## WHERE CAN I GO FOR MORE INFORMATION?

### Backyard Wildlife Habitat

*National Wildlife Federation Backyard Wildlife Habitat Program*
**http://www.nwf.org/habitats**

*USDA Natural Resources Conservation Service, Backyard Conservation Program*
**http://www.nrcs.usda.gov**

### Composting

*Local Extension Office: listed in your phone book under local government, or, in Ohio,*
**http://ohioline.ag.ohio-state.edu**

*Ohio Department of Natural Resources*
**http://dnr.state.oh.us and navigate to "Soil and Water"**

*USDA Natural Resources Conservation Service, Backyard Conservation Program*
**http://www.nrcs.usda.gov**

### Erosion

*Local Soil and Water Conservation District: listed in your phone book under local government, or,*
**http://dnr.state.oh.us and navigate to "SWCD's of Ohio"**

### Lawn Care

*Local Extension Office: listed in your phone book under local government, or,*
**http://ohioline.ag.ohio-state.edu**

*USDA Natural Resources Conservation Service, Backyard Conservation Program*
**http://www.nrcs.usda.gov**

### Native Plants

*U.S. Environmental Protection Agency*
**http://www.epa.gov/greenacres**

### Stream Bank Planting

*Local Soil and Water Conservation District: listed in your phone book under local government, or,*
**http://dnr.state.oh.us and navigate to "SWCD's of Ohio"**

### Stream Dynamics

*Stream Corridor Restoration: Principles, Processes and Practices*
**http://www.usda.gov/stream_restoration/**

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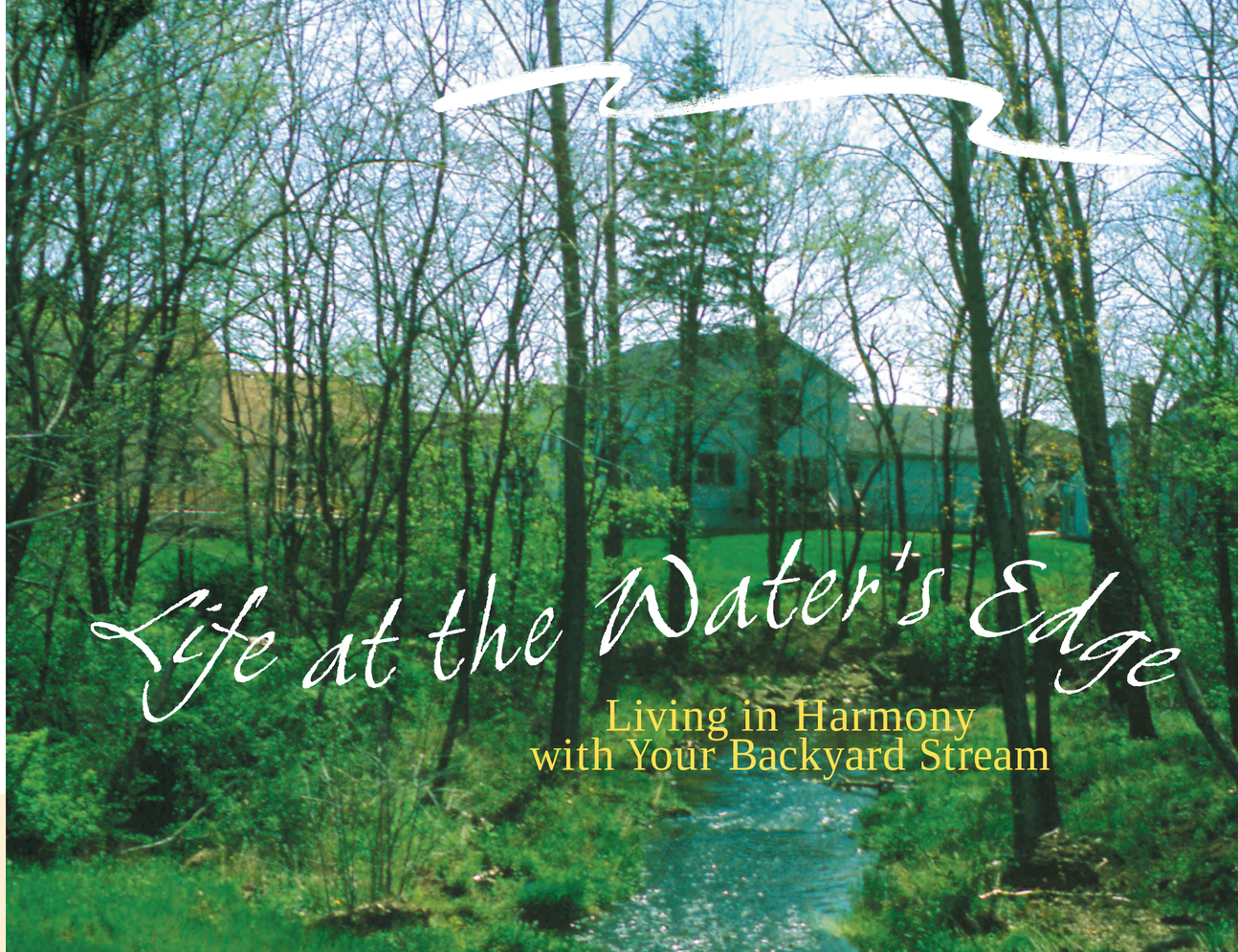


# Life at the Water's Edge

## Living in Harmony with Your Backyard Stream

# INTRODUCTION

CUYAHOGA RIVER REMEDIAL ACTION PLAN

True to its nature, a stream begins long before your property line and flows far beyond it. What happens before that stream reaches your yard, has an effect on:

- The condition of the stream on your property
- The health and value of the property itself
- The well-being and safety of you and your family

Now, it's time to think *beyond*. Because what you DO or DON'T do on your part of the stream affects you and those who live *downstream from you*. So you already have a vital role in your community's overall value and liveliness. One way or another, *we all live downstream.*

*Streams are part of our rich natural legacy. That's why it's our responsibility to protect, improve, and preserve them, for generations*

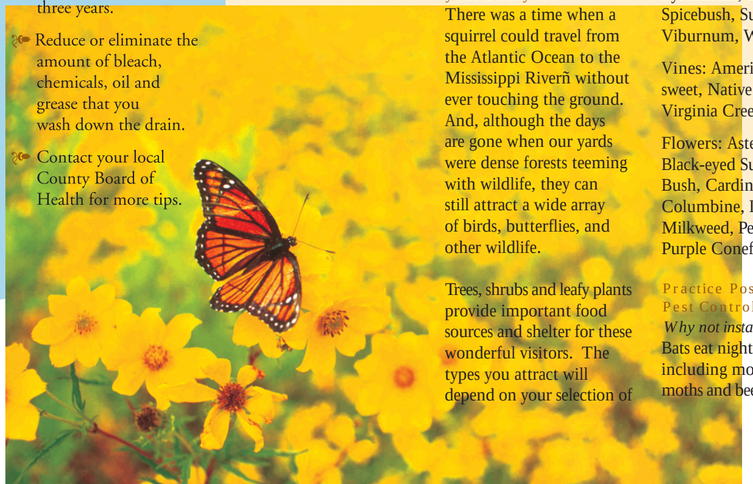
# 6 *Do* Keep Septic Systems in Good Condition

***Problem:***

Any part of your "plumbing system" can become damaged or simply wear out over time. And any plumbing that's not working properly is a source of pollution.

***Simple Solutions:***

- Have your septic system pumped every three years.
- Reduce or eliminate the amount of bleach, chemicals, oil and grease that you wash down the drain.
- Contact your local County Board of Health for more tips.



# OTHER SUGGESTIONS FOR GOOD STREAM STEWARDSHIP

### Consider Improving Wildlife Habitat in your Backyard

There was a time when a squirrel could travel from the Atlantic Ocean to the Mississippi Riverñ without ever touching the ground. And, although the days are gone when our yards were dense forests teeming with wildlife, they can still attract a wide array of birds, butterflies, and other wildlife.

Trees, shrubs and leafy plants provide important food sources and shelter for these wonderful visitors. The types you attract will depend on your selection of vegetation. The best combination is a variety of plants (preferably native species) that flower and bear fruit at various times throughout the year. Some suggestions include:

Trees: Apple, Black Cherry, Crabapple, Hawthorn, Hickory, Oak, Balsam Fir, Eastern White Pine

Shrubs: Dogwood, Holly, Pyracantha, Serviceberry, Spicebush, Sumac, Viburnum, Willow

Vines: American Bitter-sweet, Native Honeysuckle, Virginia Creeper

Flowers: Aster, Bee Balm, Black-eyed Susan, Butterfly Bush, Cardinal Flower, Columbine, Lupine, Milkweed, Perennial Phlox, Purple Coneflower

### Practice Positive Pest Control

*Why not install a bat house?* Bats eat night-flying insects, including mosquitoes, moths and beetles. One little brown bat can eat more than 600 mosquitoes in an hour!

*Get a toad or two!* Toads are also great insect-eaters. To attract them, just place a flowerpot upside down, with one corner propped up so they can get underneath!

### Look for Volunteer Opportunities

There are many organizations and opportunities for getting involved in environmentally positive activities. Many of them are perfect for the whole family!

# 4 *Do* Help Nature by Removing Trash from Streams!

CUYAHOGA SOIL & WATER CONSERVATION DISTRICT
NATURAL RESOURCES CONSERVATION SERVICE

***Problem:***
Trash is unsightly... unsanitary...and unsafe for you, your family, and wildlife!

***Simple Solutions:***

- Educate all family members to refrain from littering.
- Regularly remove old tires and other garbage from the water and streambanks. Make sure you wear strong footgear and gloves to prevent cuts and injuries!

# 5 *Donít* Change the Path of Your Stream!

***Problem:***
Although it may be tempting to "rearrange" what nature designed, it's simply not a good idea. When you remove rocks or gravel from your stream, you're destroying the homes of the fish and animals that live there!

Even purposefully using concrete or rocks to build artificial walls to "shore up" the banks or change the direction of the water flow...leads to PROBLEMS, NOT SOLUTIONS. If not designed and installed properly, these structures not only damage the land and waterway...they can be DANGEROUS for you and your family!

Haphazardly dumping concrete and rocks in your stream ACCELERATES STREAMBANK EROSION! And you've already seen where THAT can lead...

***Simple Solutions:***

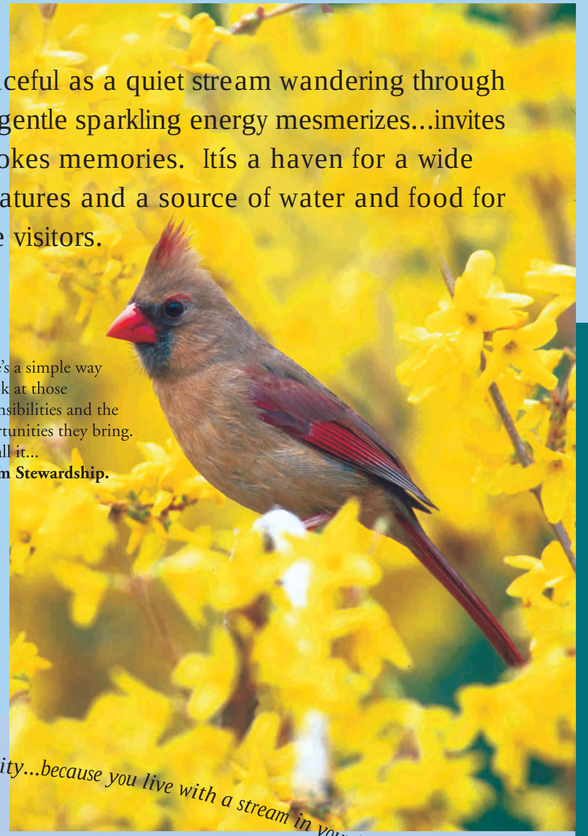
- Let nature take its course, AND/OR
- Consult your local community engineer or your local Soil and Water Conservation District BEFORE you decide to rearrange the landscape!

OHIO DEPARTMENT OF NATURAL RESOURCES,
DIVISION OF SOIL & WATER CONSERVATION

*The health of our waters is the principal measure of how we live on the land.*
*ñLuna Leopold*

CUYAHOGA SOIL & WATER CONSERVATION DISTRICT

Few things are as peaceful as a quiet stream wandering through woods and fields. Its gentle sparkling energy mesmerizes...invites exploration...and invokes memories. Itís a haven for a wide variety of aquatic creatures and a source of water and food for a multitude of wildlife visitors.



And when you learn how easy it is to fulfill that role, you get something in return:

Opportunities to:

- Increase your land value
- Reduce erosion along your stream
- Improve beneficial wildlife habitat on your property
- Make a difference

There's a simple way to look at those responsibilities and the opportunities they bring. We call it...
**Stream Stewardship.**

*to come. And you have a special responsibility...because you live with a stream in your backyard.*

The purpose of this brochure is to provide you with simple, inexpensive techniques that can make your Stream Stewardship a reality in areas including:

- Lawn Care
- Protecting Water Quality
- Streambank Maintenance and Improvement
- Improving Beneficial Wildlife Habitat
- Pest Control

# STREAM STEWARDSHIP

JOSEPH C. HAMMOND

## What is Stream Stewardship?

Just like a shop steward is responsible for managing a facilityís tools, materials, and processes... or an airline steward is responsible for the safety and comfort of the passengers,

*Stream Stewardship is the idea that each and every one of us is responsible for the sensible use of streams that flow through our properties.*

This shared responsibility includes understanding:

- How streams work and evolve
- Potential threats that can affect the health of a stream
- Personal actions that can reduce or eliminate those threats

**How big will they get?** *Shrubs like these will have trunks 1.5-2 inches in diameter, and will reach a height of 6-18 feet.*

**What do they need to stay healthy?**
*Ample light and moisture.*

**When do I plant them?**
*In our area, the best time to plant dormant, unrooted cuttings is either in late fall or early spring.*

**How do I plant them?**
*1. Create pilot holes on the streambank using rebar and a fence post driver. Spacing should be 6 to 12 inches apart. The depth of the pilot hole will depend on the length of the cuttings. Allow 6 inches of the cutting to remain above the ground.*

*2. Insert a cutting into the pilot hole, backfill, and pack the soil tightly. Always insert the cutting with buds pointing up toward the sky!*

*3. Water as necessary.*

**Where do I plant them?**
*These plants will generally grow no higher than 3 to 4 feet above the normal water elevation during the summer months. Also, avoid planting tham in the active stream channel where they'll be washed away.*

APPALACHIAN ENVIRONMENTAL

Buttonbush

CUYAHOGA SOIL & WATER CONSERVATION DISTRICT
NATURAL RESOURCES CONSERVATION SERVICE

## 3 Donít Dump!

***Problem:***
Few, if any, property owners think it's acceptable to dump tires, machine parts, plastics, and other unnatural trash into our waterways. But many still believe it's OK to deposit "organic" material like leaves and grass, onto a streambank or into the stream itself.

Well, when it comes to stream dumping, even organic doesn't "cut it."

Yard waste (grass, leaves, pet droppings, etc.) is the 2nd largest type of all discarded trash. When these materials are put into the stream cycle, they begin to decompose and eliminate critical, life-giving oxygen in the water. As a result, these streams become unsightly and emit a foul odor.

***Simple Solutions:***
With more than 30 million acres of lawn in the United States, stream-smart lawn maintenance DOES make a difference!

- **Not Composting? Learn!**
  It's nature's way of turning leaves, grass clippings and vegetable scraps into a soil conditioner. It's easy and can be a relatively quick process. Just remember, don't compost near your stream.

- **Mowing? "Cut it high and let it lie."**
  Grass is its own best natural fertilizer. Comprised of 90% water, clippings break down quickly.
- **Fertilizing? Do it sensibly!**
  Fertilizing directions are there for a reason. Many people use too much fertilizer. When it rains, the excess runs off the lawn and pavement, into storm drains, and into the waterways. Once there, fertilizers pollute the water by encouraging too much algae growth. When the algae dies, the oxygen levels decrease too much for fish and insect populations to be supported. Remember, *sweep any excess fertilizers off the pavement.*

# 2 *Do* Plant Cuttings in Your Buffer Zones!

***Problem:***
Streambanks with little woody vegetation in the Buffer Zone are not as effective in the erosion battle.

***Simple Solution:***
One of the easiest and most inexpensive methods of stabilizing streambanks is the use of live, but **dormant, unrooted cuttings** (no buds, leaves, or visible roots). The following shrub species develop a dense, fibrous root system to help hold soil in place:

NATURAL RESOURCES CONSERVATION SERVICE

Dwarf Willow

IOWA CONSERVATION SEEDS

Purpleosier Willow

| Common Name | Scientific Name |
|---|---|
| "Ruby" Redosier Dogwood | *Cornus stolonifera* |
| Grey Stem Dogwood | *Cornus racemosa* |
| Silky Dogwood | *Cornus amomum* |
| Green Twig/ Round-leaved Dogwood | *Cornus rugosa* |
| Sandbar Willow | *Salix interior* |
| "Bankers" Dwarf Willow | *Salix x cottetii* |
| "Streamco" Purpleosier Willow | *Salix purpurea* |
| Buttonbush | *Cephalanthus occidentalis* |

OREGON STATE UNIVERSITY, DEPT OF HORTICULTURE

Grey Dogwood

CUYAHOGA RIVER REMEDIAL ACTION PLAN

***Frequently Asked Questions:***

**What do these shrub cuttings look like?**
*Dormant shrub cuttings like these are usually between 1-3 feet in length and about 1/2-inch in diameter.*

**How much do they cost?**
*Cuttings can cost as little as 15 cents each!*

**Where do I get them?**
*Many of these shrubs are available through mail-order suppliers and local Soil and Water Conservation Districts. Search the web using keywords "bioengineering" or "willows".*

CUYAHOGA SOIL & WATER CONSERVATION DISTRICT

**Who's Responsible for What?**
Every stream has two components:

- The water flowing in it
- The land beneath and around it

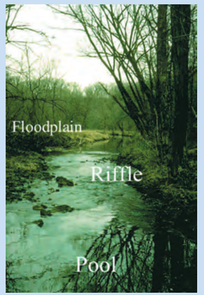
Private individuals own the land that forms the stream channel on their property. However, because it is legally considered a "public good," the water in the stream is owned by the State. This means property owners like you can use the water–*but not in ways that infringe on the rights of others!*

What many property owners may not realize is that using that water properly, also depends on what they do with their land. If, for example, you decide to remove large natural materials like boulders, build artificial streambanks, or fill in a ravine or depression, your land alterations can negatively affect:

- How the stream-water flows
- What the water contains
- Whether its inhabitants are healthy, or can even exist
- The value of the very property you've tried to protect and improve

## HOW STREAMS WORK

Streams are "dynamic systems," which means they're constantly changing over time. In our area, many of the streams are comprised of alternately spaced, deep and shallow areas called pools and riffles.




STREAM CORRIDOR RESTORATION: PRINCIPLES, PROCESSES, AND PRACTICES, 10/98, BY THE FEDERAL INTERAGENCY STREAM RESTORATION WORKING GROUP

**Pools** are deep areas that contain fine materials such as sand, the perfect home for big fish. **Riffles** are shallow areas with larger materials like cobbles and boulders; ideal spawning grounds for many fish.

**Floodplains** are another important component of streams. Floodplains include land along the stream channel, periodically covered by water. These areas are essential for:

- Containing excess storm water
- Reducing stream-bank erosion
- Reducing the amount of sediment, bacteria, and nutrients in storm water

**What's "In" for a "Healthy" Stream?**

- A meandering, winding, "S"-shaped curve across the land
- Open access to floodplains
- Vegetated "Buffer Zone" along the streambanks

STREAM CORRIDOR RESTORATION: PRINCIPLES, PROCESSES, AND PRACTICES, 10/98, BY THE FEDERAL INTERAGENCY STREAM RESTORATION WORKING GROUP

**What Happens When a Stream UN-Meanders?**

When we eliminate these natural meanders in streams, and attempt to "nail" the stream into a straight line, the effects are dramatic. These "channelized" streams are bad news because:

- Energy is trapped within the stream channel and streambank erosion increases.
- Streams can no longer access their floodplain and downstream neighbors are at a greater risk of flooding.

**How Does Maintaining or Improving My Stream Increase Property Value?**

In studies comparing the values of residential properties that have channelized streams with those having more naturalized streams, findings confirmed that:

- The appraisal value of houses with natural streams can be 3 times HIGHER than those with channelized streams.
- The closer a property is to a natural area, the higher its value.
- 60% of suburban residents enjoy wildlife viewing and, are *willing to pay a higher price* for properties that are attractive to wildlife!

## SIX SIMPLE STREAM SOLUTIONS

So letís look at how the ìSimple Sixî of DOs and DONíTs can make all the difference...

There are simple, inexpensive ways to **preserve,** or **improve,** your stream's health!

*ìWe all live downstream.î -Anonymous*

DIAMOND C. HEROT

1. *Don't* mow to the edge of the stream-bank (e.g., into the stream's Buffer Zone)!
2. *Do* plant woody shrubs in your Buffer Zone for more anti-erosion power!
3. *Don't* dump anything in the stream!
4. *Do* help nature by removing trash from streams!
5. *Don't* change the course of your stream!
6. *Do* keep septic systems in good working order!

## 1 *Donít* Mow in the Buffer Zone!

*A stream's Buffer Zone (also called the Riparian Buffer Area) is the strip of natural vegetation along the banks that separates the body of water from developed areas (lawns, buildings, driveways, etc.).*

OHIO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF SOIL & WATER CONSERVATION

***Problem:***

Mowing right to the stream edge may look nice and neat...but it's ACTUALLY creating a disaster, faster! If you eliminate a Buffer Zone's natural plants and bushes, you also lose the root systems that hold the soil in place. The result... the banks erode faster...they de-stabilize...they crumble and cave-in.

*And you'll soon be living with this! Just think of all that valuable land just washing away...*

CUYAHOGA SOIL & WATER CONSERVATION DISTRICT

***Simple Solutions:***

- Keep your stream's Buffer Zones "mower-free"
- If your Buffer Zones are healthy... MAINTAIN THEM!
- If your Buffer Zones are degrading... IMPROVE THEM!

For existing urban backyards, a 10-foot Buffer Zone is essential.

For mid-sized streams in larger backyards, a 25-foot Buffer Zone is recommended.

For very large streams, a 150-foot Buffer Zone is not only ideal, it's *smart*!

**What Healthy Buffer Zones Do:**

- Stabilize stream banks
- Reduce erosion
- Provide wildlife habitat
- Increase beauty
- Reduce sediment and chemicals from rainwater runoff
- Provide shade to keep stream-water at cooler temperatures for healthy plants and animals and less algae growth