

Special Issue: Lots and Lots of CRMP Stuff



THE **Waiting List**

*The Grand Canyon
Private Boaters Association
Quarterly*

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A Forum For Canyon River Runners

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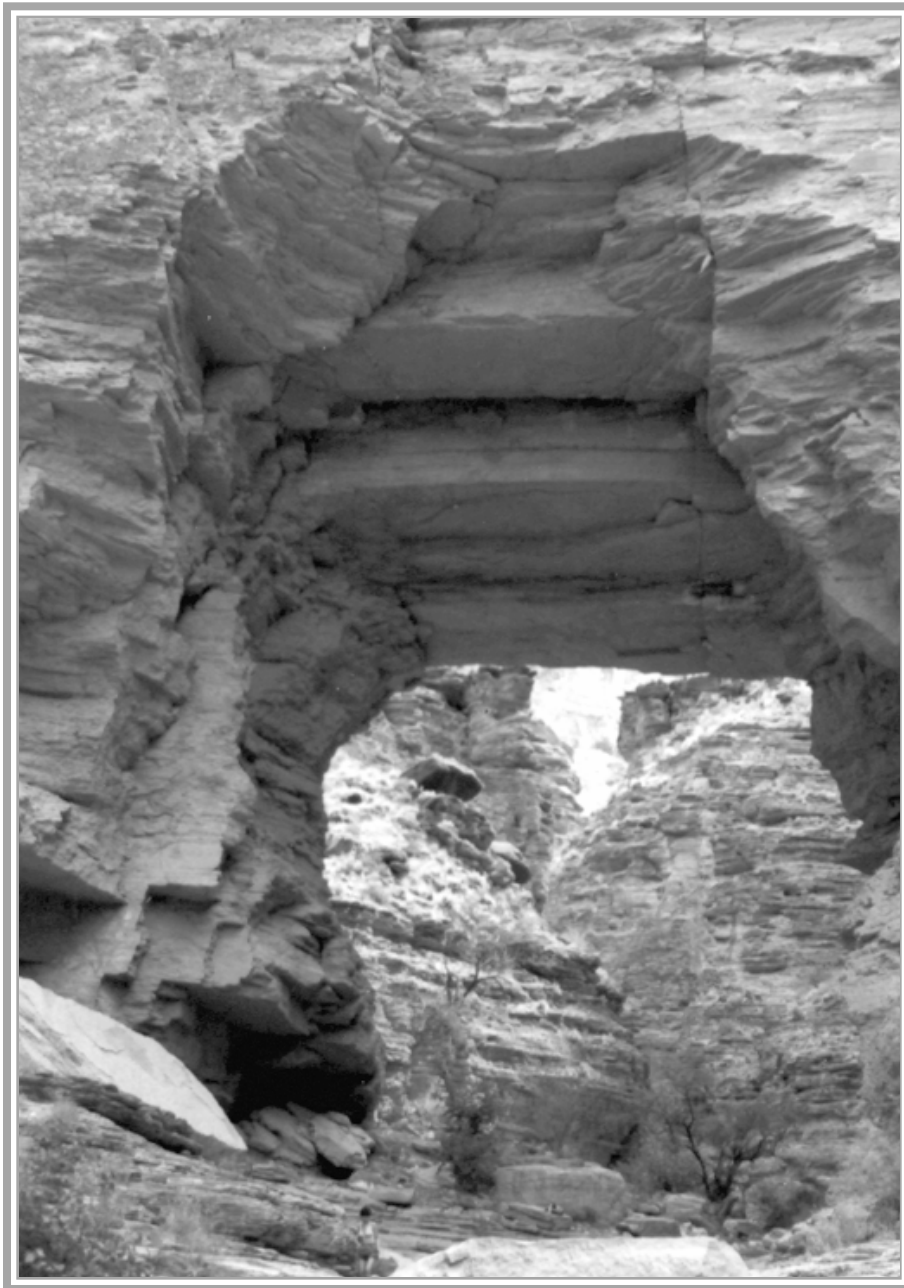


photo by Scott Tice

Royal Arch

On the Pres-Editors Deck

Fantasies

I fantasize that about the most postponed thing in the river world is the publishing of the Grand Canyon National Park (GCNP) Preferred Alternative for this round of the CRMP. Just today, the anticipated May deadline was moved to late July. Getting an issue of *the Waiting List* has got to be number two. I apologize—please bear with us and be generous with your emotional support.

Back to the real issue—resolution—concerned river runners sit on their coolers waiting to hear if the NPS is going to reform the the access and allocation system that the self-reliant have grown to detest.

The fourth delay promises us that July shall see the product of countless hours of tedious research and surely endless philosophical debate going on within the handsome log buildings of the GCNP South Rim headquarters. We shall see. The December 31, 2004 deadline for completion looms large.

I've long thought that one of, if not the single thing most important to all we self-reliant types, is that we feel as though we have been treated fairly. That our chances for river tripping are the same as the next guys. Everyone understands that unlimited demand quenching access is not possible and therefore some rationing of use is inevitable. Accepting that, I don't think that anyone familiar with the current situation can make a good argument that what we have now is fair.

Amongst ourselves we debate how to best achieve that. Two ideas that have generated a fair amount of traction are: A. get rid of allocations altogether, with the belief that everyone, whether commercial or non-commercial, who wants to go on a river trip should get their opportunity through the same channel, or, B. break any recreational allocation into equal shares, what we call 50/50, under the assumption that demand far exceeds supply for both self-guided and those seeking a guided service and it is in a practical sense impossible to determine what the demand for recreational use might be.

Both approaches focus on the same goal, achieving a fair system for access to all seeking a river experience in the Grand Canyon. As stated earlier, fairness is what it is all about for the private river runner—that thought was borne out in the GCNP Stakeholder meeting in Phoenix in January of 2003, where the eight private stakeholder participants, as well as the wilderness sector participants overwhelmingly chose “a feeling of fairness” as their number one priority.

“Fair” is truly the elusive butterfly. What it might mean to you and what it might mean to me could be somewhat apart, but I think when and if we get there we'll know it when we see. It will feel right.

To this point I'm very hopeful. The NPS has tried what up to now seems to be a progressive and considered process. I look forward to the release of the document. The GCPBA Board of Directors has formed sub-committee's to read the various proposals and evaluate them.

It is imperative that you pay attention to these alternatives. As a member of the boating community, you need to make sure that you feel right about them and you need to let the Park Service know what you think.

These are proposals, public input will influence the final plan anticipated to be released in December of 2004.

At GCPBA we'll be using our fairness yardstick to appraise these proposals.

So take your turn to lead, step up to the oars, this CRMP is all about re-dressing the self-reliant private boater issues confronting GCNP management.

Private Participation In Park Projects

For as many years as GCPBA has been in existence we have proposed to the Park that private boaters could be a very valuable resource to the Park Service by providing equipment and river running expertise that could enable the NPS to conduct research and clean-up trips, maintenance and patrol trips at far lower costs than now incurred to do the same.

We achieved a little success for our efforts — in 1997 I participated in an NPS trip that centered on gathering data for the CRMP, a Leave No Trace camping seminar, and trails maintenance. I was the only non-NPS or guide participant.

Several years later, through the kind facilitation of Planner Linda Jalbert — GCPBA put together on very short notice what to the best of our knowledge is regarded as a highly successful river cleanup, campsite capacity and inventory, and seed collection trip.

These activities are usually performed by paid Park Service employees. The boatmen used to staff these trips come mostly from the pool of river guides, and are essentially never drawn from the private community, where skilled boatmen abound and would perform the same tasks for free, no monetary compensation needed.

Let's take a look at a job description for the position of boatman on NPS service trips:

Grand Canyon National Park will be announcing several job openings for qualified river guides as a "small craft operator." There will be openings available for licensed river guides, for river guides with a law enforcement commission, and for intermittent river guide work.

These positions will be listed in three separate job announcements. Apply for one that best suits you or apply for all three. To apply go to jobsearch.usajobs.opm.gov/index.asp. Vacancy Announcements will be open December 22 through January 23.

These positions are located in the River Sub-district, Canyon District, Division of Resource and Visitor Protection, Grand Canyon National Park.

Duties include: rowing an 18-foot inflatable raft on the Colorado River through Grand Canyon National Park; performing various functions within the River Sub-district work unit including preparation for and participation in National Park Service river trips in an 18-foot oar powered inflatable raft; engaging in visitor contact, resources monitoring and rehabilitation, concessions evaluation, hiking, trail work, trash pick up, backcountry toilet maintenance, and other river trip support services; performing various boat shop duties including food purchasing and packing, boat repair, painting, shuttle driving, etc.

Pay is \$15 to \$17 per hour based on a 10-hour day minimum, plus overtime at time and a half.

Send the application to: Linda Jalbert, Superintendent, Box 129, Grand Canyon, AZ 86023-0129

GRAND CANYON PRIVATE BOATERS ASSOCIATION

BOX 2133, FLAGSTAFF, AZ 86003-2133

928.634.3969



Superintendent Joe Alston
Grand Canyon National Park
Box 129
Grand Canyon, AZ 86023-0129

November 8, 2003

Dear Joe,

We have recently learned that Grand Canyon National Park has just conducted a trash clean-up trip on the Colorado River in Grand Canyon. You may not be aware that just such a trip was very successfully conducted in September, 2000, by volunteers from the Grand Canyon Private Boaters Association, through a Cooperative Use Agreement with Grand Canyon National Park. This CUA included removing the park from any liability, as all trip participants were covered by second party liability provided by the GCPBA. We also note that in 2000, volunteer participants with spots on the wait list did not have their waiting list position affected.

The undersigned organizations are expressing to you their continuing interest in volunteering to participate in river side clean-up efforts, using the existing CUA between the park and GCPBA. This trip would have broad participation from individuals on the non-commercial permit waiting list. We appreciate that such clean-up trips as were conducted this past summer, place a financial burden on the Park that would be removed by using a volunteer trip to achieve the same purpose.

Representatives from some of the organizations listed below would like to meet with you to discuss organizing such a trip for the 2004 season at your convenience, and will be calling your office to schedule such a visit in the near future.

Yours for the river,

Grand Canyon Private Boaters Association
River Runners For Wilderness/Riverkeepers
Adobe Whitewater
Colorado White Water Association
American Whitewater

Cc: Jeff Cross,
Linda Jalbert,

you can't, even though you might meet all those qualifications except one, being a licensed guide.

Shouldn't be a problem to get a license. In the "good 'ol days" anyone who wished could acquire a guides license.

As time passed the license requirements stiffened as if in response to an outbreak of injurious accidents—which has never occurred.

First the NPS set a minimum trip requirement to obtain a license, then a test on the Commercial Operating Requirements—the rules and regulations that outfitters launch under, next, wilderness medical training, of which that requirement as well has met ever-tightening standards, then routine drug testing for guides, especially in the case of a river incident.

Most would say, "all well and good" These rules insure a fitness to operate a craft in compliance with park rules and goals.

But, there's a clinker in the kiln—no longer can an independent fellow aspiring to obtain a (continued on next page)

(continued from preceding page) license and then pursue the trade of boatman on the river get a license without first being sponsored by a commercial company—where, in essence a company tells the NPS that they want to hire so and so.

The company checks out the aspirant's credentials and then submits to the NPS the person for licensing. It's sort of like a trucking company telling the Motor Vehicle Department who should and should not get a drivers license to operate a big rig.

So, that means you probably need to be pretty friendly with some company if you want to get a license.

Essentially on-river employment is open only to working river guides who get paid \$150 per day plus over-time to do what many skilled folks do for free, assisting less experienced private trips in their adventure.

Of course all these types of rules have unintended consequences. In this case those consequences are important. This rule removes a motivating influence for non-commercial river runners to advance their personal skill levels. Those medical classes are tough and how are you ever going to get the required number of trip experiences need to acquire a license?

A strong incentive for people to improve their skill levels has disappeared.

The result? A dumbing down of the boater pool. The potential of that is more impact on the environment and more incidents to respond to—and—more criticism of

the non-commercial, self-reliant river runners.

Interestingly, it's been reported that the river companies are experiencing a decline in the number of younger folk seeking guiding positions in the canyon.

This is an everyone loses situation, the skill level decreases, the Park Service has to draw upon a declining and aging pool of boat operators, the NPS has to spend vast amounts of money, much which could have been saved by enlisting eager volunteers for the tasks—most whom would cheerfully furnish the gear needed to run the trips, saving even more money and staff time.

On a final note: a skeptical Park staffer commented that volunteers are suspect as only volunteering because they want a trip down the canyon. Honestly—of course they volunteer because they want to boat down the canyon. Ask yourself, is there any person on the Parks staff from the very Superintendent himself, and every single guide on the river who is there for any other reason than they want to run the river. It's a passion shared by many beyond ranks of the employed—who perhaps, for self-serving reason have erected barriers to drive a away a wave of volunteers.

So what we have here now is public service work being performed by a staff who requires payment to do what many are willing, in fact would be overjoyed to do for free.

Richard "Ricardo" Martin



Letter From The Park

May 6, 2004

To the many people interested in the Grand Canyon:

In January 2004, we announced our plan to release a Draft Environmental Impact Statement (EIS) for the Colorado River Management Plan (CRMP) for public review and comment in May 2004.

It is our desire to present a comprehensive and thorough document to the public. We are nearing completion of the Draft EIS, which we now expect to release later this summer following publication of a Notice of Availability in the Federal Register.

Development of the plan has been guided by high-quality scientific data, as well as a great deal of public involvement. We are eager to present the draft plan and will offer a 90-day public review and comment period following its release. Following its release a series of public meetings will be held at locations throughout the country.

We will continue to post updated information about the CRMP on the park's website. Please continue to check this site for updated information on the release of the draft, as well as how to stay involved in the process.

We appreciate your patience as we work towards the completion and release of the Draft EIS, and look forward to your continued participation in the revision of the CRMP.

Sincerely,
Rick Ernenwein,
CRMP Planning Team Leader

Anyway You Count It, It's Not Enough

Noncommercial User Days: Two Differing Calculation Methods

Year	Userdays Counted Based on the Day they Happen				Userdays Counted Based on the Startdate for each trip			
	Primary Season		Secondary Season		Primary Season		Secondary Season	
	Userdays Recorded as Used	% of Season's Allocation	Userdays Recorded as Used	% of Season's Allocation	Userdays Recorded as Used	% of Season's Allocation	Userdays Recorded as Used	% of Season's Allocation
2003	44572	101.48%		0.00%	44781	101.96%		0.00%
2002	45324	103.20%	13745	130.53%	46309	105.44%	12993	123.39%
2001	44103	100.42%	17712	168.21%	43931	100.03%	17421	165.44%
2000	43782	99.69%	12112	115.02%	44180	100.59%	11622	110.37%
1999	44394	101.08%	17250	163.82%	45313	103.17%	16551	157.18%
1998	40905	93.14%	13087	124.28%	42274	96.25%	12615	119.80%
1997	40768	92.82%	12167	115.55%	41796	95.16%	10425	99.00%
Average	43407	98.83%	14346	136.23%	44083	100.37%	13605	129.20%

source: GCNP-CRMP

Note: Over this time period the River Permits Office has been reporting Noncommercial Use based on the calculation method used on the left side of this chart. Commercial Use over this time period has been reported using the calculation method used on the right side of this chart. The 1989 CRMP was vague on this issue, but recent investigations show both Noncommercial and Commercial Use were reported prior to 1997 based on the right side calculation method. Because of the confusion, we have included results from both calculation methods here.

Note: Secondary Season Use exceeds the allocation limits: 1) due to a specially approved "Winter Test" program launched by the park to obtain demand and impact information regarding winter use, and 2) due to the added launches made available as the result of a Law Suit settlement agreement that enabled us to restart the suspended Colorado River Planning Process. As a result the secondary season allocation was exceeded by an average of 36% (29% by the numbers on the right).

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AmmoCan Doc ~ The Unforgiven: Heat and the Desert Crucible ~ III

The Silence of Death

“Did he die alone?” Her voice was quiet and frank, yet traced with desperation. I had heard it before. She was emotionally bankrupt, numb from the pain of loss, and longing for elusive “closure.” I bit my lip. I hated this part of medicine. I had been the bearer of unbearable news, a messenger of dying and of death, too many times. For me, this had been the worst.

It had been a nearly a year since Phillip died. I could still see him, his lifeless body looking so small on the transport gurney. Electrical leads clung to his bare chest. Tubes hung from his nose, mouth and arms, blood splatterings around their insertions. His face was partly sunburned and mottled. His core temperature had been brought back down to normal from a perilous 106, yet nothing had changed. Agonizingly, despite advanced life support efforts, we had watched the heart monitor capture the final stages of his dying heart, the beats, weaker and weaker, dwindling to the final flat line, and my choked-up pronouncement of his death. Then, the silence. That horrible, final, dead silence—the silence of death. Few things have I found in life more profound than the desperate hope and often frantic, emergency-room pandemonium that goes with trying to save a dying life, to the sense of defeat, despair, and ultimate silence when efforts fail. With a child it is torture.

Did he die alone? Silence. For a moment I couldn't answer. Does a mother really ever find closure in the death of a child? I wondered. He was only ten-years-old, and had been on the biggest adventure of his short life. He had been bubbling over with excitement during his plane flight, his first ever, from Ohio to Arizona. With youthful exuberance and boundless energy, he initially started out skipping down the South Kaibab Trail into Grand Canyon, oblivious to the lethal desert inferno that lay below. As the temperature soared, his energy waned. His water quickly became too heavy, its blood-warm temperature, too repulsive to drink. Passing it off to his great uncle, he indeed, would drink no more. Hours later in the throes of dehydration and early heat stroke, as he neared the river in the Canyon bottom, he saw a potentially watery reprieve from the blistering sun. With the river so tantalizingly close, he made a frenzied dash, sprinting across the Kaibab Suspension Bridge. Unfortunately, he likely found the trail yet more agonizing, following deepening sand along the base of an oven-hot cliff face. Worst of all, it veered away, not toward his river refuge

**Did he die alone?
Silence.
For a moment
I couldn't answer.**

in a seemingly cruel and merciless meander in the suffocating torridness. As the Colorado disappeared from sight, so went the last of his reserves. Drained in spirit and in strength, as well as body water, he sat down, his desperate surge likely spiking his body's core temperature to a crisis level, one incompatible with life. His struggle was ending.

His great uncle eventually caught up. He had been trailing behind, apparently oblivious to the direness of Phillip's condition and the potentially life-giving water of Bright Angel Creek, now less than fifty yards away. Whether he had it or not, he offered Phillip no water. He walked past, advising Phillip to keep moving as he did. Then, like the river, he too, disappeared from sight. Alone, Phillip stood one last time, tried to walk, but collapsed. He fell, face-first near the cliff by the trail, his eyes open and glazed, filling with scorching-hot sand as his life slipped away.

Did he die alone? More silence. “They didn't tell you?” I finally managed to blurt out, unable to hide my own disappointment and sadness as the emotions of the event came flooding back. No. Phillip's great uncle remained silent, in distant mourning. So too, was Phillip's grandmother, the one who had organized the hike, and nearly died of heat stroke herself the same day, a mile or so up the trail from Phillip. We had treated her in the Clinic as well. The image of her with her dusty hat flashed in my mind. It had an affectionate, hand-embroidered “Grand Canyon” across the front, a now tragic, bitter-sweet, reminder of her previously successful jaunt below the rim. That was the Canyon she wanted to share with Phillip, and had planned to do so with the best of intentions. But her

and Heatstroke

previous hike was at a much cooler time of year. This one coincided with a scorching-hot June day, the hottest that entire year. The timing, she despondently would admit to me, was more by circumstance than choice, as it was the only time left when they could get a camping permit ...

Permits were still available for good reason, one that she and other family members were unfamiliar with—heat. And even despite having literally crossed paths with a Park Service ranger on the trail shortly after the hike began, who emphatically warned them of the mounting desert gauntlet that loomed just ahead, they continued to proceed. Their naivety had been deadly, their reticence, now clearly painful.

Then I thought of the worst silence of all.

Would she remember the sound, his sound?—his little-boy laugh, the innocence in his voice, the soft breathing while asleep with his head on her lap? I felt sick to my stomach, and overwhelmed by a sense of urgency to somehow brand my family's "sound" on my mind forever. Did he die alone? A mother. Closure. The death of her child, and awful, dreadful silence. For a moment, I was struck by the tragic ironies with Phillip's death and the soundless aftermath, for them and myself. Then I realized, heat too, is silent in death. With incredible stealth and clandestine stillness, it becomes the ultimate predator, slowly swallowing, then devouring the unwary that venture its path.

More silence wasn't the answer. No child should ever die that way. My heart ached for her. I struggled for the right words, all of which seemed unbearably pathetic or woefully inadequate. Yet I knew what she so desperately needed to. I wished I didn't.

Did he die alone? "Yes," I said softly, tears gently breaking the silence of death for us both.

* * *

Phillip Grim died from heat stroke in Grand Canyon on July 23, 1996. He was one of five heat-related deaths in Grand Canyon in 1996, which included another child. It is my hope that Phillip never be forgotten, that lessons are learned from his death, and the circumstances surrounding his tragic loss are never repeated.

Heatstroke

So, we have saved the worst for last—heatstroke. It is by far the most deadly of major heat syndromes, one every desert wanderer needs fear. Posing a far greater danger than any other natural hazard, heatstroke becomes the desert's assassin. In the summer, it comes like an unrelenting juggler-

naut. Slowly and painlessly, it overwhelms, weakens and kills.

Essentially heatstroke is a life-threatening elevation in body core temperature that overwhelms the body's thermoregulatory or "cooling" system. In reality, it is a complex pathologic process featuring multiorgan system dysfunction or failure, from a deleterious cascade of hematologic, enzymatic, and cellular reactions that can lead to massive tissue destruction and victim death. While heatstroke deserves and has its own classification, for our purposes, it needs to be understood as the dreaded outcome in the continuum of the heat exhaustion/dehydration process that goes untreated.

Heatstroke has been categorized into two distinct forms: classic and exertional. Our focus will be on the latter, exertional heatstroke, as virtually all cases in the Grand Canyon fall into this category. Heat exposure is necessary for either to develop, but the main differences between the two are activity and time. Basically, exertional heatstroke (EHS or "active" hyperthermia) is caused by strenuous activity in a hot environment, and can develop rapidly, within hours or less. Victims typically are young and healthy and male. Conversely, classic heatstroke (CHS or "passive" hyperthermia) develops much more slowly as the result of prolonged periods of sustained exposure to high temperatures, usually two or more days. It is more common in elderly, debilitated people, and develops independently from exertion. A typical classic heatstroke victim might be one such person living alone in an apartment in Phoenix who's air conditioner fails during a heat wave (although children have been known to die in less than an hour from classic heatstroke from being trapped in a hot car in Phoenix). An exertional heatstroke victim on the other hand, is likely to be a healthy, young man, hell-bent on making to the river and back (or to your river-trip Phantom exchange) in Grand Canyon, in a day, in July.

Grand Canyon is notorious for its heat illness problems. So why and how does the body overheat so easily in this setting? As Michael Ghiglieri and I noted in our book, *Over the Edge: Death in Grand Canyon*:

The human body's methods of cooling itself demand an adequate perfusion of blood to the internal organs and to the head and extremities in a "radiator" effect. Accomplishing this requires an adequate circulating volume of blood—which is mostly made up of water. The body also requires enough water for sweat to cool the body via an evaporative heat-loss effect. Lack of adequate sweating and loss of adequate perfusion due to dehy- (continued on next page)

(continued from preceding page) dehydration and/or cardiac clogging and/or cardiac muscle death creates an instant and automatic danger to the hiker's homeostatic mechanisms—similar to what happens to a car with a bad radiator or a failing water pump laboring uphill in heat. On top of these problems, a normal person requires about two weeks of acclimatization in a hot environment in order to homeostatically adjust in a metabolically efficient way to the high heat of summer in Grand Canyon. Acclimatization, for one thing, reduces loss of the body's electrolytes. For another, it increases the body's ability to sweat to effect its most efficient cooling (which is the only way the body cools itself at temperatures exceeding 95 degrees).

In a Canyon Catch-22, however, almost no one has that two-week, active acclimatization period in extreme heat prior to engaging in his or her inner-Canyon hikes—unless he or she has been working as a construction laborer in Phoenix during summer. Instead, most of us hiking in Grand Canyon seem more like bizarre medical experiments tossed into an alien landscape of hostile temperatures, desiccating winds, and fierce solar radiation to see how long we can walk before we collapse.

Again, in contrast, and somewhat surprising to classic heatstroke symptoms, victims of exertional heatstroke are commonly young, healthy people. Of these, young males appear to be the most prime among heatstroke targets, some of whom frankly seem to be wearing bull's-eyes. Why? Once more, from *Over the Edge*:

The most well-camouflaged victims of dehydration/heat stroke are fairly young and athletic. Kids and young adults seem to run at full function in the heat, sweating appropriately and seemingly going strong, but abruptly, when dehydration kicks in, they crash quickly and often unexpectedly. And die. The problem here is that young men, especially athletes, often possess such a well conditioned cardiac system and that they are able to—and are accustomed to—blast along where other people move more slowly. In extremely hot climates these young men are a lot like muscle cars with big engines but undersized (unacclimated) radiators. They drive at their usual high speed, spurred additionally by testosterone-driven thinking that denies the consequences of breaking the speed limit, until they overheat. And this overheating takes them almost completely by surprise. Meanwhile non-athletic or older people are neither capable of nor inclined to push themselves nearly as hard.

Irrespective of gender and what caused the heatstroke, the effects on the body of seriously elevated core temperatures (usually > 105°) are devastating. At temperatures >

107.6°F (42° C), the cellular process of oxidative phosphorylation uncouples, enzymes cease functioning and proteins denature. This results in widespread tissue damage to the central nervous system, liver, kidneys, lungs, and gastrointestinal tract. Damage to blood cells and the clotting system can result in massive internal bleeding, a common cause of death.

One aspect of heatstroke pathogenesis that is especially important to appreciate is the brain's particular sensitivity to thermal injury. Extreme temperatures can cause brain swelling, congestion, neuronal degeneration and hemorrhaging. As a result, virtually all heatstroke will present with signs of central nervous system dysfunction. These signs typically include abnormal speech and gait, as well as an altered level of consciousness (LOC), which tends to quickly go from unusual irritability and drowsiness, to confusion or delirium, seizures, and eventual coma.

Why is this important? It's what you'll likely see when unrecognized and untreated heat exhaustion/dehydration

(the person you thought was just being a wimp) takes a turn for the worse, and crumples in full-blown heatstroke. Survival is dependent on rapid treatment. Treatment is dependent on making the diagnosis. Knowing these central nervous system effects can help you make the diagnosis, which brings in the one heatstroke pearl that should stand above all others:

TIP OF THE DAY: If the victim has an altered level of consciousness AND an elevated temperature, it's heat stroke until proven otherwise!

More specific to EHS, this pearl could be modified to say: if a previously healthy person collapses while physically exerting in hot weather, has an elevated temperature and an altered LOC, it is, again, heatstroke until proven otherwise. Remember, an elevated temperature and an altered LOC are hallmark findings, present in 100% of heatstroke cases!

To help confirm your diagnosis, several other signs may be observed. One is hot, dry, flushed skin. While this is seen in essentially 100% of CHS, it's only seen in about 50% of EHS. Clearly, hot, dry skin is a bad sign, as it reflects severe dehydration, but it's not always reliably present. In fact, 50% of victims will still be sweating, sometimes profusely, as dehydration may be only mild to moderate. (These are two important points to understand, and myths to dispel regarding heat stroke: hot dry skin is not always seen and sweating is often present, and dehydration does not have to be severe.) Other common signs include extremely rapid, shallow respirations, a very rapid pulse, pinpoint constriction

The most well-camouflaged victims of dehydration/heat stroke are fairly young and athletic

of pupils and vomiting and diarrhea. While severe hyponatremia or “water intoxication” can present with an altered LOC, these other signs, except vomiting and diarrhea, are not typically seen (refer back to Part II of The Desert Crucible: Getting Drunk in the Desert). Still, if there is any doubt as to hyponatremia versus heatstroke, always treat as heatstroke first!

Now that you’ve made the diagnosis, what do you do? The next most important pearl is this: If not effectively and immediately treated, heatstroke victims will die up to 70% of the time. Without question, one must act immediately if heatstroke is suspected. As they will have an altered LOC, and mostly likely unconscious, their airway needs to be protected and ABC’s initiated. Following airway, breathing, and circulation, the “C” should stand for cooling in the heatstroke-acronym version. Here’s how it should be done:

HOW TO COOL A HEATSTROKE VICTIM

Remove restrictive clothing (the victim’s, not yours). Pour cold water (colder the better) over the victim’s entire body or immerse victim in creek, or river water if possible.

Apply cold compresses (ice or river water) to groin, armpits, and sides of trunk:

Fan using shirt, sheet or available material

Place victim in shade, off the hot ground

Position victim on side to limit contact and heat conduction from the hot ground, and to expose more body surface area for evaporative cooling and to protect airway in case victim vomits

Do not give oral fluids

Note: Tylenol, Ibuprofen or aspirin DO NOT help elevated body temperature. May risk aspiration or cause clotting problems.

As a last resort, consider urinating on victim if no other water available.

Time’s a’wastin’! The “Golden hour”: The best hope for recovery from heat stroke is treatment within 60 minutes. The fatality rate is up to 70% if treatment is delayed over two hours. Even with successful treatment, up to 15% of survivors may suffer permanent neurologic damage including dementia, personality changes and uncoordinated movement.

Clearly, cooling the victim is of absolute importance and should not be delayed, but neither should efforts to facilitate EMERGENCY EVACUATION for further treatment and monitoring. Many of the potentially fatal complications of heatstroke are delayed, peaking 12-72 hours later,

including kidney failure, liver damage and lethal hemorrhaging from clotting abnormalities.

So what’s the prognosis if you did everything right? Fortunately, if effective, early treatment is initiated, recovery can be complete. In fact, even cases with coma persisting up to 24 hours, and subsequent seizures, there is usually complete recovery, without permanent mental or neurologic damage. Other organ system problems, including kidney failure and liver damage are often reversible. More good news is that the vast majority of heat stroke victims who recover completely (>90%), are not increased for further heat stroke in the future, provided they eliminate or modify behavioral and other risk factors, i.e. obesity, deconditioning, maturity... etc

In summary, in arid environments, it is impossible

to overemphasize the seriousness of heat illness, or the need for prevention. Educate, understand and appreciate the risks involved with heat exposure, long before a foot is ever set on the trail. Know when, how and where to hike. Know where to find

TIP OF THE DAY If the victim has an altered level of consciousness AND an elevated temperature, it’s heat stroke until proven otherwise!

water, how to use it wisely, and know how recognize and treat the signs and symptoms of heat illness if you don’t. Combine these with common sense and good judgment. Remember good judgment comes from experience; experience comes from bad judgment. Clearly there has been enough “experience” in heat illness to lend good judgment to us all, with plenty to spare.

Finally, approach the desert’s heat with caution and suspicion. Regard the heat as a potential desert assassin, powerful and indifferent, seeking out the weak and vulnerable. Consider it a constant threat, the one natural hazard, you should respect and fear most. Then think of heatstroke as this assailant’s potentially lethal weapon, a dagger, it cuts swift and deep. But also remember it’s wielded not without warning. The signs and symptoms of heat exhaustion are your warning. Appreciate these like you might the tip of a steely-hot knife blade, pressing against your skin, about to make a lethal plunge. Back away. Defend yourself. Make yourself impenetrable when facing this foe, through vigilance to prevent what weakens you—exposure, and diligence to utilize what strengthens and protects you—water. By doing so, you’ll never put yourself in a position where you can easily be ambushed by this desert assassin,

Heat can and does kill—but only if given the opportunity.

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(continued from preceding page)

AN OUNCE OF PREVENTION: REMEMBER SHAKESPEARE AND “EAT, DRINK AND MAKE MERRY!”

DRINK! During extreme physical exertion in a hot environment, fluid losses can exceed 1 liter per hour. Minimum recommendations for fluid replacement are 500cc (16 oz) before hiking and 200- 300cc (8 oz) per 20 minutes of strenuous activity. Again, don't drink too much without also eating!

EAT! It may be necessary to consume over twice as much as normal, especially before loss of appetite or nausea set in! You need adequate amounts of salted food (several times daily).

ARTIFICIAL PERSPIRATION: A portable evaporative cooler! Hey, It's true! Cool oneself frequently; wet your clothing or entire body while hiking! This the only way to make up the difference in an unacclimated person's inability to produce enough sweat!

MORE TIPS FOR PREVENTION OF HEAT ILLNESS ON THE DESERT TRAIL:

Do not use caffeine or alcohol (you booze, you lose) as primary fluid replacement as both promote urination and can increase fluid loss.

Do not try to “train” yourself to go with less water.

Be aware of early symptoms of heat illness (see above, and Parts I & II of the Desert Crucible).

Monitor your urine output. Try to maintain urination at every 3 to 4 hours with adequate volume (more than a few teaspoons) of light straw-colored urine (not dark yellow or as clear as water).

Rest periodically in the shade.

Dress appropriately in loose, breathable layers of light colors to limit sweating and keep humid layer next to skin (75% of the body's evaporative cooling happens from the torso up, 33% from the scalp. In other words, wear a hat and shirt.)

Refrain from removing all clothing if possible in order to limit direct skin exposure.

Use sun screen.

In Grand Canyon, avoid rim to river day hiking in the summer, summer hiking between 10 AM and 4PM, and uphill hiking in direct sun.

Live it bold, but stay safe.

Tom Myers, MD



READ-N-RUN ~ HOUSE ROCK

photos: Morgan Cowles



WAITING LIST GOING, GOING, GONE!???

You just get off of your first Grand Canyon River Trip and you are all fired up to go again. You call into the River Permits office trying to get on the self-guided waiting list and are told, "Sorry, we are not longer accepting additional names to the List."

"What's with that?"

We talked with Steve Sullivan, of the River Permits Office. First some background, when you talk with Steve, you hear his passion for simplifying systems. He has a background in IT and has been with the Park 10 years. He is currently serving as Park Permits Program Manager which means he covers everything from marriages, deaths, hiking, and boating, i.e. the GCNP graveyard, Shoshone Point reservations (great for weddings!), back country hiking permits, and, of course, River Permits. Steve has a Masters in Environmental Education from Leslie College in Cambridge, Mass. His long term goal is to streamline processes trying to reduce the number of steps we have to go through to get what you want. Steve is an advocate for the experience and feels optimistic about the current planning process.

Now, on to our story.

Steve works hard to serve the top of the list - our friends who have been waiting the longest. He tries to predict cancellations, unused commercial days, and to stay within current guidelines for use. You may notice that January's e-mail from the River Office listed cancellation dates in March and April. By sending this out in January, Steve says all dates were used by people at or near the top of the list. People have more time to plan and put together their trips when they have sufficient notice. Dates are not longer announced at the last minute. The outcome is that those near the back of the list, like this writer, have no chance to get a date by calling in. Most dates are taken by the second call-in date. In addition, everyone joining the list in the last year or so has not been able to get a cancellation date.

Steve's predictions for cancellations have been close to the mark. Last season the non-commercial use was within one percent of the allocation. In the last two years, no one has been able to get a cancellation if they are not near the top of the list. He expects some self-guided use to go over allocations in the shoulder seasons (Spring and Fall), but usually cancellations make up for any over allocations the River Permit office makes .

Steve expects the planning process to change the face of the permit system. He is very optimistic about major improvements. One sore spot will be taking care of this waiting list, therefore, adding people now will only exacerbate the problem when the new system takes effect. A longer waiting list only "makes the problem more of a dilemma" according to Steve.

As number 5892 on the list, I understand the preference for those who have been there longer and I support Steve's approach. At GCPBA we are looking forward to the release of the preferred alternative and the Park's deliberations around the plan. Keep tuned in at the end of May and carve out some study time during June to comment - we need all our members to respond when it comes time to comment on the new plan.

In addition, Steve plans to post new statistics about the allocation process and permits on the website by March 1. These data may give us all a better idea of the flow, challenges, and realities their Office is dealing with.

Dave Knutson 



The Trouble With Tammies

The Tamarisk, also known as the saltcedar, is an ornamental, flowering tree which provides shade, refuge for wildlife and birds, and erosion control on the banks of rivers, right?

WRONG!! Tamarisk is a tenacious plant with deep, extensive root systems that can reach down to 100 feet. The leaf litter produced by tamarisks deposit a salt residue on the soil and the plant quickly re-sprouts after fire. Consequently, the tamarisk has displaced cottonwoods, willow, and other native riparian species. Tamarisk thickets are strangling streams and rivers; provide poor habitat for livestock, wild animals, and birds; increased fire hazards; and limit human use of waterways.

While each of these issues is important, the single most critical problem is “TAMARISK STEALS WATER”. The tamarisk uses significantly more water than the native vegetation it has displaced. In the West, the loss of water is from 2.0 to 4.5 million acre feet of water per year, over the amount of water native plants would use. In other words, this is enough water to supply water for 20 million people or to irrigate over 1,000,000 acres of land.

HOW DID THE TAMARISK GET SO PREVALENT ALONG WATERWAYS IN THE WEST?

Tamarisk is a native plant of central Asia. In the late 1800's eight tamarisk species were introduced in the U.S. for use in New Mexico for erosion control on the rivers and to be used as ornamentals, windbreaks, and shade trees. The tamarisk has no natural enemies, such as insects or diseases, to keep the population in check. This has allowed the tamarisk to spread unchecked along western waterways and replace native vegetation with dense, monotypic stands. By 1920, the plant had spread to 50,000 acres and by 1960 it had spread to over 1,000,000 acres. Tamarisks have replaced 90% of existing cottonwood communities. And each year, since 1989, 25-49 million acres of land have deteriorated from tamarisks.

Willow tree roots grow laterally while tamarisk roots grow deep into the ground. The tamarisk is very efficient in using sugars and starches and thrives in drought conditions. Tamarisks are more abundant in dry areas while willow and cottonwoods are more dominant in wet sites. Where rivers have been dammed and the flow of water regulated, tamarisk stands are 10 times denser than areas where the river is free flowing. Cottonwoods, on the other hand, are stimulated by flooding. And in locations where cotton-

woods are more populated, tamarisks are less dense.

In areas where there are tamarisks, there is a decrease in absorption of soil nutrients for other plant life. The plant also causes direct toxic effects to other plants in the area by raising the salinity in the soil. Tamarisk accomplishes this by pushing salt into the lower, older leaves on the plant and then dropping the leaves on the surrounding soil. Native riparian plants such as cottonwood and willow cannot compete. Cottonwoods will not tolerate salt concentrations of more than 1,500 ppm. Salts in soils around tamarisk measure as high as 41,000 ppm, which is saltier than sea water.

Every mature tamarisk tree produces 500,000 seeds per year with almost 100% germination. If the seeds fall on wet sand, the seed will germinate within 12 hours. The plant grows rapidly, maturing from a seedling in just one year. The tamarisk is extremely adaptable and has aggressive survival characteristics that make it particularly insidious in the arid western United States. It establishes easily in areas where surface water or ground water is available, which is especially threatening to desert springs, oases, and natural waterholes.

Tamarisk threatens wildlife in these areas by soaking up available water, changing the water quality, driving out native plants, grasses, trees, and shrubs, and blocking access to water by its dense growth. Tamarisk absorbs an enormous amount of water, losing it to the atmosphere through transpiration from leaves and stems. Along the Colorado River system alone, tamarisk is estimated to absorb and transpire one half million acre-feet, or 61 billion gallons of water, each year. (1 acre foot = 123,000 gallons) Each mature plant absorbs approximately 200 gallons of water per day.

Fire favors tamarisk. The dense thickets are hot and dry so fire occurs frequently and spreads rapidly. Tamarisk's extensive and deep root structure is largely unharmed by fire, allowing it to recover more quickly than native plants and

fill in the burned area. For this reason, fire is NOT recommended as a control measure.

There are approximately 54 species of tamarisk, tamaricaceae, which live in the native areas of Eurasia and northern Africa. While there are 9-12 species of tamarix in the U.S., the most prevalent invasive genotype is a hybrid between the tamarix ramosissima and tamarix chinensis. Tamarix ramosissima is found primarily in Europe and northern Africa and the tamarix chinensis is found in China. A less prevalent hybrid, the tamarix parviflora, along with the t. ramosissima and t. chinensis, pose a significant threat to western ecosystems and have become a serious problem in fragile riparian environments.

Dense thickets of these exotics can be seen in wetland areas throughout the western states. Along the Colorado River, tamarisk can be seen choking the river banks from western Colorado to southern California. Tamarisk is related to spinach and the Venus flytrap.

Is the problem really that serious? Invasive noxious weeds are proving to be the single greatest threat to natural ecosystems in the west. Noxious weeds are invading nearly as many acres of federal land each year as are burned by wildfire. And while land recovers from wildfire, land does not recover from noxious weeds.

Wildfire and weed spread are very similar. Both start from a small beginning, display exponential growth, and generate an expanding perimeter. Burning embers suspended in wind create new fires ahead of the expanding fire perimeter and similarly, weed seeds create new small infestations ahead of the expanding perimeter of the main weed infestation.

The process of fighting wildfires and invasive weeds have striking similarities and, whether they realize it or not, state and federal land managers that have been trained to fight wildfires, also have been trained to battle invasive weeds in a logical and efficient manner. The first step in battling a wildfire is fire size-up where information about the fire is gathered, options are determined and evaluated, then a plan is developed. The first step in battling weeds also can be thought of as weed size-up where information about the weeds is gathered (e.g. weed species present, habitat considerations), management options are determined and evaluated, and then a written weed management plan is developed. Firefighters always try to contain the wildfire within a defendable perimeter and focus their attention on developing such a perimeter while quickly extinguishing all spot fires

similar tact by focusing attention on confining the main infestation inside a defendable perimeter. Begin weed control on the perimeter and then work back toward the center of the infestation and always, always first control the small satellite infestations outside or inside of the defined perimeter so they do not continue to expand exponentially into a huge infestation.

Fire mop-up entails extinguishing every ember, which is a long and tedious process, but is absolutely essential for success. Similarly, weed mop-up can be thought of in a similar light where all weeds and their propagules are eliminated from the area. This too is a long and tedious chore and is essential for success, particularly for small satellite infestations.

Tamarisk threatens wildlife in these areas by soaking up available water, changing the water quality, driving out native plants, grasses, trees, and shrubs, and blocking access to water by its dense growth.

Revegetation is essential after a wildfire, but this may occur naturally or might be assisted by land managers as part of their wildfire plan. Revegetation is of critical importance in noxious weed management. Depending upon size of the infestation, revegetation may occur naturally, but often land managers assist the process by seeding.

One of the most striking differences between wildfire management and weed management is when the process begins. About 54% of all wildfires are initially attacked when the incident size is 0.1 acres and 93% of all wildfires are attacked when they are 10 acres or less in size. Only 2% of wildfires are initially attacked when the burned area is at least 1000 acres. In contrast, only 11% of noxious weed infestations are initially attacked when they are 0.1 acres or less, 75% of noxious weed infestations are attacked when they are 10 acres in size or greater, and 31% of weed infestations are first attacked when they exceed 1000 acres! Clearly, weed management should follow the wildfire management paradigm relative to when the battle is begun.

Is anything being done to control the spread of the tamarisk?

Currently the U.S. government has allocated \$234 million for the eradication of the tamarisk. Because there is no natural enemy in the Americas, it is extremely difficult to control. Control efforts have included mechanical methods, such as ripping, bulldozing, and fire; chemical control with herbicides; and biological control. Experience has shown the plant will continue to return unless the root system is killed or removed entirely.

Historically along the Rio Grande, in the wetland habitat at Bosque del Apache National Wildlife Refuge in New Mexico, the riparian communities in the middle Rio Grande were dominated by mosaics of cottonwood, willow,

(continued from preceding page) grass, and alkali sacaton meadows and grasslands. These vegetative areas were established and maintained by spring flooding events that periodically scoured the floodplain. Today this landscape is altered due to agricultural and urban developments and water demands. Exotic species, including saltcedar and Russian olive, have spread rapidly in this void and have created additional hurdles in the riparian habitat restoration process.

Since 1987, the Bosque del Apache National Wildlife Refuge has refined techniques to determine site restoration potential, control exotic species, and restore native wetland communities on over 810 hectares (2,000 acres) of degraded saltcedar dominated floodplain. Use of the D7 class bulldozer, which destroys the root crown 12-18" below the soil surface, has been proven to kill tamarisk. The roots of the saltcedar can be as extensive underground as the entire tree is above the ground surface. The dozers can clear approximately six acres of tamarisks per day. A root plow then follows the dozer and digs up the roots at the rate of three acres per day. After the root plow, a root rake is used to remove the remaining roots, clearing 15 acres per day. This approach costs approximately \$700 per acre and is 98-99% effective in maintaining control of the saltcedar.

The San Miguel River, a tributary of the Dolores River in the Upper Colorado River Basin, is one of the few remaining naturally functioning riparian ecosystems in the Western United States. The project's goals are ambitious and unique: to establish the San Miguel as the only naturally functioning, tamarisk-free river in the Upper Colorado River Basin. The river flows from a 14,000' elevation to an elevation of 5,000' and is 80 miles long and consists of 1 million acres. While riparian areas make up less than 2% of Colorado, yet 90% of the native species depend on them.

The project began in 2001 with mapping, informational meetings where information was created and dispersed. In 2002 was the beginning of tamarisk removal on public and private lands, clearing 25 miles. During the years 2003-2005, ongoing removal, monitoring, and education will continue. The final project evaluation and mapping will be completed in 2006.

The project will use a watershed-wide approach, starting at the top and continuing to the bottom of the river. A cut-stump method is mainly used with a mechanical method, where appropriate. The project consists of private landowner participation and local crews and volunteers. The total cost for this project is estimated at \$640,000.

The San Miguel River, a tributary of the Dolores River in the Upper Colorado River Basin, is one of the few remaining naturally functioning riparian ecosystems in the Western United States.

Saltcedar trees have virtually destroyed much of the native habitat needed by certain animals, birds and plants along Texas rivers. The Pecos River stretches over 300 miles in Texas before emptying into the Rio Grande near Langtry. Most of this river mileage is armored with dense, mature stands of saltcedar that have created a monoculture. From 1999 through 2002, 128 miles of saltcedar along the Pecos River and its tributaries in Texas (6341 acres of saltcedar) have been treated with Arsenal herbicide using the state-of-the-art application technology of helicopters. Helicopters are preferred over airplanes for applying Arsenal because there is less drift of the herbicide, the helicopters can fly at slower speeds, and they make less banked turns. In addition, helicopters can spray a swath 45' wide. The cost of using helicopters to spray the herbicide on 10,245 acres is \$1,999,000.

Another way to control the tamarisk is by the use of non-domesticated organisms, such as insects. The benefits to using this type of control is environmentally compatible, the results are permanent, there is no pollution, the cost is low, the control is self containing, and it controls regrowth.

To help combat this exotic pest plant, the United States Department of Agriculture developed a biological control research and implementation effort that is now well under way and showing significant success. The *Diorhabda elongata* beetle from China, Crete, and other Eurasian locations have been tested by USDA-ARS scientists in Albany, CA and Temple, TX for efficacy and safety and have been permitted for release by both the US Fish and Wildlife Service and USDA-APHIS. Releases were initially made in six western states in limited release areas where cage studies verified the efficacy of these insect natural enemies. Open field releases have further verified their effectiveness in multiple field sites.

For example, release of 1300 beetles in the summer of 2001 increased to millions of beetles in two seasons so that over 400 acres of saltcedar was totally defoliated in research sites in Lovelock, Nevada. Similar results have been seen in Pueblo, Colorado, Delta, Utah, and Lovell, Wyoming. Additional research is being conducted to provide beetles adapted for more southern areas. These beetles should be effective in states such as California, New Mexico and Texas.

The first population of the leaf beetle, *Diorhabda elongata*, to be tested as a saltcedar biocontrol agent, originated in the northwest corner of China, Xinjiang Province, near the town of Fukang. This insect population enters a

state of dormancy, known as diapause, in response to daylengths shorter than about 14.5 hours of light. This diapause response results in a shutdown of the reproductive systems of both male and female beetles, as well as a departure of adults from the host plant and movement to the leaf litter. With this photoperiod requirement, the beetles cannot achieve two full generations per year at latitudes below the 37th parallel and will probably fail to thrive in the southern range of saltcedar. For this reason, new populations of *D. elongata* are being collected from a number of sites in Europe, Asia, and Africa. These populations reproduce under shorter daylengths and will be compatible with the southern range of saltcedar.

Work with the saltcedar leaf beetle, *Diorhabda elongata*, has proceeded according to a plan drawn up by the Consortium for the Biological Control of Saltcedar. This plan was a response to USFWS concerns about potential effects of immediate, widespread insect releases on the endangered Southwestern Willow Flycatcher. Work within secure field cages began in 1997 in Pueblo and additional sites followed. Open field releases occurred at all selected sites in spring 2001. Now, after three full field seasons, most sites where this insect can survive are reporting large increases in beetle populations, noticeable defoliation of saltcedar, and expanded areas of beetle infestation. Due to the novelty of notable defoliation in the field, long-term effects on the trees are not yet known.

While all these methods are effective in varying degrees, the development of an overarching management structure, coupled with sustainable funding, is necessary to get control of the exotic species, tamaricaceae. Otherwise, there will be only limited success in the daunting task of suppression, revegetation, and long-term maintenance on the thousands of miles of rivers and streams throughout the western U.S. impacted by tamarisk.

Currently the Tamarisk Coalition is taking the lead to develop a collaboration effort between the states of Arizona, California, Colorado, Nevada, New Mexico, Texas, and Utah. This multi-year effort includes a progression of tasks that will fill critical information gaps and provide demonstration projects essential to gaining public acceptance to take action to restore western rivers and streams.

Information for this article was gathered at the 2003 Tamarisk Symposium held at the Two Rivers convention center in Grand Junction, CO, on 22-24 October 2003. Sponsored by Colorado State University Cooperative Extension, Colorado Weed Management Association, The Division of Wildlife, First National Bank of the Rockies, Moss Inc., The National Fish & Wildlife Foundation, and The Tamarisk Coalition.

More information can be found at <http://www.coopext.colostate.edu/TRA/saltcedar2003.html>

For the GCPBA Waiting List, *Nancy Seamons*



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Protecting the Canyon's Ruins

One of the most interdisciplinary research ventures sponsored by GCMRC launched from Lees Ferry on May 4, 2003. The research group of geologists and archeologists—including representatives from the US Geological Survey, UC Santa Cruz, Grand Canyon National Park, the Hopi Tribe, the Hualapai Tribe, and Western Area Power Administration set off to see the effect of Glen Canyon Dam on the sand that has been preserving Native American archeological sites. After examining the arroyos that are formed by water running down the canyon walls and seeing the archeological sites exposed in the arroyos, there are two questions on everyone's minds. If Glen Canyon Dam did not exist or was operated to allow more sand to be retained in the system, would more sand be blown in from the bars along the river to fill in the arroyos? If there were more wind-blown sand, would it be slowing or preventing erosion of the ruins?

At the time the dam was built, environmental concerns focused on the area that was to be submerged beneath Lake Powell, upstream from the dam. Later, the Environmental Impact Statement (March 1995) for Glen Canyon Dam operations identified water, sediment, fish, vegetation, wildlife and habitat, endangered species, and cultural resources as some of the issues to be analyzed in detail, and studies have documented a number of impacts to the Colorado River downstream from the dam, below the high water line. There has been relatively little research on impacts above the old high-water zone. The archeologists and geologists on this trip are concerned that the dam may also effect that environment. The river corridor contains nearly 500 places of past human activity. The Grand Canyon Protection Act of 1992 mandates that Glen Canyon Dam be operated to protect downstream natural and cultural resources. If the dam operations have directly contributed to the erosion of cultural sites in the canyon, dam operations may need to change or other measures taken to ensure preservation of those resources.

Jan Balsom, National Park Service Cultural Resources manager, explains to the assembled group of scientists that 10,000 years of human history may be buried in the sands of the Grand Canyon. "With active arroyo cutting of archeological sites, many sites have recently been exposed, creating a huge problem for preservationists." Can the creation of arroyos be slowed and the archeological sites preserved? What the Park Service wants, Balsom makes clear, is a "system-wide" strategy that will relieve her staff from trying to repair every exposed site individually. For the two-week trip, the archeologists pick more than 30 representative sites to visit, revealing a range of problems

One stop is a site that National Park Service archaeologists have monitored over the past 20 years, and they have reported that each time they return, more artifacts are exposed. The archeologists have identified the site as being occupied

approximately 900 years ago. It is impossible to walk without stepping on pottery. There are several identified ceramics, including Tsegi Orange Ware distinguished by its bright red color with black lines and flecks of white. There is a type of burned clay used in house construction known as daub. For a brief instant, the geologists forget about sedimentary structures, becoming amateur archaeologists, looking for artifacts and evidence of the past.

Each day, rising with the sun, the scientists trek across beaches, past blooming milkweed and blossoming cactus. They hike along sandy paths, walk over river terraces and onto rocky ledges overlooking the river. At one site, Balsom shows the top of an arroyo cutting into the posts and roof beams of a 1000-year-old structure. She explains that a structure even older is revealed below. At site after site, the scientists see fire-cracked rock, fire pits used to roast agave, ceramics, and carved and worked stone known as lithics. At one site where there is no visitor traffic, whole terraces are filled with archeological sites, and potsherds are scattered across the landscape. At other sites the archeologists show off check dams built by the Zuni Conservation Program. Some look like random scatterings of driftwood, others look like piles of rocks, all are placed to stop erosion, trap wind-



The pendant shown on the left was found on a recent Grand Canyon archaeological trip operated by the USGS. The pendant is an eight of an inch thick and an inch long and crafted from malachite of unknown origin.

According to Dr. Amy Draut of the USGS Pacific Science Center in Santa Cruz, California "No excavation was done on that river trip. The pendant (and any other artifacts we came across, like potsherds) was found just lying on the sand surface."

Dr. Draut goes on to say "this and many other artifacts are exposed on the surface of eolian deposits because these deposits are eroding by a process called deflation. Deflation just means that the wind gradually removes sediment from the surface of an eolian deposit, causing the land surface to be lowered over time so anything that was buried in that sand, such as the pendant, is then left exposed. This is commonly how archaeological features are found in Grand Canyon now.

Explaining "in a natural system, eolian deposits would stay active by having new sand be blown up onto them from river-level sand bars. However in a system like Grand Canyon these days, where the amount of sand on the sand bars has been decreasing since Glen Canyon dam was built, we hypothesize that there is less sand available to blow up onto those eolian deposits and keep these artifacts covered and preserved.

"So, archaeologists are finding pottery, stone tools, and occasionally, items like this pendant, because they are exposed where eolian sand used to keep them covered up. Our research now is trying to quantify these processes and predict how/whether eolian sand deposition (and arch site preservation) would be improved if more sand were available on river level sand bars to provide a source for wind-blown sand."

Dr. Draut added "... a second process by which archaeological sites are eroding involves incision by gullies. It's been proposed that the reduction in sand available for transport by wind also may contribute to more rapid gully/arroyo cutting, because in active eolian areas with plenty of sand being transported, gullies can fill up and heal before they get very large. A number of archaeological sites are being undercut by gullies, which means artifacts can be washed away rapidly when it rains."

I asked if the artifact was left in place or removed to the South Rim for storage and/or display. Dr. Draut explained "No, we left this pendant where we found it. We did not collect any artifacts on that river trip. Everything gets left in its original spot. In the Park Service's cultural resource management plan, the highest priority method of site management is 'in situ' preservation ... we definitely left everything where it was found."

Then I asked Dr. Draut how the possibility of increased visitor use might affect research and preservation efforts. She responded — "It is certainly a concern that with increased visitor use of areas that are archaeologically significant, there is an increased risk that those sites will be disturbed. Although it is illegal for visitors to collect anything in this and other National Parks, it is somewhat hard to control this because the Park can't monitor every action of every Park visitor. We do hope that with increased education about the problems occurring faced by many archaeological sites in the canyon, that visitors will be conscientious and respectful of efforts to preserve these irreplaceable resources."

"Education can certainly make a difference. To that end, we have asked the river permit office to pass out a one-page information flyer that we wrote up about this research to every person who gets a permit for a river trip. The flyer informs people of the background of this research and its purpose. We hope this will serve to educate Grand Canyon visitors, while also helping ensure the continuous safe operation of our temporary instrument stations while they are there. (the better informed people are as to the reasons behind our work, the more likely they may be to be supportive of it)."

I wondered how some sort of visitor "traffic management might figure into a solution to the problem posed by greater visitor exposure. Dr. Draut ventured, "Traffic management... yes that I'm sure would have a positive effect too. The Park already does this to an extent by having established the "forbidden zone" where boats are not allowed to stop (Furnace Flats area). I'm not sure how well known this is to most river trip passengers ... the guides certainly know to avoid it, but I wonder how many passengers are aware that it's being avoided as a stop."

For the GCPBA Waiting List, Richard Martin



blown sand, and prevent exposure of nearby artifacts and structures.

David Rubin, a U.S.G.S. sedimentologist, directs the geologic research. The question for the geologists is whether the sand up on the plateaus, at the edges of the beaches, and

was deposited by water or wind). With shovels, trowels, Brunton compasses, and a Chinese calligraphy brush, the geologists march up and down the beaches, looking at the sedimentary structures in the cutbanks. At one site not far from the water's edge, Rubin sees ripples migrating right to

(continued from preceding page) fluvial climbing ripples. At another site, the geologists agree that the sand is probably fluvial, either from a 300,000 cfs flood of the Colorado River, or from flooding of a nearby side creek. At the next site, closer to the river, and lower on the plateau, all agree that the 10 foot wall of mud, pebbles, and rocks is from the side creek.

But many sites show evidence of eolian sand deposition.

Wind-blown sand is found on the beach near the water's edge, and up in canyons, far from the river. At one newly exposed site, Rubin considers that "if the sand bars were bigger, less vegetated, and less frequently submerged, more sand would blow up the canyon and up to the area of this site." The geologists look at another site and consider the incredible amount of sand and wind it would take to provide protection to the area, noting

that the sand would need to travel quite a distance from the river, blowing over boulders, reaching well above water level. But Balsom recalls seeing sand dunes form up on the ledges of the Redwall Limestone, well above river level. Other researchers recall times in the canyon when the wind is blowing so hard the sky is sand-colored, when the wind blew sand into their eyes while they rafted down the middle of the river. The geologists note that the cactus and bushes in the area all appear on mounds that are being undercut, a sign that there used to be a lot more sand in the area. Their examination completed, they agree that with the 40-50 mile wind gusts common in the spring, and with more sand in the system, it might be possible for eolian sand to reach up to the sites that are now being exposed.

Another site has extensive pottery scatter and is believed to have been occupied during much of the time from 900-1640 AD. Seven cultural features had been identified at the site. Four have already disappeared, victims of erosion. The scientists all agree that the site is a good place for an excavation to integrate the sciences of archaeology and geomorphology.

The preliminary investigation completed, several of the geologists think that reduced wind-blown sediment might be a significant factor causing erosion of the archeological sites. To determine whether the dam is, in fact, depleting the sand

source, the geologists outline the investigation. Geologic maps and air photos will be used to determine a site's position in the larger landscape. Anemometers will be placed to record winds and sand traps will be set to measure transport of wind-blown sand. Historical photos and statistics from completed surveys will be used to compare bar size and vegetation over time. Amy Draut will conduct this research for

her post-doctoral fellowship funded by GCMRC.

The investigation is wide-ranging. On a small beach, the grasses have grown into a 10-foot-tall, nearly impenetrable barrier, covering all but a narrow 15 foot strip of sand at the water's edge. The role that these new plants play in the preservation or erosion of archeological sites is unknown. If the vegetation were removed (or at least reduced) and the sand

USGS Monitors Sand Drift In GC

In November 2003, instrument stations were set up by the US Geological Survey and National Park Service to monitor eolian (wind-blown) sediment transport at several locations along the river corridor. By gathering data at a few carefully-selected sites, we hope to predict how changes in dam management might affect areas where archaeological sites are threatened by erosion. Would deposition of new sand at low elevation from a beach/habitat building flow (BHBFB) result in more eolian deposition at higher elevation, helping to preserve archaeological features? Do highly fluctuating flows cause greater risk to cultural sites? To help answer questions like this, we have set up temporary instrument stations that are maintained regularly by science trips. This equipment, which will be removed after the 2004 season, has been placed in areas that are not campsites or frequent stops for river trips. We have camouflaged instruments as much as possible, while realizing that it is not possible to hide them completely. All equipment will be removed at the completion of this study without leaving any impact on the sites. If you come across any of these instruments while on a river trip, please ensure that your group respects them – they are used to help us understand how to preserve and manage valuable cultural resources.

US Geological Survey, Dr. Amy Draut
adraut@usgs.gov

bar made bigger, would more sand be blown up to the archeological sites above the high water line of the river? Or would the beaches and arroyo banks erode further without the vegetative protection, further reducing the sand available to protect the archeological sites? Until now, the geologists have considered the role of the vegetation only when lamenting the loss of good camping beaches and when cataloging the changes that have occurred since erection of the dam. The analysis changes if the vegetation is either protecting or harming the archeological sites.

On the river, the water is incredibly clear. In the shallow places, individual rocks on the bottom of the Colorado are visible. The sparkling water confirms that the canyon is depleted in sand and mud. A little later, the water clouds slightly, confirming that sand is being taken off the already depleted beaches. Does this sand get washed completely out of the canyon, or does it end up on downstream beaches, where it might blow onto archeological sites?

With so many archeological sites at stake, the study's conclusion is being excitedly anticipated.

Michelle Rubin



CRITTERS IN THE CANYON: BIGHORN SHEEP

Bighorn sheep, *Ovis canadensis*, are the native sheep of North America. As most of you likely already know, they are a brown to grayish-brown color with a creamy white rump (most conspicuous) and a small non-conspicuous tail. The males have large coiled horns that spiral back, and then come forward to complete an arc. Females have horns; however, they are small and are curved, not coiled.

Rutting season is stated to be from August to October (Hoffmeister) or November and December (Peterson). The females are documented to breed at two-and-a-half years old. After reaching maturity, there is usually only one young born per year, occasionally two. The gestation period is approximately 180 days. There is conflicting information on the 'drop' date(s) of the young. *The Peterson's Guide (A Field Guide to the Mammals to North America North of Mexico, 1980)* mentions the young are born in May through June. D. L. Hoffmeister (1971) mentions 'the ewes probably drop their lambs in March, but little is known of this in the canyon and it may be as early as February or as late as April.' From my most recent spring Colorado River trips (March and April 2003), a ewe and a lamb were observed on 18 March just above Waltenberg (River Mile 112). And then on 12 April in the stretch between Havasu Canyon and River Mile 160, three ewes with two young were observed. So apparently this year the lambs were born early. It would be interesting to compare other years, (especially non-drought years) to see if there has been a difference...?. Lambs follow the mother after birth, and although gregarious, the rams usually separate from the ewes and lambs in the summer.

Hoffmeister states that the distribution is on both sides within the canyon, but 'probably more numerous west of Kaibab trails' and in mainly the inaccessible parts. Hoffmeister mentions of a few rare records near the rims. Hoffmeister also mentions: 'However, they are frequently seen by river boats as they water at the river's edge.' In my (limited) experience within the canyon, I have seen bighorn at the river's edge and also up the slopes or cliffs to the tallest 'rim' I could see. I have also seen a remains of an ewe curled up on a ledge just up from the river between River Mile 12-14 that seemingly died from ingesting a blue plastic grocery-type bag (not a pretty sight!).

During the Canyon's mining days, the bighorn were hunted and extirpated from areas, particularly from the lower end of the canyon and the Virgin Mountain area. Although it seems they have been making a comeback since the establishments of the parks, the drought has negatively effected the populations (Hoffmeister and Durham 1971, *Mammals of the Arizona Strip, Including Grand Canyon National Monument*; and a Hualapai tribal biologist, 2003). I actually heard my first bighorn 'baa' at Emery/Columbine Falls. It was late summer and the female just continued to 'call' to us at dusk. I have heard stories of rutting season, yet I have not had the chance to have seen or heard the clash of horns myself.

In terms of hoof tracks in the canyon, mule deer (*Odocoileus hemionus*) tracks are very similar to bighorn tracks given both being split-hoofed. In observing drawings in the *Peterson's Guide (Animal Tracks, 1974)*, the mule deer tracks appear to be a bit more pointed inward at the top/frontal portion of the track. As I have experienced, if one was to look for a bighorn or even a mule deer, look along the river/shoreline, especially in the spring and summer, and you may see tracks in the sand along the river. If interested in seeing either species, one should keep checking along the shoreline or talus slopes for the species, especially when the signs are present. Or even when they are no signs, you may spot one or more of these mammals. Geesh, at that note, if you choose to glance around, you may see other things (other than rock, water, and these species) that you may find interesting!

Hope all trips go well!!.

Nikolle L. Brown



Photo: Bruce McElya

Private Trip Journals

Redefining Strength

I knew the instant I cut the perfect little kite-shaped divot out of my left index finger as we were assembling my 16-foot inflatable raft's frame in my driveway—a dry run-- the day before we left for the Grand Canyon, that I was meant to take it as a sign. When one tube of rusty-from-lack-of-use-metal coupled inside its mate with a thunk, catching my fingertip in the process and I saw the little slice of my finger still attached to the metal joint but no longer to me, I understood that the River Gods were speaking. Even as I dropped the frame in surprise, even as the blood had started spurting from my finger tip, even as my friend Amanda said, "Wow, we should save that piece of you and sell it on E-Bay." I was torn between being furious (the river water would infect my finger, making what I already anticipated as a painful and difficult trip even more so) and hopeful (maybe I could somehow turn this into an excuse not to go) and disappointed (that I hadn't just broken my arm or lopped off my whole hand, making my participation in the trip incontrovertibly impossible).

Six o'clock the next morning found me at the Lee's Ferry put-in, woozy from the two days of packing and the all-night drive across the Navajo Reservation, my finger sealed in sterile gauze and duct tape. I was swatting mosquitoes, inflating my raft, rechecking all of my safety gear, stuffing 36 rolls of toilet paper into a waterproof bag, and wondering how on earth did I get here?

The answer was, on the one hand, very simple. In 1989, I had applied for a non-commercial river permit that would allow me to take up to 25 people on a private, eight-day white-water rafting trip down the Colorado River through the Grand Canyon. I was placed on a waiting list, my number, 3,861. In the fall of 2000, I was notified that I had finally climbed to the top of the list, and if I wanted to claim my August 25,th 2001 launch date, I should notify the Park Service by May 25th, 2001.

On the other hand, the answer was not so simple. In 1989 I was twenty-seven years old. I had not yet created for myself the writing career I love. I was dating a bighorn sheep hunting guide. I hadn't yet had any real therapy.

I was swatting mosquitoes, inflating my raft, rechecking all of my safety gear, stuffing 36 rolls of toilet paper into a waterproof bag, and wondering how on earth did I get here?

Rafting difficult rivers at dangerous water levels was one of several ways I recreated the afraid-for-my-life drama of my dangerous childhood home. When I was twenty-seven, there was no river too difficult, no water level too high, no rapid sequence too gnarly for the likes of me.

Outmaneuvering, out-muscling, and outguessing the river gave me the illusion of control.

According to my therapist, I was able to survive the chaos of my childhood by shutting down my fear response almost entirely, and I carried that skill with me into many aspects of my adult life; the horses I rode, the men I dated, and the rivers I chose to run. I was a machine on the river in those days, a lady Rambo, a Robo-rafter. When I heard the word strength back then, I thought mostly in terms of the physical. I had bravado confused with courage, fearlessness with invulnerability.

The friends and clients who rode in my boat thought I was the bravest woman they had ever met, when really I was only numbed beyond discretion. With all the inane chances I took on the river, it is a small miracle that I'm here to tell about it, a slightly larger miracle that no innocent passenger ever died at my hands.

I've always said the toughest thing about learning to feel your feelings, is that then you have to feel your feelings, and I spent my thirties breaking down those long standing self-protective walls. I gave life to three little girls who had lived till then, silent inside me--myself at ages five, eight, and twelve--and I listened to what they had to tell me about their hopes, and also their fears. Instead of seeing every dangerous river (and man, and horse) in the

American West as my immutable destiny, I began to understand that I had a choice about which challenges I wished to accept. I stopped taking trips that would prove how indestructible I was in the face of the forces of nature (a misguided illusion in any case), and started visiting countries like Tibet and Laos, where the gravest danger I faced was that the kindness, courage, and resilience of the people I met there threatened to break my heart.

On May 25,th 2001, I had another reason not to turn in my paper work for my Grand Canyon permit. I was engaged to be married in June to a wonderful man named Martin, and I was a little more than a month pregnant. I had a teaching job I loved and had just started work on a stage play, fulfilling a long time dream of becoming a playwright. Even my dog Dante, who had been struggling with bone cancer was one year into remission. I looked around my life and realized I had everything I wanted. Why would I want to put my oars back in the water when here, at the dawn of a new century and on the verge of forty, I had finally landed on a shore so sweet I couldn't have envisioned it back in 1989.

The next series of things happened in a matter of days. First, I miscarried. Then I received word that I would have to fly back east and try to talk/force my belligerent father into a nursing home. Then a park ranger from the Grand Canyon called and said, "I don't normally do this, but I noticed you didn't turn in your paper work and I can't believe you don't want to go down the Grand Canyon."

I didn't ask if he meant me specifically. I didn't ask if he had read the books I have written, that chronicle those days of risk and bravado. I might have speculated on the precise way the miscarriage, my failing father, and the ranger's well-intentioned prodding worked together to weaken me into a state of serious regression. I might have asked myself why I thought, for at least a moment, that the ranger knew more about me than I did.

By the end of the next day I had pulled ten people together who wanted to do the trip. Some I knew well, some I knew not so well, some were complete strangers who had experience and a boat. I took a hundred dollars from each of them, and mailed it to the Park Service. Then I was committed. Or should have been.

I invited my friend Gail, who is sixty years old and has arthritis in her hands and hips. I invited my friend Amanda, who had never before done anything like river rafting, and who didn't imbue people who did with any special power. I invited my not particularly outdoorsy or rugged

husband Martin.

To balance their lack of experience I invited a man named Bob, also in his sixties, who told me that given the choice he would spend his whole life in the Grand Canyon. He knew every bend of the Colorado River the way most of us know the road that takes us home. I invited KC and Christie, a couple with a lot of river experience that I met in the book store where Amanda works, competitiveness seeping out of them in a kind of pheromonal wave. I invited Saint and Alice, a couple in love with the river and each other. I invited Doug who is a fine all around athlete and about as reliable and decent a guy as I have ever known.

The friends and clients who rode in my boat thought I was the bravest woman they had ever met, when really I was only numbed beyond discretion.

By noon, on the morning of the 25th we were rigged and ready to go. Four boats, five boatmen (KC and Christie would share the rowing duties in their boat) and four novice passengers, though Bob would teach Amanda and Doug how to provide paddle support for his oaring as the days went by. Bob gave a these- are- all- the- things- that- might- go- wrong- talk that was extremely comprehensive and alarmist enough to turn Amanda's book store face whiter even than it is already, and send Gail running for the bathroom to puke.

Bob knew everything there was to know about the canyon, including every story about every fatality or near-fatality that had occurred in each rapid since the beginning of time. He had a penchant for exaggeration, and seemed to believe that to not talk about these dangers incessantly was to detract from everyone's experience of the Grand.

There we'd be on the river bank, scouting the next rapid, and I'd say, "It doesn't look like there's too much trouble until that big wave at the end, and then there's that nice slow stretch in case we need it for rescues."

And he'd say, "Oh no, back in '83 I had a buddy named Frank get annihilated by that lateral wave right at the top. Terrifying, because if you lose it up there and you're swimming through the big hole, you ain't never coming out."

I learned to ask, after a while, for clarification. "Annihilated," in Frank's case, meant not killed nor hurt, nor flipped, nor even pitched from the boat. I suggested that perhaps "jostled" might have been a more appropriate usage, since Frank didn't have to swim through the big hole after all. Bob looked at me with the expression he probably reserves for writers and non-river runners.

Now months later, from the safety of my living room, I have cultivated a suspicion that the rapids in the Grand Canyon aren't really all that *(continued on next page)*

(continued from preceding page) difficult. But Bob's non-stop insistence on their near impossibility combined with the little voice in my head that kept saying, "This is where you pay for all those years of foolishness," to make it seem like I, and several people I loved would be going over Niagara Falls in a barrel, nonstop, for eighteen days.

By day three of life around the campfire with Bob, Gail and Amanda were ready to hike out and hitchhike home, and I was quickly approaching a crisis point that was going to require me to either numb out completely (potentially sabotaging six good years of therapy), or start crying, knowing if I did, I might never stop.

I managed to keep control of myself and my boat for six days. Then, on day seven, we came to the rapid called Granite. KC took one look at my face and offered to row my boat for me, and I decided to walk around the rapid. I would carry my camera to take pictures of everybody's run, and a long lifeline so that I'd have chance of rescuing from the shore anyone who flipped or fell out mid-rapid.

This would have been a perfectly reasonable, even welcome suggestion had it not come from the woman who had been bawling nonstop since lunch time, and both Christie and Bob looked at me with real pity in their eyes.

"I'm gonna try to pick you up above that next rapid," KC said, "but if the boat is full of water and I can't get there, you might have to do a little hiking." Neither of us paid enough attention to the big dinosaur scales of Vishnu schist that rose almost vertically out of the riverbank. One problem at a time, the girls inside my head were saying, if you just please don't make us run that rapid, we'll deal with whatever it takes to get back to the boat when the time comes.

All four boatmen came through the big rapid relatively unscathed, but none of them in a position to get themselves stopped along the bank where I waited. That's fine, the girls said, as we watched them sail past and looked up the cliff face of schist, we'll just climb right over.

The dinosaur scales were much taller and steeper when I got up onto them than they had looked from the river. As a surface on which to scramble, the schist was sharp, slippery and unforgiving. It tended to flake off under my feet a lot, and the only thing that grew up between its cracks were nasty little cactus plants, covered with tiny spines that released at the slightest touch.

I kept climbing with determination, but every time I looked down the other side of the schist to where the four little boats waited, I found a sheer cliff, and had to climb even further back from the river, and even higher up.

Eventually I got myself into a place so steep I was scared to go up or down, so I sat, figuring--just like a girl, I thought at the time, a girl I had never been before--someone will come back for me. If I just sit here and pick the cactus spines out of my palms and shins, eventually someone will come.

I expected KC. In fact, it was Martin, my sweet knight, who may not be the most outdoorsy man alive, but who turns out to have virtually no fear of heights. He held my hand over every scary place on the next three ridges and we eventually found a draw where we could make our way down to the boats.

"Now I know why you came on this trip," Gail said when we got there, "Because it would be the perfect thing for your marriage."

Late at night I would sit up, staring at the canyon walls and think, I use to love being here. I used to know I was good at this.

One thing you should know about a trip down the Grand Canyon, is that you carry all your shit with you down the river. You carry it in big green ammo cans that in the 114 degree August days, begin to stink, and badly. Ten people, eighteen days; and what I have

to tell you is that's a lot of shit, so much, that you never quite stop smelling it.

Christie faced the river exactly as I had once upon a time. She was strong and smart and determined. She was quiet and a little angry while we scouted the rapids, and completely exhilarated when she had run one successfully. She liked nothing more than to row hard in the heat for ten hours a day, only taking breaks to hike as far as she could up the even hotter side canyons. At lunch, when most of us were grateful for the hour of shade we might find, she would whip out the Frisbee, and she was disappointed when we stopped for the night in a beachy campsite, where she couldn't practice scrambling on the rock walls after dinner and before.

My fear made no sense whatsoever to her, and she seemed to want to be as far away from it as possible, as if it might infect her somehow. She, like everyone else on the trip had read the accounts of my earlier adventures. In person, I was nothing she had expected me to be, and more. No really, I kept wanting to tell her, if you had seen me ten years ago you'd have really been impressed. But that would have let the girls in my head down in a different way. By the middle of the trip Christie had stopped talking to me, by trip's end she didn't even look my way.

Late at night I would sit up, staring at the canyon walls and think, I use to love being here. I used to know I was good at this. These walls never used to feel so dark and threatening. The moon would rise over one canyon wall, and set behind the other, and the canyon, of course, would say nothing at all.

I spent a lot of my daytime hours over-tightening my life jacket and looking for signs. If I saw an Osprey in the sky right before a big rapid, for example, and he kept circling, following us; if I could still locate him right before I had to line my boat up, then I knew we would make it through all right.

But sometimes we would get to a rapid, let's say the one called Dubendorff, and we would tie our boats and hike up the trail that led to the scouting overlook. Pretty soon Bob would be waving his arms and reminding us of all the stories of river carnage he'd told us the night before. But even before he got warmed up the girls inside my head were screaming RUN! RUN! QUICKLY! DOWNRIVER! GET YOUR BODY BELOW THAT RAPID OR DIE! And sometimes, like at Dubendorff, I just gave in and started running, without a word to anyone, leaving KC to row my boat, hoping I wouldn't find at the bottom, another hike like the one at Granite.

One morning KC and I were the first ones up and he said, "Oh my God, I spent all night dreaming about my real life, everything was so difficult and complicated, and then I woke up and felt this tremendous relief. Wow, I'm in the Grand Canyon, and everything is so simple and good."

"That's funny," I said, "it's the exact opposite for me. Every night I dream of my real life where everything is simple and good, and then I wake up and think, Oh my God, I'm in the Grand Canyon." I'll admit right here that at least one reason I decided to go on the trip was so that I could show Gail, my current surrogate mother; and Amanda, my newest dear friend; and Martin, my wonderful new husband; what an ultra cool macho river runner I had been in my previous life. What they witnessed instead was a complete freak who sat up all night muttering at the canyon walls, and who emerged from the tent late nearly every morning after a forty-minute cry. They had the opportunity to experience a boatwoman who occasionally disappeared just when it was time to run the rapid, and who wanted to talk about the psychology of risk around the campfire when everybody else wanted to drink tequila and play charades.

"You know what this trip is, don't you?" Gail said, in the off hand way of slightly crazy people, "It's the deconstruction of Pam Houston."

As it turned out, there was only one truly life-threatening moment on the entire trip. Crystal rapid is

probably the most dangerous on the Colorado, not only for the huge flipper wave in the top that all the current pours over, but also for the rock island at the bottom which can break your boat or your bones if you are unlucky enough to find yourself in the water as a result of the hole above.

Christie was rowing her boat through Crystal rapid with Gail as her only passenger, KC was rowing Martin and I in my boat, right behind. Christie hit the big wave sideways, and tumbled like a colt, all long skinny limbs, into the river, leaving little Gail looking even smaller than usual, hanging on for dear life in the front of the boat.

I thought, KC will keep his head because he understands that if we flip too we won't be able to help Christie. But in a kind of glorious moment where love triumphed over reason, KC forgot all about avoiding the hole and made a B-Line for Christie. We hit the hole head on, submerged completely for several seconds, but by some miraculous twist of wave or mercy, did not flip. By the time we popped out free, 5'1" Gail had hauled 6'1" Christie back into the boat, and Christie was back at the oars in plenty of time to avoid the dangers of rock island.

I'm proud of Gail for rescuing Christie. I'm proud of Amanda for not jumping from a thirty-foot ledge into a deep pool, even though Bob told her if she didn't, she'd regret it for the rest of her life. I am proud of Martin for realizing that even in the face of all those macho men, the best way he could contribute to the trip was to be precisely and utterly his generous, hilarious self.

I am, in almost equal measure, proud and ashamed of my own behavior, though I get confused sometimes about which is which. I understand that the type of strength I was cultivating in the Grand Canyon is almost the exact opposite of the type I had an overabundance of in my twenties. I am almost convinced this type will serve me better. I am almost convinced that the girls in my head are always right. My Buddhist friends would tell me that Bob was perfect at being Bob. My therapist would tell me I chose Bob on purpose, to intensify the conflict I was bound to have with the river (i.e. myself). My Astrologist friend would ask me what I expected, given that I'm a Capricorn, born in the Chinese Year of the Ox, two slow stubborn animals walking up the steepest part of the hill slowly, creatures who wouldn't recognize a short cut if it bit them on the face.

One way or another, I now find myself grateful to Bob, because his tactics, however challenging, brought me

"Oh my God, I spent all night dreaming about my real life, everything was so difficult and complicated, and then I woke up and felt this tremendous relief. Wow, I'm in the Grand Canyon, and everything is so simple and good."

(continued from preceding page) importantly, got us all safely down the river.

I had always heard that a Grand Canyon trip changes you and your tripmates' lives forever, and by the time we arrived at the Diamond Creek take-out, eighteen days later at nine in the morning MST, many things would have happened that would change us.

K.C. would have been the first person to find the body of a young man, 24 hours dead, fallen from a cliff in the upper reaches of Havasu Creek. Alice and Saint would have gotten engaged. Bob would have served dinner on night thirteen wearing nothing but blue bikini briefs and a True Value apron. Amanda would have learned how to confidently paddle a class ten rapid. Doug would have acquired the enduring nickname "strap king." I would have gotten a serious subcutaneous infection on my chin from rubbing it against my over-tight life jacket, and beaten it with only echinacea and vitamin C. Everyone except Gail would have enthusiastically participated in a beach game called penis croquet.

The first person we saw at the take out, an old Hualapai fisherman, told us that earlier that morning, two planes crashed into the World Trade Center, another into the Pentagon, and that there were probably more in the air. We didn't believe him. We said to each other, "that's what he tells everyone when they've been away from the news for eighteen days." We had been so swept up in the physical fact of traveling through canyon walls that represent five hundred million years of geologic time, it was too much to grasp that our world had changed completely in the very moment we emerged. A guy on a mini-bike arrived and confirmed the first man's story.

We rode in shock and silence in the van up the steep road out of the canyon, unable to get even radio reception. Amanda was worried about her father who lives in New York and works sometimes in the World Trade Center. KC and Christie were worried about their children, back at home alone. I looked out the window, scanning the sky for mushroom clouds. Our driver told us that many more planes might be carrying hijackers. He told us the Hoover Dam was considered a primary target and we all silently contemplated the physics of it. Would we have just been suddenly sucked straight down?

In the back of the van, Bob talked on and on about the run he had in Crystal. We were stuck in the space between one entirely surreal experience and another, and later we were thankful for the several hours between hearing the news and seeing the images on TV. I had been counting the days, the hours, the minutes and the seconds, until we would get off the river and our lives would go back to normal. I began the hard work of realizing, along with the rest of the country, that things would never really go back to normal again.

Pam Houston



Pam Houston is the author of two collections of linked short stories, *Cowboys Are My Weakness* (W. W. Norton), which was the winner of the 1993 Western States Book Award and has been translated into nine languages, and *Waltzing the Cat* (W. W. Norton) which won the Willa Award for Contemporary Fiction. Her stories have been selected for the 1999 volumes of *Best American Short Stories*, *The O. Henry Awards*, *The Pushcart Prize*, and her story *The Best Girlfriend You Never Had* was John Updike's only addition to *Best American Short Stories of the Century* when that volume went from hard cover to paperback in early 2000. She has published fiction recently in *Ploughshares*, *Cutbank*, and *Other Voices*, and nonfiction in *The New York Times*, *O*, *The Oprah Magazine*, *Elle*, *Travel and Leisure*, and *More Magazine*. A collection of autobiographical essays, *A Little More About Me*, was published by W.W. Norton in the fall of 1999. In 2001 she completed a stage play called *Tracking the Pleiades* which was produced by the Creede Repertory Theater. Houston has edited a collection of fiction, nonfiction and poetry for Ecco Press called *Women on Hunting*, and written the text for a book of photographs called *Men Before Ten A.M.* (Beyond Words, 1996). Her first novel, *Sightbound*, will be published in September, 2004.

Houston is the Director of Creative Writing at U.C. Davis and she teaches at many summer writers' conferences and festivals in the US and abroad. She has appeared on *CBS Sunday Morning* from time to time doing literary essays on the wilderness, as well as a guest on the *Oprah Winfrey Show*. She lives in Colorado at 9,000 feet above sea level near the headwaters of the Rio Grande.

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GCPBA Treasure's Report

What Are We Doing With Your Dues?

"So," says my friend, "What do you do with our dues?" We're at the Kansas Canoe Association Annual Meeting, about as far away from whitewater as you can get in North America. But we're not talking KCA budget, the meeting is over and it's party time now. He's asking about the \$25.00 check he sends to GCPBA each year.

"First of all," I tell him, "we stretch every dollar you invest to do more than a dollar should. Then, we take those dollars and work towards our number one goal, fair access for private boaters in the Grand Canyon."

Check www.gcpba.org and you are reminded that our goal is: "The ability for all to obtain, on an equal and timely basis, an opportunity to experience a float trip through the Grand Canyon while protecting the resource." That pretty much drives everything we do. It's how we do it that determines how we organize our expenditures.

"The ability for all to obtain, on an equal and timely basis, an opportunity to experience a float trip through the Grand Canyon while protecting the resource."

But as any GCPBA director soon learns, it's not easy. While the amount of funds we have to work with certainly impacts how much we can do, it's our goals that determine how we spend it. Since winning the lawsuit to force completion of the Colorado River Management Plan, our energies have been focused in this way:

- Participate fully in the CRMP process.
- Develop the 50/50 access plan, attend CRMP meetings, and be the leading proponent of fair access for private boaters.
- Keep our members informed of this process and of how we are working towards our main goal.
- Participate in other related Grand Canyon boating activities that benefit our members and our goals.
- Maintain a stable organization structure that enables us to accomplish our goals.
- Raise funds to enable our work.
- Stretch our dollars.

CRMP PARTICIPATION

We decided that to effectively participate in the CRMP process that we needed a reasonable plan that we could hold up as fair for private boaters, and others as well. We wanted to start the process with a plan that would set the debate. We

needed to be represented at each CRMP meeting with board members and general members as well. We needed to communicate directly and convincingly with CRMP team > members.

Developing the 50/50 plan, while time consuming, labor intensive and emotionally draining, was not expensive. Making sure that our President, Richard Martin, and Vice-president, Tom

Schiavone could attend every CRMP meeting of any kind took financial commitment. We also made sure other board members could attend. We held gatherings for members at each CRMP site. More cash. The bottom line was that we participated effectively. We spent more than just a few thousand dollars doing it. It was money well spent. And, we will spend again in the next round of meetings after the draft proposals are out.

INFORMED MEMBERS

Keeping our members informed of Grand Canyon issues and of what we're doing as an organization is extremely important, for two reasons. One, it directly supports our access efforts. Two, our members are interested in most subjects covering Grand Canyon and boating. You're reading our primary effort right now, *The Waiting List*. It's an important communication tool, but it's not cheap. Figure a couple thousand dollars to publish each issue.

Fortunately, our website, our listserver and our *NewsWire* service are not too expensive to operate. That's because GCPBA director Ken Kyler hosts our site. He and director Bob Harris spend many hours operating these services. It's one of those areas where we stretch dollars and provide service.

(continued from preceding page) More expensive, just for the printing and mailing costs, are the annual meeting notices and surveys that we send to members each year. A few hundred bucks spent here.

RELATED ACTIVITIES

Each year we participate in a clean-up trip on the San Juan River. It gives members a chance to boat together and do some good for the river and environment. Tom Schiavone and Tim Hunter lead this effort. The BLM loves having us and writes a special permit for the operation. And best of all (from a treasurers viewpoint), the cost is minimal as most of the expense is born by the participants, grants and help from the BLM.

Last year we made a \$500 contribution to the Grand Canyon National Park Foundation to help with restoration of historic Grand Canyon boats. You can see these boats on display when you visit the South Rim.

A real access, or more correctly an egress problem developed for river runners as the continuing drought turned Pierce Ferry into an unusable ending point for river trips, making it necessary for boaters going below Diamond Creek to take out at South Cove. A boat ramp was needed for river rafts of all varieties—the existing paved ramp was ruled off limits by the Lake Mead National Recreation Area to river runners. GCPBA teamed with the Grand Canyon River Outfitters Association and the Hualapi Nation to develop a river runners ramp for take outs. We donated \$2,000 to the effort, but a small portion of the funds needed to grade the area so that all boaters coming out of the canyon would have a ramp.

As everyone knows, the tammies are spreading, the tammies are spreading. Tamarisk eradication is now an ongoing effort in the Grand Canyon. This is an important environmental project. In order to better inform our membership of the need for these efforts, GCPBA board member Nancy Seamons has been participating as our representative. Our participation in this project has cost us money, as well. (Please see "Trouble With Tammies" in this issue of the Waiting List, ed.)

These are important activities, but as they are not part of our main goal, we have to remain very conservative on expenditures for them.

ORGANIZATIONAL STRUCTURE

GCPBA is an all volunteer organization. No member or director is paid for any services. We're also a national organization that advocates changes for its membership in an environment that is naturally resistant to change. Even with no paid staff, it takes thousands of dollars each year to run such

an organization and get results. Here's some of the expenses that grab our attention:

Travel expenses related to CRMP meetings and Annual GCPBA meetings

Monthly phone conferences for board members

A legislative tracking service that keeps us informed on what the NPS and other GC stakeholders are pushing in Washington, a cooperative effort with American Whitewater that cost GCPBA nearly \$4,000.

Our first computer, portable, and software to support it - \$2,000

And all the dozens of expenses that require energy and money to deal with: phone bills, domain fees, envelopes, stamps, Arizona Corporation Commission Fees and Privilege Taxes, Attorney fees, Account fees, bulk mail permits, and the list goes on.

FUND RAISING

The funds to support GCPBA programs and activities come basically from four sources. Membership dues, the annual online auction, donations and merchandise sales provide the cash. Since the settlement of the CRMP lawsuit, membership dues have been the lion's share of our operating income. They have been the bread and butter that allows us to work. However, if dues were our only income, it would be difficult for us to drive change as they amount to just around \$12,000.00 annually.

The annual auction produces a few thousand dollars. It's an opportunity for our members to pick up some great river gear while helping GCPBA. Vendors who donate items help our cause and get good exposure for their products to the right audience.

Merchandise sales are important to us as a service to our members. It is not, however, an area of significant income.

Donations and grants enable us to go the extra mile or two it takes to reach our main goal, access. Without thousands of dollars in gifts, we would not have been able to prosecute our lawsuit to restart the CRMP. Donations and grants are a part of our fund raising efforts that we cannot do without.

STRETCHING DOLLARS

Perhaps the passion that drives people in advocacy based organizations to strive for change is what stretches the dollars, multiplying each dollar to make a bigger impact. It takes thousands of hours of work each year to make our organization work. We handle basic office functions, maintain the membership database, keep the website running, organize the auction, solicit donations, attend meeting after meeting, run clean-up trips, produce newsletters. Many of

our members work uncounted hours to make the funds we have go further and do more. Some of the work is fun, much is particularly not fun. But all of the work is important.

BANKING ON THE FUTURE

With the planning process drawing to a close this year and the unveiling of the NPS proposals just months away we are hoping that the Park Service generates a river management plan that all the river constituencies can support. Given the historical perspectives of this battle, while possible, such an outcome doesn't seem likely. GCPBA wants to be prepared. To that end we have been saving funds in anticipation of the need for further legal action.

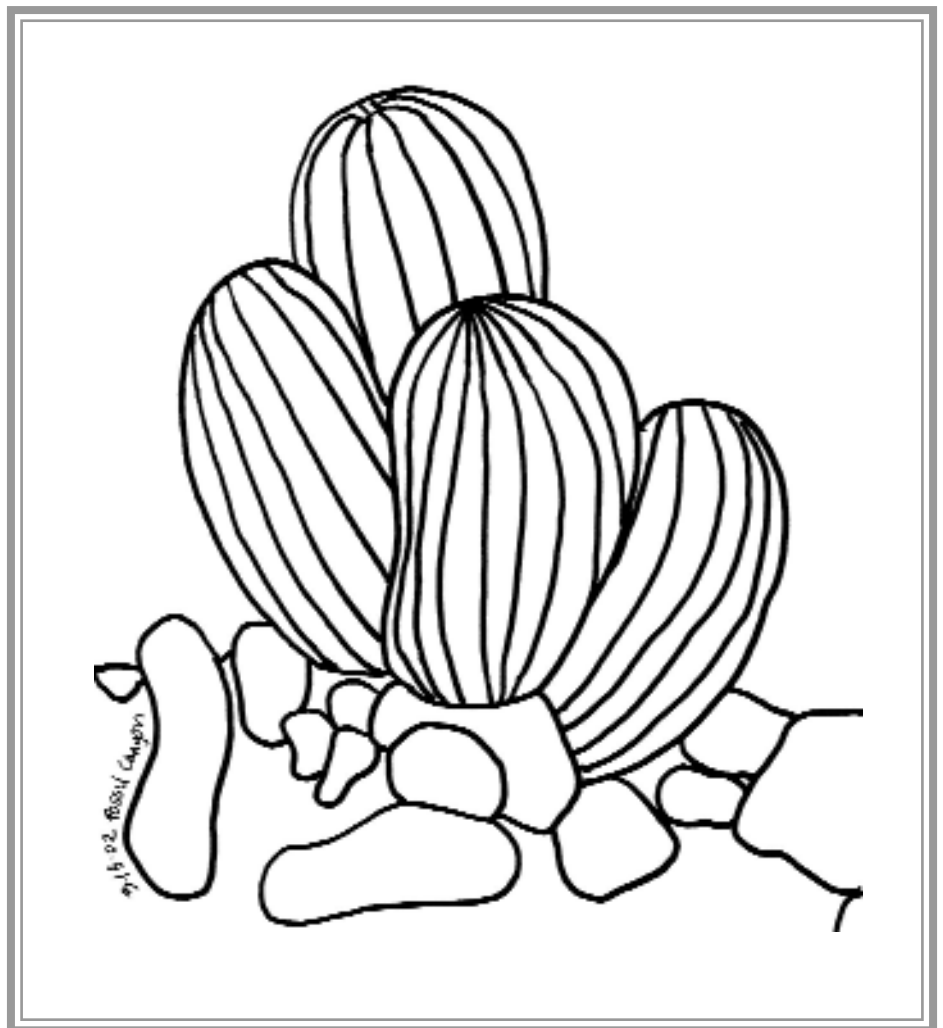
Legal action is very expensive. Our first effort, which resulted in the CRMP planning restart cost \$38,000. When it became apparent to our board of directors that legal action was the only way we were going to get this process going we had to scramble to raise those funds. Because of our philosophically important decision to remain 'all-volunteer', we have found ourselves in a very enviable strategic position. While prosecuting our litigation to re-start the CRMP, our co-plaintiff organizations, who rely heavily on paid staff, found themselves in dire financial straits. While they were making painful belt-tightening staff reduction decisions, GCPBA had the relative comfort of not having to lay people off, and could focus solely on the lawsuit, with little or no concern on the financial ramifications of making critical and necessary atrategic decisions. We are still in that favorable strategic position.

As we won the legal effort, the NPS was obligated to return a significant portion of our fees incurred. We have been saving that money to be able to jump start any future legal efforts. We currently retain legal counsel and we intend to be sure that private boater access issues don't get lost in the potential fray which will likely occur after the release and implementation of any new management plan.

Such a battle could be far more expensive than our first efforts. We need to be prepared to respond quickly and that is why we continue to build our "war chest."

"Sounds good," says my friend as he looks around the room filled with KCA members. Even in Kansas there are dozens of private boaters who are just waiting for their chance to float in the grandest of canyons.

RJ Stephenson
GCPBA Treasurer



drawing: Julia Holland

PARK AIRLIFTS 17 PEOPLE OFF STUCK RAFT

A 37-foot motorized raft, operated by Wilderness River Adventures, became pinned on a rock at Unkar Rapid September 11, 2003. Unkar Rapid is at river mile 72.5. "At approximately 2 p.m., the motorized raft experienced engine failure upon entering the rapid," incident commander K.J. Glover said in a report. "It traveled to the left side and got lodged on rocks towards the base of the rapid." For the next three hours, the boatman and crews from two other Wilderness River Adventures' boats attempted to free the raft. The NPS received a satellite call for assistance at 5 p.m., after the self-rescue attempts failed. But SAR [search and rescue] personnel had less than two hours of daylight left for the operation.

Two rangers were inserted onto the boat via short-haul, a technique of moving rescuers utilizing a 100-foot rope attached to the helicopter. Six passengers were evacuated before nightfall, but air operations had to be suspended at dusk due to safety protocols. "Rangers stayed on the boat with the remaining passengers throughout the night," Glover reported. "In the morning the passengers were short-hauled to safety." There were no reports of injuries. Some of the 17 were able to get onto other river trips and hike out from Phantom Ranch.

Following the helicopter operation, rescuers and boatmen remained on the raft to assist with efforts to free it from the rock. Attempts to free the boat Friday proved unsuccessful. However, the boat was moved with a "Z rig" from the initial point of entrapment to a location 10 feet downstream. The boat also rotated 180 degrees. On Saturday morning, park rangers returned to Unkar Rapid to assist with freeing the boat. The raft finally broke free utilizing engine power. The boat then continued down river without further incident.

By Brad Fuqua Editor, *Grand Canyon News*
gcnews@grand-canyon.az.us

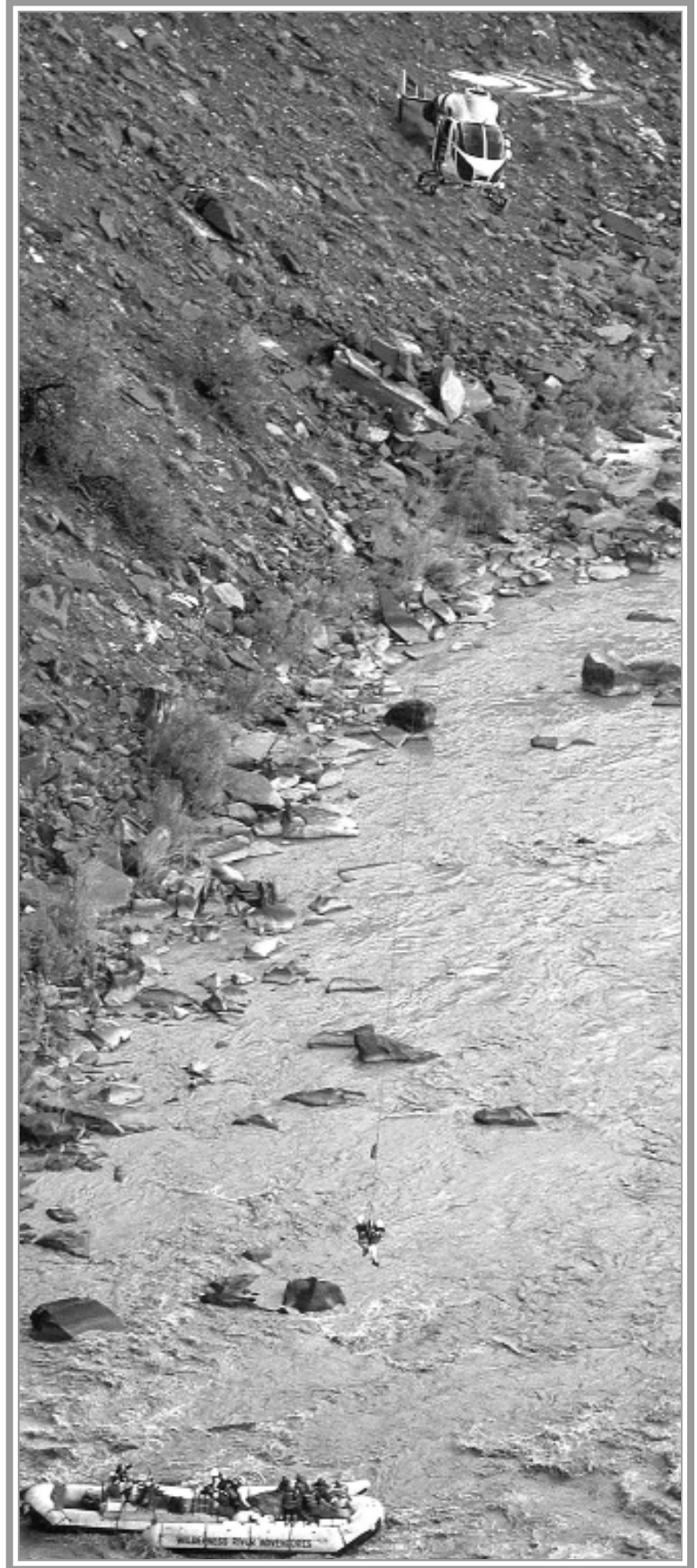


Photo: Scott MacButch

Glen Canyon Dam - Lake Powell Operations & Outlook

In May 2004, a volume of 600,000 acre-feet is scheduled to be released from Lake Powell, which is an average of 9,760 cubic feet per second(cfs). On Mondays through Fridays in May, daily fluctuations due to load following will likely vary between a low of about 6,600 cfs (during late evening and early morning off-peak hours) to a high of about 12,600 cfs (during late afternoon and early evening on-peak hours). On Saturdays, releases will likely vary between a low of about 6,600 cfs during off-peak hours to a high of about 11,800 cfs during on-peak hours. On Sundays, releases will likely vary between a low of about 6,600 cfs during off-peak hours to a high of about 11,000 cfs during on-peak hours. A volume of 800,000 acre-feet is scheduled to be released in June which is an average release of 13,400 cfs.

Because of the draw down condition of Lake Powell, releases from Lake Powell in water year 2004 are being scheduled to meet the minimum release objective of 8.23 million acre-feet. This is consistent with the requirements of the Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs.

UPPER COLORADO RIVER BASIN HYDROLOGY

The month of March pretty much dashed hopes that 2004 would bring relief to the ongoing drought in the Colorado River Basin. Basin snowpack on March 1, 2004 was 96 percent of average. At that time the April through July inflow was forecasted to be 82 percent of average. The weather pattern in March, 2004 was very dry and extremely warm for early spring. Temperatures around the basin for much of the month were 20 degrees above average. Basinwide snowpack dropped over 30 percentage points in March.

In April, aggregate precipitation in the Upper Colorado River Basin was near average, with the southern portion of the basin receiving above average precipitation, and the northern regions below. As of May 3, 2004 basinwide snowpack is 61 percent of average. The National Weather Service April mid-month forecast is calling for 4.0 million acre-feet of unregulated inflow to Lake Powell during the April through July runoff period, only 50 percent of average. This is a sizable reduction from the volume forecasted in March. A revised forecast will be issued the week of May 3.

The drought continues. The Colorado River Basin is now in its 5th year of drought. Inflow volumes have been below average for 4 consecutive years, with 2004 almost certain to follow suit. Unregulated inflow in water year 2003 was only 53 percent of average. Unregulated inflow in 2000, 2001 and 2002 was 62, 59, and 25 percent of average, respectively. Inflow in 2002 was the lowest ever observed since the completion of Glen Canyon Dam in 1963.

Inflow to Lake Powell in March and April approached average levels as abnormally warm temperatures melted out significant amounts of snow in the basin. Unregulated inflow in March was 538,000 acre-feet, 81 percent of average. April unregulated inflow was 816,000 acre-feet, 83 percent of average. Unfortunately the inflows seen in March and April will be at the expense of May and June inflows (when the largest inflow volumes are normally observed). As of May 2, 2004 inflow to Lake Powell is 9,000 cfs about 45 percent of what is normally seen in early May. Low inflows the past 5 years have reduced water storage in Lake Powell. The current elevation (as of May 2, 2004) of Lake Powell is 3,587 feet (113 feet from full pool). Current storage is 10.2 million acre-feet (42 percent of live capacity).

The water surface elevation of Lake Powell has reached its seasonal low. The water surface elevation will increase incrementally in May and June, likely reaching a high of about 3,590 feet in mid-June. By late June the water surface elevation will likely begin to decrease. It's almost certain that Lake Powell will remain below elevation 3,600 feet in 2004. Under the current inflow forecast, the water surface elevation of Lake Powell is projected to be 3,574 feet on January 1, 2005. It should be noted that this projected elevation will likely shift, depending upon weather patterns the remainder of the year.

How's It Going?

Frequently Asked Questions About

Many questions concerning the forthcoming Colorado River Management Plan and the developmental process progress are received by the GCNP planners. Many of those questions cover similar topics—how far along are you, when will it be done and why did you stop adding names to the current wait list?

Park planners collected those most frequently asked questions and formulated answers which they have published on their website (www.nps.gov/grca/crmp/documents/2faq.htm) and allowed GCPBA to republish in this issue of *the Waiting List*.

WHERE ARE YOU IN THE EIS PROCESS NOW?

The Colorado River Management Plan (CRMP) Planning Team is close to issuing the draft environmental impact statement (EIS). (*Estimated release date, May, 2004 - ed.*)

The following is a list of accomplishments, what is currently being worked on, and where we're going in the EIS process:

Phase 1: (Spring - Fall 2002)

Assembled planning team, identified project's scope and issues, analyzed data and customized planning process

(March - May, 2002)

Issued Notice of Intent (June 13, 2002)

Interviewed Stakeholders (June, 2002)

Gathered public input via electronic outreach and written comments (June - November, 2002)

Held public meetings in seven cities across the United States. (August - October, 2002)

Phase 2: (Fall 2002 - Summer 2004)

Analyzed public input and developed range of alternatives (Fall 2002 - Fall 2003)

Held Expert Panel Series (January, 2003)

Held Stakeholder Group and Public Workshops (January, 2003; June, 2003)

Analyzing natural, cultural, and socio-economic effects/impacts for draft alternatives (Fall 2003 - Spring 2004)

Issue Draft Environmental Impact Statement (DEIS) with preferred alternative (May 2004)

Public review of DEIS; Conduct public meetings and gather public comments

Phase 3: (Summer - Winter 2004)

Analyze public comments on DEIS

Prepare Final EIS (FEIS)

Issue FEIS for public review

Issue Final NEPA Compliance Document by December 31, 2004

WHAT DOES THE PROCESS INVOLVE?

Under the National Environmental Policy Act (NEPA), the National Park Service is mandated to prepare an Environmental Impact Statement (EIS) concurrent with the development of a management plan (CRMP). The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. Through this process, a total of 13,770 responses, consisting of 55,165 individual comments were submitted during public scoping for the CRMP in the summer and fall of 2002. The CRMP Team, assisted by environmental consultants, reviewed each submission and created a master database. Comments were reviewed and analyzed, and subsequently categorized by issue, solution, desired future condition, or value. The comments, as well as a series of expert panels and two stakeholder workshops were used as a framework for developing the alternatives. A summary document was prepared and a list of major issues was developed. (Public Scoping Issue Analysis and Stakeholder Group and Public Workshops)

A number of complex issues from public and internal scoping, stakeholder groups and public workshops are being addressed in the EIS. Some of these issues include, but are not limited to:

- * Appropriate levels of visitor use consistent with natural and cultural resource protection and preservation mandates;
 - * Allocation of use between commercial and non-commercial groups;
 - * Non-commercial permit system;
 - * Level of motorized and non-motorized watercraft use;
 - * Range of services and opportunities provided to the public; and
 - * The level of helicopter use near Whitmore Wash.
- Given the spectrum of concerns expressed by the public, we are charged with finding ways to strike a balance

the Colorado River Management Plan

between protecting resources, visitor experience, tribal concerns, local and regional economies at the same time offering fair access to the river and its diminishing beaches. Our task is to create a management plan that is sensitive to both the resource and the broad range of public concerns.

Carrying Capacity Factors

- * Number, size, distribution, and expected lifespan of camping beaches;
- * Number, types, and vulnerability of natural and cultural resources; and
- * Indicators of visitor experience, that include: Contacts per day, double camping, Trips At One Time (TAOT) and People At One Time (PAOT) on any given day on the river, and group size, trip length, launches.

WHAT IS AN IMPACT ANALYSIS?

An impact analysis determines how the implementation of alternatives affect cultural and natural resources, visitor experience, the local and regional economies, tribal concerns, administrative costs, and local and regional populations. NEPA requires that we understand the consequences of proposed actions. It is the most important part of the NEPA process. The analysis includes an examination of ways to reduce (mitigate) adverse impacts, and what kind of impacts the mitigations might have.

DO YOU HAVE A PREFERRED ALTERNATIVE?

A draft preferred alternative is being analyzed along with other alternatives, including the current condition (No Action Alternative).

HOW ARE YOU GOING TO DETERMINE CARRYING CAPACITY?

The deliberations in the CRMP planning process have generated several new ways to analyze visitor carrying capacity, visitor experience, and potential "visitor use impacts" on the resource. As applied to National Parks, visitor carrying capacity is defined as "the type and level of visitor use that can be accommodated while sustaining acceptable resource and social conditions that complement the park.

(<http://planning.nps.gov/document/verphandbook.pdf> - PDF file, 1mb) "The concept of carrying capacity is intend-

ed to safeguard the quality of park resources and the visitor experience. (Park resources in this context encompass all of the biophysical, aesthetic, and cultural elements and features contained in a park). Visitor use impacts are primarily attributable to visitor behavior, use levels, types of use, and location of use. Examples of natural and cultural resource and social/visitor experience considerations used in determining carrying capacity can be found at Handouts from the Stakeholder & Public Workshops

While there are many factors that help determine carrying capacity on the Colorado River, three primary factors are:

- * Number, size, distribution, and expected lifespan of camping beaches;
- * Number, types, and vulnerability of natural and cultural resources; and
- * Indicators of visitor experience, that include: Contacts per day, double camping, Trips At One Time (TAOT) and People At One Time (PAOT) on any given day on the river, and group size, trip length, and launches.

The first two factors describe physical environment and serve as a foundation for determining the appropriate level of overall use. The third factor represents the variables that make up that use. We are familiar with the character of the camping beaches based on our data. We also have good data on the types of resources that are located at attraction, camping, and launch sites. We have good data on how visitors impact those resources. Through utilization of the Grand Canyon River Trip Simulator (GCRTS), and other tools, we have been able to analyze indicators of visitor experience and determine how various group sizes, trip lengths, and launch scenarios accommodate the limited campsites available for camping on the river and affect visitor experience and resource vulnerability. The result is a range of acceptable alternatives.

WHAT FACTORS HAVE YOU BEEN USING TO DETERMINE CARRYING CAPACITY?

Several factors that have been extremely valuable in determining carrying capacity include: the Grand Canyon River Trip Simulator (GCRTS), public comments, river use statistics, visitor use research, and camping beach research. The GCRTS is an integrated statistical and artificial intelligence-based computer simulation that models the complex and dynamic human-environment interactions along the Colorado River in Grand Canyon National Park. Data on river trip behavior was collected for the GCRTS in the form of trip reports from commercial and non-commercial boaters during

the 1998 - 2000 summer seasons. From this data, river trip speed, the probability of a trip stopping at a site, the average time spent at sites, crowding at attraction and launch sites, and many other important factors were calculated. The GCRTS has many output and analysis options including: graphs, tables, charts, and visualizations. These analysis tools have been used to create new and alter existing launch schedules, analyze current trends and use patterns, and determine the number of trips, people, group sizes, and user days that the Colorado River and its camping beaches and attraction sites can handle at any given time. (GCRTSim - reports/publications)

In addition, a map that shows all known cultural and natural resource areas of concern, as well as recreational stopping points and their level of use based on the river trip simulator, has been developed. When different launch schedules are run in the trip simulator, changes in the intensity of use can be predicted at each of the river stops, and then compared to biophysical impact data (from various Grand Canyon monitoring projects) and the resource map. In this way, we can identify areas of resource vulnerability from visitor impacts based on various launch schedules.

Years of research conducted through projects in the canyon have given us baseline data on cultural and natural resources and visitor use, as well as impacts from visitors, non-native species, and Glen Canyon Dam. These kinds of data have provided an in-depth understanding of the river corridor environment, both how it has been affected and might be in the future. The data have shown the effectiveness and cost of restorative efforts, how visitors impact the environment, and visitor expectations for a river trip.

The GCRTS has helped the CRMP Planning Team develop several new indicators of visitor use and carrying capacity, some of which include:

- * Trips At One Time (TAOT) - number of trips at any given time in the river corridor on any given day. This helps us determine the anticipated number of contacts per day and number of campsites occupied that directly correlates to visitor experience (i.e., crowding at attraction, launch, and take-out sites that affect one's overall river experience).
- * People At One Time (PAOT) - number of people in the river corridor on any given day. This number helps us to measure crowding, and provides information on groups, boats, and behavior, within the river corridor.
- * User Discretionary Time (UDT) Quotient. The UDT Quotient calculates the approximate amount of time that those on the river have to interact with the terrestrial environment. This quotient recognizes that trip type, trip length, and time of year (available daylight) all affect the amount of time available to interact with the environment.

Spreadsheets have also been created that (based on GCRTS data) takes launch schedules (including trip type

size, and length) and calculates the anticipated number of TAOTS, PAOTS, and contacts per day, user-days, commercial-non-commercial ratios, UDT, and total passengers per year.

HOW HAVE TRIBAL CONCERNS BEEN INCORPORATED INTO THIS EIS?

The Grand Canyon National Park has been in consultation with representatives from the Hopi Tribe, the Navajo Nation, the Southern Paiute Consortium, the Havasupai Tribe, White Mountain Apache Tribe, San Juan Southern Paiute Tribe, and the Pueblo of Zuni Tribe. Additionally, the Hualapai Tribe, who shares a common boundary along the Colorado River, requested and received cooperating agency status in the CRMP/EIS.

Tribal concerns have been incorporated into alternative development and Tribal input has been a valuable tool in assessing current resources, visitor impacts, and mitigation strategies.

WHAT IS HAPPENING WITH THE NON-COMMERCIAL WAIT LIST?

Pending the outcome of the Colorado River Management Plan (CRMP), a hold has been placed on adding new members to the non-commercial river permit waitlist. As part of planning, park staff is carefully examining and considering alternatives to the current waitlist permit system. Those currently on the waitlist are not affected and remain in line and eligible through the normal process to apply for permits available through the non-commercial allocation.

Throughout the planning process, an overwhelming majority of public comments stated that the permit system should be overhauled. With this in mind, Park management did not want to perpetuate the current system while other alternatives were being considered. There are now over 8,000 people on the waitlist, and more than 1,000 are typically added each year. Given the existing non-commercial allocation, it could take 20-30 years or more to accommodate everyone on the waitlist. In addition, of those who have joined the non-commercial waitlist over the last two years, none has successfully claimed a launch date even through the cancellation list.

In the event that the current system is selected as part of the final CRMP decision, the system for adding names to the waitlist would simply be reinstated.

Until a Record of Decision, current waitlist members will be served in the same manner as they have been in the past.



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 (See *Waiting List*, Fall 2003 pgs. 50-51, ed.)

The three "Galloway boats" (Stone's of 1909, Kolb's 1911 Edith, and the USGS -So Cal Edison 1921Glen), 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 NPS 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. Current preferred option includes the temporary removal of the glass partitions and doors leading out of the building.

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 include: 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.

Grand Canyon Historic Boat Project Advisory Committee

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The Future of the Canyon's Boats

Floating below Buck Farm lie the barely perceptible remains of Bert Loper's boat. A sighting often triggers a story about Bert, about his boat, about how the weather and visitation have reduced it the boats remains dust.

Later, as we enter Bass Rapid we see another Loper-built boat, the *Ross Wheeler*, lying on the granite slope above the river on the left. 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 (*see photos, ed.*), the boat has twice been dragged or rolled toward the river, and the bottom has rusted clear through. 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 boat 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.

Brad Dimock and Tom Moody



photo by Bruce McElya

THE *WHEELER* AS CURRENTLY IN REPOSE, MILE 108.5

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 friend 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’s 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.

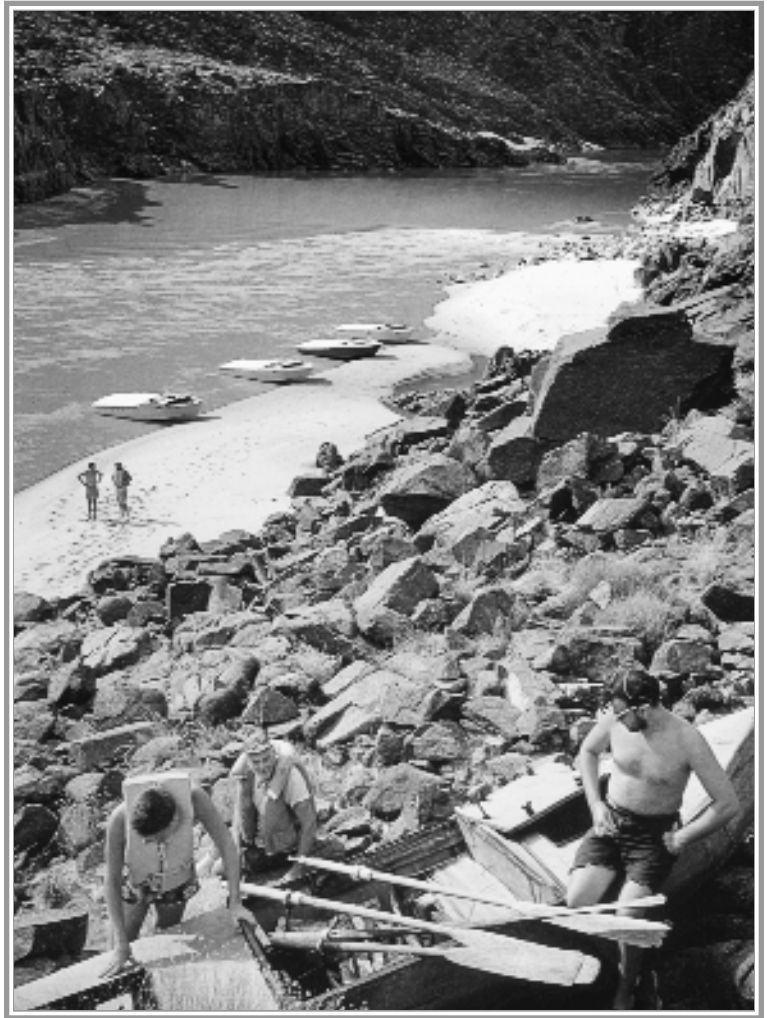
In July, 2002 Tony Anderson, while doing two back-to-back trips, noticed that the *Ross Wheeler* was in a different position and notified Ranger Dave Desrosiers, who contacted all hiking and river parties during that period. According to boatmen, this was a period of huge winds. Desrosiers noticed some apparent new and relocated rocks in the vicinity that looked like they came from above. The hatches were on and everything looked OK except some evidence of rolling. Desrosiers concluded that the wind had flipped the boat and torqued the bolt out of the rock, though GCNP Cultural Resources Chief Jan Balsom debates this interpretation. Ranger Brenton White re-chained the *Ross Wheeler*.

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 *Footprints: 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 to refrain from “simply messing about with [these] boats” and other historic artifacts; and eternal vigilance.

Richard Quartaroli



Buzz Belknap, Ed I'Ansen, and Dick "Fireball" Young in foreground. Jet boats on beach, 1960. Author Brad Dimock remarks "It amazes me that there is that much stuff in the boat 45 years after it was abandoned. I wonder what would be there now if river running had not caught on?"

Cline Library, Bill Belknap Collection - nau.ph.96.4.95.68

For more information on how to help this project, contact:

The Grand Canyon Historic Boat Project
Write: C/o Grand Canyon National Park Foundation
625 North Beaver Street
Flagstaff, Arizona 86001
Or Email fran@gcnpf.org

Recent Survey Results

Our Non-Scientific, Not For Policy, But Still Interesting Survey

The Grand Canyon Private Boaters Association (GCPBA) conducted a non-scientific survey via its gcpba@yahoogroups discussion list in the fall of 2003 for the purpose of feeding a computer modeling effort. We wanted to help define a curve that showed how fast people would sign up for trips if there weren't any wait at all and again if there were a 30 or 40 year wait. The survey grew beyond the initial purpose and the initial audience so now we have some interesting information that we aren't sure what to do with. But that's OK – it is a non-scientific survey that was not intended to drive policy for us.

Here's what we found and a few guesses about what it means.

There were 56 respondents, 47 of whom said that there shouldn't be a lifetime limit on the number of trips a person could take through the canyon. Not only no, but NO, NO, NO, not ever – and some much stronger language. Well, big deal. That might be like asking if you want your eyes poked out. We got really good correlation but didn't get very much real information from that one. At least the question was clear.

Most people thought it would be OK to limit the number of repeat trips per year but there was a consistent caveat thrown in: "Limit the commercial repeat use the same way you limit private repeat use." Limits on boats per trip could be tolerated by about half the respondents as could passenger status. The next clearest result was that many people thought that two years on the waiting list or in a lottery was too long but three to five years would be a reasonable time ahead to reserve a launch. I suppose we'd rather wait longer for a known date.

Opinions were strong and divided on what sort of permit-granting system people preferred. More than one person pointed out that we were assuming you could only be in one pathway at a time to get a permit – right you are, that's what we meant. Among the people who thought that the questions were dumb, most of them insisted that they be given the chance to enter all of the access pathways simultaneously. ("I, Me, Me, Mine" [John Lennon]) Among respondents preferring a single pathway, preference for a wait list edged out a reservation system, with lottery trailing far behind. Half the respondents preferred a multiple pathway system but many of those people wanted to be in all the paths at the same time. Preferences within the hybrid systems could not be characterized; the responses were too varied.

A wait list isn't that unpopular IF (IF IF IF IF IF) the allocation is brought up so the wait time is reduced. People who are opposed to lotteries are vocal and insistent. If given a choice they would never enter a lottery.

I have shown the results in the data presented below. Some of the tallies do not add up to 56 either because the person could not make heads or tails of the question, thought it was dumb, didn't provide an answer, or I couldn't make heads or tails of the answer. Please note that the questions were open-ended but the results summary was divided into categories. These are my own subjective divisions. You can make your own categories and you're your own conclusions by looking at the raw data in Table 2. For a view of the

modeling effort that started the whole survey process, see the article on modeling in this issue of *the Waiting List*.

TABLE 1 SURVEY RESULTS

1. How often would you choose to LEAD A TRIP in Grand? every year or more than once per year 13, every two years 11, not more than once in 3 years 27 (mostly 2-3 or 3-5, a few 1/decade or less often)

2. How many years are you willing to wait for a chance to LEAD a trip before it's too long, that is, before you bail off the list and just become a non-leader participant? Zero 7, 1-5 years 24, More than 5 11

3. Do you prefer a lottery, a Wait List, a reservation system, or all three? In what proportion? Reservation 10, Waiting List 11, Lottery 4, Hybrid 24 Widely distributed results

4. How many times would you enter the lottery without winning before you jumped over to a reservation system, assuming both pathways were available? Zero 14, 1-3 times 19, more than 3 10

5. How far in the future would be too far for you to reserve a date if you wanted a reservation system? 1-2 years 12, 3-5 years 29, more than 5 years 13

6. How long a wait on the list would you endure before you

gave up and went into one of the other two or three access pathways?

- Zero 8
- 1-4 years 20
- 5 or more 15

7. As is currently the case, if there were no limits on annual trip participation, how many times per year would you choose to participate in a Grand Canyon trip?

- More than once 21
- Once 17
- Less than once 10

8. Would a cap on the number of boats allowed per launch/per trip affect your desire to participate in a trip?

- No 24
- Yes 20

9. Would you settle for passenger status in order to partici-

pate?
No 22
Yes 20

10. Do you think it would be fair to limit the number of trips a person could participate in on an annual basis?

- No 18
- Yes 35
- If private repeat = commercial passenger repeat (9)

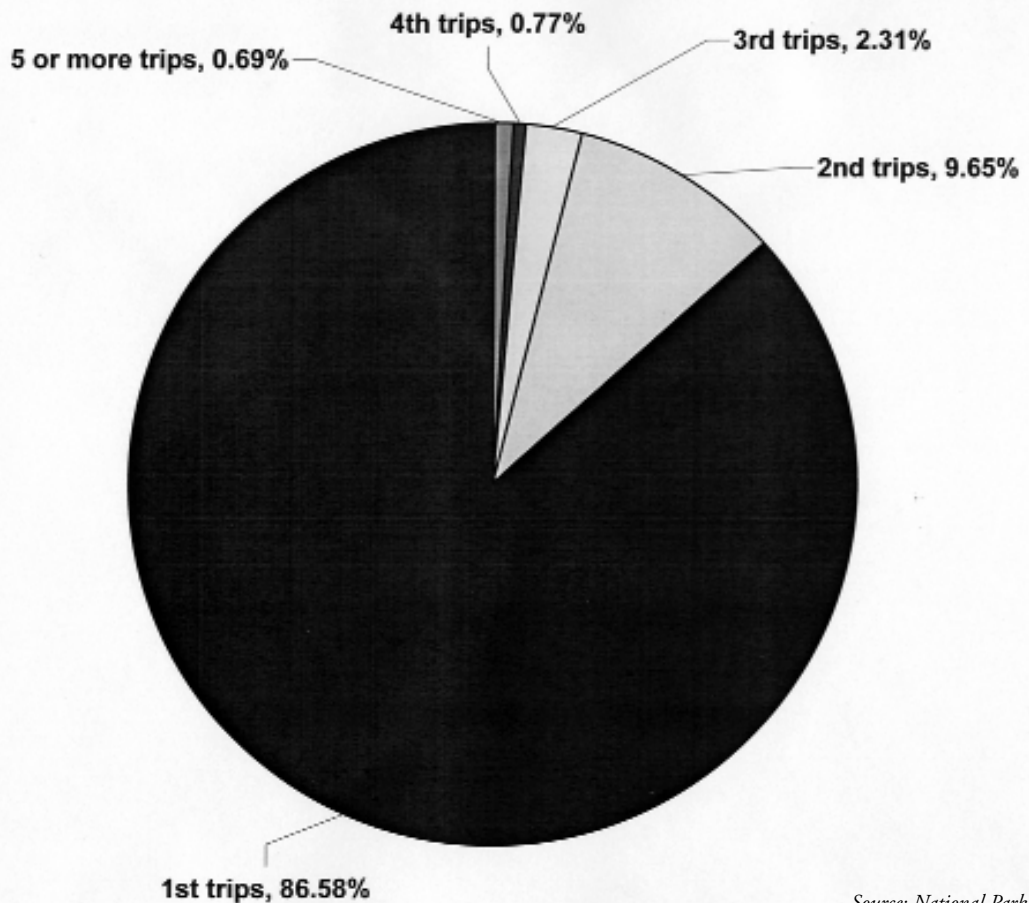
11. Should there be a limit to the total number of trips a person could participate in their lifetime?

- No and HELL NO 46
- Yes 6 If private repeat = commercial guide repeat

Dave Yeamans



Repeat Use by Participants on Noncommercial River Trips in Grand Canyon in the 5 years between 1998 and 2002



Source: National Park Service

River Book Review

Guide to the Colorado River In Grand Canyon

Tom Martin and Duwain Whitis

Vishnu Temple Press

Box 30821 Flagstaff, AZ 86003-0821

\$19.95

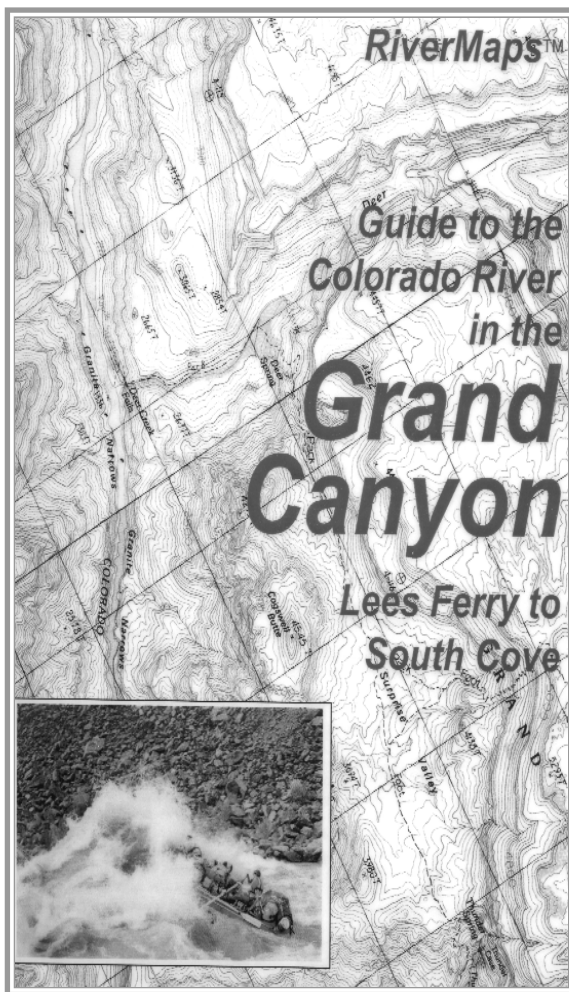
Sometimes writing a book review can be fun, especially if I'm fond of the book being reviewed, and I'm very fond of Tom Martin and Duwain Whitis' *Guide to the Colorado River In Grand Canyon*.

This is a much different guide book than those previously available. To begin with, the paper used is of very high quality, better than the paper used in either the Belknap or Stevens guidebooks, here-to-fore the most popular canyon guide books. Most river runners have experienced pages getting stuck together as the inevitably wet guide book starts to dry out, often resulting in maddening and useless clumps of paper that have to be diligently peeled apart to read—often with some of the printing transferring to opposite pages.

I used this book last year when it was maps only and while pages were somewhat affected by the water, it's a much better survivor than either of the other two. The 9" by 14.5" book is spiral bound, folds flat and the covers are in laminated clear plastic. Just right for rough, tough river use. The format of the book is much larger than other guide books and is much easier to read on the run.

Of course it's large size will not slip easily into the small personal ammo boxes many folks keep personal day gear on a trip, but hey, treat yourself to a bigger box! Or keep it out because the text is very interesting and full of useful information.

Speaking of the text, I'm not really enamored with guide



books that recommend this or that run through some particular rapid, mainly because such recommendations have several drawbacks, the most important being the some users tend to rely upon the guidebook in deference to first hand experience of other trip participants, and because conditions change at different water levels, therefore published recommendations might not be appropriate.

River runners will find the comments in *Guide to the Colorado* includes brief notes on rapid navigation. In the beginning of the book the authors remind us that those notes shouldn't be considered gospel or as a substitute for checking out the rapid upon your arrival.

Scouting can be fun, it gets the traveler up close to the canyon to enjoy the rocks, plants, scenery and vistas. Isn't that what we are there for?

On that subject, congratulations to the authors for not including any "Rapid Ratings" —those anxiety creating numbers found alongside

the of specific rapids as in other popular guide books. These little numbers can become the source of endless speculation. "How high is the water, well let's see, at 20,000 this one is a nine, at 5,000 it's a six—what should we do?" Well, the answer to that question is, no matter what the water level is,

you are going to have to go for it sooner or later. Every river trip has an ending date, you've just got to move on. So, as the authors say in reference to Lava Falls, the run is "only 20 seconds, why sweat the small stuff?"

Thanks guys, you've just lowered the summer anxiety level and raised the fun quotient. No terrifying admonishments for Horn Creek—"it's under 8,000—what now."

Another terrific aspect of this book is that the maps are complete topo maps, not just a few lines, but all the little squiggles that let you know what the off water terrain is like—a technique pioneered in Martin's first and excellent guidebook, *Day Hikes From the River*, now in it's second, expanded edition.

Even better, unlike most every other guidebook I've seen, the maps actually flow through the book the in the same direction you'll be traveling. Easy, easy to use.

There are a few little errors, not to be picky, but Lava Falls 179.2 comes before Lower Lava, or Sun of Lava as it is sometimes called at 179.5—a juxtaposition error I'm certain.

All in all, a fine job full of good info printed on quality stock with good color, clearly marked campsites presented in a sturdy format.

This is a guidebook to keep!

THE COLORADO RIVER SUPER GUIDE MAP OF THE GRAND CANYON

Bronze Black

\$8.95 Dragon Creek Press, Box 546
Flagstaff, AZ 86002-0546

Despite it's very long name, *The Colorado River Super Guide Map of the Grand Canyon* is a most compact document. When folded it measures just 4.5" by 11"—easy to tuck into that small ammo box or in the back pocket of your shorts.



When unfolded the map measures 29.5" wide by 22" high, one sheet, two sides on water resistant paper that seems to be of high quality, although I haven't tested it. I don't want to take the chance of trashing this very beautifully illustrated map that I had to go out and buy to review.

While not a map in great detail like the Martin - Whitis effort reviewed in this issue, it is very useful and fun to use. Surrounding the map are informative short essays, photos and charts. For example the "human timeline takes us from 12,000 BC to today—with comments on the happenings of the ages. All well written and compiled by the author and illustrator, Bronze Black, professional artist and river runner.

The maps show the location of the rapids, as to be expected, but they also show the points where the various major trails make contact with the river. A nice feature for river runners looking to hike a specific trail as they pass through the canyon on their "trip of a lifetime."

On side one, or is it side two, I'm not sure which is which, there's a compact but complete text with great illustrations of the various geological epochs evident in the Grand Canyon. Keep one of these little maps handy and you can answer your own questions—

"what is that layer, is this the Bright Angel formation or is it the Coconino."

I can't help but thinking that this map makes a nice, handy companion to the more complete *Guide to the Colorado River In the Grand Canyon*.

Good job!

For the GCPBA Waiting List
Richard "Ricardo" Martin



River Book Review

The BeWilderness

HIJACKING A RIVER - A POLITICAL HISTORY OF THE
COLORADO RIVER IN THE GRAND CANYON

Jeff Ingram

Vishnu Temple Press, 481 pages, maps
\$17.95

Hijacking A River, A Political History of the Colorado River in the Grand Canyon by Jeff Ingram, long time fighter for the vision of an expanded and Wilderness protected Grand Canyon National Park (GCNP) is a timely effort wrapping up the political history of the Park over the last forty or so years.

Deserving of a review this book is for sure is, for as his story unwinds much clarity is bestowed upon the often bewildering mess confronting and confounding the efforts of the “private,” or “self-guided” — the term Ingram prefers — river runner in their quest to experience the Colorado River in the Grand Canyon.

Ingram’s book opens with a valuable introduction that sets the tone for the rest of the book. Fairly he confesses to his prejudices and opinions which drove him to take the actions without which our Canyon might be a very different place. The 1960’s battleground, let’s call it Canyon War I for reference, was over the future of the Canyon floor and a proposed series of dams.

Stopping this potential travesty became the cause of the Sierra Club led by the late David Brower. One tool for eventual victory was to raise the awareness of both a populous who for the most part would never get to see the Canyon, and their legislators, including river running pioneer, Arizona Senator Barry M. Goldwater, who had other plans for the Canyon and it’s waters.

Central to the task was to bring more travelers into the Canyon via motorized river trips to witness and experience the magnificence and ambiance that are unique to the Grand Canyon. The Sierra Club sponsored trips were undertaken with the hopes that Canyon travelers would become evangelists for the Canyon’s behalf.

An unintentional consequence of the effort: the introduction of masses of river travelers into the previously rarely visited river corridor. Lighting the fuse that set off an explosion in river travel resulting in the contemporary conundrum of how much Canyon use, what methods of access and how to divvy up the pie now facing GCNP planners and administrators, constituent river runners and wilderness

Along side of David Brower, Ingram led the battle against the construction of several dams within the Grand Canyon proper.

As river runners pass through the shadows of Marble Canyon, the face of the cliffs on both sides of the Canyon bear the scars of construction efforts that evidence how close we of the present, and all for the foreseeable future came to losing the bottom of the Canyon to the grand schemes to harness and divert the waters of the Colorado to fuel the growth efforts of expansionist western dreamers. If they had had their way, there would be no Vasey’s Paradise nor “river running” and back country hikers would be greeted by a very different scene upon arrival at the waters edge.

A deep bow and a large round of cheers to those folks who stood up to the nearly relentless developmental pressures of the time in the face of ridicule and derision.

The cast of characters in this forty plus year saga seems endless and the author has included a useful “readers guide” at the end of the book to help the readers sort out who’s who and when they were “who.”

The book contains no photographs, but there are a number of maps included.

With the battle for dam construction won once and for all, Ingram, then the first Southwest Representative for the Sierra Club, and others turned their attention to an inclusive and logical expansion of the Grand Canyon National Park’s boundaries and formal wilderness designation for the GCNP. I’ll call this round Canyon War II, this war was a “two front attack.” The Canyon boundary battle front scored success in sort of a “piece meal” manner — that success coming in various stages and forms, the ultimate being the creation of the Grand Canyon - Paraschant National Monument established by President Clinton in 2000. While not a part of the “whole” as envisioned by Ingram, those canyons and plains have received recognition for their outstanding qualities and Clinton’s popular decision

tion has withstood attack from Republican lead initiatives to undo the Monument.

Canyon War II's second front was the battle to seek formal wilderness designation for the GCNP. Ingram's vision for a Wilderness GCNP had no room for the motorized river trip. In Ingram's and other wilderness advocates view, the motorized trip "degrades" the Canyon experience, hurrying and scurrying masses who might not even really care along in promoted, pre-packaged, high profit, less than worthy vacations, to the exclusion of others whose use might be better suited to the opportunity afforded by the Grand Canyon's unique character. Why no motors? Because from Ingram's point of view (and Wilderness advocates, in general) the use of motors detracts from the potential that a Grand Canyon experience can offer.

The Wilderness advocates advance the notion that the Grand Canyon is alone in affording an opportunity for a trip style and ambiance unable to be duplicated in any other place in North America.

Unique in that it is possible to have long, slow trips uninterrupted by contemporary distractions and therefore both the Canyon and it's visitors deserve the "best" that nature can provide and that the Park Service can administer. Not many river runners or outdoor lovers in general would argue with that premise. From Ingram and others point of view, motors have no place in such an environment and need to go.

Motors speed participants through the Canyon depriving their passengers the quality of experience they "should and could have" and at the same time annoy and detract from other visitors quality of experience.

To motor trip operators those were and are fighting words. The resolve of the motor concessionaires vs the Wilderness advocates has become legend. In the authors words: "the other side can certainly accuse those of us arguing for wilderness and the elimination of motors as being readier to fight than compromise. Our answer was and still is, that our position only has one element: a motor-free Grand Canyon Wilderness including the Colorado River."

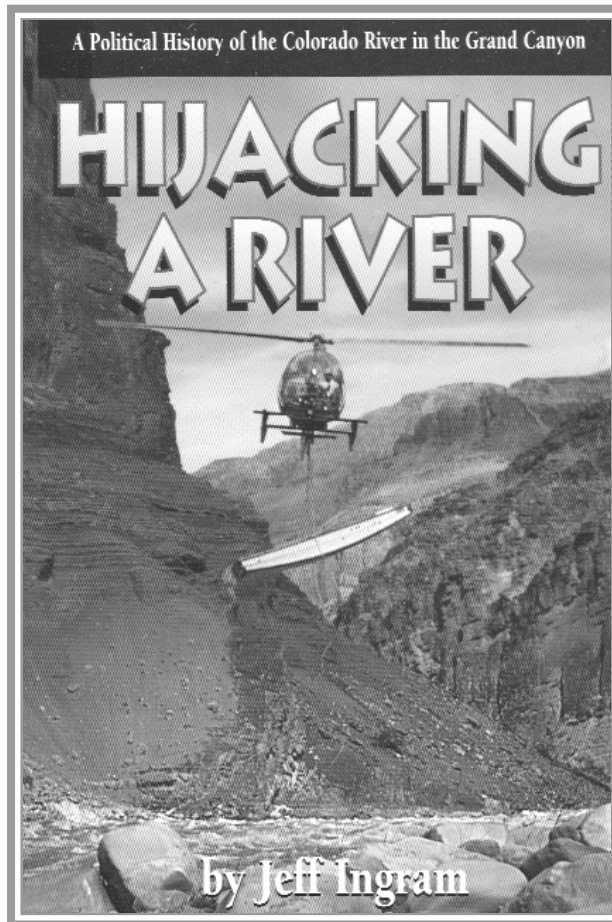
for concession services, "Within that parameter, the comm ops were welcome and even encouraged to provide their services and make a profit, since they would be providing a worthwhile Park experience, 'enjoyment unimpaired' by the noise and other noxious effects of motors." (pgs. 28-29)

The majority of the book is spent recounting the battles, victories, near victories and outright failures of activist efforts. The author holds the concessionaires — whom he terms "comm ops" throughout the text — especially motor operators — responsible for the failure. He builds a strong case that "motorizers" behind the scenes and up front meddling has stood in the way of a motor free wilderness designation for GCNP. The outfitters opposition comes in spite of historically consistent efforts by GCNP planners and administrators to eliminate motor trips from the Grand Canyon.

Ingram paints a picture of a Park Service clear with it's goals: "The desired river experience is felt to be the slow float trip in small parties without power. Management direction is to eliminate the motor from the river trip in a phased program prior to recommending to Congress the placement of the Colorado river in a wilderness" (p-30), but constantly frustrated in it's attempts to manifest those goals. Perhaps even frustrated by the Wilderness Act itself, he writes: "... the Wilderness Act of 1964 incorporated a loophole that said while the Act generally prohibited motorboat use, it could

continue where it had already become established, subject to any restrictions determined to be desirable ... So the 1971 recommendation could have included the river, but subject to this loophole." (pgs. 30-31) And, of course by the concerted and effective efforts of the "comm ops" who have steadfastly argued the merits of their methods in opposition to NPS efforts to effect change. Interpretation of this "loophole" continues to be the source of friction between wilderness advocates, private boaters and Park concessionaires.

Not to be discounted, and to be sure Ingram doesn't, is the effect of the mixed signals transmitted to the NPS by the ever changing opinions of the various Congressional representatives involved in these battles, notably Goldwater,



Representatives Sam Steiger, and Bob Stump, all from Arizona, as well as the steadfastly Wilderness opposed Utah Senator Orin Hatch and Rep. James Hansen.

Both Goldwater and Udall initially supported the elimination of motors, later softening their positions to outright opposition in the case of Goldwater, to vacillating by Udall and later, DeConcini. Nor has the historical change from Republican to Democrat to Republican chiefs in the White House gone unmentioned. Such changes have not often bode well for wilderness proponents efforts.

While "Hijacking A River" is primarily an account of efforts to establish a motor free Grand Canyon wilderness, the access out of balance plight of private, self-reliant river runners is well documented by the author. Much of the historical reference information used to compile the book is drawn from the records collected by the GCPBA in its successful 2000 lawsuit against the NPS.

In Ingram's words, "The self-guided point-of-view was one I often sympathized with, but was not at the heart of my personal Grand Canyon efforts." (p-102) Thankfully he seems to have taken our point-of-view to heart by including a very complete record of the building private boater efforts for recognition and fair treatment throughout the four decades of river running history consumed by this political strife.

Ingram takes on the entrenched myths of oar vs motor vs private vs commercial safety, sanitation, impact on the resources, experiential preferences, repeat use, value of experience, trip contacts, quasi commercial — "pirate" trips, rental of equipment, and so on with great detail, and in the process blows them all right out of the water.

It came as a surprise to me to read how complete the research of the 1970's actually was and a further surprise that the techniques of the current planning process are not much different than those applied in the 1970's, right down to computer modeling, facilitated constituent meetings held at various locations around the country, the gathering of opinion, focus groups, inadequate administrative to constituent communication, and a bevy of law suits. Each a tool of the current planning process. Seemingly, nothing ever changes — hopefully not a prophetic observation on my part.

What's different today is the current level of public involvement. The 1970's efforts generated the participation

of just a few hundred people, the current effort 1000's with nearly 55,000 comments recorded by the NPS, including very detailed recommendations as to the future shape management policy should take from a number of organizations.

Perhaps we are now in the midst of a gathered storm of discontent foretold by early activist Joe Munroe with his statement, "As long as the commercial passenger gets easier and more preferential treatment than the non-commercial user, you can be absolutely certain that the struggle will never end." (p-329)

These chapters in the book are very valuable and timely in today's context. They explain many of the prejudices and administrative actions that, frankly, have unfairly been leveled at the non-commercial, self-reliant, river running community and perpetuated by GCNP staff, outfitters and their employees.

From my point of view, everyone involved in the current planning efforts at the GCNP, from planners, legislators, advocates and constituents should read this material. Readers will come away with a much better understanding of the

entire dreary situation.

One of Ingram's astute observations as to what kept the effectiveness level of earlier private efforts for fairness low was that of the failure of the various self-guided groups to work together. As he says, "We should try and build a common front of conservationists and self-guided users." (p-360) Even though the author recognizes the problem he seems to have been part of it. Throughout the book Ingram continually toss denigrating comments — "word bombs" — towards those of differing viewpoints — including contemporary non-commercial constituent leadership. It's a distraction.

Frequently, with a whiff, sniff and a wave of hand he seems to dismiss the arguments of others as invalid, sometimes revealing his own ignorance of an issue, as in the example of the potential for the lessening of the quality of experience that might result from a multiple daily oar only launch scenario as has been proposed and advocated by "pure" wilderness advocates.

Ingram writes "... some rowing advocates' new line that motors were good because they can keep trips away from each other. They seemed to think there was some virtue in having different trips 'passing by' during the day compared to 'bumping into' the trips that launched near each other" adding the sarcastic "Ah to be passed by several motor trips — what a joy! To see once again the same rowing trip — how distressing! Thus the erudite speculations of river meta-

**For people not involved,
or who are repelled by
conflict, the tendency is
to stand back, even
decry unnecessary
(verbal) violence, speak
up for the middle
ground, compromise.
This is irrelevant to the
strugglers; the hunt is
on, the wind is up, so
charge, blowing the
horns, lances lowered!
What thrills!
To be right!**

physicians.” (pgs. 145-6)

To the author, forget your motor trip prejudice in your attack. Trip clustering is not a not a motor vs oar issue, it's simply a traffic management issue. No river runner I know wants to hang with any other river trip, motor powered or oar powered, just as no hiker in pursuit of solitary repast would want to continually encounter another hiking party on the same path to the same goal. The fact is motor trips do move on by and when they are gone, they are gone. For a lot of us, that is a good thing. For the experienced, ditching another trip is bothersome but easy, for the inexperienced, not so. And, yes, clustering might be avoided by the adoption of additional management techniques, such as staggered launches, assigned campsites and assigned or limited visiting rights at various attractions, but that is an argument not yet warmed to by either self-guided or commercial advocates. The additional regulation to enforce such a regime seems to fly in the face of the "pure" Wilderness vision.

To his credit, from time to time Ingram acknowledges his irascible tone, going so far in his *Acknowledgments* (at the end of the book) to thank an unnamed former NPS staffer for offering a critique of the book's tone, which the Ingram claims to have resulted in a "softening" — "some anyway" — of his "intemperate" tone. Good fortune for Ingram.

From time to time it seems that Ingram is idealistically at crossed swords with himself, as in the following series of comments concerning compromise: "Non-combatants often wonder and whine: Well why can't you just compromise? The best answer I can come up with is that advocates push their views, and it is the job of politicians to weigh the competing pressures and do the compromising." (p-78) Then later on decrying the "comm ops" almost compliant efforts for a legislated solution. At another point musing "... of course we all stayed in the trenches we had dug for our interests, but what if this really had been a possible opening to compromise with the motorizers? It is worth remembering that war may be hell, but negotiation is truly difficult." (p-331) As earlier quoted, "... that our position only has one element: a motor-free Grand Canyon Wilderness including the Colorado River." (p-28)

His statement leaves no doubt that there is no chance of negotiating on the issue then, in a softer moment going on to say: "I cannot help wondering about a middle ground, an alternative to an immediate motor ban, of a motor-free wilderness far enough in the future so that, though we have failed to provide wilderness for ourselves, we could pass one onto our grandchildren and beyond. Or an alternative of temporally expanding wilderness, starting with the six months of winter use and growing. Or an alternative of a 'bought' wilderness, where motorizing decreases due to NPS and public incentives. Discussion of this sort was what

we lost by never having a congressional debate ..." (p-400)

Ingram makes the point throughout the book's final chapters that focus on the current non-commercial situation that neither the Park Service nor commercial operators regard the self-guided with much esteem, treating their issues at best as an after-thought.

Yet with that said, it seems to appear that the author could find only one, solely private river runner with no past or current stake in the economics of Grand Canyon river running to consult with in the preparation of his book. According to the book's acknowledgments and credits, from what I can determine, for those chapters on the current state of the private vs commercial vs NPS situation, Ingram interviewed only one person that does not have a background as either a former commercial river guide or as a former NPS employee or both.

Those criticisms aside, everyone who wants to be better informed and wants to participate in shaping the future of Canyon use would do themselves well to read "Hijacking A River."

For Ingram, two victories out of the three Canyon wars. A fine record of achievement. The third war is still raging on two fronts — fairness for the self-guided and Wilderness designation for the Canyon.

As Canyon War III seems to be reaching its D-Day, perhaps all the combatants would do well to pause and consider these wise words Ingram offers, "... here are a few thoughts about the joys of political conflict. Controversy is a riotous stew of intellect and emotion, so bound up in each other that when the combatants state what they claim is fact on their side, they get a glow from it. The declamation of arguments, sober and otherwise, engenders a sense of well being, even power. Contestants listen to themselves and their allies and feel right, justified, healthy. To hear an enemy twisting the truth brings a surge of righteous anger. These are not universal human traits. For people not involved, or who are repelled by conflict, the tendency is to stand back, even decry unnecessary (verbal) violence, speak up for the middle ground, compromise. This is irrelevant to the strugglers; the hunt is on, the wind is up, so charge, blowing the horns, lances lowered! What thrills! To be right! To be telling the truth to power and to your enemies! The mixture is the headier because it has nothing to do with the content of the argument; it has to do with the sense of being true, of having something worthwhile to defend and/or advance, of needing to win in order that decay and death be staved off." (p-34)

For *the Waiting List*,
Richard Martin



Waiting List Movement

What is Down Must Come Up But When?

Did you ever wonder why people on the Grand Canyon waiting list for a non-commercial rafting trip move up at different rates each year? Sure you did and probably still do. I did also so I gave some thought to what one might reasonably expect with the information we have at hand. The simplest way to determine the extremes of what could happen is to examine the situation of someone near the top of the list and someone near the bottom to try and determine what should happen for them each year.

What happens at the top of the list? You move up each year because the NPS schedules around 250 trips. If some of the folks ahead of you eventually cancel their launch you still move up because they are still gone from the list. If you are at the top of the list and called by the NPS to schedule I think you may choose to not schedule a date at least once. If a number of people ahead of you decided not to schedule then you could move up less than 250 trips because people lower on the list than you might take some trips. However you would have also been offered a trip that year and declined. If the NPS inserted people in front of you for whatever reason, and there is no legitimate reason that I can think of, you might also move up slower as you are being pushed back in the line. If someone on the waitlist, anywhere on the waitlist moves up less than the number of trips scheduled in a year they and others are idling at top of list for personal reasons (no vacation, health, children, etc.) or improper insertions are occurring near the top of the list or even possibly both.

What happens near the bottom of the list? You move up by the number of trips launched plus the people removed from the list who did not file their continuing interest forms for the second time plus the number of cancellations (the original permit holder is removed from the list as well as the new permit holder) plus the number of people hitting the two-trip limit plus anything I may have forgotten. I'm certain someone will remind me about those after reading this. At the bottom of the list this could be a fairly large number of places each year.

Example:

Assume 1% forget to mail a continuing interest, 30% cancellations of the scheduled dates, 25% of the 10% the NPS shows as second trippers are on the waitlist.

Scheduled trips = 250

Continuing Interest Removals = $1\% \times 8000 = 80$

Reschedule due to cancellations = $250 \times 30\% = 83$

List Removals for 2 trips. This one is very tough to estimate. On their website the NPS reports a bit less than 10% of users are on their second trip but many, if not most, of those folks probably aren't on the waitlist. Most of the 4% who have done more than 2 trips probably aren't on the waitlist either, especially since the waitlist is now closed.

The potential number of removals could be as high as $(250 \times 16) \times 10\% = 400$ but I would bet that less than 25% of those people are even on the waitlist so let's arbitrarily say this = 100

This means if one was at the bottom of the waiting list they might move up around 500 places after being there for a year. If the list is well managed one might expect people nearing the top of the

list to be moving up around 250 places a year and people at the bottom moving up at about twice that rate. Of course those in between should move at rates somewhere between these two limits.

Why is this even of interest? Well the list is maintained in secrecy so no one ever views it except the people who enter data into it and schedule trips using it. As someone on the list you have no way to know whether the system is properly maintained. You can't look around and see if the same people are still ahead of and behind you in the line.

Knowing the way software and hardware changes over time and its probability of failure on occasion there is a significant possibility the list has been lost and recreated a few times by now. Knowing our government's penchant for not being state of the art in computers, the waiting list database may not have important things like password protection against unauthorized use, internal order rules to prevent unauthorized positional movement, software rules to make sure new entries are only added at the bottom of the list, an annual audit review that makes certain the list is correctly ordered at the end of each year and matches with every past year's list.

There is also a significant possibility of human failure because the item being granted (a permit to raft the Colorado through Grand Canyon with up to 15 of one's friends) to those on the list has very high value (It might cost close to \$50,000 to buy the equivalent length commercial trip). When situations like this exist it is not completely unknown for people to miraculously appear at the top of waiting lists, especially when no one is watching.

What should the NPS do? Make the darn thing public since they are essentially distributing highly valuable grants to private individuals using this mechanism. With 8000 sets of terribly interested eyes focused on it, they could count on each and every problem being quickly pointed out. For those who rant about loss of their pri-

People On the GCNP Wait List & How Long They've Waited

People on the Noncommercial Waitlist	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
People on the Noncommercial Waitlist	3,506	3,949	3,956	4,058	4,677	4,578	5,174	5,794	6,475	6,750	6,199	6,421	6,779	7,202	7,601	8,228
New Additions	1,487	1,650	911	899	1,033	1,057	1,271	1,380	1,416	647	458	609	879	930	1,025	925
1 year	675	798	1,349	841	838	956	994	1,194	1,323	1,382	607	423	571	847	894	1,022
2 years	479	497	733	1,079	791	676	798	831	1,008	1,291	1,170	585	402	539	806	882
3 years	304	396	468	635	1,058	606	597	706	744	985	1,070	1,134	568	384	505	791
4 years	216	256	376	446	630	753	564	539	657	735	881	1,042	1,105	535	354	495
5 years	110	180	111	158	327	502	710	521	499	649	645	865	976	1,041	500	337
6 years	226	74	6			28	240	617	488	492	591	636	819	924	955	490
7 years	9	98	2					6	340	485	454	582	603	782	866	931
8 years										84	317	452	557	596	736	850
9 years											6	93	299	508	571	719
10 years														116	331	538
11 years															58	207
12 years																41

Source: GCNP

Passengers

vacancy and Privacy Act Issues, including the NPS, the response should be the government doesn't have a right to issue valuable public grants in secrecy and that government works best when its actions are transparent to the governed, or the administrated (us boaters) in this case.

What do you think?

Bob Marley

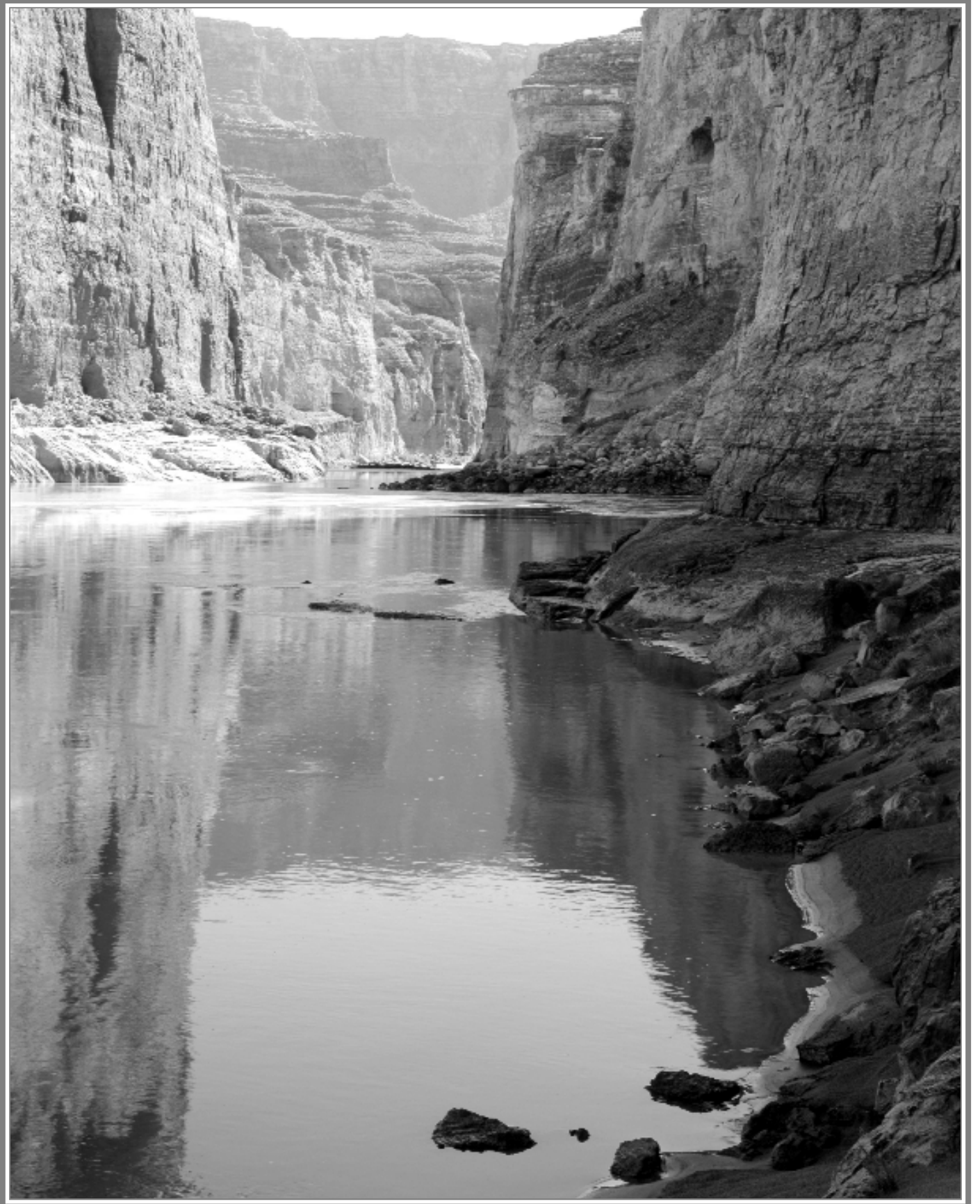


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Non-Commercial	1998	1999	2000	2001	2002	2003
January	10	9	112	74	113	40
February	46	111	123	66	91	0
March	235	222	166	158	152	230
April	291	377	425	392	401	402
May	519	438	526	501	576	517
June	425	492	496	497	488	512
July	449	475	451	533	438	498
August	422	368	385	450	449	392
September	482	567	451	348	466	438
October	356	395	331	269	342	322
November	111	101	86	196	130	93
December	25	87	55	132	78	16
TOTAL	3,371	3,642	3,607	3,616	3,722	3,460

Commercial	(Does not include crew)					
	1998	1999	2000	2001	2002	2003
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	7	114	20	25	16	39
April	594	540	621	581	627	622
May	3,904	3,648	3,555	3,559	3,566	3,247
June	4,912	4,735	4,588	4,477	4,469	4,421
July	4,336	4,322	4,330	4,313	4,329	4,107
August	3,860	3,935	4,059	3,743	3,463	3,589
September	1,589	1,421	1,689	1,577	1,748	1,832
October	441	347	445	366	340	296
November	0	0	0	0	0	0
December	0	0	0	0	0	0
TOTAL	19,643	19,062	19,307	18,621	18,558	18,153

Administrative	(Average: 9% GRCA, 15%GCMRC, and 76% Commercial Crew)					
	1998	1999	2000	2001	2002	2003
January	12	28	23	15	47	45
February	41	33	64	49	77	47
March	118	117	119	165	151	133
April	277	235	199	246	304	301
May	667	696	696	703	604	630
June	678	701	770	735	746	746
July	619	691	629	627	658	662
August	681	604	681	673	628	688
September	389	371	492	372	481	478
October	196	204	194	189	256	254
November	38	0	21	0	44	12
December	5	4	57	28	8	6
TOTAL	3,721	3,684	3,945	3,802	4,004	4,002



Mile 34 - Hiller's View

Photo by Chris Brown

CORRIDORS of WATER, SEAS of STONE

Images from Canyon Journey

The canyons and rivers of Colorado and the Southwest have inspired many artists. These four painter, photographer, ceramacist and wood sculptor come together because of a shared inspiration. From that coincident inspiration comes four different art forms. It is an hourglass of experience: wide diversity yielding to narrow inspiration and widening back to distinct styles of work.

This show will present four unique and well established artists whose work is related by a shared theme, and to celebrate the rich and personal variations of the work expressed within this theme.

Painter Kevan Krasnoff depicts the power of light, stone and water in his semi-abstract large acrylics; Sculptor Scott Campbell Reuman surprises with functional furniture and wood sculpture that captures water floating on wood, a reversal of expectations; Margaret Haydon, a ceramic artist, articulates her ideas in boat imagery with human figures, stones, bones and other elements fashioned into her sculpture; Christopher Brown creates hand-printed photographs, often mistaken for paintings, which express a penetrating vision of the canyons he has lived in for three decades.

Each artist has a remarkable record: Krasnoff's regular success in the Taos National Watermedia Exhibition, Brown's inclusion in various museum, academic and public collections, Haydon's awards at Foothills Art Center in Golden, CO, and Reuman's artistic agility in multiple materials and dimensions including public art commissions for the State of Colorado.

How do these fit together? Theme, of course, but it goes beyond that. These four artists have explored the southwestern United States from mesa top to the depths of the Grand Canyon. Over 120 combined years of visiting these Seas of Stone and Corridors of Water have left an indelible imprint on each. Their artwork is testimony to this.

This show will fill a gallery space: walls (paintings and photos), pedestals (small to medium sculpture) and floor (fine furniture and larger sculptures). The viewer will enter a virtual canyon, of multidimensional arts and perspectives, which will shift their view of this environment. The artists will offer an evening Artist's Talk on their work, techniques, philosophies, and the places they visit.

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Hiking Royal Arch

This trip just keeps getting better. Leisurely breakfast at camp - wild rice pancakes with our homemade maple syrup. Then packed our own lunches and divided up into 2 groups. Most people wanted to see Elves Chasm which is a popular commercial stop - beautiful slickrock falls and pools similar to Silver Grotto only much easier to get to. Rod, Chris, Ron, Bill, John and I decided to make the much more difficult trek up to Royal Arch which is several miles up the same side canyon, but can only be reached by pulling out of the river at the canyon before, scrambling up the steep bank of the inner gorge, getting up on to the Tonto Esplanade at the base of the Redwall, and following that around almost to the head of Elves Canyon, then dropping down in to the canyon and hiking down to the arch. Even that sounds a lot easier than it is. There is a cliff in the Muave that is a real tough climb and a long fall if you don't make it. I was real glad to have been on a rope at that point.

Rod and another guy climbed it in 1969 and were probably the second group of white men to see it. It was discovered in '67 by studying aerial photographs.

Being up at the base of the Redwall gives a completely different perspective of the canyon than we get from the river. The cliffs at our backs, a broad talus slope, and then an impossibly steep and abrupt drop into the canyon. As we headed up to Elves Canyon, the Esplanade narrowed until it became a mere ledge. At one point it disappeared totally for about 2 feet requiring us to step over the gap. Easily done provided you don't look down.

Along the way we passed a side canyon in to Elves. The sun was just right so that it shone directly in as we were passing. A narrow canyon with tapeats ledges polished smooth. I'd give a lot to see it during a rain...such a tumbling cascade of waterfalls it must be. At the head of Elves there is a way to scramble down in to the canyon and suddenly everything changes. The temperature drops 10 degrees as the bright rays of the sun can no longer reach us. The yucca, prickly pear, and barrel cactus along with the burnt grasses of the esplanade are replaced by maidenhair fern, monkey flowers, moss, and large mesquite trees. Instead of jagged talus we walk on polished stones and scramble around huge smooth boulders. I got the feeling of being a dwarf in a Japanese bonsai garden.

We picked our way down, down, down through the canyon...passing the side canyon which now seemed like a stairway to heaven rather than a slice into the depths of the earth. We got in to the Tapeats again and then we had tiny polished ledges to move along. I felt like a fly on the wall as we skirted the edges of the larger pools. Then, around a bend the arch appears. The canyon has opened up some now and the arch has small falls. Then there is the spire. Perhaps 20' in diameter and towering far above the arch. This simply had to have been the site of ancient fertility rites

We ate lunch under the arch, talking softly, feeling awe. Then one by one we laid back looking up at the roof of the arch, the smooth rock making a comfortable pillow. The talk tapered off, and soon the only sound was the tinkling of the stream and the song of the wren. Our eyes closed, we slept...such a beautiful place.

One by one we awoke and quietly walked out through the arch, down past the spire and around the pool until we got to the reason it is impossible to reach the arch by simply walking up the canyon. A 300' stopper wall, polished smooth. No hope of getting up or down.

Only then did we begin to take a few half-hearted pictures. There is just no way a place like this can be captured on film. I tried, photographing some of the pieces—mostly we just looked and listened and felt.

On the way out we looked back at the spire through the arch and suddenly realized why this is also known as keyhole arch. From the proper vantage point the grooves on the side of the arch and the grooves on the side of the spire match perfectly.

The walk back was wonderful. Back up into the direct sun, out on to the broad esplanade...the sun dropping towards the rim now. All down the rope safely. Back to the rafts. Drank a celebratory beer together. It doesn't get any better than this.'

Pretty long-winded, I'd say, but it brought back some fine memories.

Scott Tice

What Kind of A Hike Is It?

Drifter responds:

Royal Arch is on Royal Arch Creek, less than a mile from the river. Although the arch is just up the canyon from Elves Chasm, as they say "you can't get there from here." However you can get there from unstream on the

river.

The hike starts a mile or so upstream from Elves Chasm. You stop at the riffle at river mile 115.5 (Steven's guide) and take the steep trail up the hill. Eventually you arrive at the base of the travertine cliff (the actual spot is out of sight from river level, but that's where the trail goes) at the location marked "20' rappel" on the Trails Illustrated GCNP map. Here you will have to climb up the "20' rappel", which can be challenging but certainly is not impossible. My best recollection is that the worst part of the climb is the first few feet. Once you get off the ground, the rest is (relatively speaking) easier. If you have a group of people, a couple can help the first one (maybe the best climber) get off the ground. Once someone completes the climb, it may be desirable to rig some sort of foot loop to aid the rest of the party in getting off the ground. A belay is also useful for safety, and of course you'll want to haul up any packs rather than climb with them on your back.

Maybe 20 years ago, Sue and I did this without any trouble on a cross canyon backpacking trip. I don't remember who climbed first, and who did the pushing and shoving, but we didn't have any problem. Then a few years (seven or eight?) ago we did this the other way around, on a backpacking trip, rappelling the 20' drop. Sue couldn't believe we'd climbed up here—but of course, we had. I'd done it once or twice earlier, on river trips, before tackling it on our way out of the canyon on the cross canyon hike.

Once on top of the travertine shelf, it's cross country (I'm sure there is a well stamped out trail these days) over to Royal Arch Creek, and then up the canyon until you reach a point where you can climb down to the creek. The first place where you can do this is well past (i.e. upstream from) Royal Arch, perhaps on the order of 3/4 to 1 mile from the river. Then, once you are at the bottom on the canyon, you hike downstream until you get to the arch. Just beyond Royal Arch, the creek plunges over a pour-over (40 or 50 feet high, if memory serves), so you really can't go any further downstream. There's a section of Royal Arch Creek between the arch and the highest spot that you can reach by climbing up from Elves Chasm that is seldom, if ever, explored. I imagine that if you had ropes and gear, you could rappel down here and continue on down the creek, eventually arriving

at Elves Chasm - but I don't know anyone who has done that, or what length ropes you would need.

I have, however, explored upstream as far as you can easily climb from Elves Chasm. When you get to the last (and highest) waterfall - just a long trickle down a wall - there is a route over to the West side (creek left) that looks feasible. I've actually climbed this high enough to stick my head above the cliff here, where I saw that you end up on a steeply sloping dirt pile with nothing suitable for handholds - going up looked a lot easier than coming back down, so I didn't bother. On another occasion, we ran into a private trip here on which one of the members had taken a bad fall attempting to climb up or down at this spot, the victim had sustained severe head injuries which required a short haul heli rescue just before dusk. Later I heard that she not only survived, but (somewhat unexpectedly) made a full recovery... Coming down from above here, with the aid of suitable ropes, could be somewhat safer than trying to go up—but I haven't tried it myself.

Back to the Arch, however - after visiting the arch, you'll probably (almost certainly) want to retrace your steps back to the boats. You can (with suitable gear) rappel the 20' drop rather than down-climb it on the way back.

This is a time consuming expedition - it will kill the better part of a full day. You'll want to camp as close as possible upstream of where you begin the hike, and don't expect to put in many miles afterwards. If you are not on the way up the hill well before noon, you should not expect to complete the round trip before evening... But the section of Royal Arch Creek in the Muav above the arch is really pretty, and has some spring fed running water. The Arch is also really neat, as are the views of the river and canyon from the top of the travertine cliff.

Hope this is useful.

Drifter Smith



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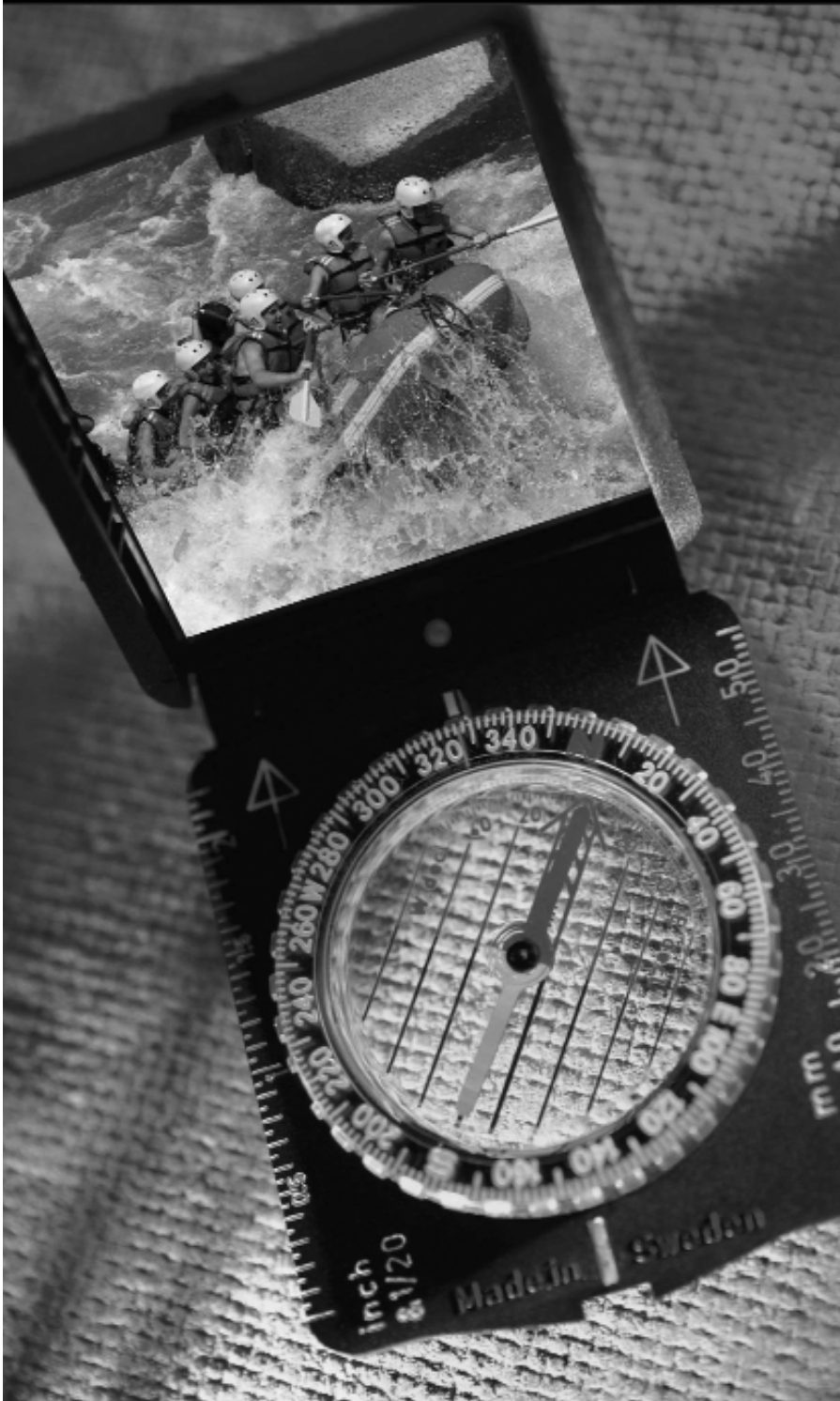
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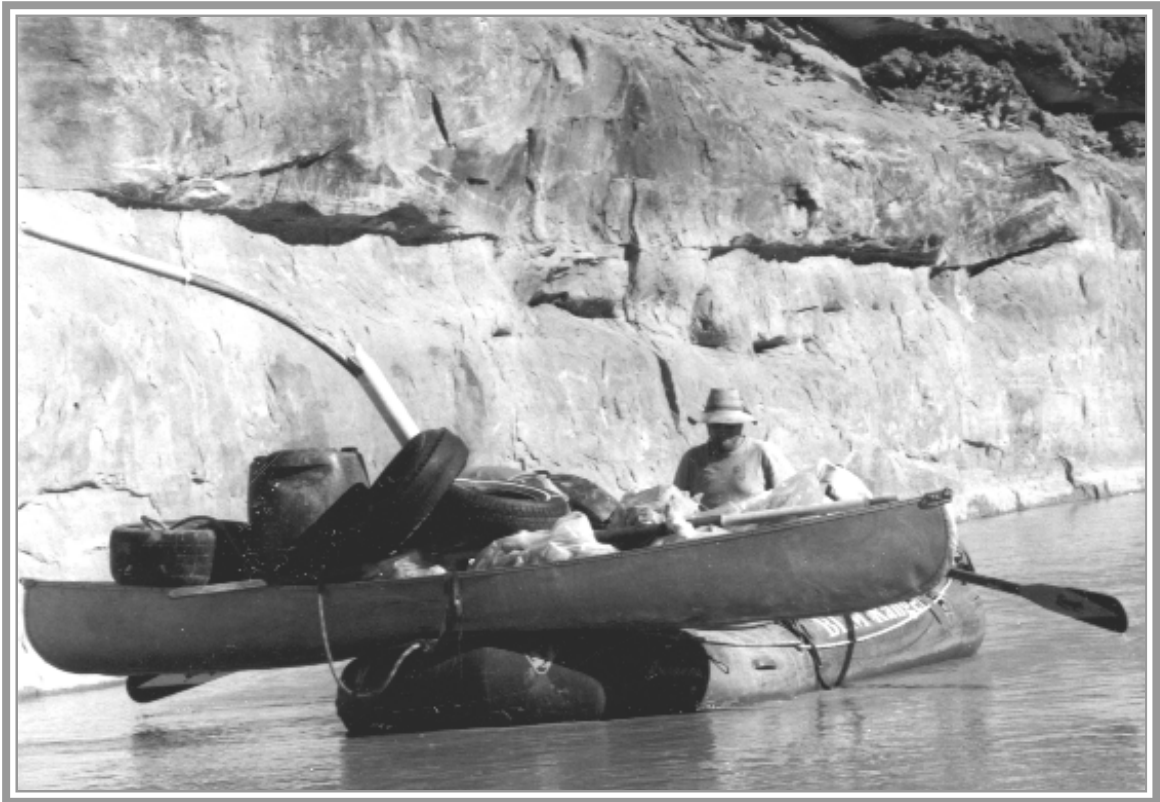


photo by Tim Hunter

Ranger Mark Melloy shows us his boat as well as a hapless travelers craft, along with a pile of river flotsam collected on an October, 2003 San Juan river cleanup trip organized by GCPBA's Tom Schiavone with helpers from Colorado Whitewater, Adobe Whitewater as well as GCPBA. The trip followed a 15,000 cfs flow which deposited lot's of trash. These trips are a semi-annual events and open to club members.



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