Northwest Arkansas' Lakeside Area

Beaver Lake-White River **Watershed**

Beaver Lake-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.**

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

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

BEAVER LAKE-WHITE RIVER

Northwest Arkansas' Beaver Lake **Watershed**

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

Beaver Lake Watershed **is a subwatershed of the White River basin, which is a subwatershed of the Mississippi River basin.**

Water from the subwatersheds, their tributaries, and Beaver Lake generally flows in a northerly direction.

BEAVER LAKE-WHITE RIVER
WAR EAGLE CREEK
RICHLAND CREEK
MIDDLE FORK-WHITE RIVER
LAKE SEQUOYAH-WHITE RIVER
WEST FORK-WHITE RIVER
HEADWATERS-WHITE RIVER

Audubon ARKANSAS
www.ar.audubon.org

Beaver Water District
www.bwdh2o.org

LEGEND

COUNTIES · ROADS, HIGHWAYS & INTERSTATES · NATIONAL FORESTS & STATE PARKS · CITIES · POINTS OF INTEREST (Monte Ne) · MOUNTAINS (Samuel Mountain) · BLUFFS (Neills Bluff) · CREEKS & STREAMS (Phillips Creek) · LAKES (BEAVER LAKE)

Map Scale
1 2 3 4
Miles

Lakeside Area

Beaver Lake-White River Watershed

In Northwest Arkansas, quality of life and economic prosperity rely greatly on the health of Beaver Lake and its watershed. The "Lakeside Area" watershed immediately surrounding the lake includes 487 miles of shoreline, several lakeside communities, 1,205 miles of roads, and 266 miles of streams. Between 1990 and 2000, the population increased by 42.5% (U.S. census). When the population increases, so do concerns for water quality. Sediment is the biggest water quality issue in Beaver Lake. Much of that sediment comes from runoff from residential construction near the lake. Improving water quality in Beaver Lake is the best way to protect Northwest Arkansas' drinking water supply. The goal of this map is to further the dialogue about our watershed.

Beaver Water District
www.bwdh2o.org

Audubon ARKANSAS
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Beaver Water District

Administration Center & Water Education Center

The Administration Center is open to the public from 8 a.m. to 4:30 p.m. Monday through Friday. For directions and more information, visit the website at www.bwdh2o.org.

Beaver Lake is the source of drinking water for more than 400,000 people and industries. Beaver Water District, located at 301 N. Primrose Road in Lowell, Arkansas, supplies drinking water to 300,000 people and industries in Fayetteville, Springdale, Rogers, Bentonville and surrounding areas, or one in 10 Arkansans. These cities then resell the water to surrounding towns and communities. The District's Administration Center, completed in June 2009, earned LEED Gold status from the U.S. Green Building Council. LEED stands for Leadership in Energy and Environmental Design. The Administration Center features a 600-square-foot Water Education Center that is open to the public, including school groups. Features include a drinking water utility plant model, an 8 by 12 foot watershed map, large engineered rain gardens, native plantings, permeable pavement, and a stream filled with recycled water from the drinking water plant.

Secchi Day on Beaver Lake

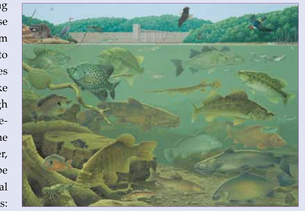
An annual citizen science event

Citizen scientists use a Secchi disk, the black and white object at the bottom right of the photo, to measure water transparency.

Secchi Day on Beaver Lake is a citizen science event where teams of volunteers take water quality measurements around Beaver Lake, using Secchi disks. Secchi disks allow volunteers to easily monitor water transparency and clarity. When measured over time, this is an indicator of water quality. Volunteer scientists also collect water samples throughout the lake that Beaver Water District evaluates to measure chlorophyll *a*, phosphorous, and nitrate. Chlorophyll *a* is a pigment in algae and used to measure algal density. Phosphorous and nitrate are nutrients that effect algal growth. All three are measures regularly used by scientists to evaluate water quality. Long-term data collection will allow Beaver Water District to evaluate trends in Beaver Lake, which serves more Arkansans with drinking water than any other lake in the state. For more information, visit www.bwdh2o.org.

Novel Ecosystem

The Lake as an emerging ecosystem



Kentucky Department of Fish and Wildlife Resources. Painting by Rick Hill.

The damming of the White River created an upland reservoir ecosystem, known as Beaver Lake Reservoir. A reservoir is a man made lake often created for flood control or drinking water supply. Beaver Lake is a novel ecosystem because it has characteristics of both a lake and river. Far from the dam, Beaver Lake acts like a river. This is referred to as the riverine zone. In this zone temperature changes frequently, water levels can vary greatly, and the lake is much more turbid (cloudy). After passing through a transition zone, Beaver Lake begins to take on lake-like characteristics. This is referred to as the lacustrine zone. This means the lake becomes deeper and wider, temperature fluctuates less, dissolved oxygen can be variable, and the water clears as suspended material settles to the bottom. Habitat varies between the 3 zones: riverine, transition, and lacustrine. This habitat diversity means a unique mix of river and lake plants, fish, and wildlife call Beaver Lake their home.

Birds of Beaver Lake

Connecting the land and the birds that live there

Pine Warbler (Dendroica pinus)
Photo courtesy of Joe Neal

Turkey Vulture (Cathartes aura)
Photo courtesy of Joe Neal

Along the shores of Beaver Lake are some of the last stands of native shortleaf pine trees. Pine Warblers live most of their lives in pine forests and nest in the pines. While Pine Warblers are relatively common, protecting the pine forests around Beaver Lake is important to keeping them here for future generations.

Vultures are a common sight around the lake, soaring for hours above the country providing an invaluable service. Using sight and smell vultures locate and remove dead, decaying animals. Turkey and Black Vultures are the species common to Beaver Lake. Turkey Vultures have featherless red heads. In flight they rarely flap, taking advantage of warm-updrafts of air, called thermals. From below, their silvery flight wings are visible as they roll from side to side on thermals. Turkey vultures depend on their sense of smell to locate carrion.

Black vultures are slightly smaller, with a black head and body. In flight they flap more than Turkey Vultures and are identifiable by the white feathers near each wing tip. Black Vultures are often in flocks, where Turkey Vultures are most often solitary. Black Vultures can also be more aggressive than Turkey Vultures, sometimes driving the larger vultures from a carcass. Unlike Turkey Vultures, Black Vultures depend on sight to locate their food.

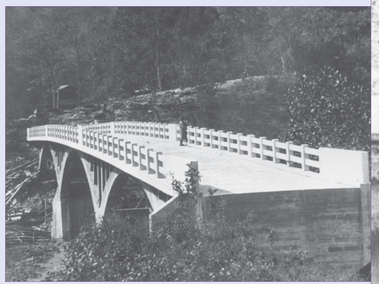
Both vultures prefer a mixture of wooded and pasture habitats for hunting grounds. However, they nest on cliffs, in caves and crevices, and in fallen trees, safely hidden. The forested bluffs and rocky topography around Beaver Lake provide a perfect home for nesting vultures. Protecting Beaver Lake has a direct and positive impact on the lives of birds in Northwest Arkansas.

Black Vulture (Coragyps atratus)
Photo courtesy of Ron Howard

Little Known Lake

A Bridge to Nowhere

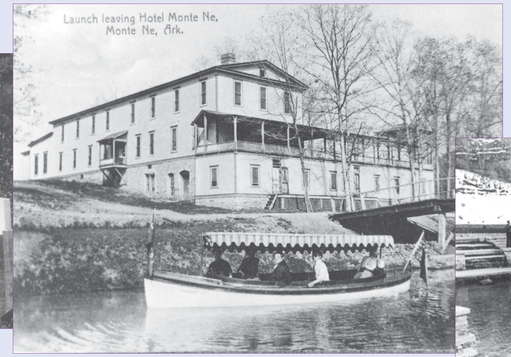
In 1929, the Luten Bridge Company was hired to build a bridge over the White River as part of a road connecting Garfield and Eureka Springs. Though the bridge was completed, the stock market crash the following year forced Benton County to cut funding to the project before access roads could be built to the bridge. This left the bridge with a 30-foot dropoff on the east side, and an old poorly built road on the west. The bridge quickly became known as Lost Bridge and attracted amused motorists who would drive there just to see the apparently forgotten bridge. In 1966, the bridge truly became lost when it was submerged forever beneath Beaver Lake. Soon after, it was memorialized when the U.S. Army Corps of Engineers created Lost Bridge Park near the site.



The Lost Bridge over the White River.
Photo courtesy of Rogers Historical Museum. Rogers, Ark.

Bass Fishing

Soon after its completion, Beaver Lake was stocked with over five million bass, crappie, bream, catfish, walleye, and pike. Beaver Lake's recreation value was recognized and soon it became a fishing hot spot. In 1967, the lake was the site of the All-American Invitational, the first-ever national bass fishing tournament. Since then, bass fishing has become the #1 freshwater sport in the United States and a multi-million dollar industry. The Forrest L. Wood (FLW) tournament on Beaver Lake brings nearly two million dollars annually to the local economy.



Hotel Monte Ne in its heyday.
Photo courtesy of Rogers Historical Museum. Rogers, Ark.

Naming a Lake

The misled belief is that Beaver Lake is named after the animal that shares its name. The lake is actually named after the small community of Beaver, where the dam was originally to be built. However, this location was deemed unfit by the U.S. Army Corps of Engineers. While the dam was moved farther upstream, the name stuck. Since lakes, by definition, are not man-made, the official name is Beaver Lake Reservoir.

The U.S. Post Office in the town of Beaver, Arkansas.

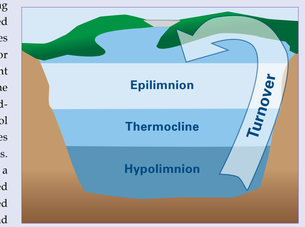
Monte Ne

The beginning of the 20th century saw many entrepreneurs make their fortunes. William "Coin" Harvey was one of these men. Harvey discovered the scenic beauty of the White River and the Ozark Mountains and saw them as the perfect place to establish his resort community of Monte Ne. Harvey catered to his patrons, even providing gondola rides from the train station to his hotels. The area around Monte Ne offered a tranquil escape to the outdoors with caves, hiking, fishing and boating. It also had social areas where guests could go to see and be seen. When Beaver Lake was built, Monte Ne was abandoned. Romanticism has built up around this ghost town, most of which was submerged beneath Beaver Lake. When the water level is low, visitors flock to the site for a chance to see into the past. For more information, visit the Rogers Historical Museum at www.rogersarkansas.com/museum.

In the winter of 1963, area residents paid a final visit to Harvey's amphitheater before the lake rose to cover the site.
Photo courtesy of Rogers Historical Museum. Rogers, Ark.

Lake Turnover

Seasonal changes in Beaver Lake



Water is unique because it is most dense at 39 degrees F and is less dense if it is hotter or colder. During warm summer months, water separates into layers with the warmest layer on the surface, or epilimnion, and the coldest water settling to the bottom, the hypolimnion. This process is called stratification. A layer called the thermocline separates warm, oxygen-rich surface water from cold, oxygen-poor deep water. Many species of fish will try to locate right above the thermocline. In Beaver Lake, the thermocline forms in early June, and persists through about mid-October, when lowering air temperatures begin to cool the surface water. Eventually, the surface water becomes colder (denser) than the water below and it sinks. Warmer, less dense water on the lake floor is pushed up, a process called lake turnover. Turnover causes suspended sediment, food, and oxygen to become evenly distributed throughout the water column. This means that fish and life that were limited to the area around the thermocline before can now move more freely throughout the lake. Turnover may be associated with taste and odor in local drinking water supplies.

A Watershed Moment

Local impact of a national disaster

The Great Flood of 1927 was a watershed moment that affected the entire Mississippi River Valley. Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, and Tennessee were inundated with flood water. Two hundred and fifty-four people died, 750,000 refugees fled, and an estimated one billion dollars were spent in the recovery. Early snow melts in Canada and heavy rains in the Midwest caused the Mississippi to swell.

Flooding of the West Fork of the White River, near Brentwood, April 15, 1927.

Courtesy Shiloh Museum of Ozark History/ Bertha Cartmell Reid & George Cartmell Collection (S-89-105-241)

When heavy rains fell in the south, rivers swelled beyond the capacity of levees built retain them. Farms, cities, even entire counties were flooded. In some places water rose up to 30 feet deep. In Arkansas, 6,600 square miles (14% of the state) was covered with water. One hundred people drowned and many homes and farms were destroyed. At one point, the White River ran backwards because the Mississippi River was so flooded. Once the water receded, entire towns had to be rebuilt and lives reestablished.

Nationally, the flood created awareness about flood control and the need for the government to take an active role in watershed management. After 1927, the U.S. Army Corps of Engineers changed their flood management strategy. Before the flood, levees controlled rivers. Post-flood, the strategy altered and rivers are now controlled with networks of dams and reservoirs. Congress set aside money to establish such a management system in the White River Basin. The first reservoir was North Fork, followed by Bull Shoals, Table Rock, and Greers Ferry. In 1966, Beaver Lake became the last reservoir built on the White River.

Locally, the flood and a need for drinking water led to development of the White River Basin and the construction of Beaver Lake. Beaver Lake is an integral part of the Northwest Arkansas economy and key to the area's future. The lake provides drinking water, flood control, hydroelectric power and recreation opportunities. Without the construction of the dam and Beaver Lake, Northwest Arkansas would not be where it is today.

Beaver Dam with flood gates open, May 2011.
Photo by Miranda Viney

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

Photo courtesy of Massachusetts Executive Office of Energy and Environmental Affairs

Recreation Opportunities

Find out where to go on Beaver Lake

Hobbs State Park-Conservation Area Visitors Center
Photo courtesy of Hobbs State Park-Conservation Area

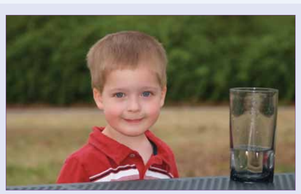
Hobbs State Park – Conservation Area, occupying 12,000 acres of upland forests between Beaver Lake and War Eagle Creek, is Arkansas' largest state park. Hobbs offers many outdoor opportunities including hiking, hunting, bicycling, horseback riding, a shooting range, over 25 miles of nature trails, and primitive campsites. Hobbs also offers interpretive hikes, educational bonfires, eagle tours, and a museum. Call 479-789-5000 or visit www.friendsofhobbs.com for more information.

The U.S. Army Corps of Engineers provides many other recreational opportunities on Beaver Lake. The Corps' property covers 40,463 acres, 31,700 of which is Beaver Lake Reservoir. The remaining Corps' property consists of 483 miles of shoreline, 11 parks, nearly 700 campsites, and seven trails through 2,931 acres designated for recreational use. To find out more information about the U.S. Army Corps of Engineers at Beaver Lake, call 479-636-1210. To rent a campsite or facility, go to www.recreation.gov.

LakeSmart

Neighbors helping neighbors

Beaver Lake.
You drink it every day!



LakeSmart is a free self-assessment program that provides lake front property owners with environmental education. Through education, LakeSmart helps owners evaluate their property and learn how to reduce pollution risks and minimize costly future problems. LakeSmart works in two parts. First, local residents meet and participate in discussion over interactive quizzes and videos from local experts. This meeting provides knowledge and resources to improve residents' property. The meeting can be as small as four or five neighbors or can be a large group of concerned citizens. It is led by a group member with the help of staff who provide knowledge, technology and materials. The second part is a confidential, self-assessment done at home. This self-assessment guides the lakefront property owner in a thorough evaluation of her property and the steps she can take to protect Beaver Lake. The LakeSmart program is customized to fit each individual's needs and interests. Additionally the program improves communication between neighbors, businesses, and government organizations that share Beaver Lake. For information, call 479-444-1755.