

## Rio Grande Cottonwood (*Populus fremontii*)

By Nancy Daniel

When visitors to the Refuge ask: "what does Bosque del Apache mean?" the answer: "Woods of the Apache" often evokes a curious look. The reference to Apaches is clear, but the notion of woods or forest in this area of the high Chihuahuan Desert can be confusing. "Bosque" refers specifically to trees growing within a riparian area. The Rio Grande and its subsequent impoundments and channels provide this riparian area. Here the predominant tree is the Rio Grande cottonwood (*Populus fremontii*).

The Rio Grande cottonwood was first identified by John Charles Fremont in the 1840's. Just imagine what it must have been like foraging through massive expanses of pristine land to come upon the Rio Grande and its riverside companion – the majestic cottonwood with its welcome shade. Another leap of imagination is also required when envisioning the trees that were not here in the 1840's. There are three weed trees that now grow on the Refuge. The tamarisk or salt cedar (*Tamarix chinensis*), Siberian elm (*Ulmus pumila*) and Russian olive (*Elaeagnus angustifolia*) are all immigrants with a tale to tell. They are not native to the southwest and can out-compete the indigenous trees for water thus causing an enormous threat to a healthy bosque habitat. The tamarisk was introduced by the Soil Conservation Service and the Army Corps of Engineering around 1898 to prevent erosion. The Siberian elm was planted by the Civilian Conservation Corps in 1939 as part of the landscaping around the original structures of the Bosque del Apache NWR. And, the Russian olive was brought to the southwest by both people and birds where it set root anywhere – dry or wet.

The cottonwood tree is more demanding. It needs a relatively high water table, in other words, underground water in reach of its roots. Water is also necessary for germination and establishment of new trees. Male trees bloom

before the females releasing clouds of pollen. The female trees then bloom. Their flowers are inconspicuous, yellow-green and have a sticky surface ready for the pollen that may have traveled many miles with the wind. The pollen sticks, the female flowers are fertilized and the seeds that result look like a small set of green grapes. The seeds mature and emerge from their encasement with cotton-like parachutes to carry them to water or damp soil. Optimum circumstances then allow the new seedlings to send roots deeper and deeper as the water table drops. This change in the water level occurs naturally from the water provided by spring snow runoff to the early summer dry spell. On the Refuge the lowering of the water table is part of Wet Soil Management. Once the cottonwood seed has germination there is still another essential requirement to be met. The emerging seedlings need full sun. While invasive tamarisk are robbing the native cottonwoods of essential water and nutrients, they can also obscure the sunlight necessary for the survival of the cottonwood seedlings.

Cottonwoods serve a multitude of creatures. Insects find full accommodations (both room and board) below the fallen leaves. If you send out a group of children armed with great curiosity and bug boxes, those prowling beneath a grove of tamarisk return virtually empty handed while those exploring under the cottonwoods return with bug boxes brimming. Cottonwood branches house many birds nest including Coopers and Swainson's hawks. There are even a group of seven great blue herons' nests that are clearly visible from the Marsh Loop. Porcupines over-winter in the upper limbs where they feed on bark. There is a special species of mistletoe that depends on the cottonwood for survival. And the list of uses can go on and on for the Rio Grande cottonwood – the signature tree of our Woods of the Apache.