Restoring Connections

Newsletter of the Sky Island Alliance Vol. 6 Issue 2 Summer 2003

Restoring grasslands with fire, southern Arizona

Sky Island Alliance

Protecting Our Mountain Islands & Desert Seas

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Sky Island Alliance is a non-profit membership organization dedicated to restoring and protecting the unique diversity of the Sky Islands of Southeastern Arizona, Southwestern New Mexico, and Northern Mexico.

Front cover photo by Dr. Guy McPherson of the UA School of Renewable Natural Resources. Firefighters set a prescribed burn at the Appleton-Whittell Research Ranch (ARR) near Elgin, AZ. ARR is a cooperative partnership among the National Audubon Society, US Forest Service, Bureau of Land Management, Appleton family, and the Research Ranch Foundation. For more information, visit www.audubonresearchranch.org.
Back cover photo by Bob VanDeven

Many Thanks to Our Contributors!

Walt Anderson, ecologist at Prescot College; Virginia and Gus Bodner; Todd Esque of USGS; Erica Geiger, UA grad student; Andy Holycross, researcher at ASU; Sky Jacobs, Kathy Pitts, flora and fauna columnist; Kathy Schon and Don Swann of Saguaro National Park; Brian Segee of the Center for Biological Diversity; Sam Smith of the Animas Foundation, Tom and Tomas Taylor, native fish enthusiasts with the Middle Gila Conservation Partnership; and, of course, the SIA staff. Extra-special thanks to artist extraordinaire Penny Pederson!

Fire!

"Fires have been raging south and southeast of here [Tucson] during the past week. Millions of acres of excellent grass land have been burned over but thanks to the abundance of our grazing lands we have plenty left. As soon as the rainy season sets in, which will be about the first of next month, the whole country will again be covered with green grass."–*Weekly Citizen* (Tucson), June 13, 1874.

"A large fire is raging in the Santa Catalina Mountains. A party who has been at the scene states that it has gone over an area of about ten miles square and that it is making its way toward the valley on this side [Tucson]."–*Arizona Daily Star,* June 22, 1889.

"... the grass over areas that were burned over this season is now knee high and everything looks as fresh as spring time in this locality [Patagonia]..."–*Arizona Daily Star,* September 2, 1880.

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Photo by Walt Anderson

Seeking SIA newsletter submissions:

Send us your poetry, your words of wisdom, your art!

As you've likely noticed, the quarterly Sky Island Alliance newsletter has expanded into a larger newspaper format. We want to keep it filled with inspirational, informative material, and we'd like your help! Do you write poetry? Draw, sketch, paint, or photograph? Like to address regional conservation issues? Review books or websites? Anything that relates to the Sky Islands region is fair game! We'd also like to start a Letters to the Editor section. Send us a note! You can respond to items in our recent newsletter, comment on your experiences as a volunteer or conference-goer, etc. Also, let us know if you'd like to be a regular contributor, e.g. with a column each issue. The deadline for our next newsletter is August 9, 2003. Material submitted after that date may be saved for subsequent issues. Please email submissions to newsletter@skyislandalliance.org, or mail them to Sky Island Alliance attn: Newsletter, P.O. Box 41165, Tucson, AZ 85717. Resolution of digital images should be at least 300 dpi if possible, but we can work with some lower resolution images.

Rambling rants from the director's desk

M a c h • i • a • v e l • l i • a n *Pronunciation:* (mak"E-*u*-vel'E-*u*n), *adj.* 1. being or acting in accordance with the principles of government analyzed in Machiavelli's *The Prince,* in which political expediency is placed above morality and the use of craft and deceit to maintain the authority and carry out the policies of a ruler is described. 2. characterized by subtle or unscrupulous cunning, deception, expediency, or dishonesty.

Over a period of several years in the mid-1990s, I had the opportunity (or misfortune) of inspecting every proposed timber sale in the state of Arizona, south of the Grand Canyon. This was a period in which these sales were first beginning to be challenged in the Southwest. Due to poor planning, over-cutting, and the attendant cumulative effects on imperiled species, many of these ill-conceived projects were stopped. Shockingly, most were resurrected within months and re-released with little or no change as "Forest Health Projects!"

This same Machiavellian approach to forest policy is reflected in both the Bush administration's "Healthy Forest Initiative" (HFI) and the "Healthy Forests Restoration Act of 2003," (HFRA) recently passed by the House of Representatives. These policies are nothing more than a handout to the timber industry disguised by user-friendly names. These policies take advantage of legitimate public concerns about safety in the Wildlands-Urban Interface (WUI) and use these concerns as an excuse for suspending environmental laws, going into roadless areas with no public oversight, and allowing the timber industry to harvest the few remaining big fire-resistant trees that they'd been denied in the past. Callously calculating, the Bush administration and their cohorts in Congress have shown a cynical disregard for public safety to satiate the greedy desires of campaign contributors.

Unfortunately, no proposal put forth by the Bush administration will do anything to alleviate the problems in our forest in the long-term–just a mishmash of contradictory and prohibitively expensive policies. A prime example of this is fire suppression. Everyone involved in this debate agrees that the primary reason for the unhealthy condition of our forests is a result of more than 100 years of fire suppression (and exclusion). Currently the policy of the Forest Service throughout the West is to suppress all fires. We cannot begin devising solutions without admitting to several undeniable facts:

1. Forests burn! Always have, always will. There is no management strategy that will prevent this eventuality. Every acre will burn at some point. How they burn is the challenge we face.

2. We will never cut ourselves out of this mess. The idea that we can correct past mistakes through large scale mechanical thinning is foolish.

3. The resources do not exist to cover even a fraction of the cost of a project of this magnitude. Even if large-scale thinning worked we would have to go back in 10 to 15 years and do it all again!

4. The WUI should be the focus of the limited resources available for mechanical thinning.

5. People living in the WUI must take action to fireproof their private property. Compensation programs like the Federal Emergency Management Agency should not be available to those who fail to do so.

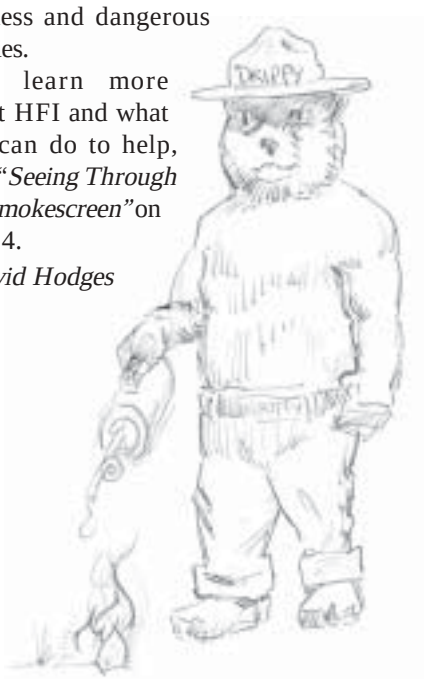
6. HFI would log the large fire-resistant trees to pay for thinning. This perverts the stated intention of having "healthy forests." The idea of cutting down big trees to raise money to cut down small trees is the dumbest idea I have heard in a long time–and there would be no trees left. Congress must act responsibly and appropriate enough money to treat the WUI.

7. Additionally, logging on public lands is a money loser. It has only turned a profit in the past due to heavy taxpayer subsidies–another perversion of intention.

8. The public appeals process is vital for the proper management of our public lands. This provides leverage to compel the agencies to collaborate with the public rather than shutting them out of the process.

Thinning should be a tool that allows the eventual return of fire to the landscape. Fire, and lots of it, will be essential to restoring our forests. I'm not talking about the puny controlled burns that we mostly see but big fires that burn tens of thousands of acres. We need more prescribed fire like the Coronado NF's 48,000-acre Baker Fire, burning in the Peloncillos right now. We need more prescribed fire "programs" like those of the National Park Service in the Rincon and Chiricahua Mountains. On private lands, the Gray Ranch is setting a compelling example of what is possible with vision and initiative.

The biggest downside of HFI is the removal of the public from the process. Healthy forests will not exist until everyone–scientists, conservationists, private landowners, state and federal agency personal–on all sides, are working together to create successful science-based strategies for restoration and protection. By implementing a process of exclusion, HFI intentionally creates conflict between groups who should be working together. If not stopped, unhealthy forests and burned communities will be the legacy of Bush's reckless and dangerous policies.



To learn more about HFI and what you can do to help, read "*Seeing Through the Smokescreen"* on page 4.

–David Hodges

Sky Island Watch

Fire Safety Program Well Done; SIA Applauds Clifton District

by Rachel Kondor, Ecosystem Defense and Policy Director

Recently, much ado has been made about environmentalists stopping thinning projects meant to reduce fire danger in National Forests. This contention, touted by the Bush administration and its industry cronies, is designed to obfuscate the real issue: that Bush sees our National Forests as nothing but a giant tree farm waiting to be liquidated, and deeply disdains any citizen input or opposition.

Environmental groups and citizens alike have long supported efforts to thin forests, especially near communities, and reintroduce natural processes such as low-intensity burning of undergrowth to reduce the risks of catastrophic fire. We strongly support projects that use thinning and prescribed fire to make forests safer and restore habitat for wildlife.

We do not support the Bush Administration's Healthy Forests Initiative, or Congress' recently introduced Healthy Forest Restoration Act because they are so clearly designed to facilitate the wholesale cutting of our remaining old-growth forests, and have nothing to do with healthy forests or protecting communities.

We can make forests safer and simultaneously restore the natural balance to ecosystems, but logging of large, old trees is not the way to do it. Instead, small trees and other undergrowth should be the targets for removal.

Prior to fire suppression, forests burned at regular intervals. This cleared the forest of dense undergrowth, leaving the larger trees intact. With fire suppression and logging over the last 100 years, small trees and brush have built up in many areas. This has created a very unhealthy forest, and a tinderbox for fire. The smaller trees and dense undergrowth carry fire into the crowns of larger trees, which may result in stand-replacing fires.

Prescribed low-intensity burning by qualified technicians is one method for getting rid of the most flammable materials in the forest. Recently, we received notice from the Clifton District of the Apache-Sitgreaves NF of a proposal to burn 2,300 acres adjacent to a Mexican spotted owl Protected Activity Center in order to restore habitat and reduce the danger of catastrophic fire.

The Clifton rangers will burn shrubs, undergrowth, and downed woody debris in oak and ponderosa pine forest. They have been burning in and around this area for several years, in order to try to establish a normal burn cycle for the ponderosa pine forest, a forest type which should normally burn at three to 10-year intervals in the Southwest.

The Clifton District is proactively attempting to reduce the likelihood of a major fire burning through the area and taking all the vegetation and trees with it. This project is meant to reintroduce the natural process of low-intensity fire into an ecosystem. An important benefit of a natural fire regime is the improvement of wildlife.

It also makes fiscal sense to clear by hand, or burn flammable materials before a wildfire goes through an area. The Clifton District estimated that on average, it costs $250,000 to $500,000 a day to suppress a wildfire, while a managed fire that is either allowed to burn freely, or is prescribed costs $10 to $500 an acre, respectively.

The Clifton District also proposed projects to protect communities from a devastating fire. Several months ago, the District proposed the Blackjack Hazardous Fuels Reduction project, which used a three-tiered approach to reducing fire danger around private homes and a campground: (1) thinning and removal of brush, small trees, and other flammable materials on 125 acres in the immediate vicinity of homes and a campground; (2) thinning and some prescribed burning in another 290 acres outside the initial work zone; and (3) prescribed burning on 1,770 acres in a larger upland grassy habitat.

This is a sensible approach to addressing fire danger in the vicinity of homes and recreation sites. By creating defensible space around the areas where people work and play, the project was clearly intended to address public safety. By preserving large trees, clearing out underbrush, and burning in appropriate areas, the project also serves to restore habitat for wildlife.

We commend the Clifton District for its efforts to design projects that promote human safety, while attempting at the same time to restore habitat for wildlife.

Comment letters or questions regarding the development of fire safety projects on the Clifton District can be directed to: Mr. Frank Hayes, Clifton District Ranger, Apache-Sitgreaves National Forest, HC1 Box 733 Duncan, AZ 85534; (928) 687-1614.

Seeing Through the Smokescreen of the "Healthy Forests Initiative"

by Brian Segee, Southwest Public Lands Director, Center for Biological Diversity

In the early 1970s, a group of disillusioned turkey hunters sued the US Forest Service (FS) to halt clearcut logging in prime hunting areas within the National Forest. Earlier, when the hunters expressed their objections to the FS chief, he dismissed the visit as a "very self-centered protest from a very small segment of the population who wanted the national forest to be managed for their own personal pleasure."

Remarkably, the lawsuit was successful, a clear wake-up call to the FS that the American public cherished their forests for more than production of lumber. Increasingly, Americans appreciated the forests for other values: clean water and air, abundant wildlife, old-growth trees, quiet places.

During this time, President Nixon signed several laws providing for environmental protection and public involvement in FS decisions. Through these laws, citizens have been able to slow destructive clearcutting, preserve wildlife and endangered species, protect the quality of municipal water supplies, and force the agency to serve interests besides industry.

Unfortunately, today's Republican party has made it a top priority to dismantle these laws. The Orwellian "Healthy Forests Restoration Act of 2003," (HFRA) passed by the House of Representatives in May, would: abolish citizens'rights to appeal FS projects, allow the FS to conduct large-scale timber sales without considering environmental impacts, and open the door to old-growth logging and road construction within roadless areas.

Similarly, under the banner of "Healthy Forests Initiative," (HFI) the Bush administration is quietly working to finalize new agency rules gutting environmental requirements while limiting the rights of citizens to participate in and object to FS decisions.

The rhetoric accompanying this effort closely resembles the FS's disregard of public outrage over its timber program 30 years ago. Arizona Sen. Jon Kyl, a leading cheerleader for environmental rollbacks, repeatedly ridicules conservationists opposing destructive timber sales as "radicals" and "extremists," who are outside the "mainstream."

Kyl is wrong. Like the litigation of the 1970s, today's opposition against logging of old-growth represents the tip of the iceberg of public opposition to the FS's timber program. Polls consistently show that three out of four Americans oppose logging on public lands. Many of the nation's leading forest researchers and fire ecologists have expressed strong opposition to HFI.

A Legacy of Mismanagement

In the midst of intense drought conditions throughout the West, record-setting fires burned in the states of Arizona, Oregon and Colorado in the summer of 2002. Seizing upon the public's fear and misunderstanding of wildfires, the Bush administration quickly built support for HFI by claiming fires such as Rodeo-Chediski had resulted from lack of management brought about by environmental opposition to the FS's timber program.

In fact, on the Sitgreaves National Forest—where the Rodeo-Chediski wildfires unleashed their fury after scorching 275,000 acres of Apache land—logging was so rampant that in 1988 the Arizona Game and Fish Department appealed the forest's management plan. Noting that the Sitgreaves had "little remaining or existing old growth," the Department opposed the planned "liquidation" of remnant vestiges of the once-magnificent ponderosa pine forest.

The Sitgreaves is the most intensively logged and roaded landscape in the Southwest. It is the sole National Forest among 12 in Arizona and New Mexico with no designated Wilderness. Of its 818,000 acres, little more than one percent is "roadless." As one hiking guide states, "You can't hike more than a quarter mile on the Sitgreaves without hitting a road."

While logging has abated, it has not stopped. Since 1990, 10 timber sales targeting large trees were logged on the Sitgreaves

photo by Sky Jacobs

Large trees that survived Rodeo-Chediski fire

within the boundaries of Rodeo-Chediski. If logging prevented fires, the Sitgreaves National Forest should have been the safest place in Arizona.

Western Forests Need Fire

Forest fires are a vital natural process, as are fires in grasslands, chaparral and other ecosystems. Many forested ecosystems, such as lodgepole pine and spruce-fir, naturally experience and even thrive upon "catastrophic" crown fire events.

Nonetheless, some forests appear to be experiencing unnaturally large and severe fires. While most fire ecologists believe that crown fire was historically a rare occurrence in Arizona's ponderosa pine forests, approximately one quarter of the National Forest acreage within Rodeo-Chediski burned at high severity.

However, recent crown fire events within Southwestern ponderosa pine forests—caused by nearly a century of widespread fire suppression, preferential logging of large, fire-resistant trees and ubiquitous domestic livestock grazing combined with severe drought—are not the monolithic disasters they are often reported to be.

In the Rodeo-Chediski fire, approximately 135,000 acres of National Forest land burned in a mosaic pattern of fire severity, with large areas experiencing light or moderate burns which killed the understory while leaving large fire-resistant trees intact.

Community Protection

Instead of eliminating environmental laws and citizen oversight of FS decisions, the conservation community believes that protecting homes and keeping people safe must be a top priority of wildfire policy. FS researchers have concluded that making homes "firewise" and creating defensible space near communities is the best way to achieve this goal—one that can be realized within a reasonable time frame.

Advocating for fuel reduction treatments to be focused in the "community protection zone" does not mean the rest of the forest is left to burn. Restoration treatments focused on prescribed burning and small-diameter thinning must proceed in forests dependent on frequent fires, such as ponderosa pine. However, with continuing drought and tight budgets, focusing on communities is a common-sense approach.

HFRA Moves to the Senate

Passed by the House of Representatives in mid-May, the Healthy Forests Restoration Act of 2003 will now be considered by the Senate. As of press time, it is expected that the Act will move through committee in June and come before the full Senate after the July 4 recess. It is imperative that everyone who cares about public forests contact their Senators *now* and urge them to vote "No!" on this legislation. As Arizona Senator Jon Kyl and New Mexico Senator Pete Dominici have already strongly supported this legislation, it is important for Arizona and New Mexico residents to instead contact Senator John McCain and Senator Jeff Bingaman, respectively, who have not yet taken a stand. As it is still difficult to send postal mail to DC and email is generally disregarded, it is most effective for you to *call* your Senator.

Arizona Senator John McCain, 241 Russell Senate Office Bldg, US Senate, Washington, DC 20510; (202) 224-2235.

New Mexico Senator Jeff Bingaman, 703 Hart Senate Office Bldg, US Senate, Washington, DC 20510; (800) 443-8658.

Border Patrol's Operation Desert Grip Puts Stranglehold on Wildlife

by Vanessa Gross,SIA Legal Intern

In its continued efforts to secure the US Mexico border, the Border Patrol has proposed a massive escalation of their presence in the Southern Arizona deserts. One piece of this plan is the expansion of Operation Desert Grip. If passed, this proposal will enable the Border Patrol to establish three new bases of operation (two in the Coronado National Forest and one in the Cabeza Prieta National Wildlife Area (CPNWA)); and expand two existing camps (one in CPNWA and the other in Organ Pipe Cactus National Monument (OPCNM)). Combined with the seven camp details on the Tohono O'odham Indian Nation, the expansion of Operation Desert Grip will carve up the habitats of endangered and threatened species leaving our desert reeling from the Border Patrol's impact.

Federal environmental law requires the Border Patrol to research the impact that their proposed sites would have on the environment and report their findings in environmental impact statements (EIS) and environmental assessments (EA). These reports are released for public review and comment. The one EIS and multiple EAs covering escalation of the Border Patrol's presence share a common and disquieting trait–a bold assertion that there will be no significant environmental impact supported by a complete lack of environmental analysis.

The Sky Island Alliance submitted its comments on the environmental assessment for the expansion of Operation Desert Grip this month. This EA consists of no more than unsubstantiated assertions that the Border Patrol's expanded presence will be temporary, will have no lasting environmental impact, and that, in cases where there is an environmental impact, the affected species will adjust. Scientific support for these outlandish declarations is all but nonexistent.

Species known to occur near the proposed camp details of the expansion of Operation Desert Grip are the Sonoran pronghorn, cactus ferruginous pygmy owl, desert pupfish, Chiricahua leopard frog, and lesser long-nosed bat. All are endangered except for the Chiricahua leopard frog, which is classified as a threatened species. The Border Patrol acknowledges that its actions, combined with other human impacts on the region, would continue to have long-term cumulative impacts on wildlife populations.

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Roads and Wildfires: Complex Interactions

by Matt Skroch, SIA Field Program Director

Last year, more than 88,000 separate wildfires burned some seven million acres across the US. In 2000, almost eight-and-a-half million acres burned-the largest wildfire season in recent history. Today, the Western US nervously awaits the next big fire. Shocking footage from Los Alamos, Hayman, Rodeo-Chedeski, and other famous wildfires have struck fear into those who live at the forest edge. While very few understand the complexities of the factors that have caused these wildfires, many are quick to lay blame. Finger pointing and fault finding have replaced rational thought in this fiery debate.

In the frenzy to contain and extinguish these infernos, thousands of miles of firebreaks and access roads have been bulldozed into wildlands. Little talked about in the press, roads have large effects on how fires are ignited, spread, and extinguished. Fire-fighting authorities often argue they need more road access to effectively fight fires. When Sky Island Alliance closed illegal non-system roads in the Chiricahua Mountains, for instance, Coronado National Forest fire crews raised concerns over their ability to suppress fires near the Wilderness Area with reduced road access. While this logic seems straightforward at first, we must take a broader look at the relationships between roads and wildfire. To do a cost-benefit analysis of road densities and their relation to fire ignition and suppression, we need to ask whether roads bring about more fire problems to begin with.

Historically, fire was a relatively common element in many ecosystems across the West. During spring and summer thunderstorms, lightning would randomly provide ignition, and if conditions were conducive, fires in varying degrees of intensity would begin. Lightning-caused fires have occurred on the Western landscape for as long as this land has existed. They are a natural component of the landscape's ecology and will forever influence plant and animal communities, and wildlife behavior.

Last year, the majority of wildfires in southern Arizona were caused not by lightning, but by humans. Perhaps the most famous was the lost driver, Valinda Jo Elliot, who began the Chediski Fire that, combined with the Rodeo Fire, burned 467,000 acres in east-central Arizona. According to the National Interagency Fire Center based out of Boise, Idaho, the 10-year average shows that about 14 percent of wildfires today are caused by lightning (slightly higher in Western states). While ignitions from some Native American peoples contributed to fires in historical times, today the sheer volume of forest visitors plays a significant role in when and how a fire burns. These human-caused fires are often ignited in the spring season when fires rarely occurred historically due to absence of lightning.

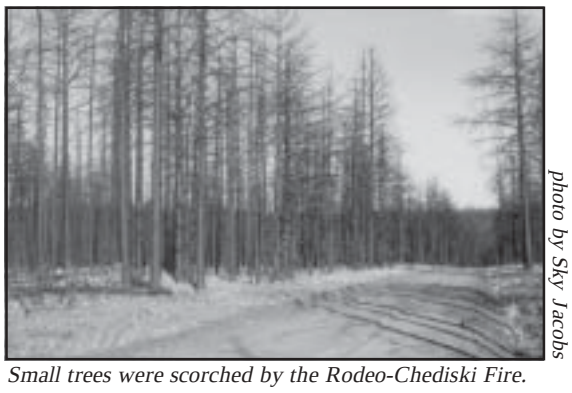

photo by Sky Jacobs

Small trees were scorched by the Rodeo-Chediski Fire.

Roads contribute significantly to where and how fires burn. Numerous studies show that the majority of human-caused fires are ignited in close proximity to a road. During the 1950s, for example, 74 percent of all fires on national forests in California occurred within 10 feet of a road, according to a 1968 report from the California Division of Forestry. Nationally, between 1965 and 1975, 75 percent of fires were traced to roadsides.[1] Humans not only ignite fires through carelessness (abandoned campfires, cigarette butts, matches, etc), but vehicles also cause a significant percentage of fires via engine manifolds, exhaust pipes, and sparks. The argument that road access is necessary to effectively fight fires is shaky. In fact, evidence shows that fires in those areas without roads are less threatening, less frequent, and effectively suppressed when needed. The Forest Service reports that "The current fire suppression organization [the Forest Service] has been effective in suppressing at a small size approximately 98 percent of wildland fire starts in inventoried roadless areas. The agency also typically prioritizes fighting roadless and wilderness fires lower than fighting fires in more accessible and populated areas."[2] As we move away from the full fire suppression mentality, we soon recognize that fires within roadless areas tend to be less severe and less threatening than those fires within roaded or developed areas. Current research shows that roads can increase fire frequency and contribute to a variety of factors that may elevate a fire's intensity.

Roadless Areas can provide numerous benefits to the ecology, economics, and safety of fire. In 2001, the Forest Service issued a national policy that would protect remaining roadless areas across 58 million acres of public land. Regarding fire, the agency reports in its September 2000 A Report to the President In Response to the Wildfires of 2000 (see www.fireplan.gov/president.cfm) that "Some critics have expressed concern that the Administration's proposed roadless area policy could increase wildfire risks. The facts do not support this conclusion. To the contrary, all available evidence suggests that fire starts may be fewer in unroaded than in previously roaded forests. Fires are almost twice as likely to occur in roaded areas as they are in roadless areas." Those fires that do occur in Roadless or Wilderness Areas often show lower burn intensities and other more natural characteristics. The Boiler Fire in the Aldo Leopold Wilderness (Gila National Forest) is a perfect example. As we go to press, this fire is burning at a low intensity and is not being actively suppressed. This 50,000-acre, naturally ignited fire has smoldered for more than two months. Because of the absence of roads, logging, and development within the area, the fire is doing what fires should do in this habitat-burning at a low intensity and thinning out the understory.

(1) Wilson, Carl C. Roadsides-Corridors with high Fire Hazard and Risk. Journal of Forestry/ September 1979 pp. 576-577.

(2) Federal Register, Friday, January 12, 2001, Part VI, USDA Forest Service, 36 CFR Part 294, Special Areas; Roadless AreaConservation; Final Rule

Operation Desert Grip continued

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The Border Patrol claims that they do not expect that these impacts will result in "significant reductions" to the populations. They do not acknowledge that preservation of the habitats of these species is absolutely critical, nor do they admit that any reduction in their populations is extremely significant.

Sonoran Pronghorn

There are 22 remaining Sonoran pronghorn. The Border Patrol admits that the Sonoran pronghorn will be adversely affected by their proposed actions. Such actions may lead to the extinction of this species, despite efforts of a captive-breeding program. How does the Border Patrol propose to mitigate the inevitable damage (immediate and cumulative) to this species' habitat?

Desert Pupfish

The Border Patrol states that (at least one) proposed camp detail is within or near the critical habitat designated for the desert pupfish. Yet, the Border Patrol never states what effect (immediate and/or cumulative) that its proposed camps will have on this species and/or its habitat.

Cactus Ferruginous Pygmy Owl

Last November, the US Fish and Wildlife Service proposed designating critical habitat for the cactus ferruginous pygmy owl in Pima and Pinal counties that would include portions of the Organ Pipe Cactus National Monument and Cabeza Prieta NWR. Though the EA mentions the establishment of a camp detail in Organ Pipe, it does not discuss the effect this camp may have on the species, nor does it present any plans to mitigate the effects on this species' habitat.

Chiricahua Leopard Frog

The Border Patrol admits that the Chiricahua leopard frog is known to occur near the two proposed camp details in the Coronado National Forest. All that the border Patrol mentions is that the Chiricahua leopard frog's habitat includes a variety of water sources. There is no discussion of habitat impact, nor any mention of how the Border Patrol plans to minimize its impact on this species.

Lesser Long-Nosed Bat

The Border Patrol claims that the camps will not affect the lesser long-nosed bat, as there are no saguaro cacti (a food source) near the proposed sites. Some of the sites are near organ pipe cacti, which provide another food source for the lesser long-nosed bat. The EA fails to address this gap in its analysis. Additionally, these proposed camps will generate light for 10-12 hours per night. The Border Patrol claims that the additional light may disrupt the circadian rhythms of some animals, but that these creatures will adjust in time or relocate rendering the impact of the lighting as insignificant. Again, there is no scientific evidence to support this assertion.

The Border Patrol has produced a woefully inadequate assessment of the environmental consequences of the expansion of Operation Desert Grip. This campaign has potentially catastrophic ramifications for the Southern Arizona desert, and the wildlife that inhabits it, as do other Border Patrol projects.

Operation Desert Grip is just one piece of a larger plan to greatly expand Border Patrol activities along the Arizona-Mexico border. While the deadline for comments on Operation Desert Grip ended on June 11, the Border Patrol needs to hear from citizens on upcoming proposals. Contact Charles Parsons at the Border Patrol to request to be placed on their mailing list for future environmental impact studies and assessments.

Charles Parsons, US Department of Homeland Security, Western Region Environmental Officer, P.O. Box 30080, Laguna Niguel, CA 92607-0080; (949) 425-7081.

Research on Fire

The Sky Island region hosts some of the world's most active fire research programs. The Laboratory for Tree Ring Research at the University of Arizona is one of the global centers of research on all aspects of fire history. By studying patterns of burns and regrowth in tree sections, these researchers have compiled fire histories dating back several hundred years, for the Huachuca, Rincon, Santa Catalina, Santa Rita, Animas, Chiricahua, Pinaleno, Peloncillo, Sierra San Luis, Sierra de los Ajos, and Mogollon mountains, plus many areas outside the Sky Island region.

Several other groups are investigating ecological effects of fires, with an eye toward both understanding how different types of fire effect the landscape and to improving use of fire for management. These groups include the Animas Foundation, Audubon Appleton-Whitell Research Ranch, Buenos Aires National Wildlife Refuge, Fort Huachuca, National Park Service, US Forest Service, and research groups within the University of Arizona's Renewable Natural Resources, Wildlife and Fisheries, and Geography and Regional Development departments. Here are a couple of examples of up-to-the-moment insight into fire in our region.

Alien Grasses May Constrain Restoration Options

by Erica Geiger, University of Arizona Dept. of Renewable Natural Resources

Prior to Anglo settlement, a rich assemblage of native grasses formed a soft mosaic of color and texture skirting the sky islands of Arizona, between the drier scrublands of the lower deserts and the cooler forest crowning the mountains. Today many of these grassland communities are dominated by woody species and/or nonnative grasses. Since the late 1800's, overgrazing by livestock has altered plant communities tremendously. Reduction of fine fuels limited the frequency and size of lightning-caused fires. Lowered fire frequency, compounded by reduced competition with palatable grasses, has enabled woody vegetation to dominate grasslands. Starting in the 1920's, nonnative grasses were introduced to colonize soils denuded by livestock.

In an effort to restore native semi-desert grasslands in Arizona, land managers have reintroduced fire in hopes of reducing abundance of shrubs and nonnatives. However, fires often are implemented into vastly altered systems, at times and scales contrary to historic fire regimes. Even when successful at reducing shrub encroachment, disturbances such as fire can serve as segues for invasion by nonnative species. Indeed, several scientific studies have shown increased abundance of nonnative grasses following fire. Studies are now underway in the Sky Island region to determine the most effective methods for using fire to reduce woody vegetation and encourage growth of native grasses without spreading non-native plants in the process.

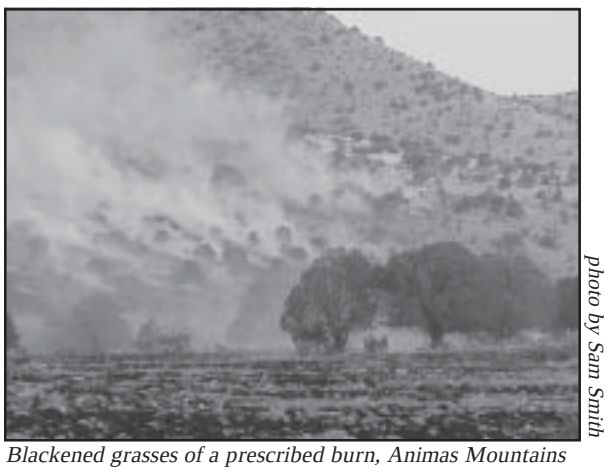


photo by Sam Smith

Blackened grasses of a prescribed burn, Animas Mountains

Our research group at the University of Arizona is using a large-scale experiment in the semi-desert grasslands of southeastern Arizona to quantify changes in plant community structure following fire treatments (spring, summer, no fire) across a gradient of dominance by this nonnative grass. We collected data in the fall and spring of each year starting in fall of 1999 and set prescribed fires in 2001 and 2002. Results from our study will help land managers determine which fire treatment is most appropriate to restore the rich diversity of native species.

Eragrostis lehmanniana (Lehmann's Lovegrass), a perennial grass from southern Africa, now occurs in many southwestern grasslands, where it is the main invasive grass implicated in the decline of native organisms. In our studies on the Fort Huachuca Military Reservation, plant species richness in these grasslands was consistently lower in areas dominated by *E. lehmanniana* (i.e., there was a negative correlation between plant diversity and percent of total biomass composed of *E. lehmanniana*). This relationship held true regardless of year, season, community type, or fire treatment. However, plant species richness appeared to be influenced more by year-to-year variability than by fire treatment, which makes treatment effects more difficult to generalize. There was a slight change in the proportion of *E. lehmanniana* following fires (increase following spring fire, decrease following summer fire), but these differences faded within one year. A decrease in total plant biomass was maintained for two fall seasons following fire, but this response varied by treatment and year.

Our study provides one more piece in the emerging grasslands restoration puzzle. The interaction between fire, nonnative grasses, native plants, and climate is complicated and monitoring is required for several years to detect long-term effects on plant communities. Because of variability of responses across years, continued experimental research is needed before we understand how to best avoid proliferating non-native grasses as a side effect of grassland fire restoration. We urge caution in applying grassland fires on a large scale until these interactions are better understood. In the meanwhile, when managers want to apply prescribed fires, we recommend using a fire regime that is consistent with the pre-settlement regime. Thus, we suggest applying fires every 5 to 15 years during early summer, coincident with the arrival of the Arizona monsoon. This appears to closely match the disturbance regime with which native species evolved.

Monitoring Fire Effects on Mexican Spotted Owls

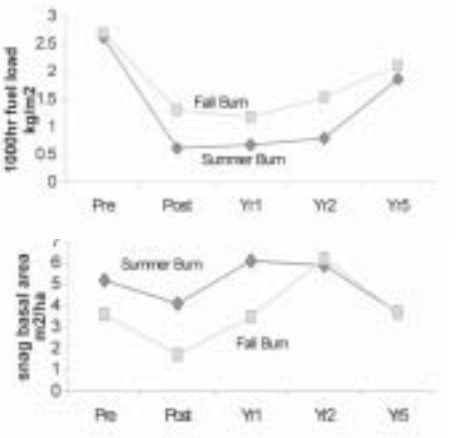
by Kathy Schon, fire ecologist at Saguaro National Park

Managers are often faced with conflicting issues concerning fire. One such dilemma involves Mexican Spotted Owl (MSO) habitat. On one hand, managers need to apply fire to reduce the risk of lethal wildfire to the entire ecosystem. On the other the Mexican spotted owl recovery plan poses numerous restrictions on treatments. These restrictions are designed to protect aspects of forest structure that are important to the owls, e.g. allowing fuels to be reduced overall while leaving larger-diameter downed wood that provides habitat for the owls' mammal prey. To evaluate how well particular treatment prescriptions work, and to ensure compliance with the Endangered Species Act, managers need to monitor the effects of fire in these habitats.

To evaluate the effects of our fire treatments, we installed 50x20 meter vegetation and fuel monitoring plots in four prescribed fire units. These plots include several monitoring variables included within the recovery plan for Mexican spotted owl critical habitat components (forest conditions that are considered critical the species' survival). Plots were located within Mexican spotted owl foraging areas, protected activity centers, and core nesting areas. Except for two plots in the core area, all plots were burned in either June or October over a six-year period. The plots represent two vegetation types associated with Mexican spotted owls, pine-oak and ponderosa pine forests.

Presented here are data from the post burn analysis for two of the critical habitat components recommended in the Mexican spotted owl recovery plan. Changes are shown from pre-burn through five years post-burn. The top graph shows changes in the amount of downed-wood more than three inches in diameter, a size considered especially valuable for small mammals but less flammable than smaller fuels. The second graph shows a measure of the number and size of dead standing trees, or snags. Snags are valuable roost and foraging trees as well as being correlated with other important aspects of stand structure.

These preliminary results indicate that there are fire prescriptions that, in the long-term, improve or maintain key habitat components for the Mexican spotted owl. Additionally, the two plots placed in the untreated core area point toward higher risk and vulnerability from wildfire in some of the most important habitat essential for the survival of the Mexican spotted owl. This data has been fundamental in the Park's ability to burn in Mexican spotted owl habitat. The ability to display scientifically valid data from our prescribed burn program to the United States Fish and Wildlife Service on the owl's critical habitat parameters has helped build trust and understanding for both parties. The Park will continue to monitor these plots through the next set of prescribed burns and beyond. This will allow managers to follow trends through multiple burn cycles, increasing understanding of these systems and fires effect on sensitive species. Results of monitoring can allow managers to implement prescribed fire programs and refine prescriptions while adhering to the recommendations of the US Fish and Wildlife Service's Mexican Spotted Owl recovery plan.



Change in 1000hr (>3in diameter) fuel load (top), and snag basal area (bottom) following prescribed burns in ponderosa pine forests in the Rincon Mountains of Saguaro National Park. Data from 1993-2001.

Saguaro National Park: Crown Jewel

by Don Swann, Biologist at Saguaro National Park

Saguaro National Park contains some of the most alluring and best preserved natural lands in the Sky Island region. Although a few of the park's front country trails are well-travelled by Tucson residents and visitors from all over the world, the park's wilderness areas are incredibly quiet and undisturbed.

If you hike up to one of the Rincon Mountains' high-elevation campsites, more likely than not you'll have the breezy pines, stars, and calling owls all to yourself. The park's wilderness is roadless. Off-road vehicles, grazing, and wood-cutting are not allowed, and the result is a lot of room for hiking and truly quiet solitude. Sitting up on Helen's Dome or Rincon Peak at the end of a hard day's hike it's hard to believe you are only about 25 miles from downtown Tucson.

In all, Saguaro contains more than 91,300 acres (more than 140 square miles) in two districts on either side of Tucson. The Tucson Mountain District, west of Tucson, is largely rugged desert punctuated by red rocks, cacti, and ironwoods. In contrast, the Rincon Mountain District, east of town, blends cactus forest with pine forest–the Visitor Center sits at about 3,000 feet, but Mica Mountain peaks out at more than 8,600 feet.

The result is a rich diversity of life–more than 1,000 native plants, and abundant wildlife that reflect the richness of the Sonoran Desert and Sky Island region.

The mission of Saguaro National Park is to preserve, protect, and interpret the Sonoran Desert's biotic communities, cultural features, and scientific and wilderness values. The park offers trails, interpretive programs, two visitor centers, and backcountry camping in the Rincon Mountain District.

photo courtesy Saguaro NP

A major part of the overall Park Service mission is to preserve resources so they will be left unimpaired for the enjoyment of future generations. To learn how best to do this, the park works closely with researchers from a number of universities, other agencies, and non-profits–the Sky Island Alliance among them–to survey saguaros, monitor and research fire effects, exotic plants, wildlife, cultural sites, surface water, air quality, and a number of other resources.

The research and monitoring has paid off in many ways. For example, years of saguaro monitoring has led to a comprehensive understanding of this long-lived species and documented the rebound of the Rincon population after many decades of poor recruitment, probably due to wood-cutting and over-grazing. Surveys using infrared-triggered cameras are mapping the presence of seldom-seen wildlife, including mountain lions, coati, and kit fox. And an ambitious program of monitoring and eradication of non-native plants, especially bufflegrass and fountain grass, has allowed the park to ride herd on these troublesome invaders of the Sonoran Desert. One of the most extensive and comprehensive monitoring programs includes monitoring the effects of fire on vegetation and fuels. This program provides better understanding of the role of fire in the Rincon Mountains and allows managers to evaluate their prescriptions to be sure ecological objectives are met.

The Rincon Mountain District contains a great diversity of mammals due to extensive wilderness area, large elevational range (approximately 2,700 to 8,600 feet), and location within or near the boundary of several important biogeographic provinces, including the Sonoran Desert, the Chihuahuan Desert, the Sierra Madre Occidental in Mexico, and the Rocky Mountains. The district is home not only to desert species such as coyotes and antelope jackrabbits, but also high-elevation species such as black bear and white-tailed deer. In addition, the Rincons contain species considered more tropical in origin, including the white-nosed coati and collared peccary.

With a good hat and plenty of water, Saguaro is a great place to visit–southern Arizona's surprising treasure. The Park's website is www.nps.gov/sagu/.

Saguaro N.P. a National Leader in Proactive Fire Management

The past 150 years have seen radical shifts in behaviors of fire, including fire frequency and intensity, fuel buildups, and spreading rates. Attitudes toward fire have changed just as much, from early settlers' debates about the relative harm vs. benefit of fires over which they had no control, through the Smokey Bear era of total fire suppression, to the more recent recognition of fire as a natural and inevitable part of western ecosystems. Managers of public lands continue to navigate the shifting tides of management philosophies, public opinion, and agency funding.

In recent decades, Saguaro National Park (SNP) has become a national leader in proactively managing fire on public lands. While the park's lowest elevation Sonoran Desert areas are not naturally prone to fires (see pages 9 and 13), most of the park's acreage is in habitats that depend on fires to maintain their natural biodiversity and forest structure. In these upper elevations, SNP has worked tirelessly to restore natural fire regimes.

SNP's shift away from total fire suppression began in the early 1970s, well ahead of most land management agencies. In this day, suppression decisions were simple–when the gauge at Manning Camp had registered at least two inches of rain, a lightning-caused backcountry fire could be allowed to burn. But this alone was not enough to correct almost a century of fire suppression. In 1991, SNP finished a joint fire plan with the Coronado National Forest (which surrounds the park on three sides). This plan added a component of intentionally set prescribed burns, addressed in more detail the needs of particular parts of the park, and allowed managers to coordinate fires on both sides of jurisdictional lines that are invisible to the area's flora and fauna.

1993 brought the establishment of a comprehensive, science-based Fire Effects Monitoring Program, to study the effects of fire and enable managers to adapt the fire plan based on its successes and failures. The monitoring program at SNP is now one of the most valuable parts of the fire program, providing critical information to SNP and to other fire managers (see Mexican spotted owl article, page 6).

One of the main dilemmas faced in planning prescribed fires at SNP and elsewhere is when to burn. Burning "in season" (late summer, when most lightning-strike fires begin) is generally preferred, because flora and fauna are thought to be adapted to this natural burn season. But emergency suppression of unplanned wildfires often siphons off personnel and other resources at this critical time. "Out of season" burns face less competition for resources, and fall burns may be less prone to escalating beyond their intended scope, but may be less effective at meeting objectives, e.g. killing shrubby vegetation in grassland restoration burns. Furthermore, until we know more about how plants and animals deal with fires outside their natural season, the safest route is to mimic natural disturbance regimes as much as possible. By comparing effects of burns in different seasons, SNP's monitoring program helps fire managers everywhere make informed decisions based on these burn-season tradeoffs.

SNP's large roadless acreage profoundly affects the nature of fires and fire management in the park. SNP has some 71,000 acres of federally designated wilderness. Over the last 50 years, lightning has ignited an average of nine fires each year. Less than 5 percent of fires in the Park were human-caused and, of this 5 percent, most were outside the designated wilderness. Managing fire in Saguaro's roadless wilderness areas comes with its own set of challenges, most notably financial limitations. Logistics of getting personnel and equipment into roadless areas raise the price tag of running prescribed burns. However, due to this scarcity of human-caused fires, managers can focus their efforts on prescribed fire and managing natural ignitions as opposed to suppression of unnatural, human-caused, fire events. And because most of the park is without developed structures, more of the naturally occurring fires can be left to burn because they do not threaten human habitations.

> "When I retire, I'm going to feel really good about our successes..."
> –Chuck Scott, SNP

Since 1970, fires have blazed through some 13,000 acres of the park, with most of these acres burning within what is considered to be natural bounds of intensity for the habitats in which they occurred. In 1994, the lightning-struck Rincon Fire grew increasingly powerful, blazing up into the forest canopy with lethal intensity. But when this fire hit stands that had been intentionally burned in previous years, the fire dropped back down to the understory, behaving exactly like a healthy pine fire should. Managers hope that as burns are brought back into all needy parts of the park, natural stand dynamics will re-establish themselves throughout the mountain range, and fire can once again be left to the Forces of Nature.

Hiking in the high country of the Rincons is a profound experience. No amount of mental knowledge that ponderosa forests need fire will prepare you for how it feels to wander through towering old trees with new burn scars, watching broad-winged goshawks lead their fledgling young through the high branches. Chuck Scott, fire management officer at SNP, is rightly proud of the program he shepherds. "When I retire," says Scott, "I'm going to feel really good about our successes, about being able to do something good for the resource."

Spruce-fir forest: Typical of the Canadian North, this habitat type occurs
Fires come to spruce-fir forests rarely, just once every 200-500 years, but wh
burn to the ground. New seedlings then rise from the ashes to replace their
surface fires, the type of prescribed burning designed to protect other fores
this habitat type.

Though stand-replacement fires are natural for this forest type, other facto
pressions of the natural dynamic. The Mt. Graham red squirrel, for exam
tion. But introduced competitors and habitat destruction have brought th
worry that a major fire in their prime habitat might finish them off. Teles
the fire-prone nature of their surroundings, and managers fear that these

Mixed-conifer forest: True to its name, mixed-conifer forest is am
area's particular mix of Douglas-fir, white pine, white fir, quaking aspen,
burns every nine to 15 years, with mostly low intensity ground fires like t
forests are prone to flaring up in some areas, creating stand-replacing cro
these stand-replacement patches were in the past, all agree that they are a
without these charred openings in the conifer forests, we would have to
colors on our high slopes. Mixed conifer forests occur on several of ou
are similar to those listed below for pine forests, though because they
able to large-scale disturbance than their contiguous counterparts o

Ponderosa pine forest: Ponderosa pine forests are the classi
every two to ten years. These fires were carried by the abundant u
changed fire patterns in these forests even before the era of active fi
like the Sierra de los Ajos, which have never been heavily grazed in
component of the fire regime of ponderosa pine forests, though less o
tives of the ponderosa, the Chihuahua pine and Apache pine, that are s
the Southwest, the forests made famous by the giant fires of the last deca
so pleasant to live in, and so extremely fire dependent.

Madrean evergreen woodland: This zone includes an unrivaled div
Madrean woodlands have a mix of pines and several species of evergreen oa
treat into canyons as you go down in elevation. Junipers and other chap
open grassland, and the zone is often referred to as oak savanna. In
Sky Islands, though it continues in some form throughout the Si
those of grasslands and pine forests, but are still poorly under
the diversity of stand structures that characterize these for
evidence from the Huachuca and Animas mountains sugg
prone to stand- replacement burns. The observatio
t o this hypothesis. Man-
r o u n d i n g
stand-

Fire on the mountain

Lands of the Sky Island region rise from some 2,000 feet to almost 11,000 feet elevation (700 to 3700 meters), from saguaro-clad Sonoran desert to cool spruce-fir forests Each of the habitat types has its own natural fire dynamics, and its own contemporary challenges. Fre dynamics in all these zones are, of course, more complex that can be presented here. Each zone, for example, is affected by fire behavior in nearby zones. Habitat types blend into one another where they meet. North-facing slopes experience different conditions from south-facing slopes. Each mountain range has its own history, and its own geography. Species composition varies among ranges, especially as you head north or south. Riparian corridors run from the tops of the mountains through the bottoms of the valleys, influenced by each zone but carrying their own wetter dynamics along with them.
Our Madrean Sky Islands are unique in how tightly packed these layers of habitats are, how in a day's walk, one can experience all of these distinct zones and the gradations between them. Recognizing the unique fire dynamics of each, and the problems related to them, helps us both appreciate and manage these rising mountains, from flank to peak.

in the Sky Islands only on the summit of Mount Graham.
hen they do they come as conflagrations, and forest stands
r ancestors. Because these forests do not typically carry
sts from conflagrations have no ecological justification in

ors have made some dependent animals vulnerable to ex-
ple, has survived many rounds of fiery forest regenera-
ese animals to the brink of extinction, and managers now
copes atop Mt. Graham were planned without regard to
buildings are also vulnerable to natural conflagrations.

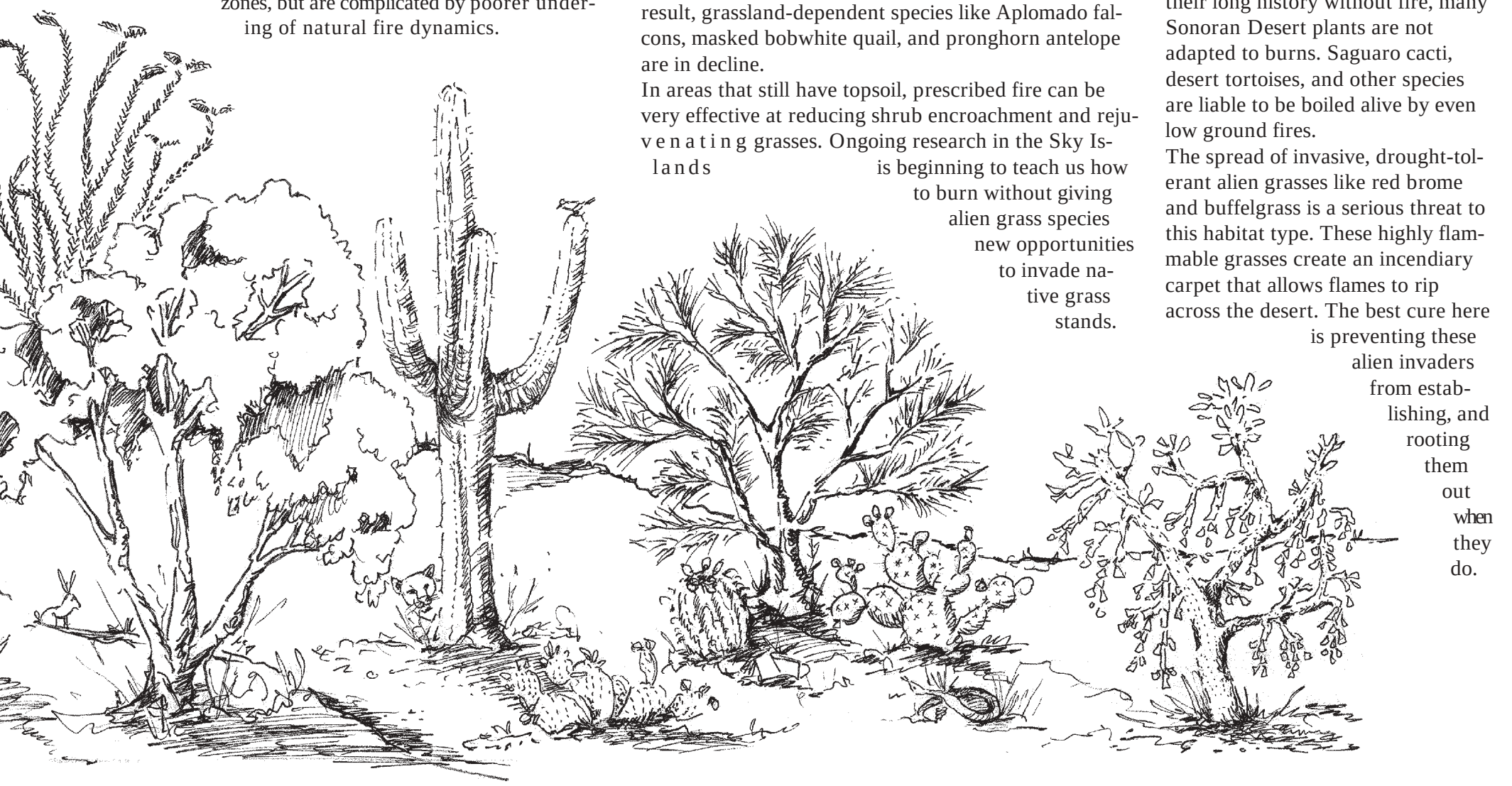
ong our most variable habitat types depending on an
, and other high-elevation trees. Mixed conifer normally
those typical of the pine forests below. Fires in these
wn fires. While there is much debate over how large
a natural component of this zone's fire regime. In fact,
do without the quaking aspen stands that splash fall
r taller mountain ranges. Management concerns here
are restricted to mountain tops, these are more vulner-
utside the sky islands.

c example of communities dependent on low-intensity ground fires, which traditionally came through each forest
nderstory grasses, killing many small trees but leaving large ones unharmed. Tree ring data shows that grazing
ire suppression—around 1880 in the U.S. Sky Islands, later in some of the more remote Mexican ranges. Ranges
the upper elevations, still show fairly natural fire regimes. Occasional stand-replacement burns are also a natural
ften and probably in smaller patches than in mixed conifer stands. The Madrean Sky Islands also harbor two rela-
imilar in appearance to their widespread cousins. These are the forests involved in most of the debates about fire in
de. Most wildland-urban interface fire problems are in Ponderosa forests, because these forests are so widespread,

ersity of plant assemblages and forest structures. The upper reaches of
ks, and are often called Mexican pine-oak woodland. Pines drop out or re-
parral plants enter the mix. By the lower reaches, trees are separated by
the United States, this rich eclectic mix is found only in the borderland
ierra Madre. Natural fire dynamics are thought to be generally similar to
rstood compared with other zones discussed here. Ecologists believe that
ests result, in part, from high variability in fire patterns. Recent tree-ring
gest that stands dominated by Chihuahua pines may naturally be more
n that these trees can sprout back from charred stumps adds support
agement concerns are similar to those of the sur-
zones, but are complicated by poorer under-
ing of natural fire dynamics.

Semidesert grassland: Open grasslands once extended across the flanks of most Sky Island ranges, and filled the valleys too high or too lush to carry low desert habitats. Fires historically blazed through these grasslands every five to ten years, maintaining their open structure. Intensive grazing, fire suppression, and soil erosion have eliminated or degraded most of our remaining grasslands. Two major degradations are invasion by alien grasses, and encroachment of shrubby plants like mesquites, junipers, and creosote bush. As a result, grassland-dependent species like Aplomado falcons, masked bobwhite quail, and pronghorn antelope are in decline.
In areas that still have topsoil, prescribed fire can be very effective at reducing shrub encroachment and rejuvenating grasses. Ongoing research in the Sky Islands is beginning to teach us how to burn without giving alien grass species new opportunities to invade native grass stands.

Low Sonoran desert: Under natural conditions, cactus-dominated low desert has been called an "asbestos community." It simply does not burn. Competition for water leaves plants spaced far enough apart that fire cannot easily spread between flammable patches. As a result of their long history without fire, many Sonoran Desert plants are not adapted to burns. Saguaro cacti, desert tortoises, and other species are liable to be boiled alive by even low ground fires.
The spread of invasive, drought-tolerant alien grasses like red brome and buffelgrass is a serious threat to this habitat type. These highly flammable grasses create an incendiary carpet that allows flames to rip across the desert. The best cure here is preventing these alien invaders from establishing, and rooting them out when they do.



New Field Volunteers Complete Wildlife Monitoring Training

by Janice Pryzbyl, SIA Wildlife Monitoring Program Coordinator

Fourteen new volunteers successfully completed their training and will soon be out in the field monitoring their adopted transects. Congratulations and welcome to: Laurel Clarke, Lisa Collis, Dana Hook, Keith Hughes, Albert Lannon, Beth Long, Kaitlin Meadows, Serena Pickens, John Rawlins, Iris Rodden, Leslie Sellgren, Michael Terrio, Sara Venturini, and Jennifer Wolfsong. Once again it was a pleasure being in the classroom and in the field with adults so eager to learn and so enthusiastic about contributing their talents and sweat to a conservation project. One of the things they did learn is that tracking is not as easy as they first thought! After one day in the classroom and two days in the field, I asked workshop participants to jot down their thoughts. Here are some of their quotes:

"The actual viewing of real tracks brought the class work alive and helped me see how to do this–the more you see, the more you see–so my identification skills, while still young, improved from one field day to the next."

photo by Matt Skroch

Kaitlin Meadows, Albert Lannon, and Michael Terrio identify tracks in the Empire-Cienega NCA.

"I can now recognize some of the tracks seen. Also and most importantly, I now pay attention to what I could see."

"The most significant thing I learned is how important our participation as individuals contributes to the health of our ecology. It is up to us to educate others on how everything fits together to form one healthy ecosystem. Our efforts to study, document and vie for protection of a single species or group make a difference for us all."

"To be a good tracker requires a sort of "zen head" where observation, practice, and awareness combine with knowledge of animal behavior."

"I learned that if one makes the effort to gain some knowledge about tracking, and is patient and open-minded in applying that knowledge, that they can learn a lot about the animals that lurk about."

"I learned that normally when I walk through a natural area I am completely oblivious to all the amazing things that are going on or have gone on in the recent past. I also learned that I need to slow down and take life minute by minute and footstep by footstep."

With the completion of their training, volunteers formed teams and adopted transects in two of our three project areas. We expanded and strengthened the Cienega Corridor project with the addition of three transects. The Cienega Corridor links the Rincon Mountains to the Santa Rita, Empire, and Whetstone Mountains to the south We now have two years worth of data from four transects just north of I-10 in washes that drain into Cienega Creek. Starting in June, teams will be looking for the tracks of our focal species along the newly established transects in the National Conservation Area south of I-10. Three other volunteers will be taking over Mike Iorio and Alyssa Sheil's transect in the Dragoon project where we are investigating the movement of wildlife between the Dragoon Mountains and the San Pedro River. Mike and Alyssa recently graduated from the UofA and headed to the west coast for graduate school. Both Mike and Alyssa trained with the first group of volunteers way back in the spring of 2001 and volunteered on transects since then. Thanks Mike and Alyssa for all your efforts and we wish you well in your new adventures.

Besides engaging adults, one day last April I had a blast introducing a group of youngsters to tracking during an after school program at the Bisbee Boys and Girls Club. The two-hours event was part of Bisbee's weeklong annual "Procession of the Species." The young audience of boys and girls ages six through 12 viewed slides of the different types of wildlife sign: tracks, scrapes, and scat–the last eliciting a loud round of "ew-yuks." We then played an animal-track matching game. The real fun began when I used rubber paw molds to create tracks in pans of soil and demonstrated how to make track tracings using Plexiglas and markers. Each child–and there were 30 boys and girls–had the chance to do his or her own tracing of a bobcat, mountain lion, black bear or wolf track. The kids had fun and produced some remarkable "documentation" which they got to take home. Thanks to Lauren Roberts in Bisbee for organizing all the "Procession" events and for inviting Sky Island Alliance to participate.

Crew Working

by Janice Przybyl

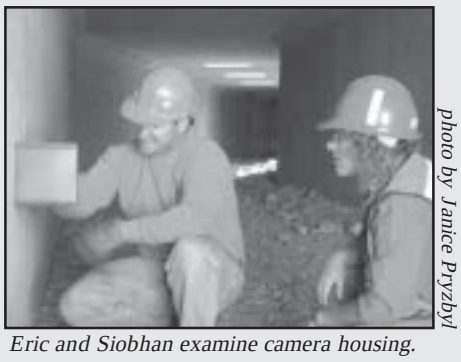


photo by Janice Pryzbyl

Eric and Siobhan examine camera housing.

Our remote camera project highway project is off and running. Sky Island Alliance' Wildlife Monitoring Program is partnering with Tucson's Natural Resource Section of Arizona Department of Transportation to investigate wildlife passage under two major highways in southeast Arizona. We earmarked 12 culverts and bridges for camera installation and for two days in April, I hung out with the Tucson crew under SR 90 setting up and field-testing the first four cameras.

The information gathered from these cameras will supplement two of our Wildlife Monitoring Projects: the Santa Cruz River Valley project and the Dragoon Whetstone project.

Siobhan Nordhaugen, Natural Resource intern, worked diligently since last fall to design and construct a formidable (and indestructible, we hope) steel and Plexiglas housing to protect the cameras. The units were mounted to culvert and bridge walls.

Thanks go not only to Siobhan, but also to Chuck Barclay, Paul Langdale, Eric Hardt, and Ray Garcia, for lugging the generator and manning the drills.

New Mexico Ridge-nosed Rattlesnake Faces Tenuous Future

by Kathy Pitts, Special to Restoring Connections

Most of us would rather not run into a rattlesnake on the trail. Still, what terrifies some of us fascinates others, and there are people whose lives re-volve around collecting or owning snakes. For them, the rarer the specimen, the better. But, as you might imagine, collecting rare snakes makes them scarcer, creating a downward spiral toward extinction. Such may have been the case with the New Mexico ridge-nosed rattlesnake.

The gray to grayish-brown coloring of *Crotalus willardi obscurus* is well suited to the decaying leaf litter of its pine-oak canyon home. In fact, concealment is the snake's chief strategy in both hunting and escaping predation. But camouflage was not enough to protect it from enthusiastic collectors who flocked to the Sky Islands after its "discovery" in the 1960s.

Only 18 to 24 inches long when fully grown, this obscure object of desire occupies an equally modest territory—disconnected islands of habitat in the Animas and Peloncillo Mountains of southern Arizona and New Mexico and the Sierra San Luis in northern Mexico.

C. w. obscurus is related to the Arizona ridge-nosed rattlesnake, *C.w.willardi.* Like the Arizona, the New Mexican ridge-nosed has a distinctive ridge edging its upper snout, somewhat in the manner of a rimmed saucer. The Arizona, however, is more reddish-brown and has well-defined white facial stripes.

In the wild, the New Mexico ridge-nosed gives birth to two to nine young about every other year. This is a small brood compared to larger rattlesnakes, and magnifies the impact of collection on their vulnerability.

Mating takes place midsummer to fall, and females store male sperm until early spring when they ovulate. Baby rattlers are born live during the monsoon rains and disperse quickly from their natal home. Newborns may use their yellow-tipped tail to lure prey, which includes centipedes and small lizards. As they grow older they will add a rattle each time they shed, and their diet will shift to larger lizards, small rodents and the occasional bird, which they ambush by hiding among rocks, in forest litter, along mouse runways, or up in trees.

Like all pit vipers, the New Mexico ridge-nosed uses a heat-sensing organ in its snout to locate prey and detects fine chemical odors with its flicked tongue. Venom immobilizes the catch and begins to predigest its tissue.

Collection of the New Mexico ridge-

continued on next page

Road Rattlings

by Trevor Hare, SIA Conservation Biologist

Again? I ask incredulously! It's time for another Road Rattlings? Man, I ain't done nuttin' lately! At least not that has anything to do with walking roads. Seems I've been a nothing but a desk jockey since the last newsletter. I've only been out a couple of times to look for frogs and fish! But since part of the title includes "Rattlings," I am glad to tell you that I have seen at least 10 rattlesnakes in the very few days I have been out. Now don't start worrying, I had to actively search these snakes out, not one rattled at me, nor did any act aggressive toward me. Just good clean fun!

Back to roads. As I mentioned in the last newsletter we are getting toward the end of our BLM road surveys, and we will have some new and exciting opportunities in the future. But I want to tell all my road warriors we will continue to walk roads! Re-inventories will be necessary in many parts of the Coronado, Apache-Sitgreaves, and Gila National Forests. As you all are aware, it only takes one yahoo to re-open a closed road or to blaze a new one. We have seen it all too often, the blood boils and fists are clenched wishing that you had been there to stop it! While being in the right place at the right time to stop it doesn't happen often, in the long run we can and we must stop it. We must document, advocate, and restore!

So, back to roads. By the time you read this we will have finished the easy part of Aravaipa Canyon Wilderness (16-18 May). We will have camped next to the creek at the wilderness boundary, we will have hiked up the wilderness boundary both north and south of the canyon, we will have quickly lost the cooling shade of cottonwoods and willows, we will have hiked our butts off in the heat, stumbled back to camp, and we will have enjoyed the zone-tailed and black hawks with our feet in the creek and cold ones in our gullets! There are some harder pieces of Aravaipa Canyon Wilderness left to survey that I will have to backpack into, poor me!

We will also have visited the Burro Mountains near Silver City, New Mexico, on Memorial Day weekend for a roads survey in conjunction with the New Mexico Wilderness Alliance and the Upper Gila Watershed Alliance. The Burros are a small, forested Sky Island sitting between Silver City and Lordsburg. The Mangas Valley separates the Burros from the Gila Wilderness on the north, and the Lordsburg Playa separates the Burros from the Peloncillos to the west and the Animas Valley on the South.

In June we will visit the Campbell Blue/ Black River area to resurvey some of the first roads we ever walked. The area is absolutely gorgeous with ancient ponderosa forests, goshawks, aspen groves and free-flowing streams. We will camp at 9,200 feet and will stay five days, so plan on attending for at least a couple of days if not the whole time. We also hope to add another high-elevation field weekend in late July or early August to help you all alleviate those down and dirty summertime-in-the-desert blues!

Then in the fall we will have two BLM roads survey weekends: one in the Peloncillo Mountain Wilderness area and one on Turtle Mountain. We had some amazing trips to both areas in the past, and these trips will finish the surveys for the areas. We will also do some work in the Tumacacoris, Santa Ritas, southern Peloncillos, Chiricahuas, and the Dos Cabeza Mountains.

Fire and Exotic Grasses

by Trevor Hare

Fire, fire, fire! To me fire means warmth during those wild winters, and death and destruction for saguaros and desert tortoises during the summer. For those who work or play in montane or grassland settings, fire structures ecosystems; for us desert-rats, fire destroys ecosystems. While montane and grassland ecosystems evolved with frequent low-intensity fire, desert ecosystems have evolved largely in the absence of fire. It is only recently that fire has become an issue of concern for desert ecologists. The main culprit is non-native plant species that change the structure of the vegetation communities in desert ecosystems.

photo by T. Esque, USGS

Tortoise killed by fire, south side of Catalinas

Red brome (*Bromus madritensis*), buffel grass (*Pennisetum ciliare*), and Mediterranean grass (*Schismus* spp.) provide the fine fuels needed for desert wildfires to spread. Historically, fire was very infrequent because there was never a continuous carpet of fine fuels. Native grasses grew in patches distributed broadly across an area. The invasion of the non-natives has changed it all, with Buffel grass covering hundreds of thousands of acres in Sonora (and spreading into Arizona at an alarming rate) and red brome forming continuous carpets of fuel in areas such as Saguaro National Park and many areas surrounding Phoenix. Red brome grows in response to winter rains, and by the time the summer monsoons roll in it is dry as a bone and ready to ignite.

Because most desert ecosystems evolved in the absence of fire, the common plants, such as palo verde (*Cercidium* spp.), cholla and prickly pear cacti (*Opuntia* spp.), and saguaros (*Carnegia gigantea*), are easily killed causing lasting changes to desert communities. Small terrestrial animals are also killed in extraordinary numbers during fires. In the 1994 Mothers Day fire in Saguaro National Park, 11 percent of the tortoises sampled were killed and 20 percent of the saguaro cacti sampled died within five years. For such long-lived species, the loss of 11 or 20 percent of a population can have long-lasting detrimental effects.

We need fire in our forests and grasslands. We do not need fire in the desert-its hot enough! Be careful when you camp out there. Don't plant fountain grass in your yards. Tell people to get involved.

Rare Rattlers Future Uncertain

continued from previous page

nosed has been illegal since the snake was added to the Endangered Species list in 1978. But the isolation and small size of the populations still put them at risk of extinction through illegal collection and loss of habitat. At one locale, less than 30 snakes have been documented.

Cattle grazing, logging and mining can damage the snake's woodland home, but the gravest threat is catastrophic fire. After a century of fire suppression, forest fires can burn so hot they convert a pine-oak woodland to open grassland, a change that would forever expel this snake from its garden.

And, according to preeminent ridgenose researcher Dr. Andrew Holycross at Arizona State University, all three sky island habitats are now at risk for catastrophic fire. Prescribed fires are key to reducing fuel loads and preparing the landscape for a more natural fire regime. Unfortunately, fire is notoriously hard to control.

"Conflagrations are bad for the snake regardless of how they are lit. Careful fire planning and management can help federal land managers walk the fine line between restoring the snake's habitat and burning it to cinders," Holycross says.

photo by Andy Holycross

Snakebite First Aid

Rattlesnakes, native throughout the Americas, are responsible for about five deaths yearly in the United States. Considering that's out of an estimated 45,000 total snake bites, death by rattler is not as likely as one might think.

The best cure for snakebite is prevention. If you see or hear a rattlesnake, move away and leave it alone. Snakes will not chase you. Most strikes can be attributed to attempts to handle a snake. Embarrassingly often, these involve young men and/ or quantities of alcohol.

If the snake is in your back yard, it is either a transient that will soon be gone or it has moved in to hunt the rodents that live there. Keep your environs rodent-free and clear any rock, brush or debris piles that could provide shelter to hunter and prey. *[Removing rattlesnakes by calling your fire department or pest control service should be a last option (see Spring 2003 issue).]*

Look before putting your hands or feet into holes or crevices, under rocks or logs or into clumps of vegetation. Some rattlesnakes (newborns and the Mohave, typically) may not give the rattler's tail-shake warning before striking.

Baby snakes are just as dangerous as adults because their venom is more potent and they are less able to control the amount of venom injected.

Even dead snakes can be dangerous, as bites may occur as a reflex action several hours after death.

If you are bitten, do not panic. Do not use any item in your first-aid kit that claims to be useful for snakebite: no tourniquet, no knives, no ice. Do keep the affected limb below the heart if possible. Track the spread of any swelling or redness by marking it every 15 minutes—this will indicate the amount of venom involved. Do get medical attention immediately.

A new antivenin, on the market for about two years, is reported to be more reliable and less dangerous than the old horse-serum version. However it is very expensive and often not covered under medical insurance.

It is better to treat snakes—as all animals—with respect, and leave the snake-handling to religious cults and professional herpetologists.

A Big Sky Island Welcome to Our Summer 2003 Legal Interns!

by Rachel Kondor, SIA Ecosystem Defense and Policy Director

This summer will be a productive one for the legal department here at the Sky Island Alliance. I am anxiously awaiting four fantastic legal minds whom I will put to work the minute they step through the door at the end of May.

Aaron Hall has just finished his first year at the University of Arizona College of Law. Aaron grew up in Tucson and is a graduate of Salpointe High School. After graduating from the University of Oregon with a degree in Philosophy, and minors in both Spanish and Environmental Studies, he spent two years in the Peace Corps in Honduras. In Honduras, Aaron established water supply and health projects for communities, and facilitated the development of eco-tourism with an indigenous village. Aaron will spend the first part of the summer at a summer school program in Guanajuato, Mexico, studying the Mexican legal system. Upon his return to Tucson at the end of June, Aaron's knowledge of Mexican law, and Spanish-speaking ability will help us to begin some much-needed research on national Mexican law, and the state laws of Sonora and Chihuahua.

Leonardo (Lenny) Alvarado will be starting his last year at the UA Law School this fall. Lenny is a fluent Spanish speaker as well. He graduated from Fort Lewis College in Durango with a degree in International Relations, and from the University of Arizona with a Master's in American Indian Studies. In law school, Lenny is active in the Native American Law Students Association, where he acts as co-chair, and has also worked in the Tribal Law Clinic. One of his projects there included doing research on the ruling by the Inter-American Court of Human Rights against the Nicaraguan government for illegal logging concessions on indigenous territory. Lenny's Spanish-speaking ability and background in Native American issues will assist us in research related to tribal issues, as well as Mexican legal systems.

Jennifer Wolfsong will be joining us again this summer. She has been with us since last summer when she worked full-time, and she stayed on part-time throughout the school year. She has been a great addition to our staff here at SIA because she is a diligent researcher, excellent writer, and all around fun person to work with. She has worked on a variety of issues while at SIA and recently she played a key role in responding to a Bush Administration proposal to change the regulations under the National Forest Management Act. Jennifer's comments pointed out in no uncertain terms how the proposals did not comport with the letter of the law or the intent of the National Forest Management Act. In addition to her duties in the legal department, Jennifer is also training to be a wildlife tracking volunteer; she's taken a "multiple-use" approach while working at SIA!

Vanessa Gross is just finishing her first year at the College of Law. She graduated from Kenyon College in Ohio with a degree in Anthropology and Spanish literature, and also received a Master's in Social Work from Arizona State. Before beginning law school, she worked for the Nature Conservancy for several years as their membership coordinator. Vanessa has a deep commitment to community service and volunteerism. She continued to volunteer for the Conservancy for several years after leaving her official position there, has volunteered for Big Brothers Big Sisters, and was a board member and volunteer for the St. Patrick's Educational Society. Vanessa will be volunteering for us half time this summer and we are really looking forward to her help!

Our interns always bring a huge amount of energy and enthusiasm to the office during the summer months. Please welcome them to the Sky Island family!

On the Trail-Food from the Field

by Tomas and Tom Taylor-Mesa, AZ

When out in the field, it's likely you'll be surrounded by a cafeteria of culinary delights! One group of field flora we welcome each spring is the prickly pear. The most common species found in the *bajadas* surrounding your favorite Sky Islands will likely be *Opuntia engelmannii*-Engelman's prickly pear. All species of prickly pear are edible, and the young tender pads (*nopales*) found in the spring to early summer are the best choice.

To harvest young pads, you'll need a pair of tongs and your pocketknife. Pliers will work, if used with a light touch, for the tongs. Or you can fashion tongs out of mesquite twigs and use them like chopsticks.

Once you have a dozen or so tender pads, you will need to remove the spines. Hold down the edge where the pad was removed from the mother plant with your tongs and scrape off the spines with your knife. Flip the pad over and repeat. Then trim about a quarter inch off the edge of the pad circumference. Next, wash the pads in cool water, and then cut into bite-sized chunks. Place the cut *nopalitos* in a pot of water and steam for five to 10 minutes or until tender. During the steaming process, a gooey liquid byproduct will form, similar to okra. Remove the pads and wash in cool to cold water. (Note: The goo can be saved to apply topically to minor abrasions or to soothe sunburn, or you can save it to thicken chile powder into a gravy.)

You can then sauté the *nopalitos* with onion, garlic, oregano and bacon bits, or add to scrambled eggs!

Nopalitos have a distinct vegetable taste (like okra or green beans) and are nutritious, with vitamins A and C, dietary fiber, protein, calcium, iron, ash, potassium, and are fat free. They are especially good for diabetics. The liquid was also utilized in the renovation of the Mission San Javier del Bac. Added to mortar, it lets moisture evaporate out of the walls, unlike modern petroleum products that trap moisture. Let's hear it for "old school!"

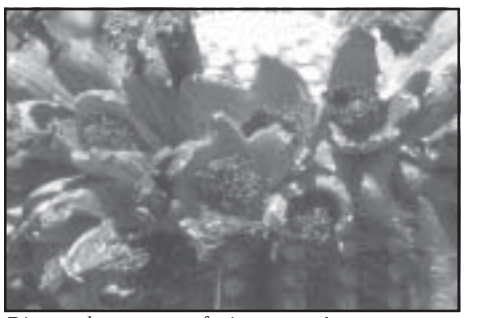
Summer Wine and the Livin' is Easy! Native Fish are Jumpin' and the Saguaro Fruit is High!

In the heat of summer, while in the vicinity of Martinez Canyon monitoring translocated native fish, we often harvest saguaro fruit. One of the products of the fruit harvest is a delicious, sweet desert wine. (Note: We are on BLM land and per BLM state office, the harvesting of saguaro fruit for personal use is allowed without a permit.)

In May the saguaro cactus are in bloom, and in late June through July you can harvest the red plum-shaped fruits. You will be in for some competition with white-winged doves for this sweet, delectable fruit!

To harvest saguaro fruit you will need two dry saguaro ribs that will extend to 15 to 20 feet bound together with baling wire. A few inches from the tip of this pole, wire a cross-member rib a few inches long. You can use an upward or downward stroke on the fruit. Try to catch the fruit as it falls in a five-gallon bucket (it's best to work in a team of two). Any fruit with a pinkish blush is ripe for use.

Once you fill your bucket, return to camp and split open the "pears" and remove the fruit, seeds and all. Place all this in a pot of cool water and cook to a bright juice consistency. After an hour or so of cooking, pour the entire contents through a strainer into a bucket. Pour this liquid into a glass or clay container and cover. Make sure cover is not airtight. Place in a shaded, room-temperature area. Taste daily. Figure on two to four days for fermentation. Be careful, there's a fine line of time between wine and vinegar.



Ripe, pulpy saguaro fruits, yumm!

Note: Save the strained fruit pulp. It can be air dried into cakes for consumption.

Salsa Recipes

by Tomas and Tom Taylor

La Dinamita

My father-in-law and Tomas' grandfather was born in Clifton, AZ. Among his occupations was herding sheep in southeastern Arizona and southwestern New Mexico. Food in the backcountry was enlivened with his "dry" salsa, which due to the chiltepin content was aptly named *La Dinamita*! This dry and light salsa can be carried all over Sky Island trails. Shelf life is not likely to be an issue as it's doubtful that any pathogen would mess with chiltepin! And you may find it so flavorful anyway that you'll have it consumed in a very short time.

60-chiltepin
2-tablespoons garlic powder
2-teaspoons salt
20-dried leaves of epazote

Place all ingredients in an old coffee grinder or *molcajete* (stone grinder) and grind to a superfine powder to pour from a salt shaker. Note: All measurements are inexact. Adjust to your own tolerance!

Salsa de Chile Chipotle

1-16 oz can tomato Sauce
6-sprigs cilantro, stalks and leaves
1-tablespoon Mexican oregano
½-tablespoon salt
5-smoked, dried jalapenos
4-garlic cloves

Toss all ingredients in a blender, and blend to a smooth liquid consistency. Add or subtract from indicated amounts to adjust flavor and heat according to your needs and tolerances! Shelf life of this salsa on the trail is two days or so if stuffed down in the cool innards of your backpack, or five to six days if refrigerated.

We live
in a world of Power

the sky hurls ice and
fire, cracks its own
shell
strikes! straight
to the heart

sparked by lightning [deep
in the forest—did anyone see?]
this fire, "our" fire,
has lost all sense
of proportion we say
and call it WILD
as it heads for ranches
at the top of our valley
now marked for evacuation

the school cafeteria crowded
anxious, weathered faces
"are the cattle all out?"
"are you sure everyone knows?"
"what if someone won't leave?"
"what about my chickens?"
"we'll do all we can" "find each other...help each other"
"that's the way it works" Dolores adds
—sun and soot, sweat
the hot, hot wind

past the roadblock sharp smell of smoke sudden chill
for the forest and all its life

we stop at our neighbor's
"no relief in sight—the forecast says
more wind this way—"

by the dry-mud streambed our cabin
a twisted old pine by the door
we rake pine needles and sit down to wait

no sweeter sound
rain on the metal roof...

lightning and thunder hail
and drenching rain

pools form tracks of small animals
layer by layer dissolve and float
downstream

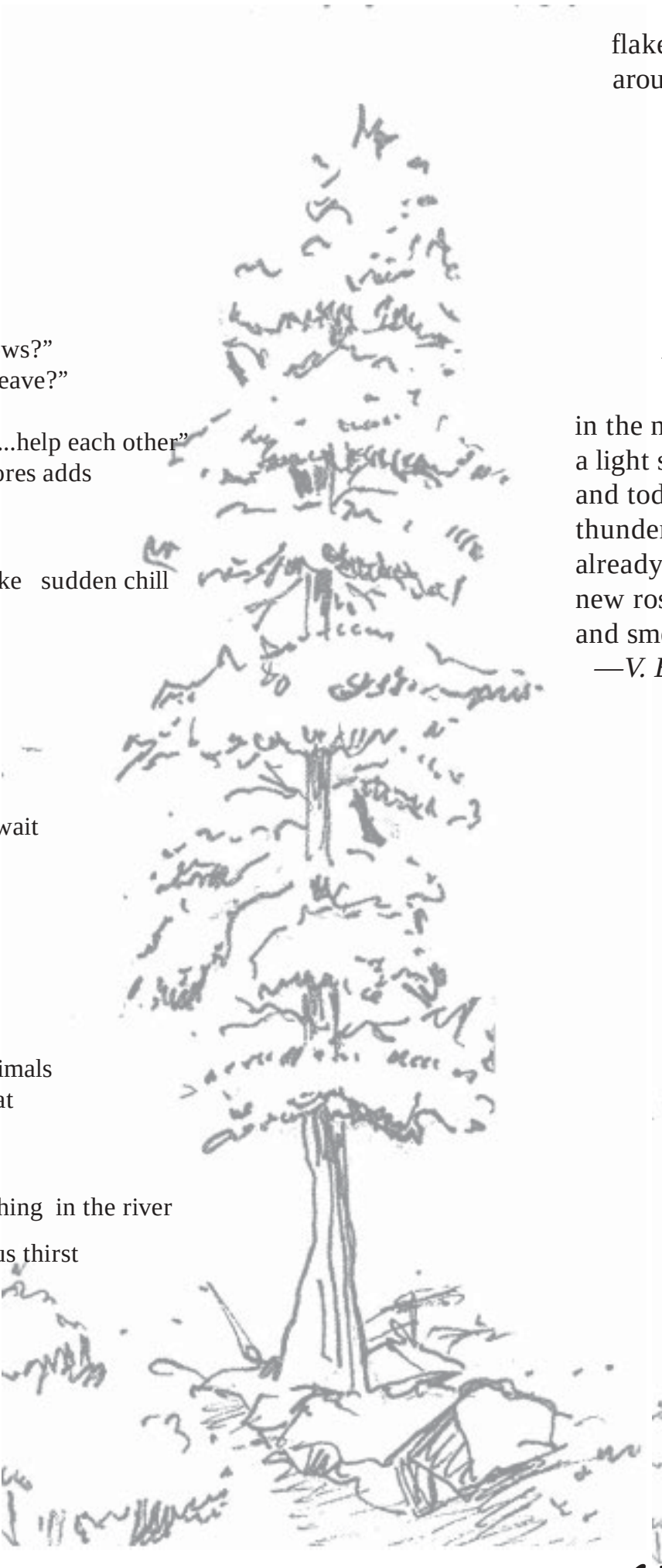
in pouring rain
a blackbird splashing and splashing in the river

Storm swallows Fire—monstrous thirst
finally quenched

...for now at least
simmering sleep
in the soft ash

we live in a world of power

—*V. Bodner*



the wild roses were early
this year—a few pale blooms
faint-scented
in the hot air, flecked
with black
from fires upwind, driven
closer ridge by ridge—forest
grass and thorn flamed down
to the bone

flakes of white, papery ash fall
around us—blackened pine needles
puzzle-bits of charred bark

ashen supper
for spiders tonight

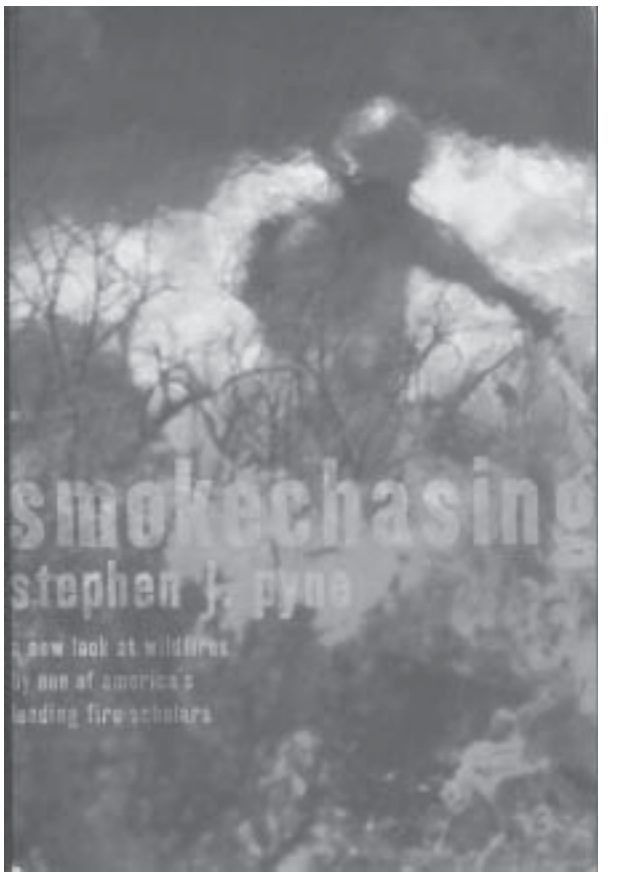
one sweep of cool wind
then, again
—the oven's open door

in the night
a light spatter on the roof...
and today, my son's birthday, a deluge!
thunder and hail and the river
already rising—today
new roses open deep pink
and smelling like rain

—*V. Bodner*

Smokechasing Smolders with Wisdom

by Bob VanDeven



"Prescribed fire does not need more policy. It needs a poet."
—Stephen J. Pyne

The spring grasses have withered and the dry winds of summer carry whiffs of smoke and Phos-Chek—memories of last year's fire season. If the Bullock Fire of 2002 seems far removed, or if you're new to Tucson, then drive up the Catalina Highway, park at the Aspen vista point and survey nearly 35,000 acres of matchstick trees and cauterized slopes, aprons of ash reaching almost to the San Pedro River. Now think about the Rodeo-Chedeski fire that took out nearly half a million acres and God knows how many homes and you begin to feel an ancient and pragmatic fear of this potent force. Yet fire is also useful, natural, and often necessary—in a word, complex. Author Stephen Pyne has been immersed in this complexity, both literally and figuratively, for most of his adult life. A veteran of 15 fire seasons on the North Rim of the Grand Canyon and author of 15 books (at least nine of them on fire), he has perhaps a broader platform than anyone from which to speak. In his latest, *Smokechasing*, he heaps together a collection of essays nearly as combustible as his namesake.

About half the essays in the book are new, many have been substantially reworked, and nearly all of them strive to reconfigure the way we relate to fire. It's no easy task because fire is inextricably linked to who we are as a culture and, as Pyne makes clear, "fire regimes express the values, institutions, and beliefs of their sustaining societies." To flesh out this point Pyne takes us on a tour of various countries and continents. In Africa, Australia, New Zealand, and other places we see how fire has interacted with climate, geography, wildlife and, most importantly, humans, taking on a unique character in each instance. We are also introduced to what Pyne refers to as the two great combustion realms: those of industrial fire and open fire. Industrial fire involves the burning of fossil fuels, whether in diesel engines or steel mills, aircraft or tractors. It usually follows and displaces the more primitive fires of agricultural societies, altering and often extinguishing what were once traditional uses for flame. The influences of industrial fire, Pyne claims, are scarcely understood but one thing is certain, industrial fire has changed the way we apply or control open fire.

Pyne continues with an examination of how modern Americans confront fire. His essay *The Source* illustrates perhaps better than any single piece how history and culture intersect to generate policy. In the 19th century many rural Americans practiced "light burning" in which duff and underbrush were ignited to prevent true conflagrations and/or to open the under story for grazing, but in 1910 the "Big Blowup" ripped through half a dozen states and on into Canada, killing at least 78 firefighters and costing the fledgling Forest Service a million dollars. Suddenly the debate over fire policy contracted to just two alternatives: light burning or total fire control. But Pyne correctly asks why only two choices should have been considered and in exposing the false frontiers of the debate he makes his best case for what he calls fire-as-biology. This new way of looking at fire eschews both fire-as-tool and fire-as-natural, both mere slogans in Pyne's eyes and both equally inadequate as prescriptions for fire policy. Fire is more than a tool, it's a necessary component of most ecosystems and a desirable component of pastoral life. Likewise fire, though a natural phenomenon, can and does burn in unnatural and unhealthy ways; the Bullock Fire, a destructive crown fire uncommon in pre-settlement ponderosa forests, stands as a good example of this. Instead, Pyne argues, fire needs to be considered in the context of what the land needs and what it has to give. It's a point that surfaces repeatedly in his writing.

Pyne has a voice unique among fire chroniclers or even nature writers in general—tinged with humor, erudite, and passionate. Yet his style can at times seem inaccessible, especially when the reader stumbles over words like swiddener, impauperate, or revanchist. One can't help wondering if nine books and numerous articles have said all there is to say, turning Pyne to the task of finding new ways to say it. Still, it's hard to imagine a more thorough or intelligent treatment of the subject and as we journey from Paleolithic Europe to Ghana to the forests of the San Francisco Peaks we witness new pieces of the fire mosaic skillfully tapped into place. *Doc Smith's History Lesson* is a wonderful, evenly paced essay in which we watch Doc educate a group of schoolchildren about fire and southwestern forests. It's a clever device because it naturally extends the lesson to the reader. One senses Doc's patience and the understated value of the fenced experimental plot outside Flagstaff where the forest of long ago has been resurrected. Pyne seems at his best in the first person and like kindling many of his smallest pieces burn brightest, among them *Firebug* and *Almost Lost*. The latter, probably my favorite, catches the author at his most reflective on a night when he is accidentally locked in a bathroom. Like a true firefighter Pyne jury rigs a way out (I won't spoil it) while at the same time making subtle commentary about those who pursue graduate degrees and those who work in the woods. It's only two pages but the humor glitters like broken glass in a firepit and provides us an endearing glimpse of the man behind the pen.

I'll admit to being surprised by portions of *Smokechasing*. Pyne neither panders to the greens by proclaiming fire itself a cure for sick forests, nor does he reduce fire to a blunt instrument. He writes no sweeping policy and offers no panacea. But he does treat fire with the respect your parents always told you it deserved. No matter what aspect of fire you are most interested in, *Smokechasing* will probably satisfy. It's not slash and burn writing, but it does smolder with accumulated wisdom, and in its own way raises an alarm or two.

photo by Bob VanDeven

Little Rincons, continued from back cover

The Little Rincons see moderate hunting in the deer season. Hikers and campers occasionally take advantage of the range, the latter utilizing a number of undeveloped sites along Paige Creek and Ash Creek. The lush cottonwoods and sycamores are particularly attractive to birdwatchers and even though the high granite faces have lured a few rock climbers, most prefer more accessible routes in other ranges. ATV use is common along Forest Road 35, which is the primary access to the area, as well as on various spurs and wildcat roads.

ATV use has increased greatly in the Little Rincons, due in part to easy access along Forest Road 35. Riders have pushed deeper into unprotected wilderness areas, in particular ignoring signs and barriers in the bed of Paige Creek at the north end of the range. Overgrazing is also evident in much of the Little Rincons and the fragile, xeric soils rebound slowly if at all from such impacts. Wilderness designation would protect these fragile soils from the ravages of motorized abuse. Overgrazing is being adressed through the allotment review process.

Thanks, folks!

Sky Island Alliance would like to thank the following individuals. Each of these 214 volunteers donated time in the field or office. Without these folks, Sky Island Alliance could not do the good work. Joe Cicero, entomologist extraordinaire, was the Volunteer of the Year, donating more than 240 hours! Thanks Joe! And thank you again to all our great volunteers!

Brandy Acuna, Adam Adorisio, Lori Andersen, Barry Anderson, Paul Bagley, Greta Balderrama, Acasia Berry, Rob Betasso, Nick Bleser, Steve Bless, Gita Bodner, John Boone, Curt Bradley, Dorita Brady, Debbie Brewer, George Bromley, Dan Brudno, Janay Brun, Cyndi Bush, James Byers, Joan Calcagno, Josh Campbell, Clinton Cates, Michael Chamberland, Anna Mary Childs, Jack Childs, Dyna Chin, Joe Cicero, Matt Clark, Laurel Clarke, Sid Clarke, Marie Claude Perigon, Matt Colvin, Paul Condon, Steve Condon, Neva Connolly, Cullen Cramer, Sky Crosby, Sarah Curtiss, Jack Davis, Marybeth Dawson, Roy Dawson, Dana DeBalko, David Dewenter, Sonya Diehn, Darry Dolan, Fran Dostillo, Russell Duncan, Dave Eerkes, Joan Eerkes, Gerry Engel, Jessica Faustini, Deena Fishbein, Julia Fonseca, Frog, Mike Fugali, Chris Fuhrman, Ron Furhman, Samm Fuller, Joe Gendron, Rochell Gerret, Lyssa Goins, Grant Gourley, Wade Goyetche, Robert Grant, Randy Gray, Larry Green, Jeanmarie Haney, Robbie Hannawacker, Kevin Hansen, Britt Hanson, Jonathon Hanson, Roseann Hanson, Cassidy Hare, Delaney Hare, Janet Hare, Mark Harris, Chris Hass, Lisa Haynes, Mike Headrick, Katy Heck, Susan Hess, Amber Hodges, David Hof, Jeff Hoff, Kelly Huber, Mike Huckaby, Ron Hummel, Mike Iorio, Sky Jacobs, Renee Janaway, Frank Jents, Chris Johnson, Greg Johnson, Cory Lee Jones, Linda Jones, Jen Katcher, Frank Kirshner, Rob Klotz, Sam Knowlden, Rachel Kondor, Jane Kroesen, Bill Kurtz, Ellie Kurtz, Lisa Labita, Kenneth Langton, Mike LeBlanc, Lainie Levick, Brie Love, Gregg Magee, Kelsey Mahoney, Robert Mann, Steve Marlett, Carolyn McCallister, Nell McCallum, Sharon McDonough-Means, Brad McRae, Rinda Metz, Alyssa Miller, Amanda Moors, Sue Morse, Ken Mroczek, Sheri Murphy, Judith Musick, Aletris Neils, Will Nelson, Amy Newhall, Doug Newton, Stepahanie Nichols-Young, Jim Notestine, Anne O'Brien, Daniel Patterson, Steve Pavlik, Penny Pederson, Carol Powell, Erin Pruett, Janice Pryzbyl, Anna Ranek, Paulo Ranek, Michele Redmond, Sean Michael Reed, Judy Reed, Kurt Rinehart, Susie Rinehart, Ted Reynolds, Jenny Roberts, Joanne Roberts, Iris Rodden, James Roemer, Phil Rosen, Barbara Rosensimon, Julie Ross, Michelle Rudy, Cheryl Ryan, Aleka Sage, Dug Schoellkopf, AJ Schneller, Todd Schram, Michael Scialadone, Nancy Seever, Brian Segee, Mike Seidman, Randy Serraglio, Jeniene Shaffer, Misty Shafiqullah, Salek Shafiqullah, Harley Shaw, Alyssa Shiel, Jon Shumaker, Oscar Simpson, Rhiwena Slack, Tom Slawson, April Smith, Randy Smith, Greg Sower, Birdie Stabel, Eric Stanford, Patty Stern, Donna Stevens, Van Stevens, Joe Stevens, Renell Stewart, Ron Stewart, Kelly Stoos, Don Swann, Sara Thibault, Miranda Thornton, William Thornton, Priscilla Titus, Jonathon Titus, Nick Toberg, Christina Tonelli, Jean Tsai, Dale Turner, Elizabeth Venable, Cora Veras, Robert Villa, Peggy Vincent, Mary Vint-Moore, Terri Volk, Dale Volz, Tiffany Volz, David Warnack, Vickie Warner, Cathy Waterman, Stephanie Weinstein, Barbara Wellman, Bill Wellman, Ann Wendland, Merlin Wheeler, Kenny Wilcoxon, Natasha Winnik, Marilyn Wright-Germain, Nancy Zierenberg.

Wish List

- Comfy couch or recliner for office
- Comfy office chairs in good condition
- Office supplies: copier paper, postage stamps, *etc.*
- Mac-compatible, large-screen monitor for layout
- barstools for our map table

Become a SIA Program Fund Donor

Stories in this issue and the Spring issue have been featuring projects in our Rewilding Program: road inventory and restoration, wilderness work, wildlife monitoring and the Missing Link, our Dragoons Restoration Demonstration Area.

All the necessary road closures, tracking workshops, and wilderness advocacy gets done only with extra funding, so please consider a special donation to one of the following funds:

- Roads & Restoration,
- Wildlife Monitoring (Tracking),
- Missing Link,
- Wilderness, and
- Mexico—the Chihuahua Research Station in Janos, and the Jaguar Program in Sonora.

Please make your check out to Sky Island Alliance, with a note in the Memo line about which fund you'd like to support. We'll make sure your money goes to the programs that mean the most to you, and we'll send you reports!

Sky Island Alliance Summer–Fall 2003 Field Schedule

Please contact the Sky Island Alliance office at 520.624.7080 or trevor@skyislandalliance.org if you are interested in attending any of the following events.

June 20-23. Riparian Inventory and Monitoring Weekend. San Rafael Valley. Join the Sky Island Alliance's Riparian Inventory/Monitoring Program in a project to assess the San Rafael Valley as a site for the conservation and management of our sensitive riparian fauna. 2.0 hours from Tucson.

June 27-July 2. Blue Range-Black River Inventory. Beat the heat and head north into cool conifer forests with us to monitor and inventory areas that had a high proliferation of roads when inventoried in years past. If you can't make the whole trip, come when you can. 4.0 hours from Tucson.

July 11-13. Riparian Inventory and Monitoring Weekend. San Rafael Valley. Join the Sky Island Alliance's Riparian Inventory/Monitoring Program in a project to assess the San Rafael Valley as a site for the conservation and management of our sensitive riparian fauna. 2.0 hours from Tucson.

August 29-September 1. Wilderness Boundary Survey. Chiricahua Mountains. Join the Sky Island Alliance as we revisit a favorite haunt! We will camp in Pinery Canyon and looking at the northern boundary of the existing Chiricahua Wilderness. Trogons! Ridge-nose rattlers! Coatis! 2.5 hours from Tucson.

September 12-14. Riparian Inventory and Monitoring Weekend. San Rafael Valley. Join the Sky Island Alliance's Riparian Inventory/Monitoring Program in a project to assess the San Rafael Valley as a site for the conservation and management of our sensitive riparian fauna. 2.0 hours from Tucson.

September 19-21. Tumacacori Mountains Roads Inventory and Advocacy Trip. Threatened Landscape! Join us as we inventory the roads on the south and west side of the Tumacacori Mountains. On Sunday we will have a presentation on the area and natural history hikes. The Tumacacori Mountains have some of the largest diversity of sub-tropical species in the US. 2.0 hours from Tucson.

October 3-5. Roads, Riparian Areas, and Biological Surveys. Peloncillo Mountains and San Bernardino Valley. The Peloncillos are the only Sky Island mountain range that stretches from Mexico to the Gila River! We will be doing a variety of work both in the mountains and down in the valley. 4.0 hours from Tucson.

October 10-12. Sky Island Festival. Stay tuned for lots of big adventures! Parties! Lectures! Hikes!

Join Us

Sky Island Alliance

If you received this newsletter and it's time to renew your membership, please send in your check! If you are reading a friend's newsletter, consider joining us! We rely on members for our basic operations. Contributions are tax-deductible; we are a 501(c)3 organization.

Basic membership is only $25, but if you add a little to that, here's a sampling of what your dollars can do:

- $50 will help us survey 30 miles of roads.
- $75 will sponsor volunteer training workshops.
- $100 will close one mile of road.

Your Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ E-Mail _____

Sky Island Alliance

P.O. 41165
Tucson, AZ 85717
or join online at www.skyislandalliance.org

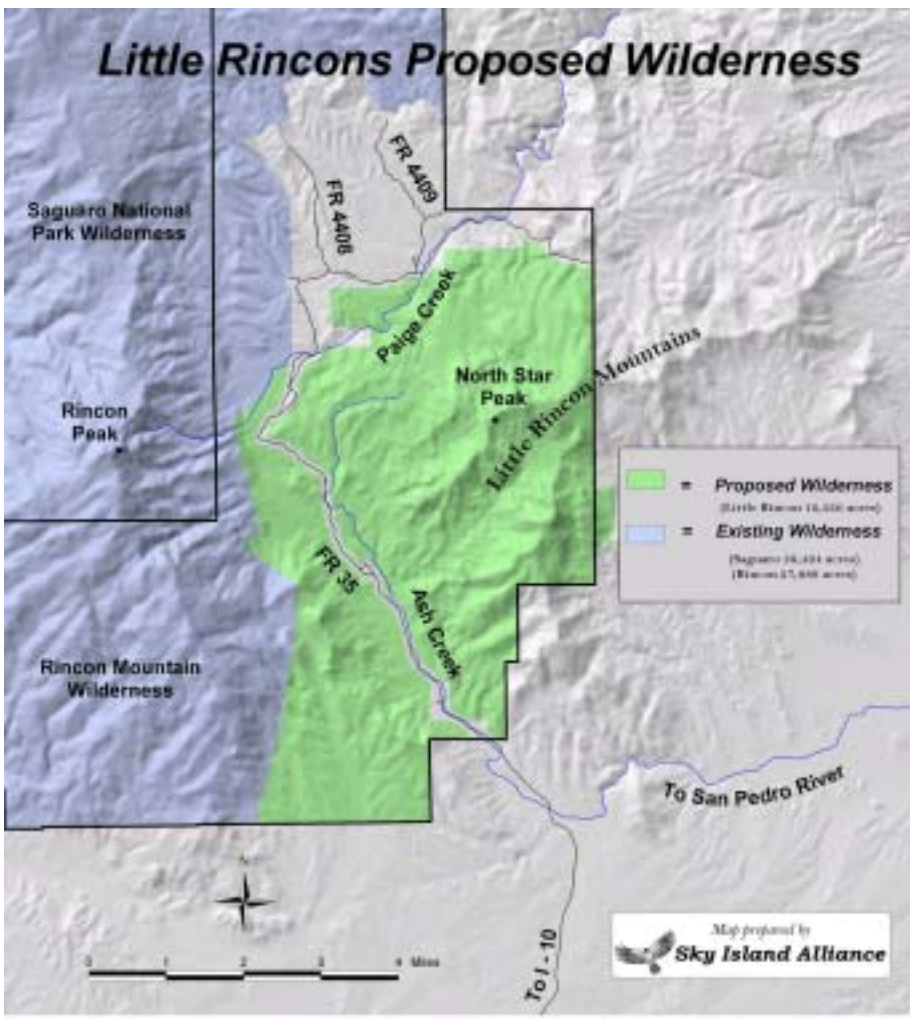
Thank you!

Sky Island Alliance
P.O. Box 41165
Tucson, AZ 85717

Sky Islands Wilderness

The Little Rincon Mountains—No Small Glory

The Little Rincons cling like parentheses to the eastern flank of their sister range, embracing two major drainages and some of the most rugged country in southeastern Arizona. The main body of the range is a jumbled wilderness of granite slabs and boulders, concealing secret waterholes and narrow canyons. Less foreboding are the lower elevations where streamside galleries of cottonwood, willow, and sycamore meander through grassy hills and the aptly named Happy Valley. Providing both a peaceful escape from the modern hustle and bustle and a challenge to the adventurous, the Little Rincons are emblematic of Sky Island diversity.



North Star Peak stands at 6,041 feet above sea level, the highest point in the range and a rocky vantage point from which to survey the lower slopes and drainages. All precipitation falling in the Little Rincons will eventually reach the San Pedro River, some coursing down the eastern slopes on a short journey and some flowing west into either Paige Creek or Ash Creek which arc around the north and south ends of the range, respectively. These two drainages support long groves of cottonwood, ash, willow, and sycamore and provide habitat for javelina, Sonoran chub, leopard frogs, and countless migratory songbirds.

Most of the lower portions of the range, including Happy Valley, are semidesert grassland while higher slopes support Madrean evergreen woodland. Saguaros and associated Sonoran Desert species also occur at certain low-elevation sites and south-facing slopes. The Little Rincons contain a surprising degree of geological diversity as well, from the granite towers of the high country to limestone and Dripping Springs quartzite at the northern end of the range. Long ago contact metamorphism—brought about by the intrusion of Catalina Gneiss—changed some of the limestone to marble and today one can find large, polished blocks lodged between walls of black basalt in certain canyons.

Both whitetail and mule deer populate the Little Rincons, along with black bears, mountain lions, and coatimundis, which take advantage of the solitude and biological productivity of this isolated range. The US Forest Service manages most of the Little Rincons as part of the Catalina Ranger District.

There are no developed trails within this rugged range although two that climb into the larger Rincon Range, the Miller Creek and Turkey Creek trails, begin on the edge of the proposed wilderness. One unmaintained route leads to Hidden Pasture; although it appears as a trail on some maps it is difficult for even the most seasoned hiker to find. The Little Rincons offer adventurous souls the opportunity to truly leave civilization behind and enter a maze of boulder-choked canyons, soaring monoliths, and silent amphitheaters.

The Little Rincons link the larger Rincon Mountains with the San Pedro River. They are a small but valuable stepping stone in the Sky Island chain, especially in light of the lush and productive drainages that line their western flanks. Both zone-tailed hawks and black hawks nest along Paige Creek, and several species of bat roost in the abundant crevasses and shallow caves that pockmark the range. Paige Creek also hosts at least two species of native fish and has been targeted by the Forest Service for removal of non-natives .

The Little Rincons are an important component of the San Pedro watershed, channeling and mitigating the movement of water into Paige and Ash Creeks.

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