

THE GREAT OUTDOORS



The Rio Grande just south of the Taos Junction Bridge is lined by coyote willows.

Ribbon of Willow

Bosque habitat in New Mexico offers an interesting contrast to our Bayshore marshland and forests. Cottonwood trees that line the watercourses accent the autumn landscape.

By J. Morton Galetto, CU Maurice River

During the last weeks of October I had the good fortune to tour New Mexico. Our excursion took us to Albuquerque, Taos, and Santa Fe with stops in between. The viewscape there is much different than our own.

I'd like to share some of what I learned about the Middle Rio Grande River Valley's riparian lands, known as "bosque" (the Spanish word for "forest") to New Mexicans. Of special importance are the Rio Grande cottonwoods, particularly *populus deltoides wislezeni*, a subspecies of *populus deltoides*. This is not the eastern cottonwood found in northern New Jersey's Raritan Bay Estuary and the Hackensack Meadowlands, nor is it the heterophylla or swamp cottonwood, found uncommonly in Cape May and Passaic County's swamps. All these species of trees are Salicaceae – part of the willow family. Other members common to New Jersey include quaking aspen, big-toothed aspen, and black willow.

In New Mexico the Rio Grande is the dominant river system. The river's origins are along the Continental Divide in the San Juan Mountains in southwestern Colorado, into New Mexico, and finally it creates the United States southern border between Texas and Mexico, its 2,000-mile course ultimately emptying into the Gulf of Mexico. The stretch of the Rio Grande that separates the United States from Mexico is called the Rio Bravo by Mexicans.

The "Middle" in its name does not refer to the middle of the watercourse but rather to the river's approximate mid-point where it

passes through New Mexico. This is the stretch from Cochiti Dam, just north of Albuquerque, to 160 miles south in San Marcial, New Mexico. The "middle" is about one-third of the river's length in New Mexico and 8% of its entire length. However it is a section rich in tributaries in that it represents about 14% of the drainage basin. By our fall visit much of the rivers' tributaries were dry, since surface water is dependent on snow melt and the very limited rain in this region. Most of New Mexico is a desert climate, and settlements and life itself are dependent upon water. There are six Indian pueblos (towns or villages) in this middle section: Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, and Isleta.

We also visited the Taos Pueblo a World Heritage Convention UNESCO site, on a tributary of the Rio Grande. The tributary is called Rio Pueblo de Taos or Red Willow Creek. The stream is considered sacred and may not be touched by non-native people within the confines of the settlement.



Taos Pueblo World Heritage site, Red Willow Creek or Rio Pueblo de Taos. The pristine river begins in the Sangre de Cristo Mountains. The brilliant yellow of the cottonwoods accents the autumn landscape. Photo: Michele Borek.

The Taos settlement is an important example of the interaction between American Indians and Spanish cultures. Its adobe residences and religious structures date back to the 1200s. It originated with the Anasazi Nation that once lived in Arizona, New Mexico, Utah, and Colorado, and their descendants still maintain and live on the site. The Native architecture retains its original appearance through traditional maintenance techniques. Earliest known occupation in the Taos Valley is around 900 AD.

In contrast the Middle Rio Grande River Valley is not technically a valley but rather a series of basins, each slightly lower in elevation as you go south. The Rio Grande Rift, a geological feature where two sides of

a fault are actually pulling away from each other, it extends 500 miles from Colorado through New Mexico. To confuse things further it is not a single rift as the name suggests but rather a series of basins that once each contained its own seasonal lake. To give this some geologic prospective, the Rio Grande Rift has been active for 20 million years and the Rio Grande has flowed in its present course for one million to two million years.

The region's weather is influenced by El Niño and La Niña cycles. During El Niño the precipitation rates increase, causing high spring water levels. Conversely La Niña results in drought conditions. New Mexico is arid to semi-arid and trees are limited to mountains that capture rainfall or snow and to waterways caused by topography where this precipitation collects and moves southerly.

It was these water courses that compelled me to write about the Rio Grande cottonwoods. As we drove past vast expanses of desert-like landscape, we saw brilliant yellow ribbons of trees accenting the hillsides. The blue, primarily cloudless skies allow unfiltered light to cloak the yellow foliage with a brilliant shine, beyond description.



Cottonwood trees along the ridge indicate a watercourse flowing to the Rio Grande (foreground). Photo: J. Morton Galetto

These yellow ribbons are the Rio Grande cottonwoods, marking dry water courses that are seasonally wet. Beneath the ground an extensive root system still seeks whatever

moisture exists. Along waterways, where there is a more consistent flow, coyote willows and cottonwoods grow over a broader expanse.



Tributaries of the Rio Grande, such as this Chama River oxbow just north of Abiquiu, New Mexico, are lined with Rio Grande cottonwood. Photo: J. Morton Galetto.



Rio Grande riverbank. Photo: J. Morton Galetto.



Traveler Gail Overdevest stands riverside among coyote willows. Photo: J. Morton Galetto.

Pioneers and wagon-train scouts looked for a row of cottonwoods in the distance because they signified an important source of water in these otherwise arid lands. Pioneers also used the leaves of these trees for animal

feed and herbal teas. And in a desert climate one of the single most important things a cottonwood supplies is shade and shelter for both people and wildlife.

On close inspection cottonwood leaves are triangular-shaped and about 2-2.5 inches long and wide. Before autumn's changes they are a shiny green with a yellow midrib and a coarsely-toothed margin. The stem is flattened such that the leaves shake back and forth in the wind like its willow relative, the "quaking" aspen.

The tree is dioecious meaning it is either male or female, not both. So a specimen will have a flower or fruit with just the female pistil on an entire tree, or a flower with just the male anther which contains the pollen.

Unfortunately development, water management like levees and dams, and climate change threatens this ecosystem. Cottonwoods are reliant upon seasonal flooding for germination, yet the last great flood was in 1941. The damming of the Rio Grande and lack of annual inundation has caused seed germination to decrease greatly over the last half-century. Because of an absence of seedling cottonwoods many invasive non-native species like salt cedar and Russian olive have crept in and been allowed to flourish. The tree's problems are

compounded by its relatively short life of only 8 to 100 years.

We rafted a few miles of the Rio Grande near the Taos Junction Bridge, in Carson, and also biked about five miles along the river in Albuquerque on the Paseo del Bosque Trail. The section we rafted was lined by coyote willow and cottonwoods, while the Albuquerque biking trail was lined only by cottonwoods. This habitat is essential for many migrating and endemic birds and other animals. We saw western blue birds, warblers, kingfishers, ducks, and many other unidentified songbirds. Though we did not see sand hill cranes they too make use of the area. Other animals include bighorn sheep, elk, mule deer, pronghorn antelope, cougar, black bear, bald eagle, and cutthroat trout – New Mexico’s iconic state fish.



Rio Grande launch site. Photo: J. Morton Galetto.

Like so many places in our nation the loss of wetlands plagues the Middle Rio Grande. Between 1935 and 1989 over half of its wetlands were lost. Forests are distributed largely between levees as opposed to throughout the wider floodplain. The lack of over-bank flooding means areas with more abundant vegetation are prone to the risk of wildfires. Lack of flooding also allows more woody debris to accumulate.

Cottonwood does not burn as hot as some other wood but is good as a fire starter and as campfire fuel. The enormous stacks of logs we witnessed along the way would seem to indicate that New Mexicans rely a good deal on wood stoves and fireplaces.

In our travels we learned of the Native American uses for cottonwood. Good as building material, it is lightweight and rather soft so it is also suitable for some furniture. It was used for cradles, fencing, large beams, rafts, and small boats. It is the primary wood employed to make drums since its workability makes it easy to hollow out; furthermore it tends to rot from the core outward. An elk hide is stretched over it for the drum head. In addition, cottonwood roots were used to carve Kachina dolls, masks, and other ceremonial objects. The

sacred poles and sun dance artifacts are also made of trunks of these trees.



This drum, made from a huge cottonwood tree with a stretched elk hide, is crafted by a Puebloan in the Pueblo de Taos. Puebloan are an ancient tribe who speak Tiwa, which is not a written language. Photo: J. Morton Galetto.

Cottonwood catkins were used as chewing gum. Further, all willows contain salicin, a chemical similar to aspirin (acetylsalicylic acid) that has pain-relieving and anti-inflammatory effects. The buds and leaves are antimicrobial so are also employed in treatment of respiratory infections, flu, and colds.

Since the 1990's there have been efforts to restore bosque habitats along the Middle Rio Grande River Valley's riparian lands. I honestly don't know how widespread these efforts have been but it is clearly a worthwhile endeavor.

Sources

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