

USWCD Recommendations to PONDer...

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Rule 1A: Selecting the Proper Site for a Pond.

The Right Soil Makes The Right Pond

Brent Nickel, Wildlife Specialist
Union Soil and Water Conservation District

Special Note: There are no government cost-share programs available to create ponds in Union County. **Nor** are there any expressed or implied guarantees that a pond will hold water once it is built.

The location of any proposed pond is dependent upon the property's soil types and the unexposed materials that are underlain. Ever wonder why permanent "ponds" and "wetlands" seldom exist along streams and creeks in Union County? These areas are the drainageways in which glacial ice meltwater flowed. Sand and gravel deposits dropped-out along the way to help form the landmass we know today. **Thus, areas on either sides of streams and creeks are often not suited for the establishment of ponds because of these deposits.**

Water seeps through the layers of sand and gravel to the level of the nearby stream, or even lower. This is also known as a "water table".

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Note: REROUTE ALL INTERCEPTED FIELD TILE.

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Union SWCD Recommendations for Proposed Pond Sites

Fundamental Advice that is Free

- ✓ **FOR EVERY 1-ACRE OF POND SURFACE WATER, THERE SHOULD BE AT LEAST 6 ACRES OF CLEAN WATERSHED (UNLESS ONE HAS SUPPLEMENTAL WATER SOURCES SUCH AS BARN, GARAGE, AND/OR HOUSE ROOF DOWNSPOUT DRAINAGE DIVERTED TO THE POND. NO FIELD TILE...PERIOD)**
- ✓ **SEPTIC, CURTAIN DRAIN, OR WATER SOFTENER DRAINAGE - OR ANY QUESTIONABLE WATER SOURCES SHOULD NEVER BE ALLOWED TO ENTER THE POND.**
- ✓ **EVERY POND SHOULD HAVE A PIPED PRINCIPAL SPILLWAY, PLUS AN EMERGENCY SPILLWAY.**
- ✓ **SELECT A CONTRACTOR WITH SUCCESSFUL POND BUILDING EXPERIENCE.**
- ✓ **THE CONTRACTOR OF YOUR CHOICE SHOULD DIG 2 TO 3 TEST PITS PER ACRE AND 2 FEET DEEPER THAN THE PLANNED POND DEPTH. TEST PITS SHOULD BE DUG IN DIFFERENT AREAS WITHIN THE PROPOSED SITE TO ENSURE THAT NO SAND OR GRAVEL VEINS EXIST WHICH WOULD CAUSE THE POND TO LEAK-OUT. SITES NEAR STREAMS AND QUARRIES SHOULD HAVE ADDITIONAL TEST PITS DUG. IF QUESTIONABLE TEST PIT EXCAVATIONS EXIST, CALL OUR OFFICE. NOTE: AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION CALL 1-800-362-2764 FOR BURIED UTILITIES SEARCH!**

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The depth of these leak-prone sand and gravel deposits is variable and their extent unpredictable.

We always recommend having Test Pits dug by the contractor of your choice. Any experienced contractor will do this beforehand and all reputable contractors will objectively evaluate the findings before proceeding with construction.

Ponds successfully built in, or near, floodplains and broad drainageways are rare and just too risky to recommend. There are other reasons to keep ponds away from streams and creeks. One can expect to lose "good" fish that were stocked in the pond and gain undesirable stream fish when occasional floodwaters rise.

The following list of Union County soil types, suitable for the creation of ponds, is taken from the **Soil Survey of Union County, Pages 15 & 16.**

In all cases, Test Pits are still recommended. This remains a "guide". **We do not guarantee, or imply, successful pond establishment - even on soil types designated as "Well-Suited", or "Suited".** As well, suitable exceptions may exist on soils outside of this list. We call them hydric inclusions.

Union County Soil Types Best Suited for Ponds

Soil Type:	Well Suited:	Suited:
Blount silt loam (BoA)		☺
Brookston silty clay loam (Bs)	☺	
Crosby silt loam (CrA)		☺
Montgomery sily clay lm (Mn)	☺	
Muskego muck (Mu)	☺	
Nappanee silt loam (NpA)		☺
Odell silt loam (OdA)		☺
Paulding silty clay (Pa)	☺	
Pewamo silty clay loam (Pm)	☺	
Wetzel silty clay loam (We)	☺	

- ✓ **AT LEAST 25% OF YOUR POND SHOULD HAVE A DEPTH GREATER THAN 8 FEET IN ORDER TO SUPPORT AQUATIC LIFE. WATER OVER 12 FEET DEEP IS INEFFECTIVE IN SUPPORTING AQUATIC LIFE. (DISSOLVED OXYGEN LEVELS TOO LOW)**
- ✓ **POND SIDE SLOPES SHOULD BE 3:1 FROM THE WATERLINE (SHORE) TO A DEPTH OF 4 FEET (12' FROM SHORE) TO DISCOURAGE EXCESSIVE PLANT GROWTH, WHILE ENSURING SAFE POND ENTRY & EXIT.**
- ✓ **ALL PONDS SHOULD BE AT LEAST 1/4-ACRE (10,890 SQ FT) IN SIZE. EXAMPLE: 104' X 104' IS THE SQ. ROOT OF 1/4 AC.**
- ✓ **IF A STREAM FLOWS NEAR THE PROPOSED POND, IT MUST NOT BE ALLOWED TO ENTER THE POND WHEN IT FLOODS. ANY "GOOD" FISH STOCKED IN THE POND MAY LEAVE AND LESS DESIRABLE STREAM FISH WILL ENTER. IN ADDITION, STREAM WATER QUALITY MAY NOT BE AS GOOD AS YOUR POND'S.**
- ✓ **BEACH AREAS SHOULD HAVE 8:1 SLOPES WITH PEA GRAVEL SPREAD OVER LANDSCAPE CLOTH, OR HEAVY PLASTIC LINER.**
- ✓ **CREATED EMBANKMENTS AND PRIVACY MOUNDS SHOULD NOT CREATE HEADWALLS OR STANDING WATER.**
- ✓ **ANY FILL MATERIAL ACROSS THE DRAINAGE DRAW NEEDS TO BE "CORE TRENCHED", THEN "BUILT-UP" WITH COMPACTION TAKING PLACE EVERY 6".**
- ✓ **IF THE NEW POND IS OVER HALF FULL, AND IS NOT MUDDY, STOCK IT NOW.**
- ✓ **PLAN FOR EXCESS FILL MATERIAL THAT WILL BE GENERATED BY THE CONSTRUCTION OF A POND. A 1-ACRE EXCAVATED POND, (43,560 SQ.FT.) CAN PRODUCE ENOUGH MATERIAL TO COVER A FOOTBALL FIELD 8-10 FEET DEEP (Football Field: 300'x 160'=48,000 Sq.Ft.or 1.1 acre)**
- ✓ **LOCATE AT LEAST 50' FROM ANY SEPTIC FIELDS AND/OR CURTAIN DRAINS.**

Hydric Soils: Wetlands

Hydric Soils (naturally wet) increase the likelihood that a pond or wetland will successfully hold water. This list of Union County soils that are best suited and suited for the establishment of ponds is found on **Pages 15 & 16** of the **Soil Survey of Union County**.

This list of Hydric Soils is for those considering the creation, or restoration of wildlife wetlands on their property.

Union County Soils Well-Suited for Wetlands

Soil Type:	Well Suited:
Brookston Silty Clay Loam (Bs)	☺
Montgomery Silty Clay Loam (Mn)	☺
Muskego Muck (Mu)	☺
Paulding Silty Clay (Pa)	☺
Pewamo Silty Clay Loam (Pm)	☺
Sloan Silty Clay Loam (So)	☺
Wetzel Silty Clay Loam (We)	☺

Too, there are other Union County Soils that are still suitable for wetlands, particularly excavated ones. On a case by case basis, other soils may support wetlands. **If in flood plains and broad drainageways, chances of success decrease dramatically. Test Pits will be required!**

Soil Type:	Suited:
Blount Silt Loam (BoA)	×
Crosby Silt Loam (CrA)	×
Nappanee Silt Loam (NpA)	×
Odell Silt Loam (OdA)	×

Note: An "Acre-Foot" is 1 acre of water, 1 foot deep and it equals: ~325,851 gallons.

Injured - Abandoned - Orphaned Wildlife?

Ohio Wildlife Center 24-Hour Hotline

1-614-793-WILD

"I Want a Pond, or a Wetland, or Something Like That?"

All ponds are wet lands, but all wetlands are not ponds. Are you considering a pond for your property, or do you really want a wetland?

PONDS are deeper bodies of water surrounded by land. In Union County, most are man-made excavations. In Ohio well over 100,000 ponds have been successfully established. Ponds can be a few acres in size, but most are less than 1-acre in size.

As previously stated, a successful pond must be on a proper site (soil quality) and have an adequate sized watershed (the area draining into the pond) of good quality. We can help you determine both.

Ponds are useful for holding deep-water year around. Fishing, swimming, trapping, boating, and ice-skating are just some of the seasonal recreation that ponds provide. Fire protection and landscape beauty are value-added reasons to consider a pond.

Properly sited, ponds will be a source of enjoyment for years. However, without some management and a silt-free watershed, ponds can become a wetland in a couple of generations.

WETLANDS are saturated lands that have variable water levels from a few inches to several feet in depth. Wetlands require **hydric** soils and are often easily enhanced or restored by placing a designed low-level dam (mound of soil) across a suitable drainage draw with an adequate-sized watershed. Water will then be retained for a period of time that is consistent with weather conditions. Water levels will often fluctuate between seasonally high and seasonally low. Wetland creation - or restoration, is without any doubt, the most effective way of attracting all types of wildlife and waterfowl to your property.

Both wetlands and ponds improve water quality and serve as a flood control shock absorber, or sinks, during heavy rains and extended periods of rain.

Which is better? You decide! It is an important choice and commitment to make. We can help advise you once a decision is made. ☺

ADDITIONAL CONTACTS:

Natural Resources Conservation Service (NRCS)
LaRae Baker, Soil Conservationist
18000 State Route 4, Suite B
Marysville, Ohio 43040
1-937-642-587 x 2224

Farm Service Agency (FSA)
18000 State Route 4, Suite A.
Marysville, Ohio 43040
Phone 1-937-642-6741 x2

OSU Extension - Union County Office
Ag & Community & Natural Resources Development
18000 State Route 4, Suite E.
Marysville, Ohio 43040
1-937-644-8117 1-800-589-8584

ODNR Division of Wildlife
District One Office
Fish Management Section
1500 Dublin Road
Columbus, Ohio 43215
1-614-644-3925 FAX: 1-614-644-3931

...Critical Area Seeding!

Often overlooked, but vitally important, the final steps in any completed wetland or pond construction are site preparation and seeding of the area around the wetland or pond.

Consider the following **Seeding Recommendation** - or a close approximation to it.

1. Prepare a quality seedbed by disking and firming (with a cultipacker, or roller) until one's heel sinks no deeper than $\frac{1}{2}$ ".
2. In lieu of a soil test, apply a 19-19-19 fertilizer at the 300 Lbs/Ac equation.
3. Sow a ~173 Lbs/Ac mixture of the following:
 - 65 Lbs/Ac of Kentucky Bluegrass
 - 43 Lbs/Ac of Ryegrass (perennial)
 - 65 Lbs/Ac of Creeping Red Fescue
4. Straw Mulch Rate: 2 Tons/Ac. (~130-150 bales)
5. "Cinch" the mulch with a very light disking

PUBLICATIONS ON-HAND:

Published by the ODNR Division of Wildlife

- ❑ Ohio Pond Management Handbook
- ❑ Ohio Fish Identification Guide
- ❑ Fish and Fish Food Propagators List
- ❑ Wetland Habitat Management for Wildlife
- ❑ Wildlife Life History Notes-Selected Species

OSU Extension FactSheets and Bulletins:
Go On-Line to OSU's OhioLine
<http://ohioline.osu.edu/>

- ❑ Chemical Control of Aquatic Weeds. A-4
- ❑ Controlling Filamentous Algae in Ponds. A-3-98
- ❑ Placing Artificial Fish Attractors in Ponds and Reservoirs. A-1-98
- ❑ Pond Measurements. A-2-98
- ❑ Ohio Pond Management Booklet-OSU Extension (For-Sale Item from OSU Extension Offices)
- ❑ Fire Protection in Rural Areas: Dry Hydrants for Ponds. AEX-422-98
- ❑ Winter and Summer Fish Kills in Ponds. A-8-01
- ❑ Muddy Waters in Ponds. A-6-01
- ❑ Planktonic Algae in Ponds. A-9-02
- ❑ Ponds and Legal Liability in Ohio. ALS-1006-03
- ❑ Understanding Pond Stratification. A-7-01
- ❑ Fish Species Selection for Pond Stocking. A-10
- ❑ Duckweed & Watermeal: Prevention and Control, A-14-04
- ❑ Other:
- ❑ Safe Ice Thickness - Army Corp Engineers

Pond Zoning Regulations.

Currently several Union County Townships have variable zoning regulations for new pond construction and may require a permit for pond construction. Please contact the applicable Township Clerk - see the phone directory's "Government Section" for more information. The regulations are not uniform among Townships.

A Few Words About Fish Kills in Ponds...

What are your objectives? Despite one's best efforts, unexpected fish kills happen. Many variables enter into the formula that sets-up the pond for a fish kill. The age of the pond, depth of the pond, size of the pond, percent of weed cover, weed management practices, watershed contributions, too many fish, and weather conditions can all conspire to create a fish kill. Unfortunately, once a fish kill begins, little can be done to stop it. The event will run its course, often leaving the pond with an "unbalanced" fish population.

Of all of the causes of fish kills in ponds, storm-induced inversions, more commonly called "turnovers", are unpredictable and unpreventable. Too, they may happen more often and more easily than previously thought.

Any weed management should be done early in the pond season when the water warms sufficiently and young pond weeds are actively growing. Weed treatment in July and August, when the water is at its warmest and its ability to retain dissolved oxygen lowest, is very risky. It often sets the stage for a fish kill.

In all cases, carefully read, understand, and follow all aquatic herbicide label instructions.

During daylight hours, photosynthesizing plants in the pond produces oxygen as a byproduct. It is used by fish and amphibians to breathe. During the night, all living plant and animal life use oxygen for tissue respiration. Dissolved Oxygen is also the catalyst that drives the decay process for everything else in the pond... night and day -365 days a year. **Nearly all fish kills in ponds are the result of Dissolved Oxygen loss.**

The loss may be in the form of "turnovers", untimely weed control, or nutrient enriched algae/plankton die-off.

Dissolved Oxygen is very precious in ponds!

One must strike a balance between the amount of photosynthesizing plants and a healthy population of fish.

Should a Fish Kill occur in your pond, please give me a call (1-937-642-5871). A number of dependable and reliable resources are available to help identify the cause and prevent future events! ☺

**THINKING OF STOCKING YOUR POND?
CONTACT OUR OFFICE FOR FREE ODNR
DIVISION OF WILDLIFE FISH LIFE
HISTORY NOTES:**

- Northern Largemouth Bass in Ohio
- Northern Bluegill in Ohio
- Channel Catfish in Ohio
- White Amur (Stock only if pond is vegetated)
- Northern Fathead Minnow in Ohio

***Recommended for ponds over 2.0 acres in size.**

- *Black Crappie in Ohio**
- *Yellow Perch in Ohio**

There are many other Ohio Fish Life History Notes available upon request-call me!

AFTER HOURS? ...OR ANY WILDLIFE-RELATED QUESTIONS WE JUST CAN'T ANSWER?

1-800-WILDLIFE

SOME WILDLIFE NESTING STRUCTURE PLANS TO CONSIDER FOR YOUR WILDLIFE POND OR WETLAND...

- Mallard Duck Nesting Cylinder Plans
- Eastern Bluebird/Tree Swallow Nest Box Plans
- Bat House Plans
- Wood Duck Nesting Box

Many other wildlife nesting structure plans are available upon request from our office-call me!

WILDLIFE CAUSING POND PROBLEMS?

- Canada Geese**
- Muskrats**
- Snapping Turtles**
- Northern Water Snakes**

I can provide technical assistance to help you with damaging, or nuisance, wildlife concerns.