Colorado Plateau Advocate

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Energy Issue

WHAT'S INSIDE

A place so still the air quivers with blue vibrancy, air so clean you can see 60 miles to Navajo Mountain. These are places our members have mentioned in recent months. "I stood in the Grand Canyon, so still that I became part of the rock wall. A small black dot moved towards me. I almost stopped breathing and waited for that dot to overtake me. As it approached, I realized I was seeing for the first time in my life a California condor, so majestic, it dwarfed all other birds. In that silence, that one moment, I realized my life is a gift," one member told me a few weeks ago.

We have been buffeted by a couple of storms these past few months, but the Grand Canyon Trust remains steadfast. Storms have included a controversy which erupted over our grazing retirement program led by Color Country Alliance (formerly People for the USA); an acrimonious fight in Congress over drilling in refuges like the Arctic National Wildlife Refuge (ANWR), which has implications for energy exploration in and near the national monuments scattered across the Colorado Plateau.

The good news is that, once again, the Colorado Plateau is weathering these challenges: the grazing retirement issue is being settled, and the Department of Interior issued a statement that supports the existence of the new national monuments in our region. But these threats make it clear to us, now more than ever, that the Trust must stay the course, and continue to create the conditions for people to do right by the land, air, and water.

We strive to be a **powerful advocate** for conservation, a **tenacious guardian** for the Grand Canyon and the Colorado Plateau, and a **positive voice** for land protection and restoration in canyon country. Whether the issue is clear air, efficient energy, healthy rivers, or protected land, our goal is nothing less than a Colorado Plateau that remains wild.

As you delve into the pages of this summer's *Advocate*, you will see just how we have focused our conservation efforts this year:

Air and Energy, Grand Canyon and Colorado Plateau: Grand Canyon and the Plateau need an advocate to clean dirty air, which mars the region's vistas. With the Navajo Generating Station at Page running with clean air technology and the settlement of the Mohave Power Plant, we are now deeply engaged in cleaning up the San Juan and Springerville Power Plants on the eastern edge of the Plateau. In addition to significantly reducing specific sources of air pollution, we are also addressing energy demand. We helped support the Arizona Environmental Portfolio Standard, and we are figuring out incentives to use renewable sources of energy and reduce consumption. Closer to home, we are building a solar array to generate our own electricity for our office.

Escalante, Arches, and Canyonlands near Moab, Utah: The Trust is in the midst of retiring grazing from key lands in the Grand Staircase-Escalante National Monument; leading the Castle Valley Collaboration to save this special place near Moab; and working to convince the federal government to move the toxic Atlas mine tailings pile off the banks of the Colorado River.

Virgin River, Southern Utah: Read on about the threat of a water pipeline from Lake Powell to St. George, Utah—a pipeline that could cause explosive population growth and end remoteness of this region forever. The Trust may be the only group asking important questions of Utah residents and others about the potential impacts of a water supply pipeline on growth, their pocketbooks, and the impacts on remote lands along its possible route. Meanwhile, our Virgin River program continues to make significant headway to restore several miles of the river on the way to Zion National Park.

This April, I hiked to Havasu Falls for the first time. The falls have managed to withstand the consumptive demands of our society and increasing numbers of people. Standing there, I thought about the condor our member had seen and was reminded that nature helps us to remember that *all* life is a gift. Perhaps the ultimate test for the Grand Canyon Trust is in leaving the Grand Canyon and Colorado Plateau a better place than we found it—a landscape with thriving, compact communities nestled in wild lands with clean air, a healthy Colorado River, and a sense of hope that the future will be bright here. Thank you, as always, for your dedication to staying the path with us, blazing a path for a better future!

—Geoffrey S. Barnard

Air Quality, Energy, Climate and the Colorado Plateau

An Introduction to this Issue of the *Advocate*

Vermilion Cliffs National Monument and Paria Plateau above Marble Canyon.

What do protection and restoration of the Colorado Plateau have to do with energy development, power plant cleanups, renewable energy and energy efficiency? In a word, everything! In this issue of the *Advocate*, you will read about how all these issues come together in our work.

In our increasingly interconnected world, the way we develop, transport, generate, and use energy has become absolutely central to the conservation of nature everywhere, perhaps nowhere more so than on the Colorado Plateau. The natural systems and stunning beauty of the Colorado Plateau are at great risk from the impacts of oil, gas, and coal exploitation; the once pristine air is now seriously degraded by emissions from the numerous coal and natural gas power plants on and around the Plateau; and the vast arid lands of the region are among those most at risk in North America from projected impacts of global climate change. Threatened by both the production and the consumption sides of the equation, the Colorado Plateau is like a poster child for the stark energy choices facing America.

While the Plateau has long been recognized by society for its unique places, it has also been exploited like a discount energy warehouse for the urbanized West. The evidence is indelibly etched across the landscape—massive dams on the Colorado River, such as Glen Canyon and Flaming Gorge; thousands of abandoned uranium mines and tailings sites, including the 13-million-ton Atlas pile in Moab; tens of thousands of miles of roads punched into once wild country, in a dogged search for oil, gas, coal, and uranium; thousands of miles of electric transmission lines; and a score of large coal-fired power plants spewing millions of pounds of sulfur dioxide, nitrogen oxides, carbon dioxide, mercury, and particulate pollution into the once purest air in the world.

Much of this energy infrastructure was put in place in the 50s and 60s, perhaps before we clearly understood all the environmental implications. But sometimes it seems like the more things change, the more they stay the same. Under the guise of a national energy "crisis," the Colorado Plateau has once again become the bull's-eye on a target to dramatically increase drilling, mining, transporting, and generating of energy in the name of "energy security." For the first time in decades, new coal-fired power plants are being proposed in the region and attempts are underway to expand old plants.

This new energy rush threatens all the values on the Plateau we work to protect. Further, and perhaps even more alarming, are the potentially devastating *secondary* effects that continued expansion of the use of fossil fuels may have on this land that we love. Atmospheric buildup of greenhouse gases, and the resulting changes in climate that are already apparently underway pose tremendous threats to the plants and animals of the Colorado Plateau, as you can read about in this *Advocate*.

Given these threats, the Trust is greatly increasing our efforts to stop the expansion of outdated energy development and production schemes on the Plateau. Instead, the Trust is encouraging and promoting softer paths towards energy independence, namely development of renewable sources of energy and vastly improved efficiency in existing uses. In this issue you will read about our diverse work on power plant cleanups, on renewable energy development, and on stopping bad energy development schemes.

It is ironic that the Colorado Plateau, with enough annual sunshine to meet the *entire* electrical energy demand of the United States, is instead being degraded in the name of destructive energy schemes that will only meet a small fraction of the country's need. It is this myopic vision that our work is aiming to correct.

—Brad Ack

With Little Margin for Change, Will Global Warming Be the Colorado Plateau's Greatest Conservation Challenge?

The evidence is overwhelming, our planet is warming. Since 1900, the average temperature on Earth has risen about 1.1° F. The twentieth century was the warmest century, and the 1990s were the warmest decade, in the past thousand years. Many Arizona weather stations reveal a 2° to 5° F average temperature increase since 1990, with the rate of increase accelerating in the last quarter century.

Global warming is truly everyone's problem. There is perhaps no more democratic environmental issue.

The physical changes underway are frightening: At least one-third of the snowfield atop Mount Kilimanjaro has melted over the past 12 years, and about 82 percent of the snow has melted since it was first mapped in 1912. In Montana, Glacier National Park's largest glaciers are now only a third the size they were in 1850. One study estimates that all glaciers in the Park could disappear within the next 30 years. In the Arctic, the summer ice pack has thinned by 30 percent in 40 years, and the global extent of Arctic sea ice has been shrinking at a rate of three percent per decade.

Notwithstanding the increasingly hollow rhetoric of the fossil fuel industry, the scientific consensus is that human activities—particularly fossil fuel combustion—are causing these changes. Dr. Robert Watson, past Chair of the Intergovernmental Panel on Climate Change (IPCC) recently said: "The overwhelming majority of scientific experts, whilst recognizing that scientific uncertainties exist, nonetheless believe that human-induced climate change is already occurring and that future change is inevitable." The IPCC—composed of hundreds of the world's leading atmospheric scientists—concluded in a report released last year: "There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities."

The primary cause of global warming is increased concentrations of greenhouse gases in earth's atmosphere, allowing sunlight to enter but preventing heat radiated from the earth's surface from leaving. Since the industrial revolution, concentrations of carbon dioxide, the primary greenhouse gas, have increased from 280 parts per million (ppm) to 370 ppm in 2000—the highest concentration of carbon dioxide in our atmosphere in the last 400,000 years. By the year 2100, carbon cycle models project atmospheric carbon dioxide concentrations of 549 to 970 ppm—a 90 to 250 percent increase from pre-industrial levels.

What does it all mean for the Plateau? A recent survey of 15 climate models estimates that average temperatures during the next century will rise anywhere between 2 to 10° F in the Southwest. Not one of these models predicts no change or cooling. Precipitation is more difficult to predict. Globally, precipitation is expected to increase with higher temperatures and evaporation rates, however regional and seasonal changes are uncertain at best. The survey of 15 models predicts increased summer, fall, and winter precipitation throughout much of the Southwest. Yet a more recent model—the Hadley CM3—predicts drier conditions for the next century.

To put these changes in perspective, the 2° to 5° F warming that already occurred in the Southwest during the twentieth century, coupled with an additional 7° F rise over the next century, would be a change similar in magnitude to the temperature changes that occurred here during the retreat of the most recent ice sheets over 10,000 years ago.

The impacts of this change on the biological diversity of the Colorado Plateau are likely to be profound. Species will either have to evolve rapidly or attempt to migrate to environs to which they are best suited. A warmer climate will cause biotic communities to change with vegetation and other terrestrial species generally migrating upslope. Atop the San Francisco Peaks or La Sal Mountains, this likely means the loss of the highest and some of the rarest biotic communities as alpine tundra literally disappears off the tops of mountains. Conversely, upslope migration will also result in a general expansion of the lowest elevation desert environs—in other words, desertification.

Unfortunately, many species may not be able to move quickly enough to colonize new, more suitable

...the reduction of greenhouse gases is a challenge we cannot ignore.

Grand Canyon Trust

areas. Unlike past climate change events, there are now numerous human-caused obstacles impeding ability of species to evolve and migrate to more hospitable environs. Today's extinction rates are already 10 to100 times natural levels primarily due to habitat loss, and many of today's ecosystems are fragmented, degraded, and decreasingly resilient. In a report "Global Warming and Terrestrial Biodiversity Decline," World Wildlife Fund (WWF) concluded that while some plants and animals will be able to keep up with migration rates required by global warming, many would not. The Colorado Plateau stands out in the WWF study as one of the regions where species migration will be most difficult.

For the Grand Canyon Trust to realize a vision for the Colorado Plateau as a region characterized by healthy, restored ecosystems with habitat for all native plants and animals, the reduction of greenhouse gases is a challenge we cannot ignore. Global warming is truly everyone's problem. There is perhaps no more democratic environmental issue.

For our part, we will continue to work to clean up old, dirty power plants, which simultaneously helps give clean energy sources a more level playing field. It is currently difficult for clean energy to compete against energy systems that offload most of their real costs to the commons. We will work to prevent new fossil fuel based power plants—every new plant we build further locks us into a changing climate. On the positive side, there is an enormous amount of opportunity to get the energy services we need with about half the power we currently use. The Trust will work hard on efficiency with the biggest users on the Plateau. Finally, we work in an area that has the highest solar potential of anywhere in the United States, and our vision is to see the Plateau become a leading producer of renewable power.

We all need to do our part to bring about the systemic changes needed to address this awesome challenge. At the Trust, we will continue to tackle these issues with all the innovation and tenacity we can muster.

—Taylor McKinnon

The Springerville Saga

Your Clean Air Act and Citizens Enforcement Provisions at Work

The following is a behind-the-scenes account of our efforts to clean up a very dirty coal-fired power plant in the White Mountains of Arizona. No names have been changed as there are no innocents to protect.

Spring 2001

Tucson Electric Power (TEP) announces its intention to add two new coal-fired generators (units) to the Springerville Generating Station. TEP and Trust meet to discuss proposal, with Trust expressing serious concerns and proposing alternatives to building the new units.

August 2001

During our investigation of TEP's expansion proposal, we discover TEP did not seem to have Units 1 and 2 properly permitted. If true, this would dramatically affect TEP's proposal for new units. Trust sends letter informing TEP, Environmental Protection Agency (EPA), and Arizona Department of Environmental Quality (ADEQ), that we intend to file a lawsuit to clean up the existing two units. However, neither EPA nor the state responds to the letter.

November 9

Trust files suit in federal court, alleging Springerville is operating existing power plant without a valid air quality permit, and, so is far dirtier than allowable.

November 27

We follow up our lawsuit by formally objecting to a draft permit issued by ADEQ allowing the proposed expansion.

Dec & Jan 2002

TEP goes to Washington. They lobby EPA headquarters to support the new permit, regardless of the issues raised in our lawsuit or objection letter. Heated discussions ensue between EPA headquarters and Region Nine enforcement staff.

February 14

EPA Region Nine sends letter objecting to the draft permit, based on the same issues raised in the Trust's lawsuit. Hooray! We feel vindicated and are very positive about our case.

Late February

TEP goes to Phoenix. They contact Arizona Governor Jane Hull and request that she intervene in the case.

Early March

In a closed-door meeting in Phoenix, TEP and Governor Hull pressure Region Nine to settle its objections. Inexplicably, Region Nine acquiesces and a settlement is reached.

March 11

Region Nine sends letter to TEP summarizing the settlement reached in Phoenix. ADEQ immediately begins changing draft permit to reflect the terms of the settlement.

March 20

Trust meets with Region Nine in San Francisco and strenuously objects to the settlement, because: 1) the draft settlement refers only to a vague "reasonable time" requirement for reducing emissions rather than a date-certain deadline; and, 2) the settlement fails to correct the ongoing emissions violations.

March 26

Region Nine sends "clarifying" letter to TEP stating that a "reasonable time" means the new units must become operational in 2006 or 2007 (which also means the two existing units get cleaned up by that date).

March 27

TEP agrees that the new units will be operational no later than December 31, 2007. Later that day, TEP sends another letter, retracting the first date, and substituting December 31, 2009.

March 29

Region Nine sends letter to ADEQ objecting to significant portions of new draft permit language as they do not reflect the terms of the settlement.

April 3

ADEQ agrees to change portions of the permit to address some of EPA's concerns. However, at request of TEP, ADEQ is unwilling to change the completion deadline for Units 3 and 4 back to December 31, 2007.

April 12

The Trust files petition with EPA requesting that the agency object to the revised permit.

April 26

ADEQ issues a final permit, allowing no further public comment.

As of press time, TEP had a permit, our lawsuit was still pending in federal court, and we have petitioned EPA objecting to the permit. The saga is sure to continue!

Trust and Sierra Club File Citizens Lawsuit Against the San Juan Generating Station

The Four Corners region, where Arizona, Colorado, New Mexico, and Utah join, is a spectacular part of the Colorado Plateau. Red, yellow, and white sandstone domes and buttes, black volcanic necks of eroded volcanoes, gray and black badlands, and piñon-covered mesas contrast with a background of towering, snow-capped mountains. It is also where the San Juan Generating Station, a four-unit, 1,600-megawatt coal-fired power plant is located.

In 2000, San Juan dumped about 14 million tons of carbon dioxide, 29,000 tons of sulfur dioxide, and 31,000 tons of nitrogen oxides into the Four Corners airshed. Combined together, San Juan and Four Corners power plants emitted more than 145,000 tons of sulfur dioxide and nitrogen oxides.

Mesa Verde, home of Mesa Verde National Park, Shiprock, sacred to Native Americans, and the La Plata and San Juan mountains are frequently shrouded in a yellowish-brown haze reminiscent of urban areas like Albuquerque, Phoenix, or Salt Lake City. Indeed, most of the degraded visibility at Mesa Verde National Park is attributable to sulfates and nitrates, and the nitrogen oxide emissions from San Juan are roughly equivalent to the emissions from 1.5 million cars.

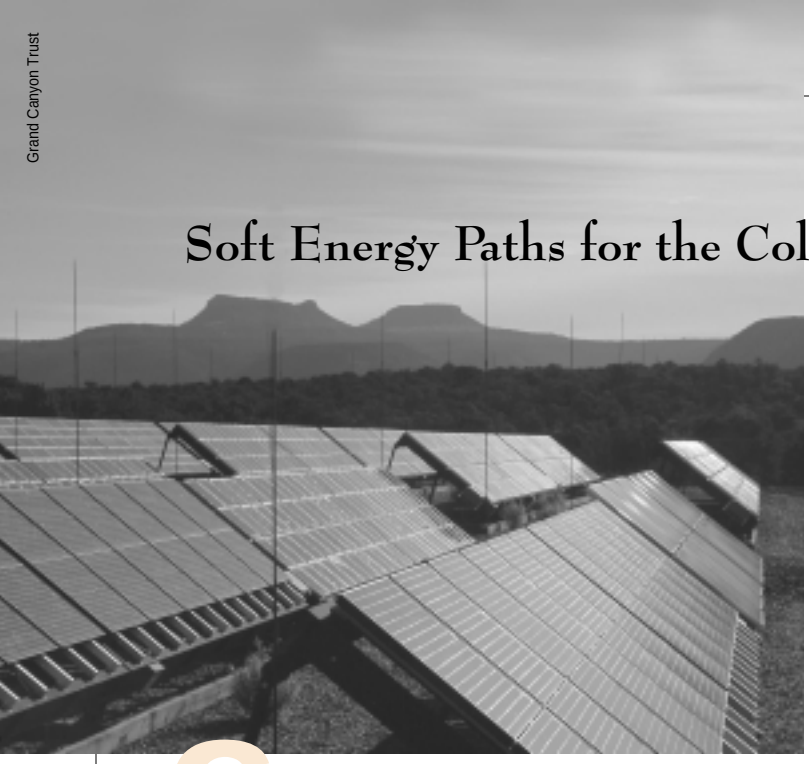
More problems loom on the horizon. In the spring of 2000, the New Mexico Environment Department (NMED) informed residents that the Farmington area may soon exceed its ozone limits. NMED monitors indicate that the ozone level in the Farmington area exceeds the level in Albuquerque. Nitrogen oxide is a necessary component for creating ground-level ozone, which has been linked to tissue decay, the promotion of scar tissue formation, and cell damage by oxidation. It can also create more frequent attacks for individuals with asthma, cause eye irritation, chest pain, coughing, nausea, headaches and chest congestion and discomfort.

In early May, the Trust, along with the Rio Grande Chapter of the Sierra Club, filed a citizens lawsuit with the goal of significantly reducing pollution from the San Juan Generating Station by requiring the owners to install modern-day pollution controls so that all may breathe easier.

—Rick Moore

Grand Canyon Trust

Soft Energy Paths for the Colorado Plateau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Cheap, abundant electricity is the lifeblood of modern-day life, and it provides enormous benefits. However, our current methods of producing electricity come with enormous environmental costs. Loss of visibility, acid rain, and global warming are driven by the way we choose to generate electricity. Yet we continue to stake our future to damaging energy sources.

For example, on the Colorado Plateau, existing coal-fired power plants dump more than 143 million tons of CO_2, 294,000 tons of NO_X, 218,000 tons of SO_2, and more than two tons of mercury into the region's air. Arizona is dependent on coal for almost half of it electricity, while 85 percent of New Mexico's electricity comes from coal. And unbelievable as it may seem, there are proposals for several new coal-fired power plants to be built on the Colorado Plateau.

It doesn't have to be this way

The Colorado Plateau has vast and abundant sources of renewable energy that will not foul the air, aggravate global warming, require more coal mines or dams, or dictate that we string more power lines across the Plateau's spectacular landscapes. Photovoltaic panels, solar thermal generators, wind generators, biomass, and geothermal are all examples of renewable energy sources that have dramatically fewer environmental impacts than the current mix of fossil fuel, hydro, and nuclear generation. There is enough annual sunshine on just a portion of the Colorado Plateau to produce enough electricity to meet all of America's needs.

Transitioning to these sources can be an economic as well as an environmental boon. A report by the Union of Concerned Scientists found that if just 20 percent of the nation's electricity was generated from renewables by 2020 (a proposal that failed as an amendment to the Senate's recently passed energy bill) the six states surrounding the Colorado Plateau would greatly benefit. CO_2 emissions would be reduced by 40 percent, nearly $12 billion dollars in new investments would be generated, and the region's consumers would save at least $7.7 billion.

Renewable energy is the clear path to minimize the environmental impacts of electrical generation, and the Trust is doing our part to help the transition take place on the Colorado Plateau.

Along with others, the Trust successfully convinced the Arizona Corporation Commission to adopt an Environmental Portfolio Standard (EPS), requiring a small portion (1.1 percent by 2007) of all the electricity sold in Arizona be generated from renewable sources. Even with such a modest target, there is great reluctance from some Arizona utilities to meet the intent of the policy and actually start producing electricity from renewable energy technologies.

Over the next year, we plan to bolster the EPS by bringing together power buyers in northern Arizona that are interested in purchasing power from renewable sources. Aggregating this demand will provide an incentive for the local utility to get engaged in producing power from renewables. Further, this known, aggregated demand may stimulate investors to get engaged in generating clean power and selling the credits to any utility that needs to meet the EPS requirement. We see a marvelous opportunity for the Native American tribes to take this opportunity to develop renewable generating capacity on their lands, and we plan to pursue this idea with interested tribes.

If Arizona's EPS is to succeed, businesses and individuals must understand how they can benefit from the program. This means public outreach to explain how the program works and what its benefits are. In addition, Arizona offers tax incentives for renewable energy technologies that are not well known. And the new federal energy bill (if passed) will likely contain policies to promote renewable energy. The Trust is developing an outreach program to inform individuals and businesses of the opportunities that exist for them to benefit from either installing or purchasing renewable energy.

There are still a number of other barriers that will slow or stall successful implementation of the EPS. For example, we need to change the policy governing the rate that utilities pay for electricity sent back to the grid from households or businesses that generate renewable power. Arizona currently has "net billing," meaning that utilities buy clean, renewable power from independent power producers at a rate equal to the utility's cost to generate power. Typically, this buy-back rate is about one-quarter of what the utility then charges that very same person if they want to purchase power. Net metering (where an electricity meter simply runs both directions) is the better alternative, creating far more financial incentive for individuals and businesses to invest in renewable energy technologies. Changing this protectionist policy is a high priority for the Trust.

Conservation organizations must do all that we can to help speed the transition to renewable energy, or we will all watch our conservation efforts be burned away by the increasing heat of global warming and subsequent loss of species.

—Rick Moore

Trust Offices at the Homestead Expand

Integrate Alternative Energy and Environmental Features

It may be hard to believe, but in less than five years we outgrew the office space in our magnificent old house, so we added a second floor to part of the building with nine new offices. Prior to construction, Rocky Mountain Institute (RMI) held a workshop on energy efficiency and sustainable building practices for the architect, builder, and interested Trust staff. RMI told us to start with the building "envelope," which we did. The exterior walls have an insulating value of R-60 and we retrofitted foam insulation on the existing first floor to almost double the insulation value for those walls. The windows are "low emissivity" windows, which dramatically reduce both heat from the sun on warm days and loss of interior heat when it is cold outside. We chose carpet made from recycled products that is designed to be completely recycled. It is installed in two-foot squares so that wear areas can be replaced without having to rip out the entire carpet.

This remodel nicely complements some other Trust efforts in this area: low-water use landscaping and a parking lot that, rather than being paved with asphalt, allows water to soak into the ground replenishing the local aquifer.

With the remodel done, the Trust is focusing on our next effort: the installation of a photovoltaic array that will eventually provide for our peak electricity needs. We also hope to install a water collection system to catch rainwater for the landscape gardens.

Many of the articles in this *Advocate* talk about the impacts of energy development and the need to live in a more ecologically sustainable manner. We all can strive to reduce our energy footprint and to live in a more sustainable way. We intend to continue to reduce our energy and materials use and boost recycling. The Trust hopes that we can provide examples for other interested individuals and organizations.

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New Trust addition to the Lockett Homestead with the Nature Conservancy's office below (left).

Developing New Energy Sources, Leaving the Same Old Mess

"Each generation must deal anew with the 'raiders,' with the scramble to use public resources for private profit, and with the tendency to prefer short-run profits to long-run necessities. The nation's battle to preserve the common estate is far from won… On the one hand, science has opened up great new sources of energy… On the other hand, new technical processes and devices litter the countryside with waste and refuse, contaminate air and water, imperil wildlife and man and endanger the balance of nature itself."

[President John F. Kennedy, in the introduction to Stewart Udall's, *The Quiet Crisis*, 1963]

SUWA

Thumper truck in canyon country, Veritas site.

America's so-called energy crisis has unleashed a new furor of energy development on the Colorado Plateau, bringing back eerie reminders of the 50s, 60s and 70s, when the Plateau was badly misused as an energy colony for the rest of the West. The legacy of that era is indelibly etched across the landscape (see map, pages 12 and 13).

Now, the Plateau is threatened by a new buildup of energy infrastructure. The Bush administration is working overtime to encourage the next generation of power plants, coal mines, coal-bed methane projects, oil and natural gas fields, and transmission lines. This second time around the results could be disastrous for the Colorado Plateau, with crippling declines in the wildness, ecological health, and integrity of this special place.

The impacts of industrial-scale energy development can be devastating. For example, in the harvesting of coal-bed methane from the coal beds where it is trapped, massive quantities of water must be pumped and dumped, water that is highly saline and that causes serious impacts to desert flora. Spider webs of new road networks and pipelines also follow coal-bed methane production. In southwestern Colorado, "at least 125 new wells, and 60 miles of new roads, are planned for the pristine, undeveloped HD Mountains Roadless Area," said Mark Pearson, executive director of San Juan Citizens Alliance.

Natural gas is no better. A 2001 study by the Environmental Law Institute on natural gas production in Wyoming's Powder River Basin (PRB) concluded: "The 51,000 wells coming to the PRB by 2010 will reveal the 'dirty' side of this [so-called clean] energy: miles upon miles of roads; pipelines; power lines; massive reservoirs; numerous compressor stations; and billions of gallons of produced and wasted water."

Oil well development is ramping up as well. The Southern Utah Wilderness Alliance, a staunch defender of Utah's redrock country, reports of BLM-approved leasing and oil exploration activities by numerous energy companies in sensitive Colorado Plateau lands, including Lockhart Basin, a dramatic wildlife-rich area near the entrance to Canyonlands National Park and Dome Plateau, to the east of Arches National Park in rich wildlife habitat. [On a positive note, *High Country News* (5/13/02) reported on a stay put on the Dome Plateau project by the Interior Board of Land Appeals; however, such development threats persist in canyon country. For example, this spring Kinder Morgan Company submitted a drilling proposal for four additional carbon dioxide wells inside the new Canyon of the Ancients National Monument near Cortez, Colorado].

Unfortunately, most of these activities are legal and permissible on many of the federal lands of the Colorado Plateau. To stop them, or at the least to minimize them, what is desperately needed are a chorus of voices to speak up on behalf of protection of these magnificent landscapes, advocates insisting that the government work harder to find other alternatives to our energy needs. If we continue our dependence on fossil fuels, despoiled landscapes will continue to be our legacy.

—Steele Wotkyns

Colorado River Resources in Decline!

No Celebration on 10-Year Anniversary of Grand Canyon Protection Act

Bureau of Reclamation

Ten years after Congress passed the Grand Canyon Protection Act (GCPA) in 1992, critical natural resources on the Colorado River within Grand Canyon are in serious decline. The humpback chub, a resident of the Grand Canyon for the last 2 million years, is sliding toward extinction at the same time that Grand Canyon beaches are shrinking.

Scientists estimate that fewer than 2,000 adult humpback chub survive in Grand Canyon today, whereas a minimun of 150,000 are needed in order to ensure the chub's viability. In less than 40 years since the floodgates closed on Glen Canyon Dam, we have driven this fish to near extinction. Four other fish have already met that fate in Grand Canyon.

Habitat changes created by the dam and the proliferation of non-native fish are the primary suspects in the loss of these four species and the dramatic demise of the humpback chub. The chub evolved over eons in relatively warm, sediment-rich waters in a system prone to both flooding and drought. Water releases from Glen Canyon Dam are cold and clear, creating unfavorable habitat conditions for the humpback chub and favorable habitat conditions for the chub's non-native predators.

The Colorado River through Grand Canyon is also suffering from significant sediment decline. Glen Canyon Dam blocks nearly all the sediment that once moved down the Colorado River. Recent scientific studies have shown that sediment coming into the river below the dam from tributaries is not stored in the bed of the river, as previously believed, but continues to wash downriver into Lake Mead. Consequently, if we are to be successful in using high water flows from the dam to build beaches and restore habitat, these flood releases need to be closely coordinated with the timing of sediment flows into the river below the dam.

This past April we scored a significant victory for conservation within the Glen Canyon Dam Adaptive Management Program (AMP), a program put in place to implement the Grand Canyon Protection Act. Voting with the majority of stakeholders, the Grand Canyon Trust approved a motion to adopt a new experimental flows program for implementation this year and next. The program includes a flood release similar to the one conducted in 1996 by then-Secretary of the Interior Bruce Babbitt. The new program is designed to improve retention of sediment in the Colorado River ecosystem and benefit humpback chub populations.

The humpback chub, a resident of the Grand Canyon for the last 2 million years, is sliding toward extinction at the same time that Grand Canyon beaches are shrinking.

Altering flows from the dam is a needed first step, but does not go nearly far enough to recover Colorado River resources. In order to fully restore the populations of native plants and animals within the Colorado River ecosystem, we need to create conditions that more closely mimic the pre-dam river. Because native fish and other native species evolved in waters that were sediment rich and warm, the water coming through Glen Canyon Dam needs to be made both warmer and muddier. Thus, the Trust is advocating for a serious look at a temperature control device to warm the water released from the dam, and to develop mechanical means to add fine sediment to sediment-starved Glen Canyon Dam water releases. We are working hard to see that experiments be conducted using these devices.

The Colorado River through Grand Canyon, one of America's most spectacular waterways, is losing the battle for ecological survival. We must act now to restore to its natural splendor this treasured river in our most beloved park.

—Nikolai Ramsey

Asking Important Questions

St. George Pipeline

Water, water…nowhere. Four years of drought have left the springs, creeks, and rivers of the Colorado Plateau at record low levels. As I write in late April, the Colorado River is flowing just 22 percent of normal and the Virgin River is at 11 percent. There is no snowpack in the mountains to make even a tiny spring flood. The rivers are trickling into summer. A few more years of this and the dry, bony country might shrug our human settlements off its back like sand off a desert tortoise. If you doubt that is possible, go take another look at the desert landscape the eons have made here: those bare hills and ancient junipers have seen far worse droughts than this.

You might expect that such an event would prompt intense study of the carrying capacity of this region: how many of us can the land really support in the bad times? You would be wrong. Instead, we are planning, once again, to control nature. Major pipelines are on the drawing boards that will suck Colorado River water to fast growing cities like Denver and St. George, allowing them to ignore the constraints of climate and geography for a while longer, but raising the costs of the eventual day of reckoning. Everybody knows that paper water rights on the River far exceed actual, wet water; yet everybody is grabbing for their share. The story of the proposed Lake Powell to St. George pipeline illustrates the way proponents of these projects typically fail to visualize a future any of us might want to live in.

Southwest Utah's mild climate, recreational opportunities, and high quality of life have made it one of the nation's fastest growing areas. Over the last 20 years, St. George has grown from a small town to a city with 85,000 residents. The population expansion is expected to continue at high rates far into the future: local jurisdictions are planning for a build-out of 328,000 people in Washington County over the next 50 years, a scenario in which the area will be subdivided from end to end. Nobody has asked the people of St. George whether they want to live in a city of that size, nor attempted to gauge the effect on the quality of life. Instead, the Washington County Water Conservancy District commissioned a study by Boyle Engineering to find out how soon extra water will be needed to accommodate the growth.

The Boyle Report includes several possible population projections through 2040, ranging from a low of 203,000 up to a staggering 553,000—fully 68 percent higher than the total build-out local municipalities are contemplating. The exaggeration is compounded by lumping together all public water sources (residential, commercial, industrial, and municipal) in a calculation showing that each resident uses 335 gallons every day, making them among the most wasteful in the West. In reality, that is a slander: per capita residential consumption is a comparatively thrifty 212 gallons per day. Nonetheless, the higher figure is multiplied by population projections to calculate future water needs. Not surprisingly, the Boyle Report finds that when the highest population projection is combined with wasteful use, there will be a need for development of additional water supplies. The report calls for construction of a water pipeline to Lake Powell by 2035.

The Grand Canyon Trust questions whether the pipeline is necessary or desirable. Other, cheaper sources of water are available. Agriculture presently consumes 82,000 acre-feet of water annually, nearly three times as much water as all residential, municipal, and industrial uses combined. Most of the farmland will be developed, even in moderate growth scenarios, yet the Boyle Report supposes that only 14 percent of the irrigation water will be converted to other uses. If half of the agricultural water were available to service growth, there would be no need for a pipeline even for the largest projected populations. Similarly, annual groundwater recharge in the area is estimated to be 152,000 acre-feet—more than twice the amount the pipeline is designed to carry. The Grand Canyon Trust does not pretend to know if a pipeline will be needed in 50 years, but we do not believe the Washington County Water Conservancy District knows, either. At $250 million projected cost, it makes sense to begin a long-range visioning process to see what kind of community the residents want before committing to a pipeline.

The story of the proposed Lake Powell to St. George pipeline illustrates the way proponents of these projects typically fail to visualize a future any of us might want to live in.

Lin Alder

A proposed water supply pipeline route near here? Grand Staircase-Escalante National Monument.

Why raise questions about a popular water supply project during a drought? We are not just masochists who love to be hated. The Trust is a guardian of the public land treasures east and south of St. George. A pipeline has potential to spread sprawl from the city all the way to Big Water near Lake Powell. We will be working to make sure no pipeline is built that threatens the integrity of that wild landscape.

—Bill Hedden