



UNIVERSITY OF DENVER
WATER LAW REVIEW

Law as Catalyst: A New Agenda for a Traditional
Water Resource Appropriator at Phantom Canyon,
Colorado

Annie Epperson

David M. Freeman

Volume 6/Issue 1/Fall 2002

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WATER LAW REVIEW
UNIVERSITY OF DENVER (COLORADO SEMINARY) COLLEGE OF LAW

WATER LAW REVIEW
is published twice annually
at the
University of Denver College of Law

Subscription Rates:

Annual Subscriptions:

Institution/professional rate.....\$40.00
Student rate.....\$20.00

Single Issues:

Institution/professional rate.....\$25.00
Student rate.....\$15.00

Please address subscriptions to:

Business Editor
Water Law Review
University of Denver College of Law
7039 East 18th Avenue
Denver, Colorado 80220 USA
Telephone: (303) 871.6223
Facsimile: (303) 871.6446
www.law.du.edu/waterlaw

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ISSN # 1521 - 3455
Cover and logo by Lee Demary

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LAW AS CATALYST: A NEW AGENDA FOR A TRADITIONAL WATER RESOURCE APPROPRIATOR AT PHANTOM CANYON, COLORADO

ANNIE EPPERSON[†]
DAVID M. FREEMAN^{††}

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I. INTRODUCTION

A. PROBLEM

In the fall of 1987, the North Poudre Irrigation Company ("North Poudre") changed its near century-long pattern of completely shutting down flows on the North Fork of the Poudre River and tweaked open its gate at Halligan Dam just a bit. Prompted by Platte River Basin struggles over the Endangered Species Act and associated conflicts over federal demands that local water users "bypass" flows in the Gila National Forest (New Mexico) and the Roosevelt-Arapaho National Forest (Colorado), North Poudre implemented an agreement with The Nature Conservancy ("Conservancy") to provide continuous winter instream flows for purposes of enhancing fish and wildlife habitat in Phantom Canyon, located in north central Colorado.

For fifteen years, the alliance between a traditional agricultural commodity production mutual irrigation company and an environmental organization has worked to the advantage of each, and has also benefited one of the most pristine environments in northern Colorado. The arrangement illustrates the role of law in catalyzing changes in organizational behavior, the possibilities for incorporation of environmental agendas into what has historically been exclusively utilitarian use of Western rivers, and the methods of securing water for year-round instream flows without recourse to litigation. How did law catalyze this voluntary agreement to release water flows for environmental purposes?

B. SIGNIFICANCE

Generally, people and profit-seeking organizations avoid making investments that produce benefits that cannot be captured by the investors to any greater extent than by non-investors, for example, environmental amenities. The question that arises in the Phantom Canyon episode is: why would an association of economically hard-pressed irrigators, trying to keep costs of their irrigation system as low as possible, decide to take on the added responsibilities entailed in collaborating with the Conservancy to provide winter instream flows? Alternatively, why should an irrigation company, operated for collection, storage, and delivery of summer-season agricultural and municipal water, voluntarily open its reservoir gate to supply water for winter season instream flows in the name of fish and wildlife habitat improvement? There was no lawsuit or court adjudication to compel this action. In a highly contentious world of multiple and competing uses for scarce western water, and costly, prolonged, and bitter fights over its allocation, the Conservancy and North Poudre found a path to re-regulating small North Fork stream flows that was cheap, relatively quick, effective, voluntarily endorsed by all parties, and sustainable. It is a story worth examining.

II. BACKGROUND

A. RIVER AND CANYON

Located about thirty miles northwest of Fort Collins, Colorado, Phantom Canyon is an environmental treasure situated immediately downstream of Halligan Dam on the North Fork of the Cache la Poudre River ("Poudre River") (See Figure 1).¹ As tributary to the main stem of the Poudre River and a part of the Platte River Basin, the North Fork is a component of one of the most intensively managed river systems in the West.² Phantom Canyon is a product of the combined forces of geological uplift along the Front Range of the Rocky Mountains and the scouring action of pulses of North Fork waters that are most intense during spring and early summer.

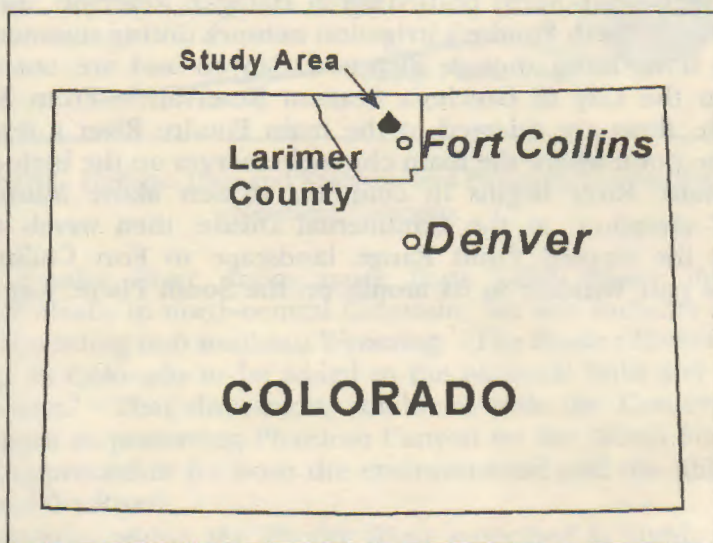


Figure 1. Location of the Study Area

Surrounded by rocky slopes carpeted in spring, summer, and autumn with flowers and grasses, Phantom Canyon is a pristine remnant of Colorado foothills ecology, and a reminder of pre-European settlement conditions. Home to golden eagles, mountain

1. Colo. Dep't of Pub. Health & Env't, *Total Maximum Daily Load Assessment, Sediment, North Fork Cache La Poudre River, Segment 7*, at 1 (March 15, 2002) [hereinafter TMDL], at <http://www.cdphe.state.co.us/wq/Assessment/TMDL/pdf/tmdl/Halligan-Res-sedi.pdf>.

2. See LEO EISEL & J. DAVID AIKEN, *PLATTE RIVER BASIN STUDY: REPORT TO THE WESTERN WATER POLICY REVIEW ADVISORY COMMISSION 5-17* (1997). This study reviews the complexity in managing the Platte River Basin, of which the North Fork is part. See generally ELLEN E. WOHL, *VIRTUAL RIVERS: LESSONS FROM THE MOUNTAIN RIVERS OF THE COLORADO FRONT RANGE* ch. 3 (2001).

lions, bobcats, elk, deer, and myriad smaller mammals and birds, Phantom Canyon also gives life to native plants unique to the foothills. The canyon's grassy hilltops, steep slopes, and deep-pooled river bottom make up a complete ecosystem. Over thousands of years, the river has gouged holes as deep as twenty-five feet into bedrock granite that constitutes channel substrate, thus providing habitat for native and introduced fish species. This mix sustains a blue ribbon trout fishery, uncounted species of small fish, and could again potentially sustain native cutthroat trout.³ Bird-watchers enjoy displays by songbirds, as well as birds of prey. The six-mile stretch of the North Fork, that has done so much to slowly shape this patch of landscape, is essentially the only untouched reach of river and terrestrial habitat along the foothills of Colorado's Front Range.⁴

The North Fork of the Poudre River originates in the snowmelt of the Laramie Mountains, a southern extension of the Medicine Bow Range. It is temporarily bottled up at Halligan Reservoir, and then released into North Poudre's irrigation network during summer, while residual flows move through Phantom Canyon and are once more stilled in the City of Greeley's Seaman Reservoir.⁵ From Seaman Reservoir, flows are released to the main Poudre River a few miles above the point where the main channel emerges on the high plains.⁶ The Poudre River begins in countless rivulets above Milner Pass (10,758' elevation) at the Continental Divide, then wends its way through the rippled Front Range landscape to Fort Collins, and proceeds past Windsor to its mouth on the South Platte, just east of Greeley.

3. WOHL, *supra* note 2, at 26-28; The Nature Conservancy, *Phantom Canyon Preserve*, at <http://nature.org/wherewework/northamerica/states/colorado/preserves/art526.html> [hereinafter *Phantom Canyon Preserve*].

4. *Phantom Canyon Preserve*, *supra* note 3.

5. HOWARD E. EVANS & MARY A. EVANS, *CACHE LA POUDE: THE NATURAL HISTORY OF A ROCKY MOUNTAIN RIVER* 150-54 (1991).

6. See *id.* at 154; ROBERT G. HEMPHILL, U.S. DEP'T OF AGRIC., *IRRIGATION IN NORTHERN COLORADO*, BULLETIN NO. 1026, at 2 (1922) [hereinafter *USDA BULLETIN NO. 1026*].

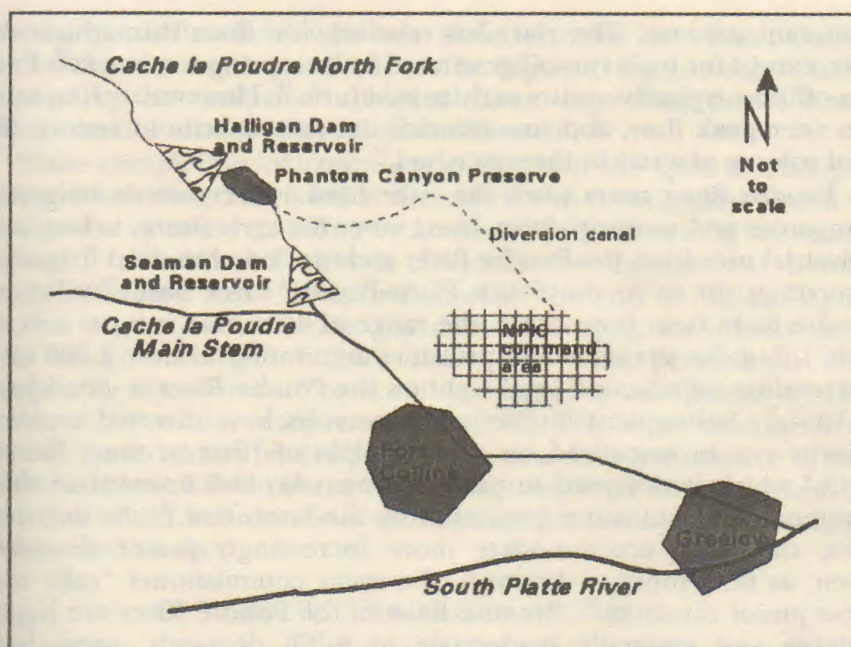


Figure 2. Halligan Dam and Reservoir and Phantom Canyon Preserve, Northern Colorado.

The Poudre River drains more than 1,850 square miles of watershed mostly in north-central Colorado, but also includes a small portion extending into southern Wyoming.⁷ The Poudre River was the first river in Colorado to be added to the National Wild and Scenic River System.⁸ That distinction, combined with the Conservancy's commitment to preserving Phantom Canyon on the North Fork, has inspired appreciation for both the environmental and the utilitarian qualities of the River.

Topography within the Poudre River watershed is highly varied, ranging in elevation from 14,000 feet to 5,000 feet.⁹ Precipitation in the watershed averages less than fifteen inches annually, and, at its extremes, has ranged from less than seven to greater than twenty-five inches within a ten-year period.¹⁰ The majority of precipitation occurs in winter and early spring in the form of snow.¹¹ Late summer thunderstorms often fall with such intensity that infiltration on thin soils and steep slopes is minimal compared to runoff.

The Poudre River's hydrologic cycles are typical of Rocky

7. EVANS & EVANS, *supra* note 5, at 3, 37-39; USDA BULLETIN NO. 1026, *supra* note

8. 2

8. Act of October 30, 1986, Pub. L. No. 99, 100 Stat. 3330, 3330-32 (codified at 16 U.S.C. § 1276(31) (2000)); EVANS & EVANS, *supra* note 5, at 231.

9. WOHL, *supra* note 2, at 4-5.

10. ARTHUR MAASS & RAYMOND L. ANDERSON, ... AND THE DESERT SHALL REJOICE: CONFLICT, GROWTH AND JUSTICE IN ARID ENVIRONMENTS 275 (1978).

11. *Id.*

Mountain streams. The river has relatively low flows throughout the year, except for high run-off generated by late-spring snowmelt.¹² Peak run-off flow typically occurs early to mid-June.¹³ However, spring rains can alter peak flow, and low snowfall has the capacity to reduce the total volume of water in the watershed.¹⁴

Poudre River users work the river hard. Over twenty irrigation companies and municipalities divert water for agriculture, urban, and industrial uses from the Poudre River and over one hundred irrigation companies do so in the South Platte-Poudre River Basin.¹⁵ Typical Poudre main stem flows are in the range of 400 cubic feet per second ("cfs"), but the stream serves priorities amounting to over 4,000 cfs.¹⁶ The earliest adjudicated legal right on the Poudre River is dated June 1, 1861.¹⁷ Subsequent ditches and reservoirs have diverted under a priority system organized on the principle of "first in time, first in right," which is designed to protect those who had invested in their communities from water predation by the latecomer.¹⁸ As the river rises, the flows accommodate more increasingly junior diverters. Then, as flow volumes diminish, the water commissioner "calls out" these junior diverters.¹⁹ Because flows of the Poudre River are highly variable and generally inadequate to fulfill demands, users have constructed reservoirs to capture winter flows and peak flows of late spring and early summer.²⁰ Stored water is then released in summer and early fall to supplement meager hot-season river flows.²¹

B. ENVIRONMENTAL PROBLEM

Phantom Canyon is situated immediately below North Poudre's Halligan Reservoir.²² Halligan Reservoir has been an essential element in providing water security to the shareholders of North Poudre, and the company has a legal right to impound water to the capacity of Halligan Reservoir (6,428 acre-feet) between November 1 and March 31.²³ This results in an essentially dry riverbed below the dam for much of the winter season.²⁴ With the coming of each spring, water released from Halligan Reservoir gushes out of a gate at the bottom of the dam face into a stretch of the North Fork of the Poudre River that extends through Phantom Canyon.²⁵ In the lower reach of the

12. *Id.* at 275.

13. *Id.*

14. *Id.* at 275, 281.

15. MAASS & ANDERSON, *supra* note 10, at 284.

16. *Id.* at 281 & f.7.3.

17. *Id.* at 296 tbl.7.4.

18. *Id.* at 293-99.

19. *Id.* at 295.

20. MAASS & ANDERSON, *supra* note 10, at 291.

21. *Id.* at 282-83, 297-98.

22. EVANS & EVANS, *supra* note 5, at 150.

23. TMDL, *supra* note 1, at 3.

24. *Id.* at 3-4.

25. *Id.*

Canyon, North Poudre diverts most flows from the river into a tunnel that carries the water northeast to the highest, northernmost lands irrigated by the company.²⁶ Residual flows, depending on river and storage conditions, fill Milton Seaman Reservoir.²⁷

Since completion of construction in 1910, the gate at Halligan Reservoir was closed each fall at the conclusion of irrigation season in anticipation of reservoir filling by small winter flows, spring snowmelt, and rain.²⁸ The North Fork river channel below the dam was thereby denied river flow from November through the end of March.²⁹ Fish survived in the stretch below the dam by finding sufficiently deep water in granite river bottom holes that were periodically and temporarily re-connected by local precipitation and small trickles produced by winter canyon snowmelt.³⁰ The river management solution for irrigators tended to be a problem for maintenance of fish and other biotic habitat in the canyon that required winter freshening flows that would link river bottom holes and be a source of sustenance for flora and fauna.

C. NORTH POUDDRE IRRIGATION COMPANY

Individuals undertaking collective action to provide themselves with an irrigation ditch and management for their common property may unite to form a company.³¹ Incorporated or not, these non-profit organizations are known as mutual companies.³² Historically in western states, when a group of individuals aggregated themselves into a mutual company, they pooled what had been separate water rights, and were issued shares of company stock proportional to what each had originally brought to the organization.³³ Unlike private profit seeking corporations that reward their investors with promise of cash dividends, mutual companies offer non-cash dividends in the form of controlled water deliveries—volumes at the right time, place, and in the proper amount.³⁴

North Poudre is an incorporated mutual company that presently services approximately 30,800 acres of farmland through 212 miles of canal and sixteen reservoirs. It is a non-profit, locally controlled association operated on behalf of slightly more than 600 shareholders representing agriculture, municipalities, and industry.³⁵ The

26. Interview with Representative, The Nature Conservancy, in Fort Collins, Colo. (March 24, 1998).

27. *Id.*; see also Water Resources, City of Greeley, *Water Resources History*, at www.ci.greeley.co.us; TMDL, *supra* note 1, at 10.

28. TMDL, *supra* note 1, at 3-4.

29. *Id.*

30. Interview with Representative, The Nature Conservancy, *supra* note 26.

31. GEORGE VRANESH, VRANESH'S COLORADO WATER LAW 282 (James N. Corbridge Jr. & Teresa A. Rice eds, 1999).

32. *Id.*; WELLS A. HUTCHINS, *MUTUAL IRRIGATION COMPANIES* 4-5 (1929).

33. See HUTCHINS, *supra* note 32, at 4-5.

34. *Id.*

35. See THE NORTH POUDDRE IRRIGATION CO., *ANNUAL REPORT* 3, 10 (2001)

command area of North Poudre is comprised of bench lands north and east of Fort Collins extending into Weld County.

When organized into its present form in the early twentieth century, North Poudre issued 10,000 shares of stock.³⁶ Each share entitled its owner to draw 1/10,000th of the water available in a given year, and assessed its owner 1/10,000th of the cost of running the company. Since 1912, the company has delivered, on average, more than four acre-feet-per-share annually (see Table 1).³⁷

Year	Assessment per Share (\$)	Acre Foot per Share	Cost per Acre Foot (\$)*
1912	5.00	3.1	1.61
1920	11.00	3.0	3.69
1930	8.25	3.1	2.66
1940	7.25	0.8	9.60
1950	12.00	1.8	6.66
1960	14.50	5.3	2.73
1970	20.00	7.0	2.86
1980	55.00	4.7	11.70
1985	100.00	11.5	11.11
1990	75.00	4.5	16.74
1995	75.00	3.9	19.23
1999	85.00	4.0	21.20
2000	50.00	4.6	10.96
2001	60.00	4.0	15.08
Average Annual Acre Feet per Share		4.4	
(Source: NPIC Annual Reports 1986; 2001)			
*Actual dollars, not adjusted for inflation.			

Table 1. Summary of costs and deliveries of water shares, North Poudre Irrigation Company

Shareholders' annual assessments have covered the operational costs of delivering water. Operational costs have included transporting, storing, and delivering water, supporting a small staff,

[hereinafter YEAR ANNUAL REPORT].

36. USDA BULLETIN NO. 1026, *supra* note 6, at 39.

37. 1986 ANNUAL REPORT, *supra* note 35, at 10-11; 2001 ANNUAL REPORT, *supra* note 35, at 5.

and constructing and maintaining facilities.³⁸ North Poudre is operated by a five person, member-elected volunteer board of directors.³⁹ The board employs a full-time operations manager to oversee staff (see Figure 3).⁴⁰ The operations manager and staff are the only personnel receiving wages. Shareholders control North Poudre by electing board members and voting their shares on policy matters.

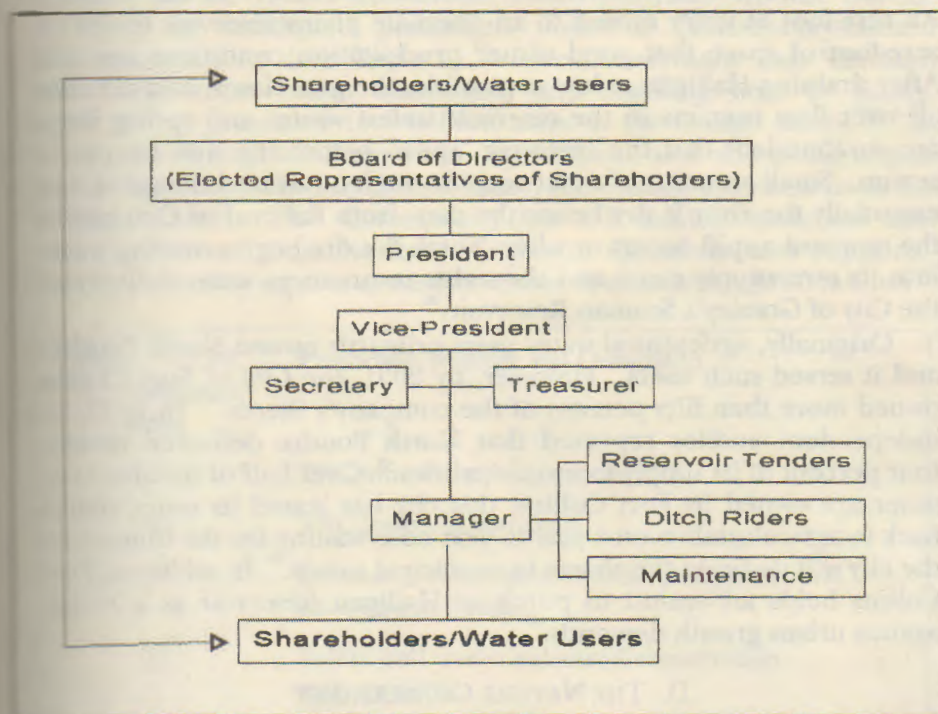


Figure 3. Organizational chart of North Poudre Irrigation Company.

One share of North Poudre has yielded variable volumes of water depending on availability in the watershed and capacity to capture flows (see Table 1). In the course of a typical water year, board members assess the moisture content of watershed snow packs, compare those amounts to previous records, and estimate spring runoff.⁴¹ They then allocate water volumes per share, usually starting conservatively in early spring and, as precipitation and run-off conditions become better known with passage of time, additional acre-feet per-share are added as conditions warrant.⁴² Each member of the

38. 2001 ANNUAL REPORT, *supra* note 35, at 12-18.

39. *See id.* at 1.

40. *Id.*

41. MAASS & ANDERSON, *supra* note 10, at 299-300.

42. *Id.*

organization benefits proportionally to the number of shares owned in wet years, and each loses proportionally in times of drought.

Halligan Dam (see Figure 2) captures water each winter season by storage right.⁴³ During storage season, November 1 to March 31, North Poudre may move Halligan water to plains reservoirs or to fields as early as February or March.⁴⁴ It may also run as much water as possible out of Halligan Reservoir at the end of the irrigation season to stockpile water in its plains reservoirs over the course of the winter.⁴⁵ An acre-foot of water moved to an alternate plains reservoir leaves an acre-foot of space that good winter precipitation conditions can fill. After draining Halligan as low as possible, the gate closes, and virtually all river flow remains in the reservoir unless winter and spring flows are so abundant that the reservoir "spills" before the new irrigation season. Small amounts of water seep through or around the gates, but essentially the river is dry below the dam from the end of October to the moment a spill occurs or when North Poudre begins moving water into its own supply canal and then also commences water delivery to the City of Greeley's Seaman Reservoir.⁴⁶

Originally, agricultural water users primarily owned North Poudre, and it served such users. However, by 2001, the City of Fort Collins owned more than fifty percent of the company's shares.⁴⁷ In 1999, an independent auditor reported that North Poudre delivered twenty-four percent of its supply to municipalities.⁴⁸ Over half of the shares of water are owned by Fort Collins; this city has leased its water shares back to agriculturalists on a year-to-year basis waiting for the time when the city will dedicate the shares to municipal needs.⁴⁹ In addition, Fort Collins holds an option to purchase Halligan Reservoir as a hedge against urban growth demands.⁵⁰

D. THE NATURE CONSERVANCY

Since incorporation in 1951, the Conservancy has operated domestically and internationally to preserve natural areas, plants, animals, natural communities, open space, and unique natural

43. TMDL, *supra* note 1, at 3-4; see USDA BULLETIN NO. 1026, *supra* note 6, at 70.

44. TMDL, *supra* note 1, at 3-4.

45. *Id.* at 3.

46. Interview with Representative, The North Poudre Irrigation Company, Fort Collins, Colo. (April 8, 1999).

47. TMDL, *supra* note 1, at 3; the City of Fort Collins represents that it acquires Colorado Big Thompson water through its 3,550 shares of North Poudre. City of Fort Collins, *Fort Collins Water Supplies*, at www.ci.ft-collins.co.us/water/water-supplies.php.

48. 1999 ANNUAL REPORT, *supra* note 35, at 6.

49. Interview with Representative, The North Poudre Irrigation Company, *supra* note 46.

50. David Persons, *City Pursuing Storage Upgrade at Halligan Site*, THE COLORADOAN, May 30, 2001, http://www.reclaimfc.org/news/policy/article_492.html; Mary Benanti, *Rapid Growth Complicates Plans*, THE COLORADOAN, April 1, 2001, http://www.coloradoannews.com/census/kendall_0401.html.

features not otherwise protected.⁵¹ The Conservancy has worked toward its goal by developing local ties and knowledge and by using resources already in place in the area of concern through conservation easements, outright land purchase, and litigation avoidance. The organization has striven to create partnerships with local, regional, state, and federal agencies.⁵² It frequently has sold acquired areas to the Bureau of Land Management, the United States Forest Service ("Forest Service"), and the United States Fish and Wildlife Service ("FWS") for continued protection under a Conservancy-assisted management plan (see Table 2).⁵³ The Conservancy has, "through ownership, conservation easements, and reselling land to public agencies, . . . preserved 11.6 million acres in the United States."⁵⁴ As the country's largest conservation organization, and one of the largest private landowners in the United States, the Conservancy now owns 1.3 million acres.⁵⁵ The Conservancy has 1.1 million members and contributors and benefits from corporate donations and support.⁵⁶ The Conservancy reports annual revenues of as much as \$780 million.⁵⁷

Percent of All TNC-protected Acres	Protection Strategy and Ownership
10	TNC-owned nature preserves
20	TNC leased or managed
40	Gift, sale, or assistance to local, state, or federal government entities
15	Public land under enhanced conservation management
7.5	Private ownership (other than TNC), protected through permanently-conveyed development rights
7.5	Other conservation organizations and universities

Table 2. Strategic ownership of land within the United States protected by The Nature Conservancy. Source: Weeks, 1997: 14-15.

51. W. WILLIAM WEEKS, *BEYOND THE ARK: TOOLS FOR AN ECOSYSTEM APPROACH TO CONSERVATION* 14 (1997).

52. Interview with Representative, The Nature Conservancy, Boulder, Colo. (March 24, 2000).

53. WEEKS, *supra* note 51, at 14-15.

54. Jon Margolis, *Remembering an Establishment Revolutionary*, *HIGH COUNTRY NEWS*, Sept. 11, 2000, at 16.

55. *Id.*

56. *Id.*

57. *Id.*

"Greener" groups have criticized the Conservancy for having close relationships with government agencies, developers, and ranchers claiming that the Conservancy has "ultimately . . . more in common with . . . developers" than environmentalists.⁵⁸ Ranching, logging, and development interests own much of the land the Conservancy sees as needing protection.⁵⁹ These practical environmentalists have been willing to bargain with commodity producer representatives to incorporate their resource use activities within environmentally sustainable management plans.⁶⁰ One director stated, "Our organizational ethic is pragmatic and solution-oriented. We want to work with every community of people who live in rural areas. The long-term conservation of areas depends on the people that live in and around them."⁶¹

Initially, the Conservancy concentrated on protecting relatively small areas that were sustaining particularly rare or endangered species.⁶² More recently, however, the focus shifted to "protect more biodiversity more securely" and to advance biodiversity objectives by pursuing "large conservation projects . . . to sustain ecological processes."⁶³ This push to protect larger areas, called the "Last Great Places Campaign," has envisioned the protection of approximately thirty percent of the land that the Conservancy designated as "important areas" within the United States.⁶⁴

After securing tracts of land, the Conservancy formulates science-based management plans attempting to preserve biodiversity through an ecosystem approach.⁶⁵ The intent is to ensure that, whether or not the property continues under Conservancy ownership, the supervising organization would manage the acquired land under an agreed-upon plan.⁶⁶ A prominent characteristic of the "Last Great Places Campaign" has been the incorporation of cooperative planning for human economic needs along with continued management for sustained biodiversity.⁶⁷ The Conservancy promotes eco-tourism opportunities along with other creative and ecologically compatible economic development.⁶⁸

In the mid 1980s, the Colorado chapter of the Conservancy acquired 1,700 acres locally known as Phantom Canyon Ranch.⁶⁹ The property consisted of a steep-sided canyon, which was isolated, roadless, and verdant. In eroded channel bottom pools as deep as

58. *Id.*

59. WEEKS, *supra* note 51, at 14-15.

60. *Id.*

61. Margolis, *supra* note 54, at 16.

62. WEEKS, *supra* note 51, at 4.

63. *Id.*

64. Margolis, *supra* note 54, at 32.

65. WEEKS, *supra* note 51, at 34.

66. *Id.* at 34-39.

67. *Id.* at 101-29.

68. *Id.*

69. Interview with Representative, The Nature Conservancy, *supra* note 26.

twenty-five feet, large rainbow and brown trout could flourish given essential winter flows in what had the potential to become blue-ribbon habitat.⁷⁰

The canyon offered habitat of the highest quality for many Front Range species of wildlife that have lost territory under the heavy footprint of human settlement on the eastern slopes of Colorado. Ecologically, the canyon represented an area of transition – an *ecotone* – within which the dryland grasses of the eastern plains intermingled with the lower elevation forests of the Rocky Mountains to the west. Animal and plant species have typically been abundant in viable ecotones. Viewed as a precious remnant of geologic time, with meadow areas interspersed with woodlands punctuated by rocky outcroppings and laced by the river, Phantom Canyon Ranch provided a glimpse of the Front Range ecosystem as it existed before colonization and development by European settlers.⁷¹



Figure 4. Foothills ecosystem, Phantom Canyon.

70. *Id.*

71. Interview with Representative, The Nature Conservancy, Fort Collins, Colo. (February 4, 2000).



Figure 5. Phantom Canyon mouth.

III. LAW AS CATALYST: SOCIAL CONSTRUCTION OF THREAT

A. ENDANGERED SPECIES ACT AND FEDERAL RESERVED RIGHTS DOCTRINE

Conflicts over water, as between federal environmental agendas and water users organized under state appropriation doctrines, have been simmering for decades all over the west. By the late 1960s and 1970s, when Congress passed its spate of environmental legislation⁷² specifically directing federal agencies to consider the impacts of their actions upon the environment and to advance environmental considerations, the question of federal acceptance of state water adjudications became sharply posed.⁷³ The federal government had two options to control and re-direct water policy in accordance with the 1970s environmental agendas. The government could either work within the purview of state appropriation doctrines, or invoke the federal reserved rights doctrine for water uses connected with federal

72. See, e.g., National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-70a (2000); Endangered Species Act of 1973, 16 U.S.C. §§ 1531-44 (2000); National Forest Management Act of 1976, 16 U.S.C. §§ 1600-14 (2000).

73. See DAVID M. GILLILAN & THOMAS C. BROWN, *INSTREAM FLOW PROTECTION: SEEKING A BALANCE IN WESTERN WATER USE* 177-182 (1997); Janet C. Neuman & Michael C. Blumm, *Water for National Forests: the Bypass Flow Report and the Great Divide in Western Water Law*, 18 STAN. ENVTL. L.J. 3, 6-11 (1999).

reservations. In the context of the Poudre River, two struggles—one in New Mexico and the other regarding Poudre River mountain reservoirs on the Roosevelt-Arapaho National Forest—were pivotal.⁷⁴

In the wake of the Congressional passage of the Endangered Species Act ("ESA"), the FWS sought ways to implement this new congressional mandate.⁷⁵ In 1978, among its many efforts, the FWS designated a fifty-one mile section of the Platte River in central Nebraska, from Lexington to Chapman, as habitat critical to the survival of the whooping crane, a species listed as endangered under the ESA.⁷⁶ The FWS found that the water users' diversions and impoundments in the Platte River Basin clearly contributed to the degradation of whooping crane habitat in central Nebraska.⁷⁷ The water users had located many of these facilities on federal land within the Platte River Basin and many had been the beneficiaries of federal investment.⁷⁸ Water users in a federal nexus operated under permits from appropriate federal agencies, such as the Federal Energy Regulatory Commission and the Forest Service.⁷⁹ Following passage of the ESA, any water facility permit renewal would necessarily involve federal permitting agency review which, in consultation with the FWS, would determine whether the permitted activity adversely impacted any species listed under the Act.⁸⁰

The Poudre River is tributary to the Platte River main stem via Colorado's South Platte River. A segment of the Platte River main stem served as designated critical crane habitat.⁸¹ As a result, ESA jurisdiction could extend to the mountain reservoirs within the Roosevelt-Arapaho National Forest that impounded Poudre River water, despite the fact that the ESA listed no endangered species in eastern Colorado.⁸² Seeing that the ESA, in respect to Nebraska whooping crane habitat, could affect the Poudre River water impoundments, North Poudre watched nervously, contemplating how the ESA's reach might extend to Halligan Dam based on impacts to wildlife in Phantom Canyon.⁸³

74. For a discussion on both examples, see generally GILLILAN & THOMAS, *supra* note 73 and Neuman & Blumm, *supra* note 73.

75. See generally John Echeverria, *No Success Like Failure: The Platte River Collaborative Watershed Planning Process*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 559 (2001) (detailing efforts to integrate critical habitat concerns raised by the ESA into the Platte River watershed planning process).

76. *Id.* at 563, 593.

77. *Id.* at 566-67, 569.

78. See generally EISEL & AIKEN, *supra* note 2, at 7-23 (discussing federal licensing of Kingsley Dam on the North Platte River, and water projects at Lake McConaughy, Lake Tamarack, and Pathfinder Reservoir).

79. See *id.* at 18-21.

80. *Id.* at 9.

81. *Id.* at 2.

82. *Id.* at 2, 7-11.

83. Interview with Representative, North Poudre Irrigation Company, *supra* note 46.

B. NEW MEXICO, THE GILA, AND RIO MIMBRES

In 1978, New Mexico's Gila National Forest became the focus of an important volley in state and federal discourse pertaining to regulating river flows designed to protect wildlife species and habitat.⁸⁴ The *New Mexico* case contemplated the question of federal reserved water rights on federal lands.⁸⁵ Reserved water rights were asserted at the time a federal agency reserved appurtenant land rights, with a priority date based on the date of reservation.⁸⁶ The Winters Doctrine⁸⁷ limited reserved water rights to the water quantity necessary to accomplish the federal purpose for the reservation.⁸⁸ However, in *Arizona v. California*,⁸⁹ the Supreme Court expanded the Winters Doctrine to apply not only to Native American Reservations, but also to all federal reserved lands.⁹⁰ In *Arizona*, the Court upheld the federal agencies' claims to water for Lake Mead Natural Recreation Area, Havasu Lake National Wildlife Refuge, and the Gila National Forest.⁹¹ Subsequent to this ruling, in the late 1970s, the Forest Service, with support from the FWS, attempted to establish a reserved right for the Mimbres River in the Gila National Forest.⁹² Federal agencies were, therefore, on the march toward securing expanded instream flows by employing the federal reserved rights doctrine.⁹³

Following the 1963 decision in *Arizona*, several western states initiated general adjudications to clarify and settle issues raised by aggressive use of the reserved rights doctrine.⁹⁴ These states fought to ensure that reserved rights issues would be adjudicated in state rather than federal courts, and brought cases designed to narrow the application of *Arizona*.⁹⁵ In the Gila-Rio Mimbres adjudication, the Forest Service claimed federal reserved rights based on Congress's implied reservation of water that took place when it passed the Creative Act of 1891 and the Organic Administration Act of 1897.⁹⁶ In *New Mexico*, the Forest Service argued that instream flows were compatible with the purposes of the Creative and Organic Acts and

84. United States v. New Mexico, 438 U.S. 696 (1978).

85. *Id.* at 698.

86. GILLILAN & BROWN, *supra* note 73, at 180.

87. Winters v. United States, 207 U.S. 564 (1908). The *Winters* case considered water rights for an Indian reservation in Montana. For over fifty years, courts only considered reserved water rights in Indian water rights situations. The doctrine aptly received its name from the *Winters* case.

88. See *Arizona v. California*, 373 U.S. 546, 601 (1963).

89. *Id.*

90. *Id.*

91. *Id.*

92. United States v. New Mexico, 438 U.S. 696, 697-98 (1978).

93. For a discussion on the Forest Service action to secure instream flows see GILLILAN & BROWN, *supra* note 73, at 187-92.

94. *Id.* at 187; see also Neuman & Blumm, *supra* note 73, at 6-8.

95. GILLILAN & BROWN, *supra* note 73, at 187; Neuman & Blumm, *supra* note 73, at 7-8.

96. United States v. New Mexico, 438 U.S. at 705-08.

consistent with the reserved rights doctrine as established in *Winters*.⁹⁷ The special master appointed to the case found that water in the national forest was, in fact, used for the purposes claimed by the Forest Service and such uses fell under the scope of the reserved rights doctrine.⁹⁸ However, the New Mexico District Court rejected the findings of the special master, as did the New Mexico Supreme Court.⁹⁹ The New Mexico Supreme Court held the Forest Service could not claim federal reserved water rights for instream purposes.¹⁰⁰ The United States Supreme Court subsequently upheld that ruling.¹⁰¹ The Court looked closely at the Organic Administration Act, chose to construe its language narrowly, and concluded in a 5-4 split decision that Congress only intended to establish national forests for the purpose of improving and protecting those forests within their boundaries, furnishing continuous supplies of timber, and securing favorable water flow conditions for downstream users.¹⁰²

In response to what was a setback for the federal position, the Forest Service advanced other rationales for making water claims under the federal reserved rights doctrine. New arguments centered on water uses for fire fighting, fire protection, and flood, soil and erosion control.¹⁰³ Most especially, the agency developed an argument for instream flows based on the primary purpose of watershed protection and fluvial geomorphology.¹⁰⁴ Instream flows were necessary, in this modified line of argument, to transport sediment downstream and to maintain viable meandering stream channels consisting of successive oxbow loops in order to best sustain biologically diverse communities.¹⁰⁵ Essentially, enhanced stream flows were needed for channel maintenance.

C. COLORADO—MOUNTAIN RESERVOIRS ON THE CACHE LA POUDE

The Forest Service next tried to make claims on water under the reserved rights doctrine in Colorado, where the agency had an opportunity to review permits for storage reservoirs on the upper reaches of the Poudre River.¹⁰⁶ The Cities of Greeley and Fort Collins and the Water Supply and Storage Company, a mutual irrigation association, owned reservoirs on the Roosevelt-Arapaho National Forest and had permits allowing them to operate the reservoirs. These permits came up for renewal in 1991.¹⁰⁷ In the years leading up to the

97. GILLILAN & BROWN, *supra* note 73, at 187-89; Neuman & Blumm, *supra* note 73, at 8.

98. United States v. New Mexico, 438 U.S. at 703-04.

99. *Id.* at 704.

100. *Id.* at 704-05.

101. *Id.* at 718.

102. *Id.*

103. GILLILAN & BROWN, *supra* note 73, at 189.

104. *Id.* at 190.

105. See Neuman & Blumm, *supra* note 73, at 10.

106. See GILLILAN & BROWN, *supra* note 73, at 191.

107. Neuman & Blumm, *supra* note 73, at 11.

renewal decision, the Forest Service was in the process of revising its Roosevelt-Arapaho National Forest Plan.¹⁰⁸ As part of that process, the Forest Service signaled its intention to make access permits conditional on the imposition of bypass flows in order to enhance the aquatic environment and protect habitat for vulnerable species.¹⁰⁹ Forest managers proposed minimum flows that would "bypass diversion structures and remain in-stream,"¹¹⁰ ensuring adequate water to protect aquatic habitat. The FWS issued a biological opinion that enumerated a variety of species dependent upon the flows of the Poudre River headwaters, including local onsite species and species found far downstream in the Nebraska reaches of the Platte River.¹¹¹ The list of species dependent upon central Nebraska Platte River habitat over the years had grown to include whooping cranes, piping plovers, least terns, plant species, and the pallid sturgeon.¹¹²

Permit holders were concerned that the required bypass flows would curtail their legal impoundment rights and threaten their ability to capture and use their allotted amounts of water.¹¹³ Thus, the bypass flow requirements had the capacity to reduce the permittees' historic impoundment yields.¹¹⁴ Because state law bases water rights on historic use,¹¹⁵ any loss to bypass of flows would be irreversible. It was critical to preserve historic yields and the state appropriation doctrine from what water users viewed as predatory federal policy. Yet, the Forest Service and FWS viewed bypass flows as extremely desirable because they promised to enhance habitat by retaining minimum flows in natural watercourses.

Although the Poudre River bypass flow case would not get underway in Colorado's Division 1 Water Court until early 1991, by the mid-1980s Colorado water users had been set on edge by events pertaining to New Mexico's Gila National Forest.¹¹⁶ Furthermore,

108. *Id.*

109. *Id.* at 4.

110. *Id.* at 5 n.5.

111. Letter from Wilber N. Ladd, Jr., Regional Director of the Fish & Wildlife Service, U.S. Dep't of Interior, to Elizabeth Estill, Regional Forester of the Rocky Mountain Region, U.S. Forest Service, Final Biological Opinion for Impacts to Federally Listed Endangered and Threatened Species in Colorado and Nebraska for the Forest Service's Action for Authorization of a Special Use Permit to the City of Greeley for Peterson Reservoir, at 1 (June 2, 1994) (on file with the author) [hereinafter Ladd Opinion].

112. *Id.* at 4-16.

113. Neuman & Blumm, *supra* note 73, at 11-13.

114. *Id.* at 11.

115. *Williams v. Midway Ranches Prop. Owners Ass'n*, 938 P.2d 515, 522 (Colo. 1997).

116. See NANCY GORDON, SUMMARY OF TECHNICAL TESTIMONY IN THE COLORADO WATER DIVISION 1 TRIAL, USDA FOREST SERVICE GEN. TECH. REP. RM-GTR-270, at 136 (1995); see generally Thomas K. Snodgrass, Comment, *Bypass Flow Requirements and the Question of Forest Service Authority*, 70 U. COLO. L. REV. 641 (1999) (detailing the history of the Roosevelt-Arapahoe controversy). Both of the above sources are excellent resources accounting the *United States v. Colorado* opinion, W-8439-76 (Colo. Dist. Water Div. 1 Feb. 12, 1993).

Colorado water users could clearly see the threat building by the Forest Service's unfolding of "bypass flow" plans regarding the Roosevelt-Arapaho.¹¹⁷

A brief summary of the Division 1 trial illustrates the mounting uncertainty regarding the outcome of looming state-federal confrontation in Colorado, one in which the Forest Service filed for instream flows based upon interpretation of the Organic Act.¹¹⁸ Such uncertainty provided an incentive for North Poudre leaders to seek sanctuary by creating conditions under which they could release small winter flows into Phantom Canyon without damaging the interests of its shareholders or giving credence to the federal "bypass" concept.

Beginning in early 1991 and concluding in 1992, the United States Department of Justice, the Colorado Attorney General's Office, and the lawyers representing local water users argued complex issues of law and empirical fact surrounding federal claims of supremacy, as compared to those of state and local water administration, regarding the Forest Service's claim of reserved rights.¹¹⁹

In what some have considered as the most important water case on matters of federal reserved rights doctrine since *United States v. New Mexico*,¹²⁰ the reserved rights case¹²¹ brought by the Forest Service in Colorado Water Division 1, involving the Poudre and Platte Rivers, became high drama that drew the interest of water users and environmentalists nationwide.¹²² The trial was a high stakes affair complete with droves of expert witnesses and considerable press coverage. "Marked by extensive legal maneuvering [and technical discussion, the proceedings became an] . . . extended seminar on principles of fluvial geomorphology and associated sciences," complete with field trips.¹²³ State advocates argued that the federal position on water flow needs for critical habitat in Nebraska and biotic habitat below mountain dams and reservoirs was an inappropriate preemption of state water law.¹²⁴ Additionally, they claimed that federal action interfered with water allocation under state compacts, and Congress never intended to interfere with state rights and obligations in the manner advanced by the Forest Service.¹²⁵

The water court found that the Forest Service claims were not necessary to fulfill the primary purpose of national forests and, in fact, worked against fulfilling those purposes.¹²⁶ It decided the federal

117. See generally Snodgrass, *supra* note 116, at 645-53.

118. See Gordon, *supra* note 116, at 136 for chronology of the case.

119. GORDON, *supra* note 116, at i-ii.

120. 438 U.S. 696 (1978).

121. *United States v. Colorado*, W-8439-76 (Colo. Dist. Water Div. 1 Feb. 12 1993).

122. GORDON, *supra* note 116, at i; GILLILAN & BROWN, *supra* note 73, at 191.

123. GILLILAN & BROWN, *supra* note 73, at 191. See *United States v. Colorado*, W-8439-76 at 15-18, 21-23, for a discussion on the field trips.

124. See generally Gordon, *supra* note 116, at 3, 9, 11-15 (summarizing historical and policy arguments of federal and state advocates).

125. *Id.* at 8-15.

126. *United States v. Colorado*, W-8439-76 at 32.

government should be allowed an opportunity to prove the necessity of instream flows to secure favorable forest conditions; however, the Forest Service did not meet that bar in this case.¹²⁷ The court also ruled that the original intent of the Organic Act was to encourage economic and social growth in the arid West by enhancing quantity and quality of water available to appropriators, and not to reduce consumption of water by protecting instream flows.¹²⁸

Water users had again dodged the federal reserved rights bullet, but would clearly have to seek ways to defuse the dangerous "no-holds barred" western water wars that had ensnared them. The challenge yet to be met was finding some way to accommodate environmental agendas without using any part of federal reserved rights doctrine, or betraying rights, priorities, and project yields under the state appropriation doctrine.

D. THE CACHE LA POUDE—QUIET DEFENSIVE CHANGE

In the mid-1980s, when North Poudre negotiated with the Conservancy for releasing winter flows into Phantom Canyon, courts had yet to determine the outcomes of the looming struggle over mountain reservoirs. However, it seemed clear that when defeated in New Mexico's Gila case,¹²⁹ the federal agencies would not, or could not, abandon their quest for water under federal reserved rights doctrine given their legal mandates. Individual court cases could be won, New Mexico's Gila example¹³⁰ was heartening to water users. Yet, there were always other opportunities for the Forest Service and FWS to again take up their case. The Poudre River bypass flow case was already looming.¹³¹ Each trial would be an expensive gamble, and such expenses could easily escalate beyond a city's capacity or a non-profit mutual company's modest means. Water users feared where an open-ended succession of legal battles might lead them. Something had to be done to assuage this conflict between federal environmental agendas and state water users trying to preserve their project yields and the integrity of state prior appropriation doctrine. The Poudre River Basin water users were on the cusp of taking precedent-setting steps regarding the provision of instream flows. Two stories would unfold—one on the main stem, a second on the North Fork.

On the main stem, events following the Division 1 water court struggle deserve only brief mention. They update the on-going legal and policy discourse centered on an innovative instream flow plan addressing Forest Service environmental agendas without creating legal precedent for bypass flows. The very word "bypass" had become anathema to water users. In March of 1995, the City of Greeley, the City of Fort Collins, and the Water Supply and Storage Company

127. *Id.* at 24-30.

128. *See id.* at 1-4.

129. *United States v. New Mexico*, 438 U.S. 696 (1978).

130. *Id.*

131. *See Gordon, supra* note 116, at 136.

signed a memorandum of understanding entitled "Joint Operations Plan" ("JOP").¹³² Water users would release winter flows for fish and wildlife habitat purposes, but these releases would be a product of the JOP voluntary arrangement undertaken by water users. This agreement concluded more than five years of negotiations prompted by the on-going threat of future litigation over winter flows to "enhance the aquatic environment of the Cache la Poudre River."¹³³

To serve Forest Service habitat needs, all signing parties agreed to implement a set of water exchanges that would permit them collaboratively to release ten cubic feet per second into the Poudre River bottom throughout the winter months, benefiting a sixty-mile stretch of the river.¹³⁴ Experienced water managers viewed one reservoir, in particular, as potentially difficult and dangerous to operate under winter conditions.¹³⁵ Therefore, the City of Fort Collins agreed to supply the released winter water on the condition that the other contributing parties repay it during summer season when Fort Collins demand was at its peak.¹³⁶ The City of Greeley, farthest downstream and virtually at the mouth of the Poudre, could place released winter flows to beneficial use for its domestic needs and thereby protect the water priorities of the three entities under Colorado law.¹³⁷

Since cities consumptively use very little water in winter months, virtually all their diversion would return to the river. During late fall, winter, and early spring months, demand of intervening agricultural users would be non-existent and municipal demands mostly non-consumptive. Therefore, large fractions of the winter instream releases would move through the system to central Nebraska and, along the way, contribute to base flows upon which spring flood pulses could ride for maximum positive impact on critical habitat. Each water user contributed proportionately to the winter flows, and releases were coordinated in a manner to protect each entitlement.¹³⁸

Utilizing the exchanges, there has been virtually no loss of project yield to any party, and original users have retained their rights and priorities. The effect of the arrangement has been to provide the main stem of the Poudre River with winter instream flows without legally accepting any part of federal reserved rights doctrine. The legal language of federal bypass flows was assiduously avoided.

132. Joint Operations Plan Memorandum of Understanding 1 (March 22, 1995) [hereinafter Joint Operations Plan] (On file with the Colorado State Engineer's Office in Denver, CO); see also Neuman & Blumm, *supra* note 73, at 12-13. As mentioned in the text, parties to the JOP are the City of Greeley, City of Fort Collins, and Water Supply and Storage Company.

133. Joint Operations Plan, *supra* note 134, at 1.

134. See *id.*

135. Interview with Representative, State Engineer's Office, Fort Collins, Colo. (March 7, 2000).

136. See Joint Operations Plan, *supra* note 132, at 2.

137. See *id.* at 1.

138. *Id.*

By June 1994 the FWS, after having consulted with the Forest Service on the high mountain reservoirs, produced a biological assessment of Poudre River water use facilities and their projected negative impact on endangered and threatened species habitat in central Nebraska.¹³⁹ The opinion identified two distinct environmental problems: (1) the negative impacts of reservoirs on aquatic habitat immediately below storage reservoirs on the Poudre River; and (2) the negative impacts on endangered species over 200 miles downstream in Nebraska.¹⁴⁰ In July 1994, the Forest Service, after completing environmental impact statements, issued the necessary permits for continued operations of the storage facilities.¹⁴¹ It processed each permit application separately and granted each permit with specific riverine habitat conditions attached.¹⁴² The parties designed the entire JOP to function within the larger political, legal, and environmental context of endangered species needs on Nebraska's central Platte River.¹⁴³

With the Division 1 case still pending, the Poudre River bypass flow crisis became a political cause for water users, who in turn took the matter to Congress.¹⁴⁴ They convinced then Senator Hank Brown (R-Colorado) to include a provision in the 1996 Farm Bill, imposing an eighteen-month moratorium on further attempts to include bypass flow conditions on federal permits, pending a study of the issue by a Congressional Task Force.¹⁴⁵ That task force, clearly sympathetic with preservation of the state appropriation doctrine, studied the conflicting claims.¹⁴⁶ A narrow majority advocated the primacy of the state appropriation doctrine over federal land reserved rights claims.¹⁴⁷ The task force recommended an eighteen-month moratorium on federal agency employment of bypass flow conditions in permit renewal processes.¹⁴⁸

Environmentalists and water users became bitterly polarized over the issue. For the first time, however, water flowed down the Poudre River during the winter season entirely under the sanction of Colorado law and voluntary practice. The Forest Service accepted the Colorado water user solution and proceeded to issue the required permits.¹⁴⁹

139. Ladd Opinion, *supra* note 111, at 1-34.

140. *Id.* at 20-23.

141. Neuman & Blumm, *supra* note 73, at 12.

142. See Ladd Opinion, *supra* note 111, at 1-34. While the Ladd Opinion addressed only one permit, the City of Greeley's Peterson Lake special use permit, the FWS recognized that the Forest Service addressed numerous other permits. *Id.* at 1.

143. Interview with Representative, State Engineer's Office, *supra* note 135.

144. GILLILAN & BROWN, *supra* note 73, at 209.

145. Neuman & Blumm, *supra* note 73, at 4-5; GILLILAN & BROWN, *supra* note 73, at 212.

146. See Neuman & Blumm, *supra* note 73, at 11-14.

147. *Id.* at 28.

148. *Id.* at 5-6.

149. Neuman & Blumm, *supra* note 73, at 12.

IV. LAW AS CATALYST: SOLUTION

A. CONTEXT

The second Poudre basin instream flow story unfolded on the North Fork. Since earliest settlement along the North Fork, ranchers have owned and managed Phantom Canyon. Private interests posed no challenge to North Poudre's management of Halligan Reservoir.¹⁵⁰ However, that would change in the early 1980s.

In the 1970s, a local speculator, also a member of the North Poudre board, purchased the canyon property below Halligan Dam.¹⁵¹ Given the energy crisis of the late 1970s and the federal government incentives for investments in energy production, the speculator planned to enlarge Halligan Dam and Reservoir for purposes of both hydroelectric power production and enhanced supply of agricultural and municipal water.¹⁵² To this end, North Poudre successfully filed and obtained a conditional right to enlarge storage at the Halligan site – up to 30,000 acre-feet.¹⁵³ The speculator-shareholder, and then owner of Phantom Canyon, financed the legal costs of securing the conditional storage right in exchange for joint ownership of the undeveloped additional storage rights with North Poudre.¹⁵⁴

By 1982, it became clear that prospects for immediate enlargement of Halligan were rapidly dimming; federal energy policy was quickly shifting under guidance of the Reagan administration, and the rural economy was falling into severe recession. Under considerable financial pressure, the speculator sold his share of the conditional water rights associated with the possible enlargement to the City of Fort Collins, which by then was a large shareholder in North Poudre.¹⁵⁵ The City of Fort Collins anticipated its rapidly growing demands would be well served in the foreseeable future by possession of the option to enlarge North Fork water storage potentials.¹⁵⁶

At about the same time, the speculator put the greatest share of his tract of Phantom Canyon land on the market.¹⁵⁷ Originally, there had been interest by a coalition of public-spirited citizens, including Colorado Governor Richard Lamm, to purchase the property for preservation as a state park.¹⁵⁸ When acquisition by the state did not

150. Interview with Representative, North Poudre Irrigation Company, *supra* note 46; Interviews with Representative, North Poudre Irrigation Company, Larimer County, Colo. (May 25, 1998; July 26, 1999).

151. Interviews with Representative, North Poudre Irrigation Company, *supra* note 150.

152. *Id.*

153. *Id.*

154. *Id.*

155. Persons, *supra* note 50.

156. *Id.*

157. Interviews with Representative, North Poudre Irrigation Company, *supra* note 150.

158. EVANS & EVANS, *supra* note 5, at 150-51.

materialize, the Conservancy stepped in to purchase the 1,700-acre tract that included the steep-walled granite canyon, with an eye toward protection of this relatively pristine remnant of east slope foothills ecosystem.¹⁵⁹

B. INCENTIVES

In the context of the struggle over New Mexico's Gila National Forest, the Forest Service clearly articulated its intention to press for "bypass flows" as a condition of permit renewal on Poudre River mountain reservoirs.¹⁶⁰ North Poudre now had a new neighbor immediately downstream of Halligan Reservoir – a neighbor in possession of unique habitat that was organized to advance an environmental agenda as its central mission. North Poudre was not in a federal nexus and had no fear of federal permitting problems. It could take a "principled stand" on behalf of traditional utilitarian water management values as encoded in the state appropriation doctrine, and thereby refuse to consider any suggestion of altering its traditional schedule of water release. Prudence, however, would require more thoughtful contemplation of the situation.

When representatives of the Conservancy approached North Poudre with a proposal to negotiate a way to arrange a small continuous release of water through the winter, they found a reluctant, but not entirely hostile, audience. Informants speaking on behalf of North Poudre shareholders made it abundantly clear that prior to the spate of federal environmental legislation of the 1970s, the struggle over the Gila, or the looming fight over the mountain reservoirs, any request for non-irrigation season instream flows would have been handily dismissed.¹⁶¹ Nevertheless, to refuse even an attempt at negotiating a solution with an environmental organization that clearly displayed a preference for negotiation over litigation, would have risked bringing severe approbation upon the water users. To rigidly deny a small stream of water sufficient to keep river bottom holes connected and thereby serve fish and wildlife values in a special place risked a lawsuit from less moderate environmentalists and would be a source of embarrassment to at least one major shareholder, the City of Fort Collins. Most urban citizens knew little of the intricacies of law and water management, but could be expected to sympathize with a modest call for water in the service of a precious place. After some initial hesitation, negotiations began.

159. *Phantom Canyon Preserve*, *supra* note 3.

160. See *supra* text accompanying notes 106-12.

161. Interview with Representatives, North Poudre Irrigation Company, *supra* note 46; Interview with Representative, North Poudre Irrigation Company, *supra* note 150; Interviews with Representative, North Poudre Irrigation Company, Larimer County, Colo. (March 28, 2000).

C. THE DEAL

The Conservancy and North Poudre had conflicting needs for the North Fork's winter water. With the exception of extremely wet years, North Poudre could put to beneficial use all the water it could legally impound. However, North Poudre leadership could also see the value of acquiring an environmental ally, and this was much more preferable than having an influential opponent on the river. The Conservancy had a need for flowing winter water in Phantom Canyon to improve fish survival and reproduction rates and to restore some fraction of the biotic web that depended on stream flows. In addition, the Conservancy wanted to establish good relations with their upstream neighbor. The possibility of enlarging Halligan Dam and Reservoir was of interest to the Conservancy, because such expansion would invite scrutiny from a wide variety of stakeholders, including state and federal agencies and local environmental groups.¹⁶² The Conservancy wanted to be involved in the earliest planning stages of any changes to Halligan Dam to ensure protection and advancement of their interests.¹⁶³ Thus, both organizations saw advantages in partnership.

Serious talks proceeded for more than a year prior to beginning the arranged winter season releases in the fall of 1987.¹⁶⁴ One essential element of the agreement centered on how to protect shareholder interests while, at the same time, releasing storage season water through the canyon. Another fundamental component ensured that all water would serve recognized beneficial uses and operate entirely within the requirements of Colorado water law, without raising the specter of water releases for environmental bypass flow purposes.¹⁶⁵ Pre-water development winter season flows were estimated to have been twenty to thirty cfs, during average-precipitation years. However, such a rate could not be sustained and still fill Halligan Reservoir. In the end, North Poudre agreed to release a continuous winter season stream amounting to 2.5 cfs.¹⁶⁶ In the world of water, it is a rule-of-thumb that one cfs yields a volume of about one acre-foot in twelve hours or two acre-feet per day.¹⁶⁷ Therefore, water flowing at 2.5 cfs was estimated to produce about five acre-feet per day for the canyon. Given that the month of March was traditionally an active time to release water to North Poudre's plains reservoirs and through the

162. Interview with Representative, The Nature Conservancy, *supra* note 71.

163. Interview with Representative, The Nature Conservancy, *supra* note 52.

164. Interviews with Representatives, The North Poudre Irrigation Company, *supra* notes 150 & 161; Interview with Representatives, The Nature Conservancy, *supra* note 26.

165. Interviews with Representatives, The North Poudre Irrigation Company, *supra* notes 150 & 161; Interview with Representatives, The Nature Conservancy, *supra* note 26.

166. 1994 Agreement Extension between The Nature Conservancy and The North Poudre Irrigation Company §§ 6(b), 7 [hereinafter "1994 Agreement"] (on file with authors).

167. THOMAS DUNNE & LUNA B. LEOPOLD, WATER IN ENVIRONMENTAL PLANNING 799 (1978).

canyon to Seaman Reservoir, the typical winter season releases would occur over a span of about 120 days. Over the course of this period – typically November through February – North Poudre would release 600 acre-feet of water from Halligan Reservoir to maintain habitat in Phantom Canyon.

In exchange for providing continuous winter flows, North Poudre secured a commitment whereby the Conservancy would repay twice the amount of water lost to winter flow if Halligan Reservoir failed to fill completely by July 1.¹⁶⁸ If the Reservoir failed to fill, the amount of shortage attributable to the canyon releases would vary, but not exceed 1,200 acre-feet.¹⁶⁹ Conversely, in wet years when Halligan filled, the Conservancy paid nothing.¹⁷⁰ The July deadline represented a concession to the Conservancy. Had the deadline for filling Halligan been established at the conclusion of the storage season, March 31, it could have been possible that the Conservancy would be liable for repayment even if May and June peak snowmelt flows filled the reservoir. Therefore, the later date protected the Conservancy's interests.

To satisfy its repayment commitment, the Conservancy each year agreed to rent North Poudre water shares from company shareholders on a willing lessor/lessee basis.¹⁷¹ The City of Fort Collins was one major source of rental shares because it had built up a reserve of shares against future demand and drought protection. The city historically rented its surplus shares back to agricultural producers, and was a willing source of Phantom Canyon rental water.¹⁷²

Workings of northeastern Colorado water markets have been described in detail.¹⁷³ In average to wet years, rental rates have equaled the share assessment; in other words, owners have been happy to simply avoid paying the annual assessment on what would otherwise be an unused share. In dry years, rental rates rose to reflect their greater value as demand exceeded supply. Like Fort Collins, many industries, such as Eastman Kodak, purchased excess water shares as drought insurance.¹⁷⁴ The Conservancy counted on such water sources to supply its needs in all but the driest years.

Extremely dry year scenarios place pressure on all users, but the Conservancy will enter that marketplace to secure its Halligan replacement water at the going price. Environmental organizations are not generally viewed as wealthy, but the Conservancy is expected to compete well against bids economically hard-pressed farmers could offer for a share of water to grow corn or beans.

Repayment of water to North Poudre has been straightforward.

168. 1994 Agreement, *supra* note 166, § 10(a).

169. *Id.* § 10.

170. *Id.* § 9.

171. *Id.* §§ 8, 12(b).

172. Interview with Representative, The Nature Conservancy, *supra* note 26.

173. See generally MAASS & ANDERSON, *supra* note 10, at 303-07.

174. Interview with Representative, The Nature Conservancy, *supra* note 26.

After a winter season in which Halligan has not filled, the winter release volume has been measured and is easy to calculate. The terms of the agreement permit the Conservancy to repay North Poudre in either money or water.¹⁷⁵ The easiest method has been for the Conservancy to simply rent the necessary share volumes and leave them in the reservoir.¹⁷⁶ Those unused volumes have then been distributed to all shareholders.

North Poudre and the Conservancy forged the initial agreement on a year-by-year basis. However, at the request of North Poudre, the parties have never filed the agreement with any legal entity.¹⁷⁷ They have continuously renegotiated and renewed the agreement up through the present. As both North Poudre and the Conservancy learned how to make improvements, they made changes in operational details. In later years, the parties extended the terms of the agreement to as much as three years.¹⁷⁸ Under the agreement, either party could propose changes or terminate the agreement at the conclusion of the water year in October.

In the second year, the Conservancy proposed that rather than shutting Halligan Reservoir's gates suddenly at the end of irrigation season, North Poudre could incrementally step-down flow over the course of days.¹⁷⁹ The Conservancy also requested, and received, incremental stages of step-up flows in February or March when the North Poudre began moving water.¹⁸⁰ The Conservancy, predictably, desired these step up flows in order to more accurately mimic natural flow patterns and minimize shock to fish and invertebrate insects, which require time to adapt to changes in the flow regime. By the third year, the parties fully integrated this new method of operation into the agreement, and the Conservancy agreed to pay a set fee of \$50 for each trip North Poudre had to make to incrementally and manually adjust gates.¹⁸¹

In exchange for providing extended periods of reducing and increasing flows at the beginning and end of each season, North Poudre required the Conservancy to repay shareholders for "shrink," or water lost to seepage and evaporation, in the diversion tunnel and canal over the step-down or step-up periods.¹⁸² Most canal reaches are earthen, thus, during low flow seepage loss is high. Water managers

175. 1995 Agreement Extension between The Nature Conservancy and The North Poudre Irrigation Company §§ 7(b), (c) [hereinafter "1995 Agreement"] (on file with authors).

176. Interview with Representative, The Nature Conservancy, *supra* note 26.

177. 1994 Agreement, *supra* note 166, § 12(f); 1995 Agreement, *supra* note 175, § 7(g).

178. Compare 1994 Agreement, *supra* note 166, § 1, with 1995 Agreement, *supra* note 175, § 1. The 1994 terms indicated a yearlong contract, whereas the 1995 terms indicated a two-year long contract with automatic renewal if neither party gave notice of cancellation.

179. 1994 Agreement, *supra* note 166, § 4; 1995 Agreement, *supra* note 175, § 2(a).

180. 1995 Agreement, *supra* note 175, § 2(c).

181. 1995 Agreement, *supra* note 175, § 7(d).

182. *Id.* § 3.

throughout the world aim to move substantial volumes of water to increase flow velocity and reduce rates of loss. Shareholders who planned to sacrifice water to protect habitat values in Phantom Canyon wanted compensation for their loss. The Conservancy agreed to comply with this request and repay water lost in the incremental start-ups and shutdowns.¹⁸³

In the early 1990s another party entered the agreement. The City of Greeley agreed to provide storage space in Seaman Reservoir for the Phantom Canyon flows.¹⁸⁴ Situated downstream (see Figure 3) from Phantom Canyon preserve, Seaman Reservoir has a lower priority storage right than Halligan, and fills primarily when Halligan over-tops.¹⁸⁵ Except in the very wettest years, Seaman Reservoir has space available to capture and hold more than the approximately 600 acre-feet that would be released from Halligan on behalf of the canyon habitat.¹⁸⁶ This has made possible a simple water exchange to the advantage of all parties.¹⁸⁷

First, the instream flow water is designated as being "on top" of the reservoir, meaning in the unlikely event that Seaman would fill, the Conservancy water would be pushed out and spilled downstream first.¹⁸⁸ Under such wet conditions, Halligan would have filled and the Conservancy would owe nothing to North Poudre. In less wet years, space would be available in Seaman Reservoir. During the summer irrigation season, fractions of the Conservancy water would be released to North Poudre shareholders, such as the City of Fort Collins and other industries, as needed.¹⁸⁹ Water stored in Halligan to serve those shareholders would be left in the Halligan tank and credited to repayment of any debt owed by the Conservancy.¹⁹⁰ In effect, the Conservancy used these accumulated shares of water in Seaman Reservoir as trading stock on the local market to repay North Poudre for any winter flow debt. Thus, there are no losers under the agreement.

The City of Greeley is fully protected because it has never been in danger of forgoing its storage capacity. North Poudre is better off because the water it would normally lose to winter flows actually goes to North Poudre customers out of Seaman Reservoir, thereby allowing for greater net Halligan catchment. The Conservancy retains the use of its water trading stock, and uses it to reduce or eliminate any water debt to North Poudre. Therefore, concern for enhancing Phantom

183. Interview with Representative, The Nature Conservancy, *supra* note 71.

184. 1995 Agreement, *supra* note 175, § 6.

185. Interview with Representative, State Engineer's Office, *supra* note 135.

186. *Id.*

187. *Id.*

188. *Id.*

189. Interview with Representative, The Nature Conservancy, *supra* note 71.

190. Interview with Representative, The Nature Conservancy, *supra* note 52.

Canyon habitat actually has left all parties, most especially non-human living things, better off than before an environmental agenda entered into water user arrangements.

V. CONCLUSION

In chemical reactions, a catalyst is an agent that induces a change among other chemical elements without itself being changed. In the deeply divided house of United States' water law, especially in the West, a legal standoff between the federal reserved rights doctrine and the state appropriation doctrine catalyzed a change of the instream flow regime of Colorado's North Fork of the Poudre River.

For the first time since 1910, winter water began to steadily flow through Phantom Canyon in the fall of 1987. This water stored by Halligan Dam was not released for utilitarian consumptive uses, although it would eventually serve such purposes. Winter season flows were explicitly dedicated to improvement of natural habitat. Although it served environmental needs in Phantom Canyon, the water from Halligan Dam would not acquire legitimacy as an instream flow for environmental purposes, but rather for eventually serving beneficial uses tied to downstream priorities held by agriculture, cities, and industry. Yet, this environmental water, justified in utilitarian terms, has been no less life sustaining to the canyon's biotic web. The consumptive uses of the environment in Phantom Canyon have been virtually non-existent. Additionally, the instream flows serve human demands that have become slightly more sustainable because a traditional mutual company, pursuing utilitarian objectives, saw fit to make an arrangement with an organization dedicated to the stewardship of the natural environment. In the end, both organizations are in a better position to pursue their respective agendas. Each has enhanced water availability and control. Without applying the federal reserved rights doctrine, the organizations have served environmental habitat values and integrated such values into a changed regime of the river that has continued to operate under an unchanged state appropriation doctrine.