areas away from creeks, steep slopes, and floodplains.
- ◆ **Minimize disturbance** to wetlands, riparian areas and meadows.
- ◆ **Limit impacts** of grading, runoff from roofs and other impermeable surfaces.
- ◆ **Maintain vegetation** and replant bare areas.
- ◆ **Control potential runoff from water troughs.** Water tanks are an extremely valuable management tool when discussing pasture management but can also cause some problems. A study in 1992 by Miner, Buckhouse, and Moore found that the presence of a watering tank reduced the time that livestock spent drinking or loafing in the stream by more than 90%. A logical conclusion is a corresponding decrease in direct deposition of manure into the stream.



Keeping animals out of the water is the best way to improve water quality and prevent streambank erosion

Basic Ways to Manage “Polluted” Water

- ◆ Keep the size of **intensively used areas** small to help reduce the volume of polluted water.
- ◆ **Manage manure.** Remove manure regularly—daily is best. Cover stored manure with a roof, tarp or other cover, direct runoff away from the manure storage area.
- ◆ **Use filter strips** to trap sediment and manure that washes off high-use and manure storage areas.
- ◆ **Maintain soil moisture** during the dry season in confined or heavy use areas. For the natural breakdown of urea to occur the soil must be moist. If areas are maintained as absolutely dry, the natural process is discouraged.
- ◆ **Consider the use of a waste pond.** A waste pond collects runoff of polluted water and gives control over the scheduling and timing of waste distribution over the land. Adequate storage gives flexibility to schedule manure application when spreading operations do not interfere with other necessary tasks, when weather and field conditions are suitable, and when pasture or crops can best use the nutrients in the waste.



Plan—Plan—Plan

Now that you are aware of the three stewardship elements, you need to develop a plan that will help you obtain those goals. Planning is important whether you have one animal or a large operation. Developing and implementing a plan will enhance your aesthetics, reduce expenses related to the

control of drainage and erosion, protect property and land values, and keep the facility safe for both people and livestock.

A plan should include: a written and pictorial description of the features of the facility (an inventory of developed and natural features

shown on an aerial photograph or scale drawing); an evaluation of problem areas and opportunities; a schedule of operation and activities needed to solve identified problems; and maintenance and monitoring activities. Plans demonstrate awareness and commitment to conservation and good land stewardship.

Clark County Soil and
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For additional information or details on the Fourteen Mile Creek/Goose Creek Watersheds Improvement Project, contact Chelsea Tooley, Watershed Coordinator, at

14mile.watershed.outreach@gmail.com

Breakfast Offered to Watershed Landowners

The Soil and Water Conservation Districts (SWCDs) of Clark, Jefferson, and Scott Counties are looking for concerned citizens in the Fourteen Mile Creek/Goose Creek watersheds to provide input into the development of a watershed management plan that will help them protect and improve the water quality in these watersheds. A public meeting will be held December 4, 2014, at the Clark County 4H Fairgrounds, Community Building, 9608 Hwy. 62, Charlestown, IN for this purpose.

Come hungry! Doors will open at 7:30 a.m. so that you may enjoy a hot breakfast before the meeting begins. We anticipate the meeting lasting approximately one hour.

The only thing we ask you bring to the meeting are your concerns, or

information, you may have in regards to the water quality in these watersheds. The plan developed for the Fourteen Mile Creek/Goose Creek watersheds will focus on



combating **non-point source pollution**. This type of pollution is so named because a single source (such as an industrial discharge pipe) cannot be pinpointed as a

pollutant. Non-point source pollutants are in the water that runs off crop or forest land, parking lots, construction sites, irrigation systems, and drainage systems; failing septic systems also contribute.

After attending the meeting, if you would like to volunteer to serve on the Steering Committee for the planning process, we'd love to have you! If not, we are planning another public meeting for late next year in order to give landowners the opportunity to review the draft plan, and provide comments, before a final plan is submitted.

If you have questions about this meeting, the planning process itself, or you would like to RSVP, please contact the Clark County SWCD at 812.256.2330, ext. 3. Please RSVP by Tuesday, December 2, 2014, so that we can have plenty of breakfast prepared for everyone!

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