

Not Just a Hole in the Ground! Tammy Pryor

Have you noticed bowl-shaped depressions in fields and vacant lots around Ft. Campbell and neighboring communities? These depressions are commonly known as “sinkholes”. If you have ever driven past the hospital after a heavy rain you may have noticed what appeared to be a lake. After a few days the water is all gone. Where did it go? You guessed it, into a sinkhole.



There are many sinkholes on Ft. Campbell and in the surrounding area. This is due mainly to our karst topography. Karst topography, or terrain, is typically formed on layers of carbonate bedrock (limestone and dolomite) which is common to Ft. Campbell and the nearby area. Drive down any road far enough and you will most likely see an outcropping of this carbonate bedrock, primarily limestone, in just about any local road cut. This limestone plays an important role in the development of sinkholes.

The process of sinkhole formation can occur in a number of ways, most of which involve a surface collapse into an underground void. Voids in this area can begin to form when surface water either soaks into the ground or finds its way into the subsurface through fractures or other openings, thereby becoming groundwater. Groundwater in turn becomes slightly acidic as it permeates through soil and bedrock. When slightly acidic groundwater comes in contact with the more easily dissolved limestone in our area, a process of eroding pore spaces within the soil and bedrock begins. This groundwater not only dissolves limestone and erodes pore spaces within the bedrock, but it also serves

as a mechanism which carries away some insoluble soil and rock fragments. Over time these procedures cause subsurface voids to become larger and larger. Eventually, the surface material cannot support its own weight due to the underlying void, and it collapses creating a sinkhole.

As you might conclude, sinkholes and the area directly around them can be very unstable and should be left alone. The ground in these areas is subject to collapse at any time. So please, although you may want to take a quick look in one, don't. You just might end up in it.

And by using the sinkholes near the hospital as an example, you can see that these topographic features can provide a direct inlet into our groundwater sources. This can be good when the rainwater that we see creating the "lake" replenishes our groundwater supply. However, just the opposite is true when the water entering these sinkholes contains pollutants. The surface water entering these sinkholes, and our groundwater supply, eventually ends up in our springs, streams, rivers and lakes. Ft. Campbell obtains its drinking water supply from a spring, so you can see that it is extremely important to ensure pollutants do not enter our sinkholes.

Although you may not think you are polluting the sinkholes on Ft. Campbell, if you use unauthorized chemicals on your lawn, allow your car to drip oil on the ground, or any number of things, when it rains – it drains, and those chemicals and anything else in the water runoff can be carried into a sinkhole. It is now easy to see that sinkholes are *not just a hole in the ground*. If you witness anyone placing something in a sinkhole on Ft. Campbell, please contact the Environmental Division, Stormwater Section at 798-9588.