

Paonia Project

Thomas A. Latousek
Bureau of Reclamation
1995

Table of Contents

The Paonia Project	2
Project Location	2
Historic Setting	4
Prehistoric Setting	4
Historic Setting	4
Authorization	6
Construction History	11
Post-Construction History	13
Settlement of the Project	15
Uses of Project Water	15
Conclusion	16
Bibliography	18
Manuscripts and Archival Collections	18
Project Reports	18
Government Documents	18
Books	18
Articles	18
Interviews	18
Index	19

The Paonia Project

The North Fork River Valley has long been known as an aberration of sorts. Although it is surrounded on three sides by a snow-capped, high alpine setting, the valley is famous for doing what normally takes place in warmer, lower, southern climes such as California and Florida, not the Colorado Rockies. What they do in this meteorologically-fortunate valley is grow fruit, and lots of it, from apples and cherries, to peaches, pears, and apricots.

But beginning in the 1930s, the future of this idyllic agricultural setting was in doubt, for the valley's all-important water supply was increasingly unreliable due to a vast over-appropriation of it. Agricultural growth had put so much pressure on the area's streams, its water supply, that unless one held senior water rights, he would not be assured a supply when it was most needed - in the dry late summer months when streams were at their lowest. As a result, many crops failed. An area long dependent on its agricultural economy was reeling.

For over seventeen years, area water proponents and local congressmen battled to get an irrigation system built for the valley. Most people in Congress, especially Easterners, believed irrigation farming in high-altitude terrain was a losing proposition, that the farmers would not be able to pay for the project. Also, over the years the cost of the proposed Paonia Project had increased. It was not until the huge Colorado River Storage Project (CRSP) came along in the early 1950s, when it was decided to tap the resources of the Upper Colorado River Basin to which the North Fork Valley belonged, that construction of the Paonia Project - soon to be made affordable by subsidization - was assured (authorization of the CRSP was April, 11, 1956).

Project Location

The Paonia Project is named after the west-central Colorado town of Paonia, the largest settlement in the North Fork River Valley served by the project (1990 population: 1403). Other towns in the narrow, east-west running valley include Somerset, Bowie, Hotchkiss, and Lazear. The towns and project works are located in Delta and Gunnison Counties. The general area has taken on as its moniker a shortened form of the name of the river which bisects the mesas,

terraces, and isolated shale hills and ridges of this diverse agricultural landscape - the North Fork of the Gunnison River, or just the "North Fork" as it is called locally. The North Fork River flow is comprised of high country streams that belong to the West Elk and Grand Mesa watersheds, the most prominent features of which can be located primarily to the southeast and northwest of the project area, respectively.

The North Fork Valley lies approximately fifty miles southeast of Grand Junction, Colorado. The valley begins about four miles above the town of Paonia where the steep-walled canyon of the Gunnison River tributary gives way to a three-mile wide, alluvial-floored expanse that extends west-southwest for 16 miles until it meets the main stem of the Gunnison River, itself a tributary of the Colorado River which it joins further downstream at Grand Junction.

The Paonia Project's Paonia Dam is located about fifteen miles upstream from where the valley begins to open westward, staking its claim to West Elk backcountry where it captures and regulates the flow of another Gunnison tributary, the aptly-named Muddy Creek, for the purpose of supplying the downstream Fire Mountain Diversion Dam and its 34.7 mile canal with a contracted agricultural supply. It is about one mile below the Paonia Dam that Muddy Creek combines with smaller streams to form the North Fork of the Gunnison, which has an average annual flow of 312,000 acre-feet (ac-ft).¹

Paonia Project lands are the recipient of fortunate geography, located as they are at the end of a valley that often serves as a receptacle for the prevailing mild and arid breezes which emanate from the desert-like plateau region to the west. This "Million Dollar Wind," as some local farmers have labeled it, results in an annual average of 12.5 inches of precipitation for the area and keeps the valley frost-free for an average of 160 days a year, giving the North Fork Valley a growing season with a duration second only to the Grand Valley's among Colorado intermountain agricultural regions.² The area's beneficent climate has combined with project water supplies to produce an intensive and high-value agriculture. Fruits such as apples,

1. Water and Power Resources Service, *Project Data*, (Denver: Government Printing Office, 1981), 763.

2. Department of the Interior, Bureau of Reclamation, *Paonia Project History, 1936-58*, Record Group 115, NARA-Denver, 23.

peaches, cherries, and pears are grown in the area, as well as forage for the substantial local cattle and dairy industry. The 15,300 acres of project lands are located primarily in the Fire Mountain and Leroux Creek areas above Paonia and Hotchkiss on the north side of the river valley.

Historic Setting

Prehistoric Setting

The Paonia Project area lies in a transition zone between a high alpine setting and the arid, rocky Colorado Plateau region to its west. While the Plateau was home to ancient cultures such as the Anasazi of southwest Colorado and the Fremont of northwest Colorado from approximately 500 A.D. to 1200 A.D., there is no evidence of prehistoric peoples in the North Fork Valley until post-1600 when it is believed that the Utes migrated into the west-central Colorado region from the Great Basin.³

The aggressive, nomadic Utes were the sole Native American occupants of the Colorado intermountain region until American settlement in the late 1800's, having driven away any who attempted to settle within their traditional western Colorado lands.

Historic Setting

Rumors of gold brought the first recorded European expedition to visit the region into the North Fork vicinity between 1761 and 1765. The Juan de Rivera expedition party traveled north from Taos into the plateau country where it traded with the Utes but got discouraging reports about the precious metals for which it was searching. The Rivera expedition probably traveled as far as present-day Delta, where the Gunnison and Uncompahgre Rivers meet. The Spanish padres Francisco Dominguez and Silvestre Escalante also traveled through the region in 1776. They were hoping to find a convenient route which would link Santa Fe to Monterey, California. They likely crossed the North Fork just downstream of Hotchkiss. During the expedition they

3. Alan D. Reed, *West-Central Colorado Prehistoric Context*, (Denver: State Historical Society of Colorado, 1984), 43.

also encountered Ute Indians.⁴

Mexican independence opened the area to American fur trade after 1821 and it was not long before the area flourished as a hunting and trading ground. In 1828 Antoine Robidoux built a trading post near present-day Delta, Colorado (twenty miles west of the project area), that flourished until 1840. Fort Robidoux's trade served as a link between the New Mexico communities to the south and the trapping areas of northwestern Colorado and Wyoming. River valleys such as the North Fork were used as both trapping sites and transportation routes.⁵

Federal exploration of the region came in the 1850's after victory in the Mexican War and gold discovery in California. The task of such expeditions as were led by John C. Fremont (from 1843-1853) and John Gunnison (1853) was to locate both transportation routes and minerals. Little of either was found in west-central Colorado, for the 12,000 to 14,000 foot mountains that surrounded the area presented an imposing obstacle.

More understanding of the region came with the United States Geological Survey's (USGS) cataloguing and mapping of the area in the 1870's by such figures as John Wesley Powell, Clarence King, and with particular regard to Paonia Project lands, Ferdinand Hayden, who between 1873 and 1876 accomplished the most comprehensive surveying of the North Fork vicinity. In the process, he effectively opened the area up to settlement.⁶

The influx of miners and farmers into western Colorado brought the Americans and Utes into conflict with one another. The Hunt Treaty of 1868 attempted to provide for reservation lands for all seven Ute bands but hostilities continued as more and more Americans streamed into mining boom towns located on former Ute lands. These conflicts culminated in the Meeker Massacre of 1879 which resulted in Ute bands being relegated to lands in Utah and a small reservation in southwestern Colorado. By the 1880's, removal of the Utes and a continued mining boom had stimulated the rapid development of agriculture and transportation throughout western Colorado.

4. Michael B. Husband. *Colorado Plateau Country Historic Context*, (Denver: State Historical Society of Colorado), IV-1.

5. *Ibid.*, IV-2.

6. *Ibid.*, IV-3.

The North Fork Valley's agricultural possibilities were discovered early on when, in 1881, Enos Hotchkiss and Sam Wade planted a variety of fruit trees near present-day Paonia and Hotchkiss. Because of the valley's fertile soil, mild climate, and numerous streams which provided an irrigation supply (albeit short-lived), the results were remarkable. By 1885 the valley was widely recognized for its fruit growing, as well as its large herds of cattle, with local rancher Sam Hartman reportedly having one of the largest in Colorado. The area's economy was further balanced by the construction of the Denver and Rio Grande Railroad through nearby Delta which allowed for the delivery of crops to Denver and other markets by 1890, as well as a burgeoning coal mining industry which began in 1903 in the Somerset area.⁷

Authorization

Farmers in the North Fork Valley learned early on that little precipitation fell in the area, particularly in the summer and fall. Irrigation was required to grow crops so local streams were immediately appropriated to such a scale that by the turn-of-the-century useful water rights were no longer available. Early irrigation schemes attempted to store the spring run-off for use in later months, but due to the number of water developments there was not enough water for all the farmers in the valley. Those with junior water rights were often left high and dry come August and September when water was most needed for crops. Tributaries such as Leroux Creek were so critically over-appropriated that in anything but the wettest years crop failures were widespread due to the lack of a late season supply. The situation grew more serious with time, for the lack of a coordinated local water system began to retard development of the North Fork Valley community.⁸

Unfortunately, the valley topography did not cooperate with regard to the feasibility of reservoir construction. The higher country where a dam might be located was steep, narrow, and had an ill-suited soil. The few workable sites looked at by State of Colorado investigators in 1934 were so expensive as to require Federal participation so the North Fork Water Conservancy District (NFWCD) put in a call to Congressman Edward Taylor, the area's

7. *Ibid.*, IV-48, 71, 78.

8. Department of the Interior, Bureau of Reclamation, *Paonia Project Annual History, 1936-1958*, 11.

representative in Washington who also happened to be an irrigation champion and head of the powerful House Appropriations Committee.⁹ As a result, the Bureau of Reclamation was asked to participate in additional analysis of the area and commenced its own investigation in 1936.¹⁰

Reclamation's report, issued in 1938, suggested the construction of a dam and reservoir at the Upper Horse Ranch site on Anthracite Creek (a few miles southeast of the present dam site) to supplement lands that were presently served by the Fire Mountain Canal, as well as a reservoir at the Beaver damsite to serve the same purpose for ditches diverting from Minnesota Creek, another tributary which flowed into the North Fork from lands to the south of Paonia. It was on the strength of this report, along with a strong push from Congressman Taylor - he had been embarrassed by earlier approval of the Colorado-Big Thompson Project, which diverted his own district's water for the use of Front Range farmers, without having been reciprocated with any reclamation projects for his district - that the Paonia Project was authorized under Reclamation Law by President Roosevelt on March 18, 1939.¹¹ A pre-construction appropriation of \$300,000 was also put toward the project at this time.¹²

Additional study of the proposed project area warranted a revised report in 1940 which dealt only with the Fire Mountain Division. This report pointed out that relief could be provided for upper Leroux Creek lands if all other lands were serviced by an enlarged Fire Mountain Canal which would be supplied by North Fork flowage regulated by a new dam to be built by Reclamation at the new Spring Creek site. Cost estimates showed that this site would be less expensive and provide a more reliable supply than Horse Ranch. It was believed that the canal enlargement could be paid for with proceeds from the sale of lower Leroux Creek water rights to those proposed beneficiaries of relief on the upper Leroux, as well as with funds from water

9. Charles Neill to RF Walters, September 8, 1939, Record Group 115 (hereafter referred to as RG 115), General Correspondence File (Straights), 37-C-7-C, Box 554, NARA-Denver, #8071.

10. Reclamation, *Paonia Project Annual Project History, 1936-1958*, 12.

11. Commissioner John C. Page to R. F. Walter, December 31, 1937, "He finds himself embarrassed by the appropriation and approval of the Colorado-Big Thompson project when no projects in his district have been adopted or financed." Rg 115, Reclamation - WDC, General Administrative File, Entry 7, 1930-45, Series 302, Box 557.

12. United States Department of the Interior, Bureau of Reclamation, FC Merriell, *Western Slope Surveys, Colorado - Paonia Project*, August, 1938, 22; Congressman Edward Taylor to Commissioner Page, May 20, 1938, General Administrative and Project Records, Entry 7, 1930-45, Series 302, Box 557, NARA-Denver; John C. Page to R. F. Walter, December 31, 1937, Box 557; Water and Power Resources Service, Project Data, (Denver: Government Printing Office, 1981), 762-3.

purchases at the planned Spring Creek Reservoir. This plan was not favored by users, however, and authorization was not requested.¹³

The war years brought more delays for the Paonia Project. During World War II, Reclamation projects without the capacity to generate power were often shelved. The ongoing war, project alterations, and wartime inflation also caused project costs to escalate and labor to be hard to find. Options such as building a work camp so as to provide for Civilian Conservation Corps (CCC) workers or even conscientious religious objectors such as the Mennonites were considered briefly but rejected. Attempts to claim project repayment funds under either the Case-Wheeler Act or the Water Conservation and Utilization Act were also unsuccessful.¹⁴

In 1946, the project plan was further revised to include construction of a dam at the Spring Creek site to form a 14,000 a-f reservoir, enlargement and improvement of both the Fire Mountain and Overland Canals, and the transfer of water rights to upstream Leroux Creek users from those who would now benefit from the enlarged canal. This plan was authorized by Congress on June 25, 1947.¹⁵

Unfortunately, when bids for construction of Spring Creek Dam were opened in August of that year the lowest bid was 54% higher than Reclamation's estimate, even exceeding the total expenditure authorized for all project features (\$3.03 million). No justification for such high bids could be found and all bids were rejected, although it was determined that the extension and improvement of both the Fire Mountain Diversion Dam and Canal and Overland Canal were feasible at the time since construction repayment had already been provided for in the contract between Reclamation and water users.¹⁶

By February, 1951, ongoing investigations revealed that the amount of sedimentation in the upper North Fork basin would require construction of a larger reservoir than originally

13. Reclamation, *Paonia Project Annual Project History, 1936-1958*, 13.

14. Harper, Chief Engineer, to Commissioner Page, August 21, 1940, General Administrative and Project History, 1919-45, Series 301, #31695, NARA-Denver; Harper to H. Fast, Mennonites, July 21, 1942, Series 301, #52521; Lineweaver and Stinson to Ickes, November 29, 1943, Series 301, (no number).

15. Reclamation, *Paonia Project Annual Project History, 1936-1958*, 14; *Project Data*, 761.

16. *Ibid.*

planned, rendering the Spring Creek site infeasible. Yet another revised - and more expensive - plan recommended building an 18,000 ac-ft capacity dam 5.5 miles downstream of the former damsite at the Paonia location, additional extensions of the canals, and construction of a siphon and pumping plant to convey irrigation water from the Fire Mountain Canal to 2,000 acres along Minnesota Creek. This plan was to provide supplemental water for 14,830 acres of land and 2,210 acres of unirrigated land. North Fork Valley water users were financially incapable of paying for such a project, though, and the bill was defeated in Congress in September, 1951.¹⁷

Again, a powerful friend in Washington came to the North Fork Valley's rescue, this time in the form of local Congressman Wayne Aspinall. Just when it seemed no funds were available for non-energy-producing, high-altitude (meaning low revenue-producing to most congressmen), localized irrigation projects such as Paonia, "Mr. Reclamation," the legislator from Palisade, won several water projects for his district upon passage of the vast, (estimated) \$1.5 billion-dollar Colorado River Storage Project (CRSP) in April, 1956. While most prior Colorado River Basin Reclamation projects, such as Boulder Canyon, had taken place in the lower basin and were for the benefit of booming Southern California, passage of CRSP called for water for the upper basin's use (as dictated by the 1922 Colorado River Compact). In fact, it was much of Aspinall's home district, of which Paonia was included, that would benefit.¹⁸

Passage of the CRSP meant that water users in the North Fork Valley could now afford the long-planned and oft-revised Paonia Project because, while the bill called for the construction of large, multi-use, power generating dams such as Glen Canyon and Flaming Gorge in the Upper Colorado Basin, it also had attached to it provisions for the construction of several smaller "participating" Reclamation irrigation projects, such as Paonia, whose repayment would be assisted by power revenues gained from the big "cash register" dams.

The idea of having the power features of the CRSP essentially subsidize the irrigation side of the project was, to say the least, controversial on the floors of Congress. Senator Paul Douglas of Illinois, in particular, voiced special concerns as to why a project such as Paonia,

17. Reclamation, *Paonia Project Annual Project History, 1936-1958*, 18-9.

18. Fradkin, Philip L. *A River No More*. (New York: Alfred A. Knopf, 1981), 106.

with non-interest project costs estimated at \$873 per acre (costs including interest were over \$2000 an acre) was even being built when the land itself would never be worth more than \$150 an acre, even after irrigation. While the majority of Paonia Project lands were worth more than Senator Douglas' estimate (some prime fruit orchard land was, in fact, quite valuable), his logic was not far off in the case of many other participating projects where forage was the extent of crops to be grown on cold, high, arid project lands. Such projects, argued Douglas, would constitute a terrible investment of taxpayers' money since the funds put into these high desert farms with such short growing seasons would never come close to turning a profit.¹⁹

Douglas' opposition to the CRSP was all for naught, though, due to the coalition of powerful Western Congressmen such as Aspinall, Carl Hayden (Arizona), and Clinton Anderson (New Mexico) that was able to secure wide-ranging support of the CRSP bill. In the end, Aspinall's bloc was able to hang the Paonia Project onto the CRSP's coattails, thus assuring the project's affordability for North Fork farmers. Consequently, the third time was the "charm" for the Paonia Project. It was officially reauthorized as a participating project under the \$1.5 billion CRSP by act on April 11, 1956. While study and authorization of the Paonia Project ultimately lasted over seventeen years and spanned all or part of the Great Depression, World War II, and the Korean War, the patient farmers of the North Fork Valley would ultimately get to see the day that water would be delivered to their often parched fruit orchards and alfalfa fields.²⁰

Final plan modifications included the elimination of the 2,000-acre Minnesota Creek area from project provisions since users there had decided to build their own small reservoir; enlargement of Fire Mountain coverage from 8,920 acres to 9,770; reduction of the Leroux area service from 6,110 to 5,530 (for a total irrigated acreage of 15,300); no enlargement of the Overland Ditch; another reservoir capacity increase from 18,000 to 21,000 a-f for sedimentation purposes; and lastly, the concrete-lining of 4.6 miles of the Fire Mountain Canal. It was also planned for the Paonia Dam to handle an incidental amount of flood control and that recreation

19. Marc Reisner. *Cadillac Desert: The American West and Its Disappearing Water*. (New York: Penguin Books, 1986), 142-3.

20. Paul T. Sant, "Around the Corner: More Water for the Intramountain West," *Reclamation Era*, November, 1961, 98; *Reclamation, Paonia Project Annual Project History, 1936-1958*, 21; *Project Data*, 763.

in the form of fishing, camping, and boating would also take place on the 334-acre Paonia Reservoir. Estimated construction costs for the expanded Paonia Dam now approached \$6 million, double the original estimates. Total costs for the project were approximately \$8.4 million, with close to \$6 million of this figure being repaid out of the CRSP's energy receipts, or Upper Colorado River Development Fund.²¹

The Bureau of Reclamation named Robert Jennings as the Paonia Project Manager and Paul H. Fetzner as its Construction Engineer.

Construction History

Bids for construction of the Paonia Project opened in December, 1958, although most of the prior-approved Fire Mountain Diversion Dam and Canal improvement and enlargement work had been completed by Young & Smith Construction Company by 1953. As to the present apportionment, Bud King Construction Company of Missoula, Montana, would build the dam, winning the contract with a low bid of \$3.3 million. The company was given notice to proceed on January 7, 1959. Bud King subcontracted the tunneling of the dam outlet works and shaft to Phillips and Davis, Inc., who began the job in April, 1959, and finished in July. Additional Paonia Project work went to Johnson & Son Construction Company, which was to line the Fire Mountain Canal and C. D. Robinson Construction Company, which was to both clear the reservoir and relocate Colorado Highway 133.²²

Upon termination of the outlet works tunnel and shaft driving by the subcontractor in July, 1959, construction of the main project features by Bud King Construction resumed, with the contractor focusing primarily on the outlet tunnel and spillway, and dam embankment foundation excavation. Once again, the soft, crumbly shale in the project area and most particularly, on the damsite, presented problems. Excavation at the west end of the damsite revealed a steep-sloped sandstone layer that project engineer Paul Fetzner feared would crumble and fall on the dam and into the setting basin unless corrected. This was done without causing

21. *Ibid.*

22. Reclamation, *Paonia Project Annual Project History, 1959*, 6.

considerable delay to the project by reducing the steepness of the slope.²³ Most of the dam embankment was placed by November, 1960. With the nearby Smith Fork Project having been authorized, as well, a premium was put on time in order that equipment and personnel could be made available to the other project. Consequently, Bud King Construction Company increased its labor force and working hours. By placing a temporary bulkhead with a slidegate in the stoplog spot of the intake structure of the outlet works, the end of 1961 even saw the storage of late season rains in the Paonia Reservoir.²⁴

All project features were done by early 1962, allowing the reservoir to fill and spill upon impoundment of the spring runoff by May 11, 1962.

Over 1.3 million cubic yards of material was moved to build the zoned, earthfill Paonia Dam. The embankment's upstream face is protected by riprap and the downstream face by a rockfill section. The crest, at elevation 6,460, is 35-feet wide and 770 feet long. The spillway, an uncontrolled overflow structure, is located at the right abutment. It consists of an ogee crest, chute, and common outlet works-spillway stilling basin. Its design capacity is 12,600 cu-ft-sec. Also located in the right abutment, the outlet works consists of an intake tower, 11-foot wide concrete tunnel controlled by two 2.75-foot-square high pressure gates. The outlet works capacity is 1,130 cfs.²⁵

The Fire Mountain Diversion Dam and Canal was built primarily from 1949-53, with the diversion dam being located about six miles downstream from the Paonia Dam near the coal town of Somerset. The diversion dam is a timber-sheet piling, rockfill structure with a height of 11 feet and a total crest length of 187 feet. Its headworks consist of one 12-foot square radial gate and has a capacity of 180 cfs. The Fire Mountain Canal, whose width ranges from 4 ft (the concrete stretch) to 10 feet (clay-lined), extends 34.7 miles roughly paralleling the north side of the North Fork River. It has an initial capacity of 180 cfs which is reduced to 100 cfs by the time

23. "Unstable Slope," *Denver Post*, September 14, 1959, 18.

24. Reclamation, *Paonia Project Annual Project History, 1959*, 6; *Paonia Project Annual Project History, 1960*, 4; *Paonia Project Annual Project History, 1961*, 4.

25. *Project Data, 759-60*; Reclamation, *Paonia Project Annual Project History, 1985*, 6.

it reaches the westernmost Leroux Creek regions of the project area.²⁶

The operation and maintenance of the Paonia Project was assumed by the NFWCD in June, 1962, although it was soon thereafter transferred by contract to the Fire Mountain Canal and Reservoir Company (FMCRC). In 1962 the project served 163 farms on 13,070 acres.²⁷

Post-Construction History

Most of the blame for the few problems that beset the Paonia Project's post-construction era can be pointed at the same culprit that was responsible for much of the seventeen years of pre-authorization delays - the North Fork Valley's peculiar transition landscape, comprised as it often was of steep, narrow ridges covered in a soft shale and sandstone layer which easily eroded and decomposed, especially when rain fell. This same physical feature that had years earlier made it so time-consuming and expensive to find a feasible damsite for the project, continued to bother project management by causing frequent rockslides and sedimentation build-up that sometimes shut-off the canal and often escalated maintenance costs.

It was apparent from the start that the newly-constructed Colorado Highway 133 would present problems, for as early as the mid-1960's Colorado State Highway Department officials considered the section of road that paralleled the Paonia Reservoir (where it had been relocated) to be the most hazardous in the state in terms of the number of rockslides directly on the traffic lanes. The slides were caused by the decomposition of shale layers underlying sandstone, which, in turn, loosened the soil, freeing large rocks to fall from the steep roadcuts. In 1966 over one thousand truckloads of rock were removed from this stretch of highway. Wire fences were placed along the roadside to catch falling debris but in a short time the fence was torn and damaged, proving to be only a temporary remedy. Erosion, too, was causing problems, undermining the soft roadbed and causing the asphalt to crumble.²⁸

In 1970 a rehabilitation of Colorado 133 was undertaken. A thirty foot high berm was placed near the top of the sandstone bench strata about 70 feet above the roadway, straddling the

26. *Project Data*, 759-60.

27. Reclamation, *Paonia Project Annual Project History*, 1962, 5; *Project Data*, 759-60.

28. Reclamation, *Paonia Project Annual Project History*, 1966, 50, 55, 111.

most slide-prone sections of the highway opposite the reservoir. While the repair did not curtail slides, it did lessen the number of slide events. Annual alterations to these precarious sections of Colorado 133 are still done today.

Like the highway, sections of the project's lifeblood, the Fire Mountain Canal, lay below the same problematic-type of steep, shale ridges. Landslides occurred here, too, mostly in the upper regions of the canal near Somerset and Bowie. In 1972, a slide into the canal required the excavation and rebuilding of a 100-yard stretch, costing over \$25,000. A similar landslide in 1977 forced a week-long closure for repairs. Localized flooding has also washed out sections of the Fire Mountain Canal on occasion.²⁹

Another by-product of the crumbly soil present particularly in the project area's upper reaches was sedimentation. While project investigators planned for a substantial amount of silting, in fact, having more than once increased the reservoir capacity for just this purpose, the problem only grew. The North Fork tributary that the Paonia Dam captured, Muddy Creek, was appropriately named, for it seemed to carry in it much of the silty, sandy watershed which the stream drained. The Paonia Reservoir was at times so sediment-laden that it was derisively called "the mud hole" by locals. Although the dam filtered much of the silt, there were still complaints by irrigators about water quality. Recreation suffered as well, with the administrator of recreation at the reservoir, the Colorado Division of Parks and Outdoor Recreation, reporting fishing on the lake to be "poor" as a result of the water's cloudiness. Apparently the poor reservoir habitat did not allow annual fish stocking to take hold. Water sports such as swimming and water-skiing have never been quite as popular as planned due to the muddy water.³⁰

The Paonia Reservoir was built to handle about 100 a-f of sediment per year, but in certain years, such as in 1986 when a large landslide occurred on Upper Muddy Creek, it was estimated that over 600 a-f of sediment settled in the reservoir. In years of drought, there is often discussion of increasing the Paonia Reservoir's capacity. Local North Fork irrigators were

29. Reclamation, *Paonia Project Annual Project History, 1971-72*, 18; *Paonia Project Annual Project History, 1977-78*, 84.

30. *Ibid.*

particularly talkative on this topic in 1977, one of the driest years on record in Colorado. In a season which saw many private reservoirs go dry as early as May, an estimated 30% of farmlands never planted, and local water districts requesting emergency water from the Grand Mesa Project under the Drought Assistance Act of 1977, Paonia Project users saw a need on such occasions for more room in their reservoir. Sediment was taking up too much space, they believed, and a bigger reservoir would make up for the shortfall. While such discussion reappears from time to time, no plans have been made to enlarge the reservoir.³¹

Along similar lines, investigations and discussion of the development of a hydropower element on Paonia Dam appeared intermittently, especially in the early 1980's. Applications for investigations were submitted to the Federal Energy Regulatory Commission (FERC), but no action was taken.³²

Settlement of the Project

Initial project plans in the 1930's and '40's hoped to open up close to one thousand acres of formerly dry farmed land in the North Fork Valley, but the project that was ultimately built supplies almost entirely supplemental water.

While the project area was settled prior to Reclamation's presence, some subdivision of project lands has taken place, with new landowners being less inclined to put project water to intensive agricultural use. The result has been a decrease in the number of full-time farms in the valley, although due to more intensive and efficient agricultural techniques on present full-time farms, there has been no concurrent decrease in overall production.

Uses of Project Water

By constructing a comprehensive valley-wide irrigation system, Reclamation was able to relieve many older, private water developments from their prior over-appropriation as well as augment the late season supply of those who formerly held undependable junior water rights. In the post-project North Fork Valley, Reclamation water assured the continued agricultural and

31. Reclamation, *Paonia Project Annual Project History, 1977-78*, 84; *Paonia Project Annual Project History, 1986*, 33.

32. Reclamation, *Paonia Project Annual Project History, 1981-82*, 23.

economic growth of a valley long known for and dependent upon successful farm production. Consequently, Paonia Project lands continue to grow mostly hard fruits, with apples usually tops in total annual production, and pears, cherries, and peaches being grown in substantial numbers as well. Some upgrading of old fruit orchards is currently taking place on project lands, to the point that some plots that used to have sixty fruit trees now have six hundred. More improved and efficient sprinkling mechanisms are also being utilized. The area has a strong livestock industry, so project water is also delivered to grow forage and irrigate pasturage. The recent phenomena of land subdivision has brought with it part-time and hobby farmers who use project water only on small vegetable and pasture plots for their own use.

Although some recent population growth in the area has brought up discussion of putting some project water to municipal use, it is currently designated solely for agricultural use. In addition, the Paonia Reservoir is the site of recreation, where some boating, camping, and other activities take place.

Conclusion

Although the Paonia Project was twice authorized on its own merits, it was not until it was attached to CRSP that it could be affordably built for valley farmers. Only the project's heavy subsidization by energy-producing dams such as Glen Canyon and Flaming Gorge allowed it to come to fruition.

Participating projects of the CRSP, such as Paonia, originally drew the ire of many in Congress during authorization hearings in the mid-1950's - some rightfully so, for these expensive reclamation projects were often planned to take place on high, arid, inexpensive land that, even with irrigation, would never be profitable. During the hearings the Paonia Project was unfairly grouped with these projects since, unlike the other livestock-oriented participating projects, it grew primarily high-value fruit on project lands. Despite the long fight to get the Paonia Project built, it has matured into a reliable high-elevation reclamation project, which, perhaps because of the "Million Dollar Wind" that continues to travel up the North Fork Valley warming crops and keeping them frost-free, is often held up as the successful model of CRSP

participating projects.

Bibliography

Manuscripts and Archival Collections

Record Group 115. Department of the Interior. Bureau of Reclamations Records. National Archives and Records Administration, Denver, Colorado.

Annual Project History, Paonia Project: 1936-58, 1959, 1960, 1961, 1962, 1966, 1971-2, 1977-8, 1981-2, 1985.

Project Reports

United States Department of the Interior, Bureau of Reclamation. "Western Slope Surveys, Colorado - Paonia Project," August, 1938.

United States Department of the Interior, Bureau of Reclamation. "The Colorado River: A Natural Menace Becomes a Natural Resource," March, 1946.

United States Department of the Interior, Bureau of Reclamation (Washington, D.C.). General Administrative File, Entry 7, 1930-45, Series 302, Box 557.

Government Documents

Water and Power Resources Service. *Project Data*, Denver: Government Printing Office, 1981.

United States Department of the Interior, Bureau of Reclamation. *Summary Statistics - Land, Water, and Related Data*. Denver, 1990.

Books

Husband, Michael B. *Colorado Plateau Country Historic Context*. Denver: Colorado Historical Society, (unpublished).

Reed, Alan D. *West-Central Colorado Prehistoric Context*. Denver: Colorado Historical Society, 1984.

Reisner, Marc. *Cadillac Desert*. New York: Penguin Books, 1986.

Articles

Sant, Paul T. "Around the Corner: More Water for the Intermountain West, *Reclamation Era*. November, 1961.

Tyson, Monk. "Unstable Slope," *Denver Post*, September, 14, 1959, p.18.

Interviews

Dennison, Merritt. Superintendent - Fire Mountain Reservoir & Canal Company, Hotchkiss, Colorado, September 21, 1995 (by author).

Index

Aspinall, Congressman Wayne	9
Case-Wheeler Act	8
Climate	3
Colorado Highway 133	13
Colorado River	3
Colorado River Compact of 1922	9
Colorado River Storage Project (CRSP)	2, 9
Paonia Project	9
Participating projects	9
Upper Colorado River Development Fund	11
Contractors	
Bud King Construction Company	11
C. D. Robinson Construction Company	11
Johnson & Son Construction Company	11
Phillips and Davis, Inc.	11
Young & Smith Construction Company	11
Dominguez, Padre Francisco	4
Douglas, Senator Paul	9
Escalante, Padre Silvestre	4
Fire Mountain	4
Fire Mountain Canal and Reservoir Company (FMCRC)	13
Fort Robidoux	5
Fremont Expedition	5
Grand Junction, Colorado	3
Grand Mesa	3
Grand Valley	3
Gunnison Expedition	5
Gunnison River	3
Hotchkiss, Colorado	4
Hunt Treaty of 1868	5
Hydropower investigations	15
Investigations, Early	7
Over-appropriation	2, 6
Over-bidding	8
Spring Creek site	8
Upper Horse Ranch site	7
Leroux Creek	4, 6, 7
Minnesota Creek	7
Muddy Creek	3, 14
Native Americans	
Utes	4
North Fork of the Gunnison River	3
North Fork Valley	2-4, 6, 9, 13
Geology	13
North Fork Water Conservancy District (NFWCD)	7, 13
Over-appropriation	2, 6
Paonia Project	2, 7, 9, 10
Colorado Highway 133 relocation	13
Crops	2, 3, 16
Fire Mountain Canal	3, 8, 11, 12, 14
Fire Mountain Diversion Dam	3, 8, 11, 12

Flood control	10
Minnesota Creek elimination	10
Paonia Dam	3, 10, 12
Paonia Reservoir	11, 14
Sedimentation	13, 14
Subdivision of land	15, 16
Paonia Reservoir, capacity increase	14
Paonia, Colorado	2, 4
Reclamation, Bureau of	7, 8, 15
Fetzner, Paul	11
Jennings, Robert	11
Recreation	10, 14
Rivera, Juan de	4
Sedimentation	14
Subdivision of land	15, 16
Taylor, Congressman Edward	6
United States Geological Survey (USGS)	5
Hayden, Ferdinand	5
Water Conservation and Utilization Act	8
West Elk Range	3

