

# Salt Basin

The Salt Basin of south-central New Mexico presents several problems of resource utilization. The basin is a large but little-known area—dry, inhospitable—but it has a sought-after supply of groundwater and perhaps a supply of natural gas and oil. In addition, the basin features vast stretches of grassland in an essentially intact natural environment. The “hows” and the “whethers” of using and conserving these resources have been vigorously argued for several years.

## Groundwater Resources

The Salt Basin encompasses approximately 1.5 million acres in New Mexico and an equally large area in west Texas (see map). The basin is an area of interior drainage, a “closed basin” having no outlet. Much of the basin’s vegetation has been described as desert grassland, differing from the creosote bush and mesquite that dominate other parts of the Chihuahuan Desert. On the whole, the New Mexico portion of the Salt Basin has been depicted as “wild and beautiful, relatively untouched by man.”

Two small streams are the major sources of the basin’s groundwater, the Sacramento River and Piñon Creek. Flowing from the Sacramento Mountains, these streams rapidly sink into the ground and disappear. Smaller amounts of groundwater recharge come from precipitation within the basin as a whole. Geologic and hydrologic studies suggest that annual input (recharge) to the entire basin’s groundwater is between about 90,000 and 200,000 acre-feet. Most of the groundwater is found in limestone beds that extend deep beneath the surface. Fractured and laced with cavities, the limestone allows groundwater to flow slowly eastward and southeastward.

At the lowest parts of the basin, known in New Mexico as Crow Flats and in Texas as Dell Valley, groundwater formerly emerged in shallow salty lakes, or *playas*. In 1947, however, irrigated agriculture started up near Dell City, using water pumped from wells. The pumping soon dried up the lakes completely. Irrigated acreage and the amounts of water used have varied over the years, averaging perhaps 30,000 acres and 100,000 acre-feet of water. A small acreage has also been cultivated, at times, on the New Mexico side of the state line.

“The Salt Basin is a misleading name for the quality of water on the New Mexico side; it’s good fresh water and it’s to be valued.”

Joe M Stell,  
New Mexico House of  
Representatives (1987–2006)

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### Resource Evaluations

Concern for water supply led the New Mexico State Engineer to declare the “Salt Underground Water Basin” in 2000. Subsequent studies indicated a potential for perhaps 15,000 to 100,000 acre-feet of sustainable groundwater withdrawal annually.

Then in 2006, the U.S. Geological Survey (USGS) and Sandia National Laboratories published a summary of then-current information about the Salt Basin’s water in *Knowledge and Understanding of the Hydrogeology of the Salt Basin in South-central New Mexico and Future Study Needs*. The report posed several topics/questions needing better answers: *Quantify* the basin’s rates of groundwater recharge, discharge, volume in storage, and amounts recoverable; *identify* areas vulnerable to rapid subsurface contamination; *determine* water quality distribution; *develop* a computer model of groundwater flow for use in evaluating the impacts of development.

Most of the Salt Basin land in New Mexico is federally owned and administered by the U.S. Bureau of Land Management (BLM), although there are appreciable amounts of state land in scattered sections and in a few consolidated blocks. Oil and gas interests proposed exploratory drilling more than a decade ago, and a first test well was completed in 1997, which found gas. At the time, the BLM believed there was a low potential for economically recoverable amounts of oil and gas, yet leasing was eventually authorized on some 252,000 federal acres. The amount actually leased at present is approximately 12,000 acres.

Meanwhile, the N.M. Wilderness Alliance and other environmental groups began efforts to have the basin’s land retained without development. Using “Otero Mesa” as a general name for virtually the entire

New Mexico portion of the Salt Basin, the Alliance identified 23 “wilderness inventory units.” In those units the Alliance deemed more than 500,000 acres of public land suitable for wilderness designation.

For its part, BLM outlined five Wilderness Study Areas (WSA) and designated five Areas of Critical Environmental Concern (ACEC). Those areas are much less extensive than the areas proposed by the Wilderness Alliance.

### Oil and Gas Controversy

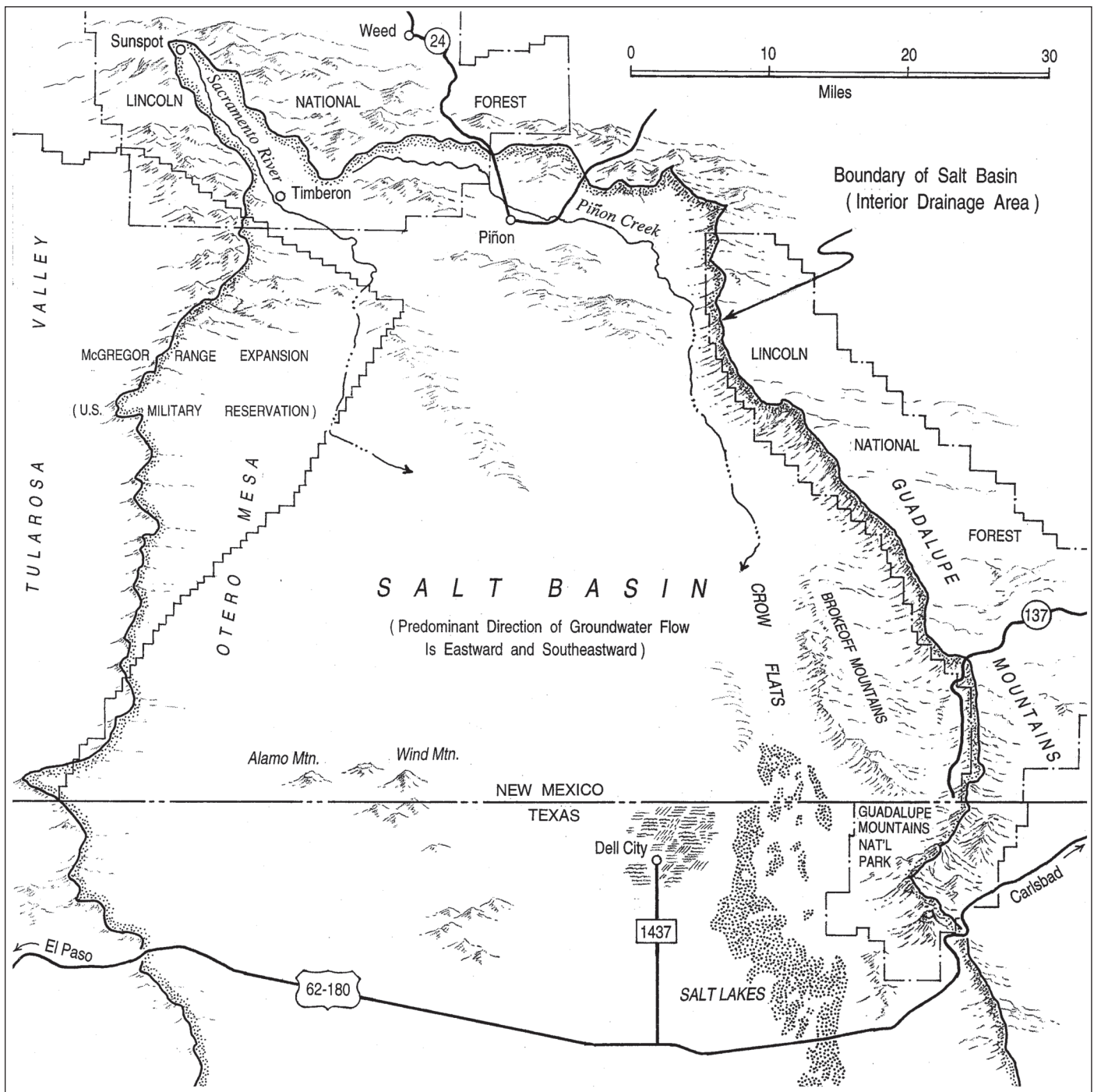
The main thrust of the Alliance’s proposals is protection of the grasslands as natural landscapes undisturbed by oil and gas exploration. Anticipating degradation of the basin by tangles of haul roads, drill pads, waste pits, power lines, and the like, the Alliance’s coalition has fought the BLM both in court and in the arena of public opinion.

The basin’s groundwater also became a concern. The limestone aquifers may be quite susceptible to contamination from the injection of petroleum-related waste, or from spills and leaks from pits and materials on the land surface. Environmentalists point out that in 2005 the N.M. Oil Conservation Division compiled information regarding statewide groundwater effects from leaks, spills, and releases from petroleum operations. Nearly 1,400 groundwater pollution instances were attributed to oil and gas activities during the preceding decade.

In 2004, an alternative plan was proposed, to create a National Conservation Area of 300,000 acres in the Salt Basin where no energy exploration would be allowed and with restrictions imposed on the remainder of the area. But this alternative was rejected by BLM. At length a lawsuit was brought by the State of New Mexico and the Wilderness Alliance, and in April of 2009, the federal Tenth Circuit Court of Appeals found in favor of the plaintiffs/appellants.

In brief, the Court ruled that the BLM’s original *Resource Management Plan Amendment*, which opened most of the basin to oil and gas leasing—with limited

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protection for the grasslands—was inadequate. Among planning alternatives, so the decision indicated, BLM should have evaluated an alternative that closed the area to petroleum leasing—weighing that use “against other possible uses—including conservation to protect environmental values.” The Las Cruces Bureau of Land Management is currently working on a Tri-County Resource Management Plan and

Environmental Impact Statement. As of November of 2013, the Plan and EIS were available for public comment.

The Wilderness Alliance, in contrast, has continued to press for a National Conservation Area, by sponsoring petitions and tours, etc., especially in the Alamogordo area.

Then in 2010 another possibility arose: perhaps the President might designate all or

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By Jerold Widdison for the Utton Transboundary Resources Center.

In the meantime, three applications for water rights are pending at the Office of the State Engineer—all of which have received protests.

some sizable part of the federal lands in the Salt Basin as a national monument. That could achieve at the stroke of a pen all or most of the environmentalists' objectives. In 2012, Senators Udall and Bingaman asked President Obama to consider designating Otero Mesa as a National Monument, which is a part of the Salt Basin. As of December of 2013, Otero Mesa had not been approved for National Monument status.

#### Federal Legislation to Date

The federal legislation, N.M. Aquifer Assessment Act of 2007, directed the Interior Department (specifically USGS) to study several New Mexico aquifers, including those of the Salt Basin. More recently, the Omnibus Public Land Management Act of 2009 called for continuation of the USGS study efforts, which deal with the questions pointed out in the above-mentioned 2006 report. The studies were to be completed by 2011 but have not yet been completed as of October of 2013. The USGS has, however, published "*Estimates of Mean-Annual Streamflow and Flow Loss for Ephemeral Channels in the Salt Basin, Southeastern New Mexico*" in 2009. This is not a comprehensive Aquifer Assessment.

#### Applications to Appropriate Water

In the meantime, three applications for water rights are pending at the Office of the State Engineer—all of which have received protests. The applicants include: 1) Salt Basin ranchers in New Mexico, working together as Last Chance Water Company. Last Chance applied for 100,000 acre-feet of water rights that the company would plan to sell to other users; 2) the Interstate Stream Commission (ISC). The ISC applied for a total of 90,000 acre-feet from three applications for possible use in such New Mexico communities as Ruidoso, Cloudcroft, and Alamogordo, and/or to help meet interstate compact obligations on the Rio Grande and the Pecos River. Such a compact option might involve exchanging groundwater for river water owed to Texas; 3) Cimarron Agricultural Ltd., a subsidiary of El Paso-based Hunt Building Company. Cimarron applied to develop and transfer more than 17,000 acre-feet of agricultural water rights to municipal and commercial use in West Texas, southern New Mexico, and Ciudad Juárez, Mexico.

One enormous hurdle that would face all applicants would be the cost of delivering water from the remote Salt Basin to areas in need of water. Costs would run to many millions of dollars, depending on market locations and transmission facilities.

The three water rights applications obviously add even more uncertainty to a complex and difficult dialogue. As 2013 drew to a close, the future of the Salt Basin remained quite unknown.

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## Sources and Contributors

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