


# THE CONFLUENCE

The Journal of Colorado Plateau River Guides  
Volume 1, Number 3 Summer 1994

	<p>Georgie SUWA BLM Opinions Laccoliths Uranium Reduction Bylaws</p>	<p>Alcohol AIDS Information Salinity Fish Recovery Library</p>
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This photo was taken on the Moab Escarpment by C. W. Cross of the United States Geological Survey in 1905. The foreground is the Moab Valley where the Atlas Corporation now has their defunct uranium ore reduction plant and tailings pond. See pages 18 and 19 for more information. Photo courtesy of the USGS Library, Denver Federal Center.

## The Confluence

...is the quarterly journal of Colorado Plateau River Guides.

Colorado Plateau River Guides is a non-profit organization dedicated to:

- \* Protecting the rivers of the Colorado Plateau.
- \* Setting the highest standards for the river profession.
- \* Providing the best possible river experience.

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## "Diversify ...?"

by Susette DeCoster-Weisheit  
President, CPRG

"This is not meant to scare you; rather, it is meant to give you facts about what can happen..." How many times have you started a safety talk with those or similar words? I feel I should start this article in like fashion.

This has been a busy season for me. I began my season in late March and have had consistent work thus far and it looks like I will be doing trips through October. Diversification has played a key part in my extended season. With a CDL drivers license for shuttle work, driving 4X4 vehicles, and going south for a month to work in the lower Grand Canyon I have been able to extent my season at least 2 months on either end. But, how long will this type of diversification help me? Till I'm 40, 50, 60, ...?

Many guides start and end their river season with a mountain bike guiding season; while, others take a small vacation before beginning a season in the ski industry for the winter. Whatever your diversification may be, for many our seasonal jobs have become careers separated by benefits. If we are hired as seasonal employees twice a year we do not receive medical benefits, retirement plans, and many other benefits found in a "career." It is left to the individual guide to pay benefits (or would that be deficits?) or arrange a retirement plan with an already average to low income.

Until this year I did not have medical insurance because it was just not possible to fit such an expenditure into my budget. From talking with fellow guides I've found that most do not carry coverage and those, like myself, who are insured can only afford to carry emergency medical with limited coverage. The current government proposals regarding medical aid certainly do not seem geared toward helping our seasonal field. Once again it is left to the individual guide to pay.

Have you thought about retirement? Many of us just laugh and say, 'you can't retire from the river business.' That is closer to fact than fiction. Many guides who began river running as a career in the 1960's and 70's are being forced to face the reality that they cannot retire. Some "burned out" long ago and hold on because they cannot afford to learn a new career or are afraid of change. Some strike out into new businesses having to rely on guiding to keep them in food as they struggle with the new business blues. Some have successfully moved into more permanent careers. And some are forced to rely on friends or family loans until they can get afloat again.

Don't get me wrong, I think that guides can make a career out of their seasonal endeavors. However, I think that if we want to make a career out of seasonal jobs we need to start effecting some changes so that we don't have to worry about benefits and retirement. I'm not even sure where we start in order to achieve such a goal; but, I do think we need to stop ignoring the inevitable. I would like to receive letters or suggestions from you as guides regarding this subject. And to those members who have or do work in the insurance field -- how do we get started?

## Combating a Myth: More is Better

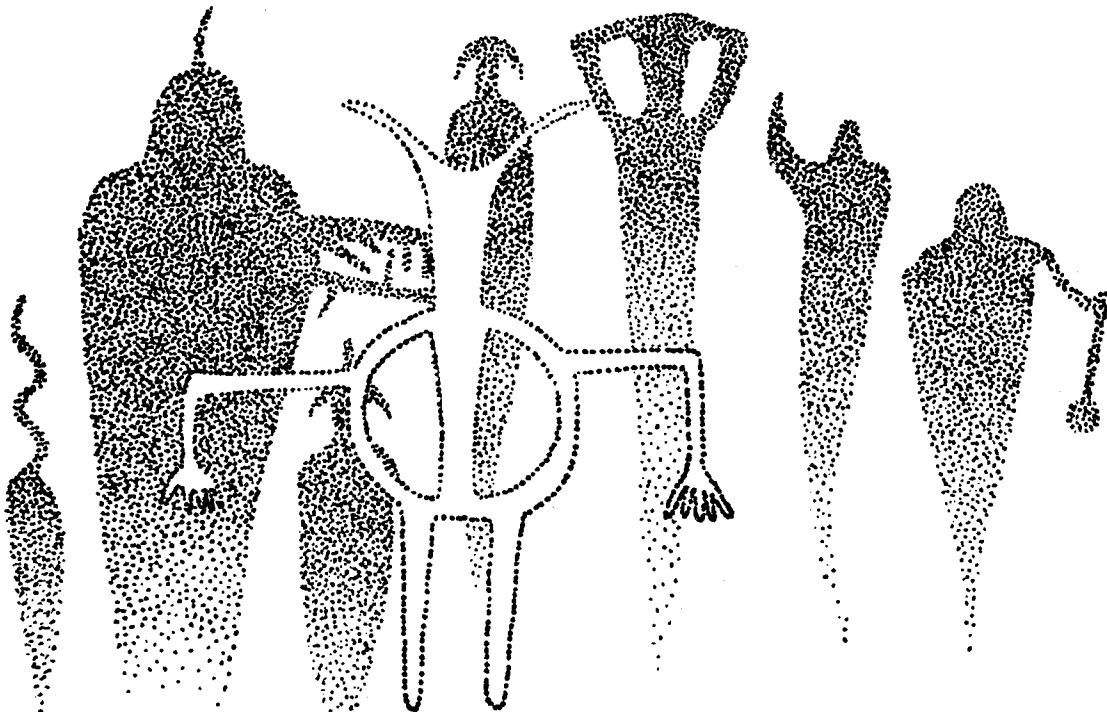
by Tim Thomas, Vice-President, CPRG

I'll start off with a note of thanks to both Tom Moody and Brad Dimock of Grand Canyon River Guides for their respective articles in the Boatman's Quarterly Review; "Time and the River Flowing..." and "Balance". Both of these articles helped clarify for me a vague uneasiness I couldn't quite pin down, but which has bothered me over the past season or so on the river as a guide. In short, Tom's article focused on 'time', that ephemeral creation of ours which governs so much of how and when we do things, and often why. And Brad's article on balance reflected on a growing insular quality of commercial river trips which can result in people experiencing less of the great outdoors at the very point where they could be immersed in it.

Over the past few river seasons it seems I've been increasingly busy with 'things', so much so that after finishing a trip at the warehouse I was amazed at how little I'd done that I'd hoped to do during the trip. So what 'things' did I do? Without listing all of the normal multi-day jobs that we all do, I found it was basically the same routine, it was just more involved and took longer. The most obvious culprit, six item meals. Then comes gear, more of it to haul out, set up, repack, and load again. Stuff like kicker motors, drink coolers, beach chairs, rental gear, etc.. Lastly we seemed to have a lot of river miles to cover to make specific camps to meet certain logistical needs and stay on schedule. What happened to "keep it simple"?

Somehow in our attempts to be better, do better, we started bringing more, offering more, serving more, but one thing we didn't get more of was - time. Time to be alone and bring one's day into focus, time to play on the beach, or explore a new canyon, read a book or watch the changing of the colors of the sunset on the canyon rims. Slowly we've managed to expand on Georgie's canned food dinners, or sleeping under a communal tarp if it rained, or the bus ride back together after the trip. The good with the not so good, things change but time didn't, it keeps flowing with the river.

The should's and shouldn'ts of whether or not to keep doing more and offering more in the creature comforts department, or to run shorter multi-day trips, or bring motors on oar trips, etc., is often decided defacto as a necessity for staying competitive in an increasingly competitive business. But attempting to do or offer more in the guise of being better puts one in direct competition with the very thing that people purportedly come to experience - the river; with all its secrets, moods, sights and sounds. This intentional change in focus away from the river and toward more service, more comforts, more entertainment, and more ways to do it quicker, does not necessarily translate into better. On rivers such as the Colorado, Green, San Juan, and Dolores, where longer multi-day trips offer the chance for people to become intimately involved with the river, a great opportunity is being missed, or at best compromised by the myth that more is better. Given the luxury of an extra day or two on the river, with less money and energy being expended on food and gear and logistics, perhaps guides could better help their guests experience more of the river - and it just may be for the better!



Drawings of Native American artwork in this issue by Devin Vaughan

## Georgie White; Legend of the Colorado River

By Richard E. Westwood

My research for a book about Georgie White has covered nearly two years. Three file drawers of trip logs, interview transcripts, news items, letters, and other materials about her make a short article difficult. Almost every trip she took in her forty-six years of river running was an exciting adventure. At this writing I have a first draft of eight chapters completed and have just scratched the surface.

Two books and thousands of articles have been written about this amazing woman, but those stories are incomplete and in many cases inaccurate. She was born Bessie DeRoss on November 13, 1910 at Guyman, Oklahoma, and reared in Denver, Colorado, (contrary to her claim of having been born and raised in Chicago). Georgie had a strong and colorful personality that caused people to be attracted to her or to dislike her intensely. She was twice married and twice divorced.

By her own admission, she was not a good wife. She married Harold Clark at Denver in 1928 and they were divorced in Chicago in 1941. Her marriage to James White (Whitey) at Los Angeles in 1942 lasted until their divorce at Las Vegas in 1970, when she took back the surname, Clark.

Georgie didn't know much about the history or geology of the canyon, but she was a motivator and entertainer. If she did some fantasizing and exaggeration, she was not much different from other adventurers of her time. Many passengers came back to go with her year after year. The things she did accomplish were enough to fill volumes.

Georgie was a slim athletic woman with piercing blue eyes and a dominant personality. She was an avid hiker, bicyclist, a lover of animals, and a strict vegetarian. She was living in Los Angeles in 1944, while World War II was still being fought on two fronts. In that year, following the tragic death of her fifteen-year-old daughter, Somona Rose, at the hands of a hit and run driver, Georgie was greatly depressed. To help her over this crisis friends took her to a Sierra Club meeting where adventurer Harry Aleson



Georgie's triple pontoon rig ("big boat") on her 1957 river trip from Green River, Utah, to Hite. Georgie is in the process of reversing the side pontoon. Note the deflated front chamber suffered from a stick that tore the fabric while going to shore. Photography by L. C. B. McCullough. Photo courtesy of Rosalyn Jirge.

was showing pictures of Grand Canyon and the scenery of the Colorado Plateau. She was fascinated by what she saw and begged him to take her along on his next trip. She, Aleson, and Gerhard Bakker, a biologist from Los Angeles College, boated across Lake Mead into Grand Canyon and hiked out to the rim and across the Arizona Strip to St. George. For Georgie it was love at first sight, an affair with the river that only grew stronger with the years.

In 1945 she and Harry swam the lower portion of Grand Canyon in life jackets, nearly drowning in a giant whirlpool. In 1946 they floated a longer stretch using only a three-by-six-foot aviation life raft. Georgie wrote Harry in August of 1947, "When the rapids are mentioned I forget everything else, they cast a spell on me..." Later that year in the icy weather of October the two of them tackled Cataract Canyon in a seven-man army surplus raft.

In the late forties and early fifties Georgie and Harry Aleson took more boat trips, hiked the old Hole-in-the-Rock road made by Mormon settlers in 1880-81, retraced part of the route taken by Escalante and Domingez in 1776, and explored many other exciting places on the Colorado Plateau. On these expeditions Harry was the leader, but Georgie was learning and gaining experience.

By 1950 there had been enough publicity about Georgie's hikes and boat trips with Harry Aleson that she was considered by some to be an experienced boatman. That year she worked as a boatman for Mexican Hat Expeditions and doubled as chaperon for five young starlets being featured as "River Goddesses" by a Hollywood film producer. The movie was filmed in Glen Canyon and took several weeks to complete. Before it was over Georgie decided that if she could take care of those "dingalings", as she called the young ladies in her charge, and get them through safely, she could lead anybody through the canyons. Bob Rigg, one of the other boatmen, said, "Georgie was one strong tough lady! She never missed a stroke. She could pull a boat with the best of us. And she was a great, positive contributor to the entire trip."

Elgin Pierce became her first passenger when the two took a raft trip through Grand Canyon in 1952. Their raft flipped in Hance Rapid, but Georgie stayed with it and was able to bring it to shore. They managed to get the raft right side up again and continue down the river. The next year she led her first "share the expense" trip, a party of six, through Grand Canyon. This excursion was an exciting one, except for the tiresome lining and portaging at the major rapids.

On subsequent trips Georgie would begin innovations that made portaging unnecessary. She first roped three ten-man rafts together side by side, so that if one section of this "triple rig" got into trouble in a rapid the others could pull it out. Occasionally one section of the raft would fold over onto another. This became known as a "Georgie Sandwich." When this happened, passengers would have to lift up the overturned section and flop it back into place.

Next Georgie went to using three thirty-foot bridge pontoons lashed side by side, driven by an outboard motor.

She called this her "Big Boat." Eventually she cut out the bottoms and placed an inflated rubber sausage in the oval center of each pontoon. This gave the passengers a convenient back rest and eliminated the need for bailing. This huge contraption would take the largest rapids in safety. Now, anybody, old or young, could make the trip.

With these big rafts she took larger and larger groups down the Grand Canyon, bigger parties than any other outfitter. She also ran trips down the San Juan, the Green, and Glen Canyon. Then she branched out farther, running the Snake, Salmon, and Columbia rivers. In the 1960s she began exploring rivers of Mexico. One excursion down the flood-swollen Rio De Santiago nearly ended in disaster. The overturned boats had to be abandoned and the party was forced to swim across the river before hiking out of the deep jungle canyon.

In the early days most of the other boatmen referred to Georgie as "That crazy woman of the river." But that didn't faze her. She kept right on doing what she wanted to do and doing it her way.

Georgie also ran rivers in Canada and Alaska. She did not pay her boatmen a wage, but did pay their expenses, except once. At the end of a run of the Chitina and Copper rivers of Alaska expenses had been higher than expected and Georgie came up short. She didn't bother to tell Dick McCullum until they got to the airport that she couldn't pay for his ticket home. He was left behind to make his own way back. Despite this, Dick remained loyal to Georgie and worked another four summers for her.

Georgie had a great passion for running rapids and the mystique of Grand Canyon. She wanted to share it with as many people as possible. Her big boats would carry more passengers than the cataract boats or single rigs, making it possible for her to offer the lowest rates of any outfitter. The good movies she made of the trips, which she showed at lectures throughout the winter, made her trips in demand. Because she was a woman doing what was normally done only by macho males, she was in demand for television talk shows. She became better known than any river runner since Powell.

Outfitters who once had criticized Georgie for taking such big crowds down the canyon began to switch from smaller boats to big rafts like hers because it was more profitable.

Georgie started many of her Cataract Canyon trips at Moab. On one of these runs she discovered a dead man floating in the river. Using oars from the boats, they dug a grave in the sand and buried him beside the river. A young Catholic priest said last rites over the grave. Later, Georgie was relating this experience on the Groucho Marx show. Groucho said to her, "It looks like you need to take an undertaker along." "No." Georgie quipped. "Just a shovel." When the audience roared, Groucho was upset because he thought Georgie had upstaged him.

Georgie never lost her head in a difficult situation. She also liked to test other people to see how they would react. Sometimes she would wrestle with her boatmen. Dick McCullum said, "I never knew whether to try to win or lose."



Georgie called her outfit "Georgie's Royal River Rats." She maintained that running rivers made you a river rat, but only by running Grand Canyon were you eligible to be a "Royal River Rat." Her initiation ceremonies were legendary---blindfolded, led over rocks and in the water, questioned about rapids or other features of the canyon and whacked on the bottom with a paddle when wrong answers were given, eggs broken on the head, winding up with a celebration drink of brandy. An arm patch and certificate was then given to prove that you were now a "Royal River Rat." At the end of her trips she would throw a party for everyone at a Boulder City or Las Vegas hotel.

When the Park Service began licensing outfitters to run Grand Canyon, Georgie got one of the smallest allotments of all. This suited her fine because she wanted to lead every one of her trips while the larger outfits hired boatmen and could thus send several trips down per week. In later years Georgie ran only Grand Canyon, her first love.

When Georgie would plow down the gigantic waves of Crystal Rapid or Lava Falls without pausing to scout them, boatmen on shore would be reminded of a "Georgie" story and relate it to their passengers. Long before her last run in 1991 she had become a living legend.

Georgie was a "women's libber" long before the term was invented. Personal example was her only contribution to the cause. She didn't even hire women boatmen, preferring Los Angeles County firemen for the most part.

In 1990, Ted Hatch decided that it was about time for the river community to recognize Georgie for her pioneering spirit and contributions to the industry. On her eightieth birthday, November 13, 1990, he threw a party for her at the big Hatch warehouse at Marble Canyon. Georgie was hesitant to come, because she thought few people would show up. How wrong she was! Over five hundred people showed up. Hatch hired a dance band and there was beer for everyone. Ted Hatch claimed the first dance with Georgie. Brian Dierker popped out of a raft decorated like a birthday cake and whisked Georgie away to watch the fireworks from nearby cliffs. The band played until morning. It was a bash to remember.

Georgie boated through the 1991 season and had her brochures out for 1992. But cancer got her and on May 12, 1992, she passed on to the big rapids in the sky.

If any reader has a special story to tell about Georgie, they are invited to write me, Dick Westwood, 5302 N. 79th Place, Scottsdale, AZ 85250



Georgie in lower Labyrinth Canyon on the Green River in 1957. Georgie reached The Confluence on June 13 at an approximate flow of 89,000 cfs (USGS, Water Supply Paper). Photography by L. C. B. McCullough. Photo courtesy of Rosalyn Jirge.

# Salinity in the Colorado River

by Tim Thomas

Taken in part from an eight part series on the Colorado River in Rocky Mountain News, June 21, 1984 by staff writer Steve Chawkins.

Our beloved Colorado River, by the time it reaches Mexico, carries some 800 milligrams of salt per liter of water. Now that's not enough salt to really taste. Ocean water is some 40 times saltier. However, each milligram of salt can mean big bucks in terms of the damage it causes farmers and other downstream users. The damage can cost as much as \$500,000 per milligram of salt in a liter of Colorado River water in the forms of soil degradation, crop losses, corrosion, and damage mitigation costs. This translates into more than \$100,000,000 a year in damage and losses.

So what do you do with a salty river? You could try to ignore it, but that has its consequences. For example, in the late 1960's, Mexican farmers in the Mexicali Valley protested the increased salinity of the river so vigorously that it became a national political issue and started straining U.S./Mexican relations. In 1974, the U.S. agreed to build the world's largest desalinization plant in Yuma, Arizona, in order to deliver useable water to Mexico. The plant can eradicate most of the salt from as much as 100 million gallons of water per day, but at a cost of almost \$400,000,000 for the plant alone. In Bedrock, Colorado, on the Dolores River, a pumping facility takes salt laden brine water from Paradox Valley and injects it into deeper wells in an attempt to reduce river salinity.

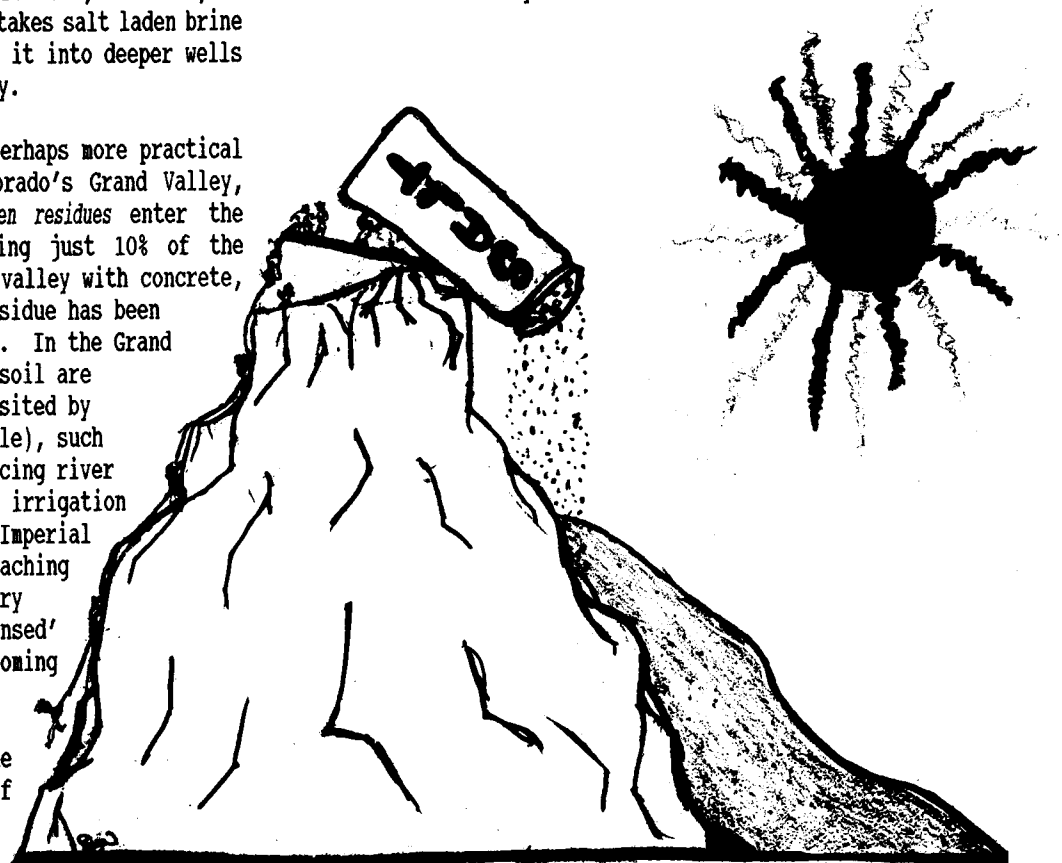
Other less costly measures are perhaps more practical however, such as those used in Colorado's Grand Valley, where 600,000,000 tons of salt laden residues enter the Colorado River each year. By lining just 10% of the irrigation canals and ditches in the valley with concrete, some 25,000,000 tons of this salty residue has been kept from entering the Colorado River. In the Grand Valley, where salinity levels in the soil are extremely high, due to the salts deposited by an ancient sea (Cretaceous Mancos Shale), such measures are doubly important in reducing river salinity. Similar measures of lining irrigation canals with concrete in California's Imperial Valley help keep salty waters from leaching back into the river. This is necessary when irrigated lands are actually 'rinsed' to help keep salinity levels from becoming too high to grow crops.

But where does all this salt come from anyway? For starters, about half of the rivers saltiness is natural. As much as 500,000 tons of it enters the Colorado River near Glenwood Springs,

Colorado, where naturally occurring sulphur hot springs line the river for some 15 miles. This accounts for a large part of the 9,000,000 tons of dissolved salts which the Bureau of Reclamation estimates reaches Lake Mead each year. The rest is picked up along the way as the river flows through salt rich areas such as the Grand Valley. Numerous tributary streams such as the Dolores River and the Little Colorado River, which similarly flow through heavily salt deposited rock formations, add their share of salt to the Colorado River. Additionally, the 'turnback' water from irrigated lands greatly increases the river's salinity as it leaches yet more salt from the soil before returning to the river.

The Dolores itself carries some 600,000 tons of salt per year into the Colorado drainage which accounts for up to 1/2 of the total salt content carried by the lower Colorado. The cause of this high salinity is evident where the Dolores crosses two salt anticlines, which contain salt and salt rich shale up to 14,000 feet thick. The ground water in these valleys dissolves the salt and the brine seeps into the river making it so saline that at low water the Dolores can be five times as salty as sea water.

All tolled, the Colorado River once was about eight times saltier at its end in the Gulf of California than at its head waters on the Continental Divide. Now it is 18 times saltier. Given the Colorado's current use and allocation, it will take a continued aggressive Federal program to help keep the 'life blood' of the West itself alive and healthy.



## SUWA Starts Wild and Scenic Inventory

Although over 10,000 miles of rivers have been designated as Wild and Scenic in the United States, not one mile has ever been designated in Utah. This makes Utah one of only 12 states to have no river protection. Fortunately, because every federal agency on the Colorado Plateau in Utah is making its Wild and Scenic River recommendations in the next three years, now is the best time to ensure that our free-flowing streams continue to support essential high desert ecosystems.

In order to ensure that these agencies remain on track, Southern Utah Wilderness Alliance (SUWA) is preparing a Citizens' Proposal to Protect the Wild Rivers of Utah. This book will contain photographs, maps, and descriptions of fish, wildlife, and ecosystem surveys of the streams and rivers that remain in their wild and undeveloped state. Much like Wilderness at the Edge, the Citizens' Proposal will be used as the cornerstone to ensure that federal agencies in Utah stick to the federal planning mandates rather than caving into pressure from Governor Leavitt and development interests.

As most of the rivers included in the Citizens' Proposal flow through the Utah Wilderness Coalition's wilderness proposal (also known as HR1500), this is an excellent opportunity to ensure that wilderness ecosystems are not left dry from upstream diversions and that wild lands left out of the BLM's much smaller wilderness proposal remain undeveloped. By including rivers outside of HR1500 lands, many wild areas will be protected providing ecosystems continuity both inside and outside of future wilderness boundaries.

Rivers are important ecosystems because they support a wealth of both aquatic and terrestrial species, especially in the desert. The Utah Division of Wildlife Resources found that 80 percent of all wildlife species depend upon the streamside vegetation, or riparian zones, for at least a portion of their life cycle. These riparian zones in turn are dependant upon free-flowing stream conditions to exist.

Wild and Scenic River (WSR) protection prevents future damming and diversion of rivers but has no effect upon existing water rights. The designation has no effect upon private or commercial recreational use of the river. WSR designation also protects riparian zone degradation by prohibiting development within a quarter mile width along the riverbank. This allows communities to maintain riparian ecosystems while encouraging intelligent water planning, a rare novelty in Utah.

Although Utah has the highest per capita domestic water consumption in the nation, outside of the Central Utah Project, no money is being spent on water conservation programs, even though conservation is a tremendous untapped source of water. In Southwestern Utah the Washington County Water Conservancy District is proposing six dams in the Virgin River Basin to fuel growing lawn, garden, and golf course water "needs". Washington County's per capita domestic water use is more than twice the national average.

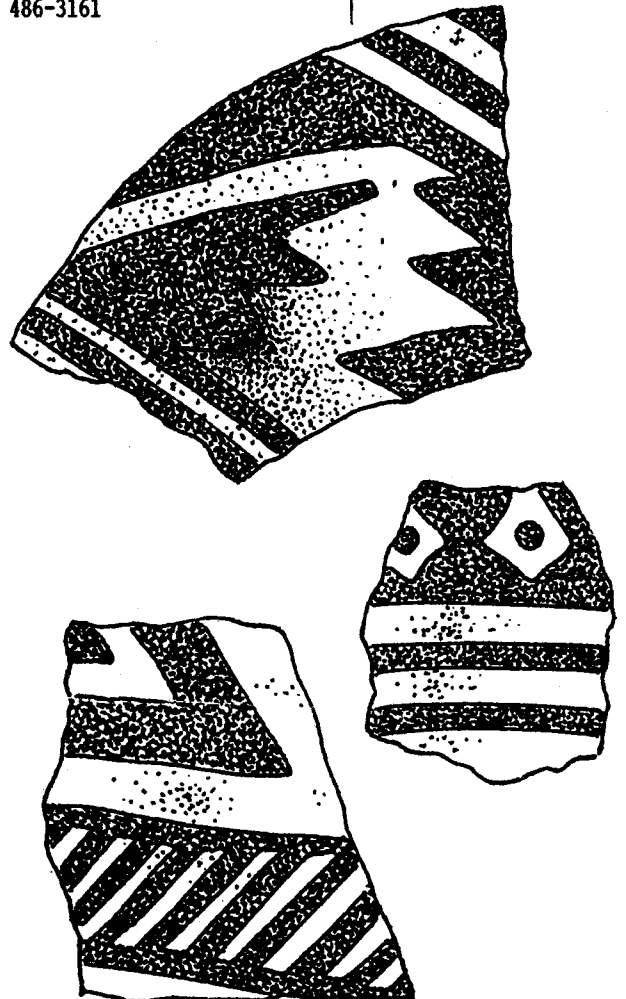
The Virgin River has been listed by American Rivers as one of the 10 most endangered rivers in North America in 1994. For the second year in a row, the group cited endangered fish habitat loss, proposed diversion dams, and a lack of coordination among state and federal agencies as threats to destroying the Virgin River ecosystem.

Two of these dams are proposed immediately upstream from Zion National Park on the headwaters of the Virgin River; the East Fork and the North Fork. The East Fork was first explored for the United States by John Wesley Powell. Carving through the towering Navajo Sandstone cliffs of Parunuweap Canyon, this area contains nearly 90 archaeological sites. The North Fork is one of the most widely visited hikes in the Utah, the Zion Narrows. A dam on this river will have disastrous effects upon the Virgin River ecosystem. Both of these streams are in the Kanab BLM Resource Area which is beginning its Wild and Scenic recommendations. Please write the Kanab RA and tell them that you support protecting both of these beautiful desert streams through Wild and Scenic Rivers designation.

As part of the Citizens' Proposal to Protect the Wild Rivers of Utah, the Southern Utah Wilderness Alliance is seeking information on biological resources and recreational use of Utah's rivers. If you would like to contribute information, or volunteer your time please call:

Southern Utah Wilderness Alliance  
Mr. Zach Frankel  
1471 South 1100 East  
Salt Lake City, UT 84105  
(801) 486-3161

Kanab BLM  
320 North First East  
P.O. Box 458  
Kanab, UT 84741





## SUWA's Potential Wild and Scenic Rivers

To be eligible for Wild and Scenic River designation a river must be free-flowing (no dams, diversions, or extensive rip rap) and have at least one outstanding remarkable value (ORV). The ORV categories are fish, wildlife, scenic, recreational; geologic, historic, archaeological. The criteria for each ORV's are very broad in nature and the ultimate agency recommendation is based on the land ownership and the conflicting use. Please add any streams not listed below you think should be considered for protection. Streams in National Parks are not being considered unless their headwaters originate upstream in park boundaries. There is no minimum water volume required to be protected as a Wild and Scenic River. At this point we have divided the state into eight watersheds.

Green River Basin	Colorado River Basin	Virgin River Basin	Dirty Devil Basin	Great Basin	San Juan River Basin	San Rafael River Basin	Escalante River Basin
Ashley	Beaver	Ash Creek	Bullfrog	Birch Crk	Arch Cyn	Blackdrgn	Boulder
Barrier	Mainstream	Beaver Dam	Dirty Dvl	Blacksmith	Butler Wsh	Buckhorn	Calf Crk
Duchesne	Cottonwood	Crystl Crk	Fremont	Goose Crk	Castle Crk	Cane Wsh	Coyote
Rock	Dark Cyn	Deep Creek	Hatch Cyn	Logan Rvr	Comb Wash	Coal Wsh	Death Hlw
Mainstream	Dolores	East Fork	Long Cyn	Ogden Rvr	Cross Cyn	Cottonwood	Deer Crk
Hell Roar>	Fable	La Verkin	Muddy Crk	Provo Rvr	Fish Crk	Eagle Cyn	Mainstrm
Mineral	Hackberry	Mainstream	Oak Creek	Sevier Rvr	Grand Glch	Eardley	40 Mile
9 Mile	Hart's Drw	North Crk	Pleasant	Trout Crk	Hammond	Iron Wash	Harris
Jones Hole	Hatch Wash	Spring Crk	Robber Rst		Johns Cyn	McCarthy	Moody Crk
Price	Indian Ck	Kanab Crk	Salt Wash		Mainstream	N. Salt	North Frk
Range	Last Chnce	Kitchen			Mikes Cyn	Old Woman	Sand Crk
Rattlsnke	Mill Creek	Paria Rvr			Montezuma	Saddle Hrs	Steep Crk
Strwbrry	Negro Bill	Square			Mule Cyn	Salt Wash	The Gulch
10 Mile	Onion Crk	Willis			Owl Crk	San Rafael	25 Mile
Uintah	Prof. Crk	Trachyte			Road Cyn	Spring Cyn	Willow
White	Ruin Cyn	Wahweap			Slickhorn	Virgin Spr	
Whtercks	Salt Wash				Square		
Yellowstne	W. Coy. Cr				Whirlwind		
	White Cyn						

### The Bureau of Land Management / Eastern Utah Resource Management Plan

The Bureau of Land Management (BLM) is ready to launch the Eastern Utah Resource Management Plan (EURMP), one of the most ambitious land use planning endeavors undertaken in the state of Utah. The BLM is inviting all the concerned to participate in this important project. One mission of Colorado Plateau River Guides (CPRG) is to affect decisions made by agency Resource Management Plans for the protection of river ecosystems. The board members of CPRG will try to make entry level meetings, but it is recommended that we all get involved on a personal level. Some of the planning areas will include the Price River, the Green River through Desolation and Labyrinth Canyons, the White River, the Colorado River, and the Dolores River.

Interaction is where it's at. You can write, telephone, or stop by the Price River, Book Cliffs, or Grand BLM Area Offices. You can also contact the BLM's District Offices in Vernal or Moab and the State Office in Salt Lake City.

Mike O'Donnell BLM 170 South 500 East Vernal, UT 84078 (801) 789-1362	Jerry Kenczka BLM 170 South 500 East Vernal, UT 84078 (801) 789-1362	Wayne Erickson BLM 324 S. State St. P.O. Box 45155 Salt Lake City, UT 84145-0155 (801) 539-4051	Grand Resource Area BLM 885 S. Sand Flats Moab, UT 84532 (801) 259-8193	Price Resource Area BLM 900 North 700 East Price, UT 84501 (801) 637-4584
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### That Which Takes Away Forever--AIDS

by Tyge

What once was an occupational gratuity in the business, has now become an occupational hazard. Though the summer of love is in full swing, the only sex worth having - if having it at all - is safe sex during any season.

In the United States, there are now approximately 1.1 million or more HIV infected persons and over 400,000 AIDS cases. In the 14th century, the Black Death killed 25 million people, while there are projected to be 30 to 110 million HIV case's world wide by the year 2000. AIDS does not stand for Asphalt Instant Death Syndrome, (though the outcome is still the same -- Death) but, Antibody Immune Deficiency Syndrome.

The HIV virus reproduces unchecked by invading cells. Next, there is a long asymptomatic period (without symptoms) of a couple months to 16 years or longer, but averaging about 8 years. This asymptomatic period goes on for a long time before testing positive for antibodies in the human body. This is a period of massive unchecked infection. Eventually, there are detectable antibodies (which make tests show positive) that can kill at least some of the HIV in the bloodstream.

Then full-blown AIDS develops, which happens when the blood count of T cells (immune system cells that fight invaders) reduces to about 200 per cubic millimeter of blood, symptoms appear. When AIDS arrives, early symptoms can include unexplained skin rashes, warts, oral candidiasis or thrush, shingles, menstrual problems, or an early onset of one of the opportunistic diseases such as: Pneumocystic carinii pneumonia or tuberculosis.

After suspected exposure to the disease, typically a blood test is given within one week to establish baselines, then again after six weeks, then perhaps in three months, six months and a year. If the most common antibody test is used, results come back in a few days after each test. But, positive antibody results may not show up for months after true exposure and infections may be raging before the body learns how to make detectable antibodies.

Prevention comes from blocking transmission routes. This means: 1) Avoiding sexual transmission by promoting abstinence, monogamy, use of latex condoms, dental dams and devices to block transmucosal membrane transmission. 2) Protecting the transfusion blood supply by screening and testing. 3) Inducing safe needle use in addicts such as through free distribution of clean needles and by warnings and education.

Rich or poor, male or female, young or old, black or white, these are the players in the game of life. AIDS and HIV do not discriminate one way or the other. In the United States, AIDS and HIV were thought to be just a homosexual disease. NOT! Not only does the heterosexual group remain

at high risk, but AIDS is attacking sexually active non-monogamous groups like college communities, youths, and in fact - the entire community!

Until there are effective treatments or prevention by vaccines, AIDS is a sure-fire killer. It is raging across the continents of the world, decimating many African countries. HIV and AIDS do not respect borders!

Being ambassadors of the Canyon, taking ethically and culturally diverse groups down the River, one should have total awareness of the grave dangers inherent in the problems of having - way to much fun.

There are no easy answers to this dilemma of reality. Only one of common sense, if that can be considered in the scope of lost consciousness in the heat of the moment. The decisions you make shall determine your destiny.

To thy own self be true.

---

### Alcohol and the River Guide

Anonymous

*"In my judgement, such of us who have never fallen victim [to alcoholism] have been spared more by the absence of appetite than from any mental or moral superiority over those who have. Indeed, I believe if we take habitual drunkards as a class, their heads and their hearts will bear an advantageous comparison with those of any other class."*

Abraham Lincoln

In moderation, alcohol is an appropriate social function which delivers a feeling of well-being to its user. However, when abused, can be the cause of the deadly disease known as alcoholism. Statistically speaking, in the United States alone, there are at least 10 million people who are alcoholic. Of those who are, only 10 percent will successfully free themselves from their addiction.

Alcohol is the excrement of yeast, a fungus with a ravenous appetite for sugars. The fungus releases an enzyme which converts sugar into carbon dioxide and alcohol. The yeast will continue to feed on sugars until it dies, which happens when the alcohol concentration reaches 13 to 14 percent. This fermentation process is artificially stopped at 3 to 6 percent for beers and between 10 to 14 percent for wines. Hard liquor percentages are increased by a distillation process.

When first consumed, alcohol behaves as a stimulant, since it is a fuel that is quickly assimilated. However, after three or four drinks, it becomes a depressant. Heroin is addictive for almost 100 percent of its users; morphine for some 70 percent. With these drugs, addiction occurs after about four weeks of use. Alcohol is a selectively addictive drug and affects only 10 percent of its users and

requires periods of years to develop into an addiction.

The body eliminates alcohol when it enters the liver. An enzyme called *alcohol dehydrogenase* attacks the alcohol molecule, quickly removing two hydrogen atoms to create a substance called *acetaldehyde*. The liver then employs another enzyme called *aldehyde dehydrogenase*, to transform acetaldehyde into acetate. Acetate is then converted to carbon dioxide and eliminated from the body. For some people, the liver is unable to fully eliminate the toxin acetaldehyde. With time, this chemical accumulates in the body. In the brain, it competes with other chemical substances known as a *brain amine* (or neurotransmitter) for the attention of certain enzymes. Acetaldehyde wins this competition and blocks these enzymes from accomplishing their primary duty of inhibiting amine activity. While acetaldehyde preoccupies the enzymes, it will also form chemical compounds with an amine that is called an *isoquinoline*. In turn, an isoquinoline acts on the opiate receptors of the brain, thus creating the addiction to alcohol.

Alcoholism is never reversible. Prolong contact with the toxin acetaldehyde will forever change the chemical makeup of the mitochondria in the cells. Even after years of abstinence, returning to drink will re-activate the compulsion and immediately resume the addiction. Hence the popular saying of the recovered alcoholic, "Your only one drink away from a drunk."

Alcoholism can be genetically inherited. Children of an alcoholic parent are four times more vulnerable to alcoholism than the children of a non-alcoholic parent. Ethnically speaking, Scandinavians, Irish, French, and Native American peoples are prone to alcoholism. Since alcoholism is a genetic malady, the disease progresses unknowingly over the span of many years. This is why the dilemma of denial in alcoholics is so acute. It usually takes an intervention from a spouse, family member, employer, judge, or friend, to encourage the alcoholic to recognize their disease. This is the first and most important step to recovery.

This article is not a temperance action for the river community. This article is an appeal! Treat this dilemma for exactly what it is - a disease - not a breakdown of one's morality or a weakness of spirit. Treatment for alcoholism is an accepted practice of the health insurance industry. Even if one does not have health insurance, there are alternative methods to acquire financial aid. Treatment is cost effective, especially when you consider the amount of money required to maintain the addiction. Start by attending a free meeting of Alcoholics Anonymous. Get an AA member to sponsor you in sobriety. Such an individual has taken the disease full circle and can offer advice and encouragement. Be willing and open minded to learn an alternative lifestyle called - abstinence.

Reference: Milan, Dr. James R., Katherine Ketcham. 1981. *Under the Influence: A Guide to the Myths and Realities of Alcoholism*. Bantam Books. New York City.



### **Ammo Can Libraries**

We would like to recommend to outfitters and trip leaders the perfect way to provide an inexpensive and comprehensive library for your river trips.

There are two institutions in southeastern Utah that provide excellent magazines concerning the natural history of the Colorado Plateau. These are: *The Canyon Legacy of the Dan O'Laurie Museum* and *Blue Mountain Shadows of the San Juan Historical Commission*.

These magazines offer full-range topics written by authors who live and work in the Colorado Plateau - many of which are CPRG members. These authors work for various universities, government agencies, professional consulting firms, community organizations, and outfitters.

Our first recommendation would be to join these fine institutions to show your support and to receive their periodicals on a continuing basis. Our second recommendation would be to order back issues. For about \$150, you would end up with a very impressive library that would help your guests to better appreciate the Colorado Plateau. It would also serve the purpose of providing reliable interpretive information for entry level river guides. For more information write to:

**The Dan O'Laurie Museum**  
**The Canyon Legacy**  
118 East Center Street  
Moab, Utah 84532  
(801) 259-7985  
Membership fee: \$25.00  
Back issues from \$4.50 to \$6.00

**San Juan County Historical Society**  
**Blue Mountain Shadows**  
362 West 400 South  
Blanding, Utah 84511  
Membership fee: \$25.00  
Back issues from \$8.50 to \$9.00

# Laccolithic Mountains of the Colorado Plateau

by John Weisheit

## Introduction

The last mountains to be included on the map of the continental United States were the Henry Mountains (the Henrys). They were named by John Wesley Powell for Joseph Henry, director of the Smithsonian Institute and contributor of the scientific equipment used during Powell's historic boating expedition of 1869. The Henrys are igneous intrusive mountains -- more specifically a laccolith -- and are located in southeastern Utah bounded on the north by the Fremont River, on the east by the Dirty Devil and the Colorado rivers, on the south and west by the Waterpocket Fold. Mt. Ellen is the highest peak at 11,615 feet with a vertical relief of about 8000 feet. Of the many laccolithic mountains on the Colorado Plateau, the Henrys have received the most attention by the United States Geological Survey. First, by geologist Grove K. Gilbert and second by geologist Charles B. Hunt.

The first geologist to actually describe laccolithic mountains on the Colorado Plateau was Albert C. Peale, during a government sponsored survey under the direction of Ferdinand V. Hayden in the 1870's. When Hayden's team was in the laccolithic La Sal Mountain group near Moab, Utah, they named the highest peak in Mr. Peale's honor, which is the tallest mountain on the Colorado Plateau, standing at 12,721 feet. Said Peale, "[A laccolith mountain] presents one of the most promising fields for future detail investigation to be found in any part of the West, and will well repay the labor of the geologist who shall devote himself to their special study."

I perceive that geologist to be Charles Hunt, because his investigations would later develop into the most comprehensive work available concerning the Cenozoic Era's geological history of the Colorado Plateau and of the Colorado River. These would include USGS Professional Papers 279 and 669C which may be the most eye-opening primary documents ever produced about the Colorado Plateau.

## Kinds of Igneous Mountains

There are two kinds of igneous mountains on the Colorado Plateau and are termed as being either intrusive or extrusive. The Henrys are an igneous intrusive structure that formed about 45 million years ago. Molten rock (magma) was injected between sedimentary rocks, which made the overlying rocks bulge, and then cooled slowly within the structure. In this particular process of slow cooling, the magma crystallized into a rock type called granite. This intrusive phenomenon is called a laccolith -- a word of Greek origin meaning cistern or pit. Erosion (mostly glacial) has since stripped away the overlying sedimentary rock, exposing the granite and leaving its present sawtooth-like appearance.

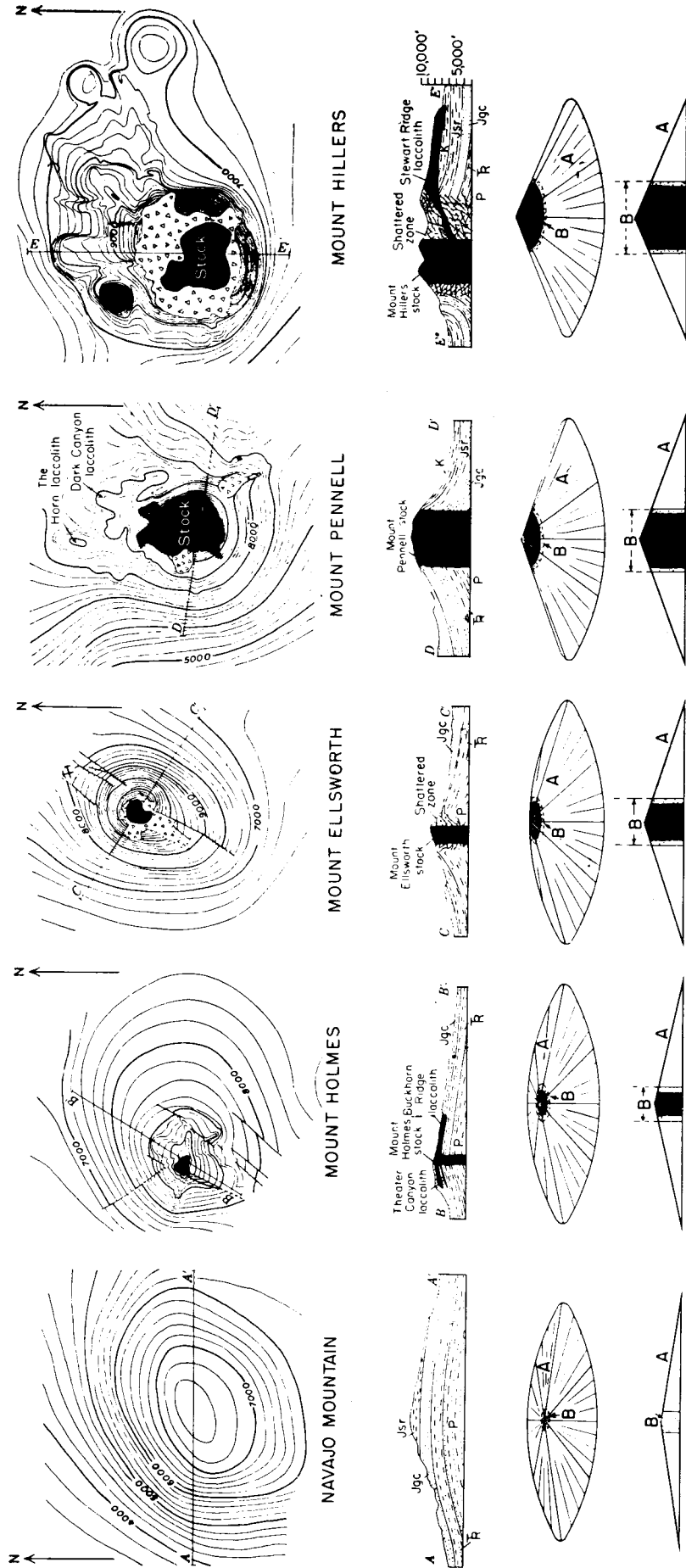
There are two parts to a laccolithic mountain -- the stock and the foot. The stock is the point of injection from the sub-surface magma zone. We will later learn in the upcoming discussion of plate tectonics, that standing water on the surface was sufficient enough to thwart the complete upward travel of the magma, which then moved laterally (sideways) into sedimentary rock. This laterally injected magma is called the foot and the true laccolith. Hydrothermal activity was associated with the stock, which vented vertically through joints caused by the bending of the sedimentary layers. In the case of the northern flank of the La Sal Mountains, a foot vented magma and formed a curious extrusive lava deposit which can be observed in upper Castle Valley. For the La Sal Mountains, most of the intrusive activity started first as a viscous diorite porphyry followed later by a less viscous monzonite porphyry. A diorite porphyry is a granite rich in calcium and sodium. A monzonite porphyry has a similar matrix but contains more potassium and makes for a lighter colored granite.

There are three other kinds of intrusive structures found within the Western United States. This would include the *batholith*, which is defined as an intrusive structure greater than 40 square miles. Their shape is equidimensional and good example is found in Yosemite National Park. A *dike* is an intrusion that fills a vertical fracture within a rock formation. Dikes are seen in the metamorphic schist and gneiss formations of Grand Canyon and Westwater Canyon. An intrusive *sill* fills a fracture that runs parallel to the plane of the mother rock. In the Grand Canyon a sill is observable in the Bass Limestone of the Unkar Group near Hance Rapid and is associated with the asbestos fibers once mined there.

A good example of an igneous extrusive structure (volcano) on the Colorado Plateau are the San Francisco Mountains near Flagstaff, Arizona. Magma was ejected onto the earth's surface (lava) and cooled quickly forming basalt and tuff (ash). Mount Humphreys is the highest peak reaching a summit of 12,670 feet and is Arizona's tallest mountain. The original vertical relief amounted to 8,800 feet, but erosion has since reduced the relief down to about 5,800 feet.

## Plate Tectonics

There are other laccolithic mountains on the Colorado Plateau which can be grouped according to age and cause. For ages of about 80 to 65 million years (Cretaceous Period) we have the La Platas, the Carrizos, the Utes, El Late, the Ricos, and the San Miguels, all of which are associated with the Laramide *orogeny* -- mountain building. Interestingly, some of the laccoliths associated with the Laramide orogeny bear mineral wealth; these minerals may have been introduced by the magma content of that time period.



Aller Hunt, 1953

K. Cretaceous rocks, Jsr. rocks of San Rafael group, Jgc. rocks of Glen Canyon group, Tr. Triassic rocks, P. Permian rocks, M. Mancos shale. Structure contours drawn on base of Ferron sandstone member of Mancos shale. Contour interval is 200 feet, datum is sea level.

Structure contour maps, cross sections, and diagrams of Navajo Mountain and of Mounts Holmes, Ellsworth, Pennell, and Hillers, in the Henry Mountains. The location of the cross sections is shown by lines on the maps. The diagrams are on the same scale as the structure contour maps and geologic cross sections of the mountains. Each diagram is set beneath the mountain it portrays. In the oblique diagrams of the conically deformed circular areas, the lined area A on the lateral surface of each cone equals the area of the basal circle, and the area B is the amount by which the lateral surface exceeds the circular base.

On the Navajo Mountain cone the stippled area B (0.5 sq. mi.) represents the extent of stretching of the domed strata. Areas of the same size are represented by stippling on the other cones. On the assumption that this 0.5 sq. mi. is the limit of stretching of the domed strata, the black areas in the cones of the Henry Mountains represents the theoretical space formed by doming of the strata and available for the intruding stock.

FIGURE 1 — Diagrams illustrating the relationship between the stocks and the laccolithic mountains on the Colorado Plateau.

During the ages of about 45 to 25 million years ago (Oligocene and Miocene Periods [Olig/Miocene]) we have the Henrys, the La Sals, the Abajos, and Navajo; which are associated with the *extensional rifting* (stretching) of our study area.

As mentioned, it is hypothesized that the reason why magma did not extrude to the surface was due to water. In the case of the Laramide laccoliths a Cretaceous sea, and in the case of the rifting laccoliths an Olig/Miocene lake. The presence of this Olig/Miocene lake indicates the Colorado River system was yet to develop an outlet to sea level. Through-drainage of the Plateau and development of the Colorado River system occurred later, probably about 10 to 20 million years ago and continues to evolve its course such as through Westwater Canyon, which formed some two million years of ago.

About 144 million years ago, the continental North American plate started to press into the oceanic Pacific plate and resulted in the building of the mountains referred to as the Nevada orogeny. Tectonic pressures continued and the Pacific Plate subducted under the advancing North American plate and a second set of mountains were built around 105 million years ago and called the Sevier orogeny. About 80 million years ago, tectonics began to create the Rocky Mountains of the Laramide orogeny. For the Colorado Plateau area, this orogeny also included the Cretaceous laccoliths and other surface bulges such as the Monument Upwarp and the San Rafael Swell. These surface bulges probably then appeared either as islands or at least as a seamount (submarine mountain) in the Cretaceous sea.

About 65 million years ago, in the Tertiary Period, tectonic pressure continued and began slowly to uplift the Colorado Plateau. The strata tilted to the northeast forming a southern barrier that made the Colorado Plateau area a huge continental basin without an outlet to an ocean. Ancestral rivers feeding this basin flowed west from the Rockies and east from the Sevier resulting in a lake setting for our Tertiary Colorado Plateau. Some of the sediments from this continental lake have escaped erosion and are visible in Desolation Canyon on the Green River.

Eventually the pressures moving the North American plate eased and the affected area began to spread apart (rift), much like the expanding bellows of an accordion. This spreading introduced magma to flow up into the sedimentary rock of the Colorado Plateau and hence, our Olig/Miocene laccolithic mountains, which too probably appeared as islands. Rifting was especially dominate west and south of the Plateau because this area does not seem to have the thick basement rock of the Precambrian crystalline structures as seen in the inner gorge of the Grand Canyon and Westwater Canyon. This area segmented and whole sections dropped (a graben) to form the Great Basin Province of Nevada and western Utah, and the Basin and Range Province of eastern California and southern Arizona; this occurrence left the Colorado Plateau at a higher elevation. Rifting also formed a large oceanic trench (Gulf of California) which opened up to about present-day Needles, California, and became the eventual destination point of the Colorado

River when the lake finally over-spilled the Colorado Plateau. That erosive point of discharge from the southern hingeline of the Colorado Plateau (Mogollon Rim/Grand Wash Cliffs) began canyon cutting and is better known as the process of *headward erosion*. However, it was hypothesized that discharge first occurred as a waterfall from an underground river in cavernous Paleozoic limestones and exited the hingeline escarpment as an upscale Vasey's Paradise or Thunder River (Grand Canyon tributaries).

### Conclusion

This particular study of the Colorado Plateau is yet to be fully determined. Part of the problem is that the technology is not advanced as the theory. It is difficult to probe into the deep, thermal, and resistant basement rocks of continental and oceanic plates. The other problem is that the uppermost rock evidence has forever been eroded away.

I propose that while Mr. Hunt was studying the formation of the laccolithic Henrys that the anomalies of the Colorado Plateau within his distant view, such as the Book/Roan Cliffs, the San Rafael Swell, the Waterpocket Fold, the Aquarius Plateau, the Circle Cliffs, the Kaiparowits Plateau, the Monument Upwarp, and all the other laccolithic mountains, inspired him to formulate his Cenozoic history of the Colorado Plateau. He took on a monumental task and deserves that special reward Mr. Peale spoke of.

### References:

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An Open Letter to the People  
Who Care About the Colorado River

by Bill Hedden, Vice-Chair,  
Grand County Council, Utah

The Grand County Council wants you to be aware of a very important issue that could seriously degrade the Colorado River system if it isn't properly handled. At stake is the ultimate disposal of 11,000,000 tons of radioactive uranium mill tailings sitting unprotected on the flood plain of the river.

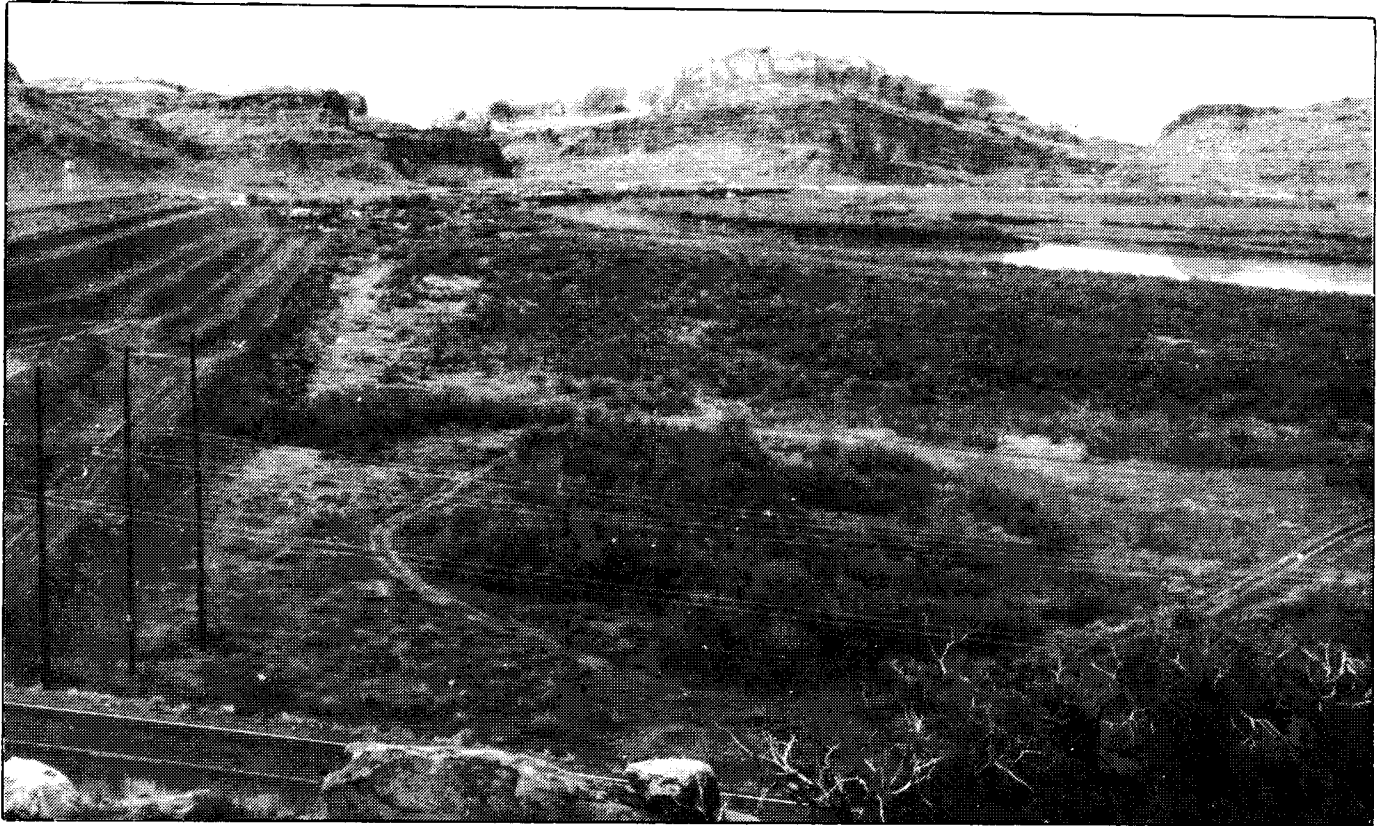
America's nuclear weapons and nuclear power industries have left a legacy of defunct or abandoned uranium mills along the shores of our Western rivers. Tailings piles at most of these sites have been leaking containments into the groundwater and the rivers, and dust from the piles has been blowing into nearby towns. As a result, Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA), which made the Department of Energy (DOE) responsible for the cleanup at sites where a responsible party could be identified.

The DOE has studied contamination at the orphaned sites and decided that every pile situated near a river and a population center had to be moved to a more suitable location. Thus, tailings in Lakeview, Gunnison, Rifle, and Grand Junction are all being moved away from the Colorado River or its tributaries.

At the same time, the Nuclear Regulatory Commission (NRC) is trying to decide how to deal with the huge pile located in Moab, Utah, and belonging to Atlas Mineral Company. It is the largest of all these tailing piles, and sits closer to the river than any of the ones being relocated. It was built on a wet alluvial fan formed where a major wash enters the Colorado River. Each Spring, the floodwaters of the river lap at the unlined base of the pile, and contaminants in the form of heavy metals and radioactive particles seep into the groundwater mere yards from the river. To complete the picture of this site, imagine that it is directly adjacent to Arches National Park, just upstream from Canyonlands National Park, and straight across the river from Utah's richest nature preserve.

In July 1993, the NRC released an environmental assessment (EA) and a draft "Finding of No Significant Impact" (FONSI) for a plan to cover the pile and leave it where it is forever. Their rationale for the decision appears to have been that the reclamation in place option was cheapest and most expedient for Atlas. NRC has opined that even a catastrophic failure that washed the whole pile into the river wouldn't be too bad because the tailings would end up buried in Lake Powell.

(continued on page 18)



The tailings pile at the Atlas Minerals uranium ore reduction plant in the flood plain of the Colorado River outside of Moab.  
Photo courtesy of Bill Hedden.



COLORADO PLATEAU RIVER GUIDES  
BYLAWS  
(as of April 1994)

ARTICLE I: NAME

SECTION 1. The organizational name shall be COLORADO PLATEAU RIVER GUIDES, hereinafter referred to as CPRG.

ARTICLE II: PURPOSE

SECTION 1. CPRG is organized for the following purposes:

- A. To define, promote, and protect the river ecology of the Colorado Plateau through stewardship.
- B. To effect changes in agency river management plans that are designed to improve the wilderness quality of the river experience.
- C. To provide a forum of communication that will encourage cooperation, professionalism, and a sense of community among river guides of the Colorado Plateau.
- D. To participate in studies and programs which will benefit the guides stewardship of the Colorado Plateau.
- E. To promote and provide a better understanding of the Colorado Plateau through the education of guides and the public. This will partly be accomplished by a publication called THE CONFLUENCE.

ARTICLE III: BOARD OF DIRECTORS

SECTION 1. The government of CPRG, the direction of its work, and the control of its property and records shall be vested in the Board of Directors, hereinafter called The Board. The Board shall consist of the President, Vice-President, Secretary-Treasurer, and four Directors. The Directors will serve Bluff, Green River, Vernal and Moab areas. No person may serve on The Board in more than one capacity simultaneously, except during a temporary vacancy.

SECTION 2. The Board shall meet prior to the Spring and Fall meetings and additionally as necessary. Special meetings of The Board may be called by the President or by the request of any two members of The Board with notification made within 10 days. At any properly called meeting of The Board, the presence of a majority of all its members shall constitute a quorum. Issues shall be determined by a majority vote.

SECTION 3. When questions arise which require action by The Board, the President may pool The Board individually by mail or telephone and shall be guided by a majority vote. The President and the Secretary-Treasurer shall keep a record of the voting.

SECTION 4. The resignation or vacancy of an Officer shall be temporarily filled by a Board member. At the Spring or Fall meeting (whichever comes first), the GUIDE membership shall nominate and elect a Board member to complete the term of office. The Guide membership shall also nominate and elect a Guide member to fill the vacancy of that Board member (election shall be held as per Article 5, Section 1).

SECTION 5. In matters of policy affecting CPRG, The Board may submit questionnaires to the GUIDE membership for approval or disapproval. The Board shall be guided accordingly.

SECTION 6. The Board shall authorize and define the powers and duties of all committees and their chairmen and make such appointments as necessary.

SECTION 7. The Board shall determine the yearly membership dues for CPRG.

ARTICLE IV: OFFICERS

SECTION 1. The officers of CPRG shall consist of a President, a Vice-President and a Secretary-Treasurer. They shall be members of The Board. They shall be members of CPRG with dues paid.

SECTION 2. The President shall preside at all CPRG meetings and perform all duties incident to this office.

SECTION 3. The Vice-President shall act in the absence of the President. In the absence of both the President and the Vice-President, The Board shall choose one of its members to act temporarily.

SECTION 4. The Secretary-Treasurer shall perform such duties as may be incident to said office, subject to the direction of The Board.

SECTION 5. At the expiration of their terms of office, outgoing Board members shall deliver to the new Board members all books, papers, records, and property pertinent to their offices.

ARTICLE V: ELECTION OF OFFICERS AND DIRECTORS

SECTION 1. Each odd year at the Fall meeting, an election for the President and two Directors (Bluff/Green River) shall be held. Each even year the election for the Vice-President and the two remaining Directors (Moab/Vernal) shall be held.

SECTION 2. The position of CPRG Secretary/Treasurer shall have no set term.

SECTION 3. Nominations for Officers and Directors shall come by absentee mail or from the floor at the Fall membership meeting and must have consent from the said Nominee. Candidates shall be GUIDE members.

SECTION 4. The term of each office shall be two years. New Officers shall take office after election at the Fall meeting. Only two consecutive terms shall be held in any one office, except the Secretary/Treasurer.

#### ARTICLE VI: MEMBERSHIP

SECTION 1. CPRG membership classification shall be:

A. **GUIDE.** To qualify for GUIDE membership, a person must now be or have in the past worked in the river guiding profession of the Colorado Plateau.

B. **GENERAL MEMBER.** Any person, business, or organization having interest in river running in the Colorado Plateau and who subscribes to the purposes of CPRG (ARTICLE II) may apply to become a GENERAL member.

C. **AFFILIATE.** CPRG may choose to affiliate itself with other organizations whose purpose are in keeping with its own.

D. **HONORARY MEMBER.** The title of HONORARY MEMBER may be conferred by The Board upon individuals who have contributed in an exceptional manner to CPRG, its interests and objectives (ARTICLE II), or who have made significant contributions to river running in the Colorado Plateau. HONORARY members shall be nominated and approved by a majority vote of the GUIDE members.

SECTION 2. Membership applications shall be presented to the CPRG Secretary-Treasurer. The application shall include membership classification and a statement of the applicants qualifications and experience. The Board shall designate the form and type of information desired.

SECTION 3. Each individual GUIDE shall have one vote. Only GUIDES whose dues are current may vote in elections for CPRG officers or for other CPRG business which requires the voting process.

SECTION 4. Expulsion from membership shall require the motion of a least five GUIDES at a membership meeting and a majority vote shall be required from The Board. Notification of intent to call for expulsion will be made to the GUIDE membership at least 30 days prior to the meeting at which such action is planned.

SECTION 5. Expulsion from The Board shall require the motion of at least five GUIDES at a membership meeting and a majority vote shall be required from The Board. Notification of intent to call for expulsion will be made to the GUIDE membership at least 30 days prior to the meeting at which such action is planned.

#### ARTICLE VII: MEETINGS

SECTION 1. The annual membership meeting shall be held each year in the Fall, at a time and place designated by The Board. Notice of the annual meeting shall be given at least 30 days prior to the meeting. The agenda for the Fall meeting will include the election of Board Members.

SECTION 2. A semi-annual membership meeting shall also be held each year in the Spring, at a time and place designated by The Board. Notice of the Spring meeting shall be given at least 30 days prior to the meeting.

SECTION 3. Additional membership meetings may be called by The Board at times and places designated by them.

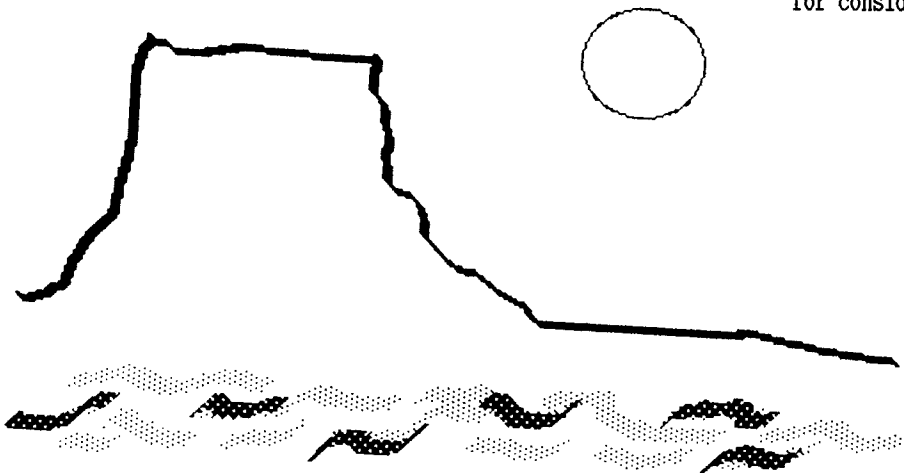
SECTION 4. The GUIDES present at any membership meeting shall constitute a quorum, provided that written notice of the meeting shall have been mailed to the entire GUIDE membership at least 30 days prior to the meeting.

SECTION 5. Election for The Board and the passing of resolutions will be held at the Fall meeting. Absentee ballots by mail from GUIDE members will be accepted if received before the Fall meeting is convened.

SECTION 6. The Board shall hold meetings in conjunction with but prior to membership meetings to draft resolutions for consideration at the meetings.

#### ARTICLE VIII: REVISIONS

SECTION 1. These by-laws may be amended or revised by a two-thirds majority from the GUIDE members, provided that the entire CPRG GUIDE membership is notified by mail at least 30 days prior to the meeting where bylaw amendment or revision is on the agenda.



(continued from page 15 )

This brought a storm of protest from the Environmental Protection Agency, State of Utah, National Park Service, and the Grand County Council, who all pointed out that the plan met none of the UMTRCA reclamation objectives (i.e. long-term geophysical isolation from the environment without the need for ongoing maintenance) as well as one of the alternatives did. At the insistence of Senator Orrin Hatch, the NRC withdrew the FONSI and agreed to write a full Environmental Impact Statement (EIS).

The process of preparing that document is now underway, and we urge you to become involved. The scoping hearings ended in mid-May, and NRC expects to have a draft ready for internal circulation by mid-July. A public draft is due out in late September. These short time frames are possible because no new information is being generated. Moving the pile is not being seriously considered. NRC is simply going through the motions of writing a document because they have been forced to do so. As Grand County stated in its scoping response, "our comments are aimed at reminding you (NRC) of the difference between a real sham, in which well developed alternatives are honestly compared; and a public relations sham, in which time and money are wasted justifying a decision made before the process ever began". To be placed on the EIS mailing list and to receive copies of the 1993 EA and/or the EIS Scoping Comments write:

Allan Mullins  
Office of Nuclear Material Safety and Safeguards  
Washington, D.C. 20555  
(301) 415-6693

## Uranium Ore Reduction in Grand County

by John Weisheit

The uranium ore reduction plant outside of Moab was started by Charles Steen's company called UTEX (Utah/Texas) Exploration Company with his lawyer/partner Mitchell Melich. They formed a partnership with Melich's father-in-law E. H. Synder, the president of Combined Metals Reduction Company. This partnership formed a company called the Uranium Reduction Company (URECO).

The method chosen to reduce uranium ore was a resin-in-pulp process that was originally piloted by the Atomic Energy Commission (AEC). Raw ore was first crushed to size and acid-leached into an unfiltered slurry. Tapioca-sized beads of resin in wire-mesh baskets were slowly agitated in a flowing stream of uranium-bearing pulp. The beads became coated with uranium through ion-exchange and then the uranium was stripped from the resins in a chemical bath. With this method, Ureco hoped to handle 1500 tons of ore per day. The necessary permit for the building of the mill was granted by the AEC.

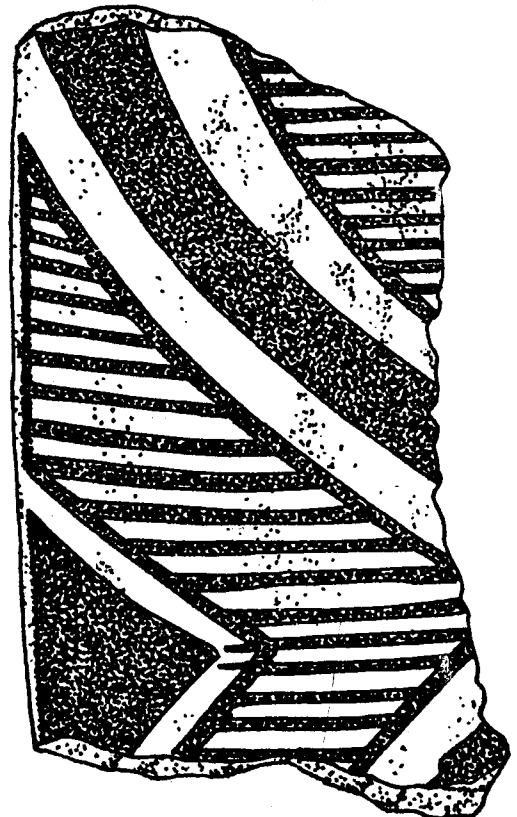
The construction company to build the facility was Foley Brothers Incorporated. Foley was associated with the investment bankers of Kuhn and Loeb and Company. This company agreed to set up the initial financing. Steen and Melich successfully borrowed \$3,500,000 from the Chemical Bank of New York. They sold their first mortgage bonds for \$6,200,000 to New York Life Insurance Company. Another \$2,300,000 was generated from private investors and stockholders. To satisfy investors, The American Lead, Zinc and Smelting Company was contracted to manage the construction and operation of the plant.

During this time a company called the Atlas Corporation, headed by Floyd Odum, was negotiating with the AEC for a reduction plant in La Sal, Utah. The competitive threat was sufficient for Steen and Melich to sell 30% of Ureco stock to the Atlas Corporation to complete the last hurdle to construction.

The land for the plant was purchased at \$40,000 from local farmers (see front cover photo). Groundbreaking for the plant occurred in June of 1955. Dedication for the Ureco facility occurred on September 14, 1957. In 1962, Steen and his partners agreed to sell 85% of Ureco stock for \$12,890,000 to the Atlas Corporation.

Demand for uranium oxide dropped when the federal government stockpiled enough concentrate to satisfy their defense objectives. Also, due to the construction costs needed to meet revised federal standards for the safe operation of nuclear power plants, no building permits have been issued since 1978. The price per pound for concentrate dropped from \$43 dollars to \$17. The Atlas Corporation closed their mines and the reduction mill in 1984.

Reference: Ringholz, Raye C. 1991. Uranium Frenzy. University of New Mexico Press. 310 pp.



From the United States Fish and  
Wildlife Service

Recovery Programs for the  
Endangered Fishes of the Upper  
Colorado River

Hatcheries, Fish Ladder Top Endangered Fish Recovery List

An endangered fish hatchery could be constructed in Colorado and two existing facilities in Utah expanded, following decisions made Sept. 8, in Denver by managers of a multi-agency program to recover rare Colorado River fish.

The Implementation Committee of the Recovery Program for Endangered Fish of the Colorado River Basin approved a 1995 budget authorizing \$600,000 for construction of 20 to 30 additional holding ponds at an existing hatchery near Vernal, Utah. The committee approved another \$300,000 for developing designs for a proposed new hatchery in Craig, Colo., and for possible expansion of the Wahweap State Fish Hatchery at Big Water, Utah, near the Arizona border.

"The Craig City Council is pleased that we may be able to help recover the fish," said Don Birkner, city manager of Craig. "In the long run, we also hope that the hatchery could provide information and education for the public and become a tourist attraction."

Outdoor ponds constructed at Craig and the other sites would be used to raise endangered fish for future stocking efforts or for use in fields studies. Endangered fish from the wild could be held in these protected settings, preventing them from becoming extinct if there were some type of disaster in the river or in another hatchery.

In 1995, biologists and engineers planning the Craig facility will finalize the proposed hatchery design, acquire necessary permits and complete requirements of the National Environmental Policy Act. Construction would start in 1996 and be completed in 1997.

"Constructing these ponds is one of the several actions in the Recovery Program's 1995 work plan that will provide direct and tangible benefits for endangered fish," said John Hamill, a U.S. Fish and Wildlife Service biologist who directs the Recovery Program.

Currently, there are two endangered fish hatcheries in the upper Colorado River Basin: one at the Ouray National Wildlife Refuge near Vernal, Utah, and one at Horsethief Canyon State Wildlife Area near Fruita, Colo. Two other sites under temporary use are the state Fish Research Hatchery in Bellevue, Colo., and a national hatchery in Valley City, S.D. Available space in these facilities totals six acres. Biologists say another 20 acres are needed if all four fish species -- razorback suckers, bonytail chubs, humpback chubs and Colorado squawfish -- are

to be maintained in separate ponds according to species, size and genetic background.

Other projects approved for 1995 include the following:  
1) Construction is scheduled to start in spring 1995 on a fish ladder at Redlands Diversion Dam on the Gunnison River in southwest Colorado, following completion and public review of environmental documents to comply with the National Environmental Policy Act. The diversion dam has blocked upstream fish passage since the turn of the century. A ladder will give the fish access to more than 50 miles of their historic range. The project would be completed by 1996 at a total cost of about \$1 million.  
2) The Colorado River Water Conservation District will develop a plan for protecting Yampa River flows for endangered fish while also providing water for human needs. Current plans call for accomplishing this by expanding Elkhead Reservoir. This reservoir is located on the Elkhead River upstream of endangered fish habitat and therefore could be used to store additional water without directly impacting the fish.

The total 1995 Recovery Program budget is \$8.5 million. More than half of that amount will pay for capital projects such as hatchery expansions, construction of the Redlands fish ladder and restoration of wetlands needed by young endangered fish.

"Costs associated with these projects are expensive, but should be considered in context of the billions of dollars spent altering the river to construct water projects for human needs," Recovery Program Director Hamill said. "Many of these projects were done without consideration for their effects on native fish and wildlife. We are now trying to reverse some of those developments today."

Once abundant in the Colorado River Basin, the four species of endangered fish are now at the risk of extinction, because of habitat changes caused primarily by construction of dams and introductions of exotic fish. Biologists believe the decline in native fish is an indicator of the overall health of the river environment.

U.S. Fish and Wildlife Service  
Connie Young  
P.O. Box 25486  
Denver Federal Center  
Denver, CO 80225  
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Question: Should you dump food scraps into the river?

Answer: No! It is a violation of prescribed river management plans and encourages the exotic fish population.

So: You brought the food into the canyon - you should take it out.

## Information and News

### Professional River Guides of West Virginia

Professional River Guides of West Virginia (PRGWV) has contacted CPRG in order to create a dialogue of communication with the professional guides who work in the West. If you would like more information on PRGWV or care to join the organization, please write to:

Contact: Charley Friddell  
Professional River Guides of West Virginia  
P.O. Box 281  
Fayetteville, WV 25840-0281

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### New Book!

Luna Leopold is a geologist and civil engineering known for his studies in fluvial processes and geomorphology. He has been a member of the United States Geological Survey and of the National Academy of Sciences. While a doctoral student at Harvard, Luna Leopold edited the draft essays of his father, Aldo Leopold, and published *A Sand County Almanac*.

His new book, *A View of the River*, is a must read for anybody associated with the river industry. The book is 298 pages with charts, graphs and photos.

Luna B. Leopold. Harvard University Press, 1994. \$39.95 plus \$3.50 postage and shipping; Customer Service Dept., Harvard University Press, Cambridge, Mass. 02138 (800) 448-2242.

### Friends of the Animas River

Friends of the Animas River is a spirited group committed to the environmental well-being of the Animas River, its watershed and riparian zones. It dispenses information through a newsletter and facilitates discourse with the various agencies. General membership is \$25.00.

Contact: Friends of the Animas River  
P.O. Box 3685  
Durango, Co 81301  
(303) 259-3209

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### Colorado Rivers Alliance is Formed

After six months of research, consultation and assessment, and with the support and cooperation of River Network and the Colorado White Water Association, Colorado Rivers Alliance was founded March 1, 1994.

Colorado Rivers Alliance pledges to protect, restore, and enhance the natural character and responsible enjoyment of the rivers in the state of Colorado, through communication, cooperation and policy.

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Colorado Rivers Alliance  
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From: Colorado Plateau River Guides  
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