

The Many Faces of a Farm Pond

Farm Ponds Work For Wildlife

Farm ponds have been used to water livestock, raise fish, provide recreation, and prevent soil erosion, but their value to amphibians and other wildlife is often overlooked. Although they are constructed, not natural wetlands, farm ponds provide a wide range of conservation and wildlife habitat values. This poster is intended to alert landowners to the multiple values of small farm ponds and provide useful tips on management for wildlife. Landowners interested in building or maintaining farm ponds should contact their local USDA Service Center.

Farm Ponds Recycle Nutrients and Prevent Erosion

Farm ponds trap nutrients, such as nitrogen and phosphorus, and sediment before they reach rivers, streams, and lakes as pollutants. A vegetated buffer strip of fallow land between the pond and adjacent cropland supports wildlife and helps filter out sediment and nutrients before they reach the pond. Emergent plants growing in ponds also help recycle nitrogen and phosphorus and improve water quality. Also, in hilly areas, farm ponds help prevent gully development.

Farm Ponds Provide Water for Livestock

Landowners often use farm ponds as a water source for livestock. Livestock wading in the pond pollute the water with manure, disturb aquatic vegetation, and break down the banks, sometimes leading to failure of the dike or embankment supporting the pond. Water quality is better and the pond ecosystem healthier if livestock are fenced out of the pond and water from ponds is pumped to a nearby stock tank. Contact your local USDA Service Center for more information.

Farm Ponds Provide Habitat for Wildlife

A chorus of frogs is one of the many pleasures of rural life in the spring and summer. Farm ponds, especially shallow ponds without fish, provide important breeding habitat for amphibians (frogs and salamanders). Unfortunately, ponds managed for fish production do not make good habitat for most amphibian species. Fish eat tadpoles and bullfrogs eat other frogs, so ponds lacking these species provide the best habitat for most amphibians. Farm ponds also provide habitat for other species of wildlife, including deer, fox, raccoons, turkeys, wood ducks, tree swallows, shorebirds, and turtles.



Water Quality

Water quality is an important consideration in farm pond management. Not only is polluted water aesthetically unappealing, it is also detrimental to the pond ecosystem. Low dissolved oxygen, high nitrogen and suspended solids, and chemical contamination limit the diversity of organisms found in a pond. Poor water quality and algae blooms result from an over-abundance of nutrients in the pond. Turbidity increases and sunlight fails to reach submerged plants. This, in turn, negatively affects oxygen levels.

Livestock Grazing

Fencing domestic livestock out of the pond will improve water quality and maintain the integrity of dikes around the pond. Livestock will also be healthier if they are not drinking polluted water. A number of alternatives for watering livestock are available. Livestock can be watered using a well and stock tank located away from the pond. Alternatively, livestock can drink the pond water, pumped to a stock tank adjacent to the pond. Different types of delivery systems include gravity flow, solar/wind/electric pumps, and nose pumps. Contact your local USDA Service Center for more information on pond delivery systems.



Designing and Managing Your Pond

Farm Pond Design

A farm (or stock) pond is a constructed body of water located adjacent to agricultural land. Farm ponds can be permanent bodies of water or ponds that fill seasonally. Two basic designs of farm ponds are embankment and excavated ponds. Embankment ponds are constructed by building a dam or embankment on sloping ground, usually in a ravine or gully. Excavated ponds are constructed by digging a depression on relatively flat land. Farm ponds range from less than 1 to over 50 acres in size and depths can vary from a few inches to over 20 feet. The U.S. Department of Agriculture estimates that each year as many as 50,000 ponds are constructed in the United States. Although farm ponds are usually smaller and less complex than natural wetlands, they provide aquatic habitat in agricultural areas where other wetlands may be scarce.

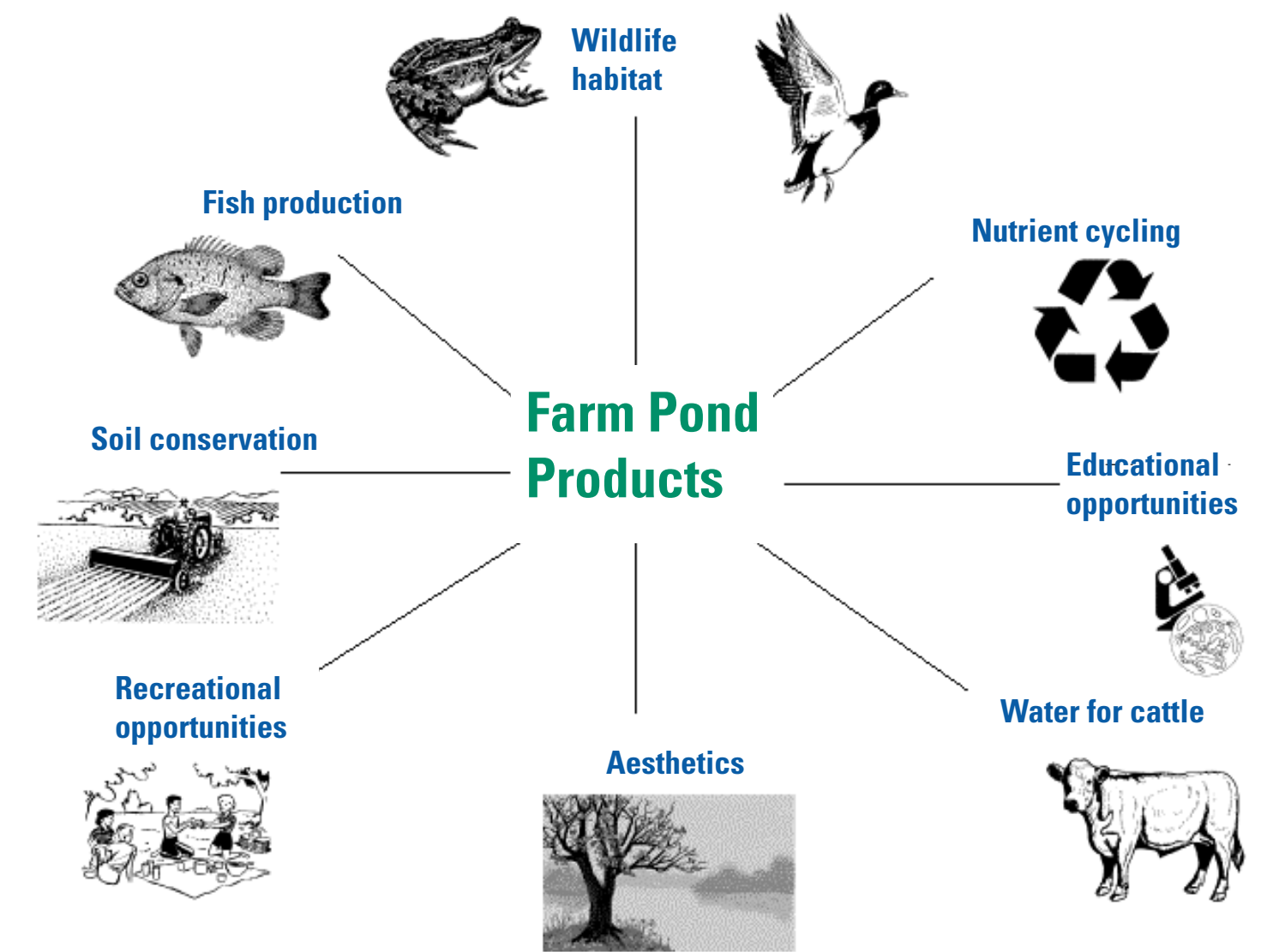
Your local USDA Service Center is available to help you design a pond appropriate for your watershed and meeting your management goals. Avoid construction that will affect natural wetlands or flowing streams, which are protected under state and federal laws. Ponds should have some shallow water providing breeding habitat for amphibians, mudflats for migrating shorebirds, and access to water for many wildlife species. Landowners must make choices about how to vegetate dikes and buffer strips. Native plants are adapted to local conditions, best provide for the needs of native wildlife, and are less likely to be invasive. Maintaining the integrity of dikes or embankments will increase the longevity of the pond. Dikes can be undermined by animal burrows, tree and shrub roots. Trees and shrubs, however, are important wildlife habitats and may be planted in the buffer strip.



Where to Find More Information

Selected Resources:

- Deal, C., J. L. Edwards, N. Pellmann, R. Tuttle, and D. Woodward. 1997. Ponds - Planning, Design, Construction. Agriculture Handbook No. 590. M. Mattinson, L. Glasscock, J. Massey, and W. Pierce, Editors. USDA Natural Resources Conservation Service, Washington DC.
- Kingsbury, B., and J. Gibson, Eds. 2002. Habitat management guidelines for amphibians and reptiles of the Midwest. Partners in Amphibian and Reptile Conservation, Midwest Working Group, Fort Wayne, Indiana. <http://herpcenter.ipfw.edu/outreach/MWHabitatGuide/>
- Partners in Amphibian And Reptile Conservation (PARC). Midwest Working Group, Fort Wayne, Indiana. <http://herpcenter.ipfw.edu/parcmw.htm>
- USDA Natural Resources Conservation Service, University of Wisconsin - Extension, Wisconsin Department of Natural Resources, and Wisconsin Department of Agriculture Trade & Consumer Protection. 1998. Manure Management Choices for Wisconsin Dairy and Beef Cattle Operations. Madison, Wisconsin.
- USDA Wildlife Habitat Management Institute: <http://www.ms.nrcs.usda.gov/whmi/>
- USGS Upper Midwest Environmental Sciences Center: <http://www.umesc.usgs.gov/> (See Farm Pond Project)
- Technical assistance on constructing and maintaining farm ponds is available at your local USDA Service Center. NRCs Web site: <http://www.nrcs.usda.gov/>



Farm ponds produce a variety of ecological products and services including nutrient cycling, soil conservation, water for cattle, fish and wildlife habitat, and educational and recreational opportunities.

Managing Farm Ponds for Biodiversity

- Gently sloping shorelines support more wildlife diversity.
- Plant native grasses and flowers in a wide buffer strip.
- Brush piles, logs, trees, and shrubs in adjacent buffer strips provide habitat for wildlife.
- Keep dikes and embankments clear of woody vegetation and animal burrows.
- Install nest boxes to attract cavity-nesting birds.
- Fence out cattle and don't introduce fish if you want amphibians.
- Install low-cost water pump and use a stock tank to water livestock.

Habitat Requirements

Different animals need different things from a pond. Ponds provide food, cover, and places to raise young for many types of animals.

To attract	The pond should have these physical features	And these biological features
Amphibians	Permanent or temporary water Mud bottom Shallow and deep areas Clean water Low nitrogen	Food: invertebrates Cover: aquatic vegetation and some open water Cover: trees or grasses adjacent to pond Few predators: no fish
Fish	Permanent water Clean water High oxygen Depth: at least six feet	Food: vegetation, small fish, invertebrates, tadpoles Cover: aquatic vegetation
Mammals	Permanent water Clean water	Food: vegetation, fish, invertebrates, small mammals Cover: trees or grasses adjacent to pond
Turtles or Snakes	Sand or mud shoreline	Food: invertebrates, fish, small mammals Cover: rocks, logs Basking: floating logs
Birds	Sand or mud shoreline Cover: nest boxes Open water	Food: invertebrates, fish, amphibians Cover: emergent aquatic vegetation, shoreline vegetation

For more information, contact:

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