

Wildlife Water Holes

Wildlife water holes are an important habitat component for a variety of wildlife. They provide drinking water for many species including bats, wild turkeys and white-tailed deer and also serve as breeding habitat for many amphibians. Water holes come in a variety of shapes, sizes and locations. A wildlife water hole may be a naturally occurring ridgetop pond, a depression in a field or even a road-rut on an abandoned logging road. Just as is the case with other habitat components, different types of wildlife benefit from different types of water holes. Some pond breeding amphibians (a variety of frogs, toads, and salamanders) select ephemeral water holes that dry up for at least part of the year because these ponds do not contain fish and other predators that eat amphibian eggs and young. Others seem to do well in permanent water holes that are needed for drinking water sources.

An important thing to remember about wildlife water holes is that they should be small (1/10 of an acre to considerably less is a good rule of thumb). Many people confuse wildlife water holes with farm ponds or ponds for fishing. While wildlife can benefit from these types of ponds, wildlife water holes are designed and placed in strategic locations to maximize wildlife benefits and to do so at a much lower cost than a large pond. Wildlife water holes are relatively cheap to construct, requiring only a couple of hours of time with a small bulldozer and the benefits are long-term. When you depreciate the cost out over the life span of the project (which could be 50+ years), wildlife water holes are one of the most economical of habitat improvements.



Figure 1. Water hole with good cover around the outer edge.



Figure 2. Water holes benefit several species including this spotted salamander.



A wildlife water hole may be a naturally occurring ridgetop pond, a depression in a field, or even a road-rut on an abandoned logging road.



Figure 3. A newly constructed water hole.

Location

Just as naturally occurring water holes are found in a variety of positions on the landscape, they can be built in many different locations. Flat ridgetops or bottomlands are the preferred location. To maximize wildlife benefits, build ponds in the woods or if in a field or forest opening, as close to the edge of the woods as possible. Wooded ridgetops adjacent to old logging roads and woodland openings or old log-landings are possible options. An optimal spacing for water holes designed as permanent water sources is about $\frac{1}{4}$ mile from each other or other permanent water or one per 100 acres. Ephemeral waterholes can be spaced much closer together and are beneficial even when several are built together. The site should have a limited amount of drainage to preclude possible flow damage and thus the need for an emergency spillway. **Note:** If you do plan to build a water hole in an area with a significant amount of drainage, it should be designed with an appropriate spillway. Remember, these are not fish ponds; they should be small. Be sure to check and see if the soil at the site where you plan to build has adequate clay content to hold water. Also, beware of trying to build water holes in areas with numerous sink-holes. Your local KDFWR wildlife biologist or USDA Natural Resources Conservation staff can assist you with finding good locations to construct your water hole.

Design and Construction

The preferred design for wildlife water holes is referred to as the Y-pond design. A Y-Pond is so named because the original cuts made by the dozer are in the shape of a Y. These ponds are easier and faster (and therefore cheaper) to construct with a dozer and also provide better habitat diversity than a simple bowl-shaped pond. After the original Y-shape is made, the edges of the pond should be shaped with the dozer. The sides should be gently sloped with an irregular shoreline. As previously discussed, wildlife water holes have two major functions for wildlife: a source of drinking water and breeding habitat. Those over 3 feet deep can be considered permanent water sources because they will only dry up in the driest of years. In contrast, ephemeral ponds should be constructed with a maximum depth of less than 3 feet. To ensure water is present even in dry years, water holes designed for permanent water placed in forest openings or at the edges of fields should have at least a portion of the pond 7 to 8 feet deep, while those shaded in a woodland should have an area 5 to 6 feet deep. Some shallow areas that dry up during part of the year are desirable even in water holes designed for permanent water, so vary the depth during construction.

Most private landowners that build wildlife water holes design them as permanent water sources. However, it is important to note that for only slight or even perhaps no increase in



Figure 4. Even a small depression, which stays wet for part of the year, can be very beneficial to wildlife.

cost, a landowner can construct an ephemeral pond or two while building a water hole. Since even very small water holes benefit amphibians, why not build them along with a permanent water hole? By simply dropping the dozer blade and creating a few small depressions, prime amphibian breeding ponds can be created along with each permanent water source constructed. These may only take a matter of minutes each to complete and these clusters of ponds of various sizes, shapes and depths benefit an array of wildlife.

Once each water hole is graded out, excess material should be spread out and revegetated to avoid erosion. A quick cover crop of a legume* or annual grain* should be seeded immediately. In fall, winter wheat or oats (30 pounds/acre) are good choices. In spring, spring oats (30 pounds/acre) or Japanese millet (10 pounds/acre) should be used. Permanent vegetation should also be established. A cool season grass/legume* mix containing 8 pounds of orchardgrass, 5 pounds of Korean lespedeza, and 2 pounds of white Dutch clover is recommended for seeding around typical water holes. Refer to the Cool Season Grasses* *Habitat How-To* for more details and other good mixes.

Management and Enhancement Options

Wildlife water holes are virtually maintenance-free, provided they are properly designed and constructed. However, there are several things landowners can do to improve water holes. As discussed earlier, water holes should be placed in forestland or as close as possible to the edge of a woodland. To maximize use by wildlife, escape cover should be nearby. Trees or shrubs* can be planted between water holes and woodlands or other cover to create a wildlife corridor* giving animals a safe travel lane. Water holes should be protected from livestock either by constructing them in areas where livestock are not present, or by fencing* them off. They also should not be stocked



Figure 5. A Y-pond design indicating placement of logs and branches.

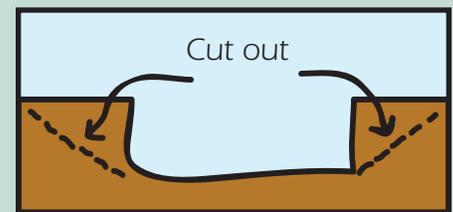


Figure 6. Side view, showing change in pond grade.

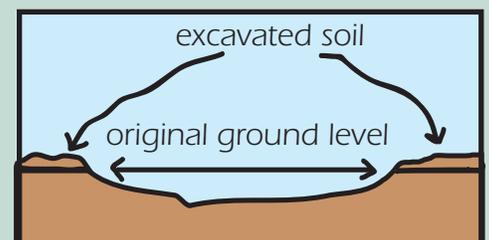


Figure 7. Side view, showing the spreading of excavated soil to create a more natural appearance.

Drawings adapted from *Water Hole Construction and Design* by Dan Dourson and John MacGregor.

SUMMARY OF OPTIONS:

Types:

Permanent, Temporary
(Ephemeral)

Number:

1 per 100 acres or ¼ mile
apart

Location:

Ridgetops, Bottomlands,
In or near woodland

Design:

Y-shaped, Bowl-shaped

Management:

Shallow edges, Revegetate
perimeter, Fencing, Woody
debris

with fish because fish would prey on salamanders and frogs, and because water hole sizes generally are not suitable for fish. Woody debris, in the form of tree branches or logs should be placed in the water along the edges of the pool to provide sites for amphibians to attach eggs and for cover. However, it is important to leave some open bank so that wildlife will be able to get to the water to drink. Also, the center of ponds should be left open so bats can fly over and drink. Logs can also be placed perpendicular to the edges of ponds extending out into adjacent forestland to funnel amphibians to a new pond.

*Related *Habitat How-To* references:

Cool Season Grasses

Legumes

Fencing

Wildlife Corridors

Trees and Shrubs

Nesting Structures

Forest Openings

Annual Grains



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Planning for My Property