Watershed Best Management Practices

PONDS



www.beaverwatershedalliance.org

FACT SHEET



Everyone enjoys the beauty ponds add to a landscape. While ponds are often constructed as a water source for livestock or to provide recreational opportunities, they offer many additional benefits.

They provide food, cover, and nesting habitat for wildlife. Ponds can store water for use during dry conditions and even help reduce erosion and improve watershed health.

PRACTICAL POND RESEARCH



Research conducted by Dr. Thad Scott, Baylor University, and Dr. Brian Haggard, University of Arkansas, shows how farm ponds could act as stormwater management catch basins. Typically, farm pond systems only have emergency outlets that overflow during heavy rains resulting in increased peak flow and sedimentation rates downstream. Adding a perforated outlet to these ponds allows water to be slowly released. By decreasing the peak flow of rain events and capturing sediment and nutrients, downstream areas will see less erosion and improved water quality.

<u>COMMON POND PROBLEMS</u>

Many common pond problems are part of the natural aging process. You can prolong the life of your pond with proper planning and management.



LEAKY PONDS

The nature of our rocky soil and karst topography makes it difficult for ponds to seal properly. Site selection is key to building a pond that holds an adequate amount of water. By choosing the proper pond location, you will reduce the expense of maintaining your pond later on.

Compaction is the least expensive method for sealing a pond, however it is limited to the soil conditions and pond depth. Blanketing the pond bottom with clay may be another option in areas that simply lack enough clay in the soil. Bentonite is the most expensive option and can be hit or miss unless you know exactly where the leak is. A combination of these options is the most likely to be successful.



EROSION

The vegetative cover of the land that drains to a pond greatly affects the quality and quantity of water flowing into the pond. Healthy forests and grasslands provide the cleanest water source. Improper dirt road construction, increased development, overgrazing, and clear-cutting forests all increase erosion, and all that excess sediment will end up in your pond, shortening its lifespan.

Placing large rocks at inlets and outlets that carry large amounts of water can protect the bank and spillway. Creating a no-mow zone around the pond and planting native plants along the shoreline (see plant list on next page) will help slow down the incoming water and give it time to soak in.



ALGAE & AQUATIC PLANTS

Although algae & aquatic plants are essential to a healthy pond ecosystem, an overabundance can cause decreased water quality. The key to reducing problem algae and problem floating weeds, such as watermeal and duckweed, over the long term is to reduce the quantity of nutrients (phosphorus and nitrogen) that enter the pond.

By establishing a no-mow zone and vegetative buffer around the pond, runoff has a chance to soak in and be filtered before reaching the pond. Be sure you only fertilize when necessary to avoid adding excess nutrients.



LIVESTOCK

When livestock have access to the entire pond, the result is warmer water temperature, lower water quality for livestock and fish, more algae and aquatic weeds, and muddy water. Giving livestock limited access to the pond or installing alternative watering sources benefits not only water quality of the pond but also health of the livestock.

TIPS FOR A HEALTHY POND

Proper pond management is the key to having a healthy pond ecosystem. Below are things you can do to ensure your pond is productive and enjoyable.



1. LIMIT FERTILIZER & PESTICIDES - Avoid applying up to pond's edge and be sure to carefully follow directions.

2. CLEAR DAM - Keep dam clear of trees because their roots can create leaks in the dam.

3. AQUATIC VEGETATION - Add submerged and floating vegetation.

4. LIVESTOCK ACCESS- Fence livestock out of pond or offer limited access.

5. SEPTIC SYSTEMS - Check septic systems for leaks and to be sure they are working correctly.

6. BANK SLOPE- Grade bank at 3:1 slope to a depth of at least 3-4 feet to help prevent some common aquatic vegetation problems.

7. BUFFER STRIP- Leave a strip of undisturbed grassy vegetation, at least 50 feet wide, around the edge of the pond to help reduce erosion from the bank, filter nutrients, and provide additional wildlife habitat.

8.WILDLIFE HABITAT- Plant trees and shrubs in one area to provide wind protection and wildlife food and habitat.

9. SOIL TEST- To avoid excessive nutrient applications on the watershed. Available for free from University of Arkansas Extension Service.

HEALTHY POND PLANT LIST

FLOATING VEGETATION

- Floating primrose-willow (Ludwigia peplaides)
- Fragrant water-lily (Nymphaea odorata)
- Water-purslane (Ludwigia palustris)
- Water star-grass (Heteranthera dubia)
- Yellow pond-lily (Nuphar advena)

SUBMERGED VEGETATION

- Coontail (Ceratophyllum demersum)
- Western Waterweed (Elodea nuttallii)
- Cut-leaf water-milfoil (*Myriophyllum pinnatum*)
- Small pondweed (Potamogeton pusillius)
- Southern naiad/guppygrass (Najas guadalupensis)

EMERGENT AND RIPARIAN VEGETATION

- American lotus (Nelumbo lutea)
- Arrowhead (Sagittaria calycina/latifolia)
- Blunt spikerush (Eleocharis obtusa)
- Buttonbush (*Cephalanthus occidentalis*)
- Cress-leaf groundsel (Packera glabella)
- Halberd-leaf rose mallow (*Hibiscus laevis*)
- Hop sedge (Carex lupulina)
- Pickerel-weed (Pontederia cordata)
- Scouring-rush (Equisetum hyemale)
- Soft rush (Juncus effusus)
- Soft-stem bulrush (Schoenoplectus tabernaemontani)
- Southern blue-flag iris (Iris virginica)
- Swamp/rose milkweed (Asclepias incarnata)

WATERSHEDS

Northwest Arkansas' Beaver Lake Watershed

Beaver Lake Watershed is a subwatershed of the White River basin, which is a subwatershed of the Mississippi River basin.



The Beaver Lake watershed covers 1,192 square miles and is nestled in the Ozark Highlands of NWA. It covers portions of Benton, Carroll, Crawford, Franklin, Madison and Washington Counties.



A watershed is an area of land that receives rainfall which drains to a river, lake or wetland. You are in a watershed right now!

Land use activities can impacted watershed water quality by altering the hydrologic cycle (how the water moves through the landscape).

Reducing sediment, nutrients and runoff will help to protect and preserve the Beaver Lake Watershed. Contact Beaver Watershed Alliance to learn how you can have a positive impact and protect the watershed.



Beaver Lake is the

drinking water source for

one in seven

Arkansans.

Beaver Watershed Alliance is formed of a diverse stakeholder group representing agricultural, recreation, conservation, water utility, business, and private landowner perspectives who all work together for the benefit of Beaver Lake and its watershed.

To learn more about the Alliance, best management practices for water quality, or how you can become involved in voluntary watershed protection go to www.beaverwatershedalliance.org or contact us by calling 479-750-8007 or emailing info@beaverwatershedalliance.org.