

# Appendix D: Human Chronology



## *A Time Line of the Middle Rio Grande Valley*

**DID YOU KNOW . . . ?** The Middle Rio Grande Valley holds the record for longest continuous human habitation in the United States.

The Rio Grande has been used by people since they first arrived in this area. The earliest sites in the Rio Grande basin are hunter-gatherer camps found on the west mesa, in the Sandias and in areas such as Rio Rancho and the upper reaches of tributaries like the Rio Puerco. When the Spanish arrived, no formal irrigation systems were being used in the Rio Grande Valley, just water-control devices such as check dams and other methods such as flood-water irrigation and grave-mulch gardens.

### **11,000 to 12,000 Years BP**

**(before**

**present)** The earliest known groups of people to live in the Rio Grande valley are called "PaleoIndian." They hunted now-extinct animals such as camels, giant bison, and ground sloths with distinctive spears called Clovis points.

### **10,000 to**

**11,000 BP** The Clovis point changed to a smaller, more refined tool called the Folsom point. Sites of this time period are known from the West Mesa and the Sandias. PaleoIndians moved frequently across territories that covered hundreds of square miles.

### **8,000 to**

**9,000 BP** Further refinements of the PaleoIndian tool kit resulted in the Cody knife and the Belen point. The PaleoIndian era ended with the extinction of many animals and the increased drying of the Southwest at the end of the last ice ages.

### **6,800 to**

**7,800 BP** A long period of time called the Archaic began, as people adapted to the drier Southwest by hunting smaller game and covering smaller territories. Hunting tools of this period are called Jay points and are made of fine-grained basalt.

### **5,200 to**

**6,800 BP** Archaic peoples made the Bajada point, also from basalt, and populations began to increase. There is more evidence of grinding tools for wild seeds.

### **5,000 to**

**3,000 BP** Further population increases are shown by greater numbers of sites, and the first simple structures made from brush have been found (particularly in the Rio Rancho area). Hunting tools are called San Jose points, while grinding tools and cobble-lined fire pits became more common.

### **3,000 BP**

**to 250 AD** The end of the Archaic occurred as more heavily built structures appeared. The first evidence of early agriculture, in the form of simple corn, appeared and the first arrowheads, called Armijo points, were made.

**355 AD** Corn samples from this period have been found in Boca Negra Cave in Petroglyph Monument.



**450 AD** The earliest type of pottery, a plainware called Lino Gray, has been found at sites with small underground dwellings. Pottery and more refined grinding tools indicate a transition to more settled or less mobile way of life needed when people rely more heavily on agriculture.

**600 to**

**800 AD** Small villages with partly underground dwellings called pithouses were built in the river valley, especially in Rio Rancho, Corrales, and the South Valley. Building materials show the people relied on bosque species such as cottonwood, willow, and reeds. Pottery types included well-decorated black-on-white bowls and jars. Samples of corn are practically the same size as modern varieties. River species such as fish, turtles, and water birds were eaten.

**900 to**

**1100 AD** The first above-ground dwellings, small pueblos with several rooms, have been found in the Rio Puerco valley. Pottery types are more elaborate and more abundant, as are manos and metates specifically designed for grinding corn.

**DID YOU KNOW . . . ?** A thousand years ago, the river flowed between Second and Twelfth Street.

**1100 to**

**1250 AD** Larger pueblos were built in areas such as the Sandia foothills and the river valley. Pottery types originated from areas such as Santa Fe and western New Mexico. A cooler, wetter climate during this time (called the “little ice age”) enabled people to settle areas such as Chaco Canyon and Mesa Verde.

**1275 to**

**1300 AD** A major drought struck the Southwest and many areas without permanent water were abandoned. Because of its reliable water, the Rio Grande became a focus for settlement and the population of the valley increased.

**1300 to**

**1550 AD** Populations grew in the central valley and an estimated 40 to 50 pueblos were built along both sides of the river from Bernalillo to Belen. Most villages were small (under 100 rooms) but pueblos with more than 1,000 rooms have been found. Villages in the river valley were built of adobe while those in the mountains had masonry buildings. Pottery was distinctive since it was decorated with a unique kind of glaze-based paint on red or tan backgrounds. There was no formal kind of irrigation, but flood-water farming was practiced at the edges of the waterlogged valley. Dry-land farming techniques using rock walls have been found on the West Mesa as well. Important changes in puebloan religion occurred, as reflected in the thousands of ceremonial images found at Petroglyph National Monument.

In 1540, 300 Spaniards under Francisco Vázquez de Coronado, along with many auxiliaries, spent two frigid winters with the Tiwa-speaking Tiguex people on the Rio Grande a mile or so south of Kuaua (Coronado Monument). Hernando de Alvarado, scout for Coronado, wrote: “This river flows through a broad valley planted with fields of maize. There are some cottonwood groves. The houses are of mud, two stories high. The people seem good, more given to farming than to war. They have



provisions of maize, beans, melons, and turkeys in great abundance. They dress in cotton, buffalo skins, and coats made with the feathers from the turkeys . . ." (What he called "melons" were squash. The cotton was raised in the Tiguex Province, and the buffalo skins came from the Great Plains.)

Pedro de Casteñeda, traveling with Coronado, commented on the abundance of geese, cranes, turkeys, and other wild fowl. Other chroniclers noted the presence of numerous saline ponds along the river, suggesting the existence of poor drainage even then.

**1541–1581** For 40 years, there were no foreign expeditions. In 1581, a failed missionary effort was followed by a failed settlement attempt in 1591.

**1598** In 1598, Juan de Oñate passed through the valley in favor of settling farther north and establishing a capital of New Mexico closer to the mining prospects in the northern mountains.

Also in 1598 the first engineered acequia was built in San Juan Pueblo by 1,500 Pueblo laborers. Acequias provide water for home use and irrigation of fields.

**DID YOU KNOW . . . ?** The river flows slowly in the valley because the land is flat, sloping only four to five feet per mile.

**ca. 1600-1700** During the 17th century, the Spanish crown sought to "civilize" and assimilate the Pueblo peoples. In an effort to gain converts, large missions were built at Sandia and Isleta pueblos.

**1650-1660** Diseases introduced by the Europeans significantly reduced the number of Indians living in the valley. By the 1650s, the southern Tiwas had deserted nearly all their villages and moved in with relatives clustered in the four pueblos of Sandia, Alameda, Isleta, and Puaray. Hispanic settlers moved into vacated Indian farmland. By the 1660s, there were about 45 Spanish ranches in the Middle Rio Grande Valley but, as yet, no formal towns.

**1680–1692** During the Pueblo Revolt of 1680 people rose up against Spanish rule and drove out the settlers in the only successful revolt against colonial rule in this country's history. Survivors fled to El Paso. The Spanish were gone for about 12 years.

**1691-1695** The new governor, Diego de Vargas, succeeded in reconquering and resettling New Mexico. Bernalillo was officially founded in 1695 with a plaza and church. Grants of small farms replaced the large ranches that had been worked by Indian labor before the 1680 revolt. Large grants were given to military families to reoccupy the land, such as the Diego Montoya Grant (1694) and the Atrisco Grant (1692).

**c. 1700-1850** Land in cultivation by Pueblo and Hispanic people more than tripled, to about 100,000 acres. Various land-use practices led to increased sediment load and increased alkalinity in the Rio Grande, and adjacent soils became more waterlogged. Cottonwoods were cut extensively for building material and fuel.

**1706** Albuquerque was officially founded. Governor Francisco Cuervo y Valdéz assigned ten soldiers to the new Villa of Alburquerque. Thus protected, "35" families settled in the area of good crops and pasture land. Juan Candelaria recalled many years later



that it was really only 12 families, originally from the Bernalillo area, who returned to reclaim property abandoned in the Revolt of 1680. All the good land in the Villa of Albuquerque was parceled out. The Candelaria land, present site of the Rio Grande Nature Center, was in the area described by a visitor to the villa:

“The rest of what is called Albuquerque extends up stream to the north, and all of it is a settlement of ranchos in the meadows of said river for a distance of a league (2.6 miles) from the church to the last one upstream. Some of their lands are good, some better, some mediocre. They are watered by the said river through very wide, deep irrigation ditches, so much so that there are little beam bridges to cross them. The crops taken from them at harvest are many, good, and everything sown in them bears fruit.”

**1716** Elena Gallegos obtained a 35,000-acre land grant from her uncle, Diego Montoya. The grant stretched from the Rio Grande to the crest of the Sandias, including settlements in the river valley. It was rare for a woman to have such wealth in colonial Nuevo Mexico.

**1748** Sandia Pueblo was re-established with Tiwa-speaking people after its destruction by the departing Spanish in 1680. In the 1770s the Spanish governor sent Hopis to reinforce the pueblo against raiders. Walled towns offered greater protection than the dispersed homesteads of the Spanish.

**Mid-1700s** Farmland in the river valley was divided into small ranchos or settlements based around plazas. Some plazas were associated with family names, such as Los Garcias, Los Montoyas, Los Gallegos, Los Griegos, Los Duranes, and Los Candelaria in Albuquerque’s North Valley, or Armijo and Los Padillas in the South Valley. Other plazas reflect place names such as Los Ranchos and Los Poblanos or Atrisco and Pajarito. Many of these place names are still in use today.

**1773** A New Mexican commented on the seasonal floods, saying, “The water brings with it a thick mud which serves as manure for the land, leaving on the top of the irrigated earth a glutinous scum resembling lard.” The fields, thus fertilized and irrigated by a network of acequias, yielded bountiful crops of corn, wheat, chiles, squash, beans and onions, as well as native tobacco.

**1778** Don Juan Bautista de Anza became the new governor.

Population growth continued to be limited by the periodic smallpox epidemics, one of which hit in 1780. Many died and the survivors were scarred for life. Not until 1804, when vaccination came to Albuquerque by order of the Spanish king, was the disease checked, thus allowing for a population increase in the 19th century.

**DID YOU KNOW. . . ?** The population in the Rio Grande Valley about the year 1400 was more than 25,000. In 1790 it was only 6,000.

**1790** The census for the Villa of Albuquerque showed 57 farmers and four ranchers. Atrisco, across the river, had 12 ranchers and seven farmers. By the end of the century, sheep were plentiful with the standard size of a flock at 1,000 ewes and 10 breeding rams. Sheep were preferred to cows as they were less likely to be run off by raiders



Anglos were in the valley in the late 1700s searching for beavers.

**1821** Mexico became independent of Spain. Little changed in the Rio Grande Valley. However, the area became open to adventurous traders from the new neighbor to the northeast, the United States. A census showed no industry in the valley, with inhabitants earning a living from farms and flocks.

**1846** New Mexico was claimed as a territory by the United States; American troops were stationed near the Plaza in Albuquerque. They provided protection from raiders as well as a market for produce from the valley.

In the same year, Henry Smith Turner wrote: “There is great difficulty in obtaining sufficient fuel for cooking purposes—the men have to go several miles to obtain a handful of wood. We occasionally see a grove of cottonwoods which is preserved with great care, as it provides the only material with which carts for the whole country are made. These groves are always on private property.”

German naturalist Frederick A. Wislizenus made detailed environmental observations of New Mexico while traveling downriver from Santa Fe in 1846. He found sand sagebrush (*Artemisia filifolia*) and other shrubs but apparently little or no grass on the sandy llano east of Albuquerque. Grasses here probably had already been overgrazed by sheep. Moving back to the Rio Grande, he found only a few cottonwoods from Albuquerque to Isleta Pueblo. Some five miles below the pueblo, he mentioned a fine grove of cottonwoods.

**1848** The Treaty of Guadalupe Hidalgo was signed, ending the Mexican–American War and making New Mexico and California part of the U.S. The treaty called for the United States to respect water rights and property rights (including the Pueblos’ rights over some 700,000 acres) that had been valid under Mexican law.

**1860s** Civil War came to New Mexico. A series of natural disasters struck in 1865. Late spring frosts nipped fruit trees. Torrential rains and pelting hailstorms were followed by spring floods which swept away the wheat and corn crops. Residents of Bernalillo and Albuquerque fled to high ground for safety. Plagues of grasshoppers and corn worms devastated what crops had survived the floods.

**1880** The coming of the railroad moved the center of Albuquerque business from the old plaza to “New Town.” It brought tools and technology as well as a flood of new settlers. A lumber mill, a brick factory, wool-scouring mills, and railroad maintenance shops followed. Even a hint of the health-care industry to come arrived with tuberculosis patients coming to Albuquerque by rail. The railroad brought fuel and building materials, thus lessening the stress on the bosque for these products. However, it stimulated the livestock industry and increased agricultural demands, setting the stage for a new assault on the river and its riparian ecosystem.

**DID YOU KNOW...?** Fossil cottonwood leaves, looking just like modern cottonwoods, have been found in the ash deposits near Albuquerque from the Jemez Volcano eruption about 1 million years ago.

**c. 1875–1935** Cultivated acreage grew to about 125,000 acres, then decreased to about 35,000 acres due to environmental changes.



**1880-90s** A combination of factors led to a rise in the water table. Sheep and cattle were over-grazing the unregulated range lands, causing erosion. The bed of the river rose as increasing amounts of sediment were deposited. Trappers had removed most of the beavers from New Mexico's waters, so there were no more beaver dams to catch sediment. Agricultural irrigation ditches (acequias) distributed water throughout the valley, thereby increasing ground water recharge. Irrigation return flows could not drain to a now-elevated river channel. Thus the scene was set for the significant floods which occurred around the turn of the century.

**1884** Flooding of the Rio Grande Valley was an often-present threat. Floods came in the spring from melt-off in the mountains and in the late summer from severe thunderstorms. Perhaps the worst flood in the history of the valley came in 1884. Other major floods occurred in 1874, 1891, 1903, 1909, 1912, 1920, 1937, and 1941.

**1885** A major dike was built north of Alameda. Prior to this, the river would leave its bed and pour down along the low, east side of the valley to its old channel between the railroad tracks and Fourth Street. This dike protected New Town, but not the low-lying adobe settlements built closer to the river. The dike, which had to be rebuilt in 1891, broke again in 1904, allowing the river to devastate Alameda and form a lake near Los Ranchos that lasted nearly a month. The following year, the U.S. Geological Survey reported that "almost the entire harvest of corn, wheat, and oats was destroyed and orchards and vines destroyed to a large extent. The soil, however, was enriched by the sediment and benefited by the washing of the alkali from the land."

**1910** Fourth Street, put through the center of the valley, became the main thoroughfare. By 1922 the sand hills had been leveled and Fourth Street paved and designated part of the Pan-American Highway. Second Street was built in the 1930s along with the Alameda Drain.

**1914–1924** Aldo Leopold, father of the modern conservation movement, lived in Albuquerque. His involvement in civic matters gave rise to the idea of creating a "Rio Grande Park" 65 years ahead of its time. "Every citizen should remember that this park will be one of Albuquerque's greatest assets," he wrote for the Chamber of Commerce. Mayor Clyde Tingley oversaw building the park's centerpiece, eventually called "Tingley Beach," in the early 1930s. Leopold spearheaded the creation of the Gila Wilderness, the first designated wilderness area in 1924.

**1916** Elephant Butte Reservoir began storing water. Completion of the dam came in 1917. Filled to capacity in 1942, it dried up twice in the 1950s.

**DID YOU KNOW. . . ?** The Rio Grande bosque is the last really long cottonwood forest in the western United States.

**1925** By this date, only 40,000 acres were under cultivation in the middle valley, one-third the amount cultivated in 1850. The causes were standing water, water-logged fields, and alkaline soil. The Middle Rio Grande Conservancy District (MRGCD) was formed in response to the classification of two-thirds of the valley as alkaline soil, marsh or sand hills dominated by sand sagebrush. Its purpose was to provide a complete and efficient irrigation system, including drainage and flood-control. A part of the MRGCD drainage system is the Albuquerque Riverside Drain which can



be seen at the Rio Grande Nature Center from the footbridge. It is also known as the Clear Ditch.

Deterioration of the land was the result of intensive irrigation and recurrent flooding, aggravated by the aggrading (raising of the bed) of the river. As the sediment load of the river increased, the water table rose along with the bed of the river. The sediment increase came from erosion upstream, the result of overgrazing and intensive agriculture.

Miguel Sena, quoted in *Shining River, Precious Land*, speaks of the high water table. "We used to build houses on Fourth Street during the 1920s and 1930s, and they used to put in septic tanks, metal ones, but when you put them in the ground in the evening (because of the water table) everything would be on top of the ground the next morning. So they found a trick to it. They would fill the tanks with water and then set them in the ground."

**1930** Dairying was common throughout the area by 1930. It declined after World War II as fewer men were available to run the farms, and the influx of new residents used the land for housing.

Saltcedar (tamarisk) spread through the valley in the 1930s. Introduced into the U.S. in the early 1800s, six species of the plant were being grown in an arboretum in Washington, D.C. It was first reported in New Mexico in 1910. The City of Albuquerque and the U.S. Forest Service purchased some from Stark Brothers in 1919. Saltcedars were planted as windbreaks and ornamentals and to stabilize river channels.

**1935** The Albuquerque District of the U.S. Army Corps of Engineers was formed. El Vado Dam, on the Rio Chama, was completed as part of the improvements made by the MRGCD. Other structures for irrigation, drainage and flood control, including six diversion dams or headings in the middle valley, were completed by 1936.

**1937** The Rio Grande Compact, an agreement signed in 1937 allocating the river flow among Colorado, New Mexico, and Texas, affects the amount of water available for the state.

**1939** Bosque del Apache National Wildlife Refuge opened on land west of the river near San Antonio. An executive order by President Franklin Delano Roosevelt created the "refuge and breeding ground for migratory birds and wildlife." Not originally wetlands, the refuge was home to 17 Sandhill Cranes when it was established and now hosts 12,000 to 17,000 cranes in the winter months, as well as a variety of other wildlife.

**1941** The flood-control efforts of the Middle Rio Grande Conservancy District proved insufficient when water breached and overtopped parts of the levee system. The flood, which took two months to dry up, gave the Rio Grande Nature Center its last large crop of cottonwoods.

**1948** The Flood Control Act of 1948 authorized the Rio Grande Comprehensive Plan, developed by the Bureau of Reclamation and the Corps of Engineers, which called for a system of flood-control reservoirs on the Rio Grande and its tributaries, along with improvement of the levee system, installation of jetty jacks, and other channel



modifications. This resulted in the completion of four more dams: Jemez Canyon (1954), Abiquiu (1963), Galisteo (1970) and Cochiti (1975).

**DID YOU KNOW...?** Alameda was once on the west side of the river. Changing course was normal for the river before 1957.

**1957** Serious efforts at controlling the river followed World War II. The Rio Grande was confined to its present channel in 1957 through the efforts of the MRGCD, the Corps of Engineers, and the Bureau of Reclamation. A system of levees, Kellner jetty jacks, and the natural boundaries of the floodplain keep the river in its channel.

Flood-control measures have changed the character of the bosque. Lakes and wetlands have dried up. Non-native phreatophytes such as tamarisk, which tolerates greater alkalinity and has deeper root systems, are replacing native plants. The Rio Grande cottonwood needs soil that stays wet until the roots of the seedlings reach the water table, and these conditions are now limited in the valley.

**1960** Russian olive has been a major understory component from Corrales to Belen since 1960. Introduced in Mesilla in 1903, it was reported growing on the flood plain in 1929 and 1935.

The Riverside Diversions of Corrales and Atrisco were replaced with underground siphons that also served as conveyance channels.

**DID YOU KNOW...?** The Bureau of Reclamation had plans in 1969 to cut down the trees in the bosque to save water.

**1970s** The San Juan/Chama Diversion Project, resulting in transmountain water joining the Rio Grande, was completed in 1971. Twenty-six miles of tunnel carry water from San Juan River tributaries to Heron Lake. Released into the Chama River, this water flows to the Rio Grande. The City of Albuquerque purchased rights to some of the San Juan/Chama Diversion Project water and began using it in 2008 in an effort to slow depletion of the aquifer.

The U.S. Army Corps of Engineers completed north and south flood diversions in Albuquerque in 1972. River flow has been completely regulated since 1973 from Cochiti Dam on the north to Elephant Butte Dam on the south. Completed in 1975, Cochiti Dam stores water, controls river flow, traps sediment, and provides recreation facilities and wildlife habitat. The U.S. Bureau of Reclamation maintains a relatively linear floodway to convey water more efficiently, a process contrary to the natural flow of a river. The jetty jacks stabilize the channel and protect the levees.

**1973** The federal Endangered Species Act, amended in 1973, provides for the preservation of ecosystems on which threatened or endangered plants and animals depend. It became the basis for the protection of the silvery minnow and the Middle Rio Grande in the 1990s.

Also in 1973, the Sevilleta National Wildlife Refuge was established near Bernardo.

**1980s** This was the warmest decade ever scientifically recorded in New Mexico to date, and the warming trend—which began in the late 1800s—continues.



**1982** The Rio Grande Nature Center was opened to the public in June on 270 acres of what is now the Rio Grande Nature Center State Park. The Nature Center's mission is the preservation of the bosque and education of the public about this remarkable ecosystem.

**1983** The Rio Grande Valley State Park, in the planning since at least 1969, was established by the legislature. The City of Albuquerque was named the prime managing agency; the land was owned almost entirely by the Middle Rio Grande Conservancy District.

Also in 1983, a new headquarters and visitor center are completed at Bosque del Apache NWR.

**1988** The Sevilleta National Wildlife Refuge became the home of the University of New Mexico's Long Term Ecological Research Project, part of a federally funded network of research into ecological and biotic responses to climate change.

The first Bosque del Apache Fall Festival was held in 1988; it was renamed the Festival of the Cranes in 1990.

**DID YOU KNOW...?** By the 1990s, up to 90 percent of New Mexico's bosque habitat was destroyed or significantly altered by human activities and the invasion of exotic species.

**1990** An informal group with representatives from the Bureau of Reclamation, Corps of Engineers, National Park Service, U.S. Fish and Wildlife Service, Conservation Foundation and the Audubon Society met after prompting by Senator Pete Domenici and then-Secretary of the Interior Manuel Lujan to discuss appropriate actions for the preservation, care and maintenance of the ecological health of the Middle Rio Grande bosque.

**1991** Senator Pete Domenici appointed the nine-member Rio Grande Bosque Conservation Committee, which, with considerable public input, produced recommendations for conservation of the Middle Rio Grande bosque. The final report was published in June of 1993. Among the committee's recommendations were the development of a biological management plan and an increased effort to improve public education on bosque-related topics. A congressional appropriation to the U.S. Fish and Wildlife Service, known as the "Bosque Initiative," provided funding for research, restoration and education about the bosque.

Efforts to understand more about the bosque ecosystem, and particularly the role of flooding, began with the initiation of a study at the Bosque del Apache NWR by a group of biologists from the University of New Mexico. The first of three annual experimental floods was created in 1993. Funding for the project came from the Bosque Initiative.



**1993** The *Middle Rio Grande Bosque Ecosystem: Biological Management Plan* was published by the Middle Rio Grande Biological Interagency Team, with funding from the U.S. Fish and Wildlife Service (the Bosque Initiative) and the Corps of Engineers. The plan provides 21 recommendations to agencies involved in management of the bosque and river, with the preservation and restoration of the ecological well-being of the bosque and other floodplain habitats as their central goal.

**1990s** Various groups were formed to discuss management of the bosque. Among those not mentioned elsewhere in this chronology are the Middle Rio Grande Bosque Task Force and the Middle Rio Grande Bosque Consortium.

**1994** The U.S. Fish and Wildlife Service hired the first Rio Grande (“Bosque”) Coordinator, as recommended by the Bosque Biological Management Plan.

Also in 1994, the Rio Grande silvery minnow was placed on the federal list of endangered species. Conflict among local farmers, federal and local land managers, and environmentalists over access to water and maintaining habitat for silvery minnows, including lawsuits and considerable federal court proceedings, continues to the present day.

**1995** The Bosque Improvement Group (BIG) was formed as an informal, ad hoc, non-exclusive “think-tank” to provide a forum for those interested in management of the Middle Rio Grande bosque. BIG and the Bosque Coordinator oversaw the annual distribution of funds from the Bosque Initiative. Funded projects focus on research and monitoring, restoration, and outreach. A working group of BIG, the Bosque Hydrology Group, helped to coordinate and provide communication among researchers collecting water-related data in the bosque.

The first edition of the *Bosque Education Guide* was published.

**1996** At Sevilleta NWR, six pens were constructed to house Mexican gray wolves slated for release into the wild.

The Bosque Ecosystem Monitoring Program (BEMP) was initiated through the University of New Mexico and Bosque School. BEMP provides an opportunity for local school groups, volunteer groups, and other citizens to become actively involved in ecological monitoring along the Middle Rio Grande bosque.

The human-caused San Pedro Fire burned for four days in June, after an extremely dry winter and spring and drought conditions in the valley. The fire burned 1640 ha of the Bosque del Apache NWR, including nearly 880 ha of cottonwood–willow forest. The frequency and severity of fires are increasing along the Middle Rio Grande Valley.

**1997** The Montaña Bridge over the Rio Grande opened after years of protests and delays.

The first Assembly for Water Planning in the Middle Rio Grande met in August 1997. The assembly brought together representatives from a wide range of interests, including state and local governments, resource managers, environmental groups, private citizens, local pueblos, agriculture and business. The participants called for the development of a regional water plan through an open, inclusive and participatory



process. The Water Assembly met and gathered public input to produce the regional water plan.

**1998** The Albuquerque Overbank Project started in the spring. An on-going and collaborative effort, the project attempts to mimic natural conditions for cottonwood regeneration and to serve as a model for riparian restoration. Participants include Albuquerque Open Space, MRGCD, the University of New Mexico, the New Mexico Natural Heritage Program, the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the State of New Mexico Environment Department.

Also in 1998, Santa Ana Pueblo completed the first phase of bosque restoration on 140 acres, with the intention of restoring a total of 1,000 acres in the following decade.

The Albuquerque City Open Space Division completed a five-acre constructed wetland near the Alameda bridge, providing valuable wetland habitat in the valley.

**Late 1990s** Research and restoration continued as we headed toward the next century. A number of research projects, both by agencies and academic groups, investigated the ecology and hydrology of the Middle Rio Grande. Projects included more study of the role and effects of flooding in the riparian forest, water use by riparian plants, ecology of exotic species, the role of fire, and more. Restoration projects got under way in full swing. Pole plantings, wetland creation, excess fuel removal, and bank alterations were some of the projects, with a number of agencies and private groups involved.

**1999** The Rio Grande Nature Center's Bosque Buddies program was in its second year, serving third- through fifth-graders from Atrisco and Valle Vista elementary schools. Nature Center volunteers provide classroom and field-trip instruction in beginning ecology in an effort to spark students' interest in learning and commitment to the bosque's future.

**2001** The Candelaria Wetland was dedicated June 19. Adjacent to the Nature Center, the five-acre manufactured wetland includes shallow ponds and aquatic vegetation to offer habitat for resident and migratory wildlife. A volunteer-led Wetland Monitoring Program is providing long-term data collection.

The Albuquerque Bosque Demonstration Project started near Tingley Beach, to show what the bosque could look like after the clearing away of exotic plants and excess fuels and the planting of native riparian species. The project is a joint endeavor by the Albuquerque City Open Space Division and Rio Grande Restoration.

**2002** The National Hispanic Cultural Center initiates Jardines del Bosque, a multi-faceted program to establish cultural connections with bosque restoration in the vicinity of the center.



## ***Human Activity: A Chronology of The Middle Rio Grande Valley***

This chronology was developed by Anne Bancroft in 1992 as a timeline for the 10th anniversary of the opening of the Rio Grande Nature Center. It was updated in 2002 and 2003. Sources include:

Kathryn Sargeant and Mary Davis, *Shining River, Precious Land: An Oral History of Albuquerque's North Valley*. The Albuquerque Museum, 1986.

Melanie Greer Deason, "Water Resources Issues in New Mexico." *New Mexico Journal of Science*, New Mexico Academy of Sciences, Vol. 38, November 1998.

Dan Scurlock, *From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin*. General Technical Report RMRS-GTF-5. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Clifford Crawford, A.C. Cully, R. Leutheuser, M.S. Sifuentes, L.H. White and J.P. Wilber, *Middle Rio Grande Ecosystem: Bosque Biological Management Plan*. U.S. Fish and Wildlife Service, District 2, Albuquerque, New Mexico, 1993.

Marc Simmons, *Albuquerque. A Narrative History*.

Marc Simmons, *New Mexico: A History*.

Matt Schmader, City of Albuquerque Open Space Division.

*Imagine: The Archeology of Albuquerque and Bernalillo County*. Planning Department, City of Albuquerque, 1992.

Linda S. Cordell, *Cultural Resources Overview: Middle Rio Grande Valley, New Mexico*. U.S. Forest Service and Bureau of Land Management, 1978.

Miscellaneous materials published by New Mexico State Parks.

Suggestions for use of the chronology are:

1. Background for teachers.
2. Teaching subtraction. How long ago did something interesting or important happen?
3. Material can be made into a timeline using increments of ten years from about AD 1350 on. The pages of the chronology can be reproduced and cut into segments. The segments can be edited and fitted on paper about 12" to 18" wide and whatever length needed.
4. Investigate bosque history in your area, including such things as fires, subdivisions, roads, bridges, animal sightings, etc., and write your own chronology.

A continuous line running along the top of the strip can be divided into 10-year segments with the dates written above the line. At the appropriate place, the date indicating the event can be placed below the line, and the text and illustrations placed near the significant date. Students can find or make illustrations. It is not necessary or desirable to use all the material. Select a time period of special interest to the students. Perhaps they have some personal history to add!