



Watershed
Committee
of the Ozarks

SINKHOLES-INLETS FOR THE UNDERGROUND WATER SYSTEM

Sinkholes are a feature of **karst terrain**. Karst is the name for a type of landscape where the bedrock is mostly limestone or dolomite, as it is in much of the Ozarks. These rocks will dissolve in rainwater that has become slightly acidic

from contact with carbon dioxide as it seeps down through the soil. (The carbon dioxide comes from soil organisms breathing, just like we do.) Over thousands of years, rainwater percolating down

through cracks and crevices in the bedrock will dissolve enough rock to form an underground network of pipes called **conduits**. Soil sinks into the enlarged ends of these conduits near the ground surface, forming sinkholes. Sinkholes can also form suddenly when an underground opening collapses. Sinkholes come in various shapes and sizes, but they share this common feature—they are the inlet points for the underground drainage system. This drainage system includes other familiar features of karst—springs, caves, and losing streams—streams that lose water directly into the groundwater system.

There are thousands of sinkholes in the Ozarks region. A recent study by

Southwest Missouri State University indicated that there are at least 2,500 sinkholes in Greene county alone. In the eastern Ozarks, large sinkholes have wetlands developed on their floors, with distinct and unique species of plants growing there. In southwest Missouri, we



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have some very large, deep sinkholes, such as Devil's Den in Webster county and the Avin Sink near Nixa.

In some ways, sinkholes are like kitchen sinks—sinkholes are basins that will hold water, but usually only for a short time. The water finds its way to the drain (conduit) then flows through the underground drainage system toward the outlet, a spring. Some of this water may also seep down into the deeper groundwater. But unlike a sink, sinkholes continue to grow in size as they funnel more and more of the surface runoff into themselves.

Do you have a sinkhole on your property? Sinkholes vary so greatly in size and shape, it is sometimes hard to recognize them. Some sinkholes are acres in size; some are as small as a few feet across. Some are very shallow saucer-shaped depressions; others are funnel-shaped with very steep sides. There may or may not be a well developed swallow-hole or eye in the bottom of a sinkhole, indicating the actual opening into the conduit system. Often sinkholes in our area can be spotted by the presence of a circular grove of trees growing in the middle of a pasture. *Any depression* in the ground, in the Ozarks, should be treated as if it were a sinkhole.

Because sinkholes drain rapidly, and because they have a direct connection with our groundwater (and often our drinking water), we need to be careful what goes into them. Sinkholes are terrible places to dump trash, for instance. Waste oil or other chemicals can be flushed directly into the groundwater, where they may easily pollute a spring or someone's drinking water well. Sinkholes are bad places to build sewage lagoons or to install septic tanks. In fact, the best thing to do with sinkholes is to leave them alone.

If you must build a home or other building in an area that drains to a sinkhole, leave a vegetated buffer area around the sinkhole to filter out sediment and pollutants that might wash off of lawns, driveways, or parking lots. Be very careful about applying fertilizers or pesticides in yards where they might be flushed into a sinkhole with the next rain.

Sinkholes are natural drainage points for our groundwater system, so should not be filled with dirt. If a sinkhole is plugged, water will not drain properly and will run off onto adjacent property, possibly causing flooding. Water that has been replenishing our groundwater supplies will now be diverted away as surface runoff. There are appropriate ways that collapsed sinkholes, which present hazardous conditions, can be filled so that the natural drainage abilities are maintained. For information on how to properly fill sinkholes, contact the Watershed Committee office.

Sinkholes are a natural and interesting feature of our karst landscape. They are also an essential part of our groundwater system. If we want to keep Ozark springs clean, we must protect sinkholes from pollution. Springs sustain the flow of Ozarks rivers, especially in dry times, so polluted spring water could affect fishing and swimming in our streams and lakes. Pollution in sinkholes can even threaten our health by showing up in our drinking water. For all of these reasons, we had better keep a watchful eye on our local sinkholes and make sure the runoff that enters them is as clean as possible.

What goes into a sinkhole, may come out in our taps. By recognizing sinkholes for what they are, and respecting them for what they do, we have an opportunity to see that our groundwater, streams, springs, and lakes will be clean enough for future generations to use and enjoy.



**Watershed
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of the Ozarks**

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The Watershed Committee of the Ozarks is a not-for-profit citizens advisory group dedicated to the protection of drinking water sources in the Springfield area.

Other publications available from the Watershed Committee:

Watershed News—Quarterly newsletter (free)

Ozark Water Cycle—A brochure discussing the proper design, installation and maintenance of septic tank systems (free)

Water Protection At Home—What you can do to prevent water pollution in your community (free)