

How We Changed Our River

Cottonwood trees need floods

Mountain snows melt and the water fills our Rio Grande. Rain adds more water to the river. In the past the river got so full of melted snow that water ran over bridges, down streets, and into homes. The river flooded every spring. People didn't like it, but the trees did.

Cottonwood trees grow along the river. We call this forest "the bosque." Cottonwood trees have been the most important tree near the river for thousands of years. Insects eat the leaves. Birds eat those insects. Birds build their nests in the trees. Porcupines climb the trees to eat the juicy cambium, under the bark of the tree.



The male cottonwood trees have catkins with pollen.



The female cottonwood trees have flowers with seed ovules.



The cottonwood seeds look like cotton fluff that floats down in the summer.

Cottonwood trees are adapted to live by a river that floods in the spring, when snows melt. Before spring runoff, the male trees grow catkins that make pollen. Then the female trees grow little yellow flowers that will make seeds. Spring wind blows the pollen to the flowers. Seeds grow until early summer, after the flooding. The seeds must land in mud from floods in order to grow. That is how cottonwoods adapted to live by the river.

People in Albuquerque didn't like the floods. They built walls and dams to protect our bridges, homes, and gardens. Now, when the cottonwood seeds fall, they cannot fall in mud from floods. New cottonwood trees cannot grow. Let's look back in time to understand the problem. Then we can look forward in time to see how we can save the bosque.

Native Americans

The first people who lived here hunted wild animals like deer. They gathered berries and seeds. Then, about 3,000 years ago, they started to plant corn. They planted their corn where melted snow or rain would flow by. They did not dig ditches to bring river water to their crops. They started growing beans and squash too. Growing crops this way did not change the river much.



Neg 069107 **Creator**Kaadt, Christian G. **Title**"Jemez Indian Women Making Tortillas", New Mexico **Date** 1895 **Courtesy** Palace of the Governors New Mexico History Museum, Santa Fe

Note: Photography was not invented until the mid 1800's, so there are no photos of early Native Americans.

Spanish Settlers Built Acequias

Spanish settlers came to New Mexico about 400 years ago. They brought many new plants to grow. They grew apple trees, peach trees, and grape vines. They brought wheat. These crops need a lot of extra water. The Spanish dug ditches, called acequias, from the river. The river water helped them grow more and different plants.



*Sculpture outside the Albuquerque Museum
Francisco Vasquez de Coronado came to New Mexico in 1540
Don Juan de Onate led the first permanent settlers here in 1598*

Ranchers

By the 1880s there were many sheep and cattle ranchers in New Mexico. Some traveled from Mexico on the Camino Real. Others traveled from the east coast of the United States on the Santa Fe Trail. The sheep and cattle ate many of the plants. When snow melted or rain fell, there were few plants to hold the dirt back. The Rio Grande was choked with dirt. Fields flooded and did not drain. Something had to change.



After a hard day herding cattle, cowboys head to dinner in this 1897 photo from the Palace of the Governors Photo Archives, Neg. No. 005324.

Levees and Drainage Ditches

In 1925 people in Albuquerque built dirt wall levees along the river. The walls hold the water back when the river is too full of melted snow or rain. They stop the floods. Levees also keep the river on a straight path. Now the river runs faster and deeper.

To help farmers get extra water off their fields, we dug drainage ditches. These ditches are still in use.

In 1957, we added big metal jetty jacks to protect the levees.



This is the levee in Albuquerque. It is a wall of dirt that holds back the river when it is too full. This drainage ditch is full of muddy water.

Salt Cedar, Russian Olives, and Elms

Over many years we planted trees and bushes from other countries. Bushes like salt cedar (from Europe) were planted on the levees. Their roots kept the dirt from washing into the ditches. Trees like Russian Olive and Chinese Elm were planted because they grew fast and didn't need much water. The salt cedar and invasive trees have grown too well. They take the water and space the cottonwoods need.



Russian Olive Trees and salt cedar grow easily because they do not need spring floods. We call them "invasive" because they invaded the bosque.

Cochiti Dam

The levees would break from time to time. The river flooded. In 1941 the levee broke where the Rio Grande Nature Center is now. Cottonwood trees grow for about 100 years. When will those trees die? Will new cottonwood seeds sprout and grow?

Since cottonwood seeds need mud from floods, new seeds will not grow. We made sure there would be no more floods in 1973 when we built Cochiti dam. It keeps the river from flooding.



Cochiti Dam

The Visitor Center at the Nature Center is modeled after this dam.

Saving the Bosque

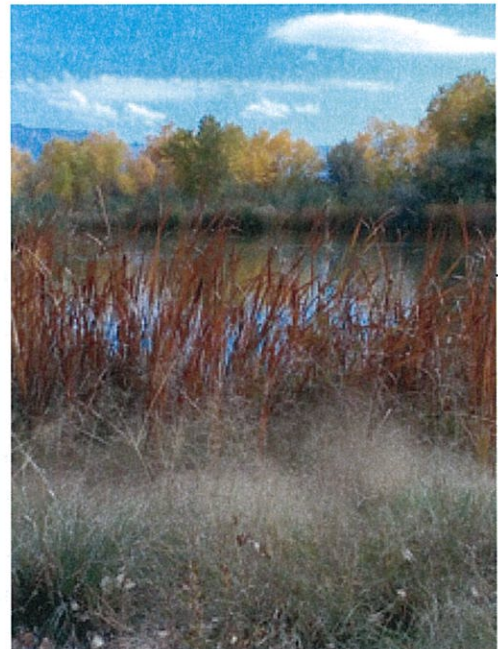
In the 1990's many groups came together to save the bosque.

- Some groups are planting small branches of cottonwoods. These branches can grow roots and grow into trees.
- The river used to have wetlands or ponds. In some places along the river people have built ponds. Plants and birds that need slow water can live there.
- Many groups are working to get rid of invasive plants and trees along our river.
- We can knock down the high banks along the river in some places. Extra water is then let out from Cochiti dam. This makes a little spring flood in that place.
- Everyone in Albuquerque should save water. Take out lawns. Plant desert plants. Turn the water when you brush your teeth. Take short showers or shallow baths.

Every time we save water, we are helping the bosque. We are protecting this place of peace and calm in the middle of our city. It is something we can all do to protect our river.



Small, controlled flooding of the Rio Grande in 2011



Man-made pond