

## Celebrating Arizona's Rivers

Each month during Arizona's centennial year, we will profile a different river in celebration of the state's precious natural resources. From the mighty Colorado to the smallest ephemeral streams, these waterways have supported Arizona's people and places for thousands of years. With good stewardship and thoughtful planning, they will continue to flow into Arizona's next 100 years.

### July 2012: The Bill Williams River

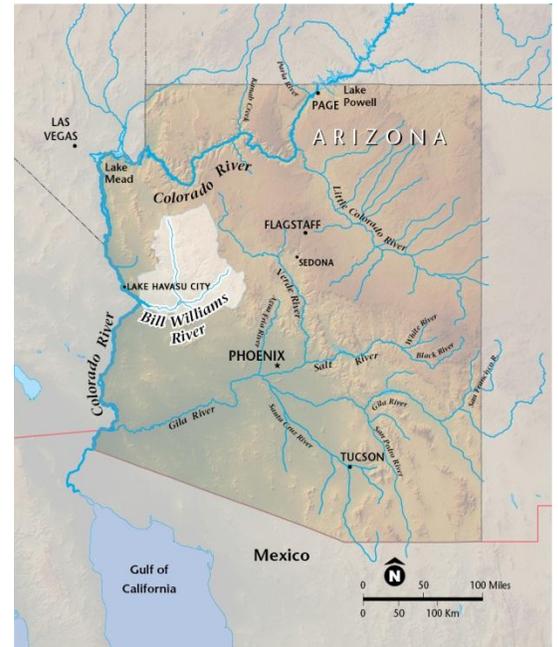
The Bill Williams River, named for a mountain man and trapper who explored much of Arizona in the early 1800s, flows through one of the least populated and most ecologically rich regions of the state. As with many Southwestern rivers, the modern story of the Bill Williams centers around the often unanticipated consequences of human activity.

Throughout the 20<sup>th</sup> century, multiple dams were built along the Colorado River and its tributaries, and riparian forests along rivers and streams were drowned by the floodwaters of reservoirs or lost due to changes in river flow patterns. Although riparian habitat such as cottonwood-willow forest comprises less than 1% of the landscape in the Desert Southwest, these complex ecological communities supported by that most rare of desert resources – water – are home to more migrating and breeding bird populations than all other Western habitat types combined, and are critical to the survival of many rare and endangered species of birds and other wildlife.

In 1968, Alamo Dam was completed to control flooding on the Bill Williams. As Alamo Reservoir slowly filled, it held all the water that flowed into it, leaving the river downstream of the dam completely dry except during rare times of significant rainfall, when water was released from the dam as continuous high flows for weeks or months. Both situations had devastating impacts on riparian habitat downstream, and within twenty years of the dam's construction, much of that habitat – and the wildlife it supported – had disappeared.

In response to these conditions, the Army Corps of Engineers and a multi-group steering committee developed new dam management strategies based on the ecological needs of the river corridor below the dam. Water is now released from Alamo Dam in a pattern imitating pre-dam conditions; ecosystems are monitored and releases are adjusted accordingly. As a result, much of the river corridor has been revitalized, and it contains some of the most extensive cottonwood-willow riparian forest remaining in the Lower Colorado River Basin.

**Geography.** The Bill Williams River is formed by the confluence of the Big Sandy and Santa Maria Rivers in the mountains of west-central Arizona. The river flows almost immediately into Alamo Reservoir, formed by the 283-foot high earthen Alamo Dam. Alamo Reservoir encompasses approximately five miles of the river corridor and is designated as an Arizona state park.



**Top image:** Watershed of the Bill Williams River in relation to other Arizona rivers. **Bottom image:** Detail of the Bill Williams River watershed.



Twilight along the Bill Williams River. Photo courtesy of AZ Department of Water Resources.

Below Alamo Dam, the Bill Williams flows approximately 45 miles through hilly desert terrain before joining the Colorado River at Lake Havasu. The 6,100-acre Bill Williams River National Wildlife Refuge includes the last twelve miles of the river and its confluence with the Colorado.

**Ecology.** Year-round flows on the Bill Williams, Big Sandy, and Santa Maria Rivers support long corridors of cottonwood, willow, and mesquite forests that provide rich habitat for a variety of birds and wildlife, including:

- More than 350 species of birds, many of which were previously common in the Lower Colorado River Basin and have returned to the restored Bill Williams watershed in abundance;

- Endangered birds such as the Southwestern willow flycatcher and Yuma clapper rail, and endangered fish such as the bonytail chub and razorback sucker;
- Numerous other bird and wildlife species, such as bald eagles, peregrine falcons, big-horn sheep, javelina, at least 14 bat species, mountain lions, bobcats, ringtail cats, and foxes; and
- Beavers, which play an important role in the watershed because of the influence of their dams on stream dynamics and riparian vegetation.

**Use.** Compared with many other Arizona rivers, human water use in the Bill Williams watershed is relatively minimal.

- Agricultural use is limited to irrigation of a single cotton farm; however, as recently as the 1990s alfalfa farming was more prevalent.
- Surface water is diverted for municipal use for the town of Bagdad, and the Bagdad copper mine uses water pumped from wells along a ten-mile stretch of the Big Sandy River.
- Grazing is common throughout the watershed.
- Recreational activities at Alamo Lake State Park include camping, fishing, and boating; hiking, birding and wildlife viewing are also common at both the state park and Bill Williams National Wildlife Refuge.

**What You Can Do For Arizona's Rivers**

- Join a local watershed group
- Participate in restoration, monitoring, or advocacy activities
- Visit our organizations' websites for information and action alerts
- Enjoy an Arizona river—and tell your state legislator about it

**Threats** to the Bill Williams include:

- Decreased water quality due to pollutants such as mercury, copper, and lead.
- Changes to flow levels due to drought and climate change.
- Ecosystem changes due to invasive species, such as salt cedar (tamarisk) and non-native fish.

The successful revitalization of habitat along the Bill Williams serves as an example of what can be accomplished when a dam-controlled river is managed for both human and ecosystem needs.

