

Mission: to unite as citizens and actively engage in the preservation of the Spring Creek Watershed

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Spring Creek Coalition

Spring Creek Watershed Landowners Summer 2010 Newsletter



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Spring Creek—Uniquely Diverse and Pristine

By Kip Heth

Spring Creek is one of only five water bodies that are not listed as impaired in Oklahoma. Four of these five are located in the northeastern part of the state.

The creek is known for its diverse fish fauna, including the Arkansas Darter, the Least Darter, the Plains Topminnow, and other species rare in most local streams.

Spring Creek also has a diverse insect and crustacean fauna. Aquatic insects, crustaceans, and other invertebrates are less well known than fish, and so documenting their diversity is not only a function of what is actually present, but also our ability to distinguish species as well as our sampling effort.

Dr. Jim Schooley, former professor of stream ecology at NSU, suggested I document the invertebrate fauna of the creek when I was a graduate student at NSU. While a student at the University of Arkansas, I continued work on this stream, conducting an intensive quantitative study of a single riffle, a hyporheos study ("below the current"—animals deep in the gravel), and a survey of Plains Topminnow.

Not many streams have well-documented fauna. Of those that do, **Spring Creek ranks fourth in the world.** We are surpassed by a small stream in Bavaria, one in Pennsylvania, and another in South Carolina. All three of those streams have associated university research programs. To date, 312 invertebrate taxa have been identified in eight mainstream and 23 tributary sampling sites on Spring Creek.

Especially diverse are the sensitive insect groups, the Ephemeroptera, or mayflies (49 species); Plecoptera, or stoneflies (28 species);

and the Trichoptera, or caddisflies (60 species). Of the 49 mayfly species, **28 are new records for Oklahoma.** The mayfly *Nixe flowersi*, collected at Cherokee Cattle Company, **represents only the second collection record for this species.**

I enjoyed meeting and working with the landowners along Spring Creek. Your efforts to protect the physical, chemical, and biological integrity of this watershed are to be applauded.



Mayfly nymph

Kip Heth was a pastor and chemistry professor at Bacone College in Muskogee, 1986 – 2000, and Biology professor at Missouri Southern State University in Joplin, Missouri, since 2000. He is a member of the Spring Creek Coalition Science Committee, which serves as an advisory body to support science needs for the preservation of Spring Creek. He received a Master's degree at NSU in 1996 and a Ph.D. in Stream Ecology from University of Arkansas in 2006.

Blue Thumb Volunteers Monitor the Creek Monthly

OK Blue Thumb, a water pollution education program of the Water Quality Division of the Oklahoma Conservation Commission, uses volunteers to monitor streams and educate the public about pollution prevention.

Blue Thumb has three monitoring teams on Spring Creek: Alicia and Bud Osborne at Cedar Crest, Beth Rooney near Lucky

Blue Thumb Volunteers

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Spring, and Kay Frank, between Teresita and Oaks. Blue Thumb volunteers go through at least two days of training and select a stream site of choice to conduct monthly chemical water quality testing.

“What we do each month,” said Beth Rooney, “is start with a dissolved oxygen test at the creek and gather a water sample for testing later at home. While at the creek we also observe general health such as if there is any floating scum or trash, siltation or fish kills. Fortunately, in the three years I’ve been monitoring Spring Creek and in the 11 years I’ve owned property there, it has always been clean and clear except for a few days after major flooding.”

“At home that evening or the next day,” notes Beth, “I spend about an hour-and-a-half to test for seven factors, each of which is an important indicator of stream health: dissolved oxygen, pH, nitrates, nitrites, ammonia nitrogen, phosphorus, and chloride. I also check for E-coli during the summer months. We have detailed instructions on how to mix chemicals to get accurate test



Rooney (center) collecting invertebrates from Spring Creek

results. And we do the same test against a blank of distilled water for quality control.”

“ F o r

Meet Your Neighbors

example, to test for chloride, I fill a mixing bottle with 23 ml. of water and add a pre-measured packet called Chloride 2 indicator. The water turns bright yellow. Then I add Silver Nitrate Titrant drop by drop. It usually takes only 2-3 drops for the color of Spring Creek water to turn from yellow to an orange-red, which is good. It means our creek does not have much chloride in it.”

Twice a year, volunteers also work with Blue Thumb staff to collect aquatic insects and other bugs. And every four or five years, a whole day is spent collecting fish samples.

“In the years my late husband Mitch and I have monitored the creek, it has changed,” says Kay Frank. “It has gotten wider and shallower. But the chemical values I test for have remained fairly constant. There is almost undetectable phosphorous, and the oxygen is usually super saturated. Our creek is a healthy creek.”

Blue Thumb volunteers help keep it that way. Go to www.bluethumbok.org for more information on the Blue Thumb program.

Meet Your Neighbors – Farming Fish at Spring Creek

Kay Frank has lived on Spring Creek halfway between Teresita and Rocky Ford Park since 1978. She and her late husband, Mitch Fram, were two of the first members of the Spring Creek Coalition when it was formed in 1995, and both have been active in the Blue Thumb monitoring program (see related article).

Kay and Mitch lived in many places during their lives, from Maryland to California. They met in

Fish Farming on the Creek

Puerto Rico and chose to live on Spring Creek in 1978 when they found an ideal place for fish farming. A spring-fed tributary they named Willow Branch fed two ponds and a wetland before flowing into Spring Creek, providing two sources of water. They named their place Willow Branch Farm, created two more ponds, and began fish farming in earnest on their 40 acres.

“We didn’t make any money in our 15-20 of



Kay at the creek near Teresita

years farming,” says Kay, “but it was something we wanted to do. We sold fingerlings to local people, whole fish to places like Reasors, and smoked fish to a local restaurant.

Our portion of Spring Creek usually goes dry in August, disappearing under the gravel, but Willow Branch tributary has always provided a reliable source of water.”

Throughout the years, Kay and Mitch supplemented their fish farming income with regular jobs. Today Kay works part-time as an Education Coordinator for the Solid Waste Institute of NE Oklahoma. She continues to maintain her ponds but no longer does active fish farming.

“I love the creek,” says Kay. “Since I’ve lived here, the course of the creek through my property has remained more or less the same. However, it wasn’t as dry in the summers and floods weren’t as high as they are now. More pastures and less wooded acres upstream have contributed to that.”

EPA and Fly Ash Regulations

EPA Seeks Public Comment on Fly Ash Regulations

The U.S. Environmental Protection Agency (EPA) is considering options for regulating the use and disposal of fly ash, a waste material left over from coal burning. The EPA has published two options for public comment, the first a more strict approach treating fly ash as a hazardous waste and the second treating it as a non-hazardous solid waste. Oklahoma presently produces large amounts of fly ash, much of which is contained at power plant sites or used to fill abandoned mine pits. However, ash also finds its way into widely applied cement and road-base materials, which is considered an acceptable use under existing regulations. Use of fly ash to repair roads near Spring Creek is known to have caused serious, long-term degradation of the creek bed (see Fall 2009 SCC Newsletter: www.springcreekok.org/docs/newsletters). Fly ash can contain high concentrations of metals (e.g., arsenic, lead, mercury) and has been attributed to human health effects.

The EPA is accepting public comments on this issue until September 20, 2010. EPA’s proposed options, which refer to “coal combustion residuals” (the technical name for fly ash), were published in the Federal Register on June 21, 2010. Instructions for how to submit comments are contained in that notice and also may be found in a Tulsa World article published on July 11, 2010 (available at www.tulsaworld.com). Search the paper archives for “fly ash.” Additional information on environmental effects of fly ash is posted currently at www.sierraclub.org.