American Bar Association
Section of Environment, Energy and Resources

Panel on Long-term Implications of Drought and Water Management

Covenant With The Dry Country: An Historical and Contemporary Colorado Snapshot of the 2002 Drought

Justice Greg Hobbs
Colorado Supreme Court
Denver, Colorado
gregory.hobbs@judicial.state.co.us

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COVENANT WITH THE DRY COUNTRY

Wallace Stegner said: "Adaptation is the covenant that all successful organisms sign with the dry country." (Wallace Stegner, "Living Dry" in Marking The Sparrow's Fall, The Making of the American West at 226 (1998 ed.)

"(W)ater is safety, home, life, *place.* All around those precious watered places, forbidding and unlivable, is only open space, what one must travel through between places of safety." (Id. at 226-27).

Stegner's calling was to point out the joy and scarcity of the watering holes and show us how to relate our kinship to each other and to every other living thing that depends on water for a living.

Waste, necessity, opportunity, community—these are characteristic western experiences. Despite our go-it-alone pretensions, enduring amidst this magnificent and capricious landscape has always meant pulling together. Those who get greedy and can't cooperate will be exposed by the land and their neighbors for what they are, destructive of community and of themselves.

We learn from those who show us the lay of the land and say, "Now it's your turn. Lead on."

J.W. Powell, Report on the Lands of the Arid Region of the United States (1879)(The Harvard Common Press 1983 Facsimile of the 1879 Edition):

"The Arid Region is somewhat more than four-tenths of the total area of the United States" (excluding Alaska). . .
(pp. 5 & 9).

"During the fall and winter the streams are small; in late spring and early summer they are very large. A day's flow at flood time is greater than a month's flow at low water time. During the first part of the irrigating season less water is needed, but during that same time the supply is greatest. The chief increase will come from the storage of this excess water in the early part of the irrigating season." (pp. 13-14)

"All the waters of the arid of all the arid lands will eventually be taken from their natural channels, and they can be utilized only to the extent to which they are thus removed, and water rights must of necessity be severed from the natural channels." (p. 42)

"The ancient principles of common law applying to the use of natural streams, so wise and equitable in a humid region, would, if applied to the Arid Region, practically prohibit the growth of its most important industries." (p. 42)

"Practically, in that country the right to water is acquired by priority of utilization, and this is as it should be from the necessities of the country. But two important qualifications are needed. The user right should attached to the land where used, not to the individual or company constructing

the canals by which it is used. The right to the water should inhere in the land where it is used; the priority of usage should secure the right." (p. 43)

"If there be any doubt of the ultimate legality of the practices of the people in the arid country relating to water and land rights, all such doubts should be speedily quieted through the enactment of appropriate laws by the national legislature. Perhaps an amplification by the courts of what has been designated as the natural right to the use of water may be made to cover the practices now obtaining; but it hardly seems wise to imperil interests so great by intrusting them to the possibility of some future court made law." (p. 43)

Powell address, Official Report of the International Irrigation Congress 109 112 (1893), quoted in Donald Worster, A River Running West, The Life of John Wesley Powell 529 (2001):

"I tell you, gentlemen, you are piling up a heritage of conflict and litigation over water rights, for there is not sufficient water to supply these lands."

Wallace Stegner, Beyond the Hundredth Meridian, John Wesley Powell and the Second Opening of the West (1954):

"The public domain as Powell knew it . . . its only unity the unity of little rain." (p. 218)

"If Major Powell were to return and study the map of reclamation activities, present and proposed, that was published by the Bureau of Reclamation on January 1, 1951, he might get the impression that resurrection morn had rally dawned." (p. 353)

"The whole Western future is tied to the multiple-purpose irrigation-power-control-stream management projects built to specifications first enunciated by Powell's bureaus, and the West's institutions and politics are implicit in the great river plans." (p. 353)

David Lavender, The Southwest 20 (1980):

"As a result of these three drying agents—sun, wind, and transpiration—all but the highest mountains suffer from what agronomists call 'moisture deficiency.' In many places this deficiency exceeds twenty inches. This means that no matter how excellent the soil or how free of frost the nights, unless irrigation water equal in amount to twenty or more inches of rain is spread at appropriate intervals on the fields, crops cannot be grown."

Donald Worster, Under Western Skies, Nature and History in the American West 90 (1991):

"To date the West has hardly acknowledged that it has created any contradiction at all. It has simply built more dams, made more money, packed in as many people as it could, ignored the costs to the environment and society that had to be paid, and told itself all the while it was the freest place around. Now that will no longer do. We have arrived at the age of complexity in this region, when it is clear that neither a simple-mined nature fantasy nor a simple-minded greed will give us a future worth living."

PRIOR DROUGHTS

Carl Abbot, Stephen J. Leonard, David McComb, Colorado, A History of the Centennial State 173 (3rd Ed. 1994):

"(P)eriods of abundant rainfall and drought have occurred in regular cycles on the plains. The years from 1865 to 1872 were dry; those from 1873 to 1885 were wet. Droughts then came in cycles of twenty-one years, with the driest years occurring in 1892, 1912, 1934, and 1953. Total rainfall in the bad years dropped 15 to 25 percent below normal, with most of the reduction during the July and August growing seasons."

COLORADO'S WATER SUPPLY CONSTRAINTS

Colorado must live within its water constraints. The first and most basic constraint on water use within the state is the amount of rainfall and snowfall that occurs each year.

The second constraint is legal: Colorado's obligation to deliver water to downstream states under 9 interstate water compacts and 2 United States Supreme Court equitable apportionment decrees.

Reservoir storage was the key to Colorado water use in 2002. Deputy State Engineer Ken Knox reported that "We used approximately 6 maf in reservoir storage in 2002 to supplement the meager natural streamflows."

In normal years, Colorado keeps and uses less than one-third of the average surface water it produces. Because of interstate and international requirements and because the state has not yet fully developed all of its allocations, Colorado passes a large amount of water out of the state. In an average year, approximately 16 million acre-feet (maf) of water flows in Colorado rivers. Taking into account depletion by all of its uses, Colorado delivers across its boundaries an annual average of 9.248 maf from the Pacific side of the Continental Divide and 1.478 maf from the Atlantic side. Of this amount, 9.6 maf is obligated to downstream states.

Thus, in an average year Colorado consumes less than a third of the water it produces; the rest leaves the state. Drought can greatly alter the water Colorado produces for in-state and out-of-state use. For example, in the drought year 2002, natural flows in Colorado rivers were closer to 4 maf acre-feet, compared to the 16 maf average.

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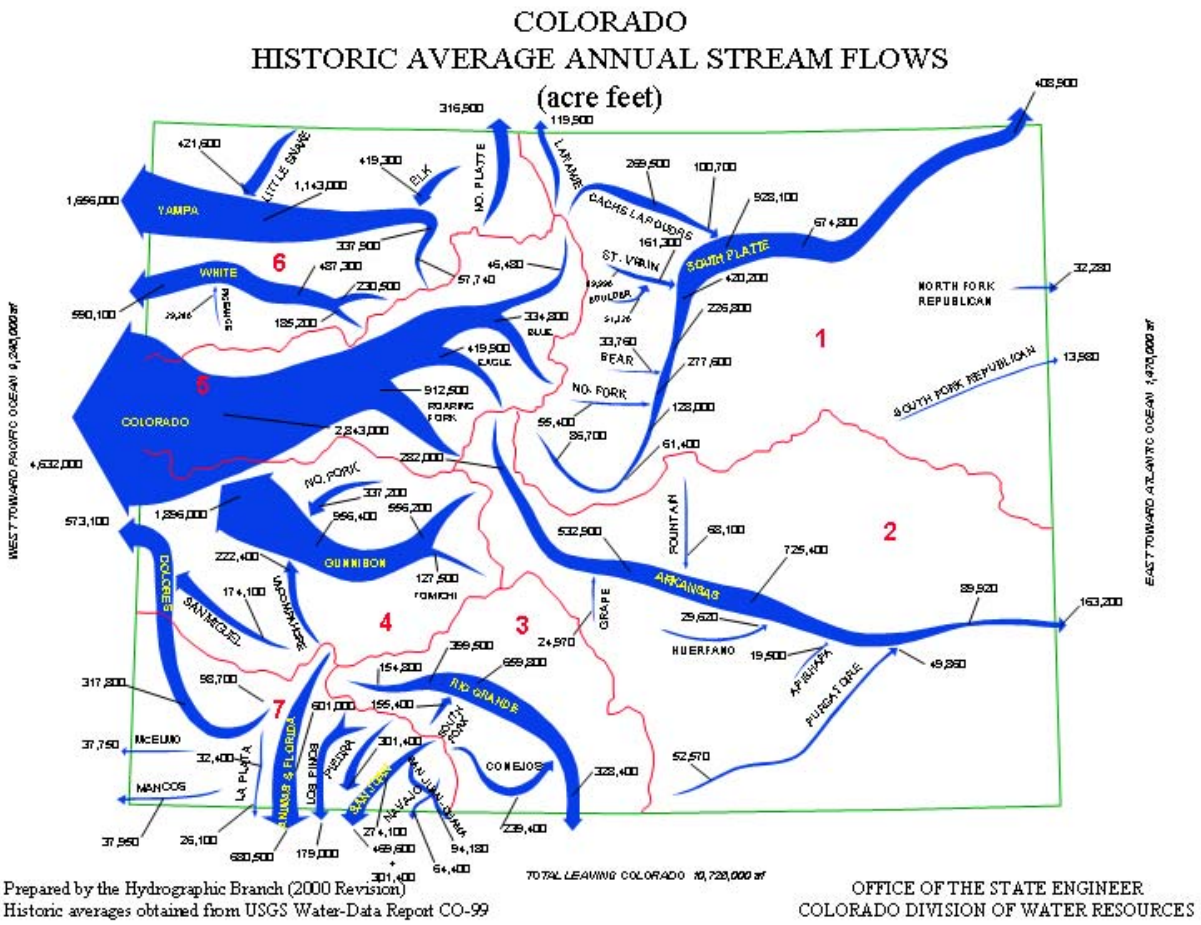
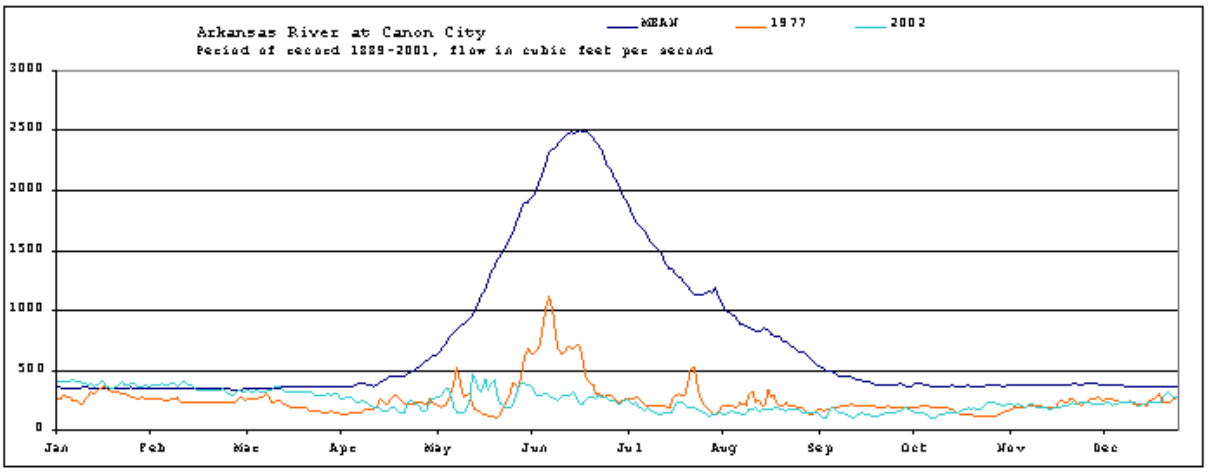


THE HISTORIC DROUGHT OF 2000-2002 (AND BEYOND?)

Four major river basins originate in Colorado: the Arkansas, Colorado, Rio Grande, and South Platte. The year 2002 was the third year of drought in the most recent drought cycle. The prior three year drought cycle was 1953-55. Colorado experienced a very low water year in 1977, but a cyclical drought episode did not ensue the next two years.

The hydrographs reproduced below show the flow in cubic feet per second for Colorado's principal four rivers at key gages. Colorado's State Engineer Hal Simpson reports that the year 2002 has no comparison in recorded Colorado history. Based on tree ring data, the most recent historical drought event of such magnitude was in the 1700s.

COLORADO STATE ENGINEER HYDROGRAPHS OF MAJOR RIVER BASINS WITHIN COLORADO COMPARING AVERAGE TO DROUGHT YEARS 1977 AND 2002
(The mean plot line represents the average flow for each month over the entire period of record for the representative station)


Arkansas River at Canon City
Period of record 1889-2001, flow in cubic feet per second
MEAN
1977
2002
3000
2500
2000
1500
1000
500
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Jan
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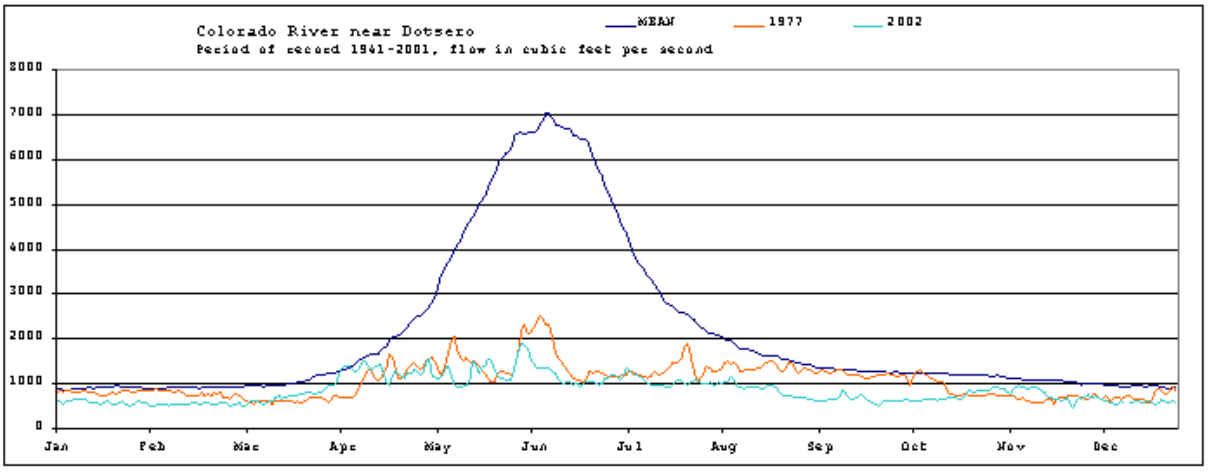
Colorado River near Dotsero
Period of record 1941-2001, flow in cubic feet per second
MEAN
1977
2002
8000
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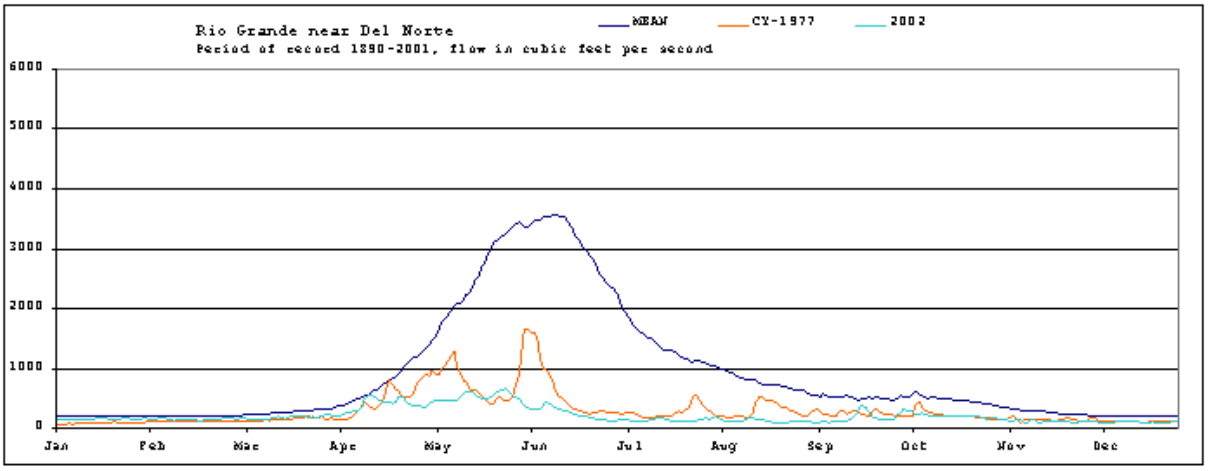
Rio Grande near Del Norte
Period of record 1890-2001, flow in cubic feet per second
MEAN
CY-1977
2002
6000
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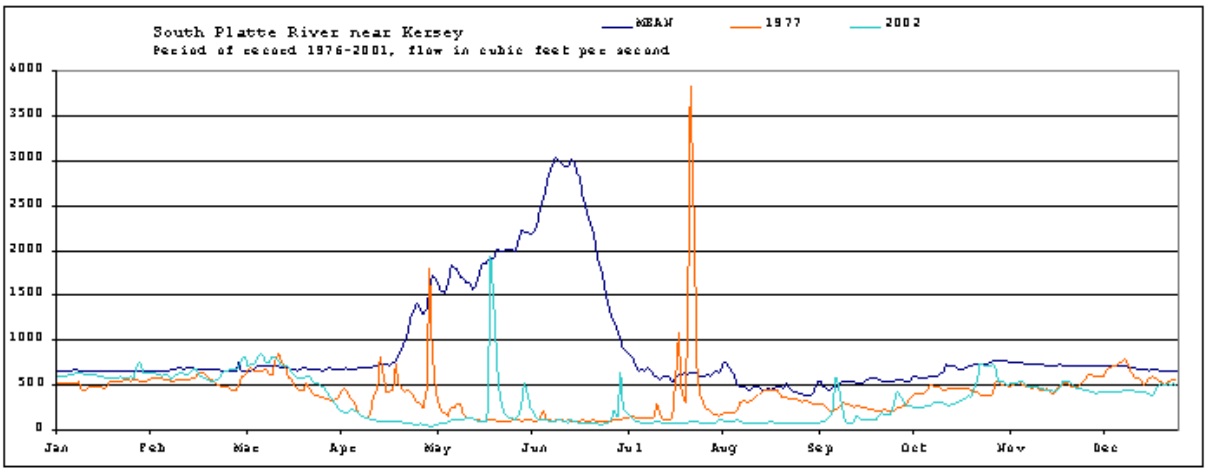


WILD FIRES, LOW FLOW, AND WATER QUALITY

Colorado experienced horrendous wild fires during the 2002 drought. Concern about future sediment runoff from burned areas into public water supply systems led to an advisory by Colorado water quality officials to the owners of regulated public water systems. The July 10, 2002 advisory letter called for immediate notification of water quality compliance problems, and announced the availability of a Fire Impacted Drinking Water Supply Assistance Fund. Based on adequate notification and good faith attempts to ensure safe drinking water to the public, the advisory stated that the Water Quality Control Division would invoke its enforcement discretion not to penalize public water system owners and operators:

> "(I)f you notify us of your potential difficulties, participate in one of the seminars mentions above, and document your efforts to maintain compliance, then the WQCD will exercise enforcement discretion to avoid penalizing your system for violations of regulatory requirements related to treatment problems cause by a wildfire."

The Water Quality Control Division bases effluent limitations on a rolling 7 day/10 year low flow. If 2002 low flow conditions were to be used as the basis for effluent limitations, the costs to dischargers could be substantial. The Division is currently studying the low flow/treatment question.

On October 15, 2002, Trout Unlimited has filed a request with EPA to disapprove Colorado's list of impaired waters because of four water bodies that have experienced low flow and temperature problems during the drought impacting cold water aquatic life in the Colorado, San Juan, and South Platte River Basins.

GENERAL ASSEMBLY INTRODUCED BILLS, 2003 SESSION

The continuing drought has produced unprecedented media and legislative attention to Colorado water issues. In 2002, the Legislature adopted legislation to establish and fund the Colorado Foundation for Water Education. Its purpose is to provide Colorado citizens with objective, research-based information. Legislators introduced a large number of water-related at the outset of the 2002 Session. These include:

H.B. 03-1001 (Bonds and Notes for Water Resources Projects; State Engineer Review and approval of drought substitute water supply plans; funding of a statewide water supply initiative; and urban water use efficiency).

H.B. 03-1008 (conservation easements for appurtenant water rights).

H.B. 03-1090 (requirement to make use of Denver Basin bedrock groundwater before diverting or changing a water right from another water division into the Denver Metropolitan area).

H.B. 03-1113 (requirement to pay for direct economic effect on basin of origin for change of agricultural water rights to an area outside the basin of origin).

H.B. 03-1120 (invalidate restrictive covenants that limit xeriscape landscaping or require turf grass).

H.B. 03-1146 (mandate change of water rights decree conditions to prohibit adverse water quality impacts on the normal use requirements of downstream appropriators).

S.B. 03-0073 (review and approval by State Engineer of out-of-priority well replacement water plans and postponing until December 31, 2006 the date for filing a water court application for approval of an augmentation plan).

S.B. 03-085 (owners of water right s may loan the water to which they are entitled to others on the same streams system for a period of up to 120 days; State Engineer may approve such a loan if it does not cause material injury to any other vested water right; also State Engineer may approve the temporary use up to 120 days by the Colorado Water Conservation Board of a water right loaned or leased for emergency instream flow use, without injury to the vested water rights of others).

S.B. 03-087 (mandate measures for urban water use efficiency: including, by January 1, 2008, reduction in total annual amount of water consumption by state or local public water facilities by twenty percent of the average annual water consumption from calendar years 1996 through 2001; prohibit new covenants or other land use regulations or policies that prohibits or limits installation of drought-tolerant landscapes; require water provider long-term (thirty year) urban water use efficiency plans; provision for short term water leasing in drought years as determined by State Engineer).

JUSTICE GREG HOBBS, PRIORITY: THE MOST MISUNDERSTOOD STICK IN THE BUNDLE, 32 ENVTL. L. 37 (2002)

"Whether state-law based, as with the reclamation projects, or federal-law based, as with the tribal and federal land reservations, federal water claims had not been subject to determination by state forums until 1952. Adjudication litigation occurred only in federal court, if at all, while the states proceeded on a separate track as to state based claims owned by non-federal appropriators.

This dual-track with its inherent uncertainty became intolerable to the western states.[1] The

1 *See* John E. Thorson, *State Watershed Adjudications: Approaches and Alternatives*, 42 ROCKY MTN. MIN. L. INST. 22-1, 22-16 to 22-24 (1996) (describing the background reasons for the McCarran Amendment).

right to divert a certain amount of water from the available natural stream supply at a specific location, to the exclusion of all others not then in priority, is the essence of a state-created water right.[2] The security and dependability of water rights turn on the enforceability of their priority in times of short supply. Inability to ascertain and administer federal rights undercuts the enforcement of state-created water rights.

Without a decree, a water right owner is not entitled to make an enforceable "call" for curtailment of upstream juniors who might be intercepting the water needed to satisfy his or her senior priority. In Colorado, for example, the state and division water engineers and local water commissioners enforce the court decrees for the instream flow rights of the Water Conservation Board, as they do for all other water rights.[3]

The reason for adjudicating a federal reserved water right is the same for all other rights to the use of water—to realize the value and expectations that right's priority secures. In times of short supply, water users depend on the state to exercise its police power to curtail junior uses in favor of senior uses, regardless of the identity of the owner of the right, state or federal. To accomplish this, the amount and priority of rights drawing on the watershed must be determined."

STRESSES ON ADMINISTRATION OF PRIOR APPROPRIATION

Colorado administers its surface water and tributary groundwater according to the doctrine of prior appropriations and the priority of decreed water rights. The 1969 Act allows out-of-priority diversions under decreed augmentation plans. In 2002, the Colorado General assembly adopted provisions allowing the State Engineer to approve substitute supply plans while augmentation plan applications are pending in water court. A specific provision of the legislation requires notice of the substitute supply plan and water court application to all opposing parties, so they can submit comments to the State Engineer's Office. Upon consideration, the State Engineer may approve the operation of the plan for a defined term. The State Engineer may also require terms and conditions to assure that operation of the plan will replace all out-of-priority depletions in time, location, and amount to prevent injury to other water rights.

The General Assembly also gave the State Engineer authority for approval of emergency water supply plans and short-term water uses. This legislation requires the State Engineer to fashion conditions that will protect other water rights against injury when exercising this administrative authority. The State Engineer's Policy regarding substitute supply plans is posted at water.state.co.us/pubs/policies/Policy2002-2.pdf

The extent of Colorado's drought and wild fire problem is illustrated by the following news article excerpt.

Brutal fire season finally leaves Colo.

Record toll lingers, alters outlook

By **Theo Stein**
Denver Post Environment Writer

Monday, October 07, 2002 - Colorado's worst fire season ever is history.

Ignited by the most severe drought in centuries, the biggest and costliest wildfires on record menaced communities from Denver to Durango. They scorched a half-million acres across the state - more than four times the amount that burned in the fiery season of 2000.

2 *See* Navajo Dev. Co. v. Sanderson, 655 P.2d 1374, 1380 (Colo. 1982) (holding that the Navajos' water right can be affected by federal reserved water rights that have a senior priority date).

3 Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 58 (Colo. 1999).

There are no large wildfires burning anywhere in the Rocky Mountain Region - Colorado, Wyoming, Montana, North Dakota and South Dakota. Fire danger is classified at low to moderate.

The only fires are prescribed burns, set by people to lessen the chances of repeat seasons in the future.

Over are the firestorms of 2002, which drove tens of thousands from their homes, costing a record $200 million for firefighting and emergency rehabilitation efforts. More than 380 houses and another 624 outbuildings burned, prompting $70 million in wildfire-related insurance claims - also records.

But the deaths of nine firefighters in Colorado and three in California made this the deadliest year since the 1994, when 14 firefighters perished as fire swept over them on Storm King Mountain above Glenwood Springs. The toll provided another grim reminder that fire's costs cannot be neatly measured or easily forgotten.

People caused so many of 2002's early fires that for the first time in state history, the U.S. Forest Service and the Bureau of Land Management declared millions of acres of federal land off-limits to the public.

Images of flames licking the Colorado landscape unleashed a wave of hyperbole that made tourism leaders smolder in anger and left the hospitality industry with acrid memories of a charcoal summer.

Gov. Bill Owens' June 9 claim that "all of Colorado is burning" may not have been strictly accurate, but it correctly summed up the mood of many who were stunned by the ferocity and frequency of the season's early fires.

Owens' remarks came as a thick smoke plume from the Hayman fire - at 138,000 acres the largest in state history - swallowed Denver as flames raced more than 20 miles from Lake George to the edge of the metro area's western suburbs.

And while the fires of 2002 may finally be out, their memory may linger for a century - the time it will take for forests to recolonize some of the biggest burns.

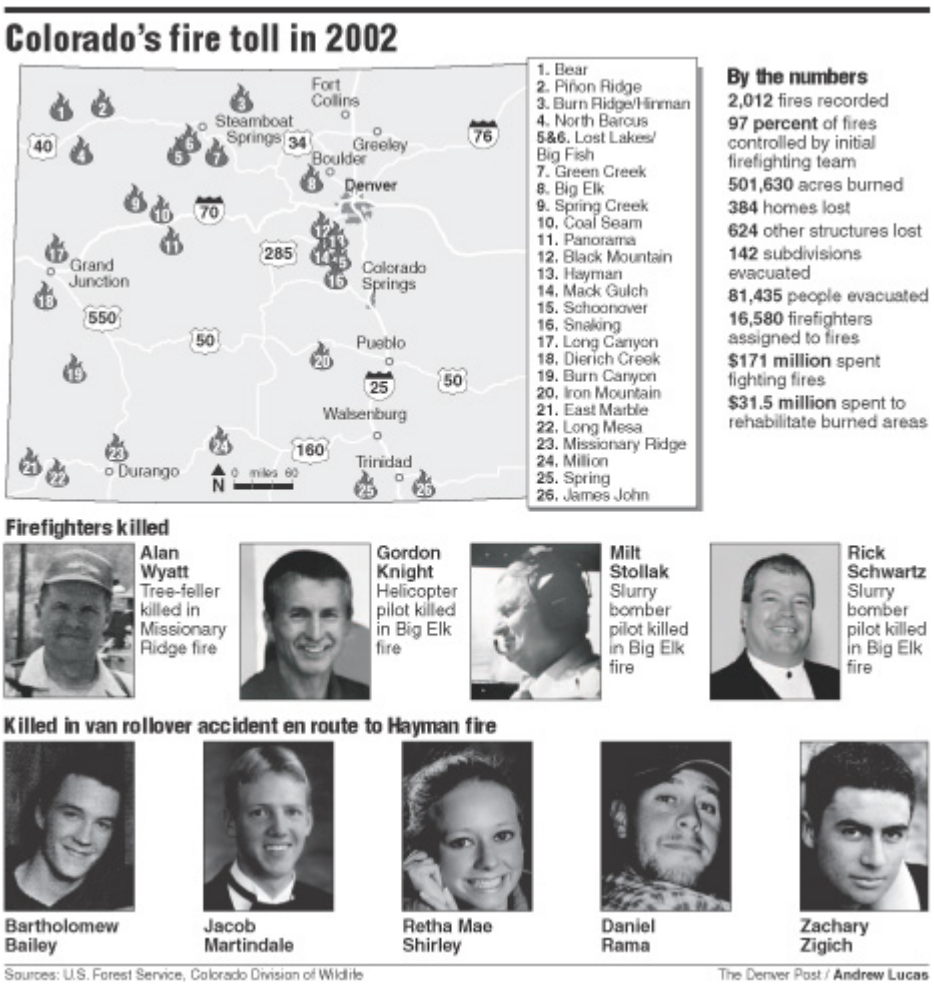
The Hayman fire spared Bob Foster's Lost Valley Ranch as it charred the surrounding hills, but the green vistas that brought visitors to his resort are now gone.

"Fires are a part of what's always happened in the West, and we probably forgot that," Foster said.

Aspen and other understory plants have begun recolonizing the soil beneath burned trees. That will attract wildlife such as deer, elk and in future years, perhaps leaf-peepers too.

"Nobody likes change," Foster said. "But change is a part of life."

In the meantime, the cost of the 2002 season will rise. More money will be spent to knock down hazard trees and dredge reservoirs filled by debris eroded off burned hillsides, Dombrowski said. "We're seeing layers and layers of problems building up on top of themselves."



themselves."

The following three articles are illustrative of Colorado water issues due to the drought.

Little more than question marks drip from farmers' water wells

By Jerd Smith, Rocky Mountain News
January 4, 2003

PIERCE - Charles Tucker has a lot of milk but not much water.

The third-generation dairyman is one of about 1,500 farmers in northeastern Colorado whose water supplies are likely to be cut dramatically or eliminated entirely this year because of a Dec. 23 water court ruling.

The ruling throws into doubt whether thousands of irrigation wells, including Tucker's, are legal to operate.

The decision dealt farmers, already scrambling to survive in the middle of one of the worst droughts in Colorado's history, an unexpected blow.

When Tucker looks north from his 270-acre farm toward the Chalk Bluffs and the Wyoming border, he sees little but uncertainty.

"It's all a big question mark right now," said Tucker, whose modest Weld County dairy provides enough milk each day to supply 2,000 Front Range families.

Fifty miles south, Brighton vegetable farmer Bob Sakata has much the same take on the issue.

Sakata's farms are the exclusive supplier of broccoli, cabbage, carrots and onions to hundreds of King Soopers and Safeway stores during the summer.

Two of Sakata's wells are affected by the court case. Their shutdown will mean 160 acres of onion fields will go dry this summer, costing him about $640,000.

Without emergency legislation from lawmakers this year, farm advocates say, the well shutdown could trigger a far-reaching water crisis for the northeastern Colorado farm economy, from Brighton to Sterling.

"If you shut all the wells off, you will ruin this agriculture economy," Sakata said. "In a year or two, this drought will end and the snow will come back. But you will have killed these rural economies."

At issue is whether more than 3,000 irrigation wells in the South Platte River Basin northeast of Denver have been pumping too much water, drying up the South Platte River and injuring farmers whose water rights on the river are older, or more senior, than the water rights of the wells.

The looming well shutdown, which could dry up tens of thousands of acres of productive farmland, has bankers and state agriculture officials deeply worried.

"Last summer, just about everybody made it through," said Tom Rainbolt, assistant vice president for Mountain Plains Farm Credit Services in Greeley. "This year, with nearly 4,000 wells at risk, we're very concerned."

In the late 1930s, after the Dust Bowl wiped out hundreds of farms, state water officials encouraged the drilling of these irrigation wells because they helped make broad swaths of Colorado farmland drought-proof.

But by the 1960s, hydrologists discovered that the wells actually depleted the river over time, draining underground supplies that also helped the South Platte maintain its flows.

In the late 1960s, the state legislature forced well owners to find additional water supplies to help replenish the river.

Some well owners formed special districts, such as the Central Colorado Conservancy District, to tax themselves and buy permanent water supplies to offset their pumping. Those plans also were certified by the water court.

But thousands of other well owners opted simply to form a cooperative group that leased water each year. That group, the Groundwater Appropriators of the South Platte, or GASP, has operated

for years under the authority of the state Division of Water Resources, not the water court. Its wells are those most likely to be shut down.

"The ruling has created some difficulties for us," said Jack Odor, director of GASP.

Experts believe the wells pump as much water in one summer as Denver uses in a year, roughly 300,000 acre-feet. An acre-foot equals 326,000 gallons, enough water to serve one to two families per year.

Whether these wells have put enough water back into the river to offset their pumping has been a sore point with farmers with senior water rights, as well as with powerful irrigators, such as the Fort Morgan Ditch Co. and the Bijou Irrigation Co., for decades.

But the issue never came to a head because there was usually ample water flowing in the South Platte River, enough for everyone.

All that changed this summer. As a historic drought lowered water levels in the river, a number of entities moved to challenge the state's authority to supervise the wells.

Those fighting the state are farmers and ditch companies, as well as a number of cities, including Boulder, Denver, Westminster and Thornton.

The cities joined the fight to protect their water interests, saying they don't want farms dried up, but simply for well owners to take their pumping plans to water court, where the actual water used and replenished can be verified.

Last week, Division 1 Water Court Judge Jonathan Hays sided with senior water-rights holders and the cities, saying the state had exceeded its authority in approving the well operations.

The state is appealing the decision to the Colorado Supreme Court.

In the meantime, lawmakers, attorneys, farmers and bankers have been meeting almost daily, trying to craft a compromise that will allow the farmers to move forward with planting plans, knowing they will have at least some water until the case can be resolved.

"You could say that the GASP farmers didn't exercise enough foresight back in 1969," Sakata said this week. "But it still saddens me to see farmers fighting farmers in northeastern Colorado. I'm hoping we'll find a compromise. We all can't have all the water we want."

Key to ending the water war is finding a way to operate the wells that the cities and senior water-rights holders believe is equitable.

Any legislative compromise would have to be approved by urban and rural lawmakers.

Well operators almost certainly will have to come up with additional money - millions of dollars - to buy new water supplies to help replenish the South Platte River.

"There's no question that it's going to be expensive," said Rainbolt, of Farm Credit Services.

Tucker and Sakata are pinning their hopes on the negotiating skills of such powerful rural lawmakers as Sen. Dave Owen, R-Greeley, and Rep. Diane Hoppe, R-Sterling. Owen, who chairs the Joint Budget Committee, said he hopes to have a range of options ready to discuss sometime next week, when the legislature convenes.

Water, harvest cuts urged at conference

San Luis Valley assesses drought

By Mark H. Hunter Special to The Denver Post , January 20, 2003

Monday, January 20, 2003 - ALAMOSA - This time last year, the drought gripping southern Colorado was being described in Biblical terms as farmers and ranchers prayed for 40 days and nights of rain.

But the drought continues and is now the worst in history, according to state records. And the prayers for moisture continued at a water conference here last week.

Colorado's southern Rockies, the Sangre de Cristo and San Juan Mountains, lie at the top of the 1,900-mile-long Rio Grande watershed. The mountains are covered with snow, but the blanket is thin, only 67 percent of average, according to the USDA Natural Resources Conservation Service.

Unless significant snowfall arrives soon, officials fear, the parched forests and rangeland of the upper Rio Grande's 4,700-square-mile watershed won't even re-hydrate, let alone provide runoff for thirsty farms, ranches and residents in the San Luis Valley and downstream in New Mexico and Texas.

"The San Luis Valley is experiencing a water shortage the likes of which we've never seen," Ray Wright, president of the Rio Grande Water Conservation District and a Monte Vista-area farmer, told more than 300 concerned residents at the conference. "Even if we get several years of normal precipitation and runoff, it will not return us to normal."

The "Conservation, Conversation, Problem Solving" conference, sponsored by the Rio Grande Water Conservation District, was held at Adams State College.

Several hundred residents were turned away because the school's auditorium was filled.

"This is the driest year recorded in the Rio Grande basin in 113 years," reported Steve Vandiver, Division III engineer for the Colorado Division of Water Resources. "We came out of 2002 no better than when we went into it. Without some significant moisture, the entire system is now in a death spiral to the bottom."

Last summer, Vandiver issued nearly 500 emergency drilling permits for farms and residences where groundwater wells, some 150 years old, went dry.

In good years, snowpack in the upper Rio Grande basin provides one million acre feet of water, according to officials. Last winter's meager snowpack only provided 154,000 acre feet, what usually flows just in the month of May, Vandiver said. An acre foot of water equals 352,851 gallons.

Vandiver's main responsibility is to enforce The Rio Grande Compact, a 1939 agreement among Colorado, New Mexico, Texas and Mexico that requires Colorado to annually deliver a certain amount of water to the New Mexico state line.

In order to meet compact requirements, Vandiver last spring shut off a network of San Luis Valley ditches and canals that feed off the river. The ditch system irrigates tens of thousands of acres of range and farm land and also recharges the valley's aquifer.

Even ranchers who own surface water rights going back to the 1880s didn't get a drop. Half of the

valley's estimated 100,000 cows were sold or sent to greener pastures in Nebraska and Oklahoma.

Meanwhile, hundreds of potato farms, which are irrigated with ground water via 2,000 center-pivot sprinklers, harvested a multi-million dollar, record-breaking crop.

Wright urged the crowd to remain united despite the apparent disparity.

"I hope we don't hear one type of user accuse another of creating the problem," Wright cautioned. "The San Luis Valley has had numerous successes in cooperative problem solving, and this has the greatest potential to blow that up."

John Allen Davey, the district's water engineer, has measured the aquifer since the early 1970s. His records show a drop of 750,000 acre feet in the past three years, with some wells falling as much as 35 feet over the summer.

"We have to reduce the irrigated acreage to get the aquifer back into balance, or it will hit bottom," Davey warned. He asked farmers to reduce water consumption by at least 35,000 acre-feet and plant 15,000 to 35,000 fewer acres.

Kirk Thompson, a water engineer and owner of Agro Engineering Inc., showed charts that revealed "a hole in the aquifer near Hooper that looks like someone pulled the plug out of the bathtub."

"We are in a severe situation," Thompson said. He also asked farmers to reduce planted acres, shut off center-pivot end-guns and plan ahead.

"Friends don't let friends use end-guns," Thompson said. "The worst thing you can do is invest in seed, fertilizer and fuel and then find out in July that you don't have enough water to finish your crop."

Requests for new wells jump 68%

With water levels at historic low, drilling permits skyrocket

By Jerd Smith, Rocky Mountain News
January 22, 2003

Requests to replace water wells soared 68 percent in 2002, as groundwater levels dropped in response to a historic drought.

The state issued 1,568 replacement-well permits in 2002, up from 942 in 2001, according to Hal Simpson, state engineer and director of the Division of Water Resources, which issues the permits.

The majority of permits - 1,451 - were for residential wells ranging in depth from 200 to 500 feet or more, depending on geography.

The drought is sapping groundwater supplies and lowering water-table levels around the state, forcing people to redrill existing wells.

About 336,000 well permits, for homes and irrigation, are on file with the Division of Water Resources.

This month, lawmakers began debating whether to approve Senate Bill 45, which would create a tough well-inspection program, using a new $40 fee to hire inspectors to supervise well construction and requiring that contractors receive ongoing technical training.

"The drought has been tough," said Lee Holfeltz, who operates Central Drilling and Development in Alamosa. "All last summer, we had a four-month waiting list of people who needed new wells. Every phone call was an emergency. This year, we expect more of the same."

Holfeltz said more well inspectors are critical to ensure water wells are installed properly.

"Some drillers are against state oversight. But if the state doesn't start looking at the people who are not doing it right, we'll never get to the bottom of the problems."

Simpson and others say drilling activity will continue to increase as long as the drought continues.

And problems with water tables dropping will continue.

Low water levels are already reducing well productivity in the San Luis Valley and Douglas County, even as large cities, such as Aurora and Denver, eye drilling superdeep aquifer wells to find new sources of water.

Foothills communities in Jefferson and Boulder counties are also seeing an increasing need for replacement wells.