Northwest Arkansas' West Fork-White River Watershed

West Fork-White River Watershed **is one of seven subwatersheds in the Beaver Lake Watershed.**

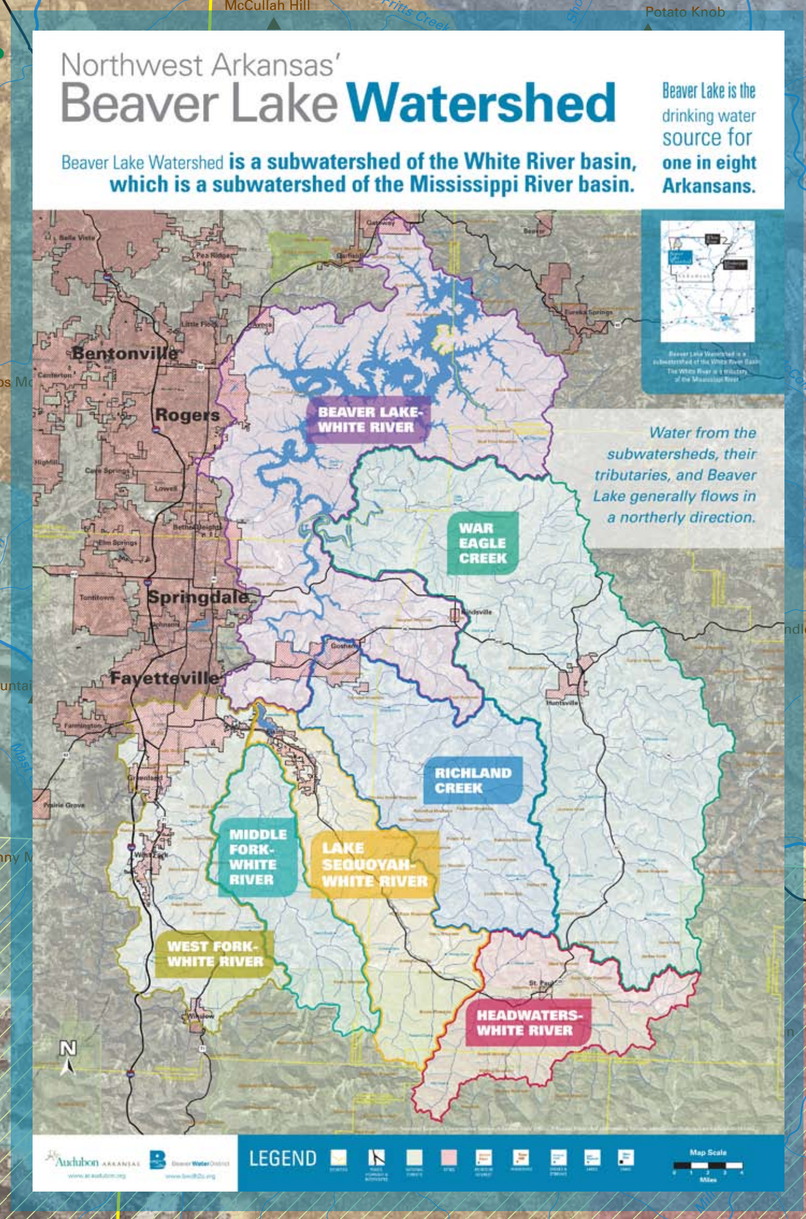
Beaver Lake Watershed is a part of the White River Watershed.

Beaver Lake is the drinking water source for **one in eight Arkansans.**

Beaver Lake Watershed is a subwatershed of the White River Basin.
The White River is a tributary of the Mississippi River.

Water from West Fork-White River Watershed and other subwatersheds flows in a northerly direction into Beaver Lake.

WEST FORK-WHITE RIVER



Audubon ARKANSAS
www.ar.audubon.org

Beaver Water District
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LEGEND

COUNTIES · ROADS, HIGHWAYS & INTERSTATES · NATIONAL FORESTS & STATE PARKS · CITIES · POINTS OF INTEREST (Drake Field) · MOUNTAINS (Mount Sequoyah) · CREEKS & STREAMS (London Creek) · LAKES (BEAVER LAKE)

Map Scale
1 2 3 4
Miles

West Fork-White River Watershed

Why is the watershed important?

The West Fork-White River Watershed includes tributaries Town Branch, Cato Springs, and Rock Springs. Part of the city of Fayetteville and all of the cities of Greenland and West Fork fall within the West Fork-White River Watershed. Even with the presence of these cities, forest is still the dominant land use, along with pasture and agricultural lands. There are 438 miles of roads and 195 miles of streams in the watershed. The population of the West Fork-White River watershed increased by 21.8% between 1990-2000, according data from the U.S. Census Bureau.

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History of the West Fork Watershed

Seeking a better life

Early evening, 1819, Frank Pierce raised his gun at a herd of buffalo grazing in the valley of the West Fork of the White River, to the southeast of the present site of Fayetteville's town center.

Just as he took aim, he noticed a group of Osage Indians who also had their sights on the animals. Frank then hunkered down, out of view and spent an uneasy night under a sheltering elm tree on the banks of the West Fork.

The next morning the young pioneer scurried up the hillside to the Illinois River watershed, followed it to its confluence with the Arkansas River and went back home to Batesville, Arkansas. It would be nine years before Frank returned with his family to settle in that exact spot where the mighty elm tree stood.

Frank Pierce was the first Caucasian of recorded history to set foot on the banks of the West Fork, tributary to the White River, also known as the "Hudson of the West" during his time. The Osage are believed to be the first people in the area, followed by the Cherokee in 1817, and then the Shawnee and Delaware Indians. (One Hundred Years of Fayetteville, 1828-1928. WS Campbell).

This region was founded because of its abundance of natural resources, the fortune found by those who seeked a good life. Cool year-round springs, large trees, vast prairies, and an abundance of wildlife and native edibles attracted our first residents.

A major attraction gave these early pioneers the ability to flourish here: The West Fork of the White River. This river gave rise to navigation, entrepreneurial operations, fresh fish for dinner, crystal-clear swimming holes, and Sunday baptisms.

Today, the river still allows us to thrive. The West Fork of the White River is among several tributaries to Beaver Reservoir, the source of drinking water for over 350,000 Northwest Arkansas residents.

For many generations, rivers were revered as a sacred body, a means to wash away spiritual dirt. 1922, Reverend Cameron performing a baptism at Woolsey bridge for members of the Christian Church, possibly the oldest church in West Fork.

Photo courtesy of Shiloh Museum of Ozark History / Washington County Observer.

And that number is growing every day. When asked the reason for moving to the Northwest Arkansas area, newcomers are likely to answer something along the lines of "seeking a better life." People come for vacation in the Ozarks and realize that they can live like this everyday. Folks come for the low unemployment rate; they come for the atmosphere of our award-winning "Front Porch" or "Bedroom" communities in this corner of the state. A common reason for moving to this area is the natural beauty that encompasses our towns and green spaces. Local residents know the value of nature.

Cool Ozark streams have always been a recreation destination. 1920's, Elsie Davis and Virginia Parks walk the old footbridge in the town of West Fork.

Photo courtesy of Shiloh Museum of Ozark History / Mr. & Mrs. Roscopf Collection

What is a Watershed?

What does it contain?

A "watershed" is the area of land that catches rain and snow which drains or seeps into a marsh, stream, river, lake, or groundwater. Tributaries are smaller streams that flow into other larger streams.

Watershed protection is a key piece of the ecosystem puzzle. Watershed conservation encourages proper land use and uniform protection of tributaries within the watershed.

Watersheds contain:

- Businesses
- Industries
- Farms
- Forests
- Homes
- Lakes
- Pastures
- Riparian zones
- Rivers & Streams
- Wetlands
- Wildlife

Illustration courtesy of Massachusetts Executive Office of Energy and Environmental Affairs

Native Species

An indicator of safe drinking water

The West Fork of the White River Watershed is home to a variety of plant and animal species. They rely on a healthy watershed for food and shelter.

White Trout Lily (Erythronium albidium) was given its name due to its mottled leaves resembling the skin of a trout. Its leaves are also edible. The lily grows in rich forest soil of the Ozarks.

Witch Hazel (Hamamelis virginiana) grows along riparian areas on the Ozark Plateau. This shrub can grow up to 15 ft high and has many medicinal qualities such as a refreshing tea made from the twigs and ointments from the bark.

The Ozark Cavefish (Amblyopsis rosae) is listed as threatened under the Federal Endangered Species Act. Called the "Ghost Fish of the Ozarks" because of its lack of pigment and absence of eyes, the Ozark cavefish has long been an indicator for local residents. If it was present in a well or cave, the water was believed safe to drink. This sensitive species is on the decline due to decreased water quality on the karst terrain of the Ozarks.

William's Crayfish (Orconectes williamsi) is endemic to small headwater streams in the upper White River basin.

Photo courtesy of Brian Wagner, Arkansas Game and Fish Commission.

West Fork EPA

A Community Action Group

The West Fork Environmental Protection Association (WFEPA) formed about five years ago in opposition to a proposed landfill in a limestone quarry near the West Fork of the White River. After an extended resistance to the dump by the group, the application was withdrawn.

Since that time WFEPA has remained active, working on projects with other environmental groups, such as Audubon Arkansas on the annual river festival and clean-up of the West Fork of the White River. WFEPA assumed sponsorship of that project in 2007.

WFEPA is particularly proud of its work to develop and operate the West Fork Renewable Resource Center. In cooperation with the City of West Fork, the Washington County Environmental Affairs Office, Boston Mountain Waste management District, and the enthusiastic support of the community, the center has recycled more than 40 tons of material during its first year of operation.

WFEPA is a non-profit corporation dedicated to projects which will protect our environment and improve the lives of people in Northwest Arkansas.

Members of the West Fork Middle School Star Club and the Science Club joined to help with the annual river clean-up. They are (from left) Mikey Canfield, science teacher Matt Pledger, Amy Faulkner, Paula Ortiz, and Hunter VanBrunt.

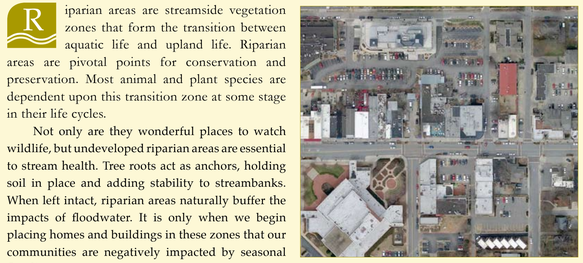
Ecological Services

The economies of our environment

Riparian areas are streamside vegetation zones that form the transition between aquatic life and upland life. Riparian areas are pivotal points for conservation and preservation. Most animal and plant species are dependent upon this transition zone at some stage in their life cycles.

Not only are they wonderful places to watch wildlife, but undeveloped riparian areas are essential to stream health. Tree roots act as anchors, holding soil in place and adding stability to streambanks. When left intact, riparian areas naturally buffer the impacts of floodwater. It is only when we begin placing homes and buildings in these zones that our communities are negatively impacted by seasonal flooding.

Riparian zones are also great places for recreation such as multi-use trails. One can exercise while seeing nature and wildlife around them. Cities across America are finding that their residents are happier and healthier with public trails. Property values also increase with nearby trails.



Highly-developed urbanized areas are typically comprised of greater than 75% impervious surfaces. This can lead to increased water runoff that picks up contaminants. Then the water enters streams without the benefit of filtration through riparian buffers.

Wetlands provide habitat for plants and animals. World Peace Wetland Prairie in south Fayetteville.

Wetlands are diverse and important convergent areas where water flow, nutrient cycles, and solar energy meet. They maintain water reserves and water quality, recharge groundwater, cycle nutrients, produce food that supports entire food chains and provide habitat for thousands of aquatic and terrestrial plants and animals. Wetlands offer opportunities for recreation like fishing, canoeing, hiking, photography, and bird watching.

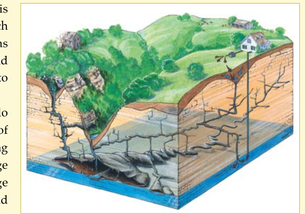
Each watershed, even down to the smaller subwatersheds, must maintain a certain percentage of wetlands in order to remain healthy. Intact wetlands can reduce the impact of non-point source pollution through filtering contaminants, thus improving water quality. Intact wetlands function like sponges. They store flood and surface water in isolated depressions and slowly release it, countering some of the negative effects impervious cover (surface that does not allow water to soak into the ground). Examples of impervious cover include roads, parking lots, rooftops, sidewalks, and driveways.

Living Lightly on Karst

Taking special care

The terrain in the Ozark Plateau is characterized by "karst" features, such as caves and sinkholes, losing streams and underground rivers, limestone cliffs and waterfalls. Karst areas are extremely vulnerable to environmental impacts.

Guidelines for living lightly on karst include do not dispose of anything in sinkholes; avoid the use of chemical fertilizers and pesticides by incorporating native plants into your garden; protect the recharge areas of known caves; keep your septic or sewage unit in good working order, cleaning regularly and replacing before problems arise; and have your spring or well tested for coliform bacteria and nitrates at least every three years.



Water can move quickly through karst terrain.

Illustration courtesy of Mark Raithel, Missouri Department of Conservation.

Keep it Where it Falls

Gardening to improve water quality

Urbanization increases impervious areas on our landscape. An impervious surface can be defined as a structure that prevents precipitation from infiltrating into the soil. Impervious surfaces therefore reduce ground water recharge by simply preventing water from infiltrating through the soil. Runoff occurs when the soil is completely saturated and water can no longer infiltrate. Impervious surfaces not only reduce ground water in-flow, but increase surface runoff.

Rain gardens can be used as a best management practice to minimize hydrologic cycle changes encountered because of urbanization. Rain gardens promote infiltration by temporally detaining runoff from impervious surfaces, and allowing the water to percolate into the soil. Habitat for local wildlife is also enhanced with rain gardens.

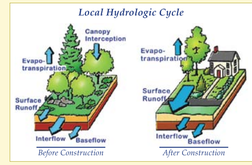


Image courtesy of Maryland Department of Environment

Image courtesy of the University of Arkansas Cooperative Extension

Why is the West Fork Watershed Important?

Tributary to Our Drinking Water

The West Fork-White River Watershed is a vital watershed because it is a tributary to Beaver Lake, Northwest Arkansas' drinking water source. With increases in population, quickly changing land uses, and lack of zoning or building codes comes increased threats to and demands on freshwater. Forests and family farms, converted to subdivisions, alter naturally vegetated land and change the hydrology of the watershed considerably. The conversion of vegetated (pervious) landscape to non-porous (impervious) surface is also an issue.

Best Management Practices (BMPs) that address sources of sediment on construction sites are one way of reducing the consequences of a developing watershed. BMPs include preventative measures such as installing silt fences, strategically placing hay bales, and immediately seeding exposed soil before it is washed into nearby creeks.

Restoration of the West Fork

In 2006, the Watershed Conservation Resource Center (WCRC), the West Fork Environmental Protection Association (WFEPA), Beaver Water District landowners, government & non-government organizations, and local groups formed a partnership to develop a locally based plan to reduce accelerated streambank erosion in the West Fork watershed. The project partners are taking a close look at this problem using data collected on the West Fork White River (WFWR) to identify the streambanks in greatest need of restoration. By restoring these sites, the water quality, as well as aquatic and terrestrial habitat, can be improved in and along the WFWR.

A demonstration restoration design using natural channel design techniques will be developed for a priority site. Through the early results of this project, funding has been obtained to begin restoration on the highest priority areas. Currently, the project is nearing completion and a list of prioritized reaches and the project plan will be available in 2009. The project is funded through an NRCS Conservation Partnership Initiative Grant, with project partners contributing in-kind services for match (CPI Project).

As a result of the CPI Project, the WCRC in partnership with the Arkansas Natural Resource Commission, U.S. Environmental Protection Agency, Arkansas Game & Fish Commission, Beaver Water District, and WFEPA obtained a 319 grant to restore a priority reach on the WFWR. The WCRC has completed the data collection and is in the process of developing the stream restoration design for 1,600 feet of river at Brentwood, just south of West Fork.

This photo shows how far the stream bank has regressed in one year's time. The bank was previously located where people are standing in the center.

Landowners from the West Fork White River Watershed participate in a discussion of stream restoration approaches during a CPI field tour hosted by the Water Conservation Resource Center and the Washington County Conservation District.

Photo courtesy of the WCRC.

The stream restoration is based on natural channel design principles and will improve the aquatic and terrestrial habitat, while reducing sediment and phosphorus to the West Fork White River and ultimately Beaver Lake. It is scheduled to be implemented in 2009. A conservation easement program is also being developed through this project for priority sites on the WFWR.

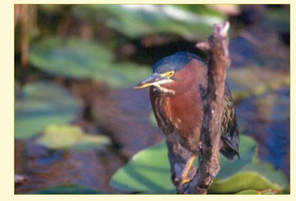
Stream restoration goes a long way toward restoring water quality.

Photo courtesy of the WCRC.

The White River Corridor

Making the Bird Connection

Birds need food, water, and shelter to live. Riparian areas (the transition zones between aquatic and upland life) provide all those things. Birds such as Green Herons, Least Terns, Belted Kingfishers, Yellow-billed Cuckoos, and Prothonotary Warblers feed and nest along many of Arkansas' rivers including the West Fork of the White River.



The Green Heron (Butorides virescens) is commonly found along forested rivers and streams. Look for them perched on branches hanging over the water. They often sit and wait for fish, frogs, and insects to swim by, and then plunge their dagger-like bill into the water to catch their prey.

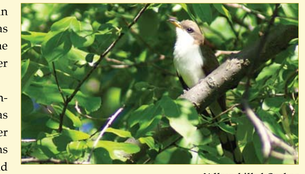
Photo courtesy of Dr. Dan Scheiman, Audubon Arkansas

Vegetated riparian habitat is especially important in landscapes where much of the land away from the water has been cleared for urban and agricultural uses. In these landscapes, riparian areas serve not only as habitat for birds, but also as corridors along which birds travel. In this way, the West Fork is connected to the entire White River ecosystem through more than just water.

The Prothonotary, pronounced "pro-thon-atary," (*Protonotaria citrea*) Warbler, locally known as the "swamp canary," lives in wooded wetlands, river bottoms, and sloughs across the state. Populations have declined by 85% due to loss of bottomland hardwood forests, changes to hydrology caused by stream channelization, and removal of dead trees that provide nest cavities. Ensure that future generations enjoy this bird by protecting riparian areas from logging and pesticides, enrolling marginal farmland in the Wetland Reserve Program, and leaving dead trees where they stand.

Prothonotary Warbler

Photo courtesy of Robert Herron



Yellow-billed Cuckoo

Photo courtesy of Scott Michaud