

# THE GRAND CANYON River Runner

Number Seven

preserving public access to the Colorado River

Fall, 2008



"HAVASU VIEW"  
PAINTING BY KANDEE MCCLAIN

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PAINTING BY MATT FARRAR

## CRMP Update

By Jonathan Simon

### Parties File Opening Briefs in Lawsuit Challenging Grand Canyon National Park's Colorado River Management Plan

#### Grand Canyon River Runners Association Joins With Grand Canyon River Guides and Colorado Whitewater Association in Filing Amicus Brief Supporting the Plan

In January 2008, after the Arizona Federal District Court wholly rejected their challenge to the new Colorado River Management Plan (CRMP) issued by the National Park Service (NPS) in February 2006, the plaintiffs in that lawsuit—River Runners for Wilderness (RRFW), Rock the Earth, Wilderness Watch, and Living Rivers—appealed that court's ruling to the Ninth Circuit Court of Appeals. Under the appeals court's original scheduling order in the case, briefing was to have been completed by June of this year. However, due to a series of extension requests, including most recently a request for extension by RRFW and the other appellants for an additional two months to file their reply brief, this process will now not be completed until mid-October. With the possibility of oral arguments sometime after that, followed by the court's deliberation, the underlying issues will continue to remain mired in controversy before the courts for some time to come.

In May 2008, the appellants filed their opening brief with the appeals court, essentially rearguing the claims that they made unsuccessfully before the district court. Once again, the general premise of their appeal is that the new CRMP authorizes river running

concessions services that are contrary to applicable law. More specifically, the appellants allege that the new plan violates the NPS' obligation to preserve the "wilderness character" of the river corridor because it—like the previous plan issued in 1989—continues to allow the use of motorized watercraft, helicopter passenger exchanges and generators. They also allege that the new plan illegally authorizes concessions services—with respect to both motorized use and the overall amount of use allocated for use by members of the public who choose to use concessioners for their trips—are neither "necessary and appropriate



PHOTO © MARI CARLOS



for public use and enjoyment” of the Park nor “consistent to the highest practicable degree with the preservation and conservation” of the Park’s resources and values. Further, they claim that the plan’s allocation of use between professionally-outfitted and guided boaters and self-guided boaters inequitably favors access by members of the public who choose to use concessioners for their trips and authorizes unnecessary amounts of such use at the expense of self-guided boaters. Finally, they argue that the NPS wrongly determined that motorized use does not “impair” the natural soundscape of the Park’s river corridor.

In late May, several environmental and recreational groups filed an amicus curie—“friend of the court”—brief with the appeals court in support of the appellants’ brief seeking reversal of the district court decision. These groups, which include the Sierra Club, Grand Canyon Hikers and Backpackers Association, Center for Biological Diversity, Friends of the Earth and Southern Utah Wilderness Alliance, assert that the new CRMP does not “faithfully implement (I think it is just a typo?) [ ] federal laws related to permissible commercial motorized uses of the river and the canyon.” Largely repeating the arguments made by the appellants, these groups claim that authorizing motorized services “sacrifices the unique qualities of the river and canyon” and that “elimination of motorized use is the only reasonable and non-arbitrary decision.” Like the appellants, they also argue that the CRMP’s allocation of use illegally favors those who want to experience the river using a professional outfitter and guide concessions company over those who want to experience the river without one.

In early August, the NPS, as well as the Grand Canyon River Outfitters Association and Grand Canyon Private Boaters Association, which had intervened in the case to represent the interests of their members (the concessioners and private boaters, respectively) and to help the NPS defend the new plan, filed their briefs responding to the appellants and amicus groups. The government and intervenors again strongly refuted each of the appellants’ arguments, making

the case that the new CRMP fully complies with applicable law and NPS policy.

Subsequently, Grand Canyon River Runners Association (GCRRA), Grand Canyon River Guides and Chicago Whitewater Association joined in submitting an amicus curiae brief in support of the NPS’ decision. GCRRA and these other groups explained to the court that

The major issues that the NPS confronted and addressed in this quite historic planning effort—most notably, the continued authorization of motorized watercraft and the allocation of limited use among public user groups—are issues that have paralyzed the agency’s efforts to manage Grand Canyon National Park effectively for decades. Although few will assert that the result of this plan is perfect, amici curiae maintain that the new CRMP reasonably and lawfully accommodates the varied, often-conflicting interests that NPS must consider in developing complex management plans like the CRMP.

The groups further explained that

Any substantial change at this time to the CRMP along the lines that Appellants appear to seek through their lawsuit would be incredibly disruptive to Park management and those—including members of the public, concessioners, river guides and others—who rely on an established river management plan.

Under the modified schedule in the lawsuit, the appellants now have until October 17, 2008, to submit their reply to the government’s and intervenors’ briefs. After this brief is filed, the court may schedule oral argument to hear from the parties in the case. There is no timeline for when the court might then issue its decision, either upholding or reversing the district court’s decision.



PHOTO © KURT HIMMEL



PHOTO © KURT HIMMEL

# Leave No Trace

## PRESIDENT'S MESSAGE

### MARI CARLOS

*"There isn't any trash."*

This came mostly as a statement, but partly as a question from one of my co-workers as I showed him the first blush of my 2008 Grand Canyon pictures. He was right of course, there is no trash. I no longer consider this unusual, but Arthur had recently done a day trip on a local river here in southern California, the Kern, which was replete with the residue of human passage. It was his first river trip and he naturally assumed that prominently visible trash is just par for the course. This year I decided to conduct my own survey and determine just how much trash there was at popular camps and beaches. For the first few days I checked every nook and cranny where it seemed likely there had been a human presence. At the end of 3 days I had not managed to fill a snack size zip lock baggy. My pickings consisted of a few rubber bands, a bandaid or two, little bits of cellophane, a twisty tie, a few price tags and other odds and ends of micro trash. My most surprising find? Two cigarette butts. Only two. I continued to pick up micro trash for the duration of the trip but abandoned my attempt to quantify it, deeming it not worth cutting into my morning and evening photography for such a small yield.

Commercial passengers are well instructed in the 'leave no trace' ethic beginning at orientation. Few who come to raft Grand Canyon actually need the lecture, but it reinforces a thought process that quickly becomes automatic. In only four times in 12 trips I have found an aluminum can. The incongruity of its presence in my camp or on my hike was memorable and positively stunning, akin to finding a warthog in your bathtub. Yes, I know that there are heavily visited areas that do produce more measurable amounts of trash, but most of us see Grand Canyon as it was meant to be seen, as pristine wilderness. What a treasure this is!

In July this year I launched on my 11th commercial trip through the Canyon. I never tire of the big picture, the grand vistas, the magnitude of the place. Even so, frequently it is the little things that give me my most lasting memories. This year one of those indelible memories is of a moth. We had a camp in Conquistador Aisle with a huge datura plant near the water. It had a number of finished blossoms, some tightly closed ones that would not open for a few more days, and one that



PHOTO © MARI CARLOS

looked just right for opening that night. I kept an eye on it through dinner, but did not notice that it had opened until I was headed back to my 'camp'. To my complete and utter astonishment there was a sphinx moth busily pollinating the flower while I watched. I summoned our TL (who happened to be Kristin Huisinga, co-author of *River and Desert Plants of the Grand Canyon*) and she and most of the folks in camp came running. The sphinx moth is the size of a small hummingbird, so the action was highly observable. He would emerge from the flower, fly around a bit, then come back and dive deep into the blossom. Once inside he would wallow joyously within, flapping his wings and looking like a kid in a leaf pile. Then he would depart, fly around, and eventually come back for another dive into the swimming pool. He probably came to the flower 5 or 6 times. We all stood back and just watched. Even Kristin had never seen the sphinx moth at work on a datura bloom.

A second memory was made on the night before Havasu. We were camped at 'Last Chance' and could see the mouth of Havasu Canyon just downstream. Kristin began the obligatory Havasu safety talk as we sat down to dinner. The lecture was punctuated throughout by lightning flashes and the sound



of nearby thunder, beautifully orchestrated. As the talk was wrapping up someone said, "Holy cow, look at that!" Coming toward us from just this side of Havasu was a curtain of water. We watched it moving upstream as we scrambled to secure dinner, tents, clothes left out to dry, etc. When it finally started to sprinkle (drops the size of teacups) it went from drops to torrential downpour within the space of about 90 seconds. It was breathtakingly spectacular! Last Chance features some nice sheltering ledges on both sides of the seep/ravine that splits the camp, and we divided ourselves almost equally between the two ledges. Some helped get a tent village set up while others elected to drag sleeping gear into the hostel-like environment of the ledges. Four of us waited it out and were rewarded when the sky cleared and it turned into one of those crisp, crystal clear nights that you can usually only dream about.

We were at Havasu for most of the next day, and it was more beautiful than I remember seeing it for several years. The morning light made the creek sparkle and the side walls glow with golden highlights. Many have had just such an experience there, so it is frequently painted and rarely goes unphotographed. Two of our member contributors to this issue sent paintings of Havasu Canyon that will no doubt stir your own memories. Sadly, my group was there only a few weeks before the village and the canyon were so affected by

the flood that made the national news. We have included an excerpt from the Executive Summary describing damages to Supai Village and to Havasu Canyon. After enduring weeks of major hurricane coverage and the vast scope of damages inflicted on the Gulf Coast by Gustav and Ike, we quickly lose sight of regionally isolated events like the flooding at Havasu. Yet anyone who knows the area will be stunned to read about the resultant damage to the Canyon, one of nature's finest jewels. The Supai will lose many months of income from tourism, a hard blow to an already poor tribe. The Executive Summary is followed by a list of contacts for anyone wishing to contribute to aid efforts.

Finally, one of my last nights in the Canyon this year warrants a mention. Our second to last night was spent some miles below Lava. It was a broad section where we looked across the river to basalt cliffs topped out in the distance by a receding rim. Just before dinner the distant peaks and rim turned a deep red, an Arizona Highways red. This was a color that I had always presumed was 'manipulated' in the magazine, but I can now state in all honesty that such a color really exists. I photographed in awe, thinking that no one would believe the photos even though I had witnesses all around me to vouch for their authenticity. This show lasted for many minutes, the red gradually deepening and fading with the setting sun. The Canyon has a way of humbling us.





# Biological Soil Crusts—Webs of Life in the Desert

by Jayne Belnap

## What and Where are Biological Soil Crusts?

Although the soil surface may look like dirt to you, it is full of living organisms that are a vital part of desert ecosystems. This veneer of life is called a biological soil crust. These crusts are found throughout the world, from hot deserts to polar regions. Crusts generally cover all soil spaces not occupied by green plants. In many areas, they comprise over 70% of the living ground cover and are key in reducing erosion, increasing water retention, and increasing soil fertility. In most dry regions, these crusts are dominated by cyanobacteria (previously called blue-green algae), which are one of the oldest known life forms. Communities of soil crusts also include lichens, mosses, microfungi, bacteria, and green algae.

These living organisms and their by-products create a continuous crust on the soil surface. The general color, surface appearance, and amount of coverage of these crusts vary depending on climate and disturbance patterns.

Immature crusts are generally flat and the same color as the soil, which makes them difficult to distinguish from bare ground. Mature crusts, in contrast, are usually bumpy and



CRUST & ROCK, PHOTO COURTESY OF U.S. GEOLOGICAL SURVEY



"DANGLIES" - PHOTO COURTESY OF U.S. GEOLOGICAL SURVEY

dark-colored due to the presence of lichens and mosses, and the high densities of cyanobacteria and other organisms.

## Erosion Control

The organisms in crusts protect soil from erosion in a variety of ways. Some organisms, such as cyanobacteria and microfungi, protect themselves from sharp sand grains by secreting sticky mucilage around their cells. These microbes move through the soil when moistened, leaving the mucilage behind as a trail. These mucilage trails glue soil particles in place. Mosses and lichens function a bit differently. They cover and protect the soil surface as they grow in place, but they also have small root-like anchoring structures that penetrate into the soil surface. The soil-binding action of crusts is not completely dependent on the presence of living organisms. Layers of abandoned material, built up over long periods of time, can still be found clinging tenaciously to soil particles at depths greater than four inches (10 cm) in some soils.

Soil loss due to rainfall and water movement is increased when cyanobacterial connections are broken. This is particularly problematic when the impact is in a continuous strip, such as a vehicle or bicycle track, because channels for water flow are quickly formed, especially on slopes.

## Water Retention

Soil crusts are important in the absorption of rainfall. This function is especially important in arid areas that experience sporadic, heavy rainfall. When it rains, the organisms and their mucilage absorb up to ten times their volume in water and then release the water slowly into the soil once the rain ends. In cold areas, biologically crusted soils frost-heave in winter and create a roughened surface. The roughness slows rainwater runoff, which increases water infiltration into the soil.



## Soil Health

Crust organisms contribute nutrients and organic matter to desert soils. Because plant cover is sparse, crusts are an important source of organic matter for desert soils. Organic matter is an important food source for organisms that live below the soil surface and who help keep nutrients available for plants by decomposing plant litter. Cyanobacteria and cyanolichens contribute nitrogen to soils, which is especially important in desert ecosystems where nitrogen often limits plant growth. Indirect benefits to soil health also are evident. Small soil particles often stick to trails of microbial mucilage. Soil nutrients bind to these small particles and are then available to plants. One additional benefit of crusts is that cyanobacteria secrete compounds that stimulate plant growth.

## Human Impacts

Many human activities are harmful to biological crusts. The crusts are no match for the compressional stress caused by footprints of livestock and people or by the tires of vehicles. Because most living crust biomass is concentrated in the top 1/8th inch (3 mm) of the soil, even small impacts can have profound consequences. Crushed crusts contribute less nitrogen and organic matter to the ecosystem and the soils are left highly susceptible to both wind and water erosion. Blowing sediment from disturbed areas can cover nearby healthy crusts. Burial can mean death because crustal organisms need sunlight to live. In addition, sand carried by wind sandblasts nearby crusts and plants, greatly increasing the erosive action of the wind. Windborne air pollutants from nearby urban areas and coal-fired power plants also damage crusts.

## Recovery

Even a single footprint has a long-lasting effect on desert ecosystems: nitrogen fixation stops, and underlying soil connections are broken. Damage done to material underneath the surface cannot be repaired because the living organisms are only on the surface. Under good conditions, a thin veneer of cyanobacteria may return in five years. Recovery may take up to 20 years in places with higher rainfall, and up to 250 years in places with lower rainfall, assuming an area is left undisturbed.

## What Can You Do to Preserve a Healthy Desert Ecosystem?

**Biking and driving:** Stay on established roads and trails. Protect trailside vegetation and soils by searching for wide areas of slickrock when passing. At trailheads, do not go beyond piles of rock or fences. These have been placed to prevent further damage.

**Camping:** Use designated sites whenever possible. Otherwise set up camp in areas where living crusts do not form, such as slickrock, sandy beaches, or under groves of trees.

**Hiking:** Stay on established trails. Where trails do not exist, hike in washes or on rocks. Consider volunteering for trail-maintenance crews and learn techniques for repairing unmaintained trails.



SHEATHS & SANDGAINS - PHOTO COURTESY OF U.S. GEOLOGICAL SURVEY

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BACKGROUND PHOTO © MARI CARLOS



"HAVASU CREEK" PHOTO © MARI CARLOS



"HAVASU CREEK" PHOTO © MARI CARLOS



## Boatman

He might have been anything, the man who rows here.  
He smart, and he's brave and he's bold.  
But he's chosen a life very different from yours –  
He's chosen to never grow old.

He could have built cities, or taught in a school.  
He could have "gotten ahead."  
Could have done anything, this clever lad;  
but he's running the river instead.

He could be a lawyer, a doctor or such.  
Could have chosen another way.  
But he's chosen instead to live under the stars,  
Just to live and love each day.

The people back home wonder why he's this way.  
"He could have done such great things!  
He could have been someone, he could have been rich!"  
That's what some always say.

There's a power that draws him to river and hill.  
There's a reason he's chosen to row.  
It's the song of the river, the call of the land,  
the challenge of testing his skill.

No desk for this fellow, no suit and no phone.  
No traffic jams, meetings or ties.  
But a love of adventure, a freedom to be  
so alive, so alive, so alive.

Diane Benninghoff  
c. 1990



PAINTING BY MATT FARRAR



"CANYON FLOAT" © ANN HAMILTON



PAINTING BY KAREN WALLER

## The Fifth Wave

As a newbie to the Grand Canyon I had never experienced anything like the rapids that I faced there. On the big rapid day I decided that I would ride in the front of the boat. I mean it was my first trip, so I might as well get the experience. My dad, acting as my guardian angel, rode up front with me. So we rode through a couple of the big ones, you know Horn Creek and Granite, the usual. I'm already soaked by the time my boatman yells that Hermit is up next. We all shuffle around into our "rapid position" and get the "white knuckle death grip" on the ropes. We watched the other boat kind of skirt the big ride, which kind of disappointed me because I thought we would be doing the same thing. Well we didn't. We hit the center run and went through every wave. The first one was normal, the second one, a little bigger and the same with the third. When we dropped out of the fourth wave, I blinked the water from my eyes and noticed the wall of water that I was about to punch right through. That fifth wave was the biggest I had ever seen and as we dropped into it there were a lot of "holy (insert profanity there)" and "oh my GOD!" We punched through, and unsurprisingly came out drenched in that good old Colorado River water.

- Sarah Webb, Salt Lake City, UT



# POSTCARDS FROM THE CANYON

Before my rowing trip, I had read that there is some disagreement among river guides over which rapid is the biggest and baddest: Crystal or Lava Falls. However, when we ran Crystal I found out that despite its high technical rating, when run well it has a low "whoopee" rating. The guides cautioned us not to expect the same from Lava Falls.

When we scouted Lava, all the color drained from my face. The ledge hole was huge. We watched a motorized rig on its run and saw the back half of it get completely submerged in white water. We went back down to the boats and pushed out into the river, excited and eager but a tiny bit apprehensive as well. When it was our turn, I kneeled in the stern and snapped a picture of the ledge hole as we passed it. In an instant we were slammed from the right by a big wave. I was submerged for two or three seconds while it tore at my handholds and tried mightily to sweep me off the boat. Now completely swamped, the boat was tossed about helplessly as if in a gigantic washing machine. We finally limped to shore, bailed out the boat, and traded stories with everyone else.

Our guide said he had thought for a moment that we might flip. If we had, it would have turned out all right from my standpoint. I'm an adventure junkie, and it would have given me a rare and wild experience, not to mention a great story to tell when I got back home. However, no one else would have found even a shred of redeeming value in it, especially not the guide! I'm glad for him that his skill and experience kept us upright. As one of the other tourists said later, "That could have been frightening, but instead it was exciting because we trust them" (the guides). Amen to that!



Marie Beyerlein  
Renton, WA

"Down and in, tight" the command issued by T.J. and Mac, our Arizona River Runner boatmen during the smooth easy float in the tongue of the Hermit Rapid. The added urgency in their voices, plus the roar of the upcoming rapids created just enough tension in me to check my handholds and secure my body placement.

As the river craft slid closer to the hole, my brother Roland added his encouragement to hold tightly also. If you haven't guessed, my brother and I had the two front seats for the greatest view and impact. We called our front seat request adventuresome. Our spouses, as well as the rest of the floaters, called it stupid. We had argued with them diligently about the joy of seeing the rapids develop and the talent our guides utilized in maneuvering through the turbulence; all good, well-developed debate points until Hermit.

Stupid may have flashed through my mind as I stared down at the first huge hole of the rapids. This hole was different from all the others as it gave me time to think, "Damn, this is one deep hole!" before plunging straight down into its control.

The river's control, not ours, became the theme of the rapid. I felt my body plunge forward as the boat dipped into the deep hole of Hermit, nearly taking my body out of the boat except for the ever tightening death grip I now had on my handholds. One quick look up, way up at the impending wave after the hole, gave my heart a jump-start. My handholds got even tighter

before it released its power on top of me. This wave was not the typical wave that we had been experiencing, barely getting head high. The forward motion of my body off the front of the boat in the hole switched to backward motion as the wave plummeted into me. Going forward was an easy task since no one was in front of me, but going backwards meant being shoved into my brother sitting just behind me. Fortunately Roland also had a death grip on his handholds so the force of the wave and my body did not cause him to let go, sending us both sailing over the side of the boat.

The ride wasn't over after the first deep hole and wave were defeated, the second and third repercussion waves also did their best to off us from the craft, but we adventurous rafters had control of the river and all its desires to challenge our power.

After the success of Hermit, the thrill of upcoming rapids like Crystal and Lava only intensified the beauty and thrill of traveling the Colorado River through Grand Canyon. This trip was a standout, one that changed my attitude toward nature and its power to control and create beauty.



Barbara Spencer  
Trenton, MO

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My initial visit to the Grand Canyon at the age of 9 forty-five years ago was quite different from my recent adventure down and through the Canyon. Seeing the Canyon from the rim through the eyes of a kid that had never been 200' feet above sea level was quite thrilling. Seeing the Canyon from the river was even better.

At orientation, I felt pretty good as I determined that the average age of this group was fairly close to mine and we would probably enjoy a relaxing 9 days together. Hiking down Bright Angel Trail presented a challenge that years before would have been done in half the time and certainly much less pain if any at all, but worth the effort. After hiking down to meet the group that had started the trip several days before, I realized relaxation was not part of the plan.

The first days consisted of periods where we acclimated ourselves to the rafts and equipment, learned about one another, and answered the call of nature under unfamiliar conditions; we all shared a desire for adventure. I was very impressed with the willingness of the entire group to try anything that the guides offered. Long hikes to otherwise hidden falls, swimming in very cold water through the rapids, paddling or rowing until our hearts were content or just taking in all the wonder of the Grand Canyon.

As the days passed, I never lost interest in the trip. Every turn in the river offered a view that was as beautiful as the one before. Every person had a uniqueness that kept the group laughing or a sincerity that made you want to know more. The guides and repeat rafters had superb knowledge of the Canyon and were willing to share that information.

I understand now why one has to schedule the trip well in advance and why folks do repeat trips. This is a must do adventure for anyone with a love of the outdoors like the group that I was fortunate to be a part of.



**Dale Aucoin**  
Baton Rouge, LA

I had no idea how hard "hard" would be for a mid 50's Virginia Beach flatlander, hiking South Rim down the Bright Angel trail to the canyon bottom, to join an AZRA raft trip. I was hallucinating Bataan death marches the last two miles, and might not have made it up except my 83 year old father in law was somehow keeping up. Our guide Ed, and an incredibly generous camper, who'd hiked part way up, took some of our packs and helped me to stumble the rest of the way down. We lowered ourselves, with trembling legs, onto sandy ground for the first day's instructions from our team leader, Kristen. We were exhausted.

The next few days were physically humiliating, with sore legs that refused to bend and a body that refused direction. But the environment was amazing, ancient and beautiful beyond description. We had this view of it, and time in it, in such a way as to feel something of the energy. It was so different from just standing at the top on the river, brought greater ease, a sense of camaraderie with our fellow campers and guides, and a sense of teachers from nature that are only available to us when we slow down, get quiet, have a moment of connection from our habitual mental patterns. What a gift!

The nature "pictures" that have stayed with me on re-entry ~ sleeping out under the stars, with the stars visible in the sky with the dancing silhouettes of bats flitting overhead; the amazing pools of water from our day hikes, in particular the "patio", and Havasu creek; the sudden storm that turned our nighttime campsite into momentary disarray, but was awesome to watch from a protected spot. The edges and form as clearly defined as a moving train on the desert.

The Grand Canyon was the opportunity of a lifetime!



**Karen Waller**  
Virginia Beach,

My husband and I remember our May 2008 trip down the Colorado River as "a trip of a lifetime".

The camaraderie of our two-raft group, the skill and kindness of the crew, meals that were delicious and abundant, perfect weather with clear days, star-sprinkled nights, incredible, endless canyon scenery and scattered groups of wildlife made it even better than we'd hoped it would be. Of course, there were times of blowing sand in our faces and food and a few deluges of river water that were colder than desired. Those times just created some memories that make our stories more interesting.

Of all these memories, however, I must say that the hikes I took made up my favorite times in the Grand Canyon and are the scenes that have stirred me to put them into paintings. Most likely the reason for this is the overwhelming task of interpreting the beauty and grandeur of the Canyon. The vivid and varied colors of Havasu Creek have inspired my first painting from our trip, and I truly felt the power of the canyon as I applied the pastels to the paper. There are additional paintings in my heart and, hopefully, another Grand Canyon experience in my future.



**Kandde McClain**  
Cedar Point, Oregon



# GRAND CANYON SNAKES

By Geoff Carpenter and Charles Painter



GEOFF CARPENTER WITH A SPECKLED RATTLESNAKE, PHOTO COURTESY OF THE AUTHOR

While encountered infrequently relative to other terrestrial fauna along the Colorado River in the Grand Canyon, snakes are an interesting and charismatic group. A few rattlesnake species can be found in the lower reaches, but only a single rattlesnake, the Grand Canyon "Pink", exists along the river above Havasu. Treat these critters with respect, as venomous snakes are dangerous. Snakebite can be avoided by using caution when observing these animals, recognizing their place among Grand Canyon biota, and giving them their space. Snakes are beautiful and intriguing animals

that play valuable roles in nature, and it should always be a fun, educational and fortunate event to encounter a snake in the Grand Canyon.

## RATTLESNAKES

Several species of rattlesnakes occur in the Grand Canyon corridor. These venomous reptiles are encountered in all habitats and should not be molested and should be treated with utmost respect. Most rattlesnakes feed primarily on lizards as juveniles and rodents as adults. Birds, rabbits, squirrels and occasionally other snakes may also be eaten. Rattlesnakes belong to the genus "Crotalus", derived from the Greek Crotalum, which translates as clapper, castanet or "rattle".



GRAND CANYON PINK RATTLESNAKE © 2002 DON SIAS

*The Grand Canyon Rattlesnake (Crotalus oreganus abyssus, or Crotalus abyssus,* (depending on whose authority you accept) also known as the Grand Canyon Pink is among the



GRAND CANYON PINK RATTLESNAKE © 2002 DON SIAS

most commonly encountered serpentine denizens of the Grand Canyon. Don't let this name mislead you, "Pinks" are variable in ground coloration and are not always pink. Speckled Rattlesnakes in the lower canyon, described below, are



GRAND CANYON PINK RATTLESNAKE © 2002 DON SIAS

sometimes pinkish in coloration. Grand Canyon Pinks are within the Western Rattlesnake group, which all possess a blotched pattern. The pattern is most distinct in neonates and juveniles and then as they mature the pattern becomes washed out and the snakes get pinker/rustier in coloration. The Grand Canyon Rattlesnake occurs

from Lees Ferry to National Canyon (RM 166) and along the Little Colorado River and its canyons.

*The Speckled Rattlesnake, Crotalus mitchelli;* honoring S. W. Mitchell, a medical doctor interested in rattlesnake venom, is generally found downriver though it has been sighted as far upstream as Havasu Creek. Bob Dye photographed an individual two miles upstream in Havasu Canyon during





SPECKLED RATTLESNAKE © 2002 DON SIAS

April 2007 (pers. comm.). Speckled Rattlesnakes are banded rather than blotched and in the Grand Canyon usually have a ground color ranging from grayish, to tan, to rusty or pink. This ground color often matches the substrate.

**The Black-tailed Rattlesnake (*Crotalus molossus*)** is rarely encountered in the Grand Canyon, although it has been reported as far upriver as RM 168 at Fern Glen (Bill Moos, pers. comm.). The first author has encountered the Black-tailed Rattlesnake at RM 198R above Parashant Canyon and has reports of the species at RM 194L at Hualapai Acres. The specific epithet is derived from the Latin “molossos”, which means hound or mastiff and refers to the broad “muzzle” in this species. As the common name implies, this species has a black tail and its general body coloration varies from yellowish brown to olive brown. This coloration often leads to the Black-tailed Rattlesnake being misidentified as “Mojave Greens”. The Mojave Rattlesnake, *Crotalus scutulatus*, is often greenish in coloration and may be found on the Diamond Creek Road.

### OTHER SNAKES

Two species of whipsnakes, Genus *Masticophis* (derived from the Greek mastix, meaning whip and the Greek ophis, meaning snake and referring to the body shape and the braided appearance of the tail) are often encountered in the Grand Canyon. **Striped whipsnakes (*Masticophis taeniatus*; from the Latin taeniatus, meaning striped)** are generally encountered in the upper reaches of the canyon, whereas the **Coachwhip (*Masticophis flagellum*; from the Latin flagellum, also meaning “whip”)** are found at Lava Falls and downstream. These species are thin-bodied and large-eyed



STRIPED WHIPSNAKE © 2002 DON SIAS

and are diurnally active. Striped whipsnakes have a brown to olive brown color with multiple cream stripes and feed

on lizards, other snakes, small mammals, birds, frogs and insects. Coachwhips are variable in coloration, but are usually tan, rusty, or pinkish in the Grand Canyon, where they feed on lizards, other snakes (including rattlesnakes), birds, bats, toads, insects and sometimes freshly killed small vertebrates.

**The Gopher snake (*Pituophis catenifer*)** is present throughout the canyon. *Pituophis* refers to the species for which the Genus was named, the Pine Snake of the Eastern US, (from the Greek pitys, meaning pine, and the Greek ophis, meaning snake). *Catenifer* derives from the Latin catena, meaning chain, and references the dorsal pattern of this species. Gopher Snakes (sometimes erroneously called Bull Snakes, a closely-related species present to the East) have a grayish tan to creamy yellow coloration with rusty brown dorsal blotches and a pale belly. These snakes often hiss loudly and threaten when encountered, even vibrating their tails and are often mistaken for rattlesnakes. Gopher snakes feed primarily on rodents, although lizards, other snakes eggs and nestling birds are sometimes taken.

**The Common Kingsnake (*Lampropeltis getula*)** is found throughout the canyon. *Lampropeltis* refers to their shiny scales from the Greek lampros, meaning shiny or radiant and



COMMON KINGSNAKE © 2003 LARRY KAMEES

*pelta*, meaning shield. *Getula* derives from the Latin *Getulus*, referring to the Getulians people of Morocco since the chain-like pattern of this snake was prevalent in Getulian culture. Kingsnakes eat snakes (including rattlesnakes, and even other kingsnakes!), lizards, small mammals, nestling and adult birds.

**The Western Patch-nosed Snake (*Salvadora hexalepis*)** is rarely encountered in the river corridor of Grand Canyon but is likely present throughout. The first author has encountered this species at RM 41 at Buck Farm and at RM 47 at Saddle Canyon (including during 2008). These snakes are often mistaken for whipsnakes, as they are somewhat similar in appearance and habit. *Salvadora* refers to the well preserved skin, covered with smooth scales (from the Latin *salvus*, meaning whole or sound



and the Latin *dura*, meaning hide or skin). The specific epithet, *hexalepis*, refers to the sixth supralabial scale (from the Greek *hex*, meaning six and *lepis*, meaning scale). Patch-nosed snakes are tan or peach with two mottled stripes down the back. These medium sized snakes, like the larger whipsnakes, are diurnally active and are most often observed as a blur as they streak away into the rocks or brushy undergrowth. Once in hand they are easily recognized by their striped body and large, modified rostral scale, for which they get their name and which is used for digging up their favorite prey, lizards. This species also feeds on reptile eggs and small mammals

## Snakebite

Venomous snake bites reported in the Grand Canyon average only about one per season. Three quarters of these incidents occur along the river corridor, and three quarters of these events involve people trying to handle the snakes (J. Riley, NPS, pers. comm.). Poisonous snake bites are medical emergencies and can be deadly if not treated quickly. Each year in the United States, there are over 8,000 poisonous snakebites, mostly during the summer season. Because of their smaller size and the amount of venom they may receive proportionally, children are at higher risk for death or serious complications from venomous snake bites. Getting to an emergency care facility as quickly as possible, getting prompt attention and receiving the right anti-venom can save a person's life. Many snake bites will not have serious effects if tended to quickly and properly treated.

Rattlesnake bites are immediately painful. Symptoms usually begin immediately and may include pain at site of bite, bleeding, numbness, tingling, weakness, difficulty breathing, blurred vision, drooping eyelids, low blood pressure, weak pulse or rapid pulse, nausea, vomiting, skin discoloration, swelling, tissue damage, thirst, fatigue or paralysis. If someone is bitten, and any of the above symptoms occur, especially pain, swelling and discoloration, the bite is probably from a venomous snake (in the Grand Canyon this will be a rattlesnake). You have an emergency and likely evacuation on your hands.

If the unfortunate event of snakebite occurs, it is important to promptly begin to administer First Aid, while making plans to get the bite recipient to an emergency care facility as soon as possible (get on the Satellite phone and call in a NPS chopper).

**First Aid procedures do vary, according to the referring authority, but may be summarized as follows:**

1. Keep the bite victim calm, assuring them that bites can be effectively treated in an emergency room. Becoming anxious and increased physical activity increases circulation and helps deliver and distribute venom to the bloodstream. Keep the affected area below heart level to reduce the flow of venom. Create a loose splint to help restrict movement of the bitten

area. **DO NOT APPLY A TORNIQUET! DO NOT USE A "CUT AND SUCK" DEVICE!**

2. **IMMEDIATELY** remove any rings or constricting items because the affected area may swell and these items can dangerously reduce or entirely cut off blood circulation.

3. If possible, monitor vital signs — temperature, pulse, rate of breathing and blood pressure if possible. If there are signs of shock (such as paleness), lay the person flat, raise the feet about a foot and cover the person with a blanket.

4. Get medical help immediately.

## HOW TO SAFELY PHOTOGRAPH VIPERS

When photographing rattlesnakes it is wise to keep a safe



ARIZONA SNAKE AUTHORITY ANDREW HOLYCROSS (WITH CAMERA) AND ASSISTANTS © 2002 ANDREW HOPE

distance and give them their space. Always err on the side of caution and allow MORE than the body length of the snake between the camera and the subject. Two body lengths away are safer yet! Try to get good shots of the head and capture characteristics that are important in identifying the snake. If the snake is in a cool or shaded area, it will likely exhibit lower activity than if it were in the sun, and provide a better photographic subject. Please take photographs of snakes that you see and send them to the authors. We're always interested in what you're seeing out there and the possibility exists to acquire new snake records for the canyon using quality photographs as scientific vouchers. Please send those photos, with the location and date taken, to the authors' email addresses.

*Geoff Carpenter has a private consulting business and teaches Biology at the Southwest Acupuncture College. He manages to make a couple trips each year down the Grand Canyon. Contact Geoff at [gcarpent@zianet.com](mailto:gcarpent@zianet.com).*

*Charlie Painter is a herpetologist with the New Mexico Dept. Game and Fish Non Game Program, a position he has held for almost 25 years. Contact Charlie at [charles.painter@state.nm.us](mailto:charles.painter@state.nm.us).*

### **Suggested reading and field guides:**

Brennen, T.C. and A.T. Holycross. 2006. Amphibians and Reptiles in Arizona. Arizona Game and Fish Dept., Phoenix, AZ. 150 pp.

Degenhardt, W.G., C.W. Painter, and A.H. Price. 1996. Amphibians and Reptiles of New Mexico. Univ. New Mexico Press. Albuquerque, NM. 431 pp.

Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Ed. Houghton Mifflin Co., Boston. 533 pp.



# Havasu Canyon Flood Update

Submitted by  
Hamidah Awang-Damit

The Bureau of Indian Affairs performed a flood damage assessment following the devastating flood of August 15-17, 2008. Here are excerpts from that executive summary:

"On the afternoons of August 15th-17, 2008, the peak tourist season on the Coconino-Colorado River Plateau, thunderstorms dropped heavy rain over an area between the city of Williams and the Grand Canyon, resulting in significant flooding on Cataract Creek and the Havasupai Reservation (village of Supai)... As this water collected in the Cataract Creek drainage, it led to significant flooding, breaching of Redlands Dam at the head of Cataract Creek, and the collapse of Fifty Foot Falls on Havasu Creek. The creek channel over Navajo Falls shifted east, drying them up. The Havasupai Tribal campground below Havasu Falls was inundated with approximately 450,000 cubic yards of rock, soil and woody debris".

"Approximately six hundred tourists and residents were stranded in the Havasu Creek Canyon. The Tribe and multiple public safety agencies worked together evacuating tourists and residents Saturday through Monday (August 16-18)".

"The Hualapai Trail into Supai Village suffered minor damage. Three homes suffered water damage in the village, the Tommy Sayuga and Burro bridges were damaged, and the irrigation system was silted in. Sixteen hundred feet of trail adjacent to Fifty Foot Falls was destroyed or damaged. The bridge to Havasu Falls was destroyed, the Tribal Enterprise campground trail wiped out, and more than six feet of soil and debris were deposited in the campground. Two tribal cemeteries became further threatened by erosion and potential collapse. Mooney Falls lower pool was filled with sediment and woody debris deposited on shorelines, Beaver Falls flowed muddy".

"In the night, [Aug. 16] Fifty Foot Falls eroded and approximately two acres of fifty foot tall earth, rock and covering vegetation went down canyon. The torrent cut away weak soils to the east, tearing out and further weakening a quarter mile of trail, scoured the creek bed to Havasu Falls, carried away the bridge and tore away a piece of the Havasu Fall's water gap. Mud, rock, vegetation and tree pieces filled the basin below the falls, tearing away the structure of the pool, pouring thousands of cubic yards of material into the widened stream channel where the campground lay. Slowing because the channel widened and backing because a dam of wood and debris collected where the canyon narrowed at Mooney Falls, the heaviest part of the sediment settled up to six feet deep around and over picnic tables, porta-potties and composting toilets, the rest roaring over Mooney, filling the pool with flood debris, plastering ladders, chains and signs with red mud, painting 250 vertical feet of cliff wall with red mist a quarter mile downstream".

"The Havasupai Search and Rescue team members, using techniques learned in training, prevented loss of life and injury in the village".

"The erosion of Fifty Foot Falls produced a head cut traveling up to 400 feet closer to Supai Village. This is an alarming geologic event because the number one tribal goal is living in Havasu Canyon forever".

"Havasu Creek changed its course, drying up Navajo Falls for the time being while cutting a new channel and falls to the east".

"Most tribal income ceased with the flood. Destruction of Fifty Foot Falls trail and the campground assured a longer than usual lapse of income".

-- -- -- -- --  
The Executive Summary, parts of which were quoted above, was sent as part of an appeal for assistance for the Tribe by Hamidah Awang-Damit of the Havasupai Tribe. Here is that appeal:

The Havasupai Tribe primarily depends on tourism revenues to operate its government and provide services to its Tribal members. The Havasupai Tribal members also depend on tourism dollars for income. The Havasupai Tribal government is the primary employer on the Havasupai Reservation. The Bureau of Indian Affairs and the Indian Health Service provide limited employment

opportunities for the Havasupai Tribal members.

The Supai Canyon is closed until infrastructure are repaired and rehabilitated. Supai Canyon is not open to visitors at least until Summer 2009. As a result of the flood and immediate closure, tourism related employees have been laid off and additional layoffs are expected organization wide.

The Havasupai Tribal Council is therefore requesting financial and technical assistance during this difficult time. In addition, the Supai community which will be mostly without income at least until summer 2009 is in need of financial and supplies assistance.

The Havasupai Tribal Council requests that anyone or any organization that has the financial and technical capability and is willing to assist the Havasupai Tribe and its Tribal members contact the following individuals:

## ***A. Community Financial Assistance***

Jim Usetivch, Tribal Comptroller

Tel: 480 635 3200

Email: jim@colbyco.com

Monetary donation can be deposited at any Wells Fargo Bank branch:

Havasupai Tribal Disaster Fund, Account # 70897184444

## ***B. Community Members Assistance***

Bernadine Jones, Tribal Administrator

Tel: 928 448 2731 Fax: 928 448 2551

Email: htta@havasupai-nsn.gov

Assistance Coordinator, April Watahomigie

Tel: 928 448 2731 Fax: 928 448 2551

Email: htensp@havasupai-nsn.gov

## ***C. Public Works and Infrastructure (includes water, sewer and solid waste)***

Armando Marshall, Facilities Coordinator

Tel: 928 448 2070 Fax: 928 448 2169

Email: htfacilities0@havasupai-nsn.gov

## ***D. Housing***

Eva Kissoon, Housing Coordinator

Tel: 928 448 2159 Fax: 928 448 2169

Email: hthouse0@havasupai-nsn.gov

## ***E. Environmental and Natural Resources***

Thomas Siyuja, Environmental Program/Bio Terrorism

Tel: 928 448 2257 Fax: 928 448 2327

Email: htenviron@havasupai-nsn.gov

## ***F. Havasupai Tribal Enterprises and Associations***

Billy Jack, Manager, Havasupai Tourism Department

Tel: 928 448 2141 Fax: 928 448-2551

Email: httourism0@havasupai-nsn.gov

Belinda Watahomigie, Havasupai Lodge

Tel: 928 448 2111 Fax: 928 448 2551

Email: htlodge0@havasupai-nsn.gov

Darrin Kaska, Havasupai Livestock Association,

Tel: 928 448 2731 Fax: 928 448 2551

Email: livestock@havasupai-nsn.gov

Brian Chamberlain, Havasupai Packers Association

Tel: 928 448 27831 Fax: 928 448 2551

Email: packers@havasupai-nsn.gov



# Travels With Jake

By Lisa Angell

I had to laugh. Here it's fully seven weeks since coming off the Canyon and my Chaco's are still dropping sand onto the cement floor of the garage. I figure it's from our last night's camp before take-out, the one with Diamond Peak in our million dollar view.

Seeing the sand and reminiscing how familiar a traveling companion it had become over our 14 day trip made me think about how strangely out of place it was on my garage floor. That sand was like a unifying force -- something everyone could share, something we all had to deal with, and something we 27 relative strangers could talk about while sitting around in it, balancing dinner plates on our knees. There were plenty of other things for us to fix on but somehow the sand prevailed, just like it did on the garage floor back home.

For a non-sand lover like me, once the memory of how aggravating the sand could be during the trip faded, it was like a "transport device" back to the trip we had just shared. All the good memories came flooding back in as fast as the sand flooding out of my sandals onto the garage floor. Many special moments, many wonderful people working together to move our group safely down the river. My friends think I'm crazy for wanting to go again to the Canyon. People don't understand why one would spend all that money to do it again (and again) when there are so many other wonderful and exciting places to see in this world.

Then I think of Jake, who's been down at least 15 times. I met him this time around and my most treasured memories of this trip are the 3 times I rode in the front of the boat with Jake. You have to know Jake to really appreciate this story but he's an ordinary guy, not the chatty type and I don't think things are terribly complicated for him. But I say that with complete respect and fondness and I liked him right away. I hoped he liked me because I could tell Jake was, and is a unique and special guy. I can't imagine meeting Jake anywhere other than in the Canyon -- that's how different our lives are. But there we were up in the front of Randy's boat hitting the roaring 20's.

Now Jake really doesn't talk a whole bunch but right then in the front of the first rapid he just said, "We're going to get wet". Since he is a 15+ trip vet, I listened and held on. The first hit came with what I thought was a big splash. I looked over and there was Jake who had cracked a smile and just said, "Wow". The next wave was a lot bigger and after getting doused, I looked over and Jake's grinning again, saying, "Whoaaaa" just like he'd be doing if he was trying to rein in a horse. When the third wave came it actually defined "big wave" for the day! It absolutely saturated us in the front and challenged my handhold in a serious way. But again there was Jake, this time with the biggest grin of all, one that was ageless. A grin anyone of any culture, any age or any lifestyle could recognize as pure. And then Jake says a lot louder, "WOW-WEE" and loving it all the entire time. It was as simple as that, any other words were unnecessary. The pureness of the privilege to be there was as pure as the grin on Jake's face. I was lucky to be with Jake that day and to hear Jake give out that "WOW-WEE".

I can't recreate that for my friends who wonder why I want to go again and still again. I can only tell them that, like Jake, there is a draw for me to the Canyon, to the river and the sacred place it is. I tell them that YES, I'll do it again, and probably much sooner rather than later, hopefully in May when Jake takes his next trip if I'm really lucky. WOW-WEE!



# ODE TO OUR BOATMEN

To Wes, Elk, Tyler and Caleb

Men of strong body and gentle spirit.

We thank you for taking us on this wondrous and incredible journey

Down your Grand...the Colorado...the Blue and Green Lady.

She has thrilled and excited us by day;

And lulled us to sleep at night under her magnificent ceiling of stars.

You have shared her secrets and whispered her history

Of the pioneers, explorers and native peoples who were

First awed by her power and beauty.

We will forever long for the majesty of the

Red, brown, gold, black and green of her canyon walls.

And as we come to the end of our journey, we realize that most of

Us may never pass this way again.

And we also realize that thanks are not enough for all the care, stories and laughter

You shared with us along the way.

But thank you we do...

For you have given each of us a piece of this Grand Canyon,

And a drop of River blood we will forever carry in our hearts.

Victoria Mangiapane

Phoenix, AZ

Arizona River Runners trip - May 24 - 30, 2008



PHOTO © KAREN WALLER

## After Two Weeks on the River

The hot shower feels good.  
Stories tumble out like a rapid  
except for the ones that stay in  
some secret place  
to be called back when most  
needed.

Sleep inside?  
Mattress feels familiar  
but where are my stars?

In a sudden urge to sleep  
under them  
I rush to throw a pad, a bag in  
the back yard  
crawl in,  
looking up.

What's the soft noise I hear?  
Not a rapid.

The hum of traffic blocks away.  
A TV plays somewhere,  
a neighbor peeks through her  
blinds.

Oh, where did my stars go?

Diane Benninghoff  
August 2008



PAINTING BY MATT FARRAR



# GCRRA DIRECTORS

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## JOIN GCRRA

Yes! I want to become a GCRRA member to help ensure my right to visit and enjoy a Grand Canyon river trip facilitated by a professional river outfitter licensed by the National Park Service.

Name \_\_\_\_\_

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### Membership Options:

One-year:  \$15 individual  \$30 family (# family members \_\_\_\_\_)

Three-year:  \$35 individual  \$50 family (# family members \_\_\_\_\_)

LIFETIME:  \$500 individual/family Corporate memberships are available.

I've participated in a professionally-outfitted Grand Canyon river trip (check all that apply):

full canyon motor  full canyon non-motor (oar/paddle/dory/combination)  partial canyon motor

partial canyon non-motor (oar/paddle/dory/combination)  kayak support

haven't participated yet, but want to in the future

Mail this form along with your membership dues to:

Grand Canyon River Runners Association, P.O. Box 1833, Flagstaff, AZ 86002

Make your check payable to: "Grand Canyon River Runners Association"

GCRRA is a 501(c)3 Corporation, and your donations are tax deductible to the extent allowed by law.

newsletter design : Catharine Cooper : cooperdesign.net

## CALLING ALL RIVER RUNNERS!

YOUR LITERARY AND

ARTISTIC CONTRIBUTIONS CAN BE SHOWCASED  
IN THE NEXT GCRRA NEWSLETTER

Send us your journal entries, poetry, postcards from the canyon, humorous stories, photos, and original art work for publication in the next newsletter or on the GCRRA website. Electronic submissions are preferred, and MSWord is preferred for text contributions. [WE CAN ALSO CONVERT FROM WORDPERFECT, IF NECESSARY] Click on "Contact Us" on the GCRRA website :

[www.gcriverrunners.org](http://www.gcriverrunners.org) to submit all materials.

Technology challenged? Mail your contributions to P.O. Box 1833, Flagstaff, AZ 86002. If you need more information your question will be routed to the Editor.

Submission deadline for the SPRING Issue is

March 1, 2009

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