

CHAPTER THREE

THE SETTING: NATURAL AND RECREATIONAL RESOURCES

Encompassing more than 10,000 square miles, the Northern Río Grande National Heritage Area represents every epoch of New Mexico’s geologic history – from fossil remains that date back hundreds of millions of years to hot springs created from the region’s volcanic past and that remain a popular destination today.

The three-county heritage area -- Rio Arriba, Santa Fe, and Taos -- constitutes a significant portion of what historically is referred to as *río arriba*, a Spanish term that translates as “upper river.” In normal usage, the term differentiates northern New Mexico from the *río abajo*, or the “lower river” area of central and southern New Mexico. The river – whether upper or lower – is the Rio Grande, which originates in the San Juan Mountains of Colorado, crosses the border into New Mexico’s Taos County, and slices through the center of the state on its 1,900-mile journey to the Gulf of Mexico.

The Rio Grande and its tributaries are vital in the shaping of the natural and cultural history of the Northern Río Grande National Heritage Area.

RIVERS AND ROCKS

Millions of years ago, a geological rift during the Cenozoic Era formed the bed where the Rio Grande now flows. The Rio Grande Rift, as it is known, is a massive rent in the Earth’s crust, 20 miles wide and several miles deep. Stretching for miles, it forms Colorado’s San Luis Valley and

slashes New Mexico in two. As explained by the New Mexico Bureau of Geology and Mineral Resources, the rift resembles “a plowed furrow with raised shoulders.” The shoulders are the high peaks of the Sangre de Cristo Mountains on the east and the Precambrian volcanic rocks of the Tusas Mountains on the west.

With the rift as bed, the Rio Grande courses south, cutting through the Taos Plateau and the Española Basin, its many tributaries forming a hub of water resources in an otherwise arid and semi-arid landscape. One important tributary, the Rio Pueblo de Taos, for example, originates high in the Sangre de Cristo Mountains and passes through the center of Taos Pueblo, a World Heritage Site inhabited for more than 1,000 years. Joining the Rio Pueblo near the town of Taos are the Rio Lucero, Rio Fernando de Taos, and the Rio Grande del Rancho – all tributaries of the Rio Grande – that flow together into the 800-foot-deep Rio Grande Gorge, where the National Register-listed Rio Grande Gorge Bridge offers a spectacular view of the geologic rift. [\[See sidebar 1 below\]](#)



Río Chama

1. The Rio Grande Gorge Bridge, about 13 miles northwest of Taos, carries traffic on U.S. 64. Parking areas on both sides of the bridge provide a pull-off for vehicles, and sidewalks allow visitors to walk out on the bridge and gaze down at the narrow ribbon of water, flowing some 600 feet below. Completed in 1965, the bridge is among the highest in the United States. It has appeared in several films, and was named the country's "Most Beautiful Steel Bridge – Long Span" by the American Institute of Steel Construction in 1966.

Two national recreation areas managed by the Bureau of Land Management are situated along the 78-mile-long Rio Grande Gorge. Wild Rivers Recreation Area, 35 miles north of Taos, and Orilla Verde Recreation Area, 16 miles south of Taos, offer a myriad of recreational activities and views of geological rock formations and flora and fauna characteristic of the Rio Grande Valley. The Rio Grande Gorge Visitor's Center on State Road 68 in Pilar is open year round. The Orilla Verde area winds through the gorge at river level, providing easy access for fishermen, white-water rafters, and campers. Twenty-two miles of rim and river trails are open to hikers and bikers, while a riparian area of cottonwood and willow along the riverbank provides a home for a variety of small birds, beaver and muskrat. Remnants of ancient lava flows, tumbled into rockslides of dark basalt, are visible. The Wild Rivers Recreation Area includes a scenic drive 800 feet above the Rio Grande, as well as trails that pass through open sage land and a piñon-juniper forest. The recreation area is at the confluence of the Rio Grande and Red River, which, in 1968, were among the first rivers designated by Congress as part of the National Wild and Scenic River System.

To the northwest, the Rio Chama comes down from the Rocky Mountains of Colorado and cuts across the San Juan Basin of Rio Arriba County before it joins the Rio Grande a few miles north of Española. On its way, the Rio Chama cuts a colorful sandstone canyon, 24.6 miles of which have been designated by Congress as a Wild and Scenic River. [sidebar 2]

Joining the Rio Chama north of Hernandez is the Rio Ojo Caliente, which flows south from La Madera and through the town of Ojo Caliente, noted for its mineral hot springs. [sidebar 3]

The 46-mile-long Santa Fe River [sidebar 4], with headwaters in the high country east of the city of Santa Fe, runs through New Mexico's state capital before it joins the Rio Grande, its entire watershed covering about 285 square miles and providing a home for humans and wildlife.

4. Historically, Santa Fe River flows have been perennial, or nearly so, although today the river channel runs dry for much of the year and is prone to flash floods. The city of Santa Fe, with Santa Fe County as an active partner, currently is pursuing a broad range of actions to improve the river and its watershed, which, in 2007, was named America's Most Endangered River by the Washington, D.C.-based advocacy group American Rivers.

2. That portion of the Rio Chama designated as a Wild and Scenic River flows through the Chama River Canyon Wilderness, which encompasses 50,300 acres managed by the U.S. Forest Service. The canyon walls, range in color from yellows to maroons, marking distinct sedimentary layers of rock. Ponderosa pine, willows, cottonwoods, shrubs and desert grasses populate the landscape. In 1978, the land was designated a wilderness area. In 1986, a portion of the Rio Chama River was designated a Wild and Scenic River. Between 70 and 80 bird varieties frequent the area, as well as mule deer, elk, coyote, and black bears. During the summer, cattle graze in the area. Two main trails – the Hart Trail off of U.S. 84 and Forest Road 145 – descend into the canyon and to the river. A portion of the Continental Divide National Scenic Trail also crosses the wilderness area.

3. Ojo Caliente Mineral Springs, about one-half mile off of U.S. 285, bubble up from a subterranean volcanic aquifer. Ancient peoples, believed to be ancestors of today's Tewa Pueblos, built large pueblos and terraced gardens overlooking the springs, which today are listed on the National Register of Historic Places. The thermal waters discharge along a fault zone at a rate measured at 100 gallons a minute. In their journey to the surface they dissolve minerals – iron, arsenic, soda, sodium sulfate, and Lithia – in what is said to be the only natural hot springs in the world with combination of five geothermal mineral waters, each a different temperature. The present-day facility has a separate pool for each of its five springs, with temperatures ranging from 95 to 111 degrees Fahrenheit. In 1535, Spanish explorer Cabeza de Vaca named the springs Ojo Caliente, meaning "hot spring", though many now translate literally as "hot eye". In the 1800s, Antonio Joseph, New Mexico's first territorial representative, opened a health spa with overnight lodging there.

Hot springs stem from the Heritage Area’s volcanic past. North of Tres Piedras in Rio Arriba County, for instance, the isolated, volcanic dome of San Antonio Peak swells up from the Taos Plateau. Farther south are the Jemez [HEY-mehz] Mountains, a volcanic field that developed simultaneously with the Rio Grande Rift. Near the center is the Valles Caldera, a 12-mile-wide crater formed by a collapsed volcano and crowned by a series of post-collapse lava domes. So significant to geologic history is the caldera that it is listed on the National Registry of Natural Landmarks.

New Mexico’s highest peak, 13,161-foot Wheeler Peak, rises in the Taos Range of the Sangre de Cristos, which are uplifted, fault-block mountains. Near Glorieta Pass, southeast of Santa Fe, the Sangre de Cristos mark the southern terminus of the great Rocky Mountain chain. Like northern New Mexico’s rivers, the rocks and their ancient movements, coupled with the eroding work of water, wind, and sun, Frank E. Kottlowski writes, “determine New Mexico’s spectacular landscapes,” from its mountain peaks, flat-topped mesas and piñon/juniper foothills, to its sandstone canyons and Rio Grande Gorge. The Piedra Lumbre Education & Visitor Center in Abiquiu is an excellent place to explore the geology, as well as paleontology and archeology, of the Northern Rio Grande National Heritage Area. [sidebar 5]

5. **Ghost Ranch**, near Abiquiu and listed on the National Register of Natural Landmarks, is home to a number of resources. At the Ruth Hall Museum of Paleontology visitors will see well-preserved skeletons of the *Coelophysis* (SEE-Low-FY-sis) dinosaur and geology, flora, and fauna from the Triassic period. At the Florence Hawley Ellis Museum of Anthropology, extensive displays tell the story of twelve thousand years of successive habitation of the Gallina-Chama-Rio Grande drainage by peoples of different ethnic makeup and cultures. The Piedra Lumbre Education & Visitor Center – a partnership between Ghost Ranch and Carson National Forest and situated just north of Ghost Ranch gate, hosts educational programs and cultural events and seeks to promote sustainable land and water practices and to improve the region’s land-based economy.

ECOSYSTEMS

The Heritage Area comprises immense topographic and geologic differences and distinct eco-systems that vary by elevation and climactic conditions. Ecosystems range from the San Luis Shrub Lands and Hills, to the Taos Plateau and the varied eco-regions of the Southern Rockies – from grassland parks, to foothill woodlands and shrub lands, to sub-alpine and mid-elevation forests, both sedimentary and volcanic. Vegetation is as varied as the region: Sagebrush, yucca, and piñon/juniper dominate on the plains

and foothills, where it is warm and dry. Scrub oak and ponderosa pine grow at higher elevations, on the broad mesas and sides of mountains, then give way to mixed conifers – Douglas fir and blue spruce, which appear at elevations of 8,500 to 9,500 feet. Above 10,000 feet, harsh weather dwarfs the spruce, but hardy

plants and wildflowers sprinkle the landscape.



These eco-regions provide habitat for antelope, gophers, prairie dogs, coyotes, crows, ravens, eagles, several species of hawks, butterflies, bats, and a veritable encyclopedia of nocturnal flying insects. Waterways support native cut-throat trout, naturally reproducing brown trout, rainbow trout, bass, and other game fish. About 20 miles north of Taos, the Red River Fish Hatchery is the state's largest.

[[sidebar 6](#)]

6. Red River Fish Hatchery is the largest of New Mexico's six hatcheries. Built in 1941, the hatchery produces about 1.7 million rainbow trout a year, including more than 500,000 catchable 9- and 10-inch fish for stocking statewide. The Los Ojos (Parkview) Fish Hatchery in Los Ojos is listed on the National Register of Historic Places.

Pronghorn and mule deer roam the rolling plains, while black bears, mountain lions, mountain sheep, and elk are found in higher elevations. Occasionally, herds of bison are seen from the highway on various Pueblo lands.

While species have adapted to the region's tremendous differences in altitude, rainfall, and temperature, dozens of species have been identified as endangered. Endangered mammals include the Black-footed Ferret, New Mexican Meadow Jumping Mouse, Southwestern Otter, Townsend's Big-eared Bat, the Spotted Bat, American Marten, and the Rocky Mountain Big-Horned Sheep. Endangered fish include the Rio Grande Cutthroat Trout and Rio Grande Silvery Minnow. Birds include the Mexican spotted and Western burrowing owls, the Bald Eagle, Peregrine Falcon, Southwestern Willow Flycatcher, and the Mountain Plover. The Mountain Toad and

Jemez Mountains Salamander are listed as endangered, as are the New Mexico silverspot butterfly, the Sangre de Cristo pea clam and Cockerell's striate disc, a snail. (No environmental assessment has been required of the Heritage Area, although proposed actions may be subject to procedural requirements of the National Environmental Policy Act as determined by the National Park Service on a case-by-case basis.)

An inventory of birds compiled by the Northern Rio Grande National Heritage Area, Alamoworks, Inc., and student researchers from Northern New Mexico College with direction from the Española Field Office of the U.S. Department of Agriculture Natural Resources Conservation Service, counted 194 types of birds in the three-county area, from the Black-Chinned and Broad-Tailed Hummingbird to Golden and Bald Eagles to finches, teals, flycatchers, and nine types of sparrows. [[sidebar 7](#)]

7. A number of important bird areas are situated in the Northern Rio Grande National Heritage Area, including Chama River Gorge/Golondrina near Tierra Amarilla, Los Luceros at Española, and Burford Lake near Dulce. In Santa Fe, the 135-acre Randall Davey Audubon Center & Sanctuary offers guided bird walks where approximately 130 species can be found. Trails lead through several habitats and plant zones ranging from riverside riparian areas to piñon/juniper woodlands to Ponderosa pine forests.

NATIONAL FORESTS, SCENIC BYWAYS, AND RECREATION AREAS

The Heritage Area's abundant natural resources – its rivers and streams, lakes, forests, ecosystems, and almost limitless vistas – enhance the region's quality of life

and economic value. Open space, parks, recreation areas, scenic lands, and vistas attract businesses and ecotourism and strengthen the region's communities by providing a connection to nature and incredible opportunities for outdoor recreation. [sidebar 8]

8. The New Mexico Public Lands Information Center at the Bureau of Land Management offices in Santa Fe is a single source of information for all types of outdoor recreation on state- and federal lands in New Mexico. Their address: <http://www.publiclands.org/explore/?policstate=NM>

Half of the roughly 6.5 million acres comprising the Heritage Area is federal, state, or tribal land. Vast expanses, some 3.2 million acres, are part of the Carson and Santa Fe National Forests.

The U.S. Bureau of Land Management owns an additional 880,000 surface acres (as well as subsurface mineral acres leased for natural gas and oil). Federal lands include wilderness areas, wild and scenic rivers, **scenic byways**, and historic trails. The State of New Mexico also owns significant acreage in the Heritage Area. State Trust Lands comprise about 320,000 acres, the majority of which are leased, but not exclusively, for grazing. Other state agencies maintain state parks and wild management areas, while eight pueblos own tribal land.

Carson National Forest, in Rio Arriba and Taos counties, offers some of the most spectacular mountain scenery in the Southwest, including the Sangre de Cristo Mountains and Red River Canyon. The national forest is known for trout fishing, while hunters seek out mule deer, elk, antelope, and small game such as rabbits. Hiking, horseback trails, and scenic

byways offer an excellent introduction to the region's flora and fauna, while winter sports enthusiasts will find places to ski or snowshoe.

9. The **Enchanted Circle National Scenic Byway** passes through some of the most beautiful areas of Northern New Mexico. Alpine valleys and lakes, wild flowers, evergreen forests, and historic communities dot the way. The loop passes by Eagle Nest Lake State Park, Red River and Taos ski areas, and the Wild Rivers Recreation Area. Also impressive is the High Road to Taos byway, which begins in Española and offers unmatched views of the Jemez and Sangre de Cristo Mountains. The Santa Fe National Forest Scenic Byway follows State Highway 475 through the narrow Tesuque Canyon to the Santa Fe Ski Area. The National Scenic Byways Program recognizes certain roads based on their archeological, cultural, historic, natural, recreational and/or scenic qualities. The program is part of the U.S. Department of Transportation, Federal Highway Administration.

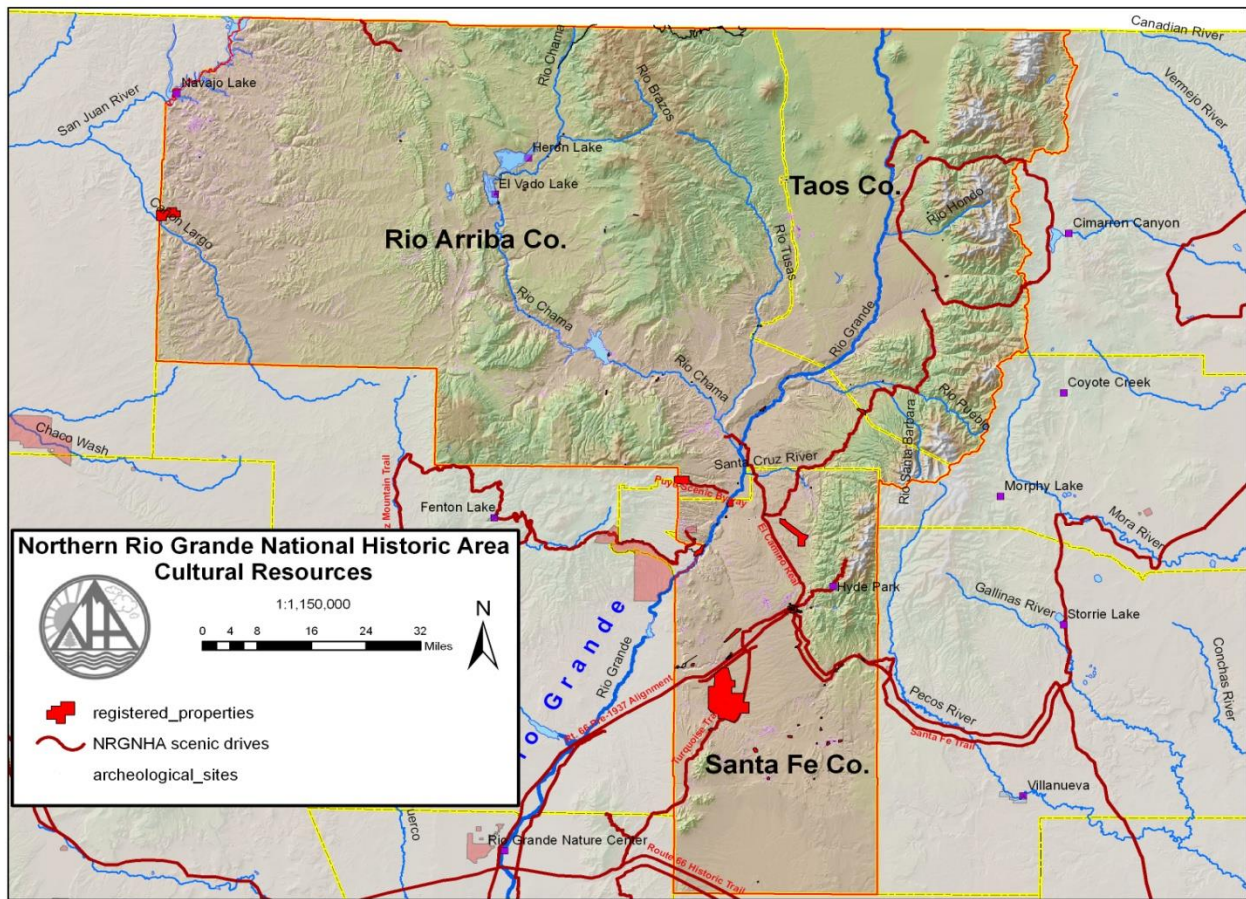
10. The **Santa Fe National Forest** includes more than 300,000 acres of wilderness area, including the Pecos Wilderness, near Pecos, and San Pedro Parks Wilderness, northeast of Cuba. Wilderness areas, as defined by the Wilderness Act of 1964, are federal lands designated by Congress as a place where "earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Such areas are managed by the U.S. Forest Service as places where natural biological processes are allowed to occur unhindered by human interference. The Pecos Wilderness comprises 223,667 acres, which include 15 lakes and key streams that sustain plant and animal habitat, including the native Rio Grande Cutthroat Trout. Terrain ranges from open meadows in the Pecos River Valley to 13,102-foot Truchas Peak. The San Pedro Parks Wilderness features large, grassy meadows framed by dense stands of spruce and mixed conifers. Fishing and hiking are popular in the summertime; cross-country skiing and snowshoeing in the wintertime.

11. The **Turquoise Trail**, designated a National Scenic Byway in 2000, begins in Bernalillo County and travels 65 miles north, passing through Madrid and Cerrillos in Santa Fe County, where turquoise has been mined for hundreds of years. Turquoise deposits were critical to the jewelry and pottery making of prehistoric Indians, while silver and lead mines influenced Spanish settlement. At Cerrillos Hills State Park, five miles of trails include safe access to dozens of pre-1900 mines, while the Cerrillos Turquoise Mining Museum features exhibits on the area's 1,100 years of mining history.

The Enchanted Circle National Scenic Byway in Taos County loops 84 miles through the Carson National Forest, encircling Wheeler Peak, while the Wild Rivers Backcountry Byway winds its way along the rim of the Rio Grande Gorge. [Sidebar 9]

Passing through the towns of Madrid and Cerrillos in Santa Fe County, the Turquoise Trail National Historic Byway offers spectacular views of mountains, canyons, and bizarre rock formations, as well as safe access to dozens of pre-1900 mines. [sidebar11]

The Santa Fe National Forest, in Rio Arriba and Santa Fe counties, lies on both sides of the Rio Grande in a region rich in natural resources. [Sidebar 10]



LAKES, RESERVOIRS, AND STATE PARKS

The Northern Rio Grande National Heritage Area includes numerous lakes and state parks. In Rio Arriba County, the impoundment of Willow Creek created Heron Lake, set among tall pines west of Tierra Amarilla. A five and one-half mile trail along the Rio Chama connects the lake and state park to El Vado Lake State Park. [Sidebar 12]

12. Located in New Mexico's northern mountains, El Vado Lake State Park is a place to water-ski, hike or cross-country ski in the winter. Heron Lake State Park is designated as a "quiet lake," where boats operate at no-wake speeds only. The lake is noted for its excellent fishing.

At Abiquiu Lake and Dam an interpretive trail highlights the region's plant life, cultural history, and water conservation. In Taos County, Cimarron Canyon State Park is part of the 33,116-acre Colin Neblett Wildlife Area, the largest in New Mexico. About 12 miles north of Taos is the 13,304-acre Urraca Wildlife Area, purchased in 1966 to provide habitat for deer and elk. The area rises from dry sagebrush flats to aspen and pine groves found at more than 11,000 feet in elevation.

Near Chimayo, Santa Cruz Lake Recreation Area [Sidebar 13] occupies a semi-arid region at the base of the Sangre de Cristo Mountains, offering recreational opportunities for anglers, boaters, picnickers, and campers.

13. At Santa Cruz Lake, the Rio del Medio and Rio Frijoles are impounded behind Santa Cruz Dam, built in 1929 by the Santa Cruz Irrigation District, which regulates water releases for agricultural use in the Santa Cruz Valley. The Bureau of Land Management manages the recreation area, which comprises rugged, rolling foothills, characterized by mesas and steep canyons.



Pedernal and Abiquiu Lake