

boatman's quarterly review

# JACK FUSS

AND THE  
GREAT KAIBAB DEER DRIVE

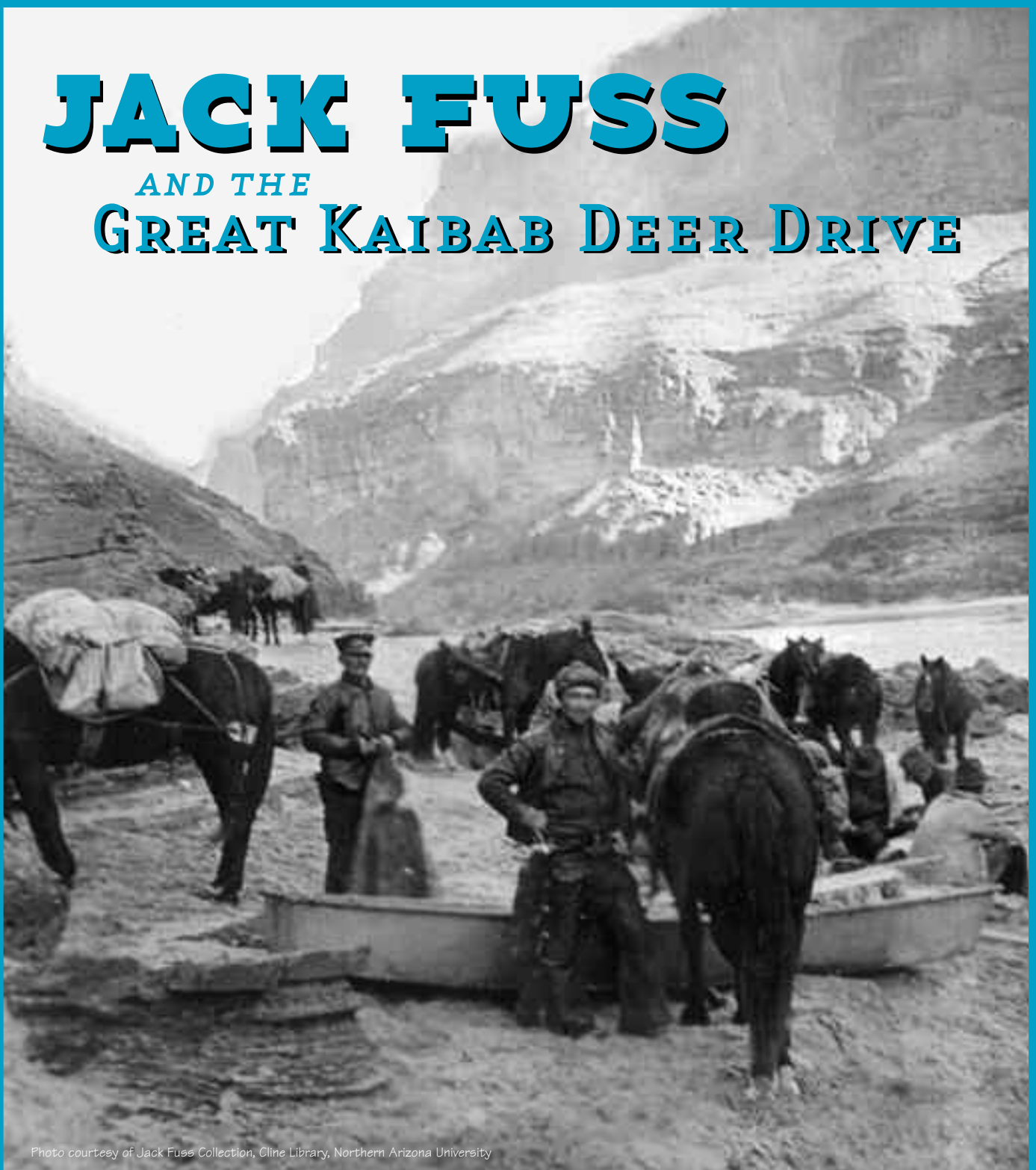


Photo courtesy of Jack Fuss Collection, Cline Library, Northern Arizona University

At the horse crossing near mile 66. Jack Fuss in center. Story on page 16.

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## boatman's quarterly review

...is published more or less quarterly  
by and for GRAND CANYON RIVER GUIDES.

GRAND CANYON RIVER GUIDES  
is a nonprofit organization dedicated to

*Protecting Grand Canyon*  
*Setting the highest standards for the river profession*  
*Celebrating the unique spirit of the river community*  
*Providing the best possible river experience*

General Meetings are held each Spring and Fall. Our Board of Directors Meetings are generally held the first Wednesday of each month. All innocent bystanders are urged to attend. Call for details.

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Our editorial policy, such as it is: provide an open forum. We need articles, poetry, stories, drawings, photos, opinions, suggestions, gripes, comics, etc. Opinions expressed are not necessarily those of Grand Canyon River Guides, Inc.

Written submissions should be less than 1500 words and, if possible, be sent on a computer disk, PC or MAC format; Microsoft Word files are best but we can translate most programs. Include postpaid return envelope if you want your disk or submission returned.

Deadlines for submissions are the 1st of February, May, August and November. Thanks.  
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## Prez Blurb

"April is the cruelest month..." —T.S. Eliot  
(1888-1965). *The Waste Land*. 1922.

**I**N APRIL THIS YEAR, we learned of the passing of Derald Stewart, Don Harris, and George Steck. Derald was a boatman and boat-builder from Durango. If you saw a Grand Canyon Expeditions dory trip, you might have seen Derald, rowing a dory he built. Don Harris was truly one of the founding fathers of Grand Canyon river-running. And George, George was just at the Guides Training Seminar, giving a great presentation on his friend Robert Benson, and way, way off-trail hiking in the Grand Canyon. George was supposed to go on the river part of the GTS, but had to cancel in order to return to Albuquerque for some medical treatment. Each of them are further remembered in this issue of the BQR.

The building and testing of a Temperature Control Device (TCD) for Glen Canyon Dam is being studied. The Bureau of Reclamation (BOR) is asking for comments, i.e. what should they consider as potential impacts of a TCD? We are asking them to consider if bringing the water from the near-surface will bring anything new into the canyon (exotic species or diseases), and whether the warmer water will do more harm than good to the Humpback Chub. I don't know the answers to these questions, and I don't think anyone on the board does, but we think the Bureau needs to be sure of the answers before building the TCD. Our comments to the BOR are in this issue.

Colorado River Management Plan (crmp) reminder—the Draft EIS will be released later this summer. When it is available, you need to make sure you get a copy of the draft, or at least the executive summary. Read it, make sure you know what will change and what will stay the same, and then make sure you comment, even if you think the new plan is perfect (how likely is that?). If the Park hits the nail right on the head, you'd better write and tell them "they've done good," because no matter what they come up with, plenty of folks are going to complain or try to get it changed.

The National Park Service needs to hear what you know. Most folks in the Park Service haven't been down the river as many times as you have. Most folks in the Park Service haven't seen the number of people get turned on to the Canyon for life that you have. Most folks in the Park Service haven't spent a week, or two weeks, or three weeks with the public in the Canyon, time and time again.

GCRG has requested the Park Service make available enough summaries for every trip launching from Lees

Ferry. There will probably be public meetings in Flagstaff this summer and maybe in Page and Kanab. GCRG requested them. We are trying to make it as easy as possible for guides to take part; we know it won't be easy, with schedules and being away from phones and mail for weeks at a time. Your outfitters should have multiple copies of the draft. I recommend taking one on each trip and getting the passengers involved. They, and people like them, have a huge stake in the outcome as well.

As a board, we are still working with Grand Canyon National Park in discussing and exploring First Aid requirements. We've asked the folks at the South Rim to explain a little about "Medical Control," what it is, and whether or not we have it. Their response is in this issue.

In a nutshell, I think the Park's goals for river trips and GCRG's goals for river trips are the same:

1. no one gets hurt
2. protect the Grand Canyon
3. have a good time.

The NPS combines the second and third in the following: "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

So while we have the same goals, we haven't quite agreed on the best way to arrive at them. But we're working on it. We're looking forward to a mutually agreed-upon solution that prevents or reduces injuries, provides injured parties with the best possible care, and allows experienced guides to remain working and pass on the benefits of their experience, to passengers and fellow guides alike. That's a lot. Maybe that is why it is taking a while.

Speaking of preventing or reducing injuries, GCRG is still trying to get information on river-related incidents. The last few years we've had some verbal reports at the GTS or the Fall meeting, but we've been unable to get any documentation. Apparently the *Grand Canyon News* in Williams, Arizona gets the Ranger Report every week by email. Although we requested it six months ago, we have still not been placed on the list. We heard that there were 74 evacuations from river trips last season. I know I only heard about a fraction of those, and only then through the grapevine, or from reading the *Grand Canyon News*. Of those 74 cases, I believe I was told there were only a few cases of dehydration, and no cases of hyponatremia. I think that speaks to what the guides can do in preventing injury or illness—if we have the information. If the guides knew what those 74 cases were, where they happened, when they happened, and why they happened, I would bet there would be fewer evacuations next season. How many fewer, I can't say. But each time an injury is prevented, the pilot and the

Emergency Medical Service folks don't have to fly, and that's a good thing. And that means a river trip can be going on a hike, or having an early camp, or taking a nap at "MatKat," instead of filling out "SOAP" notes on a sunny beach and shooing red ants off someone on a backboard. That seems like a positive goal, and one worth working hard to try to meet. So GCRG is going to work hard to try and get that information, disseminate it, and reduce injuries, because we like to go hiking, and we like to get to camp early, and we don't want to be that person on the backboard, either.

What ties all of this together? I don't know, maybe nothing. Or maybe it is the battle against complacency. We're losing more friends each year. We can't afford to say, "Ah, I'll see them next trip, next season, next year." Maybe you won't. This season, make the effort to see your old friends, and make some new ones. Walk across the ramp at Lees, or across five boats at Havasu, or across twenty boats at Deer Creek, to say hello. Make the effort to let the Park know what *you* think about the CRMP. Make the effort to let the GCRG Board know what you think about what we're trying to do. Make the effort to participate in GCRG. Join us, run for the Board, or just come to the meetings and tell us what you think. Every time you do something extra, something beyond just what you need to do, you get more out of it than whoever or whatever you're helping. You've seen it on every river trip you've ever been on. The people who get the most out of the trip are the ones that pitch in and make it their trip. And that is the battle against complacency, against just doing enough to get by.

And it's also the best way to prevent injuries, to protect the Grand Canyon, and to have a good time. I hope I see you on the river this season.

John O

## CRMP Delayed!!

THE DRAFT ENVIRONMENTAL Impact Statement (EIS) of the Colorado River Management Plan (CRMP) has been pushed back to late July and will be followed by a 90 day comment period. Previously the plan was expected to be released in May after an earlier postponement. For extensive information about the CRMP and to keep updated on the timing of the Draft EIS, check out the crmp website at [www.nps.gov/grca/crmp](http://www.nps.gov/grca/crmp).

## Announcements

### LOST

I lost a ring at the Zoroaster camp (on the left above Zoroaster rapid, river mile 84.5 left) during the evening of April 4, 2004. The ring was a Hopi-made (Hopi overlay?) ring with a snake in the middle and I recall a feather prayer mound on one side. It was wider on the front/top where the snake figure is and tapered a little to the bottom/back of the ring. The inscription on the inside reads "RK"—the person that made the ring. It fits my ring finger so maybe a size 7.

I think the ring was lost somewhere in the lower end of the camp—between where you tie up the boats to around the mid-camp area.

Please contact me if the ring is found. I would greatly appreciate it:

Nikolle Brown  
728 W. Sussex Way  
Fresno, CA 93705  
black-catnik@att.net  
559/226-7762  
559/288-5454 cell

### AVAILABLE TO CAFFEINE ADDICTS

Toucanet Coffe, the "official coffee of the GTS", is available to guides, outfitters and GCRG members at a discount on bulk orders. This organic, shade grown, certified bird-friendly coffee is roasted and sold by our resident Grand Canyon bird studier, Helen Yard. Shade grown coffee is grown under an overstory of trees which provide habitat for thousands of wintering migrant and permanent resident birds. Non-shade grown coffees are grown on plantations where the overstory has been clear cut. Twenty-five cents per pound of coffee sold is donated to continue bird research and to support traditional coffee plantations.

For more information or to purchase coffe contact:  
Helen Yard  
Toucanet Coffee  
928/779-1856



### FOR SALE

Grand Canyon ready, Briggs-style dory, okume composite construction with cherry and teak gunwales. Ready to float. Call Marty @ 970/963-0463 or email blueskywood@sopris.net.

## Buy Factor Fiction and Support GCRG

A RECENTLY RELEASED two-CD set of songs sung by the late Kenton "Factor" Grua is available from GCRG. If you ever had the chance to hear Factor sing around the campfire on the river you'll appreciate the familiarity of his style. If you didn't, but wish you had, this set is for you. Besides, all proceeds from the CDs are generously being donated to GCRG by Michelle Grua.

Volume One/Love Songs and Volume Two/River Songs contain songs written by Van Morrison, John Prine, Kate Wolf, Katie Lee, Randy Newman, Steve Goodman, the Indigo Girls and others. (Sadly missing is an unforgettable rendition of "Wild Thing," sung with gusto by the Factor around midnight at Mile 242, while everyone else was sleeping...)

This two-CD set, Factor Fiction, is \$12, payable to GCRG, and includes shipping and handling.



## Exciting New Partnerships at Grand Canyon Youth

THE GRAND CANYON YOUTH program season is off to a roaring start. By May 1st we had launched 5 Lower Grand Canyon Programs serving 74 youth participants and their teachers. We are pleased to announce 3 new partnerships happening at Grand Canyon Youth. We've teamed up with Youth Volunteer Corps, a non-profit agency that leads youth through the service learning process, helping them to plan monthly service projects in the Flagstaff area. GCY is also working with Willow Bend Environmental Education Center, also in Flagstaff. This partnership will help GCY to further improve the experiential element of our program before, during and after the trip.

Another exciting partnership is with the Grand Canyon Monitoring & Research Center (gcmrc) a division of the U.S. Geological Survey. This collaborative project involves youth working with gcmrc scientists verifying, documenting and inventorying geo-referenced control points along the Colorado River through Grand Canyon. This project provides the youth with the experience of collecting valuable field data in support of gcmrc research. Our hope is that this mutually beneficial project will both inspire some youth to pursue higher education in the sciences as well as to provide an opportunity for youth to complete a meaningful service project while on the river. Forty youth from across Northern Arizona and other parts of the west will have the opportunity to go on these trips. Both agencies are thrilled about the potential of these trips.

### A BIG THANK YOU

Grand Canyon Youth's 4th Annual Art Auction & River Runner Film Festival on April 4, 2004 was a big success. Over 250 folks attended and bid on a plethora of beautiful artwork and ate the delicious food provided by Mosey's Kitchen, enjoyed live music from Tom Sheeley's guitar, and four great films. Overall, it was a truly wonderful evening! Thank you to all of the artists, donors, & super volunteers who helped make the evening a success. As a non-profit organization, Grand Canyon Youth relies in large part on the support of the community. Thanks again!

### HELP IS ALWAYS WELCOME

Our list of licensed guides interested in working with GCY is growing, so if you have an interest in being a guide on a Grand Canyon Youth trip, please call or email the office. The guides this year have been an asset to our program. We have "Guide Packets" available at the GCY office. These packets include GCY brochures, a sticker and key information about Grand Canyon Youth in them. So, if you have a passenger who might be interested in supporting youth programs on the river, you will be prepared to give them a brochure to take with them.

We are always in need of enthusiastic volunteers and youth interested in going on the river. Thanks for spreading the word about our small but powerful organization. For information or questions, call Emma Wharton at (928)773-7921 or email [info@gcyouth.org](mailto:info@gcyouth.org). Our website, [www.gcyouth.org](http://www.gcyouth.org) is updated frequently.

*Emma Wharton*

## Want to Work With Kids?

WE HERE AT GRAND CANYON YOUTH are looking to compile a comprehensive list of guides who like working with kids and are willing to be contacted, sometimes on the spur of the moment, to do our trips...

We mostly need guides in the spring, so it works out well to supplement your income before your commercial seasons begin.

Please contact Emma Wharton, our Executive Director, at the office at 928-773-7921 or by e-mail [info@gcyouth.org](mailto:info@gcyouth.org).

## Dear Eddy

GREETINGS FROM A GCRG member (temporarily exiled to the urban wilds of North Carolina). I just received the latest BQR and wanted to let you all know how much I enjoyed Gaylord Staveley's article about Norm Nevills. For a long, long while I pored over the entire story, savoring the descriptions of canyon and river. I studied the accompanying photographs and completely lost myself in the images that contained, in their backgrounds, the familiar landscape of southern Utah.

It has been determined that I will never make a good southerner, and so I'll return home permanently to Flagstaff, where I belong, this summer. But the Nevills article allowed me, for a little while, to escape to my beloved Southwest. That was a much needed break. Many thanks.

*Robyn Slayton*

# Farewells

DERALD STEWART

THEY WERE AT THE Pearce Ferry take-out, ending a private Grand Canyon trip, mid-1980s. He had watched the dories run Lava Falls a few days back and was now de-rigging together. Derald approached Jane Whelan, manager at the time for Martin Litton's Grand Canyon Dorries and asked, "So, what does it take to row for you guys?" She eyed him and his funky, UDISCO raft and replied, "You don't have what it takes!"

A dear friend and I were sitting on the banks of the Dolores River, sipping single malt and telling Derald stories. It was the day we'd found out the news about Derald's sudden passing and it hit us all hard, like a boat's bowpost striking a rock. Unbelievable and hard to accept, especially for a guy who was fitter than most and way too young. Damn...another familiar story happening around us with more frequency. Is it in the water? Ozone? Age? Regardless of reason, Derald has joined a growing number of boatmen angels...up there...on that...Other River. We sat, watching the current and eddies swirl as the stories spilled out like smoky spirits from a bottle.

"Well, Derald rose to that challenge," I continued with the story. It wasn't long before he'd built his own wooden dory and had rowed a baggage boat or two training for Martin's dories. By his fourth or fifth trip through Grand Canyon he, by god, did have what it took; rowing one of those dreamboats, fulfilling another dream.

Derald Stewart was like that in his approach to life, taking on loves and interests—one hundred and ten percent in full pursuit and not backing down. From his falling in love with the west and leaving his childhood in Atlanta to taking on new pursuits of raising a family to jobs, sports, etc., he definitely wasn't one to waste time. He, no doubt passed away contented with all of his accomplishments and completed goals.

Among his accomplishments and goals, besides being a father, were salesman, mechanic, boatman, boat-builder, carpenter, arborist, pilot, skier, bike racer (pedal & motor), open (whitewater) canoeing, backhoe operator, welder...and I could go on. Like many Grand Canyon boatman, he chose an alternative means to measure success in this life we're given, and he moved on with an impressive, "jack of all trades" resumé in this regard.

Derald was introduced to Grand Canyon by his soon-to-be second wife, Jan Yost, on a backpacking trip and after catching a ride with a motor trip downstream to another trail, he was bitten by the whitewater bug. Since he had been around boats and water most of his life, his learning curve was short in his newfound joy, and he soon borrowed a raft to row the canyon. He learned about dories and construction working with Milt Wiley of Durango and by talking/working with Martin's dory boatman. This led to his first wooden boat, *Canyon Wren*,

and he subsequently used it commercially. Next followed his small business of building boats, mostly dories for commercial and private use. He named his company Cañonita Dorries and it cranked out well over fifty boats over the years, not counting repairs, and earned the nickname Dr. Dory around Durango. He assisted Grand Canyon Expeditions in putting together their budding dory program and continued to row trips for over twelve seasons. Regarding rowing, Dr. Dory absolutely loved the art of "pulling on the sticks," and the way those hard-hulled boats responded to those strokes. One of Derald's favorite trips through the canyon, of which he did several, was an eight-day, private, rowing trip. If he liked rowing the flat water, he for sure loved the rapids, and all that rowing was a quicker means of getting to the next stretch of whitewater.



Photo by C.C. Lockwood

I, along with many folks, will remember Derald as an innovator, athlete, cowboy philosopher, leader, builder, competitor, and probably most of all—a lover of life. And—cooking for a group of passengers?—let’s just say he excelled in making a gourmet pot of beans! He latched onto the philosophy that a river trip was an “expedition not a holiday,” and most folks enjoyed his tongue-in-cheek, “John Wayne”-approach and humor. His world-class “Robert Duval” moustache could not hide a grin or that twinkle in his eye.

Derald loved Bob Dylan’s lyrics and music and he had most of Dylan’s art collected on vinyl. I recall helping him in his boat shop with the turntable spinning the album “Desire,” cranked to nine and Dr. “D” singing at the top of his lungs. I guess he related to Dylan’s philosophy and approach to life; the mystery, the romance, the everyday, talking/tangled blues of...it all.

*For Donna...*

*A river in time where dreams become life  
Where the canyon lives below the stars  
Stirring the heart and a man loves his wife.*

*His passion for the canyon and the history of the dory  
Converts him to a craftsman, a master builder.  
Only one page of this quiet giants amazing story.*

*He loved, he struggled, he was tireless and he cried.  
He was sensitive to nature, to people and to his God.  
And he was happy, so happy right up until the moment he died.*

*A river in time where dreams become life.  
Where the canyon lives below the stars,  
Stirring the heart and a man loves his wife.*

*He married Lesley and Janet they touched him so true.  
He was blessed with sons George and Gerry.  
But when Janet died...he didn’t know what to do.*

*Bob and Karen and other family and friends would try.  
They called, they wrote, they helped rescue him.  
And then he got up, got cleaned up, and held his head high.*

*A river in time where dreams become life.  
Where the canyon lives below the stars,  
Stirring the heart and a man loves his wife.*

*Donna had waited for nearly ten years to find joy.  
And then came along this wonderful man named Derald.  
And she became a little girl again and he a little boy.*

Dr. Dory lives on with his spirit’s torch being carried by his many pards, on and off the river, his beautiful new bride Donna, his sons George and Gerry and his families, both east and west. And there’s plenty of gaily-painted boats floating rivers out there with his signature on them as living art. I’ll always remember him most, probably at Lava Falls, though. This rapid, this place seemed to be the culmination of what river life was all about for him—the ultimate metaphor for “why we’re here.” Are we always “above Lava?” For Derald it may very well have been...some-where in the middle, crashing through the V-Wave, oars tucked. This is where he liked it best, in the meat of it all. We’ll see ya’ there, pard! Adios amigo!

*Andy Hutchinson*

*They built a home, they built a life, they found unconditional love.  
They raced, they ran, they were athletes that would not compete.  
They would love every second together and fit like a hand in a glove.*

*A river in time where dreams become life.  
Where the canyon lives below the stars,  
Stirring the heart and a man loves his wife.*

*Their life together was cut short by the standards of man.  
But every second brought them a lifetime of joy.  
And their love lives on forever as part of God’s plan.*

*He loves his God, he loves his church, he loves his new life.  
He was baptized and married and shared potluck with friends.  
A new day in the life...and he was complete thanks to Donna his wife.*

*His heart has been transplanted to give some one the gift of life.  
As family and friends gather from all over to celebrate.  
Gerry is now the Stewart man, and his Dad is so proud, as is Donna his wife.*

*A river in time where dreams become life.  
Where the canyon lives below the stars,  
Stirring the heart and a man loves his wife and his sons...for eternity.*

*David Brower  
(read at Derald’s service)*

IN A BUSINESS where most boatmen are associated with one type of boat and one era, Don Harris ran them all—wooden cataract boats, rafts, fiberglass speedboats, and motor rigs—and he ran them for over half a century. In an occupation filled with egos, boasts, and ballyhoo, Don Harris is the one man whom everyone liked, everyone admired, and everyone looked up to. He was a friend to all and never never said a bad word about a soul. He was a boatman's boatman. Moreover, he was a gentleman's gentleman.

LaPhene "Don"

Harris was born in Soda Springs, Idaho in 1911. He grew up working on the family farm, then headed down to Utah and studied engineering in college. Upon graduation he picked up a job with the United States Geological Survey in Green River, Utah, and by 1937 had been transferred to the tiny

outpost of Mexican Hat. Prominent among the handful of residents was Norman Nevills, the aspiring river runner. A few San Juan River trips with Nevills whetted Harris's appetite enough to agree to help Nevills build a new fleet of Cataract boats and row one of them down the Colorado in 1938. In return for his efforts, Harris earned custody of one of the boats, the *Mexican Hat*.

After a laborious passage of Cataract, portaging and lining along the rocky shore, the Nevills group arrived at Lees Ferry several days late with growing friction in the group. Not wanting to risk losing his USGS job in those post-depression years, Harris decided to leave the trip and return to work.

The following year Harris met Bert Loper in Salt Lake City. Loper had been running rivers since 1893, but like Harris, had been frustrated by failed chances to run Grand Canyon. They agreed to join forces and run it in honor of Loper's upcoming 70th birthday. At Badger Creek Harris asked Loper if he thought they could run it. "Of course we can run it," answered Loper. "It's just a matter of *how* we're going to run it." From that day on Harris never asked *if* they could run a rapid, he just asked *how*. Harris rarely lined or portaged again.

Loper and Harris had a fabulous trip, running every

rapid, and agreed to do it again in ten years for Loper's eightieth birthday. In the intervening years the two men ran several more trips together. In 1940 they rowed from the Green River Lakes to Green River, Utah—the only known group to do so before Flaming Gorge Dam. They ran Cataract Canyon together; they ran the Yampa. Harris soon found more river partners. Jack Brennan, a

postal employee, answered Harris and Loper's ad in the *Salt Lake Tribune* for someone to share the expenses of a Cataract Canyon trip. Brennan, too, fell in love with the rivers, built a Cataract boat called the *Loper*, and went into partnership with Harris, running a few trips each year in their vacation time. In 1949, Loper and Harris launched on their tenth anniversary trip on Grand Canyon. On the second afternoon, Loper disappeared into the waves of 24-1/2-Mile Rapid and an era of old-

school boating came to an end.

In 1953 Dock Marston invited Harris on a scouting trip for Disney's *Ten Who Dared* movie—based on the Powell expedition. Harris piloted an aluminum speed-

boat, and was so smitten with it that he and Jack Brennan soon bought twin fifteen-foot fiberglass motor-boats for their fleet. They

decked them over for whitewater use and ran trips throughout the West for the next fifteen years. At a Guides Training Seminar about ten years ago, Harris



Lois Jotter and boatman Don Harris.  
Photo courtesy Don Harris Collection



Photo courtesy Don Harris Collection





Harris and Loper; 100 years of boating  
Photo courtesy Don Harris Collection

showed a film of himself running his speedboat through Lava on the 1957 flood of well over 100,000 cfs. As the tiny boat disappeared into the maw of Lava, Harris calmly said, “We’re getting down into the fuzzy part now.” The disconnect between this gentle, quiet,

diminutive man and the maniacal boatman in the film was, to say the least, striking.

By the mid-1960s, Harris had seen the advantages of the large pontoon boats and purchased two. After retiring from the USGS, he and his second wife Mary began running full seasons, building a small business out of his former hobby. But a 1972 car crash damaged his left arm enough that he retired from commercial boating. He passed his business on to his son Alan and Alan’s partner Dave Kloepfer. Don continued to run his own boat on private trips for another decade. Don’s last river trip was in 1992, and fittingly was on the San Juan—the river that his old mentor Bert Loper had begun his boating on one hundred years before.

With Don’s passing, one of the last windows into the birth of commercial boating swings closed. Don Harris saw it all.

*Brad Dimock*

#### WESLEY PRATT “PEACHPIT” LARSEN (1916 – 2004)

WES LARSEN, a longtime professor at Southern Utah University with strong interests in botany, ethnology, and history, died on April 29. He is remembered as one of those rare, sensitive people who had both excellence and humility. His ethnobotanical writings often appeared in the *Boatman’s Quarterly*, but it was his historical work that livened up our campfire stories.

In the Spring 1994 BQR, Larsen relayed the Colorado City legend that John D. Lee’s execution was faked—that Lee wore armor beneath his shirt. “Let them shoot the balls through my heart! Don’t let them mangle my body,” he said. After falling back into his coffin he was spirited away by his son and “buried.” But Colorado City folk tell of him crossing at Lees Ferry the next day on his way to Mexico. So although Lee, Brigham Young’s adopted son, was convicted as the official scapegoat for the Mountain Meadows Massacre, the church may have pardoned him after all.

But it was Larsen’s 1993 story in *Canyon Legacy* that made him famous. “Were the Powell Men Really Killed by Indians?” detailed an 1883 letter from one Mormon elder to another mentioning, among other things, “the day those three were murdered in our ward & the murderer killed to stop the shedding of more blood.” In his article, Larsen made a strong case for the three murdered men to be William Dunn and the Howland brothers, the three who hiked out Separation Canyon from the Powell Expedition in 1869. Although Don Lago recently refuted that interpretation and supplied a more plausible set of victims [BQR fall 2003], many details of the Howland and Dunn murders remain problematic. Although a telegram to Erastus Snow dated September 7, 1869 stated, “Powell’s three men killed by three She-bits [Shivwits Paiutes]... Two of the She-bits who killed the men are in the Washington Indian camp with two of the guns,” no attempt was ever made to apprehend the killers, retrieve the bodies or property of the victims, or avenge their deaths—unheard-of behavior in those days. “No matter how you cut it,” chuckled Larsen, “Powell’s men were killed by Mormons. You see, in 1862 the Mormons baptised the entire Paiute tribe. They were all Mormons!”

*Brad Dimock*

**I**N 1988, GEORGE WAS long-retired from his work as a statistician at Sandia Laboratories and he had finished both of his long-distance Grand Canyon backpacks. He was 63 years old. This was when we first met, and the beginning of what for me was an extraordinary phase of my life.

We began a series of backpacking trips, gradually stringing together like beads most of George's north side hiking loops from Soap Creek Canyon to Stairway Canyon.

It was June, 1989, when four of us backpacked around Walhalla Plateau with daily high temperatures at Phantom Ranch averaging about 114 degrees. To cope we routinely hit the trail at first light and were forced to wade two sections of the Colorado River to avoid higher and hotter routes. In twelve days we never saw a cloud.

Was it a bad trip? No way. We found (of all things) a melting snow bank complete with cave at the base of a steep, north-facing Redwall ravine. Along the river we built sand castles inscribed with appeals to passing river parties for cold beer, to no effect. We made temperature observations in the shade, in the sun, an inch or two above and a few inches below the surface of a silt bank in Lava

Chuar Canyon. Under George's expertise, we did okay, even when forced to turn back on a Tapeats bench when it was too hellishly hot for human protoplasm. It was a great trip.

George was extremely competent in Grand Canyon. He possessed Grand Canyon savvy without having lapsed into Grand Canyon fanaticism. He seemed completely at home in an atmosphere of physical challenge and mental playfulness. And yet, I never saw him try to impress anyone with anything that he had done...or maybe I was just too worn out to notice.

I have several friends that tinker with engines and various kinds of hardware. But only George tinkered with abstractions: numbers, puzzles, words, half-imaginary Grand Canyon routes. More than anything, George was fun be around.

George could bark like a dog so convincingly that all

humans and most terriers within earshot jumped a foot. In a gravelly voice he would enunciate the word "cookie" just like Sesame Street's Cookie Monster. He was fascinated with Fibonacci numbers, he collected art, played the piano, and drove a Volkswagen bus. George was, I think, the most interesting human being I've ever come across. My life, and the lives of many others, will

be much poorer without the analytic, barking, hiking, kind, Grand Canyon backpacker named George Powell Steck.

George died April 13, 2004, a couple of weeks after presenting programs to both the Grand Canyon Historical Society and the GCRG's spring GTS.

*Gary Ladd*



*George Steck in Tuckup Canyon, 1989.  
Photo by Gary Ladd*

**I**moved ahead of George, dropping through boulders, taking handholds, lower and lower, the rim rising away from me, the next rim down coming closer. We were descending into the void.

When I reached the brink of the Coconino sandstone, I caught up with the others and waited, pack released to the ground. George came eventually, sitting away on his own. We called him over to sit at the edge and toss

rocks down with us. His assuaging laugh answered us. He wasn't going to travel any farther than this. That is what his laugh said. Even though he had packed supplies for a number of days and carried them this far, he was not going to make it. Too old. Too tired.

Too far. Too steep. He just sat there, leaning against his pack, looking over the canyons below. He said nothing...I felt a knife cutting the tether between George and a bunch of children. We were being dropped into the din, while the one who knew how to negotiate would rise away.

*Craig Childs*

SOUL OF NOWHERE:  
TRAVERSING GRACE IN A  
RUGGED LAND © 2002

## What Next?

THERE IS A LIFE OF CAREFREE, day-to-day, do-as-needed, be-there-now existence, where the beauty and wonder of the here-and-now supercedes the what-if, down-the-road future. This life, most often associated with the young, relates to a particularly adventurous aesthetic sense. It was typified in my own life by the river. The River. A unique lifestyle amidst our complicated modern world. So much of what people see, do, work towards, has very little to do with earth, water, fire. What is real? At the end of a river trip, people talk about going back to the “real” world. But what is more real than steering a boat downstream, through the laughing riffles, the meandering flat-water, the exhilarating rapids? It is all in the moment that matters. Sunlight catching on the peregrine’s wing as it swoops into view, colliding with cinnamon teal in a burst of feathers, scattering, cascading down, floating across the rivers currents, swirling through curlicue eddies. But the “real” world somehow evokes dress-clothes and briefcases, retirement plans and savings funds, and most of all, paperwork. Stacks and stacks of it, fine print and signature required. But I want to know, how is this more real than the sun shining on warm sand, feeling so good beneath bare feet? Cool breeze loosens the hair from my sweaty neck and I am alive!

I dallied with rivers, did some trips as a kid, floated with friends in college, helped out along the way, but did not take it on as a profession. Not right away. It was all for fun and I was bent on something more serious, but never sure just what. I studied about nature from textbooks and lecture halls, chemistry labs and kitchens, so curious, letting my interest lead my coursework, rather than some end-goal or career. So, it wasn’t too surprising, when I finally did graduate with my first Bachelors of Science that I decided to take a summer off and work on the river. I remember telling my brother, who was already a veteran river-rat that I would be working on the river, too. “Great” he said, “That’s going to be so fun! Congratulations on ruining your life.” Ruining my life? It didn’t sink in then. No, it took years of boating—the majesty of Grand Canyon, the intimacy of the Salt River, the verdant wonder of Idaho white-water, the colorful hues of Utah, the desert canyons of New Mexico and Big Bend. I was often asked, what is your favorite river? This one. The one I’m on. The present tense. It was all present tense back then. Moment-to-moment. Just enough thought to save enough money to make it through the few months slack time until those spring creeks started flowing again. Until that snowmelt brought to life in rich muddy torrents the rapids, the pools and holes and currents of my lusty passion. But now I have come to see, the river

had not so much ruined my life, as spoiled me for life. After the river, the wonder, the adrenaline and awe, then what? How does anything else sound near as fun or exciting? Well, it’s not. So it became a matter of making a buck. Nine to five. Get through the day, earn enough money for that river vacation. Always another vacation, a road-trip, a new adventure.

Now, in my forties, mortality has a certain reality to it. But still. Does that mean we surrender all? If anything, the accumulation of years makes me want more from each moment. People pass, unexpectedly, at the drop of a hat, in the midst of a spring drive from Los Angeles to Tucson. Crash. It’s over. In the midst of a career, the tenuous life force sucked out. Forever gone from planet earth. So, while I would like to take a “retirement” some day, I know that perhaps I won’t make it that long. And no security is real. That aesthetic sense is still the realist of all worlds to me, and I find something very disdainful about the capitalist, market system we are stuck with. There is no sense in it, no continuity with what I would call reality. It’s all about who can make the most money at whatever the cost. This is the reality I am supposed to live in, fraught with rules and constraints, most set in place to keep the rich getting richer, and the rest of us be damned. So I choose to be an artist. Not a sensible choice, to be sure, but a passionate one. To create a world of wonder and beauty that others can share and get a sense of who I am, and in so, discover a bit more of their own true selves. For me, the highlight in a day is seeing the early morning sunrays slanting through gnarled branches, reflecting in grassy dew, illuminating small black-tailed deer waking from their luxurious green beds. Or the sun hovering on ocean’s horizon, teetering on the brink of the grand Pacific, turning the water a million shades of metallic blues, grays, yellows, shiny, shimmering until the moment is passed, and what is left is only the waves’ rhythmic, eternal pounding. I am ruined because I have gained an extra sense of perception. Being attuned to earth, water, fire. Not letting the façade of civilization displace the reality of nature. The real world.

*Lora Rasmussen*

## GTS Land Session Finale

WHAT CAN I SAY—the Guides Training Seminar (GTS) land session was exceptional and we couldn't be more pleased! We kicked things off on Friday with our Grand Canyon River Guides (GCRG) spring meeting including updates on serious issues of great importance—Colorado River Management Plan (CRMP), Adaptive Management Program (AMP), etc...plus board nominations. Friday night we switched gears to lighter fare, swooning over Martha's culinary delights and laughing about the movie, *Same River Twice*. After we got acclimated to seeing all the “nekkid” people enjoying the river (definitely a different definition of the “river experience”!), we understood the bittersweet juxtaposition of the freedom and joy of the initial private trip in the 1970s compared to the rather mundane lives of those people decades later. It brought home some of the mixed feelings many guides have about transitioning out of guiding and living a “regular” life away from the river. The film was also a total hoot for those of you who know some of the subjects of the documentary, like Jimbo Tichenor.

Saturday morning bright and early we started with breakfast. Special thanks to Andre for driving up late Friday night with the coffee so we could avoid a caffeine-deprived riot in the morning! More great food was wolfed down, and we soon plunged into the talks of the day. And boy, what talks there were. We covered pretty much everything with fresh perspectives, new research and topnotch interpretive training across the board—basin hydrology, adaptive management, tribal perspectives, archaeo-astronomy, sediment, bugs, fish.... It was fun. It was interesting. It was thought provoking. Make sure you don't miss it next year!

And the Whale Foundation Health Fair—first annual, totally righteous, “doin’ the guides a huge service” kind of thing. It wasn't as well attended as it might have been, but maybe you didn't get the idea of *free stuff*! Guides love free stuff. Guides *live* for free stuff. And this kind of free stuff actually helps you stay healthy, like vouchers for mammograms or prostate screenings. And if you stay healthy, you can still guide. Get it? They have all kind of “docs” available so you can ask questions in an informal environment, not to mention a dentist and a physical therapist. It's too cool and a perfectly brilliant idea. So make *sure* you check it out next year and tell all your friends. We want tons of people heading upstairs at Hatchland next year to check it out.

Saturday night we scarfed more great food and boogied down to the bluegrass sounds of Bill Vernieu

and his fellow musicians. Bill may be a mild mannered scientist in his real life, but his soul rocks hard and we were sure glad he agreed to play because it was a whole lot of fun.

Sunday—bleary-eyed Sunday. Maybe a few hang-overs, but Martha and Thad, the dynamic culinary duo, came to the rescue with a fabulous breakfast and vats of Helen Yard's delectable and oh-so-bird-friendly Toucanet Coffee.

Ok, got a little side tracked there, but her coffee is ambrosial! Sunday's speaker line up was really strong—campground monitoring, vegetation management, wildlife projects, lots of geology stuff, a talk about Robert Benson, old boaters/boats and the rapids rating system. My, we covered tons of interesting stuff. One very sad note though—George Steck gave us a wonderful talk on fellow hiker Robert Benson and passed away a few short weeks after the land session. We extend our sincerest condolences to George Steck's family. George was one of those incredible men who hiked Grand Canyon extensively (ala Harvey Butchart). We were fortunate to have him among us for the weekend. Hearing those hiking stories firsthand gave us insight into the beauty and craziness of Grand Canyon hiking. Thanks George, and may heaven look a whole lot like Grand Canyon.

Things wrapped up after lunch on Sunday. The break down was quick (guides are so good at that), and everything got packed up and back to where it belonged. We'd like to extend our thanks once again Hatch River Expeditions for giving us a “home” for the event, to all the commercial outfitters who have supported this event, to Teva for their continued financial support and cool free stuff, to Toucanet Coffee for donating the yummy coffee, and to the other vendors who came and offered to show us their nifty wares. The GTS land and river sessions would also not be possible without significant assistance from the Grand Canyon Conservation Fund, a non-profit grant-making program established and managed by the Grand Canyon river outfitters. We're deeply indebted to you all. And of course, many kudos to el presidente, John O'Brien for being a super emcee. It's not an easy job to keep things moving along on schedule and wrangle those long-winded speakers! Our GTS committee—John, Drifter, and Jayne also helped me to make the event a success. You guys are the best! Lots of folks pitched in to help haul stuff up and took care of other important details (and believe me, there are a million details). Everybody came together, and I guess that's what it's all about anyway. The awesome

interpretive training is only part of it. The other component, and a necessary one at that, is the fact that the GTS gives the river community a fabulous excuse to get together. That's what Kenton wanted in the first place when he started GCRG. Laugh, learn, see old friends, and make new ones. Those things are what *make* us a community. So let's keep it going strong.

*Lynn Hamilton*



photos by Kate Thompson

## You Shoulda Been There

ONCE AGAIN, most boatmen missed the best river trip of the year. When will they learn? The annual Guides Training Seminar (GTS) river trip left Lees Ferry on March 30 for seventeen days of learning, exploring, and exchanging ideas and information. Jeri Ledbetter threw herself on the grenade of leadership and managed to keep her sense of humor throughout the trip, coordinating one of the toughest groups there is—guides. Old guides, young guides, a few brand new freelance guides, all working toward the common goal of running the best trips possible.

Andre Potochnik and Kate Thompson geologized, Mathieu Brown talked of resource issues, Dean Butterworth and Bob Audretsch discussed NPS interpretation theory, O.C. Dale demonstrated the old ways in his old Yampa raft. Michelle Grua talked medical issues. Everyone shared what they know best. Colorado River and Trails supplied the motor rig this year, with John Toner, and Walker and Mindy Mackay to keep it pointed downriver. And of course I blathered pretty much endlessly about pretty much everything.

We took time out to do follow-up in a few side canyons where the Tamarisk eradication crews had begun the chore of eliminating the wretched trees. And we made an all-out assault on Camelthorn at the Unkar Ruin beach and Crystal Rapid Camp. Help us keep up the vigilance at these two sites and we will see how feasible the project really is.

Our greatest adventure was putting 23 people on top of Diamond Peak—hopefully the record for that sort of lunacy. And the following day we had a short extrication seminar at the fang rocks of 232-Mile Rapid.

For the first time we took the opportunity to go below Diamond Creek on a GTS. With Lake Mead at its lowest level in decades (and still dropping) it is a great time to go down there and see what it really looks like as a sort of river. Lake. Liver. Rake. Whatever it is, it is fascinating to see the river trying to rebirth itself and carve an all-new channel through a ridge of Muddy Creek Formation below Pearce Ferry.

But the true and greatest benefit of the GTS trip was the same as it is every year. Community. When guides from so many companies and the NPS live, work, and play together for that long, the true nature of our river family shines brilliantly. If your company was not represented, if your senior guides have never done a GTS trip, if *you* haven't done one—for heaven's sake light a fire under the boss for next spring. We're all in the same boat, and this is without a doubt the best way we can learn to paddle it together.

*Brad Dimock*





Over Unkar

photos by Kate Thompson



Torching camelthorn  
(see page 41)

Over Unkar



Boatmen: Emily and her dad

## Jack Fuss and the Great Kaibab Deer Drive



Jack Fuss photographing during Kaibab Deer Drive.  
Photo courtesy of Jack Fuss Collection, Cline Library.

### “DEER JUST CAN’T BE DRIVEN!” Coconino Sun, DECEMBER 19, 1924

“I SAW THOUSANDS OF DEER, most of which ran in small bands,” wrote Zane Grey. “The ringing of bells, the yelling of the Indians did not seem to frighten them, but the approach of riders on horseback, trying to herd them, brought swift flight.” Grey Hat Charlie, a Navajo Indian, asked if the Indians drove the deer, replied, “Yes, drive deer, drive lots and lots of deer.” But when asked where the deer were driven he swung his hand around and made a whistling sound, indicating every direction under the sun. Summarizing the Great Kaibab Deer Drive, District Forester R.H. Rutledge called it “the most interesting failure I have witnessed.”

Shortly after Theodore Roosevelt designated Grand Canyon National Game Preserve in 1906, Uncle Jimmy Owens and other rangers began the systematic annihilation of North Rim predators. Over the next two decades, according to one count, they slaughtered some 4,899 coyotes, 781 mountain lions, 554 bobcats, and twenty wolves. At the same time, hunting of the native mule deer was prohibited. Thus the healthy herd of three thousand, that existed when Roosevelt founded the preserve, exploded. Meanwhile, sheep and cattle ranchers continued encroaching into the pine forests of the rim, reducing the range of the burgeoning deer herd. By 1924 there was virtually nothing edible within eight feet of the ground. The formally sleek, fat deer were reduced to staggering, starving zombies, and the Game Refuge had become an embarrassment to the country.

While Arizona Governor George Hunt was searching for a solution, Flagstaff resident George McCormick made a novel proposition. He would herd five- to eight-thousand deer, he claimed, from the North Rim, down the Nankoweap and Horsethief Trails, swim them across the river, and bring them out the Tanner Trail to the south side where the forests were healthy. He would then drive portions of the herd to various range lands further south. For a price, of course. McCormick was no newcomer to peculiar propositions. Since 1893 he had worked the copper mines in the Lava Canyon / Palisades Creek area to little avail, driving him to less honorable means of income. Rumors of salting the mines to attract investors pop up from time to time. His son Mel admitted that his father drove rustled horses over the Tanner and Nankoweap Trails and inferred stolen horses were traded in both directions. During Prohibition NPS Naturalist Glen Sturdevant found a moonshine still in Lava Canyon—the heart of McCormick country.

Reputation notwithstanding, McCormick was able to generate enough enthusiasm for his deer drive that Governor Hunt agreed to pay \$2.50 per deer that McCormick could cajole across the Canyon. Zane Grey, already a famous author and a partner in Famous Players / Lasky Studios of Hollywood (later Paramount Pictures) offered five thousand dollars for exclusive film and story rights. And Flagstaff locals circulated a subscription to raise another one thousand dollars to drive one thousand of the deer through the streets of Flagstaff “where we may all have a look at them.” McCormick said he’d do it. Although he planned to begin the drive in the autumn, bureaucracy delayed the start until mid-December as the winter snows descended across Northern Arizona.

McCormick hired nearly one hundred Navajos and Paiutes at two dollars per day to herd deer with shouts and cowbells. (The Bureau of Indian Affairs wisely required McCormick to pay in advance.) In addition, McCormick recruited nearly fifty mounted cowboys to ride herd. On the North Rim he built a large V-shaped fence covered in burlap to funnel the deer down into the Nankoweap trailhead, and readied his troops in the Kaibab Forest to drive the estimated ten-thousand to one-hundred-thousand mule deer toward Point Imperial. Meanwhile Zane Grey and veteran movie director D.W. Griffith (his five-hundredth film, *The Birth of a Nation*, had made him famous in 1915), drove north with a crew—including their Japanese chef and a tailor—and established an elaborate base camp.

On December 6, 1924, George McCormick and a group of men rode from Flagstaff toward the South Rim to blaze the cross-canyon trail in reverse and meet the



rest of the crew on the Kaibab Plateau. Among the cowboys rode 31-year-old Jack Fuss, a Flagstaff sign painter, taxi driver, piano player, and game warden. Fuss knew Grand Canyon, having mined for W.W. Bass in the Shinumo Creek area, and had lived here and there along the rim. Governor Hunt had asked him to tag along to keep an eye on McCormick and minimize damage to the deer.

Nearly six decades later in his Flagstaff living room, nonagenarian Jack described the debacle to me. His wife Mimi hollered occasional prompts, pitched to Jack's failing ears, whenever he got stuck on a name or detail. Although Jack's tale was burned into my memory that afternoon, my attempt to tape record the session failed, so I have told Jack's story from memory around the campfire for the last two decades. But ever since that day I have wanted to do justice to his story in print. For this rendition I have synthesized the best parts of an address he gave to the Flagstaff Lions Club in 1963, and a 1975 interview by Susan Rogers.

*edited by Brad Dimock*

\* \* \*

**JACK FUSS:** George McCormick, an old prospector and horse thief from Utah, used to steal horses over there and bring 'em across this crossing that he knew, down the Tanner Trail and up the Baumgart Trail [an old name for the Horsethief Trail] in the Grand Canyon, to get up to the South Canyon [the South Canyon Forest Service Ranger Station was just a few miles north of the head of the Nankoweap Trail] where they was gonna have the deer drive in the Kaibab. Nobody knew the trail but him. So Lasky [Studios] said they'd give him \$5,000 for the story, if they completed the deal, you know. And he contended that he was gonna drive ten thousand head of deer—not five, but ten thousand—out of the Kaibab, over across the river, and bring 'em up into Coconino County.

So Lasky brought over a great big crew, a studio, cameras and—oh, they spent a lot of money—had Zane Grey come to write the story.

**MIMI FUSS:** You were game warden then, weren't you?

**JACK FUSS:** I went along along to take care of the situation.



Snowy morning in Kendrick Park.  
Photo courtesy of Jack Fuss Collection,  
Cline Library.

**MIMI FUSS:** [Louder] *You were game warden, weren't you?*

**JACK FUSS:** Yeah, I was game warden. I was to supervise the deal so that they wouldn't slaughter or anything. We left here on the sixth of December.

Now, there was Jimmy Babbitt, dear old Jimmy, one of the finest men I ever knew—he finally died in the Mogollon; he froze to death with a heart attack or something. Johnny Wetzel, who was an old laborer here and one of the finest old Swedes I ever knew, he went along. Lou Wesley, was our blacksmith, he went along to shoe the horses. Bob Mackey was a city policeman at the time, and Everett Mercer's younger brother—I can't recall his first name—and Jack Walker from Kendrick Park. We met Jack out at Kendrick Park on our way.

We left with 27 head of horses. We rode with our pack outfits to Jack Walker's the first day and it was colder than a son-of-a-gun. So we all slept in Jack Walker's potato cellar that night with our horses in his pasture. Put our saddles in his barn. That night it started to snow,

so we got up before daylight, and George made us some kind of slapstick breakfast. He never did feed us decent on the whole trip. I'm not condemning the guy, but he didn't have the facilities nor the time to do it.

The next night we arrived at...at... [pause]

**MIMI FUSS:** The Buggeln Ranch. *The Buggeln Ranch, Jack!*

**JACK FUSS:** Yeah, Buggeln, the Martin Buggeln Ranch. It's over in the Moqui hunting grounds there, toward the canyon. We got there around five o'clock in the evenin', it was just gettin' dark. Mrs. Buggeln was a wonderful—they were a wonderful old couple. They invited us all, and we unsaddled our horses and fed 'em, and put 'em in their little pasture they had. It snowed all that day. It was gettin' about a foot deep. That evening, she made supper for us; and that morning she made breakfast for all of us, and never charged us a cent—just fed us and took care of us. We slept in the barn in the hay.

We took off before daylight, it was nearly zero, and boy, was that saddle cold! [laughs] And the horses were all nutty, you know, full of pep and vinegar, wanting to buck you off and everything. It was cold, and they were



Buggeln Ranch near Tanner Trail.  
Photo courtesy of Jack Fuss Collection, Cline Library.

shiverin' and all, had frost on their hair.

So we got to where the Hopi Tower is now—it wasn't there then—along about three o'clock in the afternoon, I imagine. And we started down the trail, and the trail was snow drifted two or three feet deep in places, and the horses—the lead horses and the boys that were herding them—they drove on ahead. Jimmy and I, we always rode behind just to take in the situation and study it and see how feasible the thing was, how it looked to us like it would be capable of doing. So on our way down we were always a city block or two behind. When we got into the third night, down on the first plateau as they called the Blue Lime, there was about six inches of snow down there. [Miners called the Redwall Limestone the Blue Lime, due to the blue-gray color of the actual rock.]

Jimmy and I come into camp, it was just about suppertime, and I looked all around and I couldn't find my packhorse. I looked all around and said, "George, where the heck's my pack horse?" "Well," he said, "it went off the trail up there about halfway up the trail." I says, "Well, that's a nice deal. Why the heck didn't you tell me about it?" When I asked this kid that was a city cop here, Bob Mackey—to help me, if he'd go back up

with me and help me get... He said, "No, I'm too tired." I said, "Okay." So I'd been livin' in the canyon for a year and a half, it didn't bother me. So I got a fresh horse from George. It was moonlight, real big, bright moonlight and snow. It was just like daylight. I went back up the trail to look for the spot where my horse went off, and finally I found the spot in the snow where he had gone off. There was a ledge sticking out, a sharp rock ledge, and the trail was kind of narrow and a horse, not as good as a mule or a burro on a trail, is always entitled to get flighty and make a lunge, instead of taking things easy. He had wooden kyacks on and naturally when he lunged, why, that old wooden kyack humped him off, so he went down about a hundred feet. I could see where he rolled down in the snow. He was dead, layin' there with his neck broke.

**MIMI FUSS:** Wait, explain what a kyack is.

**JACK FUSS:** It's what you put your...

**MIMI FUSS:** Supplies

**JACK FUSS:** ...stuff in when you go campin'.

**MIMI FUSS:** Over a horse.

**JACK FUSS:** You put it over a pack saddle, you know, hang 'em on each side. They're saddlebags—kyacks, they're called. And these were wooden. Most of 'em are made out of cat skin.

Luckily I could manage to climb down and cut the ropes and get my bedroll. I didn't bother with the stuff that was in the kyacks, 'cause most of it was just stuff that George wanted to take over there and I couldn't bother packing it back up and down over that hundred



Jack Fuss's ill-fated horse, with loaded kyacks.  
Photo courtesy of Jack Fuss Collection, Cline Library.



*Descending the Tanner Trail.*  
Photo courtesy of Jack Fuss Collection, Cline Library.

feet of rock cliffs and snow. I dragged my bed up and packed it on the horse, got back into camp at daylight. And they were ready to leave when I got back there. Never got no breakfast. They didn't save any breakfast. They didn't like the game warden, see—that was the whole deal. So they didn't want to help me any. But I got even with 'em.

So then we made the river. If you've been to the Hopi Tower and looked down, you can see down there a curve in the river, a big wide open spot with a big sandy place in there. Down in there is a cave. Now how he got it there—he must have brought it in from Lees Ferry, 'cause I don't know how he could have got it in there any other way—but he had it stashed: an old galvanized boat, and the oars. Now, you see, what he was usin' it for was crossin' that river all the time. We didn't know the trail or that he had that boat, even. But I surmised things when I seen that.

So I was the only guy that could row, bein' born on the Delaware River, and boats, you know. These other cowboys and horse-shoers and one thing and another,

miners and picks, they didn't know how to row a boat. George was pretty good, 'cause he'd rowed the river. And then, you see, the river was rough, because there wasn't no dams in it. And it was two- to three-hundred feet across. We had to land on a sandbar, wasn't over two hundred feet long. And we had to land on that bar as we were goin' down the canyon. And then we had to drag a horse behind us. That made it tough, see. We'd tie a horse on the back, and the cowboys would push him in the water. Then he had to swim. Well, the first one they put in was this big mule we had, a lead mule. And he tried to get in the boat, and George was rowin'. He got one foot in, and I liked to broke my fist hittin' him in the jaw, knockin' him out. I finally stood up and lifted his foot out of the boat. It's a wonder he didn't upset us. Oh! it was sure dangerous. And that river was really somethin', you know, then. And we had to make that sand bar, or else we'd have gone down the river. But we finally made it. And after we got that big mule across, then the other horses would see him, when we was bringin' 'em across, and they'd swim better. So we swam each horse, each one of them twenty-seven horses across, one at a time. And I had to row one, and then George would row one, because nobody else knew how to row, and it was eleven o'clock at night before we got them all across. And we had to make that bank every time.

Well, we got there, got the work done. It was moonlight, and we worked in the night, in the nighttime. The moonlight was good as daylight, prit' near. We got over, and George, in the meantime, had put a galvanized bucket of water on the fire, and he had a great big hunk of meat in it, about the size of your head—boiled it with just a little bit of water around it, you know. It was fresh meat. We got over there, it was time to eat. Poor old Jimmy Babbitt, he says, "Jack, I can't eat that food." I said, "I can't either. My stomach's burnin' up, it's on fire," from the stuff that he was cookin' and givin' us on the other three days. It was half cooked, you know. So when he'd open up the biscuits, the dough would run out of 'em even. It was terrible. I had the damndest burnin' in my belly I ever had in my life. I thought I had an ulcer for sure.

I had some Hershey bars in my saddlebag and I went up in the draw and I got some Mormon tea and I got a can from old George and boiled some water and proceeded to make some Mormon tea. So Jimmy and I we had Mormon tea and Hershey bars.

We laid our beds out, and the moon was shining just as bright as day—like the ceiling here—right down on the bottom of the canyon. Nice sandy beach, we rolled our beds out. Just along about twelve o'clock then, you could see the moon was moving, the shadows was starting to creep up off the cliffs. And just about the time the moon got out of sight old George come along

and kicked us all in the ass and told us it was time to get up. It was about three o'clock. He wanted to get started, you know. So we was laying there and old Johnny Wetzel, the old Swede—he worked out at the ordinance when they built it, blatin' holes, you know, to blow the rocks—and he was along to help us with our rock work, if we needed any. He says "Hey George, you tink ve going to come some place vere ve want to stay all night sometime?" Old George he give that big hearty laugh of his and he says, "Never mind. Come on, roll out!" [laughs] We all got to laughin'. That started us off.

So we all got up and packed our bedrolls, and we started up the Baumgart Trail. The Baumgart Trail came into the beach there. There was a crack in the rock about twenty, twenty-five feet across and there was a wash that came down there, and that's where the trail went out.

That day we went up about a thousand feet, just straight up, and we hit this ridge, then we come down about a thousand feet and we hit [Kwagunt], a nice stream of water, then we went up again. Now, I tell you this to show you how ridiculous the deer drive was in fact. We went up again about a thousand or fifteen hundred feet, and down on the other side we come to Nankoweap, which was a nice little stream.

So there we decided we'd camp and spend the night. The horses could feed there. There was a little stuff along the crick there, the wash, and we washed our feet and one thing or another. It wasn't too cold down there. It was cold enough, but if you couldn't take a bath, anyhow you could wash the sweaty spots.

So the next morning we started out on the trail again, and you couldn't see the trail. It was absolutely no trail. I don't know how old George ever found it, but he never lost it. That's the reason he didn't have to find it I guess. But, anyhow, we came to a shale slide. It was about a forty-five degree pitch, real hard, just solid shale.



Swimming horses across below Lava Canyon.  
Photo courtesy of Jack Fuss Collection, Cline Library.

Well, you couldn't stand up on it. You couldn't walk around on it. But we had to get around it, so old George and Lou Wesley and Johnny, all of us took George's mining picks and one thing or another that he had and picked toe holds about the size of a saucer, or so, around in this shale so this old mule could make the first steps around. Then all the rest of the horses, of course, they followed along. Anyhow we got around the shale slide.

Anyhow, when we got up, oh, about a thousand feet from the top, there's a battleship stuck out—you know, one of them big rocks—we call that a battleship. And the trail come around the side of it. Down here there's a ledge. About half way down, four- or five-hundred feet, there's a ledge around there, and it's maybe eight or ten feet wide and all filled on a forty-five degree pitch with rocks. And on the north side it was all snow and ice. Well, off of that darn thing it was about five-hundred feet right straight down. You couldn't

look down, it would scare you to death. And we all just crept along, holding on to our horses coming along behind us. We made the north side where it was cold and it was all ice, as slick as a goose. And then when we got around to the south side it was all mud. Same condition only mud, five-hundred feet, six-hundred feet down. Straight down. You couldn't see. You couldn't get out and look. Just like going off of an airplane, and that was the trail.

When we got to the end of that we were getting pretty close to the top. It was about two-hundred or three-hundred feet up to the saddle. Well, from where that trail quit there was a switch back, an old deer trail or something that switched back and forth. We'd each wait till the one ahead of us got up, so I stopped at the foot of it.

Standing there watching me was Bob Mackey, a policeman from Flagstaff. He had a big, beautiful, black horse and a big black, brand new saddle, slicker, everything tied on. Well, he got up pretty near to the top,

and I don't know what ever made him do it, but he turned the horse around with his rump out and the horse's hind feet went off the rock. I heard the rocks begin to slide and rumble and rattle, and I looked up, and here come that horse, just head first, just diving on each side, just rolling like a hoop, and my horse commencing to back up and I thought, oh, my God, I'm going to lose him too. And he was a-snorting and a-pulling up. That horse lit, honest to God, from me to you, right on the back of his head in front of me, and you never heard such a noise and such a crunchin'. It was the most horrible noise I ever heard. And he made one bounce and plooy! Couldn't even see where it went. Never seen where it went at all. Just disappeared entirely. Mr.

Mackey said, "I wonder if you'll help me find my horse?" I said, "Bob, no deal." You couldn't have found it with a helicopter.

So then after ten, fifteen minutes I got my horse quieted down and we started up. And we made it—the rest of us made it. So anyhow, I got my horse up and we got up onto the top.

Lou Wesley was the city blacksmith, he went along. He met me at the top and said, "Gee, I'm sure glad this is over with!" And I said, "So am I!" It was sure a hair's breadth...

It was all quinine cliff-rose right there at that section, which the deer were eating in and it was all chewed off as high up as they could stand. You could look right through the woods, through the pinyons and the cedars and the manzanita and everything else just as far as you wanted to see, and there wasn't a bit of vegetation. They'd eaten it all.

We had about five or six miles to go from the top, over into South Canyon where the ranger station was. Mr. Sitgreaves and Mercer, the state biologist, and the rangers, and Zane Grey—they were all in there, waitin' for me to come in and give a report. It was dark then.

But before I went over there to the station, I built a fire under a cedar tree and put a lot of rocks in it. And then I took the rocks when they got hot, and scratched out a bunch of cedar needles and stuff, and put my bedroll down in there, and then I put these hot rocks around the bedroll. I slept nice and warm. It was down to zero, and snow all over the place.

When the news got around that we'd got in they sent word over for the game warden to come up to the ranger station. When I got up to the ranger station, I went over and they wanted to have a talk with me about the trip, find out the feasibility of the thing.

There was Zane Grey, I have his picture. D.W. Grif-

fith, he was the director of Lasky Studios, who footed the bill for 5,000 bucks to take the pictures and have the right of it—Grey was going to write the story. They had set up a beautiful camp, tents, chuck tent, they had five photographers, and I got all their pictures, wonderful bunch of guys. And old Shy Thomas was there and—these names I just wrote down this morning from the *Coconino Sun* that I saved—Ed Miller, Johnny Adams, and Mr. Locklin, that was in our Forest Service. They

were up there in South Canyon Ranger Station. They give me a big bowl of deer stew and that was really okay. I hadn't had anything decent to eat in a week.

So I ate my stew and I told them what I just told you fellows. And I said I think it's the most crazy damn thing I ever heard of. To think that a guy would have a thought that he could drive a whole bunch of deer, let alone a few milk cows or horses, over the trail without losing half of them, because they wouldn't single out single file, which they had to do to go over that first three miles, was terrible. And then after they got past that, they had to go over the shale slide, and you can imagine what a bunch of deer would have done scamblin' over that. Course they'd probably made it all right,



Preparing for the Deer Drive. Zane Grey on left?  
Photo courtesy of Jack Fuss Collection, Cline Library.

but then it was ridiculous to think of it.

Then when I told you about going over these ridges, Nankoweap and Kwagunt, these streams, these ridges a thousand feet high all going down towards the river, to think that the deer would be nice little deer and all go over the trail and not go down these canyons and not go down these ridges, which I knew damn well they would, by golly it's the most ridiculous thing I ever heard of! They wouldn't go up and down that trail because George wanted 'em to. And there's no way under God's sun that you could herd 'em.

When I told them my story, they all had a pretty long face, especially the guys that put out all that dough.

The next morning I took Bill Sickner—I see his name as photographer on lots of TV shows, wonderful old fellow. I packed up two mules with his telescopic lenses and his photography and his cameras and films and everything, and took them over to South Canyon and got up on a nice high point there, which I have pictures of, photographs, and we sat there.

Well, they had hired about two-hundred Navajos, gave them bells and they strung out a couple hundred yards of chicken wire, which led into the South Canyon, they put some sheeting on it. And these deer were suppose to come in like a bunch of cattle into this chute into the South Canyon. Well, we sat there for about two hours and finally we heard some Navajos yellin' and ringin' their bells. We could see about a city block up this opening. Here come a great big buck out, and about



Cameraman Bill Sickner and Jack Fuss awaiting the action.  
Photo courtesy of Jack Fuss Collection, Cline Library.

two-hundred deer of all kinds—does and little bucks and fawns and everything. He was the ring leader, I guess. But anyhow, he decided it was the wrong way to go, so he swapped ends and whamo! Back he went. The rest of them followed him. Just like a bunch of sheep, away



One of the few deer photographed on the Deer Drive.  
Photo courtesy of Jack Fuss Collection, Cline Library.

they went, and the Indians all got up in the trees, got out of the way...Navajos in every tree. And *that* [laughs, slaps knee] was the end of the Great Kaibab Deer Drive!

Bill he forgot even to pull the trigger on the camera. He never got a shot. So we sat there, and we sat there, till about two o'clock, and I says, "Well, I guess it's all over with, Bill." Started snowin' again, so we packed up and come back into camp. They never got even a still picture of that thing.

So we packed up, and when I got back to camp, Lasky had packed up, started to unroll the tents, snowin' like a bugger. Bill Sickner and the other four cameramen were there, and the big shot from Lasky—Griffith—the director. Him and Zane Grey took off in the Cadillac and went home, when it started stormin' there the last time, and left all these cameramen. So George McCormick come over to me and he says, "Jack, are you gonna go home with the horses?" And I said, "Heck, no, I don't want no more of this. I'm full up! I've done my job. That's all I was asked to do." And he said, "Well, I'll tell ya', I've got a Cadillac here. There's five cameramen that have to get to town. I wonder if you'd drive 'em in." I said, "I sure will, I'll be tickled to death." In those days you had to cross over at Lees Ferry.

So we got in, I took the five cameramen, and we got on the ferry and got across, went up the dugway. The old dugway you had to go up was chiseled out with a hammer and chisel clear up, to get up to the road, you

know, from the river. And it was only wide enough for a car. There was only about six inches on the outside of the tire. One of the old taxi drivers that was here, he used to stutter awful bad. When they took him to the top of this dugway.

**MIMI FUSS:**

Bucko was the one.

**JACK FUSS:**

Bucko Sisk was his name.

**MIMI FUSS:** That stuttered.

**JACK FUSS:** And he got to the top of the hill and he said, “S-s-s-stop, Earl!” “What’s the matter?” “I would sooner w-w-walk.” So he walked. And he was a taxi driver. So anyhow, I took ’em up and we got to the divide. The old road now is different than it was in those days. This new highway goes on around. There used to be a summit. On the old road, they called it the summit, that went around through the cinders, goin’ into Tuba to Cameron. We got to the divide, and the snow was really packed. We got stuck, couldn’t budge. I looked in the car and he didn’t have no chains, didn’t have no shovel. I said, “Gentlemen, we’re here, unless you want to walk a couple of miles to Mr. Claude Knight’s ranch house. I’m sure we can go in there.” “Well, let’s go. We’ve got to, we can’t sit here and freeze to death.” So I picked out a trail on the side of the hill that wasn’t quite so deep, and we got into Claude’s about



Heading home: waiting for a ferry ride at Lees.  
Photo courtesy of Jack Fuss Collection, Cline Library.

five o’clock in the morning.

I knocked on the door and he come to the door in his pajamas. “What the hell do you want here at this time of day?!” I said, “I’ve got five cameramen here, and they’re all froze to death and starved. I wonder if they could come in and get breakfast and go to sleep?”

He said, “Sure, come on in.” So we all went in, and she made breakfast—his wife. They all slept on the floor by the fireplace. About ten o’clock in the morning, the county drag—grader—came along, and they were gradin’ out. But in the meantime, Claude and I had taken a team of his horses and we went down and hooked onto the car and was pullin’ it out with the horses. I’ve got a picture of that somewhere, just when we got to Claude’s with the car.

So when we got in the car to go back home to town, we went into the Monte Vista [Hotel] and they kind of gave the big man a bad time. [laughs] But that was the end of that.

\* \* \*

*Jack told me that story and several tales about working for old Bill Bass in the asbestos mine. And he told of starting Flagstaff’s annual All-Indian Pow Wow. The Navajo name for Jack translated to Mr. Big Party. Then he showed me his picture album. Reminiscing about his nine decades he said, “Mimi and I have been married sixty-one years!”*

*“Sixty, Jack! Only sixty,” shrieked Mimi. “We’ve only been married SIXTY years!”*

*“Well,” said Jack, laughing, “It seems like sixty-one!”*



Hauling the Cadillac over the summit into Flagstaff.  
Photo courtesy of Jack Fuss Collection, Cline Library.

# Fear and Loathing

LET ME SHARE THE IRONY. Fourteen years ago I took a Wilderness Emergency Medical Technician (WEMT) course, and became a believer in wilderness-based training. Over the next several years I devoted hundreds of volunteer hours to make these courses available and affordable to guides. Through the courses offered by GCRG, hundreds of boatmen voluntarily achieved a level of training that better prepared them for illnesses and injuries on the river. We felt really good about that. Still do, in fact. But the National Park Service's (NPS) decision to *require* guides in Grand Canyon to be certified as Wilderness First Responders horrifies me.

I should explain.

**DO YOU HAVE MEDICAL CONTROL? PROBABLY NOT.** Wilderness First Responder (WFR) is neither standardized nor regulated. Each training provider has a unique curricula that teaches skills beyond the scope of what guides can legally perform. Many of the protocols taught in wilderness courses can only be performed with "Medical Control"—a concept defined by one local doctor as, "putting my medical license on the line for someone I have never met, to perform procedures on patients that I will never know about until we end up in court." Hardly a risk that doctors will rush to sign up for.

The NPS, while mandating WFR certification, has not told us which of these medical protocols are appropriate and which are technically "practicing medicine without a license." They deflect that burden to GCRG, whose concerns they have consistently ignored, and the outfitters, most of whom do not have the medical training themselves.

GCRG informally surveyed the Grand Canyon outfitters. Some refused to discuss it; most asked that their responses remain anonymous. Three said they have medical control, but two of the doctors don't have a license to practice in Arizona. When further pressed one outfitter said the doctor just "advised" them. "Advice" is not Medical Control. One company has a letter in their first aid kit that the guides believed constituted Medical Control. Signed in 1998 by a Utah physician they had never met, the letter was, in the opinion of a doctor who read it, "worthless."

## WHAT CAN YOU DO?

So few guides, if any, have Medical Control. And most guides don't have a clear understanding of what protocols they can or should follow. Vague statements from the NPS confuse matters further. For example, according to the Park's letter, [see page 26] shallow wound care is appropriate for all Emergency Medical Service (EMS)

providers. Yet according to the Wilderness Medical Associates website, cleaning even a shallow wound requires Medical Control. Clearly neither the training agencies, nor the Park Service requiring that training, nor the outfitter, nor the guides themselves, are in agreement on what protocols they can follow.

Recently an instructor assured students that the company providing the training would "stand behind them" if they used the protocols. Did they mean they would testify in court? Make some phone calls? Send flowers? Tell the story in future WFR courses? They certainly can't provide Medical Control; they don't have it themselves.

Other instructors have told guides not to worry, as lawsuits go after the "deep pockets." They assume that river guides have nothing to lose.

The Good Samaritan Law will only protect guides who treat victims on *other* trips, or hikers—does not cover people who are paid to provide service to their own clients.

## SCENARIOS

A few years ago OC Dale nearly died from an anaphylactic reaction to a bee sting. On the GTS river trip this spring he rarely ventured more than a hundred feet from his EpiPen. Was I glad I had the training, and had a clue about what to do if a bee stung him? You bet. Would I have hesitated to use that training? Not for an instant.

But let's say you're breaking down camp. A woman runs into the kitchen saying her husband is having difficulty breathing. You go up to his tent to find him pale and gasping for breath. He said a velvet ant stung him a little while ago. Aha! In WFR class you learned about anaphylactic shock; maybe that's it. Your outfitter said they would reimburse you if you bought an EpiPen, so you got a prescription filled and put one in your ammo can. Should you use it? They taught you that you must decide quickly.

An EpiPen injects epinephrine—a stimulant that increases heart rate, blood pressure, mental activity, and blood flow to muscles. It also constricts blood vessels, which is why it's the preferred treatment for anaphylactic shock.

Side effects include headaches, cardiac arrhythmias, angina, hyperventilation, and excessive rise in blood pressure that can lead to intracerebral bleeding and strokes. Peripheral vascular constriction could cause pulmonary edema. Does this guy have coronary artery disease, hypertension, or serious ventricular arrhythmias? If so, your EpiPen could kill him.

Is he taking sympathomimetics like ventolin or isoprenaline? Those can increase the effects of epineph-



rine. Digitalis can increase the proarrhythmic effects, and Monoamine oxidase inhibitors increase cardiovascular effects. EpiPens also contain sodium metabisulfite, a sulfite that may cause allergic reactions such as anaphylactic shock.

Got all that?

Have you stored your EpiPen between 59 and 86 degrees Fahrenheit? That shouldn't be a problem in Grand Canyon. If it's discolored or contains precipitates, you shouldn't use it. If it's outdated, the effectiveness is significantly diminished (which could be good news, I suppose, if you're wrong about your diagnosis.) So if you've chosen to supply one with your own prescription you'd better keep it current, cool, and in the dark. You had also better be right. Giving him your prescription is a felony, punishable by a fine of up to \$20,000.

Or let's say you don't have an EpiPen and it really is anaphylaxis instead of a heart attack. Requiring WFR implies a "standard of care" that sets guides up for a lawsuit by "failing to act." (Isn't it true, Ms. Wilson, that you are required to be a Wilderness First Responder to work in Grand Canyon? And isn't it true that part of that training is in using an EpiPen, and that your outfitter would have compensated you for its purchase? Then please explain to the jury...)

#### WHAT IS OUR JOB, AND WHAT'S THE GOAL?

Professional EMS personnel have advanced equipment, Medical Control, regular contact with a physician and consistent hands-on experience with providing emergency care.

We don't have that. We are not EMS providers. We are river guides; our job is preventing illness and injury in order to avoid the need for medical care. And we are extremely good at it. When there is a medical emergency, we handle that too—but in most cases we have no equipment, no Medical Control, no contact with a

doctor and limited hands-on experience. Realistically our best bet is to provide basic first aid, call professional EMS personnel and evacuate the victim quickly.

I contacted land management agencies throughout the country that oversee whitewater recreation and not one—not one—requires anything beyond Advanced First Aid. WFR is not the industry standard for whitewater recreation, and for good reason. By requiring it, the agency makes itself liable for any actions taken by the guides affected by that requirement.

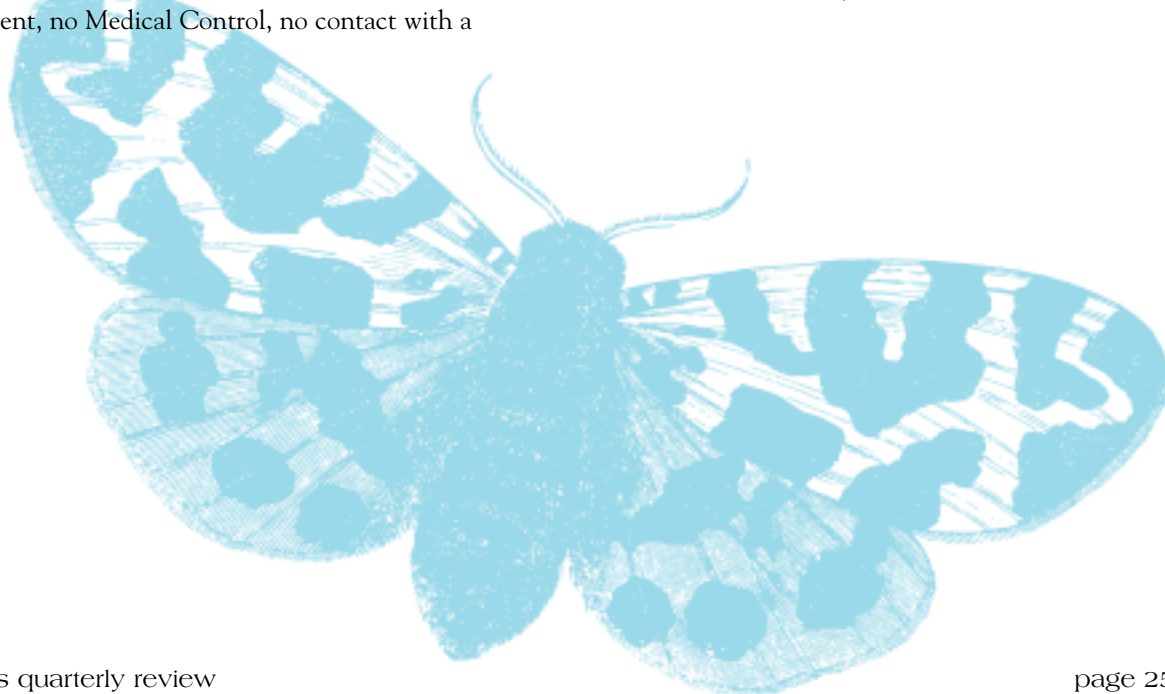
The park has thrust guides into a legal and ethical limbo, putting them in a position where they can be screwed no matter what decision they make. Yet it is not just the guide who is at risk. The outfitter who is paying that guide to act is equally liable. The training agency, likewise, is liable. But most vulnerable of all, and the entity with the largest pockets and most likely to be sued, is the managing agency that requires the training: The National Park Service. In an effort to reduce liability and increase safety for park visitors, the NPS has inadvertently done the exact opposite.

#### WHAT'S THE ANSWER?

In the past the National Park Service required at least a 40-hour first aid course. The implied "standard of care" was advanced first aid—do no harm, package and evacuate. We inquired regularly, and were told that guides were doing an excellent job. As the Park's letter points out, most guides voluntarily pursued additional training, and many outfitters encouraged or required it.

There is no problem to solve. The NPS should revert to the requirements that were working, and we will continue to provide exceptional care at the level of Advanced First Aid.

*Jeri Ledbetter*



## Park 1st Aid Letter

**O**N FEBRUARY 10, 2004, the Grand Canyon River Guides Board of Directors sent a letter to Superintendent Joe Alston questioning medical control issues. This letter was printed in the last issue of the BQR, volume 17:1. Following is a response from the National Park Service to that letter.

March 26, 2004

Thank you for your letter of February 10, 2004. We have discussed the questions you raise on numerous occasions over the years, and our position remains the same. We'll address each of your questions below:

### QUESTIONS #1: WHICH OF THE PROTOCOLS (LIST ATTACHED) ARE APPROVED BY THE NPS?

None, because the NPS does not approve protocols. Only a physician can approve protocols for your organization. However, in reviewing the attached protocols it appears several are within the normal scope of practice for all emergency medical service (EMS) providers from First Aid to Paramedic (CPR, shallow wound care, impaled objects). Whereas protocols expand the scope of practice for First Responders (i.e. reducing dislocations, high risk wounds and clearing spine injuries), a physician sponsor must approve those protocols.

### QUESTIONS #2: WHY REQUIRE THIS LEVEL OF TRAINING FOR EVERY GUIDE WHEN THE BULK OF THE COURSE TEACHES PROTOCOLS THAT, WITHOUT MEDICAL CONTROL, WE SHOULD NOT USE?

The purpose of Wilderness Training (WAFA and WFR) is to prepare guides to deal with medical emergencies in a wilderness situation. This is why it is required for river guides in Grand Canyon National Park. Standard First Aid (non-Wilderness) courses prepare trainees for dealing with emergencies in an urban setting where an ambulance is readily available, and simply do not prepare trainees to deal with emergencies in locations like the river corridor of the Grand Canyon. Wilderness training by reputable vendors provides comprehensive training in wilderness care for working in extreme environments with improvised equipment and a unique set of emergencies that may be encountered in the field. Since guides have been taking wilderness First Aid training, injured clients have received much better care by river guides. Wilderness First Aid training is much more than a few protocols in reducing dislocations and clearing spinal injuries. It is the best training available for dealing with emergencies in a wilderness situation.

### QUESTION #3: AT THE MEETING BETWEEN BOARD MEMBERS AND NPS PERSONNEL LAST JANUARY, SHERRIE COLLINS, DEPUTY CHIEF RANGER, TOLD US THAT "WFR IS THE NATIONAL STANDARDS." HOW, SPECIFICALLY, DID SHE REACH THAT CONCLUSION?

Sherrie Collins is a highly credible spokesperson for the NPS who is well versed in EMS matters at the national level. Her communication with the EMS community indicates that WFR is the training most sought after by guides and outfitters across the country. In reviewing the guide license statistics, we see that the vast majority of guides with current licenses meet the new First Aid Standards: WAFA for guides and WFR for trip leaders. It appears that the guides themselves have embraced these standards. We've had no complaints about these standards from the outfitters. In fact, the park has been told by a number of outfitters that they feel WFR is the appropriate training for the guides. It should also be noted that four outfitters will be conducting guides training trips this Spring. WFR will be taught on each of these training trips.

In answer to your questions about licensure and certification issues, those must be addressed with the outfitters. In many states, First Responders are not licensed EMS providers, which means there is no state requirement for oversight. It does not mean that you cannot be trained. The key issue is medical direction and physician sponsorship. Those are internal questions and issues that the Guides Association and outfitters should address and resolve.

The Guide and Trip Leader Standards that will be required by the end of 2004 are appropriate and working. Most guides now have WFR certification, outfitters are sponsoring WFR courses every year, and injured clients are receiving much better care that they received before guides obtained Wilderness Medical Training. Effective January 1, 2005, guides must be certified in WAFA and trip leaders must be certified in WFR.

Finally, we want you to know that the NPS values the relationship that has developed with Grand Canyon River Guides and that we look forward to working with your organization in the future. If you should have any further questions or require additional information, please contact Mike McGinnis, River Sub-District Ranger, at (928) 638-7832.

Sincerely,

Joeseeph F. Alston  
SUPERINTENDENT

## No Boat Left Behind?

THE GRAND CANYON National Park Foundation, its advisory committee, and the Grand Canyon National Park continue to make progress saving boats that have contributed so richly to the human history of Grand Canyon.

The three “Galloway boats” (Stone’s of 1909, Kolb’s 1911 *Edith*, and the USGS-Southern California Edison 1921 *Glen*), which were moved from the old Visitors’ Center courtyard last July 23rd, have now been professionally cleaned and are housed temporarily in the Conservation Workshop. The Georgie White boat and the Marston Sportyak, along with the Kirschbaum kayak and Zee Grant’s *Escalante*, all smaller boats, have been moved into the old National Park Service warehouse. Scheduled for removal from the courtyard in mid-June are the bigger boats: the *Wen*; the *Esmeralda II*; and the *Music Temple*, which are all wider than the building’s courtyard and entry doors. The procedure for removal is still being brainstormed. The current preferred option includes the temporary removal of the glass partitions and doors leading out of the building.

“Save the Boats!” fliers were available at the GTS for handouts to your friends and clients. Fund-raising posters and brand-spanking new t-shirts allow you to be artsy and fashionable as well as support a grand cause. Brad Dimock is researching and writing four pamphlets, each one highlighting a colorful boat and the Save The Boats project.

According to a February 11, 2004 article in *The Grand Canyon News*, the previously known Heritage Education Campus now “bears the working title Village Interpretive Center,” comprised of six buildings southwest of the railway depot. “The laundry building will house the canyon’s historic river boats and other interpretive content highlighting the river experience, as well as a small cafe and seating area.”

The Advisory Committee will be recommending no food in the river-running museum. This laundry building renovation will be launched after the boat conservation is complete and is subject to available funding. All concept plans will have to clear a design review board.

The Save The Boats Advisory Committee presently includes: Brad Dimock, Dave Edwards, Fran Joseph, Tom Moody, Richard Quartaroli, Jack Schmidt, Cameron Staveley, Gaylord Staveley, Ellen Tibbetts, Deborah Tuck, and most recently, Roy Webb. The committee would like to have at least one additional member from an “upper river” state. For more information about these efforts please contact Fran at Grand Canyon National Park Foundation at 928-774-1760 or [fran@gcnpf.org](mailto:fran@gcnpf.org).

*Grand Canyon Historic Boat  
Project Advisory Committee*

## Move The Boats #2

THE GRAND CANYON National Park Foundation, our Historic Boat Advisory Committee, and the National Park Service are hosting a second round of “Move the Boats” and would love to have volunteers from the river community to help out.

Here’s the scoop: We’ll roll the WEN, the Music Temple and the Esmeralda out of the Administration Building (formerly the Visitor Center) courtyard on Tuesday, June 8th between 11:00am—1:00pm. They will be moved to the old NPS warehouse for cleaning and conservation. To celebrate, we will have lunch following the heavy lifting.

Anyone interested in helping can contact me at 928-774-1760 or at [fran@gcnpf.org](mailto:fran@gcnpf.org).

*Fran Joseph*

## Historic Boat Masquerade Ball

THE GRAND CANYON Historic Boat Project is having its first major fundraising event in Flagstaff on Saturday, October 30, immediately following GCRG’s fall meeting. We will have an outrageous band, dancing, auctions, raffles, prizes, displays and a few boat related events. The costume theme is loosely old boats and old boaters, but we’re ruling out nothing. So mark your calendars and plan to make a weekend of it. More details to come in the next BQR.

## The Future of the Canyon's Boats

**F**LOATING BELOW BUCK FARM most of us point out the barely perceptible remains of the *Grand Canyon*, Bert Loper's last boat. It often triggers a story about Bert, about his boat, about how the weather and visitation have reduced it to dust.

Downstream, as we enter Bass Rapid we see another Loper-built boat, the *Ross Wheeler*, lying on the granodiorite slope above the river. Unlike Bert's plywood boat, the *Ross Wheeler* appears immortal and timeless on the slope, and triggers its own story of Charlie Russell's ill-fated trip and how this was the last boat floating of five boats launched.

These two boats epitomize one of the tougher questions we must ask about our river heritage: should they be removed to South Rim for protection, stabilization, and eventual display in the new River Running Museum? Or should they stay in place to become one with the Canyon?

In the early years after Bert Loper's death, Ken Sleight lobbied hard to remove and preserve Loper's plywood boat. No decision was made to remove it, however, and to this day, right or wrong, the boat continues to decay and crumble.

The *Ross Wheeler*, too, has suffered over the decades—oars and oarlocks have vanished, the boat has twice been dragged or rolled toward the river, and the bottom has rusted through in several places. As timeless as it may appear from the river, the *Ross Wheeler* is quite mortal.

Passions on this issue are strong. Some feel that we owe it to posterity to preserve these unique and significant vessels as part of the heritage of the river—that it is selfish to keep the experience of seeing it to ourselves, while leaving an increasingly degraded (if any) resource to future generations.

Others feel that it would be blasphemous to remove them—that these boats are as much a part of the Canyon as *Elves Chasm*. To float by these spots and have no boat there would trouble many people deeply—especially with no museum yet in place for the boats to be displayed. The boats lie where the pioneer boatmen left them, some say, and that is where they belong until there is naught but dust remaining.

To many folks' way of thinking, Bert Loper's *Grand Canyon* is now beyond saving. But perhaps in the case of the *Ross Wheeler* there is a middle ground—perhaps the rust could be stabilized and the boat anchored firmly enough that it would remain indefinitely. In this scenario the boat could be re-evaluated periodically and could always be removed if decay or damage began to exceed acceptable bounds.

Another thought is to build replicas of each boat to either display on the Rim for posterity, or to replace the boats now along the river while the originals are archived. These are but a few of the viewpoints and options, and there is no right or wrong.

As part of the *Save the Boats* project we are dedicated to protecting and exhibiting the boats already off the river, but individually we are torn by these same issues. We have discussed the issue with the National Park Service and they are torn as well. In as much as these boats belong to the public, we'd like to open a discussion

on their fate. This is not a vote, so much as it is a request for feelings and ideas on the future of these boats and other perishable artifacts that remain in the Canyon. Think about what they may mean to you, and what our action or inaction will mean for future generations. Please take the time to drop a line or email—your ideas will help us and the National Park Service find the way through these tough decisions. Thanks for your concern—

Write:

C/o Grand Canyon National Park Foundation

625 North Beaver Street

Flagstaff, Arizona 86001

Or Email:

fran@gcnpf.org

*Brad Dimock & Tom Moody*

THE GRAND CANYON HISTORIC BOAT PROJECT



Bert Loper's "Grand Canyon" in 1949. Little remains today.  
P.T. Reilly photo, NAU.PH.97.46.121.76

## Ross Wheeler Update

ACCORDING TO David Lavender in *River Runners of the Grand Canyon*, in 1914 Bert Loper built the boat *Ross Wheeler* for an ill-fated trip with sometime associate Charlie Russell, and named it after a friend who had recently been murdered. Somehow Russell took the iron-clad boat away from a Loper acquaintance in Green River, Utah who was acting as the boat's guardian. The Russell party, after many a momentous event into the next year, ran the *Ross Wheeler* into the Grand Canyon to River Mile 108, walked out the Bass Trail, and left "the *Ross Wheeler* rocking gently at the margin of the river..." Deciding that the *Ross Wheeler* might come in handy some day, John Waltenberg, William Bass' occasional employee and partner, winched it up the bank out of reach of floods.

Since 1915, the *Ross Wheeler* has resided in this general area, on the talus slope, river left above Bass Rapid. As can be seen in the accompanying photographs, the position of the boat has varied over the years. In addition, many associated artifacts are now missing: a cork life jacket; three oars with oarlocks; all but one of the hatch latches; a heavy rope bowline; and a block and tackle. Around 1984, Kim Crumbo and the River Unit found the *Ross Wheeler* rolled upside down once in an apparent attempt to move it toward the River. Crumbo said the boat was heavier than it looked and it took all they could to right the boat; Subdistrict Ranger Charlie Peterson then chained and bolted it to the granite.

In July, 2002 Tony Anderson, while doing two back-to-back trips, noticed that the *Ross Wheeler* was in a different position and notified Ranger Dave Desrosiers, who contacted all hiking and river parties during that period. According to boatmen, this was a period of huge winds. Desrosiers



*Ross Wheeler* today: stripped bare.

In late February, 2004 Balsom and crew "found an inflatable raft and oars stashed inside the back compartment." Duct tape and all. Not an appropriate use for this historic craft. White has found a beer stash in the *Ross Wheeler* and, on this year's GTS trip, he

reported that "someone had rigged a pull string firework under the front and back hatches, duct taped into place. Neither detonated. The new position of the boat allows water to collect and remain standing in the cockpit accelerating the rust.

With discussion ongoing, what possible options does the river community now have? Education is a first step. These articles, besides appearing here, will also be printed in *The Waiting List* newsletter of the Grand Canyon Private Boaters Association and will be submitted to the newsletter of the Grand Canyon Hikers and Backpackers Association. A series of pamphlets on each of the historic boats is being designed, including both Loper boats, and the pamphlets will be made available to all river and backcountry hiking parties. Positive peer pressure along with eternal vigilance may help keep

people from "simply messing about with [these] boats" and other historic artifacts.

*Richard Quartaroli*



*Ross Wheeler* in 1960 on Jetboat uprun.  
Bill Belknap photo. NAU.PH.96.4.95.68

# Adaptive Management Program

(this article is specially equipped for the acronym-challenged)

THE AMP (Adaptive Management Program, or “amp”) for Glen Canyon Dam was set up to advise the Secretary of the Interior on how to operate Glen Canyon Dam for the benefit of downstream resources, in addition to the other beneficial uses of Glen Canyon Dam, such as upstream recreation, electrical power generation, and water storage/supply.

The “amp” consists of the AMWG (Adaptive Management Work Group, or “amwig”), and its sub-group the TWG (Technical Work Group, or “twig”), the GCMRC (Grand Canyon Monitoring and Research Center, or “Gikmurk”), and an independent science review board. GCRG (Grand Canyon River Guides, or “gee cee arrr gee”, or “the guides”, or “insert your own nickname here”) has a representative on the “amwig”, Andre Potochnik, a representative on the “twig”, Matt Kaplinski, and an alternate “twig” representative, John O’Brien.

Much of the work of the “amp” is deciding how to efficiently create experiments that will tell us something about the best way to operate Glen Canyon Dam. GCRG’s main interests are in the downstream resources, but we are only one of the 27 stakeholders. Our role is necessarily collaborative, and we find ourselves agreeing with some of the other stakeholders on particular issues, and disagreeing with the same stakeholders on other issues. Most issues eventually come up to a vote, and if a proposal is voted on and passes, it is forwarded to the Secretary of Interior as a recommendation.

How are things going with the “amp?” Well, every species that was endangered when we started is still endangered. Sediment replenishment is still dependent on tributary flooding, which we haven’t had much of lately. The river is still cold, clear, and supporting a healthy population of non-natives. Some folks think the “amp” bureaucracy is inefficient as well. That may well be true. However, until a better way is proposed, we feel that participating in the program is the best way to effect changes in dam operations in order to meet our organization’s primary goal of protecting Grand Canyon.

Is there any good news? Well, we know more about what is ailing the Humpback Chub, if not the solution. We’ve learned quite a bit about how, when, and why sediment moves through the system. We’ve identified some inefficiency in the AMP system, and we are working at fixing that. We’ve identified some like-minded stakeholders at the meetings, and we are making allies and building (sometimes temporary) coalitions. We have received approval to modify flows to conserve sediment following a sediment input, and we

have received approval to conduct a greater than power-plant flood experiment to build beaches when the sediment arrives. It hasn’t arrived yet, but those approvals are important concessions, as important as the original 45,000 cfs flood in 1996. Once again, all stakeholders, the federal agencies, the water and power interests and the tribes have agreed to operate the dam in order to benefit the downstream resource. That is what the Grand Canyon Protection Act is all about. It is working, however slowly.

The TWG is currently advocating the adoption of a long-term experimental flow plan, so that deciding on flows doesn’t come up every year. There is tremendous economic pressure each year to go back to high fluctuating flows during summer months to maximize hydropower revenues. In addition, there is evidence to suggest that high fluctuating flows may have been better for the Humpback Chub population than the current Modified Low Fluctuating Flows. A long-term plan of flows should be designed that answers these questions.

## TOWARDS A LONG-TERM EXPERIMENTAL FLOW PLAN

In December 2002, Secretary of the Interior Gail Norton approved the first two years of a sixteen-year program of experimental flows. This two-year experiment included the 5,000 to 20,000 cfs fluctuations from January to March, the mechanical removal of trout in the vicinity of the Little Colorado River (LCR), and the much anticipated “flood” of 45,000 cfs in early January if the Paria River inputs over a million tons of sand by October 1. (Note: one big Paria dump of about 4,000 cfs would input around a million tons of sand). Unfortunately, the “amwig” could only agree on the first two years of the experimental flow program. So, here we are in the second year of our experiment with no plan for what to do next.

The “twig” met on May 3rd and 4th to discuss/develop/argue about what to do next and develop a long-term plan of experimental flows, or flows different from the MLFF (Modified Low Fluctuating Flows, or “em el ef ef”) prescribed by the EIS (Environmental Impact Statement, or “e eye es”). “Gikmurk” presented their take on just what that plan should look like and much talk and acronym slinging ensued.

The two big issues being addressed in this plan are the decline of the Humpback Chub population and the loss of sand. The focus of the experimental flow plan is to manipulate mainstem flows in order to answer two hypotheses related to the chub: 1) predation/competition is contributing to the population decline; and 2)

changes in physical habitat (flows and temperature) are contributing to the population decline. Other factors exist, such as changes in the LCR hydrology and Asian tapeworm infestation, but these are not really testable with large-scale flow manipulations. The plan also includes flood experiments to see if we can manage the loss of sand. The flow schedule is laid out in a block design that will allow “Gikmurk” scientists to determine the effects of each factor alone or in combination with other factors on the humpback chub and sediment response.

**So, HERE’S WHAT IT LOOKS LIKE:**

“Gikmurk” recommended that the flows consist of two alternating flow regimes; 1) high fluctuating flows,

rates would range between 4,000 to 5,000 CFS/HR. Yikes!!!!

The stable flow regime would consist of constant flow releases based on monthly volumes. During years of relatively low-volume releases from Lake Powell, like we’re experiencing right now, late summer flows (August to December) would remain at a constant 8,000 CFS.

Operations during the summer months (May through July) would follow existing MLFF guidelines. This one throws recreation users a bone during the fluctuating years and lets the power folks generate some dough during the stable years.

The ongoing mechanical removal of trout will continue in four-year blocks, which means two more

Water Year (Starting Oct. 1)	Flow Treatment (Jan–March, & July–December)	Mechanical Removal of Trout in Grand Canyon (Jan–March & July–December)	Temperature Control Device/Low Reservoir Releases	Beach Habitat Building Flow (January–July)
WY2002–2003	Fluctuating	Remove Fish	Random	Event driven
WY2003–2004	Fluctuating	Remove Fish	Random	Event driven
WY2004–2005	Stable	Remove Fish	Random	Event driven
WY2005–2006	Stable	Remove Fish	Random	Event driven
WY2006–2007	Fluctuating	Don’t Remove Fish	Random	Event driven
WY2007–2008	Fluctuating	Don’t Remove Fish	Random	Event driven
WY2008–2009	Stable	Don’t Remove Fish	Random	Event driven
WY2009–2010	Stable	Don’t Remove Fish	Random	Event driven
WY2010–2011	Fluctuating	Remove Fish	Random	Event driven
WY2011–2012	Fluctuating	Remove Fish	Random	Event driven
WY2012–2013	Stable	Remove Fish	Random	Event driven
WY2013–2014	Stable	Remove Fish	Random	Event driven
WY2014–2015	Fluctuating	Don’t Remove Fish	Random	Event driven
WY2015–2016	Fluctuating	Don’t Remove Fish	Random	Event driven
WY2016–2017	Stable	Don’t Remove Fish	Random	Event driven
WY2017–2018	Stable	Don’t Remove Fish	Random	Event driven

and 2) stable flows. As you can see from the chart above, these flows are scheduled to occur on two-year alternating blocks.

Under this proposal, high fluctuating flows would occur from January to March, and from August to December. Daily and hourly operations would maximize the range in flow release. The maximum daily release would not exceed 31,000 CFS and the minimum release would not go below 5,000 CFS. Up-ramp rates are unrestricted and the descending

years of trout removal from Kwagunt to Lava Chuar rapids.

Because the effects of warming the water are relatively random until the BuRec builds a TCD (Temperature Control Device, or “tee cee dee”), these will be studied as random events. Currently, low lake levels will lead to warming of the water. This gives the “Gikmurk” crew an opportunity to study the effects of warmer water on the fishies before the “tee cee dee” goes on-line.

The fundamental sediment experiment is considered event-driven based on the uncertainty of inputs from the Paria River. The goal is to deposit as much available sediment as possible at high elevations (above 30,000 cfs) with short-duration, high-discharge releases following a big dump from the Paria River. Two strategies will be tried first. The first strategy will be the flood experiment that has been approved yet stymied for the past two years by the Paria River's lack of cooperation. Following sufficient Paria inputs, flows would remain at a constant 8,000 cfs until a two-day, early January BHF (Beach/Habitat Building Flow, or a controlled flood greater than power plant capacity, or "bee h bee ef"). The second strategy is to immediately follow Paria River inputs with short-duration power plant capacity floods that are intended to load eddies with the new sand until an early January "bee h bee ef". The third scenario recommended by "Gikmurk" scientists would be to immediately follow Paria River inputs with a "bee h bee ef". This scenario is contested by the basin states because the Law of the River states that spills are to be avoided unless it's an emergency. The argument can be made that the GCPA (Grand Canyon Protection Act, or "Grand Canyon Protection Act") allows spills for ecological purposes. Ultimately this dispute may have to be settled in court.

So, there's the breakdown for what flows will look like until 2018! This is just a proposed plan, I repeat a *proposal*. However, the proposal has received a consensus agreement as a reasonable way to go at the "twig." We, your GCRG representatives, have requested that GCMRC run the sediment transport model to determine the relative export of sediment between the three flow regimes. Those 3 regimes are: 1) 5,000 to 31,000 cfs fluctuations, 2) MLFF, and 3) stable flows. We would like to see if there's a way to perhaps knock the high-end of the high fluctuations down a bit—perhaps to 20,000 cfs, without exporting more sediment.

We need input from all of you out there in BQR land. This plan is pretty aggressive and as your representatives in this process, we, GCRG, are still trying to figure out what would be best. What do *you* think? Drop us an email at [gcrg@infomagic.net](mailto:gcrg@infomagic.net), write us a letter, or better yet, come to one of our board meetings and tell us in person.

*Matt Kaplinski, John O'Brien & Andre Potochnik*

## Warmer Water?

**G**CRG HAS SUBMITTED this letter to the Bureau of Reclamation (BOR) in response to a request for comments to be considered in the development of an Environmental Assessment (EA) regarding the feasibility of installing Temperature Control Devices (TCD) on two penstocks at Glen Canyon Dam. The Bureau had released a Draft EA on an eight-unit TCD for Glen Canyon Dam in 1999, but did not finalize that assessment and National Environmental Protection Agency (NEPA) process due to questions about the potential adverse impacts of the device on downstream resources. In simple language the initial EA did not adequately address serious concerns, they've been studying the potential for a TCD in the interim, and they're ready for Round Two. If you would like to receive a copy of the Draft EA when it is available, please contact the US Bureau of Reclamation, attention Nancy Coulam, UC-720, 125 South State Street, Room 6103, Salt Lake City, UT 84138-1102, or by email to [ea\\_comments@uc.usbr.gov](mailto:ea_comments@uc.usbr.gov)

April 29, 2004

Bureau of Reclamation

Attn: Nancy Coulam, UC-720  
125 South State Street  
Room 6103  
Salt Lake City, Utah 84138-1102

Re: Glen Canyon Dam Temperature Control Device,  
Comments  
From: Grand Canyon River Guides

Dear Ms. Coulam,

Following are comments from Grand Canyon River Guides (GCRG) on Reclamation's plans to develop an Environmental Assessment regarding the feasibility of installing temperature control devices (TCD) on two of Glen Canyon Dam's penstocks.

### 1) Potential environmental effects of construction and operation of a two-unit pilot project TCD:

a) The TCD could reduce a full (45,000 cfs) sediment conservation flow experiment following a sediment trigger during construction. TCD construction might even further reduce the flow if it is concurrent with scheduled generator/turbine maintenance.

b) Warmer water temperatures may support elevated levels of water-borne pathogens and adversely affect human health in the downstream reach.

c) Warmer water may distinctly advantage predator, competitor and parasite species to native fish. Warmer conditions in the Little Colorado River (LCR) have



apparently advantaged a parasite that is detrimental to the humpback chub (fish in the colder main-stem have a lower infection rate than the fish in the warmer LCR.)

d) Warmer water/water quality from the near surface may introduce waterborne disease or pathogens that may be detrimental to human use of the downstream reach.

e) Warmer water/water quality from the near surface may introduce diseases or competitors, predators or parasites that could adversely affect native fish populations. It may also introduce other key biological and physical water quality factors from the lake's upper water levels.

## 2) Reasonable alternatives to the proposal:

a) Compare native fish recruitment and survival in the upper basin due to the affects of the Flaming Gorge TCD with what could be expected in Grand Canyon.

b) Use the TCD at Flaming Gorge to carry out temperature variation experiments on native fish populations in the upper basin. The results could be used for extrapolation of TCD effects in Grand Canyon.

c) Ensure that refitting two intakes is sufficient to achieve the desired goals and carefully consider what number of modified intakes will accomplish an adequate test in a reasonable time period under different Water Year scenarios (High, Medium, and Low).

d) Use the predicted warmer temperatures in the near-term from Lake Powell (due to reservoir draw-down) as a stand-in for some of the experiments at a much lower cost.

## 3) Measures to avoid or lessen environmental impact:

a) Ensure scheduling of TCD construction and generator/turbine maintenance that will not inhibit the

implementation of any future Beach Habitat Building Flows.

b) Monitor and research the causes of outbreaks in waterborne pathogens to determine if temperature is a controlling factor for human health.

c) Use information from other agencies to determine water quality related disease outbreaks on the Colorado River below Glen Canyon Dam. You can contact: Coconino County Health Dept., attn: Marlene Gaither (928) 226-2769.

d) Incorporate strong biological data supporting conclusions and specific, well designed monitoring studies that can discern any detrimental impacts to native fish in this complex system.

e) Examine closely the risk factors for the introduction/advantaging of disease, parasites, competitors and predators that could adversely affect native fish. Examine research on native fish populations in Cataract Canyon for any parallels.

f) Use existing knowledge and research from the upper basin conditions to inform the decision on whether to build a TCD on Glen Canyon Dam. We should understand the principal factors in native fish decline before moving forward with construction of the TCD.

Thank you for the opportunity to comment.

Sincerely yours,

*John O'Brien, PRESIDENT*  
*Andre Potochnik, AMWG REPRESENTATIVE*  
*Matt Kaplinski, TWG REPRESENTATIVE*  
*Lynn Hamilton, EXECUTIVE DIRECTOR*



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## Back of the Boat— The Whale Foundation News Bulletin

### WHALE FOUNDATION HEALTH FAIR

**W**HEN TOM MYERS first floated the idea, it made sense. As I watched it come together from the periphery of Whale Foundation board meetings, it sounded really good. But when I saw the “Health Fair” in action...it blew my mind.

With the help of Steve and Sarah Hatch, we set up in the office above the warehouse/dance floor at Hatchland. The Fair flowed into the recently remodeled “boatman’s lounge” area. Just climb up the stairs...

There you were met by a volunteer who asked you to register and introduced you to the availability of brochures and handouts on numerous health topics and the amazing group of health professionals on hand to offer their services.

Meet Dr. Diane Hoffman and Eric Pitcher, PT from Flagstaff Medical Center Physical Therapy, there to offer suggestions and assistance on repetitive stress and other injuries.

To their left is Dr. Maureen Meyer, who will take a look at your eyes, screen for glaucoma, lens disorders, corneal and retinal disorders and visual acuity problems and answer your optical inquisitions.

Next up the “Boatman’s dentist” Jim Marzolf, who will be happy to grab your tongue and take a look at your oral state of being. Screen for anything obvious, and offering his friendly advice if you have any questions.

Watch out for young Eva Hatch chasing her mom, Sara, then head back and shake hands with Dr. Walt Taylor, the greatest family practitioner, humanitarian and friend to ever set foot in these parts. Walt will take a look and see how your skin is holding up to all that sun and wind and rain we sometimes live out in. Not to mention he is there to talk to and answer any questions you have.

Are you getting a general theme here?

Lora Colten, offering her lovely smile and to take your blood pressure, just...FYI.

Dr. Michele Starr-Grua was next, teaching self-examination techniques for women to check for breast lumps and to pass out certificates for a free mammogram.

Then take a seat and talk to Dr. Tom Myers, another outstanding family doctor and humanitarian who hatched this whole idea in the first place. He wants to know about your family health history and what you may want to be aware of down the line...and he wants to give you a voucher for a blood work series to check for anemia, leukemia or infection. A basic metabolic profile voucher was also available which includes blood

sugar level (diabetes), electrolytes (potassium, sodium, chloride) and kidney function. Then a full lipid profile: Total cholesterol, HDL, LDL and triglycerides. And, PSA: prostate specific antigen for prostate cancer.

Yes, it too is free. Oh, and if you’re in the risk group for prostate cancer...there is another voucher for a free test.

Whew!

OK, let me get this straight...

In an era of ever increasing health care costs and difficulty gaining access to medical professionals...here was a group of them, members of our community, volunteering their time and expertise to come to Marble Canyon (or wherever) to “check up” on their brothers and sisters.

When you stop to add it up, a retail examination by these docs would run about \$75.00 each, a physical therapist \$60.00, Marzolf \$60.00 then with the two mammogram vouchers worth \$200.00 each and the twenty lab work vouchers saving each recipient \$100.00, you can see what an incredible donation and ridiculous bargain this was. And as it turns out, some skin cancers were discovered which gave a couple of people a head start on treatment. Right on!

By all accounts a majority of the working guides present at the GTS registered to go through the “health fair,” to run the gauntlet and get an idea of how it’s looking for them. They were smart, ahead of the curve...lucky...it doesn’t matter.

But it is a visionary idea that has a very bright future.

So what...you were there and you didn’t take advantage of it. No big deal.

You couldn’t make it to the spring GTS this year. That’s OK.

The Whale Foundation and all the Doctors are fired up about it and we’ll be there again next spring.

This is our community. We get it. We’re going to take care of our own.

Do you have something you want to share?

See you all next spring.

*Robby Pitagora*

### CORRECTION

In the last BOR we wrote that Grand Canyon Expeditions (GCE) would be paying for Whale Foundation services for its crew. While GCE has been a generous financial contributor to the Whale Foundation’s efforts, it is Canyon Explorations who is providing their employees with financial assistance with Whale Foundation services. Welcome aboard Canyon Explorations and thank you.

### SPRING GTS

We want to thank Ted Dwyer of Dwyer Financial in Flagstaff for an informative and fun presentation on financial planning at the GTS. We appreciate the time and effort you devoted to helping guides build and realize a more secure financial future. Ted has graciously volunteered his time to the Whale Foundation to help any guide start a financial plan. If you would like to talk to Ted his door is open at: 2615 N. Fourth Street Suite 5 Flagstaff, AZ 86004 (928) 774-7679 Toll Free (800) 474-7679 [dwyerfinancial@msn.com](mailto:dwyerfinancial@msn.com)

### ANNOUNCEMENTS

- Kenton Grua Memorial Scholarship applications are due by August 1, 2004. For information on the scholarship program and an application please visit our website.
- The Whale Foundation 2005 Calendar can now be ordered from our website. It's a beautiful collection of paintings and drawings with historical dates by Grand Canyon artists and guides like Bruce Aiken, Steve

Bledsoe, Serena Supplee, Ellen Tibbetts, Dave Edwards, Ote Dale and other boating luminaries. It's a collector's item on sale for \$10.00 and would make a fun gift for any Canyon lover.

- The third Annual Whale Foundation WingDing is set and will be held Saturday February 5, 2005 at the Coconino Center for the Arts in Flagstaff.
- Chemical Dependency and Denial: This a very real problem and at heart of the Whale Foundation's mission. Sandy Nevills Reiff, has written an outstanding article on dealing with this very subject. It's a tough-love approach to a tough issue, but worthwhile and a must read, especially if you or someone you know is caught in the struggle. The article can be found on the Whale Foundation's website at [www.whalefoundation.org](http://www.whalefoundation.org)

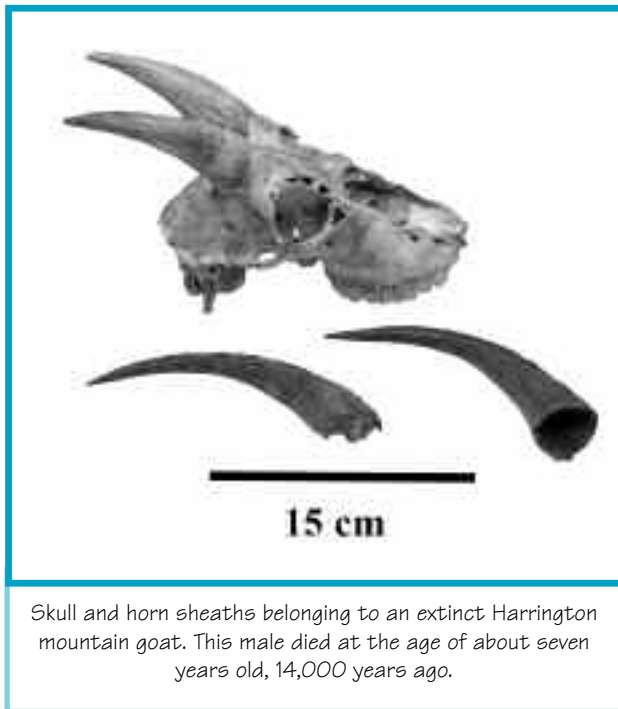
If you need help in any way, please call our confidential hotline toll free at 1-866-773-0773. We also have a plethora of information at [www.whalefoundation.org](http://www.whalefoundation.org). P.O. Box 855 Flagstaff, AZ 86002-0855.



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## Canyon Dwellers During the Ice Age and Since

**W**E ALL HAVE KNOWN for a few decades now that during the Ice Age (11,000 years ago back to about two million) the extinct Harrington mountain goat (*Oreamnos harringtoni*) was the predominant large canyon dweller. It lived from rim to river, east to west. Its remains are found in almost every cave, all except those located on the sheer face of



Skull and horn sheaths belonging to an extinct Harrington mountain goat. This male died at the age of about seven years old, 14,000 years ago.

the Redwall. It was a most ardent cliff climber—far better than the bighorn sheep (*Ovis*) and certainly more adept than the deer (*Odocoileus*) or the awkward wapiti (elk, *Cervus*). Only condors, vultures, owls, and ravens could out-do the mountain goat—and they could fly. But there are other critters that lived in the Canyon.

The mosaic, the construct, of animal communities is ever changing; never the same. *Can our views, conclusions, and sustainability laws keep up with these constant alterations?* What we have studied is patchy in distribution; in other words, biased. What we do understand—or think we know—are the fossil deposits within the river corridor of the upper, say, 50 river miles (RM). Unfortunately, it is rare to have a comprehensive knowledge of deposits up and away from the effects of the river corridor. The deposits are less well known from RM 50 to 100. From there to RM 274 we understand just about zippo; about 170 miles of corridor, associated side canyons, and rimming plateaus are *terra incognita*

(unknown lands) for Ice Age fossils. We do have a pretty good understanding of the last four miles of corridor as the River readies to jettison (now ooze) from the Colorado Plateau at the Grand Wash Cliffs.

I began my search for the Ice Age animals of the Grand Canyon in 1974—thanks to Paul Martin. What little we know today stems from thirty years worth of work. Recently a new wave of prospecting and discoveries has materialized. Grand Canyon National Park, Grand Canyon-Parashant National Monument, and Lake Mead National Recreation Area realize that they need assistance in locating and assessing their fossil resources—our natural heritage. Teamwork is required with this vast land.

Larry Coats, Steve Emslie, and I have examined dried deposits well out of the river corridor in the eastern Grand Canyon. A tooth of the extinct camel (*Camelops*; not related to the living camels) radiocarbon dated to 16,000 years old. This is detailed in a chapter in the new book, *Ice Age Cave Faunas of North America* (Indiana University Press). Related to this is Coats' detailed report about the changes in vegetation going back about 46,000 years. Occasionally bones of the extinct shrubbox (*Euceratherium*; relative of the living muskox) are being recovered in relatively flat plateau areas that have easy access from the rim.

The keratinous horn sheaths of the bighorn sheep have been recovered from a number of dry deposits. Radiocarbon dating minute fragments (the size of a match head) of these treasures illustrates that the bighorn and Harrington mountain goat co-existed for at least 10,000 years along the river corridor. It is not understood if it was the glacial climates that corralled the bighorn in the warmer Inner Gorge 11,000–20,000 years ago or if it was out-competed (restrained) by the



Bones of an ancient ringtail in a cave on the Shivwits Plateau  
photo by Sandy Swift

well-established Ice Age horse (*Equus*; a small species like the burro) and Harrington mountain goat. My studies of the dung of the Harrington mountain goat indicate that its diet was very similar to that of the living bighorn sheep. The NPS concluded years ago that the burro introduced by the miners had a diet similar enough to that of the native bighorn that they were both in competition for the same food resource—hence why the invading burro was removed. The diet of the Ice Age burro may have been similar. It appears to me that the bighorn has filled all available niches vacated by the extinction of the Ice Age horse and Harrington mountain goat 11,000 years ago. Extinction of one species can lead to expansion of another.

Sandy Swift (NAU Laboratory of Quaternary Paleontology) has located a wealth of information left by a little carnivore, the ringtail (*Bassariscus*). This new data set is recovered by screen washing 6,900-year-old dung deposits through 500-micrometer mesh sieves (1 mm mesh was way too big). She found that bones of the nocturnal banded gecko (*Coleonyx*) were common. She also retrieved the first fossil record in the Grand Canyon of the desert iguana lizard (*Dipsosaurus*), blind snake (*Leptotyphlops*), shovel-nosed snake (*Chionactis*), and frogs (*Hyla* and *Bufo*). The ringtail was preying on these critters in the wide, sandy, riparian community bordering the Colorado River in the western-most four miles of the corridor—an area not thoroughly studied prior to being inundated by the rising Lake Mead reservoir in the 1930s.

Mary Carpenter (NAU Laboratory of Quaternary Paleontology) has finished her study of the vertebrate fossils collected by the Smithsonian Institution from Rampart Cave (RM 274) in the 1930s and '40s. Although famous for its copious amount of dung produced by the extinct Shasta ground sloth (*Nothrotheriops*), the cave also contains a wealth of information about Ice Age bighorn sheep, tortoises (*Gopherus*), Harrington mountain goats, condors (*Gymnogyps*), black vulture (*Coragyps*; this species not in Canyon today), other birds, and among all things, vampire bats (*Desmodus*).

Bison (*Bison*)—the American buffalo, icon of the prairies and mid-West in the 1800s—is an interesting problem for the Grand Canyon land managers. A state



Terra Incognita—the plateaus and canyons of the northwestern Grand Canyon country  
photo by Sandy Swift

herd is sneaking onto national park lands along the North Rim country (without a permit no less). It should do well on grassy, even patchy, open woodlands, forests, and plateau tops. Although considered a “good climber,” it will be difficult for it to go down to the river corridor. The bison will not do well in regions with really hot summer temperatures. These temperatures and availability of water will likely be its constraints.

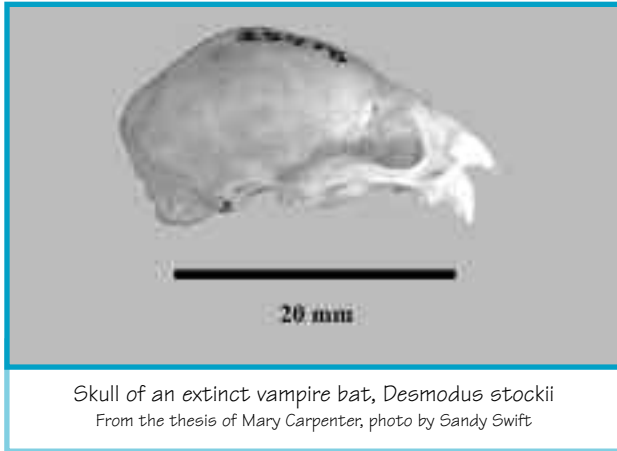
*Is it a newcomer or just a reminder from the past?* We know that during the Ice Age climates it lived along the rims and likely was able to get to the river a few places within Marble Canyon. Maybe the Ice Age bison was removed when the horse, Harrington mountain goat, and scavenging condor were forced out of the Grand Canyon by changing community structure, climate, and the arrival of hot

summer temperatures. Beginning about 8,000 years ago, much of the Grand Canyon and surrounding plateaus became marginal habitats for the bison. *Were bison completely eradicated, living only to the south, north, east, and west of the Grand Canyon?* Part of the problem is that we have not adequately prospected those areas that could have supported a marginal population (for instance on the Sanup Plateau). Bison are known from archaeological localities in the Grand Canyon region. Maybe these were locally procured, or alternatively, brought in (traded in) as a “foreign product.” We don’t know enough yet, but we do know there is a huge area of potentially suitable habitat yet to search. Land managers and ecologists fully understand that bison do modify meadows today (wallow pits and trails)—just as they did years and years ago. Another complication is that the invading bison of today is utilizing a slightly different habitat with a slightly more stressful climate than the bison did during the late Ice Age or even since. The issue is complex. I would think that any bison that cannot make a living in the Grand Canyon today would be a welcome dinner or two for the reintroduced condor.

We still do not fully understand when the wapiti first showed up along the Grand Canyon, but subfossil data imply that it was very recently. And, talk about recent...the peccary (the wild javalina; *Tayassu* or *Pecari*) is just now moving into the Grand Canyon. This introduction appears to be natural, allowed by the overly

warm winters that we have experienced over the past 5–10 years.

I hope the reader realizes that the animal communities of the Grand Canyon region are dynamic—an ever-changing mosaic of species. Extinction and expansion



are not necessarily an “event” but a “process” over time. As precipitation, seasonality of precipitation, and temperatures change, species of animals react individually to this either by disappearing (dying) or migrating (either expanding or retreating). As more areas open up as suitable habitat, then through time those areas are filled, first by vagrant explorers then by colonizers. The dry environment and the enormous number of caves and shelters have preserved an unusually detailed record of the changing animal communities in the Grand Canyon. We still have a lot to learn about a record worth assessing and preserving.

*Jim I. Mead*  
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PROGRAM, NAU

## Book Reviews

"RIVERMAPS™ GUIDE TO THE COLORADO RIVER IN THE GRAND CANYON LEES FERRY TO SOUTH COVE" BY TOM MARTIN AND DUWAIN WHITIS, 2004

Duwain Whitis of RiverMaps™ and Tom Martin (River Runners for Wilderness) have teamed up to produce a visionary new guidebook to the Colorado River that is an eye grabbing "instant classic." If you appreciate the detail shown on USGS topographic maps, you'll want this book.

The course of the river from the Lees Ferry Boat Ramp to Pearce Ferry is shown on 50 pages of full-scale 7.5' quadrangles; a 51st map at half scale details Lake Mead the rest of the way to the South Cove takeout. Downstream is at the top of the page, the opposite of the convention found in the familiar Belknap and Stevens guidebooks. This makes sense: river left is on the left of the page, a bend to right in front of you bends to the right on the page. North arrows at the top of each page show geographic direction, which can also be recognized from the orientation of the text on the quadrangle maps.

Superimposed on the topographic background are river mileage points, the names of side canyons and other attraction points, rapids and their ratings (1-10), popular campsites, and information about restricted areas.

Each map page faces a descriptive page with information about these features, and one or two b/w photographs. Topographic details of the canyon are shown, on the average, a mile and a half or so away from the river on both sides: everything you need for most of the off-river hiking on a typical trip. The longer Tapeats - Thunder River - Surprise Valley - Deer Creek hike is illustrated on the front cover.

Interpretative information about regulations, plants, archaeology, and geology appears in brief detail in the first couple pages, along with several suggestions for additional references. The authors don't attempt to make this a comprehensive guide to everything in the canyon, recognizing that river runners will carry additional references to address their own particular interests and needs. But they do strive to provide the very best and most comprehensive maps possible, in a convenient and attractive format. In this they succeed in a spectacular fashion, and boaters who already have a stack of other guidebooks will recognize the value of adding this one to their collection as well.

The guide book is visionary in that all the illustrations show oar-powered non-commercial boats and boaters. Commercial and motorized boating are barely mentioned, and all but invisible, the sole exception being a photograph of the Diamond Creek takeout

with a couple unrigged Hualapai snout tubes. There's a subtle message here, but it does not detract from the attractiveness or utility of this otherwise excellent addition to the literature of Grand Canyon river running.

Vishnu Temple Press, P.O. Box 30821, Flagstaff, AZ 86003-0821, [www.vishnutemplepress.com](http://www.vishnutemplepress.com), ISBN 0-9674595-2-4, about 9" by 14" (fits in 20 mil box, but not in a 50 cal personal ammo box), spiral bound, 108 "waterproof plastic" pages, \$24.95.

*Drifter Smith*

**"PEACEFUL CANYON GOLDEN RIER" A PHOTOGRAPHIC JOURNEY THROUGH FABLED GLEN CANYON, COMPILED BY DAVID AND GUDY GASKILL, 2002**

This colorful collage of photographs and journal entries provides an amazing visual journey downriver through Glen Canyon before it was buried beneath Lake Powell in the early 1960s. The trip starts at the end of



Cataract Canyon and ends at Wawheap Canyon, just upstream of the dam site. There are 228 photographs in the book, compiled from 36 photographers. Most of

the photographers were amateurs who were shooting scenes of their river trip with typical equipment of the day. This, I think is one of the most engaging elements of the book. Snapshots of explorers of all ages floating, hiking, camping, and swimming, rafts overflowing with tanned bodies in big sun hats and tennis shoes, not a single lifejacket to be seen—if these images don't evoke "the good ol' days" on this big lazy stretch of river through paradise I don't know what could.

The photographs are interspersed with quotes from legendary early explorers and writers, and journal entries from personal river trips. Included with the book is a CD containing over 800 photographs of Glen Canyon and its tributaries including hundreds never before published, and two songs performed by Katie Lee. Unfortunately this CD requires Windows, so if you're a Mac user (as we are) you'll have to check it out on a different computer. I did, and it is definitely worth a look at all these additional photographs, most of which were taken by David

and Gudy Gaskill on their numerous trips down Glen Canyon from 1949–1962. It's an amazing look at a collection of river trip photos through an incredible place that no longer exists.

Colorado Mountain Club Press, 710 10th Street #200, Golden, CO 80401, [www.cmc.org](http://www.cmc.org), ISBN 0-967-1466-5-8, 96 pages, \$14.95.

*Mary Williams*

**"WHITEWATER CLASSICS—FIFTY NORTH AMERICAN RIVERS PICKED BY THE CONTINENT'S LEADING PADDLERS", BY TYLER WILLIAMS, 2004.**

Unlike the sport of climbing, whitewater paddling has always lacked a definitive voice, until now. *Whitewater Classics* is an entertaining overview of the continent's wildest rivers and its most renowned paddlers.

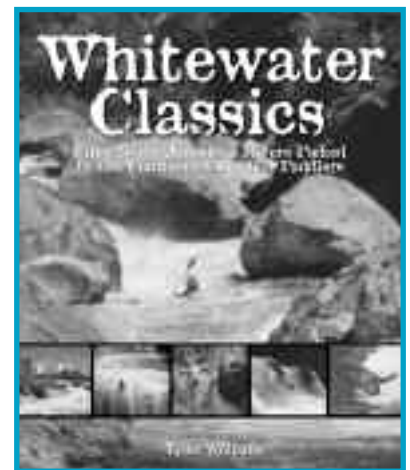
To select the fifty classic rivers profiled in this book, author Tyler Williams contacted the most influential paddlers of our time, and asked them to do the choosing.

This full color book includes photographs and descriptions of each river, along with profiles of the paddlers themselves. The stories behind the paddlers are inspiring, entertaining, interesting and a big addition to the book. Even if you're not a hardcore whitewater addict this is a great read.

Featured kayakers and canoeists include both whitewater pioneers from the '50s and '60s, and waterfall-hucking stars of today. In researching the book, Williams ran 31 of the 50 classic rivers in the book, on a two year paddling blitz from southern Mexico to Alaska, and the Sierras to the East Coast.

Included in this book are the Colorado in Grand Canyon (chosen by Olympic K-1 slalom champion Dana Chladek) and Grand Canyon guide Josh Lowry (who chose the Middle Fork of the Salmon).

Funhog Press, PO Box 1334, Flagstaff, AZ 86002, [www.funhogpress.com](http://www.funhogpress.com), ISBN 0-9664919-3-9, 240 pages, \$26.95.



# The Blind Men Visit The Elephant

REPORT FROM THE HEARING ON H.R. 4160,  
RICK RENZI'S  
"GRAND CANYON HYDROGEN-POWERED MOTORBOAT  
DEMONSTRATION ACT OF 2004"  
SHRINE OF THE AGES, MAY 15TH, 2004

RECENTLY, Congressmen George Radanovich (R–Mariposa, CA) and Rick Renzi (R–Northern Arizona) listened to testimony on “Hydrogen Fuel Cell Technology in the National Park System” from GCNP Superintendent Joe Alston, GCROA Executive Director Mark Grisham, and officials from the U.S. Dept. of Energy, the Army Corps of Engineers, the Hualapai Tribe, and other academic and corporate institutions involved in R & D of Hydrogen Fuel Cell technology.

The “briefing paper” in the press packet began with the following paragraph:

“Hydrogen accounts for 90% of the universe’s weight. It is found in water, which covers about 70% of the earth. This makes hydrogen one of the most abundant gas and simplest element in the universe. Despite hydrogen’s abundance and simple form, it does not occur naturally on Earth in its gaseous state. Therefore, energy is required to produce hydrogen. It is believed that the hydrogen fuel cell will serve as a viable energy source in the future.”

If you perceive the non-sequitur in the conclusion of this paragraph, your understanding of the “hydrogen economy” exceeds that of members of Congress and some of the “experts” called to testify in support of this proposed legislation.

In its most sophisticated form, hydrogen fuel cell technology can store energy from another source, and release it as electricity for use later, with only water vapor and heat as the byproducts of this catalytically mediated “chemical combustion.” But more energy goes into making hydrogen fuel than is recovered when it is used to produce electricity: “hydrogen power” is a net consumer of energy, not an energy source. And just as taking energy out of a conventional battery is “clean,” while there is pollution, waste, and cost in some other less visible location (in manufacturing, charging, and disposal of the equipment), in a similar way the “clean energy” of fuel cells conceals the costs, pollution, and inefficiencies of the total system, which are conveniently shifted out of sight to another location.

All the witnesses had good things to say about the importance of clean, efficient, renewable sources of energy, reducing pollution and our dependence on fossil fuels and (in particular) foreign oil, and the advantages of alternative technology.

- The NPS feels it’s important to demonstrate clean, alternative technologies and would even be happy to pay for them, provided the cost could be made competitive with the more conventional alternatives.
- The Dept. of Energy thinks hydrogen powered fuel cells are great, and would be practical if we could reduce the cost of making hydrogen fuel (x4), reduce the cost of fuel cell power plants (x10) and make them last for the life of a vehicle, like internal combustion engines do, find a safe and economical way to store and transport hydrogen fuel, and develop a distribution infrastructure like we have for gasoline.
- Mark Grisham assured everyone that the outfitters would be more than happy to demonstrate the practicality of hydrogen powered electric motor boats in the Grand Canyon, and had a “gut feeling” that this could be achieved in only 6 to 8 years if they had a “serious partnering” with the NPS and federal government.
- The Hualapais love clean water and air, and think alternative technologies are wonderful, but—to tell the truth—their representative seemed shocked when asked if they’d be willing to “invest” in a demonstration hydrogen powered motor boat project. I think he was expecting something more along the lines of a subsidy.
- The lobbyist from Plug Power talked knowledgeably about the feasibility of fuel cell powered back up emergency and stationary power supplies, but had nothing to add that was remotely relevant to mobile transportation systems, especially electric motor boats. When asked about demonstration projects involving public transportation, she acknowledged they had been tried “somewhere in Europe,” but could not bring herself to mention the extensive development and testing of fuel cell powered buses in Chicago and Vancouver by Plug Power’s better known competitors, Ballard Power (a Canadian company backed by major auto manufacturers), or in California by UTC Power, which has also supplied fuel cell systems for spacecraft since 1961.

The congressmen and many of the panelists seemed to think that hydrogen fuel represents a way to wean ourselves from foreign oil, although some were—especially when questioned—careful to point out that it takes a source of energy to create hydrogen fuel, and that energy (which needs to come from some other source) is lost in the process.

George Radanovich (R–CA) asked about “cracking” water to make hydrogen, but it was not clear that he understood the implications of the answer, or the 2nd Law of Thermodynamics: this is not a ‘free energy’ perpetual motion device. It’s not clear that Renzi understood the question.



Once in awhile, someone would bring up the question about how hydrogen fuel is made, and some panelists acknowledged that today this mainly involves propane, natural gas, coal, or other non-renewables; but there is immense “potential” for the future development of renewables such as solar, wind, and (I’m not kidding) “electrolysis.” Nobody went on to mention that using more traditional fossil fuel energy sources goes a long way towards eliminating the hoped for, but not quite developed yet, “clean efficiency” of hydrogen fuel made with renewable energy.

Biogas, and biodiesel (canola oil laced with ethanol) got some good words, but nobody thought to mention that these, and other, agricultural products depend on cheap foreign oil for their production, or that more (petrochemical) energy goes into the production of ethanol than comes back out again when it is used. Ethanol and other alcohol based fuel additives are net energy consumers, not “magic bullet” new fuel sources.

The funding Renzi’s bill would provide for the first three years of this development/demonstration project is \$400k/year, or \$1.2 million. If one assumes a similar amount would be forthcoming for the next three years as well to meet Grisham’s minimum “gut estimated” development time, we’re talking \$2.4 million—or to put this in proper perspective—about as much money as the NPS got to spend on the entire Colorado River Management Planning process. But this does not include the “incentives program” that Renzi is drafting—to be released in a couple weeks—aimed at ensuring outfitter participation (except for the Indians, of course, who might be asked to pay their own way). I think this was the “serious partnering” that Grisham mentioned, without going into details.

So where does this leave us with respect to hydrogen power, and the desirability of highly visible development and demonstrations projects in the National Parks? The news is not all bad, but H.R. 4160 is not the answer.

In a week, more people would see a single hydrogen powered shuttle bus on the rim than would experience an entire fleet of hydrogen powered rafts on the river. A complete system, with renewable wind or solar generators to power the production of hydrogen fuel visible at or near the Park entrance, would make a powerful (and unforgettable) statement.

Wind and solar generators may be costly, but they are reliable off-the-shelf items today. Vehicle makers and fuel cell manufacturers are already testing fuel cell powered buses in several cities around the world. While this technology isn’t quite at the off-the-shelf stage, in the near future some of these companies (and the industry as a whole) could find a significant advantage in the exposure they would get if their products were showcased in National Parks. This is a “demonstration” that could be deployed in the immediate future, without the need for significant further development.

Boating technology predates recorded history. Wind and human powered watercraft have demonstrated clean, quiet, energy efficient propulsion for millennia. For those in a hurry, the current 4-cycle outboard technology is a reliable solution that has done much to reduce the noise and pollution associated with internal combustion. The advantages are significant enough that the motorized operators adopted this “state of the art” technology at their own expense, without the stick of government regulations or the carrot of government subsidies.

*Drifter Smith*

## Camelthorn Warriors

**T**HE INVASION OF EXOTIC species into the Grand Canyon ecosystem continues, and the solutions to the problems they create continue to evolve.

Recently several agencies have begun tactical strikes—rather than trying to eradicate the exotic throughout the entire Canyon, which borders on the impossible, trying instead to create and maintain exotic-free areas. These projects include trout removal around the Little Colorado to enhance the Humpback Chub population; replacement of tamarisk with native trees at Lees Ferry; and elimination of tamarisk in selected and otherwise healthy side-canyons.

This spring the Guide Training Seminar, in conjunction with Lori Makarick, restoration biologist for the National Park Service, we began a tactical strike against that pernicious and annoying invader, camelthorn. Camelthorn is an extremely resilient foe, however. It builds a network of underground roots throughout a beach area, and pulling up the plants seems merely to invigorate the remaining roots. However, in test plots it has been found that repeated and persistent removal of above-ground vegetation will eventually exhaust the root system and kill the plants.

We chose two sites for this year’s strike: the foot of the Unkar ruin trail, and the camping beach at Crystal Rapid. After several hours of fierce battle, we removed a vast number of camelthorns. As we go to press, the camelthorn is raging back up from the sand. We would like to enlist all willing boaters to remove all camelthorn you find at either of these sites throughout the year. The plants can be laid in the sun to dry, or burned in your firepan at night (even the green stuff burns like mad).

With enough warriors we can exhaust the rootstock of these two populations and reclaim these beaches. It may take a year or two, but it can happen. We ask you all to enlist in this noble war.



© Chris Brown

You can see more of photographer Chris Brown's work at [www.chrisbrownphotography.com](http://www.chrisbrownphotography.com). And if you mention the BQR, a percentage of any purchase will be donated to GCRG.



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# A Fresh Look at Western Grand Canyon Lava Dams: Faulting and Incision

**M**OST PEOPLE VIEW Grand Canyon as an unchanging geological wonderland. Those of us who have been around the canyon for a while know that, in fact, it is a mosaic of the ancient and the active. Those two extremes in geologic stability collide in western Grand Canyon. The Hurricane and Toroweap faults are the most active faults in northwestern Arizona. They slice through what is often perceived as the oldest part of the Canyon, and this creates an opportunity for understanding the recent changes in the Big Ditch.

These normal faults, which trend north to south, cross the southwestward flowing Colorado River near river miles 179 and 191 (Figure 1A). The faults are downthrown to the west, meaning that the plateaus west of each of the faults are moving down relative to those on the east-side. The offset rates for each of the faults vary, but the Hurricane and Toroweap faults are moving vertically at roughly 260 and 360 feet per million years, respectively. Multiple landforms, such as alluvial fans, debris flows, lava flows, and volcanic vents—all younger than two million years—as well as Paleozoic rock layers have been ruptured by large-scale earthquakes on the faults (Jackson et al., 1990; Huntoon, 1977; Stenner et al., 2001; Fenton et al., 2001). It takes an earthquake roughly equal to or greater than seven on the Richter scale to cause these ruptures, which are up to ten feet high. Older landforms along each of the faults have more displacement than younger landforms because they have been around long enough to have experienced multiple earthquakes. So, although there is a combined total of 1900 feet of movement on these faults, it is not

as if there is a big waterfall where the faults cross the river. Surface ruptures occur in increments of time, allowing the river to erode through each of these offsets. The Prospect debris fan (Lava Falls Rapid) is 3000 years old and is not ruptured by the Toroweap fault, which runs right through it. It has been at least 3000 years since the Colorado River has had to erode through a fault scarp there. Although the faults are still active,

they are old; movement on this fault system started no later than 3.5 million years ago (Fenton et al., 2001; Billingsley and Workman, 2000).

What goes up must come down. When a fault scarp crosses a river channel, the river has a tendency to cut through it to return to its original bed elevation. Because plateaus on the east of each of these faults are moving up relative to those the west, it seems intuitive that the river will cut through the eastern plateaus faster than the western (Fenton et al., 2001; Pederson et al., 2002). The Colorado River has sufficient power to quickly downcut

through material (Lucchitta et al., 2000) that is uplifted during individual fault movements of ten feet or less.

The exciting thing about this research is that it could explain some of the phenomenon that many of us have seen throughout our Grand Canyon careers. Western Grand Canyon appears “old-looking,” whereas, eastern Grand Canyon looks like it could have been cut not too long ago in the geologic past. The data collected by Lucchitta et al. (2000) and Pederson et al. (2002) support this perception by telling us that incision rates in eastern Grand Canyon are at least double those of western Grand Canyon. That the faults are the sole cause of this difference has been seriously questioned

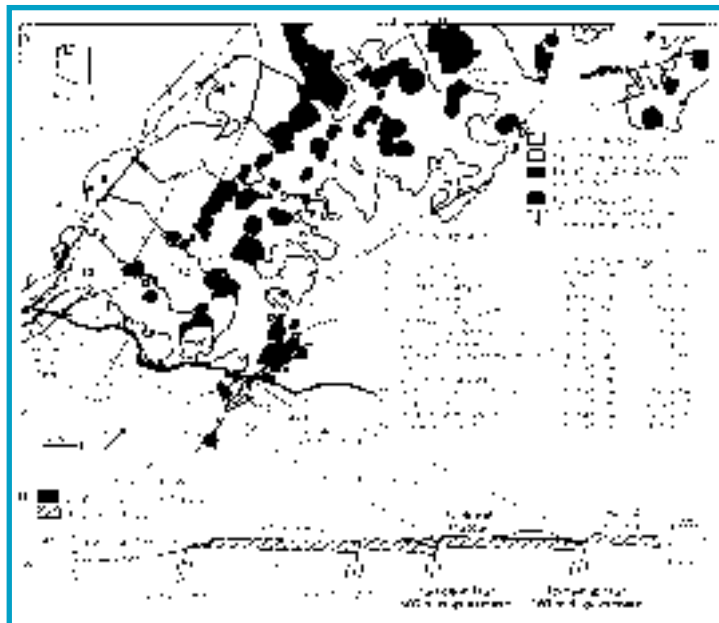


Figure 1. (A) Map of Quaternary basalt flows in Uinkaret volcanic field and Hurricane and Toroweap faults, western Grand Canyon, Arizona (Fenton et al., 2001). Listed ages are cosmogenic  $^3\text{He}$  ages. Hurricane and Toroweap faults do not displace Hell's Hollow and Prospect Canyon debris flows, respectively. WDR = Whitmore Dam remnant (Hamblin, 1994). (B) East-west cross section of western Grand Canyon from the Grand Wash to Toroweap faults (adapted from Jackson, 1990).



Figure 2. Photograph of the Buried Canyon lava dam. The lava dam creates the canyon wall on river right and eventually forced the river to cut into adjacent limestone bedrock forming the channel in which the present-day river flows. The photograph was taken by Jane Bernard at Mile 182.7 on river left looking downstream.

(Hanks and Blair, 2003), in part because of the mechanics of the faulting and in part because the river is not flowing on bedrock (see later article). A further consideration that we think is important is the presence of lava dams in western Grand Canyon throughout the past 600,000 years, the period over which these incision rates have been calculated. Some of these dams were stable (Figure 2); some of them failed catastrophically, but all of them had an effect on the Colorado River that likely retarded downcutting rates in western Grand Canyon. We've already alluded to lava-dam failures in previous articles, so in our next article, we'll talk about the evidence for dam failure and dam stability.

*Cassie Fenton & Bob Webb*

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**Sam Walton**—Rare Earth Images, screen savers 928/214-0687  
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**Man of Rubber, Inc.** 800/437-9224  
**Capitol Hill Neighborhood Acupuncture** 206/323-3277  
**CC Lockwood**—Photography books 225/769-4766  
**Canyon Arts**—Canyon art by David Haskell 928/567-9873



## The Circle is Growing!

**B**Y NOW YOU HAVE RECEIVED an invitation to join the BQR Circle of Friends, a group (hopefully a very large one) that is directly involved and committed to the continued success and quality of this publication. The Circle has begun to grow with almost \$1,000 in contributions in just the first few days! How immensely gratifying. We thank you all (and you know who you are!) from the bottom of our hearts. In fact, we'll be thanking the Circle of Friends directly by printing all your names in the BQR a year from now. Just think, a little bit of fame, and the knowledge that you've done something very positive where Grand Canyon and the Colorado River are concerned. We'll provide you with periodic progress reports (through the BQR, of course) so we can all keep track of how the Circle is growing. Your tax-deductible gift helps us maintain the best river publication around while it helps you at tax time. Remember, the donation levels are:

\$1 - \$99	Friend
\$100 - \$499	Sponsor
\$500 - \$999	Protector

\$1,000 - \$2,499	Steward
\$2,500 - \$4,999	Advocate
\$5,000 or more	Philanthropist

Take this opportunity to make a positive impact. And do your part to protect and preserve the Grand Canyon and the Colorado River. You know you cherish this publication—you look for it in the mailbox, you quickly flip through to see what you want to read first, you can't make up your mind because everything looks great so many of you simply read it cover to cover. It keeps you in touch. It keeps you informed. It brings a breath of Canyon sweetness to your day. It chases away the winter blues (and the spring, summer and fall ones too). It makes us forget that many of us are staring at office walls and we're transported back to cold water, towering canyon walls, the call of the canyon wren and beauty so profound it brings tears to your eyes. If you didn't get a letter, simply send in a check with a note that you're joining the Circle of Friends. Do it today! It's *never* too late to show your care.



## Care To Join Us?

**I**F YOU'RE NOT A MEMBER YET and would like to be, or if your membership has lapsed, get with the program! Your membership dues help fund many of the worthwhile projects we are pursuing. And you get this fine journal to boot. Do it today. **We are a 501(c)(3) tax deductible non-profit organization, so send lots of money!**

### General Member

Must love the Grand Canyon  
Been on a trip? \_\_\_\_\_  
With whom? \_\_\_\_\_

### Guide Member

Must have worked in the River Industry  
Company? \_\_\_\_\_  
Year Began? \_\_\_\_\_  
Number of trips? \_\_\_\_\_

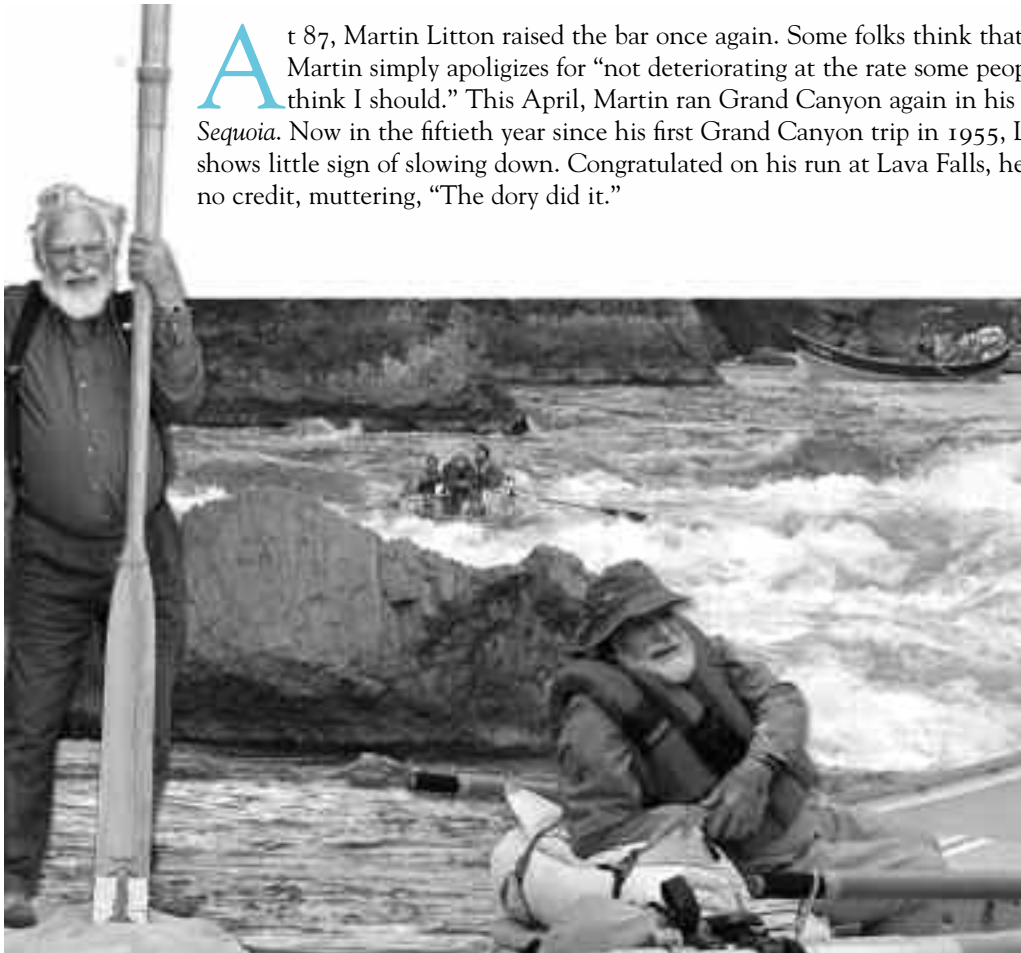
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- \$30 1-year membership
- \$125 5-year membership
- \$277 Life membership (A buck a mile)
- \$500 Benefactor\*
- \$1000 Patron (A grand, get it!)\*
- \*benefactors and patrons get a life membership, a silver split twig figurine pendant, and our undying gratitude.
- \$100 Adopt your very own Beach: \_\_\_\_\_
- \$\_\_\_\_\_ donation, for all the stuff you do.
- \$24 Henley long sleeved shirt Size \_\_\_\_ Color \_\_\_\_
- \$16 Short sleeved T-shirt Size \_\_\_\_ Color \_\_\_\_
- \$18 Long sleeved T-shirt Size \_\_\_\_ Color \_\_\_\_
- \$12 Baseball Cap
- \$10 Kent Frost Poster (Dugald Bremner photo)
- \$13 Paul Winter CD
- \$17 Lava Falls / Upset posters (circle one or both)

Total enclosed \_\_\_\_\_

## We'll Never Catch Him

At 87, Martin Litton raised the bar once again. Some folks think that's old. Martin simply apologizes for "not deteriorating at the rate some people think I should." This April, Martin ran Grand Canyon again in his dory *Sequoia*. Now in the fiftieth year since his first Grand Canyon trip in 1955, Litton shows little sign of slowing down. Congratulated on his run at Lava Falls, he took no credit, muttering, "The dory did it."



Doug Vavrick photos

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THANKS TO ALL YOU poets, photographers, writers, artists, and to all of you who send us stuff. Don't ever stop. Special thanks to the Norcross Wildlife Foundation, the Walton Family Foundation, Circle of Friends contributors, and innumerable GCRG members for their generous and much appreciated support of this publication.

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boatman's quarterly review

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