

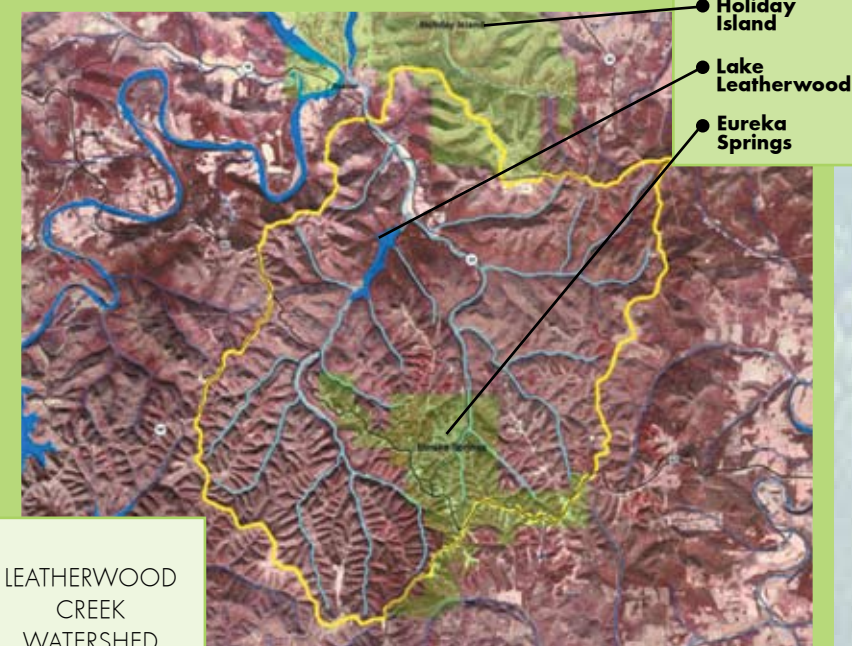
Living in the

# LEATHERWOOD CREEK WATERSHED

## A Citizen's Guide

Front photograph courtesy Barbara Kerbox, Grotto Springs, 2007

LEATHERWOOD CREEK WATERSHED

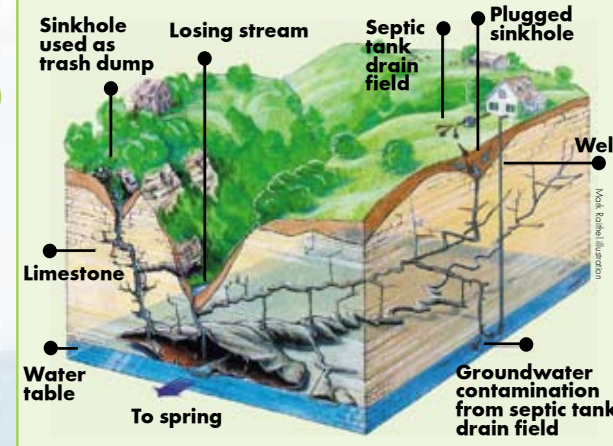


## KARST TERRAIN

Eureka Springs is located within the beautiful and diverse landscape of the Leatherwood Creek Watershed. This watershed includes all of the area that surrounds and drains into Leatherwood Creek (see map). Like much of northwest Arkansas, the Leatherwood Creek Watershed has a unique limestone geology. Water flowing over and through this limestone causes it to dissolve, creating the caves, sinkholes, springs, and disappearing streams characteristic of our region's lovely but fragile . . .

The very special  
**G R O U N D**  
we walk on . . .

Courtesy Missouri Department of Conservation



Karst areas are among the world's most distinct, fascinating, resource-rich, yet problematic terrains. Groundwater flowing through karst terrain is a source of drinking and domestic water, replenishes surface water in streams and lakes (notably Lake Leatherwood) and supports a living ecosystem. The creatures that inhabit the subsurface karst cavities and network are often not evident to us. These animals are adapted to the fluctuating groundwater, moving deeper

# K A R S T

*It just sounds tough*

Karst terrain forms when slightly acidic rain and surface water dissolves rock, usually limestone. As the limestone dissolves, a network of crevices and caves is created which serve as channels between surface and groundwater. These channels carry both water and pollutants straight from the surface into the groundwater supplies.

underground as the water levels fall, and moving back up when rain replenishes ground water reserves.

Karst terrain is very vulnerable to environmental impacts because its groundwater can easily be polluted by surface contaminants. To protect the streams, springs, groundwater, and lakes of our watershed, we need to be aware of potential problems and take positive steps to minimize our presence in this unique and special place.

## William's C R A Y F I S H

One creature adapted to our karst terrain is the Williams' crayfish (*Orconectes williamsi*). This small crayfish (usually less than 2 inches in length) is common in the Leatherwood Creek watershed, particularly in springs, but is rare almost everywhere else. The only place in the entire world that you will find this crayfish is in parts of northwest Arkansas and southwest Missouri. The presence of Williams' crayfish signals a healthy environment.



Photo courtesy William L. Pfleger

Courtesy Arkansas Department of Environmental Quality

## Taking care of YOUR SPRING

In general, springs flourish when they are left alone. By all means, keep your spring cleared of trash and excess detritus such as leaves. Try to keep your presence minimal. Organisms living in karst areas will move out when human presence increases.



Detail from Dripping Springs, a painting by William McNamara

## LANDSCAPING in Karst Terrain

Eureka Springs is known worldwide for its gardens and extensive landscaping. It is possible to continue this wonderful tradition while at the same time protecting our springs.

### MAKING A DIFFERENCE

- Reduce use of pesticides, herbicides, and fertilizers.
- Increase use of native and adapted plants.
- Use porous paving materials like brick-in-sand patios, flagstone walks, or gravel in place of concrete pavement.
- Liberally mulch around landscaped beds. Mulch reduces water use and weeds and it slows down water.

## STORMWATER RUNOFF in Karst Terrain

Traditional building techniques are designed to remove stormwater from the property as quickly as possible. In consequence, huge tracts of land become deprived of water while streams and rivers are inundated with the extra flow. As less water percolates into the ground, the springs have less flow.

### MAKING A DIFFERENCE

- Watch your property during a heavy rain event. Observe which areas collect water, and where the water runs off quickly. Do you have any sink areas in which water disappears?
- Slow the movement of water over your property by building berms and swales on the contour.
- Point gutters away from your foundation to avoid settling problems. Use gravel or rock (not concrete) to create an infiltration zone underneath the gutters.
- Keep all areas where water flows well vegetated. Vegetation acts as a filter strip, removing pollutants and sediment from the storm water.

### Willie the CRAYFISH

Look for the custom made medallions featuring Willie the Crayfish on the storm drains of Eureka Springs. Help us reduce polluted run-off by making sure that only rain goes down the drain.



Failed silt fencing and hay bales

## BUILDING in Karst Terrain

A builder will want to minimize the impact of construction on the karst ecosystem while at the same time ensuring that the structure will not be compromised by the cracking and sagging that can occur on unstable ground.

### MAKING A DIFFERENCE

- Maintain a buffer zone of at least 100 feet around caves, sinkholes, and springs. Do not disturb the native vegetation within this buffer zone.
- Properly install sediment controls like silt fences, hay bales, or filter strips to prevent sediment movement.
- Dispose of hazardous material like oil and paint at recycling center.
- Dispose of excess concrete and wash water well away from karst features.
- Revegetate bare earth as soon as possible.
- Use permeable materials instead of impermeable materials whenever possible.
- Do not build on active karst features such as losing streams, sinkholes, and springs.
- Do not use heavy equipment and invasive procedures such as blasting around karst features.

## SEWAGE LINES in Karst Terrain

All the springs in the Eureka Springs area are deemed unsuitable for drinking due to fecal *coliform* contamination. Much of this contamination comes from public and private sewer lines, many of them very old, serving an average of 1800 customers. Every homeowner is responsible for the private sewer service line running to the city's main sewer service line. The City of Eureka Springs periodically performs smoke tests to discover all possible leaks in both the private and public sewer lines.



Courtesy Christopher Fischer

### MAKING A DIFFERENCE

- If you suspect that your private sewer line is leaking (or smoke emerges from your vents) call a plumber immediately to get the problem fixed.

For more

Springs Committee  
Eureka Springs Parks &  
Recreation Commission  
esspringscomm@yahoo.com

INFORMATION  
**(479) 253-2866**