



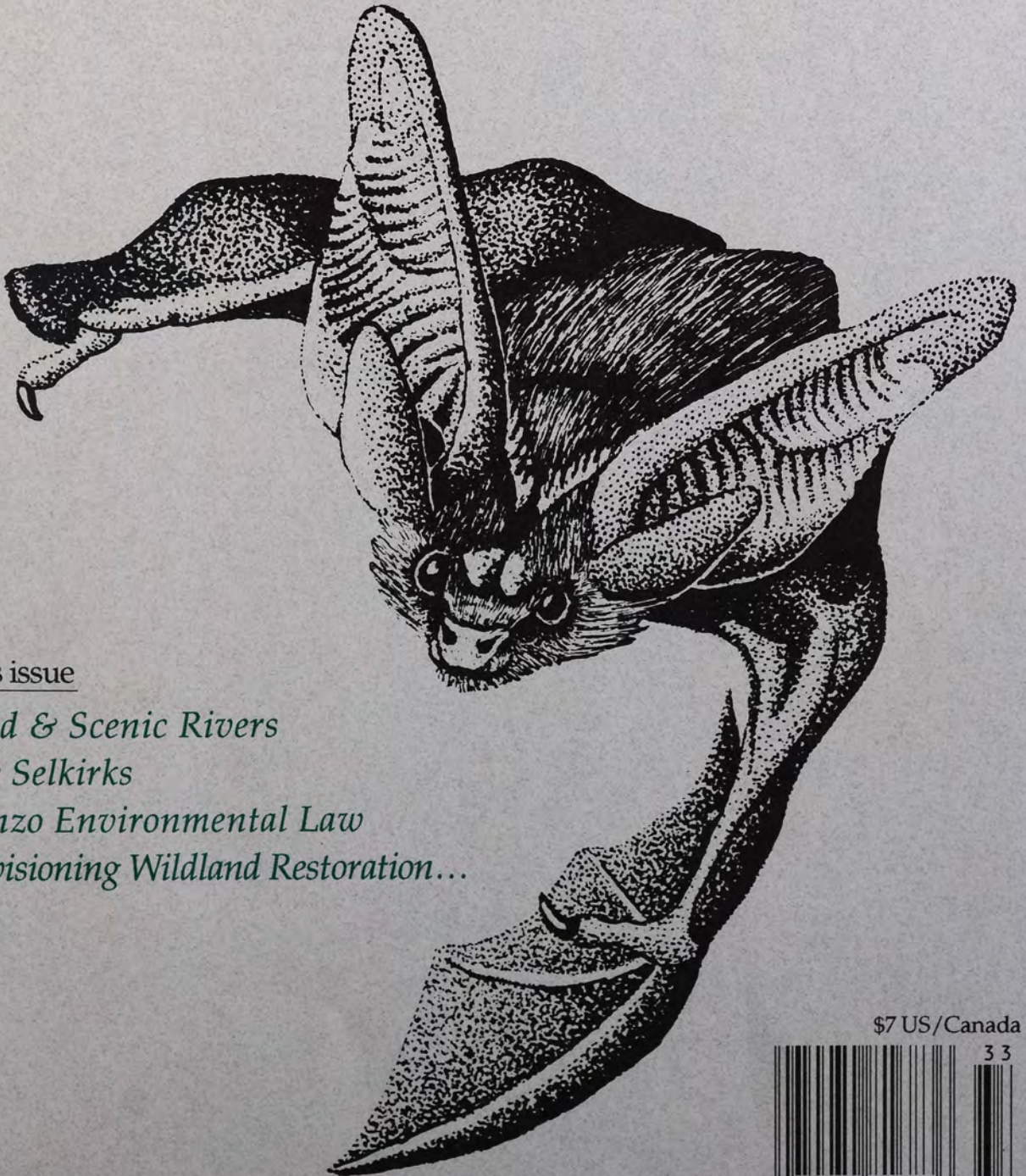
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Fall 1993



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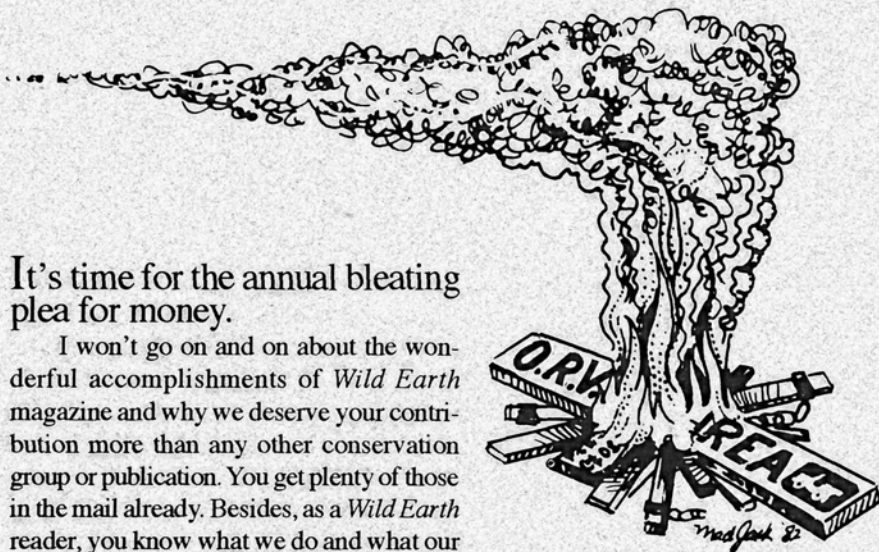
Gonzo Environmental Law

Envisioning Wildland Restoration...

\$7 US/Canada



Around The Campfire



It's time for the annual bleating plea for money.

I won't go on and on about the wonderful accomplishments of *Wild Earth* magazine and why we deserve your contribution more than any other conservation group or publication. You get plenty of those in the mail already. Besides, as a *Wild Earth* reader, you know what we do and what our value is.

The only reason I'm doing this at all is because when I saw Marcia at the Eastern Old-growth Conference last month, the view she gave me of our finances made me think of walking across Mexico's Gran Desierto in June with a one-quart canteen.

Wild Earth is at a disadvantage when it comes to raising money or gaining new subscribers.

First, most of you readers are active in struggling regional conservation groups or Sierra Club and Audubon chapters. You are putting your money into your personal conservation efforts and are broke because of it.

Second, *Wild Earth* doesn't want to compete for dollars with Greater Ecosystem Alliance, Preserve Appalachian Wilderness, and all of the other groups in the New Conservation Movement. Their canteens are just as empty as ours, and their desert is just as long and hot and dry. Moreover, they are the activists on the front lines making sure some biodiversity survives so we can begin to connect it into the North American Wilderness Recovery Plan.

Third, *Wild Earth*, like The Wildlands Project, is not attractive to mainstream conservation grant-makers. Foundations these days like to set the agenda and then watch conservation groups rearrange themselves to fit into the funders' new cubbyholes. *Wild Earth* doesn't play those games; we set our own agenda.

Fourth, *Wild Earth* doesn't do massive direct mail like other conservation and outdoor publications, nor do we fluff up our magazine so it can be skimmed in fifteen minutes. We're the thinking conservationist's magazine.

Hmm. The longer I sit here, the more points I think of. And if I lubricate my creativity with a gin and tonic as I'm about to do, I'll never stop. So, enough.

Straight from the shoulder: *Wild Earth* is in financial trouble. New subscriptions are few. Contributions to the Research Fund are far apart. And resubscriptions are slow. If it weren't for the support of Doug Tompkins and the Foundation for Deep Ecology, you wouldn't have had *Wild Earth* to read this year. John, Marcia, Kathleen, and Tom can make it on their lean salaries only because they're young and idealistic.

Now, if *Wild Earth* weren't filling a vital role in the conservation movement, we'd just fold up shop. Most magazines fail. But enough of you tell us that *Wild Earth* is important, is crucial, is making a difference. We want to keep going.

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So, what can you do to help *Wild Earth* keep appearing in your mail box? (Ready? Here's the pitch.)

1. **RESUBSCRIBE.** Many magazines to which I subscribe and the national conservation groups to which I belong hit me with renewal letters months before my time is up. They continue to devil me about twice a month until I send a check. I suspect most of us have gotten used to this constant "gimmee, gimmee, gimmee," and expect it for all of our memberships and subscriptions. *Wild Earth* does not send you a renewal notice until soon before your subscription is up, and we send only a total of two. We don't want to pester you, we don't want to waste paper. So, you will help us if you renew promptly upon first receiving a resubscription notice. And you will insure that you don't miss an issue!

2. **GET NEW SUBSCRIPTIONS.** We have only 2500 subscribers. That is not enough to support the magazine and it isn't enough hearing our message. Encourage your conservationist friends to subscribe. Wean them from filching your copy of *Wild Earth*. Make them subscribe on their own. Contact Marcia in the Vermont office for additional ways you can help us gain new subscribers.

3. **CONTRIBUTE TO THE RESEARCH FUND.** *Wild Earth* is a tax-deductible charity under the regulations of the IRS. Donations above your subscription fee are a write-off. They will give us the money to pay our writers and artists so we can continue to bring you their high-quality work. (Until more contributions come into the Research Fund, we can't ordinarily pay writers and artists.) We cannot expect *Wild Earth's* good writers and artists to continue to work for us for free.

4. **CONTRIBUTE TO OTHER GROUPS IN THE NEW CONSERVATION MOVEMENT.** We're all in this together. When you read about a group in *Wild Earth* that impresses you, send them a contribution. We reserve our back cover each issue for a funding and promotion appeal for a New Conservation Movement group. How many other magazines do that? We do it because the purpose of *Wild Earth* is to serve the New Conservation Movement and all of the groups and individuals who make it up.

Thanks for reading. I'll try not to count beans in the next issue. Happy Trails.

—Dave Foreman
Blue River, Arizona

It's What We Do...

Next to the pain of being constantly immersed in news about destruction of the natural world, the most painful part of being *Wild Earth* editor is hearing repeatedly about the personal and financial hardships of the grassroots activists trying to stop this destruction. Good people are working tirelessly to stop the war on wildlife, and getting little or nothing for it. Dave has just given you an idea of the tenuous financial condition of *Wild Earth*. I want to briefly extend this hard-times talk to the broader New Conservation Movement, and underscore the need for wildland proponents to be creative, reach the masses and, incidentally, gain their financial support.

We in The Wildlands Project and other New Conservation Movement (NCM) entities are scarcely more secure than the species and ecosystems we're trying to save. Many wildland groups depend for survival on one noble and generous but small source of funds: the Foundation for Deep Ecology. This must change if the New Conservation Movement is to effect change. We cannot expect the Foundation for Deep Ecology, Patagonia, and a couple other benevolent institutions to fund the whole wilderness recovery movement. We must begin attracting more supporters and donors.

To this end (and with the caveat that I know nothing about fund-raising—couldn't even convince my folks to raise my allowance when I was 8 and decidedly less flush than my peers) I'll suggest here some ideas that might help forestall the demise of the many small biodiversity groups on the verge of insolvency. If these grassroots groups do not manage to convince environmental donors (foundations and individuals) to give more or (failing this) to shift their spending priorities from mainstream environmental groups to visionary biocentric wildland advocacy groups, the latter will founder—and wildlife will be left with only the overly-compromising big environmental groups speaking on its behalf.

Enlist the famous. We should invite luminaries of the literary and musical varieties to benefit events for grassroots wilderness advocates. If we can persuade famous authors, including the dignitaries listed below *Wild Earth's* masthead, to attend such galas, wildland advocates might recover solvency as well as wilderness. Similarly, if a few stars sing about or for North American Wilderness Recovery, it may begin to happen. Single big bashes, though, will not sustain many groups for long; the music needs to keep playing.

Convince the affluent. Wilderness benefactors should be sought in the business world, too. In decades past, the Rockefellers and other philanthropists saved vast tracts of land. Whither the philanthropists? Why has not a new generation of philecoists arisen?

Approach Uncle Sam. Another possible source of funds is the government. The EPA disburses monies to various institutions for environmental studies and monitoring. Bruce Babbitt has called for a National Biological Survey, which will likely have a budget of over \$150 million next year. The US Fish & Wildlife Service, Forest Service, Bureau of Land Management, National Park Service, and state agencies do ecological research. TWP and its participating groups will be doing much such research and ought to be recompensed accordingly. Wildlife advocates need to investigate how to tap these sources.

Motivate students. Though they usually profess poverty, college and graduate students represent a virtually untapped resource for wildland groups. Convince them to switch to cheaper drugs, simpler clothes, and non-motorized transport and they'll have wads of money to donate, and free time too. Further, convince them to aim their studies toward wildland recovery. For example, science students might study the habitat needs of imperiled species, while geography students map their ranges, and political science and economics students investigate the political and economic prerequisites of the species' recovery.

Appeal to the elders. The elderly, likewise, have much to contribute—temporally and financially—to wilderness recovery. Many seniors are well endowed with time, money, and wisdom. If conservationists could inspire retirement communities to initiate letter-writing campaigns, they might be able to restore some areas to the happier conditions of these old peoples' youth.

Many other ideas could be mentioned here but the main point is to get activists thinking more creatively and strategically. Grassroots groups need to better coordinate their efforts to raise money and to use the money to save as much wild life as possible.

There is, of course, a third alternative to fund-raising or death: poverty. However, we've been practising that in the New Conservation Movement for years and many activists are weary of it. Unpaid wildland proponents could formulate a good North American Wilderness Recovery Strategy, working in their spare time and without special resources (travel money, mylar, funds for conferences, etc.). If this proves necessary, though, we better realize that careers in the grassroots wilderness movement will tend to be short: people will burn out quickly and need to be replaced.

Let's not allow this. Let's take advantage of our position on the burning edge of a wildland recovery movement that should sweep the continent like wildfire.

—John Davis, 9-93

Old-growth forest enthusiasts take note! Mary Byrd Davis's survey *Old Growth In The East* is now available (see ad this issue). This survey is the first of its kind in the East and a solid beginning for the work needed to locate, document and protect remnant forest tracts that have sustained little or no human disturbance. The survey documents sites totaling approximately 1.5 million acres. Mary gives each tracts estimated size, dominant species, ownership and protection status. The inventory is a great place to begin to search for old growth in your own region.

Another great deal offered in this issue of *Wild Earth* is our **Holiday Subscription Special**. For a limited time readers can purchase one annual gift subscription for \$20 (\$5 off the regular price) and get a second gift subscription for only \$15. Just fill out the gift subscription form, make sure we receive it before December 15, and we will send a holiday card to notify the recipient of your gift. Offer expires December 31- so hurry.

Now that I have succeeded in sounding like a used car salesperson, let me try my luck at imitating a TV game show host by welcoming a new contestant to the *Wild Earth* work stage. Becca Cunningham, mother, artist, community volunteer and lacrosse player, comes to us from Hanksville, Vermont. She joins the staff as Administrative Assistant. Things are getting easier around here all the time. If you believe that, I happen to have a '72 Pinto...

—Marcia Cary

The *Wild Earth* staff celebrated the Autumn Equinox on the Bog River in the Adirondacks. On the final day of summer Marcia and I paddled out of the wilderness in thick fog. We could not see ten feet in front of us. The fog made everything around us seem like a dream, an illusion. The silence of the morning was occasionally broken by a flying merganser or a singing loon. We paddled to the southeast, straining our eyes, hugging the shore.

As we paddled, we discussed how one maintains the serenity of the wild within, while living in a crazed society. Just then we reached a dam, workmen, and loud noises. We portaged around the dam. The song of the loon and the sounds of the damn clashed in our heads. We silently reloaded our canoe. A Bald Eagle glided over our heads and landed in a Balsam Fir. We drifted on the water and watched her sit proudly in the tree. She radiated strength. As she flew off, we were awed by her wing span.

We continued among the Yellow Pond Lily Pads which decorated the water. After tentatively deciding to head northeast, the Bald Eagle reappeared and headed in that direction, showing us the way. Her strength and guidance brought us home safely and remain with me today. She answered our questions about maintaining serenity in modern day society.

The Adirondack Park is a mysterious and miraculous place. With the continued contributions of generous donors and energy of individual organizers the Dacks can remain Forever Wild.

On September 16 we turned over \$6000 from Buy Back The Dacks to the Adirondack Conservancy. All of the money will go toward buying land in the Clintonville Pine Barrens, home of an endangered buck moth and the Karner Blue butterfly. We are grateful to all the people who have contributed. Special thanks go to: John Nemejo, owner of Mountain Man Sports, Inlet NY, who gives 1% of his monthly proceeds to the Fund; Celeste Poulin, a contributing artist to *WE*, who organized a bike-a-thon in MA and raised \$1300; Elliot Teal and Tom Bull, leaders of the St. Lawrence U. Environmental Group, who raised \$700 through selling T-shirts and raffle tickets. These various fund raising tactics should be duplicated across the country for the Park.

I don't ask much: if time permits, organize a fund-raiser for the Dacks and if funds permit, donate money to the fund in the name of a friend for the holiday season (see p. 96). Most important, get out in the wild and enjoy fall.

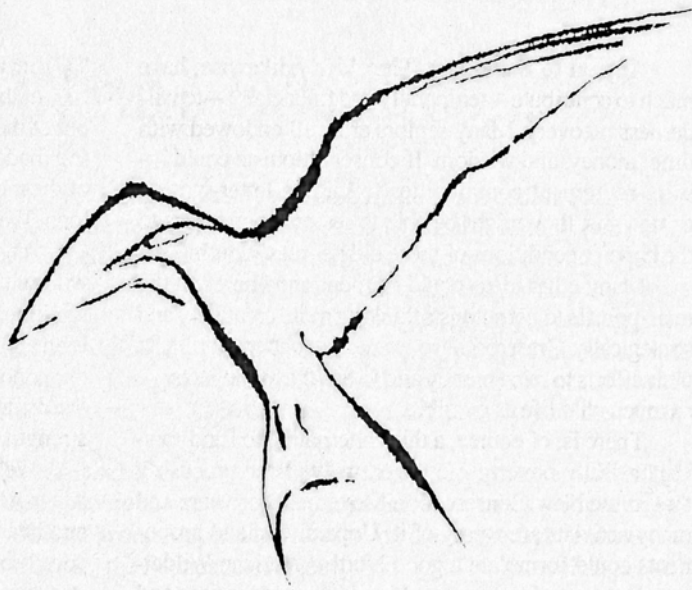
—Kathleen Fitzgerald

Wild Earth is pleased to be a signatory to the Resolution that grew out of August's Eastern Old-Growth Forest Conference in Asheville. This document calls for a concerted effort to identify and protect all relict Eastern old-growth forest. Known old-growth tracts are not free of threats, either—the Pisgah National Forest's Big Ivy is a notable example of an area containing substantial old growth subject to Forest Service cutting. With some scientists now estimating that up to 5 million acres of Eastern forest may have escaped Euro-American sawyers, these forests may serve both as an inspiration to wildland advocates and as a locus around which Eastern wilderness recovery may flourish. Copies of the Resolution are available from Western Ancient Forest Campaign (1400 16th St. NW, Washington, DC 20036) which is taking a leading role in the nascent campaign to protect Eastern old growth. *WE* will continue to encourage the efforts of old-growth advocates and report herein their successes.

Astute readers will have noted that, unlike recent issues, this page lacks a gastropod. Space considerations have intervened this quarter and snail lovers must turn to p.90 for their (representational) fix.

—Tom Butler

Wildlands Project Update



At the Society for Conservation Biology meeting this past June in Tempe, The Wildlands Project (aka North American Wilderness Recovery Strategy) presented a symposium attended by nearly 300 scientists (over half of those attending the conference). Michael Soulé, founder of the Society and TWP board member; Reed Noss, incoming editor of *Conservation Biology*, and TWP board member and Science Director; Dave Foreman, TWP Chair; and conservation biologists Howard Quigley and William Newmark, outlined the importance of biodiversity and wildness and the need to put forth a plan that can actually protect and restore it. A panel responded to the presenters, raising questions that were discussed by the group as a whole. Issues of strategy aside, there was little disagreement that the science points to the need for big reserves and corridors if biodiversity is to be protected. The support expressed by those attending is vital to the success of the North American Wilderness Recovery Strategy.

The Conservation Biology meeting prompted a major and largely favorable article about The Wildlands project in *Science* magazine. The boldness of the Project has prompted some to call it radical or unrealistic. Conservation of biodiversity may be radical in the classical meaning of that term—going to the root of the problem, in this case ecocide. What is radical in the sense of extreme, however, is the ongoing destruction of nature by human societies. The Wildlands Project is committed to ensuring that people recognize the existence of biodiversity and wildness as realistic.

David Johns made a presentation to the Society for Ecological Restoration in Irvine later that June, and it also met with great interest and general support from those attending. Both societies are cooperating with TWP by making their memberships aware of the Project and its efforts to bring scientists and conservationists together to protect and restore biodiversity and wildness across North America. Scientists (and others) who want to work with TWP and regional groups in developing reserve proposals should contact the Tucson Wildlands Project office.

The Noss Conservation Strategy model has been translated into Spanish, and should be available by late fall in pamphlet form to people working in Mexico, Central America and the Caribbean. The English version, published in the special issue of *Wild Earth*, and the Spanish version are available from the Tucson Wildlands Project office.

Vision mapping meetings are scheduled for this fall and winter 1994. Biologists and conservationists will roughly outline possible core areas, corridors and buffers. The vision maps will be used as a framework for developing more detailed regional proposals. Work on regional wildlands reserve proposals is now under way in several areas: coastal California, the Rockies from the Yukon to Yellowstone, the Northern Appalachians, and the Sonoran/Chihuahuan desert region.

TWP has initiated a series of occasional papers under the editorship of anthropologist David Burks that will address critical issues facing protection and restoration of wildlands. The first collection will look at the relationship between wildlands and human settlement. Topics being considered for future papers include appropriate activities in buffers, and the meaning of wealth in human societies and its impact on ecological integrity.

Maria Quintana has joined The Wildlands Project as its cerebral cortex, also known as business and office manager. Maria has many years of experience working for biodiversity in Florida and Arizona.

THE WILDLANDS PROJECT AND PARTICIPATING GROUPS

The Wildlands Project has generated a great deal of excitement—as well as some controversy—since the publication of the special issue of *Wild Earth* and other news reports. Many groups already working for wild lands have expressed interest in working with the Project. Cooperative relationships among TWP, regional groups, scientists and others is at the very core of developing Wildlands proposals. It is important to recognize, though, that The Wildlands Project and cooperating organiza-

The Wildlands Project

tions and individuals are autonomous. TWP shares much with the cooperating groups—especially the commitment to biodiversity and ecological integrity—but we do not speak for them or make their policy, nor do they for us. Some confusion has arisen over who speaks for The Wildlands Project and what constitutes a Wildlands Project reserve proposal.

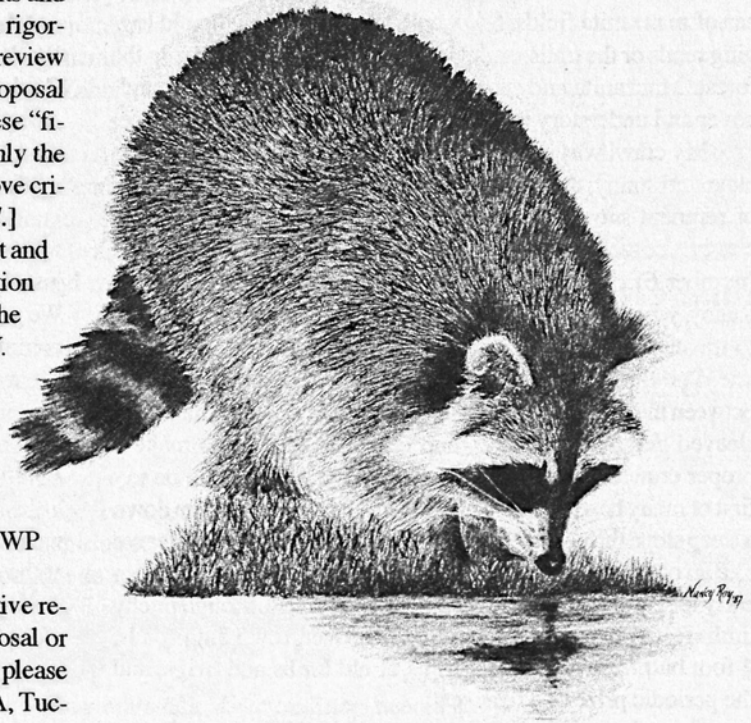
The Wildlands Project board of directors, officers and employees speak on behalf of the Project. The founders chose not to create a membership organization, to avoid any competition—real or potential—with cooperating groups. Similarly, only publications authorized by the board or officers of the Project represent the Project. In many cases publications or statements may be issued jointly by TWP and another group. (In many regions TWP works with several groups.) It is also important to keep in mind that TWP, like some ancient forest creatures, is highly specialized—our mission is to design and educate people about the reserve system needed to protect and restore biodiversity and wildness. Most of the groups we work with are involved in a wide range of conservation activities.

Another question that has arisen is, what constitutes a Wildlands Project reserve proposal? Designing proposals for wild cores, corridors and buffers takes time. Information must be collected and evaluated, scientific and conservation issues resolved, maps drawn, and text written. Finally, the proposal is reviewed by conservationists and biologists to ensure that it protects the broad range of communities in various successional stages, provides for vibrant populations of all native plants and animals throughout their former ranges, and is based on rigorous science.* Following this conservation and scientific review and formal acceptance by TWP Science Director, a proposal becomes a Wildlands Project reserve proposal. Even these “final” proposals are subject to future revision. Thus far only the Oregon Coast Range Association Proposal meets the above criteria. [See spring 1993 WE for abstract of that proposal.]

Other proposals are in various stages of development and review, such as the Northern Rockies Ecosystem Protection proposal by the Alliance for the Wild Rockies, and the Southern Appalachian Reserve proposal by South PAW. [See WE special issue.] In some cases groups developing proposals may have been inspired by TWP; in other cases they have been working on visionary proposals for some time. These “in process” or preliminary proposals can be considered Wildlands Project draft proposals; they reflect ongoing cooperation between TWP and regional groups.

If you have questions about establishing a cooperative relationship with TWP, questions about a wildlands proposal or someone speaking on behalf of The Wildlands Project, please contact our office at 1955 West Grant Blvd., Suite 148A, Tucson, AZ 85703.

—David Johns, TWP Portland office



*A more detailed discussion of the process for designing proposals—and beginning the even longer process of trying to implement them—will be published in a future issue of *Wild Earth*.

C r a w l i n g

by Gary Snyder



I was traveling the crest of a little ridge, finding a way between stocky deep red mature manzanita trunks, picking out a route and heading briskly on. Crawling.

Not hiking or sauntering or strolling, but *crawling*, steady and determined, through the woods. We usually visualize an excursion into the wild as an exercise of walking upright. We imagine ourselves striding through open alpine terrain, or across the sublime space of a sagebrush basin, or through the somber understory of an ancient sugar pine grove.

But it's not so easy to walk upright through the late twentieth century mid-elevation Sierra forests. There are always many sectors regenerating from fire or logging and the fire history of the Sierra would indicate that there have always been some areas of manzanita fields. So people tend to stay on the old logging roads or the trails, and this is their way of experiencing the forest. Manzanita and ceanothus fields, or the brushy ground-cover and understory parts of the forest, are left in wild peace.

My crawl was in late December and although the sky was clear and sunny, the temperature was around freezing. Patches of remnant snow were on the ground. A few of us were out chasing corners and boundary lines on the Bear Tree parcel (number 6) of the Inimim with retiring BLM forester Dave Raney, who had worked that land many years before. No way to travel off the trail but to dive in: down on your hands and knees on the crunchy manzanita leaf-cover and crawl around between the trunks. Leather work gloves, a tight-fitting hat, long-sleeved denim workjacket, and old Filson tin pants make a proper crawler's outfit. Face right in the snow I came on my first of many bear-tracks. Along the ridge a ways, and then down a steep slope through the brush, belly-sliding on snow and leaves like an otter. You get limber at it—and see the old stumps from early logging surrounded by thick manzanita, still-tough pitchy limbs from old wolf trees, hardy cones, overgrown drag-roads, 4-foot butt logs left behind, webs of old limbs and twigs, and the periodic prize of a bear scat.

One of our party called us back a bit, "A bear tree!" And sure enough, there was a cavity in a large old pine that had opened up after a fire scarred it. A definite black bear hangout, with scratches on the bark. To go where bears, deer, raccoons, foxes—all our other neighbors—go, you have to be willing to crawl.

So we have begun to overcome our hominid pride and learned to take pleasure in turning off the trail and going direct into the brush, to find the contours and creatures of the pathless part of the woods. Not really pathless, for there is the whole world of little animal trails that have their own logic. You go down, crawl swiftly along, spot an opening, stand and walk a few yards, and go down again. The trick is: have no attachment to standing; find your body at home on the ground, be a quadruped, or if necessary, a snake. You brush cool dew off a young fir with your face. The delicate aromas of leaf molds and mycelium rise from the tumbled humus under your hand, and a half-buried young boletus is disclosed. You can *smell* the fall mushrooms when crawling.

I began to fantasize on the larger possibilities of crawling. Workshops in Power Crawling? "Crawling to Achieve your Goals?" Self-esteem Crawls? Well, no. But at least—Crawl Away into the Wild. The world of little scats and tiny tracks. And, self-esteem—no joke! "I feel finally liberated, I have overcome my aversion to crawling, and I CAN GO ANYWHERE!"

It's not always easy, and you can even get lost. Last winter we took a long uphill cross country transect on some of the land just above the Yuba Gorge that soon turned into a serious crawl. We got into denser and denser old manzanita that had us doing commando-style lizard crawls to get under their low limbs. It became an odd and unfamiliar ridge and I had no idea where we might be. For hundreds of years, it seemed, we were scuttling along, and we came on a giant, totally fresh, worm-free *Boletus edulis*, the prize of all the boletes. That went into the little day pack. A bit farther the manzanita opened and there we were, at an opening below an old cabin built half on BLM land at the edge of Ananda, and a dirt road that led toward home.

Get those gloves and a jacket and a hat and go out and *explore California*.

Gary Snyder lives, crawls, and writes in northern California. His works include *The Practice of the Wild*, *The Old Ways*, and *Good Wild Sacred*.

illustration by Chuck Ouray

Wilderness First!

*(Outfitters and access somewhere down the list, depending...
and if you've got two good feet, doggone it, use' em.)*

Editor's Note: The following is adapted from a talk given by the author to US Forest Service, BLM, Park Service, and Fish and Wildlife Service staff and wilderness managers at the Society of American Foresters' Wilderness Management Conference in Tucson, Arizona on May 20, 1993.

*by Dave Willis, wilderness advocate, outfitter,
and frostbite victim.*

This conference has shaken me. Some of the presentations have surprised me. Added to my fears about the future of de facto undesignated wilderness are renewed fears for designated Wilderness.

I am sobered to realize that these artificial wilderness boundary lines which I regard as so sacred are not sacred now to some and may not be to others in the future. I am reminded that, with our form of government, Wilderness is only a fragile political designation—that each generation must re-win the wilderness victories of the John Muirs, Aldo Leopolds, Margaret Muries, Howard Zahnisers, David Browers, and countless unsung women and men before us.

Although I choke on the anthropocentrism in the Wilderness Act which calls wilderness a “resource,” the Act’s intent to “secure” it “enduringly” seems to me an increasingly difficult and worthwhile challenge.

As I watch government agency employees deal with de facto and designated wilderness, I see conflicts between self-preservation and wilderness preservation. The wilderness usually loses.

I’ve titled my talk “Wilderness First! (Outfitters and access somewhere down the list, etc.),” because I hope that before I’m an outfitter, I’m a wilderness advocate. And I hope that before I’m a person with disabilities, I’m a wilderness advocate.

I hope that you, too, before you are agency employees and career civil servants, are wilderness advocates. It’s no secret that two of the four agencies represented here seeking to “secure wilderness as an enduring resource” have destroyed far more de facto wilderness in this country in recent years—and continue to seek to do so—than all the outfitter and access groups combined ever could.

OUTFITTERS

Do you know how I feel as an outfitter when I hear agency brass talk about outfitters needing to pay their “fair share” of user fees? I pay the Forest Service \$3 per trailhead reservation and \$2.25/person/day to teach people minimum impact camping and wilderness appreciation on public lands. Meanwhile a rancher pays \$1.86 per month for a cow/calf pair to trash those same public lands. To teach people to take care of the land, I pay 37 times more than a rancher does for a cow/calf pair to trash it! A miner blades and gouges public land and then buys it for \$2.50-\$5 per acre while I tell my people to carry out their used toilet paper. The

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wilderness itself.*

government destroys ecosystems with below cost timber sales while I encourage our groups to keep campfires small or not have fires at all to conserve wood.

A Nevada BLM man asked me if I thought the coming BLM wilderness designations would be good for outfitters. "Of course," I told him; "but the more relevant question for **you** is whether outfitters will be good for **wilderness**."

All this talk of "partnerships"—though it sounds nice—worries me. The Forest Service's job is not to keep me in business.

The purpose of a US government/wilderness outfitter partnership should be to help wilderness managers "secure" that "enduring resource" of wilderness. **Some** outfitters—by the nature of their trips, how they travel and camp, and what they teach—do help secure the local wilderness they use. By the values these outfitters instill, they are producing future Muirs, Leopolds, Muries, and Browers to re-win future battles. The agendas and impacts of other outfitters, however, are not helpful.

As wilderness managers, you have discretion in dealing with outfitters. Use that discretion with courage, long-term wisdom, and compassion as you deal with us—always putting the interests of the wilderness itself first.

A legal limit of 25 head of stock for a party in the Central Sierra means massive equine fecal matter. Suppose an overbooked group of backpackers camps at a lake on a day that climbing and resupply staff are with them, for a total of 16 people; while across the lake are camped a horse-packer's legal party of 15 people and 25 trail-ripping, meadow-stomping, manure-pumping equines. Will you cite the backpackers for being over the 15 person legal limit with their 32 feet, while the 130-foot packer party is legal? How do I explain this to my groups as I teach them minimum-impact camping?

ACCESS

I am somewhat familiar with the issue of "wilderness and the handicapped"...

(And though I know the term "handicapped" is no more politically correct than the anthropocentric term "resource," I will use it here—if not because it is a "short-hand" term I can live with, then for the satisfaction of tweaking those who insist on political correctness.)

In 1976 I was frostbitten on Denali such that I lost half of each of my hands and feet. The flesh on the bottom of the half-feet I have left was frozen to literal death and replaced with flesh from my thighs. Thigh flesh is not evolved for walking as foot sole flesh. So I can't be on my feet too long or walk too far without pain and eventual abscess and infection. I depend on custom-made "choparts" foot prostheses to walk at all—and always carry antibiotics, just in case. My backpacking days ended when I climbed into a rescue helicopter (another issue) 17 years ago.

I was 23 when frostbitten. Two years later I had a horse. I have coordinated and guided (for various groups, from churches to politicians) backpacking/mountaineering and horse/llama trips on the West Coast from Joshua Tree to the Glacier Peak Wil-

derness. When not working on my outfitting business, I focus my efforts toward protecting undesignated wilderness.

In these efforts I have often encountered the tired and disingenuous argument that "wilderness discriminates against the handicapped." The argument goes that since many handicapped people feel they can't experience a piece of land without a motor vehicle, there should be either no wilderness or no more Wilderness Areas designated.

The real issue is not handicapped access. The issue is the value of wilderness and a wilderness experience that does not further handicap the wilderness itself.

Chuck Cushman of the National Inholders Association protested with cattlemen's groups last year's Desert Conservation Conference at the Malheur Wildlife Refuge in Oregon. The ranchers had a cattle truck full of mooing cows. Cushman had a sign that said: "Wilderness discriminates against children, the elderly, and the handicapped."

The handicapped are too often a convenient red-herring for those who want to prevent Wilderness designation. People in and out of wheelchairs and people with and without prostheses and limbs will continue to differ on the value of wilderness. Those who value it less will continue to aid and abet in its degradation so that they may have a "motorized or developed access wilderness experience."

My mother and I work hard at not getting into discussions like these. She caught the polio virus when I was two. She was paralyzed from the waist down. She eventually recovered use of her right side—but not her left. Braces, crutches, and wheelchairs were part of the furniture in our house. My father—sacrificially—has to this day fulfilled his vow to not (essentially) do anything she couldn't do.

Nice for Mom. Not too sweet for my two bothers and me. I grew up in a family where wilderness experience was minimized because of the handicapped. Now that I am handicapped myself, and there is far less de facto wilderness left than in my childhood, I resent more strongly than words can express any bleeding heart statement that still more wilderness should become less wilderness so the handicapped can ride a jet-boat, 4x4, or helicopter or have an overgraded, handrailed wheelchair path for a "genuine wilderness experience."

This country is loaded with motor vehicle routes and paved paths. Leave what precious little wilderness remains well enough alone. There's plenty of "pretty country" to see without degrading designated Wilderness, or preventing new Wilderness designation or establishment of wilderness recovery areas.

Besides, many wilderness trails are functionally wheelchair accessible in their present condition. Simply providing information about these trails to folks who need wheelchairs could prevent other trails from becoming more developed and wilderness from becoming more diminished.

"Information is access." Some National Forests already provide information on wheelchair accessible trails. All should.

Horses, rafts, and kayaks are other means of getting into the wilderness without direct modification of the wilderness it-

self. Water is a great mobility equalizer. Numerous programs for persons with disabilities exist to provide wilderness experiences that do not diminish the wilderness.

I'm concerned about the Americans with Disabilities Act (ADA) and talk about wheelchair access into wilderness. Today's access advocates may not be trying to mandate wheelchair accessibility for every wilderness trail; but, as we talk about the ADA and the Wilderness Act and wheelchair access, are we setting the stage for someone to do so?

In our drive to maximize our own experience, we have overrun the land we say we wish to experience. Most designated Wilderness Areas are smaller than Disney World. Less than 3% of the lower 48 is designated Wilderness. This country needs more wilderness, not less. (And, as Ed Abbey said, "Wilderness needs no defense—only more defenders!")

You don't create a wilderness experience for the handicapped with jet-boats, helicopters, 4x4s, snowmobiles, paved trails, or handrails. The wilderness and the wilderness experience disappear in the process—for the handicapped and temporarily able-bodied alike.

I'm all for the handicapped experiencing wilderness. I've helped them. I've helped myself. The handicapped **can** get into the wilderness without degrading it. But it requires—as **wilderness quite properly requires for everyone**—more forethought, skill, ingenuity, and discomfort than driving to Disneyland.

REAL DISCRIMINATION

This is not to say the handicapped aren't discriminated against with regard to wilderness access and management in some cases. A case I know is my own...

I was at a packer's clinic in Klamath Falls a few years ago. A member of the Backcountry Horseperson's Association was giving a good pitch for minimum-impact horse-camping methods. "Otherwise," he said, "the Forest Service won't let us go into the backcountry."

I couldn't believe it. "What you mean us, white-man?!" I thought. "You've got two good feet. They're carryin' a little

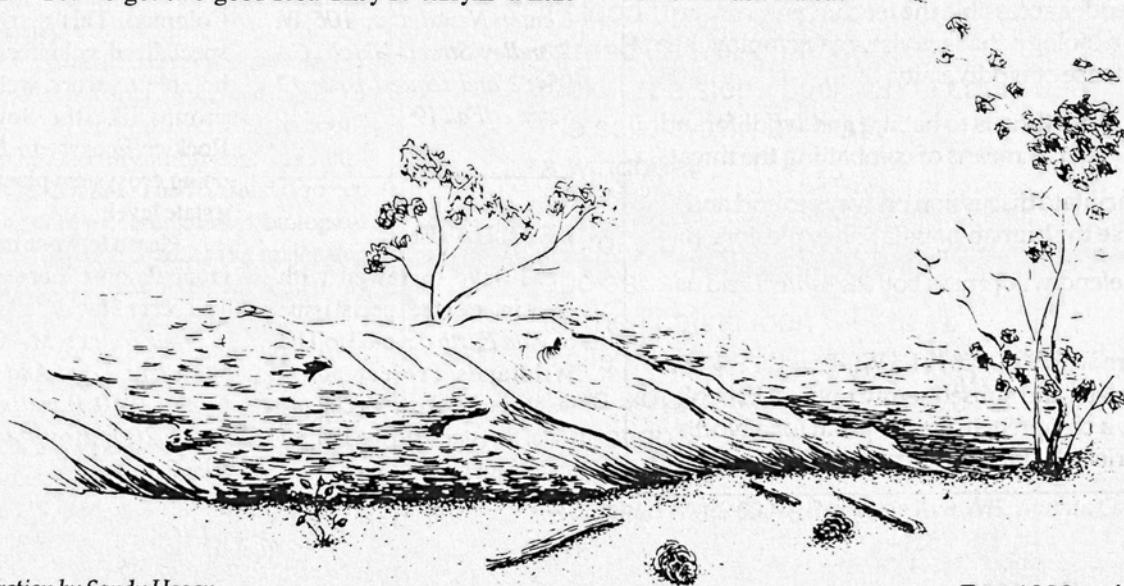
too much cargo, but all you gotta do is run a few pre-trip laps and you can go as far into any backcountry as you like. I'm the one who'll have trouble getting into the backcountry if horse-people continue to trash it and stock are closed out. I'd give my right arm—what's left of it—to be in the situation you're trying to avoid."

Certain trails and off-trail areas are off-limits to me because overuse of stock by people who don't need stock would damage those areas or others' experience of them. I don't think those restrictions would be in effect if only folks who really needed horses rode horses into the wilderness. That's discrimination—by the can-walk-just-fine horse-users and the wilderness-managing agencies—against me.

Walking is a far more historic and traditional wilderness travel method than riding. If wilderness managers are really concerned for both the wilderness and the handicapped, some sort of "most traditional wilderness travel method physically possible" policy should be adopted. Motorized travel would certainly continue to be prohibited. Folks who most need a horse could have some sort of a backcountry equivalent of a disabled license plate—and priority, if not sole, use of stock. Then wilderness opportunity would be more equal for all legitimate methods of wilderness travel—from each according to his or her ability and to each according to his or her need—always putting the needs of the wilderness first.

If those who could would walk in the wilderness, think how much more fit they'd all be. There'd be less heart disease. Hilary Rodham Clinton wouldn't have to work so hard on a National Health Care Plan. The backcountry would be far healthier. People like me wouldn't be discriminated against by stock-off-limits regulations driven by lazy horsepeople. The national debt would probably even be reduced. The "most traditional wilderness travel method physically possible" approach is clearly in the national interest.

Dave Willis (15187 Greensprings Hwy., Ashland, OR 97520) says he hates horses in general, but has never met a horse he hasn't liked.



Letters

BOYCOTT THE ABUSERS

The public is not powerless to counter the cynical "wise use" movement. An old fashioned consumer boycott of sponsoring corporations could help us begin to break up the corporate support for

organizations such as People for the West, Oregon Lands Coalition and others.

Wise users are using boycotts and boycott threats to intimidate businesses into withdrawing support for environmental causes. A case in point was Ford Motor Company's and General

Electric's withdrawal of support for the PBS Audubon special on grazing last year.

Specifically, we can boycott Chevron Oil Company which last year donated thousands of dollars to the Western States Public Lands Coalition which sponsors the People for the West (PFW). I suggest cutting your Chevron credit card in half and sending the remains with a letter of explanation to Chevron Oil, 225 Bush Street, San Francisco, CA 94105.

Unfortunately most of the other PFW corporate sponsors are large mining companies who are not necessarily in the consumer markets vulnerable to boycotts. Perhaps other readers have suggestions on this front.

—Tim Ribe, POB 789,
Los Alamos, NM 87544

**Assistant Editor's Note: For more information on the "Wise Use" movement and a list of sponsoring corporations, contact Mendocino Environmental Center Newsletter, 106 W. Standley Street, Ukiah, CA 95482 and request Issue 12 Summer/Fall 1992.*

DEAR DAVE:

I have reviewed with great interest the special issue of *Wild Earth* devoted to The Wildlands Project and I wanted to make a special offer of assistance to the Project and its member groups.

As you may know, the Land and Water Fund of the Rockies (LAW Fund) provides free legal services to grassroots environmental and community-based organizations. We do this largely through a network of volunteer lawyers which we have established across a seven-state Rocky Mountain region. We have provided assistance from time to time to several of the groups listed as "leading the way" for The Wildlands Project. While our resources are limited, and we cannot always place a case or matter with a volunteer or provide the necessary services through staff lawyers, we do give it a good try. Last year we provided almost 5000 hours of free legal services to groups through our volunteer network.

Of particular interest to you may be our Adopt-A-Forest Project. We have volunteer lawyers who have "adopted" most of the forests in Arizona, New Mexico and Colorado. This network of specialized volunteers may be able to work well with groups like the Southern Rockies Ecosystem Project doing ecosystem planning at a state level.

Please let your member groups know of our services. The best of luck.

—Frances M. Green,
President, Land And Water Fund, 2260 Baseline Rd,
Suite 200, Boulder, CO
80302

STATEMENT OF PURPOSE

Wild Earth is a non-profit periodical serving the biocentric grassroots elements within the conservation movement. We advocate the restoration and protection of all natural elements of biodiversity. Our effort to strengthen the conservation movement involves the following:

- ✎ We provide a voice for the many effective but little-known regional and ad hoc wilderness groups and coalitions in North America.
- ✎ We serve as a networking tool for grassroots wilderness activists.
- ✎ We help develop and publish wilderness proposals from throughout the continent.
- ✎ We render accessible the teachings of conservation biology, that activists may employ them in defense of biodiversity.
- ✎ We expose threats to habitat and wildlife, and offer activists means of combatting the threats.
- ✎ We facilitate discussion on ways to end and reverse the human population explosion.
- ✎ We defend wilderness both as *concept* and as *place*.
- ✎ We are working with The Wildlands Project to complete, and subsequently publish in book form, a comprehensive proposal for a North American Wilderness Recovery Strategy.

IMMIGRATION: WHERE DO WE DRAW THE LINE?

To help ease the strain on Earth's biosphere which human population growth is creating, Nick Ervin recommends increasing immigration restrictions (*Wild Earth* Summer 1993).

People moving from one place to another are labeled immigrants or emigrants in an attempt to tell if they're coming or going, but this distinction merely reveals an observer's bias. Let's take a more detached, scientific viewpoint.

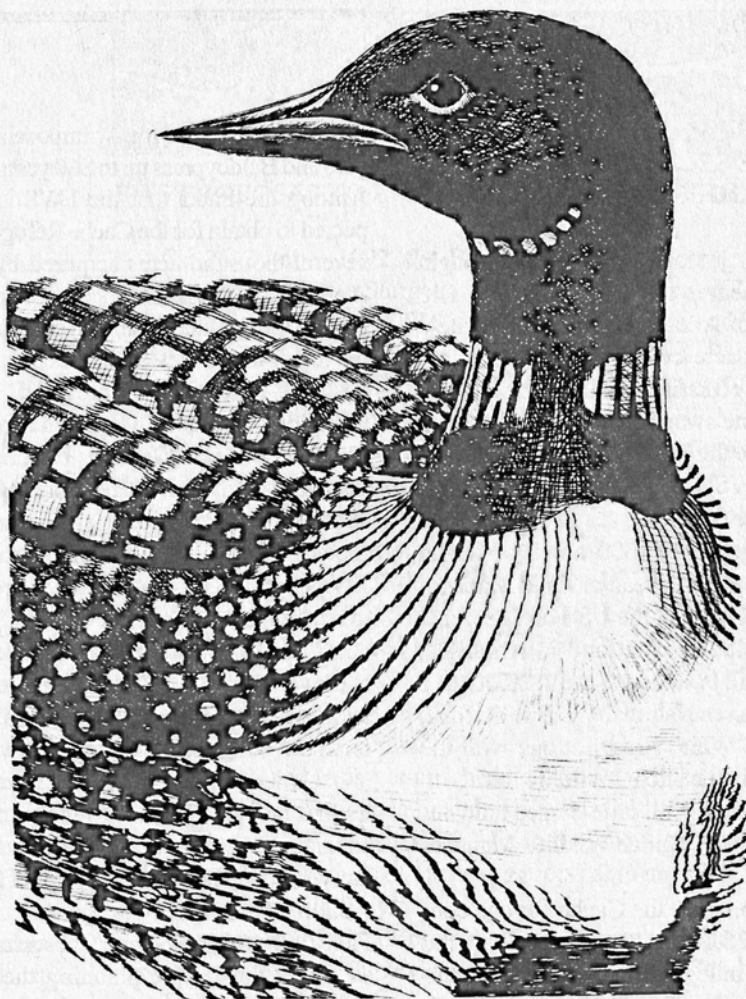
Ignoring the national borderlines callously etched into the face of the planet, I've prepared three simplified environmental impact statements for human migration between differently impacted regions: 1) From agrarian to industrial = increased impact. 2) From industrial to agrarian = increased or decreased impact, depending on how much industry is taken along. 3) From industrial and agrarian to wildlands = awful bad impact.

Yes, unfortunately, our migrations must be restricted for biodiversity's sake. However, rather than beef-up the corridors of martial law separating nation-states, we should draw the boundary lines around wilder ecosystems, and around our ever-expanding concentrations of civilization and industry.

North American cities are increasingly making efforts to limit urban and suburban sprawl. Now the other critical component to human migration control is taking shape, thanks to The Wildlands Project. Defining core wilderness areas, biological corridors, and buffer zones is a major step toward reducing exotic encroachment by *Homo sapiens*.

I look forward to seeing the "vision map" of North America with boundary lines for our activities drawn with conservation biology perspectives.

—Les U. Knight, POB 86646, Portland, OR 97286



Loon

I woke
to see the muscle in a loon's wing
as it rose and flexed in front of my canoe:
no creature of mere feather,
black and grey-striped ghost
afloat in its reflection—suddenly
it stood up on the water,
spread its wet white underfeathers to the sun,
took three steps back, and I could see
the solid brawn beneath
a wingbeat—

(I broke my stride in mid-stroke
and sat still, breathless
as the floating loon
while my heart still swam a beat behind
in its slow-settling
reflection.)

—Stephen Wind, 603-A Seminole Ave. NE, Atlanta GA 30307

CONTROVERSIAL LAND TRADE SECURES A LITTLE BIG WOODS OF ARKANSAS

A major land exchange has brought a step nearer to completion The Big Woods of Arkansas Project to create a 500,000-acre corridor in the Arkansas part of the Mississippi alluvial floodplain.

In the swap, the Potlatch Corporation gave the US Fish and Wildlife Service (FWS) 41,000 acres of wetlands along the White River in Arkansas in exchange for 17,600 acres of forest owned by the Bureau of Land Management (BLM) and the US Forest Service (FS) in Idaho. The land in Arkansas, which will be added to the 112,500-acre White River National Wildlife Refuge, links the White River Refuge with the Cache River National Wildlife Refuge to the north and with state-owned land, including the Dagmar Wildlife Management Area.

At present, the Cache Refuge consists of 25,000 acres of land scattered along 60 miles of the Cache River. Eventually this Refuge will include the floodplains of both the Cache River and Bayou DeView, a 30-mile waterway celebrated

for its canoeing and for swamps with tupelo and Baldcypress up to 860 years old. Among the tracts that the FWS is expected to obtain for the Cache Refuge are several thousand acres acquired by the Army Corps of Engineers as mitigation for the Corps' failed attempt to channelize the lower nine miles of the Cache.

The federal and state lands surrounding the erstwhile Potlatch acreage are designated as Wetlands of International Importance under the Ramsar Convention, an international agreement to protect wetlands of global significance. FWS expects its newly acquired acreage to receive the same designation. Largely composed of undisturbed lakes, oxbows, and riverine areas that flood consistently and early, the tract provides habitat for birds traveling the Mississippi Flyway.

Understandably, Idaho conservationists are not as enthusiastic about the exchange as are conservationists in Arkansas. Lance Peacock, Director of Protection and Science for the Arkansas Field Office of The Nature Conservancy, says that the people planning the exchange received input from Idaho conservationists and government officials. Mark Elsbree, Assistant Director of the

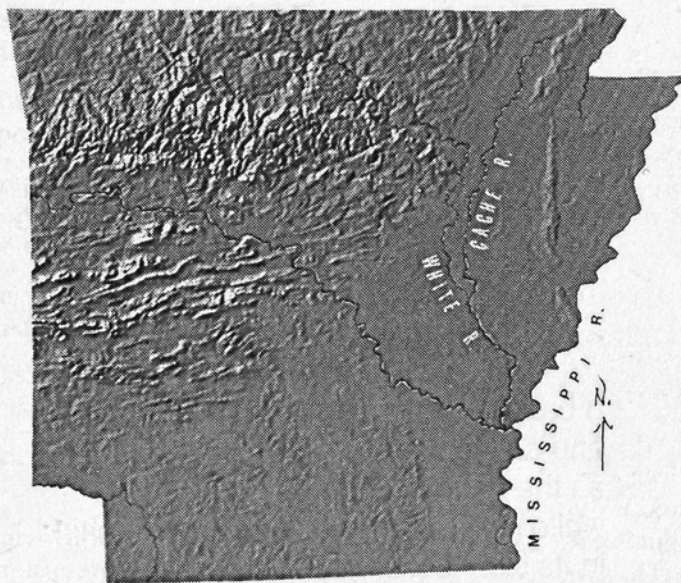
Idaho Office of The Nature Conservancy, confirms that the Arkansas Office discussed the exchange with The Conservancy in Idaho.

However, the full story apparently did not reach some other Northwestern environmental organizations. Dave Crandall of the Inland Empire Public Lands Council says that they "were told" that the land in Arkansas was without value. The Land Council, the Spokane Group of the Sierra Club, and the Kootenai Environmental Alliance put out an action alert asking environmentalists to write to their Congress people opposing the land exchange. The alert made no mention of the acreages involved, and characterized the Potlatch land only as "Arkansas swamp (presumably some of which is important to waterfowl)."

The land that BLM and the FS gave Potlatch was mostly scattered pockets within large blocks of land owned by other agencies or private parties. The agencies had already designated them for disposal, because they could not administer them efficiently. Dave Crandall states that the pockets are "prime forest," close to population centers and to Coeur d'Alene Lake and thus valuable for recreation as well as for wildlife habitat. What appears to have most bothered Idahoans about the exchange, however, is that the BLM, the main federal party, did not exchange its tracts to obtain land in Idaho.

Potlatch Corporation has promised to retain the Idaho land it acquired in its land portfolio and to manage it for sustained timber harvest. Conservationists' views of the way that Potlatch treats land differ somewhat. The anti-exchange flyer accuses Potlatch of "massive clearcutting," and of having "overcut its 600,000 acres of corporate land in north Idaho" and being "hungry for public timber." Elsbree (TNC Idaho office) believes that Potlatch has done a "fair to good job" of managing its corporate timber base, but says that the company clearcuts on land owned by other parties when employed to do so.

Elsbree wished that FWS could have acquired the Potlatch land in a way



RELIEF MAP OF ARKANSAS
US GEOLOGICAL SURVEY

that did not affect Idaho. Nevertheless, informed about the ecological value of Potlatch's holdings in Arkansas, he believes that from "a global perspective," the exchange was positive. The Idaho Field Office, knowing that Potlatch would only accept land in Idaho for its Arkansas land, agreed not to stand in the way of the exchange and abstained from taking a position on it.

Elsbree points out that Idaho has received some compensation for the land exchange. The Land and Water Conservation Fund granted \$4.2 million last year to BLM's Coeur d'Alene district for land acquisition; and federal agencies have requested \$3 to \$4 million for land acquisition in Idaho this year. Nevertheless, he realizes that, given the condition of the federal budget, appropriation of land acquisition funds is not certain.

For Arkansas the exchange was part of a "multi-year effort," Lance Peacock says. Arkansas conservationists had been planning a 500,000-acre corridor and working on the swap long before November of last year, when Congress appropriated the money that made the exchange possible. The Conservancy and government agencies are working also to buy private holdings within the corridor. Because they know that they will not be able to acquire everything, they are trying to target lands of special value, for example, those with the most intact vegetation and those that would provide habitat for the Louisiana Black Bear. For lands that will remain in private hands, supporters of the Big Woods want to work with private landholders to promote good stewardship, in particular, planting trees.

The Mississippi Delta once had 21 million acres of bottomland hardwoods, of which 8 million were in Arkansas. Arkansas has lost 90% or more of this, largely through clearing for agriculture. Cotton was the first major crop; in the 1960s and 1970s came soybeans. Now residents are beginning to understand the importance of the lost forests to wildlife and to the region's hydrological system. Baldcypress and bottomland hardwoods were the trees in the planned corridor. Where opportunities to bring back the forest exist, people are planting seedlings of native bottomland hardwoods.

"We are really just at the beginning," Peacock says of the replanting. He knows that they have much to learn about how effective replanting is. The reforestation effort and indeed the entire concept of a viable corridor is "a leap of faith to some extent..."

—Mary Byrd Davis

Ed. note: If an interstate land exchange looms on your horizon and you need help identifying conservationists in another state with whom you can discuss it, write the Wild Earth office. We are in touch with conservationists and conservation organizations across the country and can give you names and addresses of contacts.



FWS PROPOSES TO LIST THE ALABAMA STURGEON

On 26 October 1992, the Biodiversity Legal Foundation and Friends of the Alabama Sturgeon sent to the Department of Interior a 60-day notice of intent to file suit over the US Fish and Wildlife Service's failure to list the critically imperiled Alabama Sturgeon as an Endangered species under the Endangered Species Act (ESA). According to BLF, the Alabama Sturgeon is one of America's most endangered unprotected aquatic species. The sturgeon is found only in three rivers in the state of Alabama. [See *Wild Earth* Vol. 2, #4, p.12.]

Because the new administration was coming into office, we decided to wait before filing suit in hopes that negotiations with Bruce Babbitt would produce the desired results. On 15 June 1993, the Fish and Wildlife Service (FWS) proposed in the Federal Register to list the sturgeon as Endangered and to designate Critical Habitat for the fish. Despite extreme pressure from several industries and Alabama's two senators, Secretary Babbitt followed the law and proceeded with the listing proposal. Comments on the proposed listing are due by 13 October 1993, and an as-yet-unscheduled hearing will be held. Under the ESA, FWS must make a final decision on whether to list the sturgeon within one year. The BLF and Friends of the Alabama Sturgeon will monitor the progress of the listing proposal to make sure that the law is complied with fully.

Comments in favor of protecting the Alabama Sturgeon can be sent to Complex Field Supervisor, US Fish and Wildlife Service, Jackson Field Office, 6578 Dogwood View Parkway, Suite A, Jackson, MS 39213. Please comment even if the deadline is past.

—Ray Vaughan, *Friends of Alabama Sturgeon*, POB 130411, Birmingham, AL 35213

HEADWATERS SIERRA CLUB SUPPORTS NREPA

Headwaters Group of Sierra Club supports the Northern Rockies Ecosystem Protection Act H.R. 2638 (NREPA). The Williams bill dealing with roadless Forest Service lands would allow logging of 99.5% of the Forest Service defined timber base. NREPA would protect these lands.

There is some confusion within the Montana Chapter of Sierra Club. The Chapter has adopted conflicting positions on legislative strategy and conservation policy. This spring, Montana Chapter adopted the following statement: "Montana Chapter endorses the concept of ecosystem protection as exemplified by NREPA." Williams bill supporters had not had an opportunity to read the actual text of NREPA, so they asked that the meeting minutes reflect that the concept, not the legislation, was being supported.

Headwaters Group decided not to put all its eggs in one basket. We have been pursuing what we call the parallel track: we work to improve the Williams bill, and we also work to support NREPA. We invite anyone interested in working with either bill to contact our group.

—Brooks Martin, Chair, Headwaters Group of Sierra Club, POB 1678, Bozeman, MT 59771

[To help promote NREPA, contact also Alliance for the Wild Rockies, POB 8731, Missoula, MT 59807.—Ed.]

FWS PROPOSES LISTING KOOTENAI RIVER POPULATION OF WHITE STURGEON AS ENDANGERED

Following the filing of an emergency listing petition and subsequent 60-day formal notice of intent to file suit by the Biodiversity Legal Foundation (BLF), the US Fish and Wildlife Service (FWS) announced on July 7 that it was proposing the Kootenai River population of White Sturgeon (*Acipenser transmontanus*) to be listed as Endangered under the Endangered Species Act.

Acipenser transmontanus, which can grow to ten feet long, is confined to about 168 miles in the Kootenai River, principally upstream of Cora Linn Dam from Kootenai Lake, British Columbia, through the northeast corner of the Idaho Panhandle to Kootenai Falls, 31 miles below Libby Dam, Montana. The best scientific data available indicate that a natural barrier at Bonnington Falls downstream of Kootenai Lake has isolated the Kootenai sturgeon from other White Sturgeon populations in the Columbia River for about 10,000 years.

The latest survey data indicate that the total population has been reduced to less than 1000 individuals, and apparently all of these are mature or maturing sturgeon. The lack of evidence of any recruitment of juvenile sturgeon in the Kootenai River since 1974—when operations began at Libby Dam in northeast Montana—shows

the urgency of the situation.

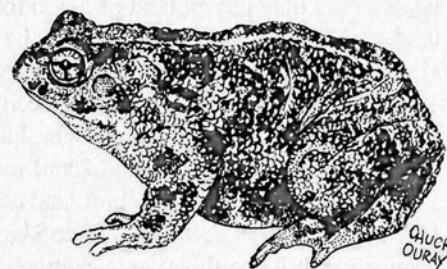
Listing the sturgeon under ESA could dramatically change operations at Libby Dam, since the US Army Corps of Engineers would probably be prohibited from making huge water releases during winter to produce electricity. Storage of water might be required in the winter months to allow an adequate release of water from May 25 to July 5 which biologists say the sturgeon need to spawn successfully.

In its emergency listing petition, the BLF recommended the development and implementation of an integrated aquatic ecosystem flow rate management plan for the Kootenai River that would benefit sturgeon, Snake River Chinook Salmon downstream, and Bull Trout. It is expected that the FWS will shortly also propose ESA listing and protection for Bull Trout. A final decision on the listing of the Kootenai population of White Sturgeon must be made within a year of the listing proposal and the Corps of Engineers must confer with the FWS regarding required flow rates in the meantime.

Comments and support for listing of the White Sturgeon and a comprehensive management plan for the restoration of the Kootenai River can be sent to: Field Supervisor, US Fish and Wildlife Service, Boise Field Office, 4996 Overland Road, Room 576, Boise, ID 83705.

—Biodiversity Legal Foundation, POB 18327, Boulder, CO 80308

BLF PETITIONS TO PROTECT WESTERN BOREAL TOAD

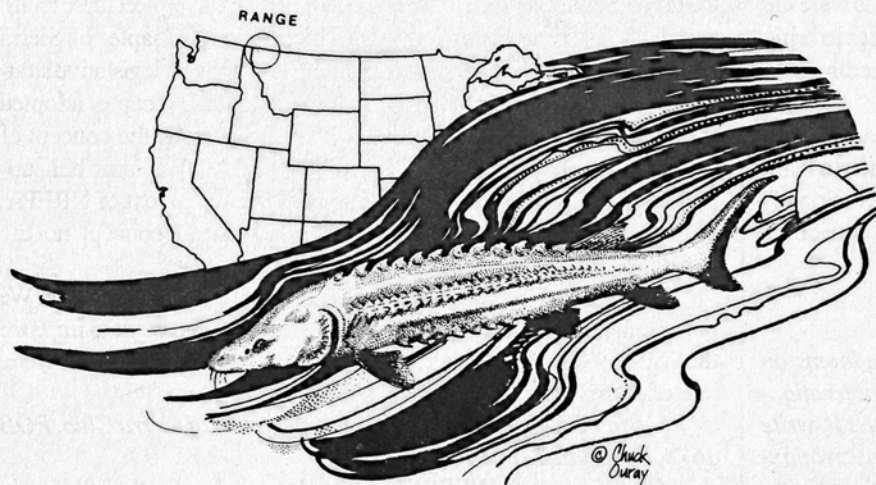


A perplexing problem facing the scientific community is the rapid fall of many amphibian populations, even in pristine habitats. The declines appear to be widespread in the West and have been particularly serious since the late 1970s.

Documented declines of the Southern Rocky Mountain population of Western Boreal Toad (*Bufo boreas boreas*) have been particularly severe. The largest populations of this toad in Colorado have been found between 8500 and 11,000 feet. It is Colorado's only alpine toad. Thirty to forty years ago, Boreal Toads were fairly common in the high elevations of Colorado and in the Snowy and Sierra Madre ranges of southeast Wyoming, but not any more.

Biologists began to document population declines in New Mexico, Colorado, and Wyoming in the 1980s. The Boreal Toad may now be extirpated from New Mexico and has disappeared from many locations in the Elk and West Elk Mountains of west-central Colorado and other areas in the state. The toads have disappeared from 94% of their known occupied habitat in Wyoming.

Boreal Toad populations in the Southern Rocky Mountains are probably separate and distinct from those in the Wind River and Salt River Ranges of Wyoming to the north and in the Wasatch and Uinta Mountains of Utah to the west, due to differing climatic and physical characteristics on either side of the Great Basin. Geographic isolation between



White Sturgeon (*Acipenser transmontanus*)

populations may have resulted in genetic differentiation of toads in the Southern Rockies from those in other areas.

The reasons for the decline of the Western Boreal Toad are largely unknown. Infection by red-leg disease (*Aeromonas* bacteria), fish toxicants to manage sport fisheries, fragmentation of habitat, water retention projects, and recreational activities—all human induced factors—have been suggested as possible causes. Federal agencies such as the US Forest Service do not usually fully consider the impact of resource exploitation activities on intermittent waters utilized by the toad as habitat.

In response to the extreme population declines, inadequacy of existing state and federal regulatory mechanisms to protect the Western Boreal Toad, and unknown factors that may be affecting its continued existence, the Biodiversity Legal Foundation has formally petitioned Interior Secretary Bruce Babbitt to list *Bufo boreas boreas* under the federal Endangered Species Act. The US Fish and Wildlife Service now has 90 days in which to determine whether the requested listing action may be warranted. BLF hopes that this action will focus greater public attention on the plight of amphibians and the need for a greater commitment to their study and protection.

—Jasper Carlton,
BLF, POB 18327, Boulder,
CO 80308

FWS EXPERIMENTS WITH BLACK-FOOTED FERRET

I bet you haven't heard that President Clinton has called a "Prairie Dog Ecosystem Summit" in an attempt to avoid further decline of the besieged grassland ecosystems and their keystone species, prairie dogs (*Cynomys* sp.) and Black-footed Ferrets (*Mustela nigripes*). There's a good reason why you haven't, and why you won't any time soon. Although at least as threatened as the Pacific Northwest old-growth forest ecosystems, prairie dog ecosystems have yet to receive the public notice they too deserve.

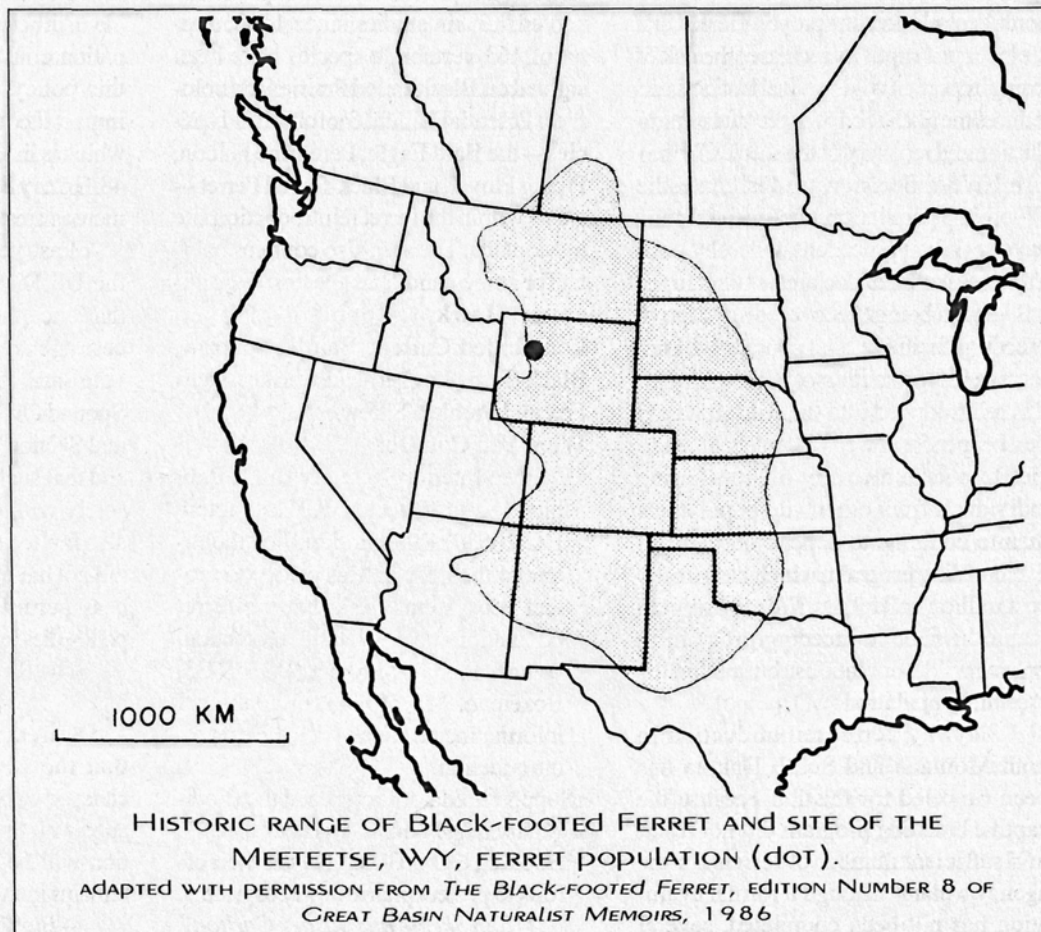
To date, only the farmers, ranchers, oil and gas developers, ORV users and prairie dog hunters have paid prairie dog colonies and the grasslands they occupy much mind, and with drastic results. The prairie dog ecosystem has been reduced to less than 5% of its historic range, and only a small fraction of that remainder presently receives full protection from these people's impacts.

One indication of the plight of this ecosys-

tem is the status of the predator most closely associated with prairie dogs—the Black-footed Ferret. Ferrets depend on prairie dogs for both food and shelter. Often referred to as the most endangered mammal of North America and listed as Endangered under the Endangered Species Act (ESA), the ferret barely escaped extinction when 18 individuals were placed in a captive breeding program in 1986.

In the fall of 1991, ferrets were reintroduced into the Shirley Basin of west-central Wyoming, now the only known population of Black-footed Ferrets in the wild. Unfortunately, but to no one's great surprise, the whines and whimpers of the ranching industry prompted the US Fish and Wildlife Service (FWS) to designate the Shirley Basin population "experimental, nonessential." This designation allows for "greater management flexibility" in dealing with a reintroduced species, which in this case includes continuing prairie dog "control" in the area.

FWS, with help from other federal and state agencies, has identified five or six (depending on whom you ask) other potential reintroduction sites



(in WY, MT, SD, AZ, CO, and UT). Agencies plan to reintroduce ferrets onto public lands in north-central Montana and the Conata Basin/Badlands of southwestern South Dakota. Again, plans for each of these reintroduction sites include designating the ferret population experimental, nonessential.

A recovery plan on public lands that allows excessive "incidental take" and removes ESA protective measures is illegal and unacceptable, in the view of Predator Project and the Biodiversity Legal Foundation. **At the very least**, FWS should designate either the Montana or South Dakota population as "essential."

With an existing captive breeding population of less than 300 ferrets, each ferret is essential to the continued existence of the species. It is inappropriate to consider the captive population the essential population. The intent of the Endangered Species Act is the recovery of listed species in the wild.

The federal notice concerning the north-central Montana proposal stated that "[c]ontinued captivity increases the risk of losing important wild survival instincts and reduces the likelihood of successful reintroduction and recovery of the species."

FWS's decision to designate the Wyoming population nonessential may have set a bad precedent, whereby once a species has been declared extinct in the wild and is being "recovered" in captive breeding facilities, that species will not receive full protection of the ESA when it is reintroduced into the wild. It would be cheaper for the FWS and state agencies to pursue recovery by transferring individuals from other wild populations than to continue to depend on the captive breeding program, which has already cost millions of dollars. We may want to retain the captive breeding program to bolster wild populations, but not as the essential population.

Anyway, ferret reintroduction in both Montana and South Dakota has been canceled for this fall because the captive breeding program did not result in a sufficient number of ferrets for the agency's plans. Though a formal evaluation has not been completed, several

negative factors have been identified at any captive breeding facilities: pseudo-pregnancy, cannibalism, dietary problems and ineffective late breeding. Only the existing Wyoming population will receive ferrets this fall. This major set-back highlights the need to get Black-footed Ferrets in the wild while providing them with full protection under the ESA.

The continuance of the same human practices that caused the initial demise of the ferret, the high risk of catastrophic events such as canine distemper on ferrets and sylvatic plague on prairie dogs, and the lack of undamaged ferret habitat across its historic range stand as prominent reasons why this species should be granted full ESA protection, including designation of Critical Habitat. Indeed the ESA was developed not only to protect and recover Threatened and Endangered species in the wild, but also to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." In six studies since 1958, a total of 163 vertebrate species have been sighted on Black-tailed Prairie Dog colonies. Potential habitat for four listed species—the Bald Eagle, Peregrine Falcon, Piping Plover, and Black-footed Ferret—exists within the ferret reintroduction site in Montana. The area also contains habitat for some candidate species: Ferruginous Hawk, Mountain Plover, Long-billed Curlew, Baird's Sparrow, Black Tern, Loggerhead Shrike, Swift Fox and Preble's Shrew.

What You Can Do:

- Write to Interior Secretary Bruce Babbitt (1849 C Street NW, Washington, DC 20530) to remind him of the intent of the ESA and his pledge to protect ecosystems. Ask that the ferret populations be granted full protection.
- Contact Predator Project (POB 6733, Bozeman, MT 59771) for additional information on Black-footed Ferret reintroduction.
- Support Predator Project and the Biodiversity Legal Foundation (POB 18327, Boulder, CO 80308-8327) in their efforts to protect prairie dog ecosystems.

—Tom Skeeel and Jasper Carlton

BLF CHALLENGES FOREST SERVICE ACCESS POLICY

While the US Forest Service continues to "talk" ecosystem management, many of its latest policies and directives do not reflect this goal. Most notable is a new policy issued this year by Forest Service Chief Dale Robertson, stating that the Forest Service will now permit right-of-way access across Forest Service lands to private inholdings and adjacent private lands that provide habitat to Threatened and Endangered species without full enforcement of the provisions of the ESA.

The new policy basically means that the Forest Service (FS) intends to ignore its responsibility to enforce reasonable alternatives to avoid jeopardizing listed T&E species on the basis of land ownership. The FS intends to apply this policy in Section 7 consultations with the FWS on private access issues, particularly in the Northern Rockies.

Although many species across the nation could be impacted adversely by this policy, the greatest concern is the impact it could have on the Grizzly Bear, which is listed as Threatened in the Lower 48. Grizzly Bear recovery zones include numerous areas of intermingled ownership.

Last year, in *Sierra Club v. Lujan*, the US District Court of Oregon ruled that once the BLM, as a permitting access agency, finds that activities on private land "may adversely affect" the Spotted Owl, it is required to initiate formal Section 7 consultation with the FWS and that such responsibility does not rest solely with the private party. The court also faulted the BLM for claiming that it did not have the discretion to deny an access permit. The new Forest Service policy flies in the face of this court decision.

The Biodiversity Legal Foundation has formally notified Chief Robertson and Secretary of Agriculture Mike Espy that the new access policy must be changed to bring the FS into full compliance with the ESA. Appropriate legal action will be taken if the Forest Service remains inert on this issue.

—Biodiversity Legal Foundation

FISH AND WILDLIFE SERVICE CAVES IN TO RANCHERS

The federal government has repeatedly stated that grazing on public lands is a privilege, not a right. Yet you wouldn't know it from reading the US Fish and Wildlife Service recently released Draft EIS on wolf restoration to Yellowstone National Park and central Idaho. In that document, the FWS proposes to reintroduce Gray Wolves as an experimental population. Under experimental population regulations, wolves that kill livestock, even livestock grazing on public lands, can be killed by ranchers or the government. In other words, rather than insisting that ranchers using publicly owned forage accept any losses incurred in exchange for the privilege of using that forage, the Federal government is giving them priority rights to these lands. Their interests come before the interests of the public and native species. If FWS had the best interests of wolves in mind, it would require ranchers to remove their livestock from areas where wolves roam.

Even ignoring the issue of who really owns these lands, one can question the logic that suggests we kill wolves, which are costing taxpayers millions of dollars to recover, to protect domestic animals worth only a few hundred dollars apiece. One could argue that since the livestock industry supported, and at least partially funded, the extirpation of wolves, ranchers should pay

most of the costs of recovery. If they had to pay for wolf recovery, they might be willing to lose a few cows rather than slow wolf restoration efforts.

The FWS is failing to face a central problem: livestock production on public lands. According to the Draft EIS, more than 412,000 domestic animals are grazed on public lands of the Greater Yellowstone Ecosystem. By contrast, only 95,000 wild ungulates, including Elk, deer, Bighorn Sheep, Pronghorn and Bison, are found on these same lands. In other words, most forage in the ecosystem goes to support privately owned livestock, not native species. The Greater Yellowstone Ecosystem (GYE) has been called America's Serengeti; but it's now far below that potential.

Cows make up more than 3/4 (approximately 300,000) of the domestic animals utilizing public forage in the GYE. Domestic cattle and Elk have significant dietary overlap and thus in essence compete for food. Since a cow eats approximately the same amount of forage as 2 Elk, cattle are consuming enough vegetation to support more than 600,000 additional Elk! Of course, there

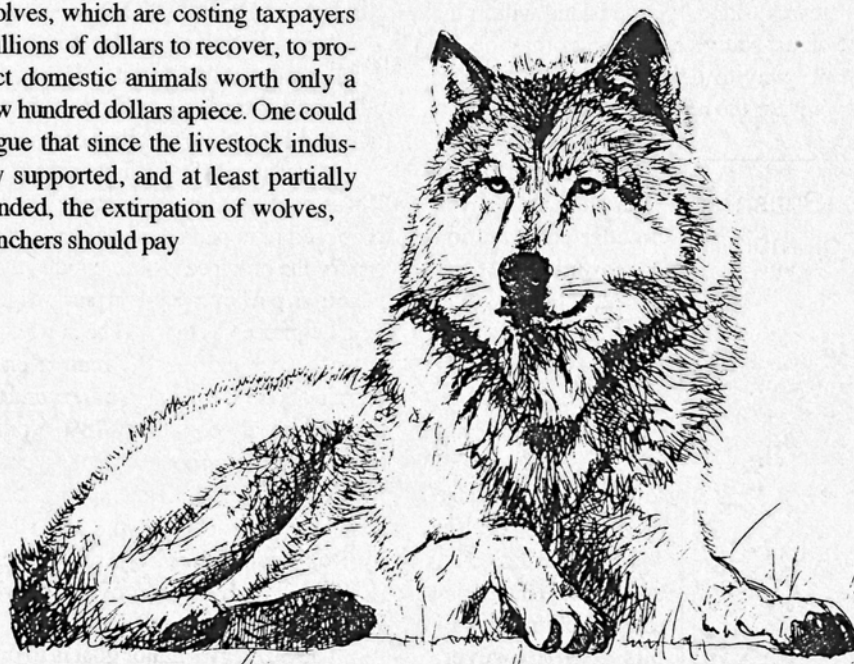
are other constraints on Elk numbers besides forage, and Greater Yellowstone probably could not support a half million more Elk. Yet there is no doubt that freed of forage competition with domestic animals, Yellowstone could support more than the presently estimated 56,000 Elk. Domestic animals are consuming forage that could otherwise support a larger prey base for Gray Wolves, as well as Grizzly Bears and other scavengers and predators. Not only would eliminating domestic livestock from public lands increase wolves' natural prey base, it would decrease wolf mortality from ranchers because their domestic animals wouldn't be in a position to be eaten by wolves—at least not on the public lands. Greater numbers of wild prey would lessen the likelihood that wolves would bother domestic animals on private lands, too, thereby further reducing potential conflicts.

Any rational study of potential wolf recovery would conclude that elimination of domestic livestock would enhance the chances for wolf recovery. Yet the FWS suggested that eliminating domestic livestock is "far beyond any reasonable use of federal authority and is not practical." The FWS is supposed to consider a full spectrum of alternatives in its EIS; obviously, the agency has failed to meet this requirement. It is caving in to political pressure at the expense of the wolf.

The proposed experimental population regulations only reinforce the idea that the grazing of domestic livestock on public lands is a right, not a privilege. It's clear that the majority of Americans support wolf recovery, and that permitting wolves or any other endangered species to be destroyed to protect private commercial users runs counter to the intent and purpose of public lands.

To express your views on the document, send written comments (before October 15 if possible) to Ed Bangs, Gray Wolf EIS Leader, POB 8017, Helena, MT 59601.

— George
Wuerthner, Box 273,
Livingston, MT
59047



BRITISH COLUMBIA FORESTS AT RISK, An Update

Summer, 1993. Debate about forest and wilderness issues in British Columbia is dominated by the ongoing struggle to protect Clayoquot Sound, on the west coast of Vancouver Island. Over 500 protesters have been arrested to date for blockading a logging road into the Sound. Thousands more have demonstrated at the site, in Victoria and Vancouver, and at Canadian embassies throughout the world. On April 13, the province's New Democratic Party (NDP) government announced the decision to allow MacMillan Bloedel (MacBlo) and Interfor to log most of Clayoquot's old-growth forests in what they termed "a balanced compromise."

In an attempt to justify this unfair decision, which will plunder one of the last great remnants of pristine Vancouver Island rainforest, the government offered the public a jumble of misleading statistics and half-baked promises: 33% protected, 17% special management, and 45% logging may sound reasonable but these numbers hide the fact that 74% of Clayoquot's ancient, low elevation big tree forest has been or could eventually be logged under the decision. Few people realize that 20% of these forests has already been logged, including almost half of the proposed scenic corridors. Much

of the land to be protected is bog and scrub forest that is uneconomic to log. Clayoquot Sound contains three of the remaining five unlogged primary watersheds larger than 5000 hectares left on Vancouver Island. Industry has already extensively or partially logged 85 Island watersheds.

Although high standards of logging are now promised, the record to date has been abysmal. Tofino Creek was to have been a model of "new forestry"; instead MacBlo was fined for building an illegal road and logging a biodiversity corridor. For years, MacBlo has been violating Federal Fishery laws by damaging habitat. Millions of dollars in fines were avoided thanks to Canada's two-tiered justice system that convicts peaceful citizen blockaders and ignores companies that destroy the environment. Clayoquot Sound's steep, rocky slopes are not suitable for logging no matter what method is used.

First Nations were not consulted and have announced their opposition to the decision. Before any plans are finalized, the government should complete treaty negotiations with the three First Nations that occupy Clayoquot Sound. A pending court case now temporarily protects Meares Island, a large island within the Sound. Native land claims may be the only way to defer the current logging plans for the rest of the Sound.

The Clayoquot Sound clearcut decision devastated the broader conservation community. Many conservationists had worked hard to help elect the NDP, a social democratic party. One of NDP's guiding principles has been to work toward a more equitable distribution of wealth in society. Historically, unions played a major role in working toward this goal. However, times have changed and big unions now

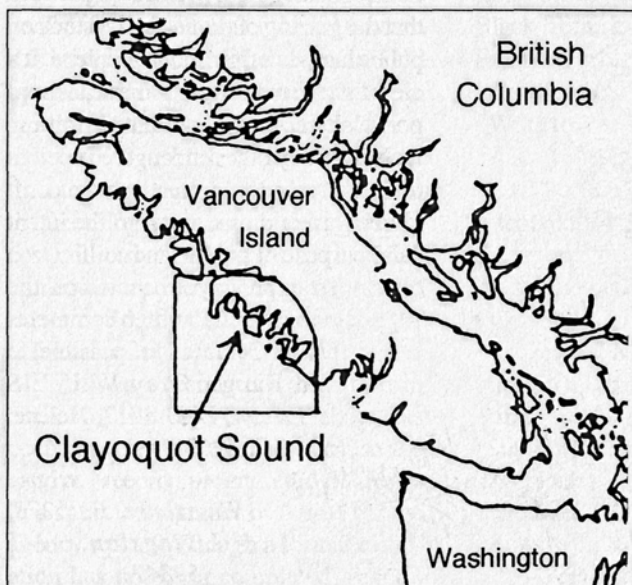
work with the major transnationals to ensure stability for a highly paid labour force that is shrinking due to mechanization. The pressure applied by the big companies and unions obviously influenced the Clayoquot decision.

Just prior to the decision, the government purchased \$50 million of MacBlo shares. Although a judge later determined that the purchase was not a conflict of interest, the public perception of conflict further erodes the government's credibility. The NDP is now perceived as a forest industry ally.

While the protests continue to escalate at what has become the symbol for wilderness preservation in BC, Clayoquot Sound, the fate of the rest of the province is in the hands of a multitude of government and stakeholder committees. The government is now committed to the Protected Areas Strategy (PAS): a plan to double the protected areas to a target of 12% of the province. In addition, the Commission on Resources and the Environment (CORE) is developing a land use strategy for the province, and is supervising regional land use negotiations for Vancouver Island, the Kootenays and the Cariboo/Chilcotin area. Government ministries under the leadership of the Ministry of Forests (MOF) have set up similar negotiating tables for other, smaller areas of the province. Hopefully, all these efforts are more than just a clever talk-and-log public relations campaign.

When the PAS was first announced, it was accompanied by a map showing proposed new parks and wilderness areas for the province. These "study areas" were from public proposals in previous government processes that had been whittled down to "rock and ice." BC's current parks contain about 60-70% alpine areas and the new proposals contained 78% alpine! Since the initial announcement, an entire PAS government bureaucracy has been created with most of the work being done by Regional Protected Areas Teams (RPATs— the list of acronyms for PAS alone would fill a page!).

The Strategy's major goal is to protect viable, representative examples of the natural diversity of the province. Gap



analysis studies have nearly been completed to identify the remaining undisturbed areas that best represent biodiversity and offer recreational opportunities. Some proposals from the conservation community are included: the Stein Valley, the Cariboo Mtns., Chilko Lake, the West Arm Wilderness near Nelson, and the Kitlope on the coast near Bella Coola which is the world's largest unharmed temperate rainforest watershed.

The major problem with the Strategy is the 12% target, because such a large percentage of existing and proposed parks is alpine. The government recently announced the creation of a new park for the 1 million hectare Tatshenshini in the northwest corner of the province. [See article this issue. —Ed.] Although this is a great decision that will create the largest UN Biosphere Reserve wilderness in the world when combined with other parks in the Yukon and Alaska, it adds another 1% of rock and ice toward the 12% target.

Another problem is the inconsis-

tency in how the study areas and their boundaries are being determined across the province. In some regions the RPATs are doing a commendable job of including as many old-growth forests as possible; in other regions pressure from industry and BC Forest Service staff continues to cause the forested areas to be excluded.

The land use planning processes are based on the principles of shared decision making amongst a "balanced" negotiation table that includes all interests. While the PAS is being fast-tracked, the CORE negotiations proceed at a snail's pace with eventual consensus unlikely. The outcome will most likely be a series of recommendations which will go to the BC Cabinet, who will make the final decisions.

Protection for some BC forests may also result from other new government initiatives, including a Forest Practices Code, biodiversity and watershed guidelines, and accurate timber supply analyses. BC is probably one of the only major lumber and pulp producing jurisdictions

without a legislated forest practices act. (Oregon legislated a forest practices code in the 1970s. Their problem has been poor monitoring and compliance.) The BC Code was to have been introduced into law this spring, but to date, even the draft has not been fully released. Draft guidelines to protect biodiversity have been bitterly attacked by industry. Eventually, these guidelines may become part of the Code. In 1991, the MOF released a report that revealed the forest inventory was inaccurate and the annual allowable cut (AAC) was too high. Since then, the AAC has been reduced in some areas and new analyses have been undertaken.

Prior to adoption of the Code, the guidelines, new AAC calculations, and new parks and wilderness, the government is committed to preparing socioeconomic impact assessment reports for the public and the negotiating tables. So far, attempts in these reports to provide a worthwhile comparison of the short-term economic gains of timber extraction with the difficult-to-measure long-term

economic advantages of forest protection have failed. Multiple accounts analysis cannot easily predict future trends or place dollar figures on environmental impacts.

The Ministry of Forests has incredible power in BC, because they largely control what happens in the publicly owned forests which comprise over 60% of the province. The new initiatives and new staff are slowly transforming the Forest Service to better reflect the public's environmental values. However, the agency's power base is still in the hands of the old guard, who are closely tied to the timber industry.



The new initiatives will only improve the management of BC's forests if they are combined with a major "shake-up" of Forest Service staff.

Key to the preservation of BC wilderness will be a successful reversal of the Clayoquot decision. The US conservation movement could assist this campaign by helping to educate consumers (both the public and companies). Currently, pulp from MacMillan Bloedel is used in a number of newspapers, including the *New York Times* western edition and the *San Francisco Chronicle*.

What You Can Do

Write to:
Minister of Forests
Parliament Buildings
Victoria, BC V8V 1X4

Premier Michael Harcourt
Parliament Buildings
Victoria, BC V8V 1X4

Editor, Times Colonist
2621 Douglas Street
Victoria, BC V8W 2N4

Editor, Vancouver Sun
2250 Granville Street
Vancouver, BC V6H 3G2
CANADA

Request a ban on cutting old-growth forests, a transition economy to help forest industry workers, and legislation protecting biodiversity. Stress the need to avoid purchasing paper products from Clayoquot Sound's old-growth forests. Visit Clayoquot Sound this Fall.

Keep updated on British Columbia by subscribing to British Columbia Environmental Report (British Columbia Environmental Network, 1672 East 10th Avenue, Vancouver, BC Canada V5N 1X5; \$15/yr. in Canada & \$20/yr. outside Canada).

—Jim Cooperman, Editor of the BC Environmental Report and Coordinator of the BC Environmental Network Forest Caucus.

[* Andrew Petter was recently appointed as the new Forest Minister for BC. He has a reputation for being a "green thinker."—Asst. Ed.]

THE NORTH THOMPSON RIVER IS NOT FOR SALE!

"...the US is our best customer, and we can't refuse them...supplying water to California will be the largest dollar earner ever imagined in British Columbia." These are the words of William Clancey, president of Multinational Water and Power Inc. of Vancouver. He is the Canadian promoter behind a proposal to divert 1 million acre feet of water annually from the North Thompson River to California. This recent scheme, to funnel water to the United States from BC, awakens again the spectre of the North American Water And Power Alliance (NAWAPA), which has been lying dormant for almost 30 years. In today's political climate, and with the steady progression toward ratification of the North American Free Trade Agreement (NAFTA), politicians and industrialists are once again urging Canadians to turn on the taps.

The North Thompson River originates in the mountains and icefields near Valemount, a small town about 410 miles north of Vancouver. The river flows, past small settlements and towns nestled close to the river's shores. At Kamloops, a major interior city with a population of 70,000 people, the North and South Thompson rivers flow together into the Fraser River then on to the Pacific Ocean at Vancouver.

The inhabitants of the North Thompson Valley depend on logging, ranching, farming and tourism for their livelihood. They are determined to prevent "North Thompson River Water from going South."

Aboriginal people dwelt up and down the North Thompson Valley for thousands of years. Chief Nathan Mathew of the North Thompson Indian Band says "they are the Simpc, meaning 'the people who live up there' and the river is called simpwetkwe 'the river that flows from up there'." In the 1880s, their salmon fishing areas were set aside as reservations. Water diversions would endanger fish habitat. The aboriginal people in the valley oppose Multinational's proposal.

The North Thompson Valley has so far escaped industrialization. This gives the area the prized distinction of relatively low air and water pollution, which, in part, accounts for the abundant wildlife populations. Despite hunter invasions every fall, ungulates populate the higher regions, along with bears, Cougars, and even a pack or two of Gray Wolves. Coyotes, who are not popular with ranchers, live throughout forest and range areas. The nests of Bald Eagles are visible in trees along the river banks, and these majestic birds can be seen gliding high above the water, letting out piercing cries while searching for their prey. River diversions, even minor ones, harm the many creatures who depend on the areas where land meets water.

Multinational's United States partner is KVA Resources, an engineering and dam-building firm based in Bellevue, Washington. KVA's prominent engineer, Gerald Shupe, did the pre-feasibility study for the project. KVA is "the world's largest leading pipeline and dam-building engineering firm, funded by private investment" according to a report by Jerry Thompson, and has 44 dams to its credit. (Thompson, 1992)

To divert one million acre-feet a year from the North Thompson River, an intake pipe would syphon off water to be pumped through a 20-kilometer long tunnel to McNaughton Lake. After the water enters the Columbia River system, it would flow to Washington State and then into the John Day Reservoir in Oregon. A series of aqueducts, pipelines, and pumping stations would channel the water to the Shasta Lake Reservoir in California.

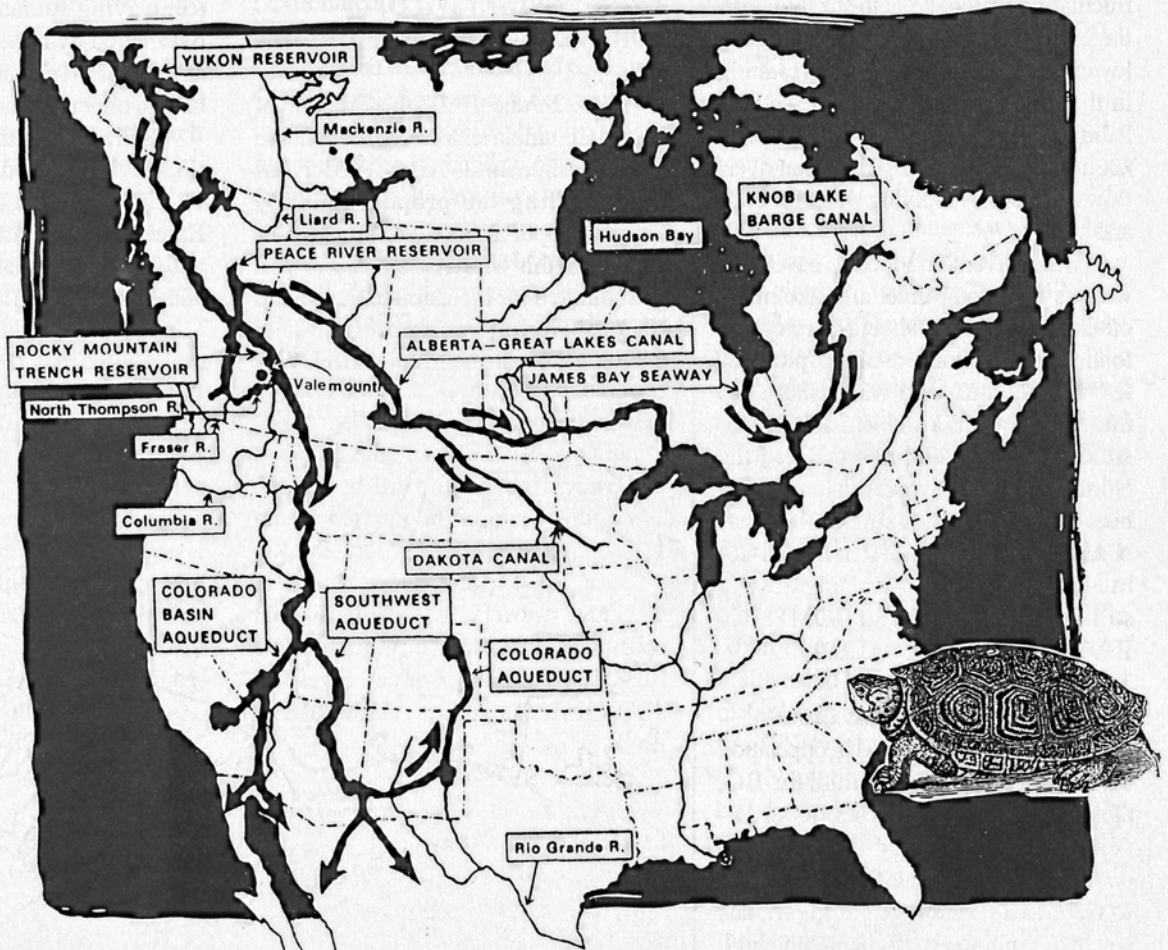
Multinational's William Clancy employs a "foot in the door" approach to win BC's government over to his proposal. He claims "We are not asking for an export license, but only for a letter of permit from the government to allow us to assess the situation." Canadians are wary of opening any doors that could open the flood gates to the US. Thirty years ago the NAWAPA scheme was floated, but sank into temporary oblivion.

In 1965, the optimism of influential people in the United States was at its

peak. There was no doubt that the monstrous NAWAPA water development project would go ahead. The only question was "how would it be completed," E. O'Toole stated in a *New York Times* article. From the same publication it is obvious that the North Thompson River diversion fits squarely in the old plan. The concept envisioned at the time was "a collection of surplus water from the Fraser (into which the North Thompson River empties), Yukon, Peace...and other rivers of

British Columbia and the Yukon Territory." NAWAPA's grandiose plans were thrown out by the Canadian Parliament in the 1960s, condemned as too expensive and impractical. However, the new stirrings among financiers and politicians to revive the massive power and profit scheme need to be taken seriously.

Canadian and US politicians are discussing the prospects. In 1991, former Health, Education and Welfare Secretary (under Nixon) Robert Finch stated "NAWAPA will be the next major priority after the conclusion of the trilateral Free Trade Agreement negotiations," according to an article in *Earth Island Journal*. A prominent supporter in Canada is Simon Reisman, a member of former Canadian Prime Minister Brian Mulroney's Free Trade Agreement negotiating team.



NAWAPA: NORTH AMERICAN WATER AND POWER ALLIANCE

Although the various connections in the grand scheme to build a huge US-Canada Water Grid are tenuous, they should not be ignored, especially now that NAFTA negotiations are under way.

The politics of water in Canada and the US are convoluted and subject to different interpretations, presenting daunting obstacles to understanding of water export issues. Wendy Holm, a Canadian agrologist and resource economist involved in water issues, has pointed to serious problems for Canada's water with NAFTA. She says: "under NAFTA, water will be treated as a 'good,' subject to the same rules as other 'goods and services'..." She says water should be specifically exempted from the North American Free Trade Agreement in order to protect Canada's sovereignty over

its water resources.

Otto Langer, President of the Association of Professional Biologists of British Columbia, expressed the concern of the 700 member strong association in a letter to former Prime Minister of Canada Brian Mulroney: "any significant diversion and export of water can cause irreversible hydrologic, climatic and ecological change that will harmfully impact our biological resources..."

In sharp contrast to this expert statement is Mr. Clancy's appalling ignorance of basic biology. He stated that "diminished water volume in the river does not impact on salmon, since they spawn in the Fall, and water would only be removed from the river during Spring run-off." In fact, many aquatic life forms, particularly the Pacific salmon, require

fluctuating water levels to survive. Furthermore, any water diversion eventually lowers the groundwater table, resulting in the loss of marsh and other wetland habitat. Many animal and plant species need a fully functioning river that overflows its banks, supplying water for bogs and sloughs.

Water diversion schemes have been with us for a long time, and like many other outdated ideas, should be relegated to the past. The concept of "surplus water" is ludicrous, and water shortages must be viewed as a problem of irresponsible human development. Since the North Thompson River diversion scheme became public, not a single voice has been raised in support of it in British Columbia—the uncompromising answer still is "THE NORTH THOMPSON RIVER IS NOT FOR SALE."

What Concerned Citizens Can Do

Many voices are heard in opposition to NAWAPA, NAFTA, and in BC, against the North Thompson River Diversion Project. Strong lobby groups could be formed in the US and Canada to work as a counter weight to officials eager to embrace the schemes of high powered promoters. In addition, every concerned citizen can express opposition by writing to government representatives. It is vitally important to press for the signing of a Memorandum of Agreement between Canada and the United States, insuring that water is excluded from the terms of the Free Trade Agreement.

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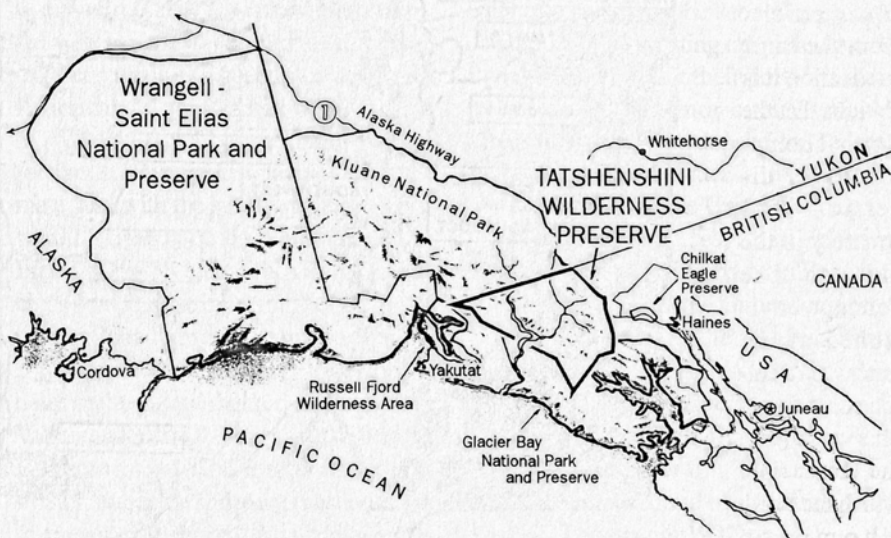
—Elli Kohnert (Box 362, Barriere BC, Canada V0E 1E0), spokesperson for People Against River Diversion (PAR), is a Teacher's Aid in the Barriere Secondary School.

TATSHENSHINI WILD, FOREVER

On 22 June 1993, the Premier of British Columbia announced the creation of the **Tatshenshini - Alsek Wilderness Park**, killing the proposed Windy Craggy copper mine. Covering 2.6 million acres, this wilderness preserve will be submitted for inclusion in the United Nations' World Heritage program later this year. The Tatshenshini - Alsek Wil-

ice, carving stunning panoramas. The river is fed by massive glaciers calving at its shore; spawning salmon nourish bear, wolf, eagle and more.

Called one of the greatest conservation victories in decades, saving the Tatshenshini also saved the towns of Haines and Yakutat from environmental and economic disaster. These small Alaska coastal villages, still rich with Tlingit Native tradition, survive on fishing. The proposed mammoth open pit



derness will link the existing World Heritage complex of Glacier Bay, Kluane, and Wrangell-St. Elias National Parks. These contiguous protected areas will encompass over 27.2 million acres (larger than Ohio), the world's largest international wilderness. This victory assures the continued viability of populations of Gray Wolves, Brown Bears, Mountain Goats, and Dall Sheep, and the planet's only population of the silver-blue Glacier Bear, as well as rare plants, migratory birds and much more. The Tatshenshini and Alsek are now the first major river system in North America protected from headwaters to sea.

Slicing through the rugged Saint Elias Mountains, the Alsek and Tatshenshini rivers outline a green ribbon of life through the continent's largest non-polar ice fields. From the alpine zone to the sea, these cold untamed waters plunge 200 miles through rock and

copper mines at Windy Craggy mountain, just 15 miles from the US border and Glacier Bay National Park, threatened their existence. Caroline Powell, former Chair of the Yak-Tat Kwaan Native Corporation, called the mine plan, "An act of genocide against the Yakutat Tlingit people." Since they would have trucked or piped their toxic cargo through the heart of the Chilkat Bald Eagle Preserve north of Haines and the center of town to port, local opposition was strong. Despite overwhelming evidence of its probable catastrophic impacts, Alaska's development crazed, bulldozing, wolf slaughtering governor, Wally Hickel, still supported the mine.

Ric Careless, Campaign Chair of Tatshenshini International (a coalition of 50 groups dedicated to preserving the Tat), masterfully orchestrated this exciting victory from his home in Gibson, BC. As Vice Chair, I brought Alaskan fisher-

men, natives, local government, and eventually most of the big US conservation groups into the fray. Ric and I worked together for nearly four years pumping out action alerts, press releases, research papers; crisscrossing the continent with slideshows; testifying before Congress, the BC Parliament, and the Alaska legislature; and coordinating a field research project. Getting environmental and political leaders on the river was critical and required the generosity and support of the guide outfitters. Tom Cassidy of American Rivers, entranced by the Tatshenshini, became our point man in DC.

With the election in BC of the progressive New Democratic Party in 1991, we recognized a window of opportunity and pushed our advantage. The Premier sent the Windy Craggy debate off to an independent review panel. A year later, the Commission on Resources and the

Environment (CORE) concluded that the threats from developing the Windy Craggy mine were extreme and perpetual. CORE verified our reports documenting the greatest seismic risk in North America, high probability of acid mine drainage from the "massive sulfide" ore body, and permanent destruction of fish and bear habitat. Then Al Gore became VP and played a major role behind the scenes. CORE said, "US jurisdictions hold a virtual veto on the mining proposal." Al told the Canadian government "No way." The BC government needed a win and the international community demanded it. In the end, the swell of grassroots support for preservation was overwhelming.

—Peter Enticknap (Box 1086 Haines, Alaska 99827) works with Lynn Canal Conservation in Haines, Alaska. He serves on the board of the Southeast Alaska Conservation Council (SEACC).



NOPIMING FOREST: A BIOLOGICAL KEYSTONE FOR NORTH AMERICA

Nopiming Forest, located in the southeastern corner of the Canadian Province of Manitoba, is an area of diverse natural communities which include such varied plants as eastern prickly pear cacti, Northern Labrador Tea, and American Elm and Tamarack. Unfortunately, the forest is being cut. In May 1992 the Manitoba Provincial Government issued a logging license to the Toronto-based company Abitibi-Price. The license does not set guidelines for sustainable forestry and completely ignores the recommendations of the government's own Clean Environment Commission. A total of 409 miles of logging roads are planned. The Abitibi-Price Pine Falls mill sells most of the wood to the US newsprint market in Colorado, North Dakota, Illinois, Iowa, Nebraska, Nevada and Missouri.

Nopiming Forest is significant for both biological and cultural reasons: The region includes various stands of old growth. Manitoba's southern Woodland Caribou, an Endangered species, inhabit the Nopiming Forest; only 40 remain. Nopiming Forest contains many archaeological sites, and is claimed by various First Nation Bands, who are concerned about the loss of their traditional livelihoods. The wood mill dumps toxins into the drinking water of the adjacent First Nations reserve, yet the Government refuses to hold public hearings to discuss the mill.

A portion of the forest is designated Nopiming Provincial Park. In July of this year the Province passed the New Park Acts. Although The Defenders of Nopiming and other groups defeated an amendment to the New Park Acts that would have mandated logging in new Parks, logging is still allowed. The Defenders of Nopiming are working to protect the Forest through promoting ecologically sustainable forest management and establishment of wilderness preserves. For more information contact The Defenders of Nopiming, POB 644, Winnipeg, Manitoba, Canada, R3C 2K3.

—Kathleen Fitzgerald, WE staff

LAWSUIT LAUNCHED TO SAVE JAMES BAY

Quebec's vast James Bay wilderness could be saved from further hydropower dams by a lawsuit, filed in a US District Court in New York State in April, charging that New York's contract to buy energy from Hydro-Quebec is unconstitutional. Agreements with foreign governments must be approved by Congress and the President, but New York never sought approval for its 800-megawatt \$6.5 billion contract with the Quebec governmental body. The state's contract will likely be declared illegal and void if the lawsuit is upheld.

A victory in this case could lead to Vermont's contract with Hydro-Quebec also being declared illegal and void. The court's ruling will also affect Massachusetts, which has been considering a contract to buy energy from Hydro-Quebec.

The vast James Bay ecosystem was eastern North America's largest intact woodland ecosystem until Hydro-Quebec began its James Bay hydro-project several years ago. The aftermath has been horrifying: Some 5000 square miles of wilderness have been flooded; mercury from Hydro-Quebec's dams has poisoned water, fish, animals, and Cree natives; Hydro-Quebec drowned 10,000 mi-

grating Caribou in one day several years ago by releasing water from an upriver dam to generate electricity for Montreal, Quebec, and other cities; Cree people have been forcibly displaced from their ancestral homes.

Hydro-Quebec is completing Phase 1 of its James Bay project by building dams on LaForge and LaSarcelle rivers. If Phases 2 and 3 are completed, 15,000 square miles of wilderness will be flooded. However, many believe Hydro-Quebec will be unable to finish the project, one of the world's largest, without American buyers of its hydroelectricity.

Plaintiffs are the Grand Council of the Crees, Atlantic States Legal Foundation, New England Coalition for Energy Efficiency and the Environment, US Representative Maurice Hinchey (D-NY), PROTECT Inc., and five other parties. Defendants are Richard Flynn and three other trustees of the New York Power Authority (NYPA), which signed the contract with Hydro-Quebec.

Flynn and his cohorts have crisscrossed the state for three years trying to save their villainous contracts. James Bay defenders prevailed in 1992 when Governor Mario Cuomo canceled a similar \$13.5 billion contract. The contract now being challenged was signed in 1990.

The plaintiffs' arguments include these:

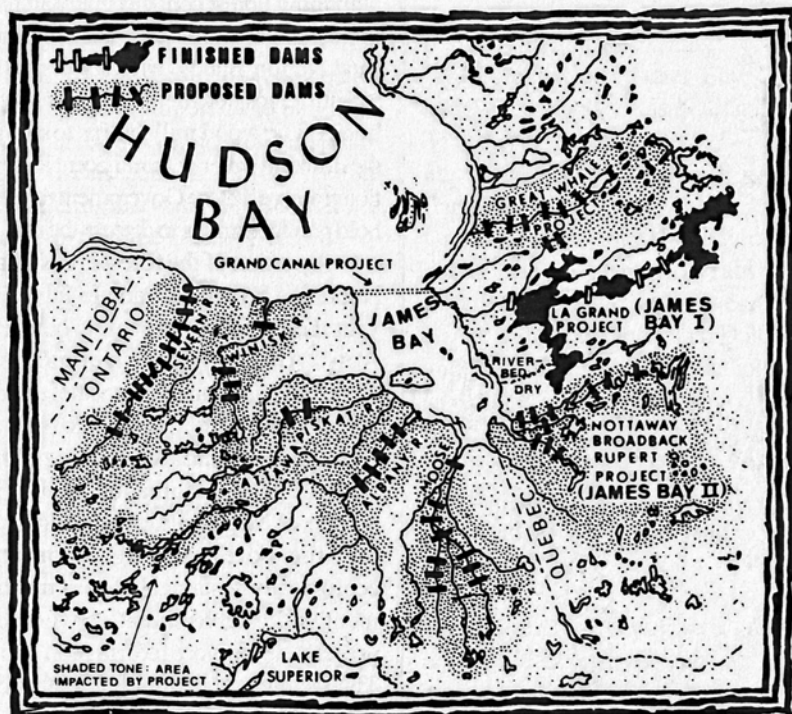
A) The Migratory Bird Treaty prohibits the "taking of nests" of migratory birds such as Canada Geese, Brandt, Lesser Snow Geese, American Black Duck, Green-winged Teal, and many others. Dozens of bird species protected by the Treaty will have nests "taken" by Hydro-Quebec's dams and reservoirs, leading to the decline of these species. Since American citizens enjoy these species, the federal government must approve or disapprove any agreements that may jeopardize their interests.

B) Federal law provides that the US Department of Energy (DOE) shall coordinate "policies regarding international energy issues." New York's contract violates law because it doesn't have DOE's approval.

C) Under the Constitution, Congress must decide whether national interests are at stake and approve or disapprove the contract.

D) If New York's agreement is found to be a Treaty rather than a contract, it must be approved by the Senate and signed by the President.

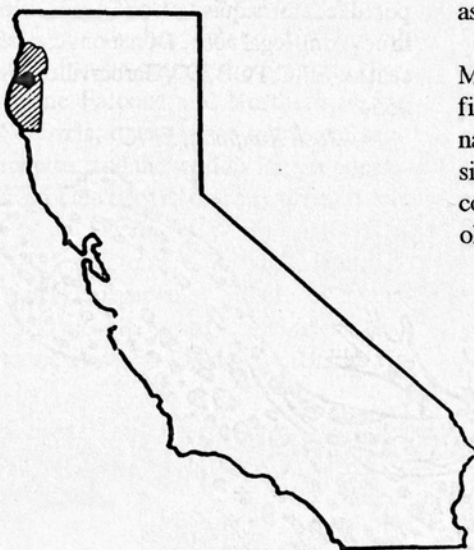
—Scott Thiele (RD #4, 237-A, Elk Lake, Montrose, PA 18801)



EPIC ACTS FOR HEADWATERS

Visitors who enter an ancient redwood forest are enveloped. Foggy mists pierced by shafts of shifting sunlight preserve the serenity of the forest. Hardly a sound is heard. These trees of incredible size and age crowded together so closely have no equals on earth. They are sentinels of a remote past, a living testimony of prehistoric forests, seeming unaltered by the forces of time and impervious to the many changes and pace of modern civilization. (Dr. Rudi Becking, Pocket Flora of the Redwood Forest, Island Press)

Unfortunately, this seeming imperviousness is an illusion. For years, conservationists in north coastal California have been struggling to slow the destruction of the great climax redwood forests. In August, US Representatives Dan Hamburg and Pete Stark, along with 80 co-sponsors, introduced legislation that opens a new chapter in the struggle. The Headwaters Forest Act, H.R.2866, calls for federal acquisition of the world's largest unprotected ancient Coast Redwood forests and the surrounding watersheds, totaling 44,000 acres. The bill would also prohibit the logging of old growth and seek to rehabilitate lands damaged by past timber operations.



HEADWATERS REDWOOD FOREST COMPLEX
HUMBOLDT COUNTY, CA

With an estimated ten times or more the biomass per unit area of the tropical rainforests, redwood forests are the most massive living systems on Earth. Trees 20 feet in diameter, 300 feet tall and 1500 years old were common up to 100 years ago. Of the almost 2 million acres of primeval redwood forest that existed prior to 1860, less than 80,000 acres remain, in scattered islands from southwest Oregon in the north to Big Sur in the south.

The local timber industry asserts that 80% of the ancient redwoods are protected by public ownership in state parks, Redwood National Park, and along the Scenic Smith River corridor; but 80% of 3 1/2% isn't much. The creation of the parks has been fought at every turn by an industry demanding exorbitant prices for "their" timber: ransoming redwoods for state and federal funds. The more telling statistic is that 80% of the redwood forested region is corporately owned, mainly by the mega-corporations Georgia Pacific, Louisiana Pacific, Simpson, Sierra Pacific and Pacific Lumber (PL).

PL owns the largest acreage of unprotected old-growth redwoods. Until 1986, the company was operated under a relatively benign management policy; PL's forest growth exceeded its rate of cutting. With no outstanding debt and 200,000 heavily forested acres, PL was asset rich and worth about \$2 billion.

Charles Hurwitz, chair of the Maxxam Corporation, moved into that financial vacuum. His junk bond financed takeover of PL and resultant massive debt load led to a cutting spree that continues today; 40,000 acres of residual old growth and 10,000 acres of virgin redwood have been leveled. Despite

numerous successful lawsuits, brought mainly by the Environmental Protection Information Center (EPIC), a host of protests and direct actions, including Redwood Summer in 1990, and even rare gumption by the state Department of Forestry in denying a handful of logging plans, PL's ancient redwoods have been decimated. About 5500 acres remain intact.

EPIC's Proposal

Those 5500 acres form the core of the 73,000 acre proposal that EPIC and other north coast conservationists developed in the wake of Hamburg's election. The Headwaters Redwood Forest Complex is located in central Humboldt County and is based on the earlier mapping and research of Kurt Newman, Larry Evans, Greg King and Todd Swarthart. It includes portions of four major drainages: Yager, Lawrence and Strongs creeks and the Elk River and all of Salmon Creek, a natural, fairly intact corridor between the upper watershed's redwood forests and estuaries of the Humboldt Bay National Wildlife Refuge. To the east the redwoods give way first to a mixed evergreen forest of Douglas-fir and hardwoods and then to the upland prairies characteristic of the interior Coast Range. The five old-growth groves of significant size within the Complex are Headwaters itself, Owl Creek, All Species, Allen Creek and Shaw Creek. Headwaters Grove, at 3000 acres, is the largest and most important because of its habitat values for old-growth-dependent species.

EPIC's proposed rehabilitation program addresses the need to repair the physical and, ultimately, the biological damage done to much of the area since the Maxxam takeover, and is based on the model for watershed restoration in the Redwood Creek basin in Redwood National Park. With the 48,000 acre expansion of that Park in 1978, Congress funded the most ambitious program of research, planning, monitoring and restoration in the country's history. If EPIC's plan for the Complex is enacted, emphasis will be on preventing future impacts from past logging by stabilizing hill slopes, recontouring landings and haul roads, removing crossings, armoring blown-out creek banks, and revegetating the denuded landscape.

The EPIC proposal recognizes that timber workers are not responsible for management policies, and that their skills (yes, operating an excavator is a skill) could be redirected toward restoration. Six options are available for those work-

ers put out of work by acquisition:

1. Incentives for early retirement
2. Monetary assistance for relocation and job search
3. Scholarships and monetary support for school and retraining
4. Low interest loans for starting small businesses
5. Priority hiring for Headwaters restoration jobs
6. Lump sum severance payments

Background

Conservation biologists agree that large reserves are more effective in maintaining ecosystem functions than small ones. This is especially true in terms of recovering endangered species. The Spotted Owl and Marbled Murrelet (a sea bird that nests in Pacific Coast old-growth forests) will only continue their downward spiral without protection and recruitment of old growth habitat.

However inadequately, the fates of the owl, murrelet, Pacific salmon stocks, and hundreds of other animals and plants are addressed on public lands by Clinton's Option 9. Options are few to none for species dependent upon privately held forests in California. The state endangered species act, which addresses the effects of private lands projects on California listed species, is relatively toothless, and federal agencies have been erratic in enforcing provisions of the federal Endangered Species Act on private lands. This is especially troubling for the Marbled Murrelet; one of its three California populations depends on those 5500

acres of virgin redwood within the Complex. Since the takeover, PL has employed a calculated strategy to isolate and fragment murrelet habitat. Recovery of a locally healthy population must begin with a reversal of that policy.

The Legislation

The Headwaters Forest Act compromises aspects of the EPIC proposal but is true to its basic spirit of viewing the landscape as an integrated, biological system. H.R. 2866 includes the five groves and surrounding watersheds. Not included are Strongs Creek, much of Salmon Creek and the north fork of the Elk River, though the latter is to be studied for possible future acquisition. The 3000 acre Headwaters Grove would be the only new designated Wilderness. The bill calls, very generally, for the cutover forests to be managed for restoration of old-growth habitat values. Some logging would be allowed within those parameters.

The area would be incorporated within the Six Rivers National Forest, an improvement over Maxxam, but certainly not ideal. Pinning down the Forest Service will be the greatest challenge to improving the bill. Restrictions on their conduct will have to come by adding detailed management direction to the legislation (which can be amended up to the full House and Senate vote—a process that cuts both ways), by amending the Six Rivers management plan, and through life-long vigilance.

The Headwaters Forest Act, then, is

no panacea. Even the EPIC proposal is only one piece of the puzzle that would eventually link the Headwaters area with National Forest reserves to the east and with national and state parks to the north and south. With ideal implementation, H.R. 2866 would help recover a number of species and begin healing several mid-sized watersheds and a resident human community. The bill represents a dramatic shift of north coast political winds that needs strong encouragement.

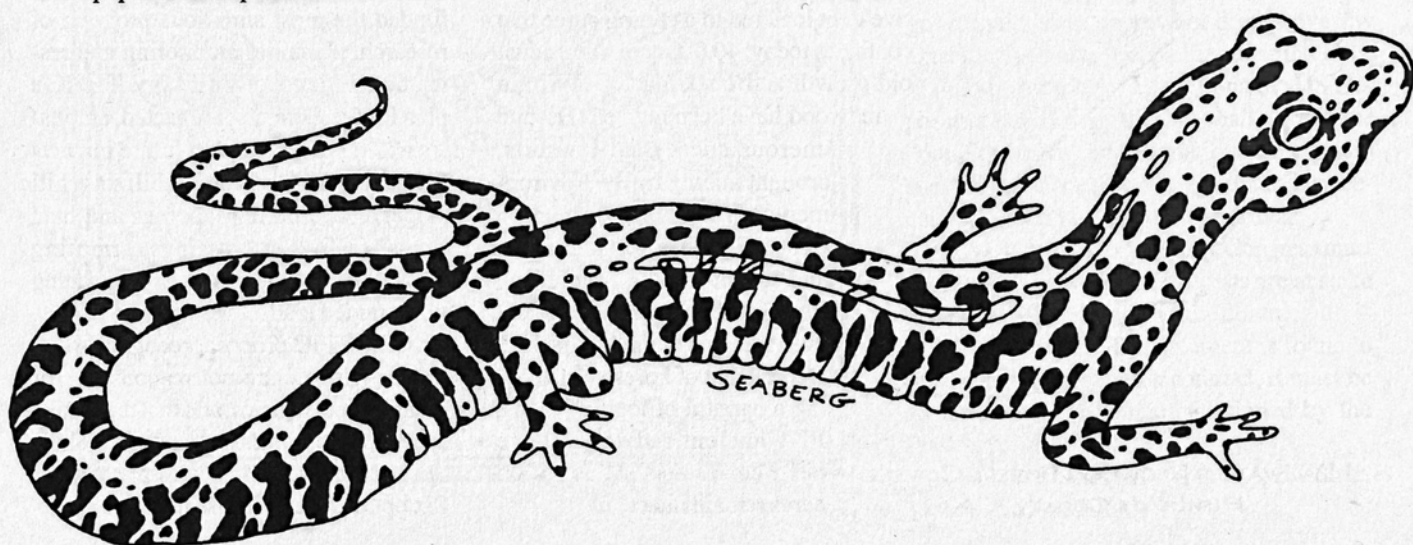
What You Can Do

This is newly elected Hamburg's first major piece of legislation and, as the US representative from the region, he's taking on powerful, entrenched economic forces. He needs letters of support: Rep. Dan Hamburg, US House of Representatives, Washington, DC 20515.

Also, call or write your US representative and senators and urge them to co-sponsor and support a strong Headwaters Forest Act, H.R. 2866. (Senators are at Senate, DC 20510.)

As was the case prior to the expansion of Redwood National Park in the late 70s when timber companies engaged in a frenzy of cutting, Maxxam will attempt to get as much timber as possible out of the Headwaters area before a sale of the lands. EPIC plans to challenge logging operations within the confines of the proposed federal acquisition and needs help in covering legal costs. Donations can be sent to: EPIC, POB 397, Garberville, CA 9554.

—Josh Kaufman, EPIC



UPDATE ON GRANDFATHER'S HEALTH

Friends of Grandfather Mountain (FOGM) has successfully concluded a four-year campaign to preserve the Wilmor & Mclean tracts on western North Carolina's Grandfather Mountain. These 1200 acres on one of the world's oldest peaks had been on the block since 1989. FOGM formed that year to stop the massive development plan of the Wilmor owners, John Williams and Hugh Morton.

Morton and Williams (the Oklahoma oil baron of Alaska Pipeline infamy) had already developed over 3000 acres on and around the mountain for a resort. Their vision for Grandfather's north slope included a ski resort, golf course, and hundreds of condos.

Grandfather Mountain, the north slope in particular, has "global ecological significance" according to The Nature Conservancy. Its few thousand acres contain, by preliminary accounts, over thirty rare, threatened, and endangered species, making it the richest highland environment in the eastern United States.

The Wilmor & Mclean properties encompassed much of the remaining wild land on the north slope, a trove of pre-Cambrian quartzite outcrops, pristine mussel and native Brook Trout breeding waters, healthy stands of boreal spruce-fir forest, the finest mature first-growth cove forests outside the Smokies, Peregrine Falcons and Northern Flying Squirrels, over twenty species of salamander, and the world's largest population of the Bent Aven, an extremely rare flowering herb.

Under terms to be worked out, The Nature Conservancy will turn over management of all or part of the Mclean Tract to the Tanawha Land Trust. Unlike vir-



tually all Conservancy lands in North Carolina, preserved in perpetuity but closed to the public, The Tanawha Trust intends to create a model for stringent habitat protection and scientific research while also offering the public the opportunity to appreciate one of Earth's great natural areas.

The Tanawha Land Trust will work with The Nature Conservancy, Trout Unlimited, Appalachian State University, and many other groups to establish a long-term scientific study of the north slope, including a comprehensive survey rivaling the fine work done on Roan Mountain by the Southern Appalachian Highlands Conservancy.

In addition, TLT plans to identify remaining private holdings on the north slope and throughout the Grandfather region. TLT will work with landowners interested in permanent protective measures for an area beset by rampant development.

Friends of Grandfather Mountain will remain active in regional land-use issues. FOGM will work with SouthPaw, Virginians for Wilderness, and others toward establishing wilderness cores and corridors in the Southern Appalachians.

We thank the Janirv Foundation and the Outdoor Industry Conservation Alliance for funding, *Wild Earth* for hanging our banner, and the Grandfather, for showing us the way.

—Miles Tager, FOGM (POB 965, Asheville, NC 28646)



COVE-MALLARD CAMPAIGN CURTAILS THE CUTTING

The Ancient Forest Bus Brigade broke base camp on September 14 (declaring victory of course). The Bus Brigade is now camped near the university town of Moscow, Idaho, home of the Federal District Court. There have been over 50 arrests with more than 200 charges filed against activists since July. They face an array of federal, state, and civil counts, and prosecutors are seeking prison sentences for some of the more "visible" protesters. Violence erupted several times. Ironically, in one incident, Idaho native Steve Paulson was severely beaten in an encounter with 10 loggers; a logger from Alaska has been charged with misdemeanor assault.

One million board feet of Lodgepole Pine has already been cut. The Forest Service has built about fifteen miles of "official" new road. (This figure does not include grass and dirt roads.)

The good news is that the Idaho Sportsmen's Coalition has filed a lawsuit to stop the destruction of Cove-Mallard, the largest unprotected roadless area remaining in the lower 48 states. [See *Wild Earth*, Summer 1993 article by Howie Wolke on the Salmon/Selway Ecosystem.] The suit, filed on September 13 in Federal District Court in Boise, seeks an injunction against further development, and asks that the Forest Service be forced to obliterate the road already built.

Meanwhile, logging is on hold and hunting season has started. Jumping through the various legal hoops will consume a lot of energy, but activists are poised to go into direct action if logging starts.

For Campaign Operations, make checks payable to the Ancient Forest Bus Brigade. For legal "offense," make them out to the Cove-Mallard Legal Defense Fund. Same address; POB 8968, Moscow, ID 83843.

—Ramon



Protecting Biodiversity In The Selkirk Mountains

A Challenge to the Federal Agencies

by Evan Frost and Jasper Carlton

The Forest Service is now in the early stages of developing an ecosystem management policy, one that "blends the needs of people and environmental values in such a way that the National Forests and Grasslands represent diverse, healthy, productive and sustainable ecosystems." This announced policy change comes as species endangerment worsens in many regions: hundreds of wild salmon stocks in the Pacific Northwest, Northern Goshawk and Mexican Spotted Owl populations in the Southwest, Grizzly Bear and Gray Wolf in the Northern Rockies...

The need for scientifically-based management in the declining ecosystems of the West is nowhere more urgent than in the Selkirk Mountains. Extending down into eastern Washington and Idaho from British Columbia, the Selkirks form the central core of a complex geographic landscape collectively called the Greater Columbia Mountains Ecosystem.

As the western-most spurs of the Rockies, the Okanogan, Monashee, Selkirk and Purcell Mountains along the US/Canadian border form a regional ecosystem that is transitional between the Cascades and the Continental Divide. One of the least known regions in the Northwest, the Columbia Mountains support an incredible diversity of vegetation types, ranging from temperate rainforests to dry interior grasslands. A large number of wildlife species that have disappeared over much of their former range in the US still persist together in this region. However, mismanagement and loss of habitat have left only remnant populations.

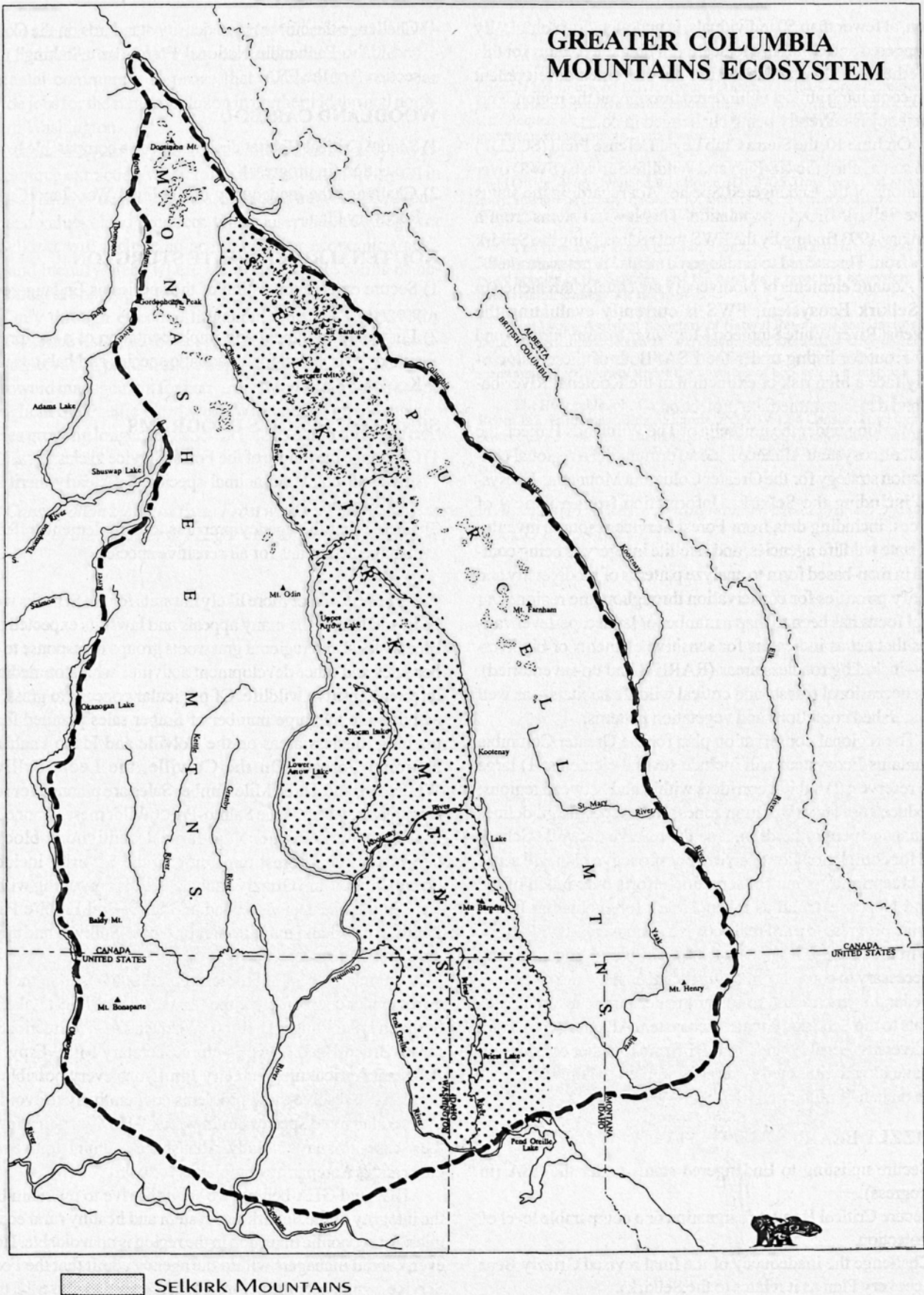
The Selkirks support several listed Threatened and Endangered species, including Woodland Caribou, Grizzly Bear, Gray Wolf, Northern Bald Eagle, as well as a number of sensitive species in decline, including Lynx, Fisher, Boreal Owl, Kootenai River White Sturgeon, Northern Bog Lemming, Coeur d'Alene Salamander, and Wolverine. This may be the last area in the lower US that still supports its full complement of native vertebrate species.

Despite the biological significance of the Selkirks, the US Forest Service (FS) has failed to manage this area to protect its native diversity. As evident in the current plans for the Colville and Idaho Panhandle National Forests, the agency has continued to bow to local political and economic pressures and allows commercial timber harvest and development to dominate over all other concerns. If this situation continues, the ecosystem could eventually collapse and many of the above-mentioned species may be lost.

Also bowing to regional political pressures, the US Fish and Wildlife Service has failed to re-classify the Grizzly Bear as Endangered in the Selkirks and designate Critical Habitat for the bear in this region, even though the Grizzly Bear popu-



GREATER COLUMBIA MOUNTAINS ECOSYSTEM



map by Michele Spangberg, Greater Ecosystem Alliance

lation, at fewer than 50 individuals, is undoubtedly biologically endangered and continues to decline. Threatened status for this and other Grizzly populations has not prevented development from continuing almost unhindered throughout the region. This deficiency is currently being challenged in court.

On June 10, the Sierra Club Legal Defense Fund (SCLDF) filed suit against the US Fish and Wildlife Service (FWS) over violations of the Endangered Species Act regarding the status of the Selkirk Grizzly population. This lawsuit stems from a February 1993 finding by the FWS that reclassifying the Selkirk bears from Threatened to Endangered status "is not warranted."

Aquatic elements of biodiversity are equally threatened in the Selkirk Ecosystem. FWS is currently evaluating the Kootenai River White Sturgeon (*Acipenser transmontanus*) and Bull Trout for listing under the ESA. Both of these fish currently face a high risk of extinction in the Kootenai River basin, and deserve immediate protection.

Working under the umbrella of The Wildlands Project, the Greater Ecosystem Alliance is now formulating a regional conservation strategy for the Greater Columbia Mountains Ecosystem, including the Selkirks. Information from a variety of sources, including data from Forest Service resource inventories, state wildlife agencies, and satellite imagery, is being compiled in map-based form to analyze patterns of biodiversity and identify priorities for conservation throughout the region. Our initial focus has been to map a number of landscape-level variables that act as indicators for sensitive elements of biodiversity—including roadless areas (RARE II and un-inventoried), late-successional forests and critical wildlife habitats—as well as watershed conditions and vegetation patterns.

The regional conservation plan for the Greater Columbia Mountains Ecosystem will include several elements: 1) large core reserves; 2) habitat corridors within and between regions; 3) reduced use and restoration zones; and 4) specific guidelines for management of lands outside the reserve network. Scheduled for completion late this year, our proactive plan will serve as a blueprint to guide conservation efforts over much of the inland Northwest, and as a benchmark for evaluating Forest Service progress toward real ecosystem management.

In the interim, it appears that broad-based litigation may be necessary to correct continuing illegal management practices by federal agencies and to foster greater public awareness of threats to the Selkirks. Greater Ecosystem Alliance (GEA) and Biodiversity Legal Foundation (BLF) are together considering or have already initiated several administrative and legal actions on behalf of the Selkirks:

GRIZZLY BEAR

- 1) Secure uplisting to Endangered status under the ESA (in progress).
- 2) Secure Critical Habitat designation or a comparable level of protection.
- 3) Challenge the inadequacy of the final revised Grizzly Bear Recovery Plan as it relates to the Selkirks.

- 4) Challenge the current road density standards on the Colville and Idaho Panhandle National Forests as a "taking" under section 9 of the ESA.

WOODLAND CARIBOU

- 1) Secure Critical Habitat designation or a comparable level of protection (in progress).
- 2) Challenge the inadequacy of the Final Woodland Caribou Recovery Plan.

KOOTENAI RIVER WHITE STURGEON

- 1) Secure emergency listing of the species as Endangered (in progress).
- 2) Ensure development and implementation of a comprehensive recovery plan for all aquatic species and habitats in the Kootenai River basin.

SENSITIVE SPECIES PROGRAMS

- 1) Challenge the failure of the Forest Service to classify as "sensitive" all plant and animal species that clearly merit such classification.
- 2) Ensure that the agency prepares and implements effective management plans for all sensitive species.

These dozen or more likely lawsuits for the Selkirks would be in addition to the many appeals and lawsuits expected to be filed by local and regional grassroots groups in response to timber sales and other development activities which immediately threaten sensitive wildlife. Of particular concern to grassroots activists are the large number of timber sales planned for remaining roadless areas on the Colville and Idaho Panhandle National Forests. On the Colville, the Leola-Sullivan, Whiteman, and Three Mile Timber Sales are planned for roadless areas adjacent to the Salmo-Priest Wilderness. Planned activities would fragment the largest contiguous block of late-successional forest remaining in the Selkirks, including prime Caribou and Grizzly habitat. GEA is consulting with Sierra Club Legal Defense Fund and the Inland Empire Public Lands Council and may file suit on Leola-Sullivan and appeal the Three Mile sale.

Cumulatively, all of these actions could result in the shutdown, under court order, of the Bonners Ferry, Priest Lake, and Sullivan Lake Ranger Districts. We intend to give Interior Secretary Bruce Babbitt, Agriculture Secretary Mike Espy, and Assistant Agriculture Secretary Jim Lyons every possible opportunity to resolve these problems cooperatively to avoid another endangered species "train wreck." However, in a few of these cases, we have already exhausted all administrative remedies and are preparing complaints for court action.

BLF and GEA believe we should strive to maintain both the integrity of the Selkirk Ecosystem and healthy rural economies. An economic transition in the region is unavoidable. However, candid managers within the agency admit that the Forest Service cannot bear the political heat required to make the tran-

sition to a management emphasis on the protection of biodiversity. The burden will fall largely on the shoulders of the environmental community to prove that viable alternatives can provide jobs for the rural population in northern Idaho and north-eastern Washington.

Maintaining employment levels while dramatically reducing resource extraction will require the creation of new jobs in the restoration of degraded lands, increased but controlled tourism, and value-added products. Our conservation strategy for the Selkirks will include an action plan for economic transition, and identify areas where some compatible forms of development are appropriate.

Only through effective litigation, constant vigilance by grassroots activists, and the development of scientifically-credible conservation plans can we hope to move the federal agencies toward management for native diversity in the Selkirks and throughout the Pacific Northwest. With the list of endangered species growing longer, and ancient forests still falling, we cannot afford to wait.

Conservation biologist Evan Frost works with Greater Ecosystem Alliance (POB 2813, Bellingham, WA 98227). Jasper Carlton is director of the Biodiversity Legal Foundation (POB 18327, Boulder, CO 80308-8327).

WRITE LETTERS:

Ed Schultz, Supervisor, Colville National Forest, 765 South Main St., Colville, WA 99114. David Wright, Supervisor, Idaho Panhandle National Forest, 1201 Ironwood Drive, Coeur d'Alene, ID 83814. Urge increased protection and cooperative management for biodiversity in the Selkirk Ecosystem. Request a copy of scheduled project activities for 1993/1994, and submit comments on upcoming timber sales.

Charles Lobdell, Field Supervisor, US Fish and Wildlife Service, Boise Field Office, 4696 Overland Rd., Boise, ID 83705. Urge increased protection and Critical Habitat designation for Selkirk Grizzly Bears, Kootenai River White Sturgeon, and Woodland Caribou, using a multi-species approach.

The Honorable Bruce Babbitt, Secretary of the Interior, 1849 C Street NW, Washington, DC, 20240. Express concern for Threatened and Endangered species in the Selkirks, and the need for a proactive ecosystem-based conservation strategy for the region.

Jim Lyons, Assistant Secretary of Natural Resources and Environment, Dept. of Agriculture, Room 217-E, Washington, DC 20250. Urge closer scrutiny of Forest Service activities in the Selkirks, and increased attention to maintaining biodiversity under the auspices of ecosystem management.

The Honorable John Cashore, Minister of Environment, Lands and Parks, Room 112, Parliament Bldg., Victoria, BC V8V 1X4 Canada. Urge increased protection and international management for biodiversity in the Selkirk Ecosystem, particularly for the West Arm Wilderness and surrounding roadless lands.



Bobcat (Felis rufus) by Bob Ellis

Preserving Biodiversity in Caves

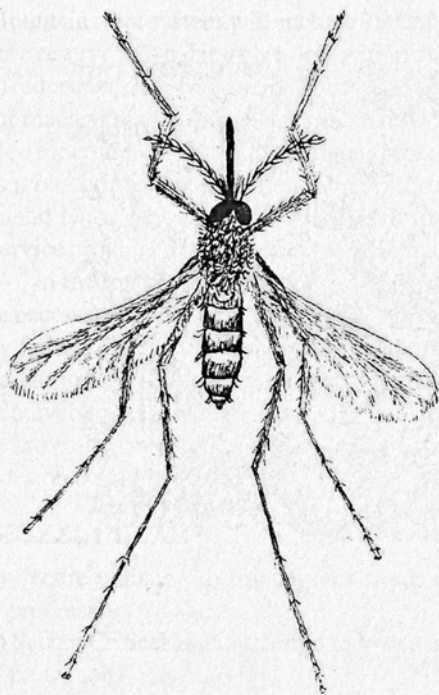
by John Roth

Compared to most surface environments, most caves have little food or other types of energy. Caves usually lack much wind, light, freezing and thawing, and organic matter. Thus, fragile minerals and species with low metabolisms normally thrive underground. Foot traffic, lights, clothing lint, increased airflow from tunnels, and vandalism are high energy impacts on caves. Visitors or altered airflow bring in skin flakes, dust, spores, or detergent-rich lint, all of which help grow plants not native to a cave—aliens.

In Oregon Caves, Carlsbad Caverns, and probably many other commercialized caves, animal communities not native to the cave have developed on lint deposits and alien plants. Such an unnatural increase in food can cause the “paradox of enrichment,” where surface-adapted insects move in and outcompete smaller and slower cave-adapted insects. This appears to have happened in some areas surrounding Mammoth Cave in Kentucky. Untreated sewage greatly increased a few species of blue-green algae at the expense of aquatic species dependent on oxygenated waters. Sewage treatment systems were installed recently and the native biodiversity is slowly recovering. In New Mexico’s Carlsbad Caverns biodiversity of macroinvertebrates declined near the trail because of food from an underground lunchroom.

The extinction rates from these impacts will depend in part on whether caves are evolutionary “islands” or whether instead most cave bugs come from small cracks surrounding the caves. Significant differences in species have been found between different drainage basins, although backed up floodwaters can biologically connect basins usually separate. Finding out which of these models best applies to cave communities is a hot topic of cave research.

The National Park Service, US Fish and Wildlife Service, Bureau of Land Management and other federal agencies have taken steps to protect biodiversity in caves. Clearcutting, pesticide use, and disturbance of roosting sites have reduced bat populations in most of the US. To help offset this decline, resource managers at Oregon Caves National Monument are attempting to aid the Caves’ bat population. In the early 1990s, two bat accessible gates were installed, one on a natural entrance to Oregon Caves and one on an exit tunnel. Designed mostly by the US Fish and Wildlife Service, the gates consist of hori-



mosquito (*Culex*) by Jennifer Wiest

zontal angle irons with their apexes pointing upward. This allows vertical maneuvering room (from apex to apex) for bats but prevents most people from slipping through. Nightscope observations indicate that bats readily utilize the new gates.

An airlock with a bat louver was installed in the exit tunnel of Oregon Caves in 1990. The louver is left open during bat swarming but closed during winter when impacts from human altered airflows are the greatest. This maintenance of an artificial bat habitat helps compensate for loss of habitat outside the Monument. For the same reason, the Bureau of Land Management has put bat gates on abandoned mines in California.

Restoring natural airflow will aid both bat and insect diversity. Adding tunnels to a cave can cause a chimney effect and subsequent drying of the cave. This threatens cave insects, which have lost their water-conserving waxy cuticles during evolution in humid cave air. Winter air entering from tunnels is not only too dry but is too cold for most bats. Bats and insects may be forced to retreat to small cracks and crevices where humidity and temperatures are higher. This restricts their habitat and access to food. Extinction becomes more likely as the habitat shrinks. By installing airlocks, areas of high humidity can be expanded back to their original extent.

Grylloblatids are primitive insects found mostly on ice fields and in caves. Most have been found in glaciated or formerly glaciated areas. What appear to be two species of grylloblatids known only from Oregon Caves conform to this pattern; glaciation occurred within about a mile of the Caves. The grylloblatids may be a glacial relic, and may be threatened by human-caused global warming. Fortunately, caves may continue to provide a refuge as the thermal insulation of hundreds of feet of overlying rock can delay climatic changes within the caves for hundreds if not thousands of years.

Algae growth around artificial lights in caves may be the human-caused process most likely to cause a paradox of enrichment and reduced biodiversity. Alien algae as excess food can have the same effect as raw sewage, human food, or lint. Algae can grow on cave walls illuminated by a single candle several feet away. Artificial lights may also attract surface animals into caves.

Most lint comes from natural fiber jeans and other pants. Visitors shake off fibers while descending, and air currents deposit them on rough passages or at the downwind end of any constricted passage. When dry, lint serves as the base for alien communities that can include spiders, dust mites, and ants. When wet, it can increase the numbers of naturally occurring bacteria, firebrats, fungus gnats, and springtails.

Except in very dry conditions, most lint falls near the trail. A rough trail surface in front of a cave can help prevent algal

spores, organics, and clay from entering the cave. Sunken trails help in confining lint to a trail system, making it easier to remove from a cave. However, air restrictors may need to be installed to compensate for changes in the cross-sectional area of cave passages.

Lint probably affects bacteria, perhaps the least understood of all cave creatures. "Cave slime" consists of rounded, light-colored films of actinomycetes. Native to caves, these bacteria resemble very thin lichens and feed on incoming organics. They do not seem to be found on walls with lint deposits, perhaps because alien bacteria outcompete the slower growing cave slime.

Moonmilk is a white, fine-grained, cave material that readily absorbs water. One origin for the word "moonmilk" is the term "gnome's milk," a reference to its mysterious ability to heal infections in European livestock. This sounds like a quaint superstition but in moonmilk are often found actinomycetes, which are a major source of antibiotics used by humans. Since actinomycetes may help form moonmilk and prevent it from crystallizing into limestone, killing alien algae with bleach needs to be done carefully.

Caves are particularly valuable to scientists because they often harbor animal communities simpler to study than those on the surface. There are generally fewer types and numbers of animals in caves, so there are usually fewer possible interactions than in surface animal communities. As in relatively simple boreal and tundra ecosystems, cyclical changes in population are more obvious because they are not masked by complex interactions. However, this ecological simplicity leaves cave ecosystems more vulnerable to human-caused extinctions.

Cave communities can serve as models for understanding nature preserves throughout the world. Like caves or oceanic islands, most nature preserves are or may someday be surrounded by human-made environments hostile to most forms of life. It is vital to know how such relatively small communities can survive. For example, how interconnected should adjacent drainage basins be to maintain both high biodiversity and evolutionary potential? Will flooding need to be artificially induced in order to maintain biodiversity in certain stressed and isolated cave systems? Cave communities can give us important clues as to how to administer and protect present and future preserves—if they themselves can be saved.

John Roth is a Resource Management Specialist at Oregon Caves National Monument, 19000 Caves Highway, Cave Junction, OR 97523.

Monocultures Worth Preserving

by Robert Eckert

When we think of protecting biodiversity, monocultures do not come to mind. There is, however, a kind of monoculture that is a repository of within-species genetic diversity. These "provenance test plantations" ("provenance" meaning "geographic origin" or "seed source") are large "common-garden" tests which were established for many tree species in the 1940s and 50s by forward-thinking forest geneticists. They were planted by the US Forest Service, state natural resources agencies, private timber companies, and universities, often in clear-cuts or agricultural fields. The most valuable of these are the test plantations containing representatives from the entire range of the species.

Trees adapt to their local conditions through the process of natural selection. For example, a pine stand may start from a seed crop of 1,000,000 to 2,000,000 seeds per hectare; yet, the mature stand contains fewer than 1000 adult trees per hectare. These adult trees are the survivors of natural selection, and are the individuals best adapted to their particular environment. Provenance tests are designed to detect the within-species genetic differences that are due to local adaptations. The idea is to bring together seeds of one tree species collected from many different environments throughout its natural range, and plant them all in one place, a "common garden." When the trees grow in this uniform environment, differences in such traits as growth and mortality, which are due to genetic adaptations to their local environments, become apparent. In this way, genetic differences from throughout the range of the species are expressed in each plantation. For example, in a range-wide test of eastern white pine, seeds were collected originally from approximately 20 trees within an area, sometimes the size of a county, from 32 locations throughout the entire range of the species. The parent trees were chosen randomly to provide an unbiased sample of local genetic variation, and all the seeds from each area was mixed together. Seedlings from each of the 32 provenances were then planted in provenance test plantations throughout the geographic range of white pine. The provenance test plantations provide replications for statistical analysis, and are important for detecting growth and mortality differences among provenances in plantations located at different latitudes, elevations, and soil types.

In recent times, provenance tests have fallen on hard times due to restricted budgets of state and federal agencies. Awareness of the high genetic value of these plantations has faded as the scientists who established them have passed from the picture. This is especially the case in most of the Northeast, where

plantation forestry was not economical in commercial forestry because of natural regeneration. Although the original purpose of the provenance tests was to provide information for plantation forestry, the tests should not be thought of in this way anymore, nor are they simply trees to be cut down for lumber, Christmas trees, pulp, or firewood. They are genetic gold mines, often in need of protection, re-labelling, re-measurement, and continued maintenance. In at least one case, that of loblolly pine, some of the original forest stands no longer exist, so the only representatives of the genetic diversity contained in the extirpated populations reside in the loblolly pine provenance tests scattered around the South.

The value of provenance tests for understanding how genetic diversity relates to local environmental conditions, and in some instances, for protecting genetic diversity by maintaining genes from extirpated populations, is unusually high. These tests are expensive to establish and maintain, so are rarely initiated today. They are potentially valuable in providing seedlings to support carefully thought-out restoration efforts aimed at reclaiming forests and wilderness.

In my opinion, provenance test plantations are a valuable genetic resource which should be identified and included as an aspect of The Wildlands Project. Genetic reserves can take many forms, from old-growth stands to areas of varying elevation which make up parts of "viewsheds." Although they are not "natural" and do need maintenance, provenance test plantations can be maintained without pesticides and should become an integral aspect of a system of genetic reserves within The Wildlands Project.

You can communicate your interest in the status of existing provenance tests by contacting the US Forest Service regional experiment stations, state agricultural experiment stations, and state natural resource agencies. You should ask for the station geneticist, sometimes referred to as the tree improvement specialist. Express your concern about the genetic variability represented in the plantations and ask what can be done to maintain and safeguard them. Volunteer to help relocate the provenance tests, re-label and collect data, if local tests have fallen into disarray.

Readers with questions should write to *Wild Earth* and I will try to answer them in another article.

Robert Eckert is a conservation geneticist and biology professor at the University of New Hampshire.

Some Partial Solutions To Road Impacts

by George Wuerthner

Roads have often been cited as major factors disrupting ecosystem integrity. Roads fragment habitat. Some species, particularly small amphibians, small mammals and other flightless animals, will not cross roads. Some species avoid roaded habitat. A recent study of one Endangered species, the Florida Panther, demonstrated that they avoid habitat islands of 25,000 acres or less surrounded by roads.

Other animals may not have an aversion to roads, but cross them at considerable peril, experiencing risk of predation or being hit by vehicles. For example, of the 83 Lynx recently released in the Adirondacks of New York as part of a reintroduction effort, at least 37 have already died—18 of them road-kills. This road mortality alone is probably enough to doom the reintroduction effort. Similarly, more than half of the Florida Panther deaths recorded between 1979 and 1991 were due to vehicle collisions. More than 280 Florida Black Bears have died on roads during the past 15 years. Biologists consider roads to be the leading cause of death of this rare subspecies, and estimate that at most 1500 of the bears remain.

In the case of rare species like the Lynx in the Adirondacks or the Florida Panther, any loss imperils the future of the population. Animals suffer excessive losses or find their populations isolated. The latter can lead to genetic bottlenecks or genetic drift, which ultimately hastens extinction. Likewise roads prevent or limit recolonization by these same road-sensitive species.

Roads also create edge habitat, particularly if cut through a forest. Edge habitat benefits species that thrive on disturbance—plants and animals we typically refer to as “weeds.”

Edge can also increase access for predators and parasites. The Brown-headed Cowbird exploits edge resulting from roads to parasitize nests of forest interior bird species.

Roads also enhance human access. This can lead to higher hunting and trapping losses, as well as poaching. It also leads to other development. A road established for logging may hasten the establishment of a subdivision.

For these and many other reasons, roads are an obvious problem for wildland recovery. Yet new roads are being constructed at a rapid rate. Florida, with one of the fastest rising human populations, constructs 4.5 miles of new highway EVERY DAY! Obviously we should prevent the construction of any new roads wherever possible, and seek to close roads at every opportunity. Nevertheless, in some parts of the country, road closures may not be politically feasible at this time.

There are, however, several alternatives that may achieve many of the goals associated with complete closure and recovery of former road corridors. Requiring that new roads tunnel through mountains rather than going around them, for example, may leave a natural habitat corridor over a major obstacle. This is particularly important with large busy highways. Studies of Black Bear in the Southern Appalachians have demonstrated that bears can and will use these mountain passage ways.

One cannot assume that present traffic patterns are as they will be in the future. Thus, even in lightly populated areas where present traffic volume may not pose a significant obstacle to migrating large mammals, tunnels should be advocated.

Providing underpasses for wildlife movement is another option. Interstate 75, which crosses Big Cypress National Preserve and the Panther National Wildlife Refuge in southern Florida, has 24 animal underpasses. A recent study confirmed that many species, including the Florida Panther, do use these structures to pass beneath the busy freeway. High fencing can help funnel wildlife to the underpasses. Maintaining natural cover as close as possible to the underpass may decrease animal anxiety. However, such structures are expensive. Each animal underpass in Florida cost more than \$1.5 million.

There are several problems with both of the above solutions. Some animals simply will not approach a busy highway, thus may not utilize underpasses or overpasses. In addition, since wildlife is funneled into very narrow and predictable travel corridors, prey animals could be vulnerable to predation or human killing. For instance, trappers could easily learn that target species cross at certain underpasses and place their traps accordingly. The same applies to predators. It would not take a Mountain Lion long to figure out that all the deer in an area cross under or over a highway at a few key locations and to wait at such crossings for an easy meal. Heavy vegetation up to the underpass may even increase predator effectiveness. Thus what may be a good policy in one area may not be suitable elsewhere.

Also, as with other mitigation measures, these passages could serve to legitimize destruction. Under and over passes might be used to justify continued habitat fragmentation or to mitigate construction of new roads.

Another mitigation measure is to require low night-time speed limits through important wildlife habitat or migratory corridors. At 25 mph, say, drivers would have more time to

avoid hitting animals.

Seasonal closures or reduced speed limits would help in some areas. For example, some roads dissect home ranges of amphibians like salamanders. These amphibians may cross roads between mating sites during one or two weeks of the year. Similarly, some Elk and deer herds complete a migration in a few days or weeks, and a closure during this period of the year may prevent a bloodbath on the highway. Crossing in areas with reduced speeds or road closures can be encouraged by maintaining cover to the road's edge, instead of trimming back trees and shrubs, as road crews normally do.

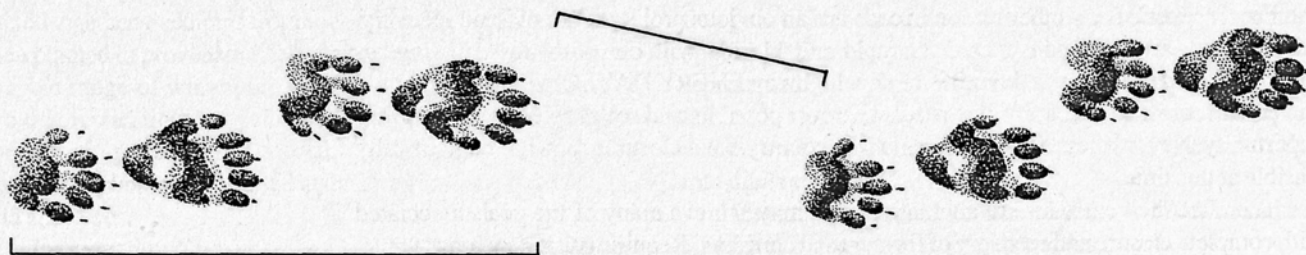
Many species affected by roads are nocturnal. Many mammals, for instance, prowl at night, avoiding openings during daylight. In some areas, it may be possible to establish night-time road closures. Alternative routes could be suggested. If done with enough public education as to the need and reasoning for night road closures, motorists may cooperate.

Several convincing reasons can be adduced in support of night road closures. For one, most roads, particularly in rural areas, have little traffic at night, yet a disproportionate number of road-kills happen at night. Some negative human activities, such as poaching, occur mostly at night. Thus night-time closures may provide much protection at little cost.

Finally, the use of shuttle buses, trains, bicycles and other transport alternatives to individual motorized vehicles can also help to mitigate the impacts of roads.

Obviously the best alternative is no roads. However, where roads cannot be eliminated, the suggestions above may go a long way toward mitigating their impacts.

George Wuerthner (Box 273, Livingston, Montana 59047) is a widely published wilderness explorer and writer and member of The Wildlands Project board. He recently began his research for a doctorate in range ecology at Montana State.



Skunk tracks by Heather K. Lenz; from Paul Rezendes's Tracking and the Art of Seeing (Camden House, 1992)

Restore The Wild Atlantic Salmon

Bold Action Is Needed

by David N. Carle

This disappearance of the salmon is a shocking condemnation of man's stewardship over the bountiful riches of nature with which the Almighty has endowed us. It belongs in the same category as the despoliation of our forests; as the man-created erosion that has ruined forever hundreds of thousands of acres of our land; as the extinction or near extinction of many of the birds, animals, and fishes that once populated our country.

Report of the Commission to Study the Atlantic Salmon to the Governor of Maine January 1, 1947

The wild Atlantic Salmon could soon be gone from the United States. Formerly found in most rivers north of the Hudson, today wild Atlantic Salmon survive in the United States only in a few New England rivers. Rivers that once flowed freely to the ocean are now polluted, blocked by dams, and stocked by the government and private groups with captive-bred fish. Once up to 500,000 salmon returned to these rivers each year. In recent years, only 3000 to 7000 have returned and the situation appears to be deteriorating. Thus far in 1993, less than 3000 salmon have returned from the ocean to their spawning grounds in New England. Various programs to restore wild Atlantic Salmon to American rivers have been in place for over 100 years. Despite millions of dollars spent, only about 2000 more Atlantic Salmon returned to New England rivers in 1992 than in 1947.

The State of Maine recognized that the salmon was in danger in 1947, and formed the Atlantic Sea-Run Salmon Commission (ASRSC). The ASRSC was granted the authority to purchase or lease lands, dams, and flowage rights, and to build water control structures for the purpose of conserving Atlantic Salmon.

The Commission lacks the power to be successful. In 1947, the Atlantic Salmon population in Maine was roughly 1500-2000. Over 18,302,600 Atlantic Salmon have been stocked in Maine rivers since 1970, yet the number of returning salmon remains perilously low.

Formerly at least 34 rivers and streams along the coast of Maine has wild salmon populations. Today, that number is down to 13. According to the 1992 Annual Report of the US Atlantic Salmon Assessment Committee, "Adult returns to most rivers [in New England] declined or remained relatively unchanged when compared to 1991" (p. 6).

Marine fisheries also take a serious toll on the US Atlantic Salmon population. According to recent tagging studies, the survival of US origin hatchery stocks "is as much as an order of magnitude lower than counterpart stocks elsewhere" (MSRASC, 1992). The Atlantic Salmon is threatened in both the rivers and the oceans.

Salmon have been raised in hatcheries and stocked in New England rivers for many years without success. It is time for the agencies to try a new approach.

DAMS KILL SALMON.

Dams are a major threat to the survival of wild Atlantic Salmon. Terry Haines, a professor at the University of Maine, has stated that the major cause of the Atlantic Salmon decline "was the construction of dams that blocked the access of migrating fish to upstream spawning areas" (Haines, 1987). Today, there are plans

for more dams. The staff of the Maine Department of Environmental Protection (MDEP) recently recommended that Bangor Hydro-Electric Company be allowed to construct a new dam at Basin Mills on the Penobscot River. The *Staff Recommendation For Approval of the Basin Mills Hydro Project* describes the current Atlantic Salmon restoration program:

Today's Penobscot River salmon run is currently [sic] completely dependent on human intervention. Salmon brood stock are trapped and trucked from Veazie Dam to a federal fish hatchery, where eggs are harvested, artificially fertilized, and then raised in an artificial environment. Juvenile fish are then trucked and stocked back in the river, to migrate to the ocean through man-made dams. Upon their return to the river as adults, these fish must migrate upstream through concrete fishways.

Most people recognize dams as major barriers to fish trying to swim up rivers. One mitigation measure has been to build fish ladders, supposedly offering controlled passage either around or through a dam. Fish ladders are at best a partial solution. If the fish can find the fish ladder entrance, they may enter and attempt the climb. Sometimes they find the entrance and refuse to enter. If they do not find the entrance, they die.

Another human solution is to "trap and truck" the salmon. Salmon are trapped below a dam, put into a tank on the back of a truck, and transported up river. This makes the salmon completely dependent on humans for survival. If a diseased fish is trapped, the disease may spread to the other fish in the tank. The trauma of being trapped and packed into a small tank kills many fish, usually after they are released upstream.

Dams are not only upstream barriers, but downstream killers. Power companies use water to turn turbines which drive electric generators. Salmon are often chopped up by the turbines. At the West Enfield dam on the Penobscot River, downstream bypass weirs were installed to divert the fish away from the turbines, but 86 percent of the salmon continued to be drawn through the turbines. At one dam on the Connecticut River, 27 percent of the smolts (young salmon migrating to the ocean) were killed in the turbines. With six major dams on the Connecticut River, the turbines can decimate migrating smolts.

CAPTIVE-BRED FISH ARE INFERIOR.

The current stocking program works against the restoration of wild Atlantic Salmon. Artificial propagation of salmon in hatcheries promotes the spread of diseases and may result in diminished genetic variability in a given salmon population. Fish raised in fish-farms also threaten wild salmon populations. If these fish escape into the wild, they can bring disease; interbreed with wild fish and corrupt their genetic integrity; and compete with, prey upon, or modify the habitat of wild salmon.

Captive-bred juvenile salmon have been stocked repeatedly in many New England rivers. Moller (1970) found that interchange of stocks may have affected the gene frequencies of the original populations. He advised that interchange between different populations be avoided. He further cautioned that, if hatchery planting is to be done, the breeding population should contain as many spawners as possible to maintain an ample gene pool, and that parent stock should originate from the locality where the young are to be planted to assure a gene pool adapted to the local environment.

Physical characteristics of wild salmon, which are able to make multiple spawning runs, vary between rivers, reflecting local variations in growth conditions and life histories. No such differences exist in captive-bred and farmed salmon. This lack of local characteristics can significantly influence the competitive relationship in the short term between escaped farmed salmon, captive-bred salmon, and wild salmon in individual rivers, and cause long-term impacts to the wild population.

According to Hutchings (1991):

Extinction of native populations is the most serious consequence that can result from the intentional or unintentional release of cultured organisms into the wild. The degree to which introductions will influence the demography of native populations will largely depend on the extent to which individuals are adapted to local environments, on the amount of genetic differentiation between cultured and native individuals, and on the probability and magnitude of outbreeding depression.

Hutchings defines a cultured fish as "any fish whose conception was directly manipulated by man." This describes most of the Atlantic Salmon returning to American rivers.

Atlantic Salmon returns to New England rivers

River	Annual Totals			
	1990	1991	1992	1993 (as of 7/15/93)
Penobscot	3342	1757	3157	495
Union	21	8	8	0
Narraguagus	51	95	134	21
Pleasant	0	0	18	0
Machias	2	2	88	0
East Machias	48	5	38	3
Dennys	33	7	77	1
St. Croix	112	189	133	21
Kennebec	46	4	n/a	2
Androscoggin	185	21	17	0
Sheepscot	9	4	47	7
Ducktrap	3	0	18	0
Saco	73	4	8	12
Cocheco	0	0	n/a	n/a
Lamprey	0	0	n/a	n/a
Merrimack	248	332	241	57
Pawcatuck	8	0	7	5
Connecticut	263	203	593	198

Jonsson et al. (1991) found that wild Atlantic Salmon survived more than twice as well in the ocean as captive-bred fish. Wild salmon ascended the river earlier in the season and strayed to rivers other than their "home river" less than captive bred fish. Captive-bred fish moved about the river more than wild salmon, and a higher proportion were injured during the spawning period. A larger proportion of captive-bred fish returned to sea without having spawned.

The major emphasis of the current Atlantic Salmon restoration program is on breeding and stocking captive-bred fish. This ignores the basic problem: over 50 percent of the river habitat is inaccessible to salmon or degraded. The restoration program needs to be redesigned, to focus on habitat protection and accessibility.

It is time to remove dams, ban ecologically unsustainable logging, and stop polluting.

The US Fish and Wildlife Service and the Atlantic Sea-Run Salmon Commission have published a number of reports about restoring the Atlantic Salmon. All focus primarily on an increase in hatchery production of young salmon, a strategy that has not worked. Recently, the US government and two private organizations bought out the Greenland fishery rights for the next two years. This is a positive step. Now, the agencies must address the lack of safe up and down stream fish passage, the dioxins being dumped, and the destruction of habitat by logging and development along the rivers of New England. Until these issues are addressed, the restoration program is doomed.

True restoration is possible. According to the Salmon Restoration Final Environmental Impact Statement (FEIS), 105 dams in New England will need fish passage facilities beyond those currently in place. These modifications would affect only 0.5% of New England's energy needs and add numerous jobs to an area in need of ecological and economic sustainability.

It is time for the FWS and the ASRSC to start protecting the ecosystems on which wild Atlantic Salmon depend. They must phase out the annual release of millions of captive-bred salmon that pollute wild gene pools. They must work to remove or modify dams, ensure that the catches of commercial fishers are within limits of viable wild salmon populations, forbid pollution from being dumped into our rivers, and stop ecologically unsustainable logging and development in watersheds of rivers where Atlantic Salmon are native.

FOR MORE INFORMATION, CONTACT:

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US Fish and Wildlife Service
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Hadley, MA 01035

Atlantic Salmon Federation
RR#2, Box 3201
Bowdoinham, ME 04008

Atlantic Salmon Sea-Run Salmon Commission
PO Box 1298
Bangor, ME 04401

New England Atlantic Salmon Association
PO Box 484
Newburyport, MA 01950

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David Carle is the Associate Executive Director of RESTORE: The North Woods.

Salmon Update

RESTORE The North Woods, Biodiversity Legal Foundation, and Jeffrey Elliot filed a petition with the US Fish and Wildlife Service on 30 September 1993 to list the Atlantic Salmon as an Endangered Species, throughout its historic range in the United States, under the Endangered Species Act. Look for details in future issues of WE.

Troubles in the Mist

Civil War and Human Overpopulation Cloud Gorillas' Future

by Kathleen Fitzgerald

Last spring, Mrithi, a 23-year-old silver back Mountain Gorilla in the Rwandan jungle, was mistaken as an enemy and shot dead. Mrithi's group completely split up and spread throughout the region. Mrithi's daughter was soon found dead.

Ziz, a 22-year old silverback, was declared dead on 5 May 1993. The cause of his death is unknown. Ziz was the silverback of the largest group among all the remaining Mountain Gorillas, with 36 members. Ziz's group has reportedly divided in half.

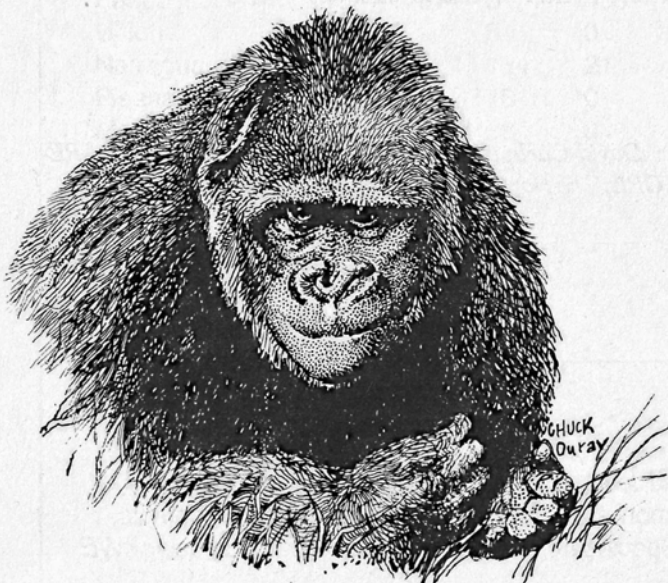
On 14 July 1993 a female Gorilla was caught in a snare. The snare was removed by Louis Nzeyimana, an interim veterinarian and a shot of penicillin was given to the Gorilla to reduce the chance of infection. On July 10 another Gorilla was caught in a snare.

Rwanda's Mountain Gorillas, *Gorilla gorilla beringei*, are facing their toughest battle for survival in 25 years. The Gorilla's territory is diminishing rapidly, and in the latest civil war in Rwanda the Mountain Gorillas became targets.

Scientists estimate only 620 Mountain Gorillas survive, 320 of them living in the Parc National des Volcans in Rwanda. The last Mountain Gorilla in captivity died in a German zoo in 1978. The 45-48 square mile Park has a long history. In 1921 Charles Akeley, a naturalist and sculptor, led an expedition to the Virunga Volcanoes after hearing of the Mountain Gorillas. Akeley's trip had a tremendous impact on him. He grew to appreciate the region and the Gorillas, and later led a successful campaign for the establishment of a sanctuary for Mountain Gorillas.

In 1925 King Albert of Belgium created the Parc National Albert. When Ruanda and Urundi achieved independence in 1961, political boundaries and leaders were altered, and the Parc National Albert became Parc National des Volcans (Volcanoes National Park).

Parc National des Volcans is a diverse region of thick thistle and stinging nettles, Hagenia trees, black berry bushes, steep volcanic slopes, muddy elephant trails, and tropical rainforest. The Park receives an average of 72 inches of rain each year. The vegetation is dense enough to hide a 450 lb. Mountain Gorilla and provides the Mountain Gorillas ideal plants and trees for building nests and plenty of food.



Mountain Gorillas live in tight family groups ranging from three to thirty-five members. The dominant male, called the silverback because of his silver fur, leads the group. The death of a silverback is traumatic for all members and usually results in the break-up of the social structure. Females attempt to join other groups, often having their babies killed by the silverback of the new group. The killing of the young Gorilla helps maintain the silverback's genetic line by renewing the female's breeding cycle. The loss of a silverback or other members of the group may also lead to confrontations with other groups which sometimes result in the death of a Gorilla.

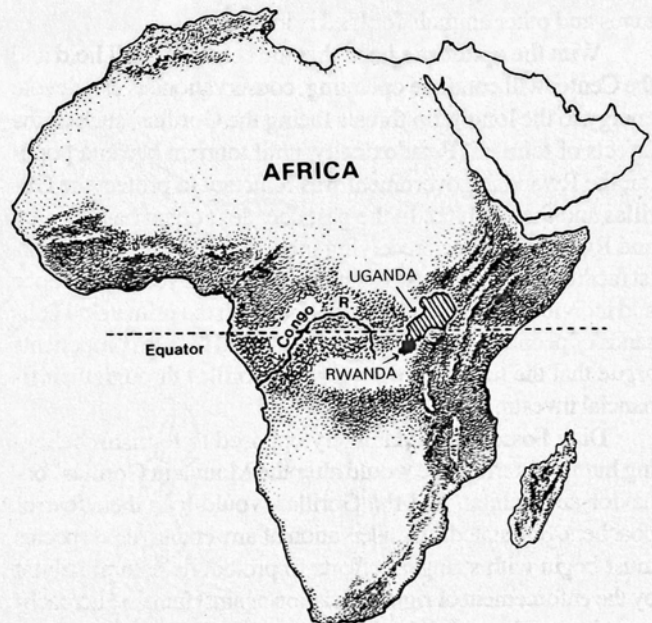
Recorded Mountain Gorilla research began in 1959 with George Schaller's 20 month study in the Congo. Schaller, current Director for Science of Wildlife Conservation International at the NY Zoological Society, researched 10 family groups and provided a solid background of knowledge on Gorillas. Dian Fossey followed Schaller and created Karisoke, a research center devoted to the study and protection of the Gorillas, in 1969. Karisoke is settled between Mt. Visoke, 12,172 feet, and Mt. Karisimbe, 14,782, in the Virunga Mountains of Rwanda. Dian brought the Mountain Gorillas world-wide attention through her research and book *Gorillas in the Mist*, and by publicizing the death of "her beloved" silverback Digit. Dian was well-known throughout the world for her strong "active conservation" philosophy—which entails action, not mere talk. She supported shooting cattle that wandered into Gorilla territory and created a patrol to seek and stop poachers. Dian spoke out on behalf of the Gorillas and was killed as a result of her radical actions and philosophy. Her murder remains a mystery. Dian's memory lives on through the Dian Fossey Fund based in Englewood, Colorado. Dian started the Digit Fund in 1978 to gain support for her conservation efforts. The Digit Fund eventually became the Dian Fossey Fund. Dian's presence is also felt at the Karisoke Research Center which continues to host scientists and a poaching patrol. Unfortunately, for the first time since its creation, residents of Karisoke vacated the Center, during Rwanda's most recent civil war. Five white researchers and thirteen Rwandan staff members were forced by The Rwandan Patriotic Front to evacuate Karisoke in February 1993, leaving the Gorillas completely unprotected.

The Rwandan Patriotic Front consists of members of the Tutsi clan. The majority of the Rwandan government belong to the Hutu tribe. Tutsi herdsmen held Hutu people as serfs until 1959 when the Hutu seized power and the Tutsi fled to Uganda. Since then, the Rwandan government has been run by Hutu people and citizens are required to carry ID cards proving their tribal affiliation. Only 15% of the Rwandan population is Tutsi, yet they represent a large part of the business class, priests, and intellectuals. A civil war began in October 1990 when 1000 Tutsi refugees, armed with Ugandan military weapons, invaded Rwanda from Uganda in an attempt to regain power. The fighting, Rwanda's worst upheaval since independence from Belgium, occurred in the northeast corner of the country, Mountain Gorilla territory. Fortunately, the fighting has recently stopped

and a cease fire has been declared.

Rwanda has become one of the poorest and most densely populated countries in the world. The villages are densely packed with people swaddled in traditional bright colored cloth or torn "western apparel." The average Rwandan family has 9-14 children and earns \$260 a year. The population density is 365 persons per square mile and the population is increasing at an annual rate of 2.9%. As the population continues to surge, more and more Gorilla habitat is converted for agricultural use. Civilization is pressing against the Park boundaries, confining the Gorillas to a small area. As a result of the civil war resources are even scarcer than usual. One million Rwandan people were forced to abandon their homes and farms and live in refugee camps, receiving, if lucky, two pounds of corn a week per person. Because of the lack of food, Rwandans are forced to look to the forests for nourishment, so they set snares in the Park to catch small game. The number of snares in the Park tripled after the beginning of the war. The Mountain Gorillas who get caught in the snares, even if they manage to escape, are at risk of dying from infected wounds. The refugees, whose homes were destroyed as rebels raged through the villages, are also cutting down the forest for fuel and shelter, further decreasing Gorilla habitat. Ecological crime or not, the Rwandans are desperate and have no other option.

Before the war, patrol staff living at Karisoke confiscated traps; but when the rebels took control of Karisoke last February, the poaching patrol was forced down the mountain. Park rangers would no longer patrol the Park for fear of rebels. Two Park guards were killed. The Rwandan Patriotic Front issued a press release on March 8 stating that the Karisoke Research



Center was in good hands. Less than a week later the Research Center was ransacked. Windows and doors were shot, equipment stolen, and data strewn about on the moist ground. Materials and equipment can be replaced; Mountain Gorillas cannot. With only 620 Mountain Gorillas alive in the wild, the loss of one animal is a severe blow to the species. During the 1980s the Mountain Gorilla population was increasing, Scientists fear this growth will be reversed because of the civil war.

If the charismatic Mountain Gorilla—an animal we are very similar to genetically and socially—cannot be protected, how will such non-glamorous and threatened species as the Alabama Sturgeon and the Boreal Toad survive?

Dr. Steiklis, an anthropology professor at Rutgers University, former Director of the Karisoke Research Center and current CEO of the Dian Fossey Foundation, returned to Rwanda this past April and again in August. His crew accounted for all the Gorillas with the exceptions mentioned previously.

In early July the Rwandan Patriotic Front returned computers and vehicles taken from Karisoke. Dr. Steiklis viewed this action as a positive sign in terms of relationships between conservationists and natives. Nonetheless, renovating and restocking the center has been extremely expensive and time consuming. Steiklis reported that the Rwandan staff, the Director of Karisoke and one researcher are back at Karisoke and the Center is in working order.

Steiklis and others link the demise of the Mountain Gorilla directly to the plight of the Rwandan citizens. As long as the population continues to grow and Rwandans continue to deplete resources, the Gorillas will remain vulnerable. In Rwanda as throughout the world, the competition between humans and other animals for land is increasing.

With the optimistic hope that the cease fire will hold and the Center will continue operating, conservationists can devote energy to the long-term threats facing the Gorillas, such as the effects of tourism. Paradoxically, until tourism became popular, the Rwandan government was reluctant to protect the Gorillas and their habitat. In the past decade tourism has boomed and Rwanda has been receiving monies for research and tourist facilities. Gorilla viewing safaris are booked years in advance and individuals pay \$150 for one hour with the primates. Thousands of people visit the Park each year, and tourism proponents argue that the tourists are saving the Gorillas through their financial investment in Rwanda.

Dian Fossey was adamantly opposed to tourism, believing human interference would alter the Mountain Gorillas' behavior and habitat, and the Gorillas would lose their fear of poachers. She stated: "Conservation of any endangered species must begin with stringent efforts to protect its natural habitat by the enforcement of rigid legislation against human encroachment into parks and other game sanctuaries" (Fossey XVII).

Toward the end of her days in the Virungas, Dian reluc-

tantly approved of a limited number of tourists spending brief periods watching the Gorillas from a distance. Dian had habituated some Gorillas to the presence of humans for scientific studies, yet refused to do so for tourist purposes. She believed "any observer is an intruder in the domain of a wild animal and must remember that the rights of the animal supersede human interests" (Fossey, 14).

In contrast is Bill Weber, who worked with Dian and later with the Mountain Gorilla Project, a group created in 1979 by a consortium of international conservation organizations. Weber felt "making

the Gorillas pay for their keep was the only way to save the Gorillas for future generations." (*International Wildlife*) The Mountain Gorilla Project eventually habituated four Gorilla groups and launched a tourism program. On May 29, 1992 Jane Perez reported in the *New York Times* that half of the Gorillas tolerate tourists nearby, while the other half remain totally wild. Tourist interest has indeed made the government enforce protection and cooperate with Karisoke staff, yet is a tame Mountain Gorilla truly a Mountain Gorilla? Bob Cambell, who spent three months filming Dian stated:

I fear that the gorillas are overhabituated. Gorillas used to be very good at identifying... and reacting to people. Now, almost anyone can approach them in an upright position, which is usually seen as a threat. (Watertown Daily Times)

The problems are complex and common of species in danger of extinction but kept alive for the sake of tourists or zoogoers. Will we only protect species for the benefit of humans? We need to consider the ramifications of eco-tourism. *Buzzworm's* August 1993 issue pictured a woman with her camera lens one inch (no exaggeration) from a Nene, an Endangered goose, on Hawaii's Big Island. That may mean an incredible adrenaline rush and great addition to the women's photo collection, but what effect will her presence have on the Nene? When it comes to human interference with wildlife, Dian Fossey's philosophy needs to be revitalized and respected. Eco-tourism may protect the Gorillas in the short term, but with the human population escalating rapidly the Gorillas are doomed to lack habitat. Long-term planning is crucial if the Mountain Gorilla is to survive.

Not only do tourists affect Gorilla behavior and habitat, they may transmit diseases to their evolutionary relatives. To date, there is no concrete evidence of human disease being transmitted to the Gorillas, but there is strong speculation. The issue is being researched. Various diseases minor to humans may be fatal to Gorillas. In 1988 there was an outbreak of respiratory disease and six Gorillas died. An autopsy of one indicated that it had contracted the measles, which is transmitted by humans. Tourists are warned not to visit the Gorillas if they are at all sick, so as to decrease the chances of germ transmission. This regulation, however, is only enforced by an "honor system."

How many American and European tourists, after spending thousands of dollars on a safari to Africa, would forfeit their visit with the magnificent Gorillas because of the sniffles? Tourists are also told not to touch the animals. While living in Kenya for 6 months I heard quite often from tourists just returned from Rwanda about the adorable baby Gorillas who had playfully jumped on their laps.

Tourism has recently plummeted due to the civil war. During this hiatus in tourism it is important to look for alternatives. Global grassroots activist Michael D'Amico sees the need for an international campaign to establish the Virunga Mountains as a United Nations World Heritage Site and Biosphere Reserve. Biosphere Reserve status could help win world-wide support for protecting the Park as a core wild area, and surrounding land as a buffer zone.

Unfortunately, the future of Rwanda looks bleak. Because of deforestation, erosion is extreme and crops will be skimpier next season.

US AID (Agency for International Development) has provided a grant to the Dian Fossey Fund for research on Gorilla habitat and the needs of the people living on the edges of the Park. Dr. Steklis believes it is essential to get the Rwandans involved in conservation. Ways must be found to protect the Gorillas and ensure the livelihood of the Rwandans. People will continue to infringe upon the Gorillas until they grow to understand, respect and benefit from the Gorillas.

If the charismatic Mountain Gorilla—an animal we are very similar to genetically and socially—cannot be protected, how will such non-glamorous and threatened species as the Alabama Sturgeon and the Boreal Toad survive? It is time for conservationists to ask themselves and others what it will take to rescue the Mountain Gorilla from extinction. Perhaps the answers will be politically unacceptable, but conservationists' job is to advocate **what is best for the Gorillas**.

WHAT YOU CAN DO

To express your concern for the Mountain Gorillas of Rwanda, write to President Clinton, The White House, 1600 Pennsylvania Ave., Washington, DC 20001; and His Excellency the Ambassador of Rwanda Aloys Uwimana, 1714 New Hampshire Avenue NW, Washington, DC 20009; and Director, Bureau of Coordination, Rwandan Patriotic Front, 3, Avenue de l'Observatoire, bte 8, 1180 Brussels, Belgium.

For more information contact: The Dian Fossey Gorilla Fund, 45 Inverness Dr. E., Suite B, Englewood, CO 80112.

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Kathleen Fitzgerald is Assistant Editor of Wild Earth.



In the Company of Lizard Lovers

Like most kids growing up in Texas, my earliest close encounters with nature involved those funny critters called "horny toads." They were ugly enough to be cute, big enough to see well but not big enough to be threatening, and (very important) they were slow enough to catch. They were also abundant: we could find them in most any farm field or vacant lot.

That's not the case today. The Texas Horned Lizard, *Phrynosoma cornutum*, is getting mighty scarce, and nobody knows quite why.

This horned lizard, however (and the rest of the genus *Phrynosoma*), has the best fan club a critter could want—the Horned Lizard Conservation Society. Founded in 1990, HLCS is dedicated to reversing the lizard's decline and supporting its return to all of its natural range.

Fortunately, these animals have no real human enemies. In an era of extreme conflicts, with groups of misguided humans rooting for the extinction of particular species, it's nice to see crusty old cowboys sharing the concerns of spike-haired young urbanites.

To help these favored lizards, biologists and enthusiastic amateurs from the Society have launched an ambitious private research and recovery program. They studied 1629 museum specimens and sighting records to determine the historic range of the Texas Horned Lizard. To assess its current status, they made intensive searches at more than 100 locations that once had horned lizards. They interviewed local residents at those locations to identify land uses that may correlate with the presence or absence of the lizards, including the use of pesticides and the presence of fire ants. [*Fire ants, Solenopsis invicta, which are native to South America, often sting the lizards and displace the native ants that are the preferred diet of the lizards.*] HLCS activists have also set about distributing a sighting survey, asking people throughout the region about when, where, and how often they have seen horned lizards.

The results of these efforts should provide a much better picture of the Texas Horned Lizard's status, which will help in their recovery program and may result in federal protection. More immediately, news of the lizard's plight has served as a starting point for educational efforts about the need to preserve native species and habitats.

While the group has focused on the Texas Horned Lizard, they take a broader view of horned lizard issues. HLCS members have also been involved in studies of the Flat-tailed Horned Lizard, a soon-to-be-listed endangered species in the Sonoran Desert, and they have raised funds for other horned lizard research. In May, the Society sponsored the first annual Conference on Horned Lizards.

HLCS puts out a fun and informative newsletter ("Phrynosomatics") and holds occasional public events. Write them for information: POB 122, Austin, TX 78767; 512-288-4802.

—Dale Turner



Kittatinny Raptor Corridor Project

by Donald S. Heintzelman

The Wildlife Information Center, Inc., a nonprofit wildlife conservation organization, has launched The Kittatinny Raptor Corridor Project—a long-term program to preserve as much wildlife habitat and open space as possible along the Kittatinny-Shawangunk Ridge and raptor corridor in New York, New Jersey, and Pennsylvania. We are monitoring the ecological vital signs of the entire mountain, developing ecotourism information and programs, and preparing related educational materials.

BACKGROUND

The Center's concerns regarding environmentally appropriate uses of the Kittatinny Ridge and its corridor are rooted in our long-term Bake Oven Knob Hawk Watch which has monitored autumn hawk migrations since the early 1960s. Currently a battle rages over a soil incinerator proposed for construction near the base of the Bake Oven Knob hawk migration observatory. The Center strongly opposes the incinerator.

The Kittatinny Ridge is a long mountain extending across parts of three states. It begins as the Shawangunk Range in New York, runs across northwestern New Jersey, and continues across southeastern Pennsylvania to its terminus northwest of Carlisle, PA. This beautiful mountain is best known as one of North America's most important autumn raptor migration flyways, and part of the route of the Appalachian Trail. Hawk migration observation sites are located along its crest in all three states.

Some sections of the Ridge and corridor are in public or informed private ownership, and thus protected, but much of it is underappreciated. Parts of the mountain and corridor also are suffering environmental stress and could be lost due to lack of local zoning codes and inappropriate land uses including road construction, land speculation and development, logging, quarrying, incinerator construction, wetlands infringement, and one federal Superfund site. Action is necessary if the largely unspoiled features of much of the ridge are to remain intact.

In 1978, Lehigh County, PA, officials designated the Lehigh County section of the mountain the County's Raptor Migration Area; and the Pennsylvania Game Commission designated the state's entire length of the Ridge the Kittatinny Ridge Birds of Prey Natural Area. In 1992, we recommended that the federal government designate the entire length of the Kittatinny-Shawangunk Ridge the "Kittatinny National Raptor Flyway."

The designation would not alter private or public ownership of land along the mountain. Habitat preservation on the mountain and within the corridor would help assure that this bird migration flyway continues to link New England, Adirondack, Catskill, and Pocono Mountain wildlands with wintering grounds in the southeastern United States and Latin America.

Kittatinny Raptor Corridor Project has five basic objectives:

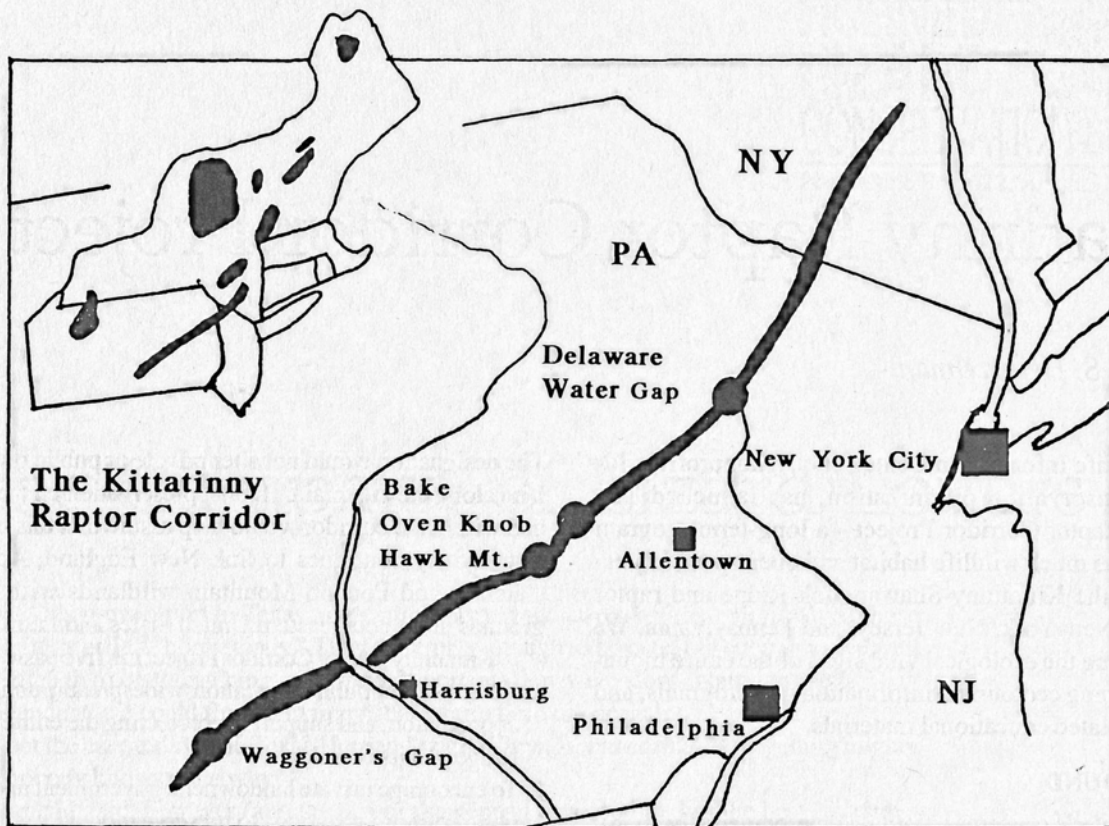
1. To foster via public education widespread public concern, appreciation, and support for protecting the entire Kittatinny Ridge and its corridor.
2. To encourage private landowners, government agencies, and non-profit organizations to preserve more key wildlife habitat on the Kittatinny Ridge and within the Raptor Corridor through land preservation techniques including gifts, direct purchases, acquisition of development rights, conservation easements, etc.
3. To identify, contact, and work cooperatively with as many conservation and citizen organizations as possible to achieve the stated protection and appropriate use objectives of the Kittatinny Ridge and corridor.
4. To expand the Center's data bases and conduct necessary wildlife field studies at Bake Oven Knob and elsewhere within the Kittatinny Raptor Corridor.
5. To secure a 50- to 100-acre wildlife refuge and headquarters for the Wildlife Information Center within the corridor, preferably close to Bake Oven Knob, PA.

ENDORSEMENTS

Agencies, institutions, and organizations can assist the Project by sending a letter of endorsement for the Kittatinny Raptor Corridor Project to the Wildlife Information Center. Nearly two dozen local, regional, state, and national agencies, institutions, and organizations thus far have endorsed the project.

CONSERVATION AND RESEARCH ACTIVITIES

The primary focus of The Kittatinny Raptor Corridor Project is preservation of biological diversity. To determine which areas are particularly important and/or at risk, surveys of mammals, birds, reptiles and amphibians, fish, and other groups are needed along the entire length of the mountain and corridor. We are now cataloging Black Bear sightings, as well as species and locations of large and old trees, and conducting other wild-



APPROXIMATE ROUTE OF THE KITTATINNY-SHAWANGUNK RAPTOR CORRIDOR IN NEW YORK, NEW JERSEY, AND PENNSYLVANIA. MAJOR NORTHEASTERN WILDERNESS AREAS SHOWN IN SOLID BLACK ON INSET MAP. ADAPTED FROM MAPS PROVIDED BY THE ADIRONDACK COUNCIL AND CHRIS ATKINSON.

life inventories at specific locations. Fortunately, in some locations decades of published data are available. Hence, a priority is searching the published conservation, natural history, and scientific literature. From those sources, and newly secured data, we are building data bases reflecting current and changing mountain and corridor conditions.

If the US Fish and Wildlife Service has identified and listed Critical Habitat for federally Endangered or Threatened species in a section of the Ridge or corridor, details are being computer catalogued. National Park Service designated Registered Natural Landmarks and sites of natural history, scientific, and historic importance also are being identified and catalogued. Examples include wetlands, type locations of animal and plant species, geologic formations, type sections of geologic formations, and archaeological sites. Also being catalogued are state game lands, parks, and refuges. On the negative side communications towers, powerlines, pipelines, and roads fragmenting the ridge are being mapped.

The Center is establishing a computer inventory of the zoning code status of each township within the corridor. Currently a number of townships without zoning are open to environmentally inappropriate land uses.

Roadside raptor surveys and other bird surveys are being conducted in some sections of the corridor. Data from the Delaware Water Gap National Recreation Area include 263 bird spe-

cies, and the Center's data include 172 bird species reported in autumn at Bake Oven Knob. Further analysis of these data will be done with particular emphasis on neotropical migratory woodland species.

The Center also is establishing a registry of photographic stations along the length of the mountain and corridor, from which photographs are taken at periodic intervals. As photographs are taken over a period of years, changes in the landscape will be recorded.

ECOTOURISM PROGRAMS

Development of pilot ecotourism programs along the Kittatinny Ridge and corridor is a major part of the project. Particular emphasis is being placed on developing economic values for bird watching, nature photography, and other benign wildlife uses.

A recommendation was made to one corridor township to establish an annual, \$5 volunteer ecotourism permit to be paid by bird watchers, hikers, nature photographers, sightseers, and other ecotourists within the township. The Wildlife Information Center also established a Golden Eagle Donor Program based on an old hawk watching tradition that asks people seeing Golden Eagles for the first time along the Kittatinny Ridge to donate \$5 per eagle observed to the Center's wildlife conservation programs.

PUBLIC EDUCATION

More than 200 public and school libraries within the corridor received free copies of the first installment of *The Kittatinny Raptor Corridor Educational Handbook* and several 35mm slide shows which explain the importance of the Kittatinny Ridge and its corridor. They are being shown to appropriate agencies, institutions, and organizations. An increasing number of television stations and newspapers are covering the Project.

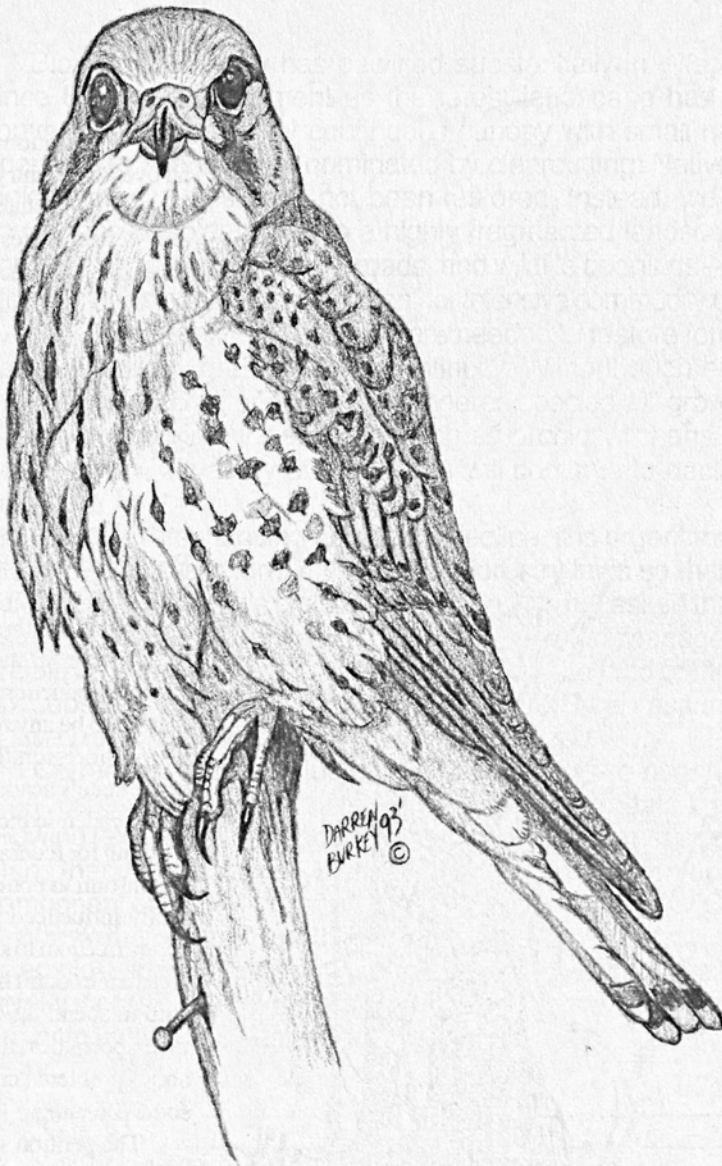
In addition, we are developing model schoolyard wildlife refuges at selected schools in the corridor and are providing Eastern Bluebird nest boxes and wildflower seeds. Several school teachers are working to include the Corridor Project in classroom presentations.

LAND PRESERVATION ACTIVITIES

The Wildlife Information Center encourages townships within the raptor corridor to save as much habitat as possible as wildlife refuges. We also urge private land owners to protect land as wildlife habitat and open space. Even areas as small as 100 square feet can be planted in wildflowers to serve as butterfly gardens and perhaps attract Ruby-throated Hummingbirds.

The Wildlife Information Center's campaign to secure 50 to 100 acres of farmland for a wildlife refuge and headquarters has raised more than \$23,000 as of January 1993. When established, the Center's refuge and headquarters will be a conservation education and research center within the Kittatinny raptor corridor. We encourage interested persons to become Center members, and mail donations for the land fund campaign and requests for information to: Wildlife Information Center, 629 Green St., Allentown, PA 18102-1601, (215) 434-1637.

Donald S. Heintzelman, President of the Wildlife Information Center, is the author of fifteen books about raptors, wildlife, and conservation.



American Kestrel (Falco sparverius) by Darren Burkey

Involving the Academic Community in Changing State Forestry Laws

While National Forests have the attention of environmentalists all over the country, state forests have been all but forgotten. In many areas though, state forests are being liquidated at a faster rate than are National Forests, because of state statutes written at a less enlightened time, and, one assumes, with industrial assistance.

Although state forests represent a small fraction of the total land base, they are, by virtue of their locations, of key importance in strategies for wilderness restoration. In eastern Minnesota, for example, is a series of small state forests west and south of the urban complex of Duluth, strung out in an arc and forming the logical course for the principal corridor between Minnesota's Superior National Forest and Wisconsin's Chequamegon National Forest. Farther to the east, Wisconsin's Northern Highlands State Forest sits amidst Wisconsin's Chequamegon and Nicolet National Forests and Michigan's Ottawa National Forest, thereby forming a natural linkage among the three.

Wisconsin statutes mandate that state forests be managed with timber production as the primary focus. This law must change if there is to be any restoration of native communities in the Lake Superior Bioregion. To bring about that change, we've sought the help of the state's academic biologists.

Academic biologists are in a position different from biologists working for federal and state agencies. Whereas the latter are forced to conform to policy handed down from a power pyramid by industrially influenced political appointees, the former may enjoy academic freedom to speak unvarnished truth regarding biological needs. Academics don't have to be "team players." However, because they tend to spend the bulk of their time buried within the confines of their specialties, they rarely involve themselves in public dialogue about problems confronting the biosphere as a whole. They need some prodding.

The petition shown here was circulated within the biology departments of 16 campuses in Wisconsin. Signed petitions were then given to the State's most environmentally-oriented legislator, who presented them to the legislature at a press conference. We determined that success depends largely on the following:



A. The petition should be accompanied by an introductory cover letter explaining the issue and signed by a number of academic biologists. We made certain that the ten signing our letter of introduction were from a variety of campuses both public and private, thereby signaling that the petition is a statewide initiative with broad support.

B. One person within each biology department should assume responsibility for distribution and collection of the petitions. This means you must make an initial contact within a department before mailing the petitions and cover letter. Here, voice contact is necessary, so the contact person understands that he or she will be depended upon. For such a task, you would logically seek out a department member who is ecologically oriented, rather than, say, a microbiologist or a biotech-nologist. Having someone in the department commit to the petition is key. Without that, petitions will simply get lost among piles of junk mail.

C. Each signatory should have a separate petition. A single sheet with many names does not carry as much psychological weight, for one considers his or her signature more carefully when it stands alone than when it is buried in a list.

With time and planning, you should be able to get the signatures of a significant proportion of a state's academic community, for there is no reason why a biologist would not **want** to support biodiversity. (Predictably, forestry professors and others with strong ties to the Wisconsin Department of Natural Resources, and to managerial ethics, refused to sign.)

A unified statement from the academic community can be a powerful force for needed change. Legislators will have a difficult time ignoring it and listening instead to the pulp and paper industry and wise use advocates. Moreover, involving independent biologists is an important tactic in any bioregional strategy to restore native diversity.

—Bill Willers, *c/o Biology Department, University of Wisconsin Oshkosh, Oshkosh, WI 54901*

PETITION TO THE LEGISLATURE:

• State Forestry Must Protect Biodiversity •

Biological diversity has declined substantially in Wisconsin since European settlement as the forest landscape has been converted from a largely continuous canopy with small natural openings to a landscape dominated by clearcutting. Native biological communities have not been restored. Instead, we have tiny patches of older trees in a highly fragmented landscape of younger successional stands, roads, and wildlife openings—most of which are under constant “rotation” for intensive commodity use.

At this point, extensive efforts are needed to restore forested areas and allow greater forest continuity. Without such efforts, the number of threatened and endangered species will grow, and a vast array of interior species (such as orchids, lichens, yew, hemlock, and a variety of songbirds) will continue to decline in numbers.

To halt this continuing ecological decline, it is urgent that the State Legislature reform current state forestry laws so that they safeguard Wisconsin's biological heritage. It is not asked that forestry *per se* be discontinued, but that *no forest management should be sanctioned by the state* (either on state land or through tax subsidies on private land) *unless the DNR can assure that native biological diversity will not be jeopardized*.

Current laws are antiquated in giving silviculture *priority* over other uses and values of the state forests (28.04, Stats.), and in allowing tax subsidies on private forest land through management plans that may treat ecosystem protection as merely an optional component of “sound forestry” (NR 46.15(29), Wis. Adm. Code).

I ask that you reform these aspects of state law, based on scientific evidence that there will be further losses of native biodiversity if care is not taken to manage our forests so as to protect our native diversity. Thank you.

Name (printed) _____
 Position _____
 Institutional Affiliation _____
 Signature _____
 Date _____

San Juan National Forest Association

POB 2261, Durango CO 81302

by Tim Richard and B.J. Boucher

In the recent special issue of Wild Earth, Dave Foreman wrote that we need "grassroots conservation activists" to "develop a regional Wilderness Recovery Plan." Development of the Volunteer Information and Education Program in the Weminuche Wilderness is timely in this respect, considering that the Weminuche forms the core of a fragmented but restorable southwest Colorado ecosystem. This program and its volunteers are taking steps toward bioregional recovery.

In 1988 San Juan National Forest Supervisor Bill Sexton challenged the local community of Durango to play a larger role in the Forest's management and care. An attorney, an accountant, a retired Forest Service administrator, a college professor, a physician, and a local businessman answered Sexton's call—a good combination of expertise to start an association for non-profit interpretive work. This ad-hoc committee devised by-laws and articles of incorporation, and developed an action plan during a series of meetings with FS management team members. They wrote the plan in clear, precise language agreed upon by all individuals and parties involved. They hired an executive director, Laurie Gruel, to ensure smooth implementation. The board of directors, originally the ad-hoc committee, meets monthly to oversee the executive director's collaboration with FS officers and meets yearly to identify problems and plan strategy. The association has now been formally recognized for its wilderness interpretive work.

The San Juan National Forest Association (SJNFA) gained recognition this year for promoting wilderness preservation to backcountry users. The honor comes at a time when citizens and public land recreation managers are increasingly exploring regional conservation partnerships.

The 1993 Wilderness Education Award went to the non-profit SJNFA for a number of its programs, particularly its Weminuche Wilderness Information and Education Volunteer Program, which educates backcountry recreationists. The Wilderness Awards, co-sponsored by the US Forest Service, The Wilderness Society, America Outdoors, and Wilderness Watch, recognize individuals and groups in public and private sectors for contributions to wilderness management and education.

The SJNFA also has earned acclaim for creating partnerships and cost-sharing opportunities between San Juan National Forest ranger districts and conservation-minded residents. Its activities attract other groups to model their own by-laws and plans for community involvement in a similar manner. Like most regional interpretive associations, the SJNFA develops and sells publications and products that feature southwest Colorado's natural splendors. Products include a biking guide to the San Juan Mountains, a backpacker's cookbook, and a poster celebrating the 30th anniversary of the Wilderness Act. These products emphasize caring for public lands. The cookbook's pages, for ex-



ample, abound with "Leave No Trace" camping tips and quotes from visionaries Aldo Leopold and John Muir.

The SJNFA differs from most associations by stressing community ownership of public lands: When people feel responsible, the land benefits. A partnership with the San Juan National Forest allowed the SJNFA to adopt the fledgling wilderness information program from the Animas Ranger District and provide volunteers. The district supplies gear to set up volunteer base camps. Volunteer Wilderness Information Specialists share low-impact camping skills and a message of wildland ethics with thousands of wilderness travelers.

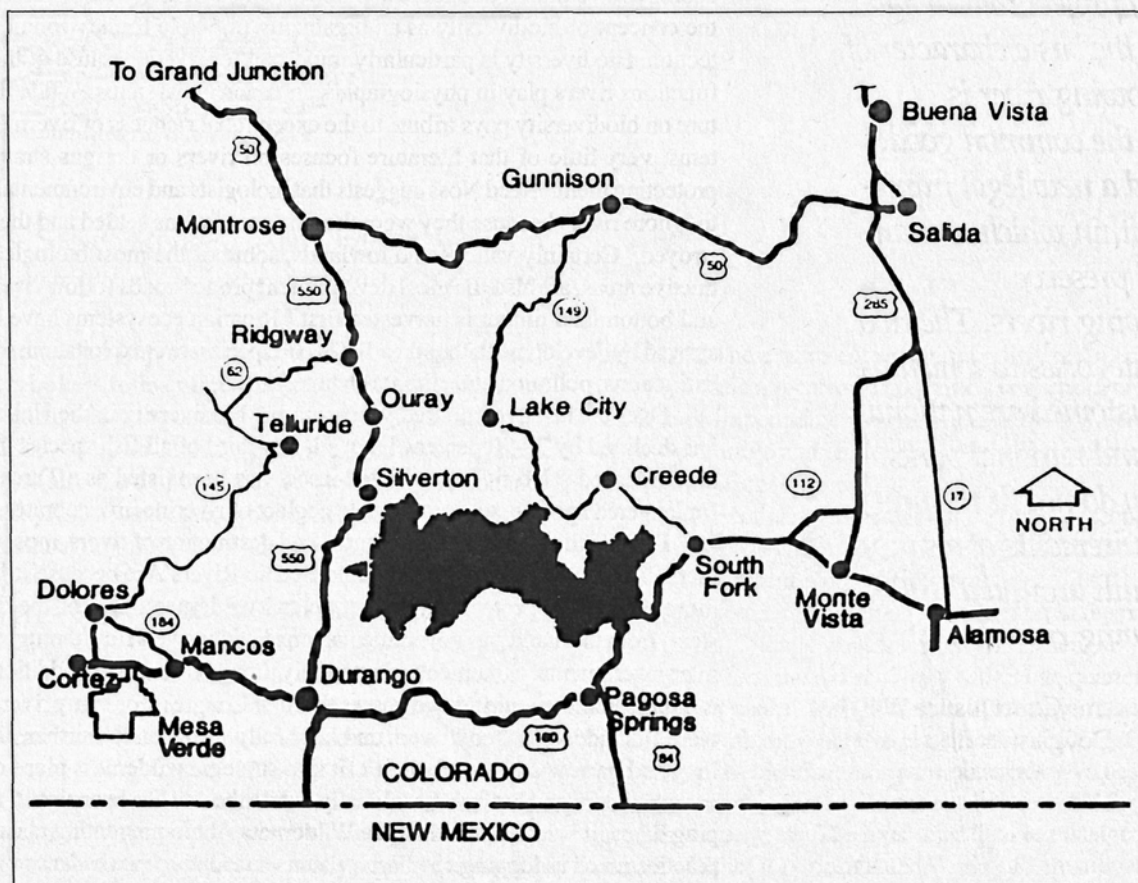
Most visitors reach two major Weminuche trailheads by riding the century-old Durango & Silverton steam train—a boom for backpackers short on time or energy to make the otherwise long hike in, but a bust for the area's ecology. The Association's program coordinator finds volunteers, trains them in general wilderness knowledge (history, definitions, skills, etc.), then places them in the wilderness to interact with visitors. Conversations between volunteers and visitors range from sharing simple guidelines and directions to dialogues about the idea of wilderness, what it is and how it fits the image humans

have of themselves in nature and environment. The Association's board of directors initiates projects ranging from campsite clean-ups to training college interns as archaeological tour guides to forest outings for children, in addition to the WIS program.

Income is returned to the Association's interpretive projects, as required under the Internal Revenue Service's 501 (c)(3) rule for non-profit status. For example, the cookbook's sales help fund wilderness rangers to attend an annual Rocky Mountain region wilderness ranger workshop. The system works well, judging by gross receipts that rose from \$16,700 in 1988 to more than \$200,000 in 1992.

Other grassroots conservation groups can model their own interpretive associations after the SJNFA, though any organization is limited only by the imagination, fortitude and dedication of its people. For tips on starting an interpretive association, or related information, contact the SJNFA.

Tim Richard coordinates the Weminuche Wilderness Volunteer Information and Education Program. B. J. Boucher is San Juan National Forest Association president.



The Wild and Scenic Rivers Act

Problems and Successes In Promoting Biodiversity

by Carolyn Raffensperger

INTRODUCTION

*A wilderness Bill of Rights should create the presumption that any structure, any use, any project that would destroy the basic character of a free-flowing river is against the common good. We need a new legal framework within which to manage and preserve free-flowing rivers. The two main categories to which we are accustomed are national forests and national parks. But they do not fit the precise requirements of a sanctuary built around a free-flowing river.*¹

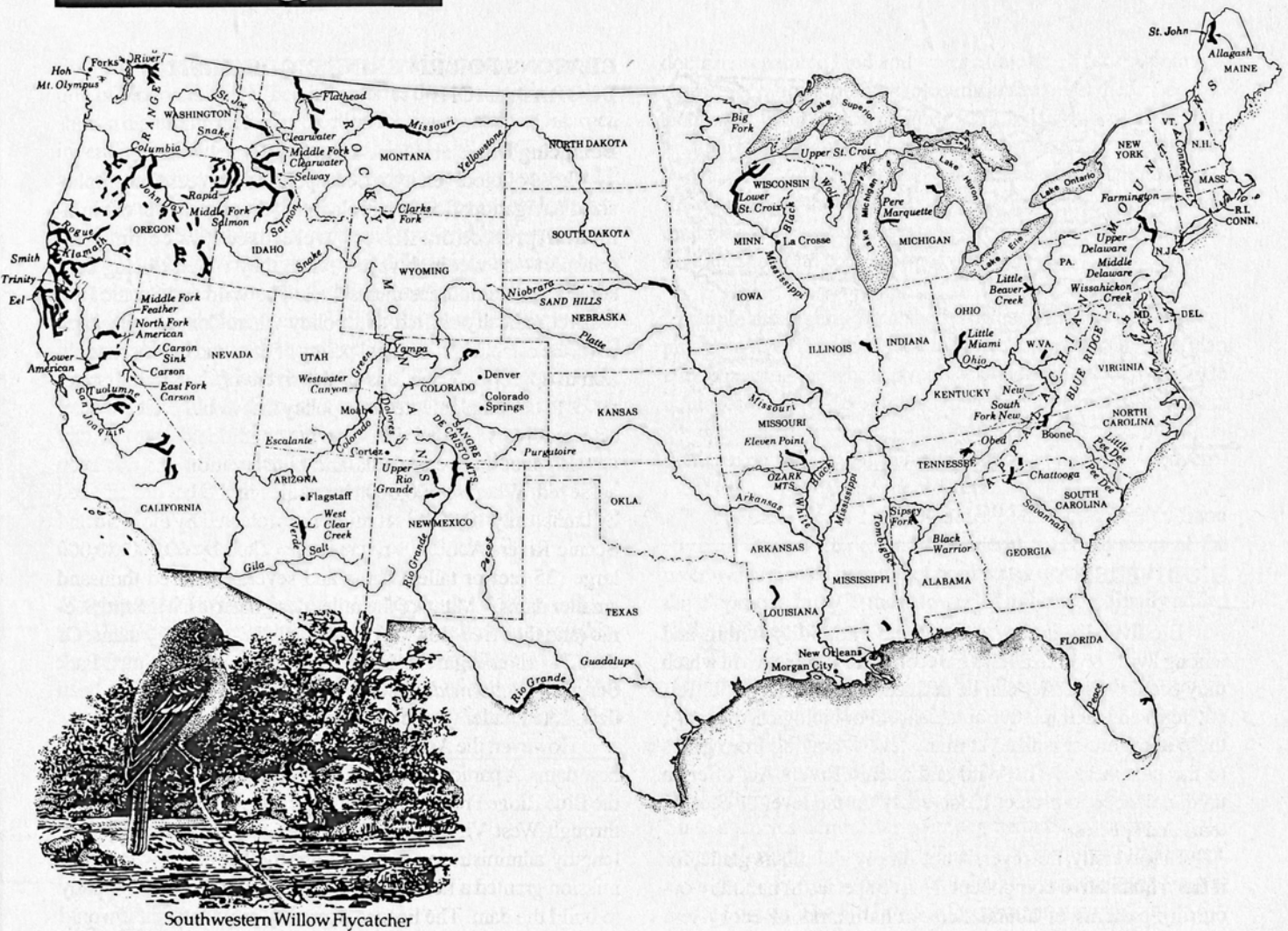
—Supreme Court Justice William O. Douglas

In 1968 Congress passed the Wild and Scenic Rivers Act (henceforth, the Act) to protect free-flowing rivers with "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values."² The purpose of the Act was to balance existing federal policy which promoted river development for hydropower and irrigation purposes.³ It is the strongest but most underused tool environmentalists have for river conservation.

In the 25 years since the Act was passed, conservation and the science of ecology have undergone radical changes. These changes have culminated in the concept of biodiversity as an organizing principle for environmental protection. Biodiversity is particularly important for rivers because of the unique functions rivers play in physiographic units and ecosystems. While the literature on biodiversity pays tribute to the exceptional richness of riverine ecosystems, very little of that literature focuses on rivers or designs strategies for protecting them.⁴ Reed Noss suggests that biologists and environmentalists tend to ignore rivers because they were the first ecosystems settled and the first destroyed.⁵ Certainly valleys and lowlands, some of the most biologically productive areas, are also the most development prone:⁶ roads follow river valleys and bottomland timber is harvested first.⁷ Riparian ecosystems have been destroyed by development, the spread of exotic species, overexploitation, secondary extinctions, pollution and climate change.⁸

Over the last two hundred years riparian biodiversity in the United States has declined by 70-90 percent.⁹ Indeed, one-third of all fish species in the US are imperiled.¹⁰ No river-associated insect has been listed as a Threatened or Endangered species, so serious is the neglect of riverine invertebrates.¹¹

Despite the simultaneous richness and destruction of rivers, most environmentalists have ignored the Wild and Scenic Rivers Act because it has been more difficult to protect rivers than upland wilderness. Part of the difficulty stems from the numerous governmental jurisdictions rivers flow through; crafting intergovernmental agreements is extremely time-consuming. In addition the Act is cumbersome, requiring two passes through Congress for many rivers, which were first added as study rivers and later fully designated. Further, rivers are long and narrow and usually don't fit into strategic wilderness plans of round or square core and buffer areas. Finally, while the Act has been useful for stopping dams, it is less direct than the Wilderness Act in preventing abusive land practices such as logging.



Southwestern Willow Flycatcher

Wild & Scenic Rivers: AN OVERVIEW

(DARKER SEGMENTS INDICATE Wild & SCENIC STATUS.)

Yet the Act has important provisions, requiring that listed Wild rivers be kept forever free-flowing. It specifies that listed rivers be managed for the outstanding qualities, including "fish and wildlife," that caused them to be included in the system. Listed rivers also have to be managed to protect and enhance water quality. These and other provisions make Wild and Scenic River status an important weapon in the arsenal of those defending biodiversity.

This paper will examine the Wild and Scenic Rivers Act to see what protection it has offered riverine biodiversity in the past and what it might contribute in the future. First though, let's look at the three different classifications. The differences in classification of Wild, Scenic, and Recreation rivers come from the Act at 16 U.S.C. sect. 1273 (b):

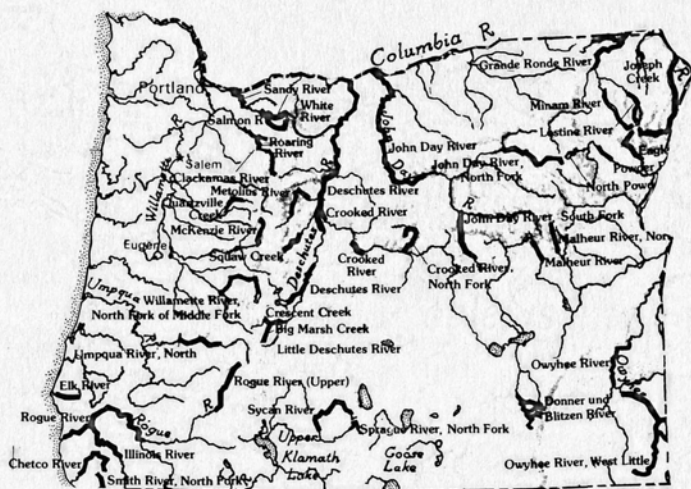
(1) Wild river areas—Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters

unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas—Those rivers or sections of rivers that are free of impoundments with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas—Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The classification becomes relevant when new mining is proposed, which the Act prohibits within one quarter mile of a Wild river's banks. 16 U.S.C. sect. 1280(a)(ii). Mining is not prohibited with the other two classifications. Of greater importance than the classification are the outstanding values for which the river was designated. Rivers can be protected for outstanding fish, scenery, etc. The river must then be managed for those values whether it be designated Wild or Recreational.



Wild & Scenic Rivers of Oregon

BIODIVERSITY

Biodiversity is the "variety and variability within and among living organisms and the ecological complexes in which they occur."¹² Diversity can be defined as the number of different items and their relative abundance. For biological diversity, these items are organized at many levels, ranging from genes to the biosphere.¹³ The Wild and Scenic Rivers Act offers a unique chance to protect biodiversity on the level of ecosystems and species.

Biodiversity, however, is not simply a numbers game, for it has a qualitative component. Native species in naturally occurring patterns of abundance are hallmarks of ecosystem health.¹⁴ Nonnative species may increase quantity of species and genes, but they destroy the patterns of interrelationships in the ecosystem. Human disruptions may increase the number of species but the benefiting species are usually the opportunistic generalists, weeds.¹⁵ So, biodiversity refers to both quantity and quality (or identity) of life forms within the system.

Riparian, or streamside, systems are exceptionally rich, "contributing disproportionately to biological diversity."¹⁶ This is particularly true in some physiographic units. Alaskan rivers have been called rivers of life in a landscape as arid as a desert.¹⁷ This diversity is a result of many factors, including geologic phenomena. Sometimes freshwater fish become isolated within drainages, resulting in distinctive populations, subspecies, and eventually species.¹⁸ Some rivers serve as interfaces between ecosystems. Such ecotones are noted for their species richness.¹⁹ Rivers are also natural corridors for species movement such as bird and large mammal migrations.²⁰

Of the 80 or so physiographic provinces of the US, few have a designated river running through them.²¹ Yet most of these areas, from prairie to desert, have rivers as their biologic and geologic basis. Designating at least 1 river in each system and protecting its whole watershed would keep the lifeblood of those ecosystems flowing.

REASONS FOR RIVERINE BIODIVERSITY DEGRADATION

Balancing Dams and Free-Flowing Rivers

Loss of biodiversity reflects political choices that emphasized navigation, flood control, and hydropower over environmental protection. Rivers were used for commodity transport—as wet highways—when they weren't being consumed as commodities themselves. The Wild and Scenic Rivers Act radically shifted that policy when Congress declared that "the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers...in their free-flowing condition."²²

Balance between dams and conservation has not been achieved. Whereas 600,000 river miles in the US are affected by dams, only 10,000 river miles are protected by the Wild and Scenic Rivers Act.²³ US rivers are blocked by 60,000-80,000 large (25 feet or taller) dams and several hundred thousand smaller dams.²⁴ Many of the miles designated as Wild and Scenic (and thus free-flowing) are actually bracketed by dams. Of the 1524 river segments listed as eligible in the National Park Service's *Nationwide Rivers Inventory*,²⁵ only 148 have been designated under the Act.²⁶

However, the Act has been successfully used to stop some new dams. A particularly contentious dam debate occurred over the Blue Ridge Project proposed for the New River which flows through West Virginia, Virginia and North Carolina.²⁷ After lengthy administrative proceedings, the Federal Power Commission granted a license to the Appalachian Power Company to build the dam. The license expressly provided that it would not become effective until 2 January 1975, to give the 93rd Congress a chance to consider designating the New River as Wild and Scenic. Congress's failure to do so by that date rendered the license effective. However, North Carolina sought a stay of the license. The stay was denied, so North Carolina petitioned the Supreme Court for *certiorari*. Before the Supreme Court reached a decision, Congress passed and the President signed an amendment to the Wild and Scenic Rivers Act that designated the New River Scenic.²⁸ This action stopped the dam.

While few other stories are as dramatic as that of the New River, the Wild and Scenic Rivers Act has blocked numerous dam proposals on rivers including the Merced at the boundary of Yosemite National Park, the Cache La Poudre,²⁹ the Tuolumne, the Niobrara and the Kings.³⁰

River Geometry and Biodiversity

Declines in biodiversity are also related to riverine shape. Some of the implications of river linearity are obvious. For instance, because rivers are so long they cross multiple government jurisdictions, which results in inconsistent management.

A less obvious implication is that rivers, with high perimeter to area ratios, were excluded from most natural history data systems such as potential natural vegetation (PNV) inventories.³¹

PNV inventories provide baseline data for government protection of biodiversity.³² When inventories do consider rivers they show a disturbing lack of protection for river systems. One such inventory of California demonstrated that while 99% of alpine areas were protected, only 1% of riparian areas were protected.³³

Another overlooked factor of river shape is that long rivers don't fit neatly into most proposed core-and-buffer reserves. Rethinking biodiversity strategy and focusing on watersheds with rivers in the center (rather than as edges) would enhance protection of whole systems. Unlike the usual mostly two-dimensional land biodiversity protection strategy, this reconfigured watershed geometry is three-dimensional. Watersheds are not only long and narrow, but deep, measured from ridge top to river bottom. A watershed biodiversity strategy could ensure protection of more species than a land-based strategy. John Haubert, a river specialist in the Interior Department, said that "one well-placed river with 50,000 acres might be more important than 500,000 acres of wilderness or national park on a glacier."³⁴

Fragmented Jurisdiction over Watersheds

Decline of riverine biodiversity has resulted also from historical government fragmentation of water rights and management regimes which prevented protection of watersheds. This is particularly true in the West where the prior appropriation

doctrine separated land and water estates.³⁵ Riverine biodiversity preservation requires protecting entire watersheds, because landforms, hydrological regimes, flora and fauna within the river basin are integrally and functionally related, forming an ecological unit.³⁶ Often rivers cross numerous political boundaries. Rivers such as the St. Croix and the Rio Grande go through multiple states or countries. Even rivers wholly contained in one state are subject to complex and competing state and federal laws.

Multiple managers. Watershed protection implies a holistic approach to river systems. Holistic protection would require a plan encompassing the whole river basin and carried out by a single manager. The Act does not mandate holistic protection. Rivers are designated piecemeal, no single federal agency has jurisdiction over the system, and either states or the federal government can manage component rivers.³⁷

For instance, in 1973, 64 miles of the upper Little Miami River in Ohio were designated under the Act; 28 miles of the river were rejected because of poor water quality and riverbank development. In 1979 these lower 28 miles were finally added to the Wild and Scenic System as a Recreational river.³⁸

The Act provides for different managers, depending on who owns the land along the river and how the river came into the system. Rivers can be designated in two ways: by Congress or by approval of the Secretary of the Interior following state action.³⁹

State agencies or the federal Departments of Interior or Agriculture can have jurisdiction over Wild and Scenic rivers. State agencies administer river segments⁴⁰ that came into the system through state action.⁴¹ The US Agriculture Department, through the Forest Service, administers rivers contained in National Forests. The US Interior Department manages other rivers on federal lands. Different federal, state or tribal agencies may manage a single river segment by segment.

In contrast to the Wild and Scenic River System, National Parks and National Forests have single managers—the National Park Service and US Forest Service—who can lobby Congress for money. Wild and Scenic rivers are orphans in the federal government, with no strong advocates. The result is a program supported by little money and little vision. The Departments of Interior and Agriculture have a fractious relationship. Inter-agency tensions have prevented some qualified rivers from being designated.⁴²

An additional problem in assigning management of Wild and Scenic rivers to the Interior and Agriculture Departments is that they have multiple-use mandates, whereas the Act is a single-purpose mandate to protect rivers.⁴³ The Forest Service manages Wild rivers flowing through National Forests with extensive logging—an obvious conflict with the agency's duty to protect the rivers from erosion. In 1981 Interior Secretary James Watt rejected designation of most of California's Smith River, even though all of it was eligible, because it would conflict with logging in the Six Rivers National Forest. Moreover, the small amount included was designated Recreational, rather than Wild, so logging and mining could continue.⁴⁴ The irony



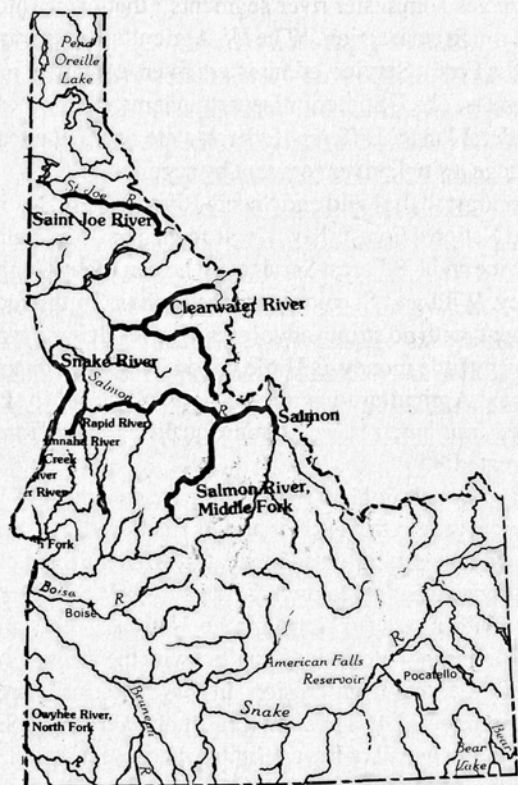
Wild & Scenic Rivers of California

is that of all California rivers proposed for inclusion, only the Smith was undammed its entire length.⁴⁵ The Smith was later protected as a National Recreation Area (NRA), a Congressional designation outside of the Wild and Scenic Rivers Act emphasizing recreation and restricting logging.⁴⁶

The Act recognizes that such conflicts may occur and specifies that for rivers running through Wilderness Areas, National Parks or National Wildlife Refuges, the more restrictive law governs management of the rivers.⁴⁷ In the face of conflicting laws or management practices, this clause can be used to protect biodiversity.

Private ownership of river corridors. Many rivers have a patchwork of public and private lands along their lengths. There is some statutory basis for managing publicly owned land to promote biodiversity. Yet, in the absence of land use regulations, privately owned land along designated rivers is still at risk from activities that increase erosion and pollution. Erosion and non-point source pollution from construction, agriculture and cattle are major threats to riverine ecosystems.⁴⁸

The Act specifies that the Interior Secretary is to give priority to studying rivers with potential for inclusion in the system. The two conditions for priority are 1) rivers threatened by development that would render them unsuitable for Wild and Scenic status and 2) rivers surrounded by private lands.⁴⁹



Wild & Scenic Rivers of Idaho

Rivers brought into the system through state action have a further limitation: management, except on federally owned portions, cannot be at the expense of the federal government.⁵⁰ However, land can be acquired through the Land and Water Conservation Fund (LawCon) which is exempt from the ban on federal dollars.⁵¹ This fund has been used for acquiring private inholdings within federal lands. However, under the Reagan-Bush administrations, it was not used for state managed rivers.⁵² The Clinton administration could use LawCon to acquire more private land along designated rivers.

The ability of agencies to protect watersheds is also limited by the Act's stipulation that designated river corridors not include more than an average of 320 acres per river mile.⁵³ This limit narrows protection for rivers that do not flow through public land. These boundaries are critical, for the Act prohibits development only within the narrow boundaries established by the Secretary unless adjacent activities will "invade the area or unreasonably diminish" the values for which the river was protected.⁵⁴

Mining, Logging, Recreation

Mining, logging, livestock grazing and recreation spell special trouble for rivers. These activities can be managed under a provision of the Act specifying that "[e]ach component of the national wild and scenic rivers system shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system..."⁵⁵ Management Plans may specify varying degrees of protection and development based on the special attributes of the area and on what designation a river receives.⁵⁶ However, the directive to enhance the values that caused it to be included in the system offers a unique opportunity to restore biodiversity on a protected river. Enhancing river quality is precluded by exploitive activities such as mining and logging.

In recognizing the special harm that mining can do to a river, the Act prohibits it within one-quarter mile of the banks of a Wild river. Mining activity can continue on Scenic and Recreational rivers, supposedly regulated by the managing agency.⁵⁷ Mining is not the major threat dams were to the entire system, but it has caused environmental problems across the country. Gold and gravel mining, in particular, have harmed rivers due to the instream processes required for the mining operation.⁵⁸

Timber harvesting is one of the most environmentally damaging activities taking place in river corridors. Clearcutting can lead to massive siltation and turbidity of the water.⁵⁹ Congress in its directive to managing agencies said that "[p]articular attention shall be given to scheduled timber harvests...and similar activities that might be contrary to the purposes of [the Act]."⁶⁰

This mandate is particularly important in Oregon, a prime logging state which also has over 1400 miles of rivers in the Wild and Scenic River System. It is projected that river designation in Oregon will reduce the annual allowable sale quantity on public land by 7 million board feet.⁶¹

In a few unfortunate cases, environmental groups have opposed river designation under the Act as a trade-off for Wilder-

ness designation of public lands.⁶² Wilderness Areas are protected from logging. Even protecting a river as a National Recreation Area might offer more limits on logging than Wild and Scenic River status.

Recreation can be as damaging to river biodiversity as dams and logging. For instance, stocking fish for anglers displaces native species and introduces disease. A scientist studying Montana's Madison River believes stocking hatchery trout is a more serious threat to native trout than over-fishing or water temperature problems.⁶³

The sheer number of people using a river can cause long-term damage to the river corridor land and wildlife. Over 300,000 people a year use Oregon's Rogue River. Boaters clamoring up the sides have caused severe stream bank erosion.⁶⁴ Crowds also interfere with eagle nesting and feeding and large mammals foraging along rivers.⁶⁵ The solution to loving the rivers to death is to step up permitting programs and limit the number of people on a river at a given time.



THE FUTURE - BIODIVERSITY AND WILD AND SCENIC RIVERS

This review of the Wild and Scenic Rivers Act points out several difficulties with implementation—ranging from the slow political process used to designate a river, to fragmented river protection under multiple owners and managers. Defenders of biodiversity should devise strategies based on lessons learned over the last 25 years. These lessons include the necessity of citizen action, coupling river protection with the Clean Water Act, and using large omnibus bills in Congress that add whole watersheds and river systems to the Wild and Scenic River program and bypass study designation.

Citizen Action

Commitment on the part of local communities around rivers is essential to protect them. Local activities should include lobbying Congress for river designation, monitoring management plans, enacting protective local land use plans, and restoring riparian habitats.

Early analysts of the Act predicted that because many Wild and Scenic rivers are in remote areas, local groups would not form to challenge river management.⁶⁶ Certain aspects of the Act would be difficult for citizens to enforce, particularly since there is no citizen suit provision, as exists in the Clean Water Act and some other environmental laws. Additionally, the purported absence of grassroots coalitions and the difficulty national environmental groups would have gaining standing on behalf of rivers made it uncertain the Act would even appear on environmentalists' agenda.

Contrary to those predictions, local groups have been the backbone of river preservation under the Act.⁶⁷ Local groups across the country have fought valiantly for designation of rivers in their areas.⁶⁸ This has been particularly true for rivers proposed and managed by Eastern states. With the notable exception of American Rivers, national groups have played a relatively small part in promoting river designation and enforcing the Act.

However, big challenges now demand involvement of both grassroots and national groups. After protection of a river under the Act, preparation and enforcement of management plans is required. Yet many management plans have not been completed. Where citizens have actively participated in the management plans, rivers have been enhanced. Where citizens ended their work after a river was designated, river quality declined.⁶⁹

The Clean Water Act, Adjunct to the Wild & Scenic Rivers Act

Water quality is a key issue in managing designated rivers. A good strategy to ensure water quality is to use the Wild and Scenic Rivers Act in conjunction with the Clean Water Act⁷⁰ (CWA). The Wild and Scenic Rivers Act itself specifically calls for protecting water quality.⁷¹ A crucial aspect of the CWA is its citizen suit provision which can be used to piggy-back Wild and Scenic water quality concerns in litigation.⁷²

The CWA is administered by the United States Environmental Protection Agency (EPA). EPA's CWA regulations include an antidegradation provision which requires states to adopt standards consistent with the provision.⁷³ Under that provision, any waters designated as outstanding national resource waters (ONRW) may not be degraded. A Wild and Scenic river certainly qualifies as an ONRW.⁷⁴

Using Large Omnibus Bills in Congress

Finally, the Wild and Scenic River System has been called "no more than a disarticulated skeleton..."⁷⁵ Others say it represents only token remnants rather than a true system.⁷⁶ In large part this is a result of adding rivers segment by tiny segment in an agonizingly slow political process.⁷⁷ On the tenth anniversary of the Act, 43 rivers with just over 2000 miles had been protected.⁷⁸

The logjam has been broken several times by omnibus river bills pushed through Congress. This strategy was used successfully in Michigan in 1992, when 24 river segments in 14 river systems were designated. The Michigan legislation added the fourth largest group of rivers ever protected.⁷⁹ Other important omnibus bills protected enormous reaches of rivers in Oregon and Alaska. In 1988 Congress designated over 1000 miles of 44 Oregon rivers. In an even larger coup, 33 Alaska rivers were designated through the 1980 Alaska National Interest Lands Conservation Act. This added well over 3000 river miles.⁸⁰ Designating rivers in this fashion dramatically increases protection for biodiversity. Indeed, designating one of the Alaskan rivers, the Noatak, the longest national river, was deemed "one of the nation's finest examples of safeguarding not just a park or river but an entire ecosystem."⁸¹

CONCLUSION

The Wild and Scenic River System got off to a slow start. It was hog-tied in a cumbersome, political process and mired in the quicksand of multiple owners and managers. Nonetheless, large stretches of river are now protected for values that include biodiversity. Dams have been stopped. Some watersheds are no longer clearcut up to river edge. The question now is how to strategically use the Act to better protect biodiversity. Environmental and grassroots groups must make rivers the centerpiece, not the far edge, of wilderness protection. The next 25 years will see how well we've done. Happy Birthday Wild and Scenic Rivers Act!

NOTES

¹ William O. Douglas, *A Wilderness Bill of Rights*, (1965) p.143.

² 16 U.S.C. sect. 1271.

³ C. Curtis, *Grassroots River Protection: Saving Rivers under the National Wild and Scenic Rivers Act Through Community-Based River Protection Strategies and State Actions*, American Rivers (1992) p.9.

⁴ See *Technologies To Maintain Biological Diversity*, OTA-F-330 (US Congress, Office of Technology Assessment [OTA], Washington DC: US Government Printing Office, March 1987); and *Biodiversity* (E.O. Wilson ed.1988). Both books mention the wealth of species in river and riparian systems, but neither discusses protection strategies for those systems.

⁵ Reed Noss, phone call, April 6, 1992.

⁶ T. Palmer, *The Wild and Scenic Rivers of America*, Island Press (1993) p.33.

⁷ Ibid. p.27.

⁸ J. Allan and A. Flecker, "Biodiversity Conservation in Running Waters: Identifying the major factors that threaten destruction of riverine species and ecosystems," *BioScience* Vol. 43 No. 1 (January 1993) p. 34.

⁹ OTA 1987, p.66-67.

¹⁰ *A Conference on River Protection and Water Use: Setting the Conservation Agenda for the '90s. Summary Report*. Sponsored by American Rivers and The Wilderness Society, (June 1991) p.14.

¹¹ Allan and Flecker, p.34.

¹² US Congress, Office of Technology Assessment, *Assessing Biological Diversity in the United States: Data Considerations - Background Paper*, OTA-BP-F-39 (Washington D.C.: US Government Printing Office, March 1986). Footnote 1.

¹³ OTA 1987.

¹⁴ R. Noss, "What Can Wilderness Do for Biodiversity?," *Wild Earth* Vol. 1 #2 51-56, (Summer 1991) p.52.

¹⁵ R. Noss, "Do We Really Want Diversity?," *Learning to Listen to the Land*, Island Press (ed. B. Willers 1991) p.42.

¹⁶ R. Noss, "What Can Wilderness Do for Biodiversity?," p.66.

¹⁷ Palmer, p.33.

¹⁸ Allan & Flecker.

¹⁹ Howie Wolke, "Bad Science Lacks the Visceral Connection," *Wild Earth* Vol. 2 #4 59-63, (Winter 1992/93) p. 62.

²⁰ One biologist notes that of the 378 species of terrestrial vertebrates in the Blue Mountains of Oregon and Washington, 75% depend on or strongly prefer riparian zones over other habitats. See, R. Noss, "The Wildlands Project: Land Conservation Strategy," *Wild Earth*, Special Issue (1992). Most biodiversity protection strategies emphasize large terrestrial predators because they need the most area. Animals such as bears that prefer river corridors choose travel ways of least

resistance and may substitute ridges for rivers when rivers are developed.

²¹ Palmer, p.304.

²² 16 U.S.C. sect. 1271.

²³ Palmer, p.5. 212 rivers with 10,574 miles had been designated by August 1992. 11 other rivers are protected under another category such as National Recreation Area or National River.

²⁴ Ibid. p.6, 62.

²⁵ Curtis, p.15. The Inventory was prepared in 1982. It is out of date and only includes 2% of US river miles but is the only available survey.

²⁶ Ibid. p.9. The Act was amended in 1992 to include Michigan and Arkansas scenic rivers, adding 1032 miles.

²⁷ "Appalachian Power Co. v. United States," 607 F.2d 935; 221 Ct. Cl. (1979) p.398.

²⁸ Ibid.

²⁹ Palmer, p.42. 5 out of 6 dams on the Cache were stopped.

³⁰ Ibid. p.41-46.

³¹ OTA 1987, p.66-67.

³² Ibid. See also, H. Doremus, "Patching the Ark: Improving Legal Protection of Biological Diversity," 18 *Ecology L.Q.* 265 (1991). Reprinted in *Land Use and Environment Law Review*, p.465, p.513 (1992).

³³ Doremus, footnote 348, p.320.

³⁴ Ibid. p.34.

³⁵ D. Bell and N. Johnson, "State Water Laws and Federal Water Uses: The History of Conflict, the Prospects for Accommodation," 21 *Environmental Law* Vol. 1, (1991) p.6.

³⁶ *Summary Report*. American Rivers & TWS, p.16.

³⁷ Ibid. p.16.

³⁸ Ibid. p.40.

³⁹ 16 U.S.C. sect. 1273 (a) says "The national wild and scenic rivers system shall comprise rivers (i) that are authorized for inclusion therein by Act of Congress, or (ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned, that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned...to meet the criteria established in this Act..."

⁴⁰ The way a river comes into the system is important for several reasons, most notably, federal money, except for Land and Water Conservation Fund dollars, cannot be used for administration of State proposed rivers.

⁴¹ For instance, the Middle Fork of the Vermilion River in Illinois is managed by the Illinois Dept. of Conservation.

⁴² See Fairfax et al.

⁴³ Ibid. p.25. See also Hiser, *Piloting the Preservation/Development Balance On the Wild and Scenic Rivers*, 1988 Duke L.J. 1044, 1047 (1988).

⁴⁴ Ibid. p.444.

⁴⁵ Curtis, p.50.

⁴⁶ Palmer, p.44.

⁴⁷ 16 U.S.C.S. sect.1281.

⁴⁸ For instance, Little Beaver Creek in Ohio has logging and development on private lands along its shore. The New River in North Carolina has almost been destroyed by a boom in second home construction and agricultural runoff. See Curtis, p.44, 48.

⁴⁹ 16 U.S.C. sect. 1275 (a).

⁵⁰ 16 U.S.C. sect 1273 (a).

⁵¹ "amounts made available to any State or political subdivision under the Land and Water Conservation Act of 1965 or any other provision of the law shall not be treated as an expense to the United States." 16 U.S.C.S. sect 1273 (a).

⁵² Kevin Coyle, Executive Director of American Rivers. Personal communication, 4-20-93.

⁵³ 16 U.S.C.S. sect. 1274 (b).

⁵⁴ Hiser, p.1051.

⁵⁵ 16 U.S.C.S. sect 1281 (a).

⁵⁶ Ibid.

⁵⁷ 16 U.S.C.S. sect. 1280 (a).

⁵⁸ Ibid.

⁵⁹ B. Gray, *No Holier Temples*, 58 Univ. of Co. L. Rev. p. 551, p.567 (1988).

⁶⁰ 16 U.S.C. sect 1283 (a).

⁶¹ Palmer, p.252.

⁶² Ibid. p.253.

⁶³ C. Duerksen, "Wild Thing: You Make My Heart Sing," July/August 1992 *American Angler*, p.14.

⁶⁴ Palmer, p.258.

⁶⁵ Ibid. p.259.

⁶⁶ Tarlock and Tippy, "The Wild and Scenic Rivers Act of 1968," 55 *Cornell L. Rev.* p.707, p.724-727 (1970).

⁶⁷ Palmer, p.252.

⁶⁸ Curtis, p.23. As of February 1992 twelve rivers for a total of 737 miles were managed by states.

⁶⁹ See Curtis p.48 for an account of the grassroots groups that have formed around Wild and Scenic rivers. See the story of the New River, North Carolina which has been used as an example of a state-administered river gone wrong. One factor Curtis blames for degradation of the river was the lack of grassroots citizen involvement after the river was designated.

⁷⁰ 33 U.S.C. sect. 1251-1386.

⁷¹ 16 U.S.C. sect. 1271. See also, sect. 1273 (b)(1) which, in relevant part, defines a wild river as one that is unpolluted.

⁷² 33 U.S.C. sect 1365.

⁷³ 40 C.F.R. @ 131.12 (a)(3) (1991).

⁷⁴ Fischman, "Biodiversity and Ecological Management: Biological Diversity and Environmental Protection: Authorities to Reduce Risk," 22 *Env'tl. L.* p.435, p.453 (1992).

⁷⁵ Palmer, p.64.

⁷⁶ Ibid, quoting David Sumner.

⁷⁷ Unlike wilderness bills, Wild and Scenic

Strategy

river legislation may go through Congress twice — once for a study river, then to designate the river. This doubles the lobbying time and prevents early comprehensive environmental management. One writer has characterized this process as "more fitting to a Constitutional amendment than to save Saline Bay or White Clay Creek." Palmer, p.62.

⁷⁸ Palmer, p.32.

⁷⁹ Ibid, p.52.

⁸⁰ Ibid, p.33.

⁸¹ Ibid, p.35.

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Giant Sycamore by William Crook Jr.

(from the Sangamon River Series, available in notecard format from Prairie Press, 945 South First St., Springfield, IL 62704)

How To Upset The Empire Simply By Standing

Part One: The Gonzo Guide to Environmental Law
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Editor's note: the following article is Part One of a work in progress. The authors intend to publish the collection as The Gonzo Guide to Environmental Law, or How You Can Use the Law to Save the Wild! Additional portions of this forthcoming book will be published in abridged serial versions in Wild Earth.

So much has been written and said about the issue of legal "standing" that it is appropriate to begin the Gonzo Guide with a short retort about how to stand.

Standing is nothing more than a plaintiff's position vis a vis the action that resulted in the lawsuit at hand. So, if you are contemplating suing somebody, say the US Fish and Wildlife Service, you MUST determine whether or not the court (federal in this case) will even let you jump the first hurdle: gaining proper standing. How does one know?

True followers of the Gonzo Theory of Law plan ahead. It's much cheaper (not to mention less embarrassing) to take steps to ensure standing BEFORE you sue someone.

The basic rule of standing is now found in a US Supreme Court case called *Lujan v. Defenders of Wildlife*.¹ In that case, the Court held that to have "standing" a plaintiff must have a sufficient, particular stake in the wild thing about to be destroyed. The Court was examining standing under the Endangered Species Act (ESA) specifically, but the language of the Court's decision appears to apply to all environmental statutes.

"Standing" is a legal concept that essentially means one bringing a lawsuit has a sufficient stake in the controversy to obtain judicial resolution of the controversy. Since 1972, because of the landmark ruling of *Sierra Club v. Morton*,² the rule for standing in citizen suits under our environmental laws had been fairly lenient; if the plaintiff group had members with even a merely aesthetic interest in what the government was about to destroy, then the group had standing to sue to stop that destruction.

Standing **now** means the group's members must prove that the action complained of will produce imminent, actual harm unique to those members. Standing of citizens near ponds and wetlands that were to be drained was upheld in *Save Our Community v. EPA*.³ Standing was granted for the decreasing ability to enjoy a river for swimming, boating or fishing in the cases of *Natural Resources Defense Council v. Watkins*; ⁴ *Natural Resources Defense Council v.*

Photos accompanied the affidavit...showing Mudd (a card carrying member of the International Pantheist Society) in deep trance over the burrow of a Perdido Key Beach Mouse, one of America's most endangered mammals. Try as they might, the US Justice Department (who represented the EPA) could not persuade the court to throw Mudd out for lack of standing.

Vygen Corp.,⁵ and *Sabine River Auth. v. Department of Interior*.⁶ Standing was also upheld for aesthetic injury resulting from a plaintiff's experiencing an oily or greasy sheen on a river in *Public Interest Research Group v. Powell Duffryn Terminals, Inc.*⁷ A scientist who studied an Endangered species and its habitat about to be impacted by a development was held to have standing under the ESA to bring a citizen suit against that development in *Morrill v. Lujan*.⁸ People directly and individually affected by some action affecting the environment still have standing to sue. What has changed is that "arm chair" environmentalists are taken out of the litigation game.

For many reasons, none of them too good, the mainstream environmental community panicked when the Defenders case came down. They need to re-read the last paragraph. The Court, as usual, shows the astute Gonzo practitioner how to thread the maze. Now the Big Ten environmental groups must actually have members who leave the comfort of their own homes and venture forth into ... e-gad... the Wild.

If you want to be on the cutting edge of environmental law, bringing cases on behalf of species or rivers, etc., without the hassles of some group's board of directors breathing down your neck about alienating potential members, begin "standing exercises" now.

1. Read about the areas of ecology that interest you most. Unless you recently came into a nice fat trust fund, focus on issues near your home. That gives you more credibility and reduces the cost and work involved in maintaining standing.

2. Keep it simple, at first. Maybe zero in on a couple of species that you believe are not being protected by those entrusted to do so. BUILD A FILE. Save newspaper clippings. A good file makes for good evidence in Court.

3. Join a local conservation group. They'll usually have news and information on your topic. Latch onto the most knowledgeable person in the group and bleed them for information. For the purposes of standing, it usually doesn't pay to claim as your local group the most radical in town. Conservative members of the Judicial branch of government take a slanted view of the zanies. Pick a nice respectable name like Audubon.

4. Here's the fun part. GET OUT IN THE WILD! Go visit, many times, that river or the habitat of those species you've been studying. Camp, picnic, swim, take pictures. JUST DO IT! The Courts will scrutinize your involvement with the wild. You must go out there and PLAN TO GO BACK. Continuing active involvement and definite plans to go back are the keys to showing standing.

5. Have pictures ready to show the Court. Have witnesses. Document everything you do concerning the wild thing. Be hip like Thoreau: keep a journal.

6. Do not be intimidated by the opposing lawyers when they challenge your standing (and they will!). It's a formality. You can beat it!

7. FILE all your studies, etc. Include all your records and impressions of all THREATS to your interest, such as "That dam will drown the Pink Flashy Orchid, and I'll be deprived of

ever seeing it again in The Wild!"

8. If you have some sort of financial interest in the wild thing that is about to be destroyed, then your proof of standing is much better. The federal courts consider threats to financial interests much more important than threats to less tangible interests. Remember: most federal judges are Republicans. For instance, Vaughan writes articles in bird watcher magazines, for which he is paid, about Red-cockaded Woodpeckers in the Talladega National Forest, and he guides people there to see the birds. If the Forest Service does something that could destroy those birds, Vaughan would have standing to contest that action, because he has a direct financial interest in those birds that is unique to him and not shared by the public at large. Vaughan would not have standing, however, to defend Red-cockaded Woodpeckers in South Carolina, because he has never been there to see them. His interest in the birds in Alabama will not translate into standing to defend birds elsewhere. Again, good people in every part of the nation need to get out into the wilds so that there will be someone with standing to defend every place.

9. Lastly, and we reserve this for the (fools) brave at heart, there's the seldom used but effective RELIGIOUS argument. The Supreme Court is very shy about probing into people's religious beliefs. Separation of "church" and state being what it is, we like to throw bona fide religious concerns into our standing claims.

For example, Mudd, in a case against the US EPA, boldly told the federal judge that he was (and is) a card carrying member of the International Pantheist Society. This collection of like-minded mystics adheres to the principle that "all is ONE." Thus, any federal action that contributes to the extermination of an endangered species violates Mudd's right to express freely his religious beliefs. It's hard to worship a species that just went extinct!

Mudd submitted a thorough AFFIDAVIT of STANDING to prove to the Court that he was a Pantheist and even said that he practiced "ecological oneness meditation" in the habitat of several endangered species in Alabama (keep it fairly local). Photos accompanied the affidavit, some taken by Vaughan, showing Mudd in deep trance over the burrow of a Perdido Key Beach Mouse, one of America's most endangered mammals. Try as they might, the US Justice Department (who represented the EPA) could not persuade the court to throw Mudd out for lack of standing. Caveat: that case was settled and we'll never know what would have happened.

Now you have the basic outline for standing in federal courts. Usually state courts are a tad more lenient about standing, assuming you are a resident there and thus operate as a beneficiary of the corpus of the Public Trust.

Once in court, show how the action you want to stop is connected to the species. Water quality? For instance, will degrading water quality harm the Cahaba Shiner? (The legal term for 'harm' or 'kill' is 'take.') If you've done the requisite homework, you can usually demonstrate to a court that the proposed

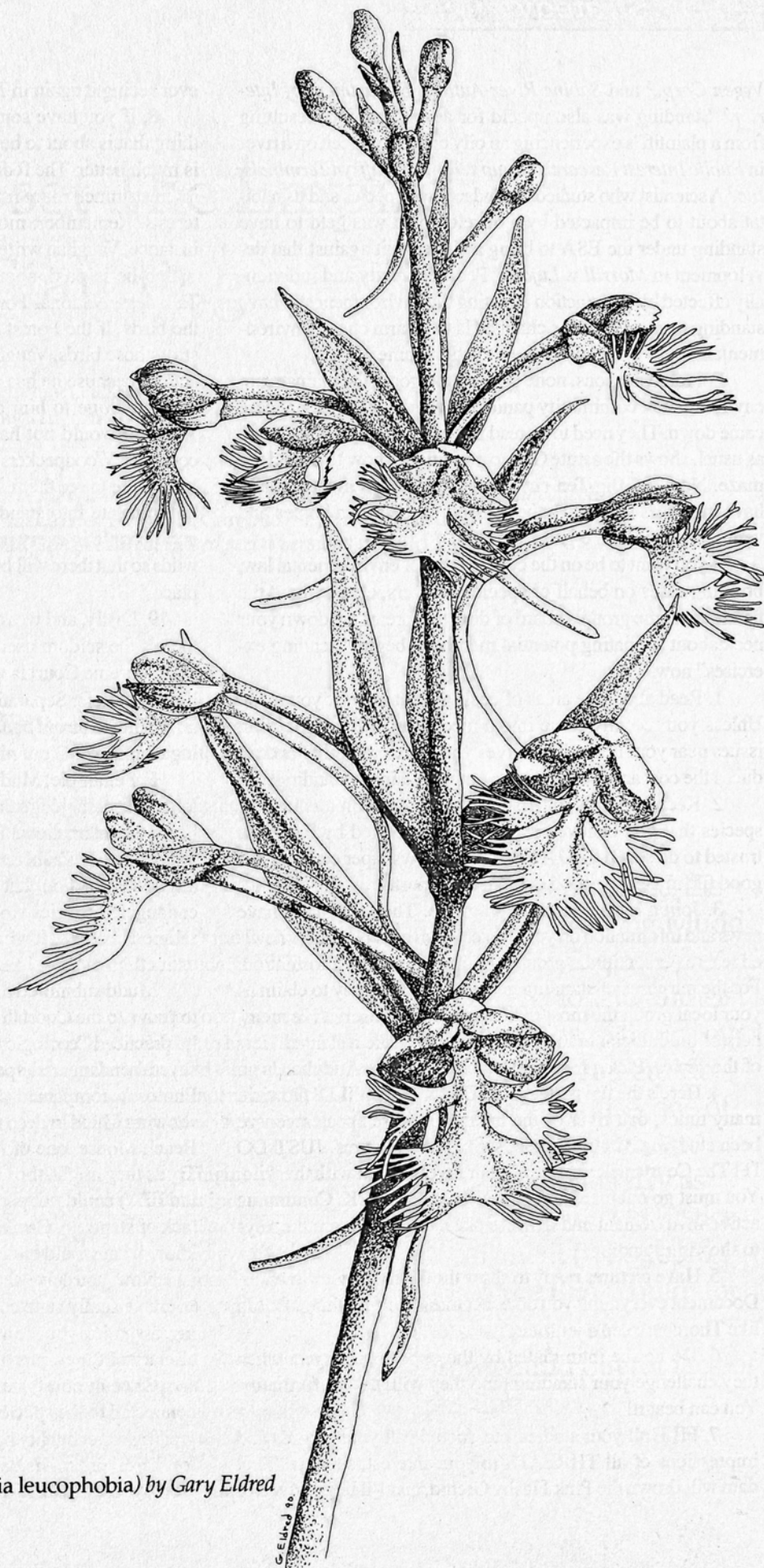
(or ongoing) action will damage the species's HABITAT. (That's another chapter.)

Remember, when you make first contact with a lawyer regarding your desire to sue to defend an ecological entity, (s)he will wonder about your standing. If you come in with a file folder full of documentation showing your actual involvement with the threatened wild area, the lawyer will see you as a good plaintiff. Most "public interest" lawyers desire to do good. However, they really drool over those court-awarded attorney fees. So, if they think you can jump hurdle one, standing, they'll likely look at the real issues of your case.

The bottom line is this: Get out there, participate with the wild, study your issues, become competent to defend your bioregion's ecosystems, habitats and species, scope out what problems are occurring or are on the horizon, make your government do its job to the fullest, and only THEN call a lawyer.

NOTES

1. 112 S. Ct. 2130 (1992).
2. 405 U.S. 727 (1972).
3. 971 F. 2d 1155 (5th Cir. 1992).
4. 954 F.2d 974 (4th Cir. 1992).
5. 803 F. Supp. 97 (N.D. Ohio 1992).
6. 951 F. 2d 669 (5th Cir. 1992).
7. 913 F.2d 64 (3d Cir. 1991), *cert. denied*, 111 S.Ct. 1018 (1991).
8. No. 92-0216-B-S, ___ F. Supp. ___ (S.D. Ala. Sept. 28, 1992).



White Fringed Orchid (Habenaria leucophobia) by Gary Eldred

Ecological Economics

An Essential Component of The Wildlands Project

by David Haenke

The Wildlands Project draft is a visionary plan. If somehow it can be implemented, it's a prescription for ecological health for North America/Turtle Island. If it is to get anywhere, though it needs to effectively address its own economic ramifications. For this, conservation biology needs to be interlaced with ecological economics.

Economics, after all, is really the heart of the issue. Human economic activity is what destroys ecosystems and biological diversity. At the same time, all the wealth in the world is ultimately based on the integrity of ecosystems. Herein is the pivot on which the whole future of biodiversity turns, for good or ill.

In the only references (that I could find) to economic issues in the entire *Wild Earth Special Issue*, Reed Noss says: "Most conservation biologists agree that compatible human uses of the landscape must be considered and encouraged in large-scale conservation planning. Otherwise, the strategy will have little public support" (p. 13). Also, in Reed Noss's Appendix: A Recipe for Reserve System Design and Management, he mentions, in the section on multiple use zones, "low-intensity silviculture (light selective cutting)," and "New Forestry silviculture (e.g. partial retention harvests), selection forestry, or other forestry experiments" (p. 25).

I suggest that these few references to economics are not enough to sell the plan to the American people, who have only recently come around to forming a soft majority in favor of the concept of preserving any kind of recognizable "natural" environment at all. This "majority" is based on the secondary priorities of the more affluent classes of our society. It starts to evaporate when the economy hits the skids. These and the rest of the people of the nation, whose main priorities are economic, have to be convinced. The American people have to fund the vast investment implicit in the implementation of The Wildlands Project, from the surplus proceeds of the very economy that is destroying the wildlands. A structural change in the nature of our economy is demanded to accommodate the needs of biological diversity. The theory and practice for this re-structuring is contained within the transdiscipline of ecological economics, which is to economics what conservation biology is to conservation.

Economics has no reality outside of ecology. All wealth, despite our fixation with money, comes from ecosystems, the Earth.

The Project strategy needs—either as a supplement or fully integrated into it—a credible discussion of its ecological economic ramifications. We need to tell the American people what both the impacts and the significant economic BENEFITS will be. Through ecological economics, it can be shown that The Wildlands Project can be a significant force in initiating the transition to a healthier economy.

Otherwise the Project may well be seen as a thrown-down gauntlet—a challenge to fight with those who subscribe to the "jobs vs. environment" absurdity. Highly counterproductive backlash could result.

This proposal does not have to be an escalation of the polarization that feeds reactionary developments like the Wise Use Movement.

There are gaping holes and glaring contradictions in the Wise Users' economic arguments, the heart of their attack strategy. For instance, it can be made clear that the kind of resource policies they advocate are designed to primarily benefit large corporations and require corporate socialist-style public subsidies to deliver the profits. Local people can be shown that the Wise Use agenda makes their area into an economic colony, with a wrecked ecology as a result. The majority of the people in the middle need to have their economic concerns addressed by the ecological movements.

Here's a short explanation of ecological economics as I see it applying to the forests:

ECO-ECONOMICS DEFINITION

Ecological economics uses the same principles that order natural systems to understand, evaluate, and reform human economic systems. It allows us to re-define wealth, money, "the bottom line," and economic health. We observe that economics has no reality outside of ecology. All wealth, despite our fixation with money, comes from ecosystems, the Earth.

According to ecological economics, wherever ecosystem integrity is degraded by human activity, erosion of economic prospects is also in action. The possibility of stable, sustainable economies is being lost for diminishing short-term gains.

From this framework, we do an "ecological audit" on the current economic considerations regarding the forests, to establish a new "bottom line." We use this as a reference point to make recommendations.

The ecological audit includes evaluation of such elements as timber harvest methods and volumes, uses of forest products, jobs in the forest products industry, the nature and effect of timber harvest subsidies, market considerations, true costs of public forest policies, impacts on ecosystems (including wildlife, water, air, soils), and the impact on human communities.

Ecological auditing reveals **true and full costs and benefits**. Of major importance here is the capacity of the eco-audit to assess the full benefits of wilderness, biological diversity, and general ecological integrity, and present them in an economic form that people can relate to (beyond just moral and ethical considerations). Unfortunately, it takes this kind of valuation to move people.

Through ecological auditing, we can assess 1) the **TRUE COSTS** of the extraction or withdrawal of natural capital—"resources"—from ecosystems, along with the costs of the transportation, production, and distribution of these products; and 2) the **TRUE VALUES AND BENEFITS** inherent in natural capital, intact ecosystems, and ecological integrity. We can discern the profound difference between "price" (what we pay or charge for something in the market system) and "cost" (what a given item actually "costs" society and the Earth). For any given product, ecological auditing tells us that costs are startlingly

greater than the prices we now pay.

The "ecological audit" is similar to the "energy audits" used on houses and buildings, and the "environmental audits" being employed by business and industry to determine how best to comply with environmental regulations. The ecological audit, however, is much more comprehensive in the number and kinds of parameters used to determine full cost, and more ecologically-based. Following are some of the factors that an ecological audit of economic activity—or indeed of virtually any human enterprise—considers.

Waste, Pollution, Toxics (at any stage or level of process)

- amount, kind and full cost of pollution or toxics created

Energy

- full cost of using energy sources, including the whole cycle of resource extraction, production, distribution, consumption, pollution (if any), any other social and ecological costs and impacts, etc.

Production—Resource Inputs

- whole impact of production on ecosystems, other species, human society, etc.

Distribution

- distances from production point that products are marketed
- full energy and resource cost of transportation to markets
- full cost of packaging
- full cost of advertising and all communication of product information

Money

- where investment money comes from
- whether the business is locally owned and operated
- where profits go
- what happens to money invested; the results of investment
- the level, nature and source of business subsidies, such as: cheap access to natural resources, public tax money, regulatory breaks, tax breaks, physical resources, incentives, regulatory favors, concessions, inside information, depletion allowances, below market cost access to financial resources

Human Community

- salary and wage paid to labor relative to averages for the same kind of work in other places
- how well the enterprise integrates into the local human community and the existing natural communities
- the amount of business resources put into enhancement of the health of the local community and ecological health

SOME RECOMMENDATIONS FOR INCLUDING ECOLOGICAL ECONOMICS IN THE WILDLANDS PROJECT

- Provide a general, contextual discussion on necessary changes to local, regional, national, and international economic systems in relation to The Wildlands Project. In turn, discuss the impacts of these systems on The Wildlands Project.
- Flesh out just what economic activities can be carried on in the multiple-use buffer zones, and what their benefits can be

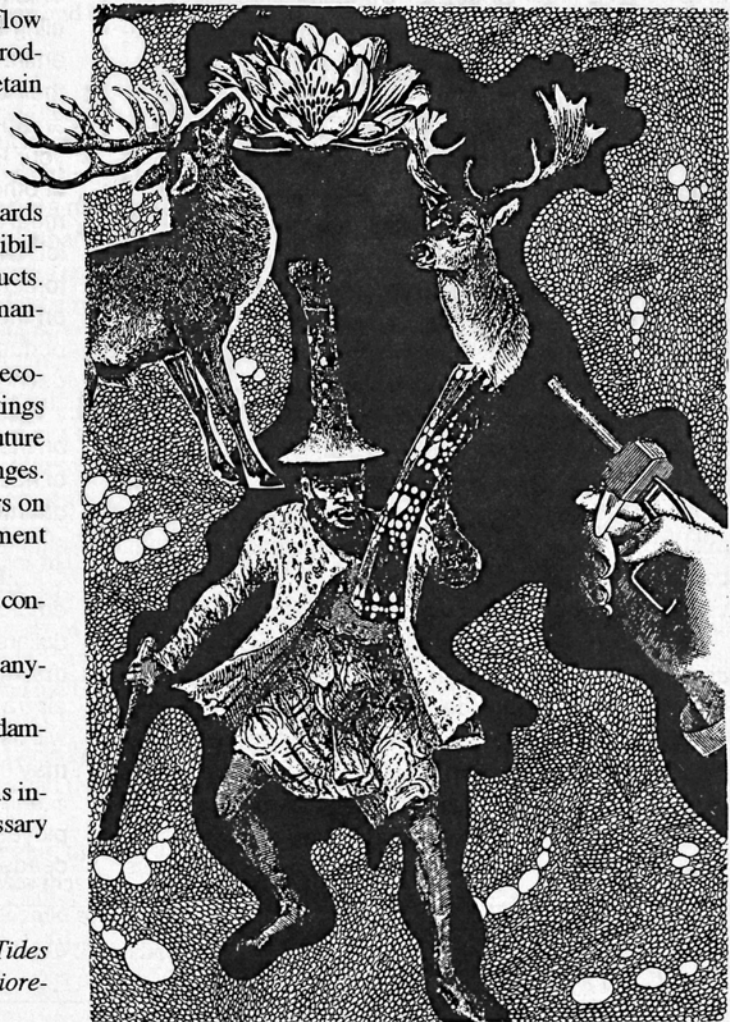
to a SUSTAINABLE economy for a given region. Promote the exemplary work of such organizations and businesses as the Rogue Institute for Ecology and Economics, Wild Iris Forestry, The Forest Trust, Institute for Sustainable Forestry, and the International Forest Stewardship Council. Publicize the best examples of ecological selection, mill efficiency, value-added products, etc.

RECOMMENDATIONS FOR MULTIPLE-USE ZONES AND SURROUNDING AREAS

- Encourage ecological selection forestry to take out some "low value" trees and release high value trees to grow toward higher quality and full maturity. Higher value per tree can lessen the pressure for larger harvests.
- Encourage low input, efficient, ecological methods of management and harvest; e.g., horse logging, "vegetative management" by hand rather than herbicide use.
- Develop uses and markets for trees of lower economic value.
- Promote economic advantages and multiple values of uneven-aged, high quality forests; e.g., tourism, beauty, clean streams, diverse animal life.
- Encourage increased resource and energy efficiency in milling, and utilization of by-products for other products or energy, preferably on-site.
- Develop strategies to add value to the harvested resource while it is still in the region; e.g., furniture, toys, bowls, flooring, mouldings, window frames. This creates jobs in the region, increases demand for high quality material, and reduces pressure for high volumes of harvest to produce equal economic return. End the outflow of raw logs. Develop markets for these value-added products in the region of origin, to create more jobs and retain capital.
- Develop methods and markets for regional re-use and recycling of wood and wood products.
- As in organic agriculture, promote certification standards for forest products produced with ecological responsibility; then develop premium markets based on such products.
- Call for ecological audits on private and public forest management policies.
- With the audits and other studies under the purview of ecological economics in hand, call Forest Summit Meetings in affected areas. All those who have a stake in the future of forests can come together and seek constructive changes.
- Begin ongoing education for private forest landowners on ecological management. Showcase good management projects on private lands.
- Promote training and certification programs for loggers and contractors.
- Provide retraining and transitional job assistance for anyone displaced by ending below cost sales.
- Create public forest jobs to do ecological restoration on damaged lands.

In conclusion, a visionary approach to economics is indispensable to any visionary wildlands plan, and a necessary buffer against counter-reaction.

David Haenke (The Ecological Society Project / Tides Foundation, Rt. 1, Box 20, Newburg, MO 65550) is a bioregional leader in the Ozarks.



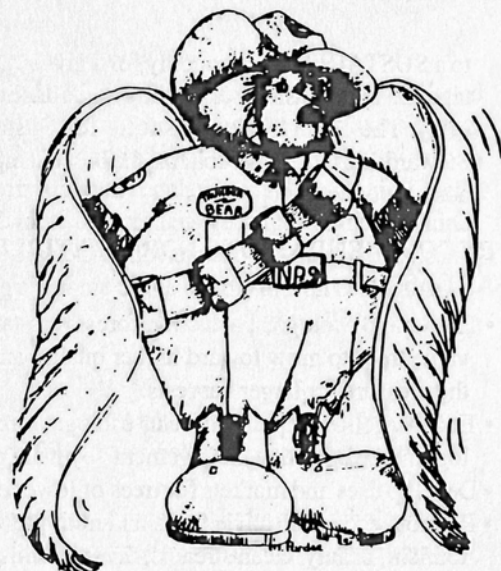
A Word From the Soil Conservation Service*

Do other conservation agencies of the federal government have budgetary problems? The answer of course is Yes. Do other such agencies also have a sense of humor? Again the answer is Yes.

Consider one of the small but vital agencies of the massive U.S. Department of Agriculture; the Soil Conservation Service. They are charged with the most awesome task of any agency, civilian or military; namely seeing that the nation is still there and does not erode into the various oceans.

Now, buckaroos, do you suppose an anxious Congress, seeing the very ground slipping out from under their feet, would not give this brave little agency everything they needed and more? The answer of course, is No, Congress is not that farsighted and, like the NPS, the SCS is strapped for funds.

I recently received a memo from a former National Park Service (NPS) employee who now works for SCS (proving perhaps that the grass is not always greener etc. etc.).



TO: Area Conservationists

FROM: TITE (Team Intent on Trimming Expenses)

SUBJECT: Demonstrated initiative in dealing with a limited budget

PROPOSED AREA POLICY

Transportation: Hitchhiking in lieu of using SCS vehicles or commercial transport is strongly encouraged. Luminescent safety vests will be issued to all SCS employees prior to departure. Bus transportation will be used whenever possible. Airline tickets will be authorized for purchase only in extreme circumstances and the lowest fares will be used. If, for example, a meeting is scheduled in San Francisco, but a lower fare can be obtained by traveling to Detroit, then travel to Detroit will be substituted for travel to San Francisco.

Lodging: All employees are encouraged to stay with relatives or friends while in travel status. If weather permits, public areas, such as parks and parking lots, should be used for temporary lodging sites. Bridges may provide shelter in periods of inclement weather.

Meals: Expenditures for meals will be limited to the absolute minimum. It should be noted that certain grocery chains often provide free samples of promotional items. Entire meals can be obtained in this manner. Travelers should also become familiar with indigenous roots, berries and other protein sources available at their destination. If a restaurant must be utilized, travelers should seek establishments offering "all you can eat" salad bars.

This will be especially cost effective for employees traveling together, as a single plate can be used to feed an entire group. Employees are also encouraged to bring their own food while on business. Cans of tuna, Spam, and pork and beans can be conveniently consumed at your leisure without the unnecessary bother of heating or other costly preparation. Another excellent alternative meal source for SCSers involves a visit to any pizza parlor. One simply waits among the tables looking for customers who depart leaving one or more slices of pizza on the pan. There have been reports of the occasional bonus of nearly a full glass of beer from simply consolidating that remaining in the pitchers and glasses left on a vacated table. It should be noted that it is prudent to be on the lookout for tables occupied by those wearing shirts or hats emblazoned with the Forest Service emblem. The quantity and quality of the slices remaining seem to be significantly higher on these tables.

Miscellaneous: All employees are encouraged to employ innovative techniques in our team effort to save dollars. One enterprising individual has already suggested that money could be raised during airport layovers when air travel was deemed absolutely necessary. Red caps will be issued to all employees prior to departure so they may earn tips helping other travelers with their luggage. Small plastic roses will also be made available to employees so that sales may be made as time permits. Proceeds will be used to defray travel costs.

And so it goes with our brother conservation agency, the Soil Conservation Service, whose brand of humor must be termed "Earthy"! —PJ Ryan

* Reprinted from issue #150 of *Thunderbear*. To subscribe to "the oldest alternative newsletter in the federal government," send \$12.99 to *Thunderbear*, POB 2341, Silver Spring, MD 20915.

Forest Service Euphemisms and Obfuscatory Language

by Howie Wolke

What new epithets can possibly be found to describe the federal agencies in charge of America's public lands? Haven't the big bureaucracies already been called every four letter name? Despite decades on the receiving end of frequently vitriolic criticism, the big bureaucracies continue to preside over the well-documented biological demise of America's public wildlands. Since the adversarial approach hasn't worked very well, some folks argue, we should lighten up on the criticism and begin to work for positive change with, not against, the agencies.

I disagree.

It will **always** be the necessary role of citizen groups both to promote positive change and to oppose and resist the general swagger of the bureaucracy. When conservation groups effect positive change, then their job will be to promote **further** change and to resist the inevitable agency resistance to it. Writers, in particular, have a responsibility to expose bureaucratic corruption, complicity, duplicity, and stupidity. In that spirit, I will discuss here a little-known aspect of American bureaucracy: its full-scale assault upon the English language.

When I was a youngster growing up in the East, I had a romantic notion that forest **rangers** actually ranged the forest. I eventually enrolled in forestry school where I learned that forest RANGERS rarely range. Most often, they stare into the feckless glare of computer screens, conjuring up new projects in order to justify their existence. All those "Lassie" episodes, it turns out, were bullshit. Unfortunately, it's not just the forestry profession that isn't what it seems to be; the entire spectrum of public land resource management is based upon a strategy designed to hide in a cloak of absurd euphemisms the ugly reality of abusive land exploitation.

There are four major federal land management agencies in the US. They are the US De-Forest Service (still known to some as the "Forest Service"), the Bureau of Large Mistakes (also called the Bureau of Land Mismanagement or just the BLM; officially, it's the "Bureau of Land Management"), the National Pork Service (named for its infatuation with pork barrel politics; occasionally it's called the "Park Service"), and the US Fading Wildlife Service (still called the "Fish and Wildlife Service" by some idealists). For the record, the De-Forest Service is in the US Department of Agribusiness, while Large Mistakes, Pork, and Fading Wildlife are within the Inferior Department. You might recall that James Watt used to run that outfit (Department of Interior).

I said euphemisms, and that's partly correct. Sometimes, though, the bureaucratic assault upon English consists primarily of words and phrases that simply convey something quite different from what is actually occurring on the land; and sometimes, the bureaucrats simply butcher basic English grammar. In any event, today's language of land management would make George Orwell blush; it's way beyond the "Newspeak" and the "Doublespeak" that he described in his classic novel, *1984*.

...the entire spectrum of public land resource management is based upon a strategy designed to hide in a cloak of absurd euphemisms the ugly reality of abusive land exploitation.

Though all bureaucracies utilize euphemisms and other bizarre contortions of the English language, the De-Forest Service has shown the most imagination. So let's look at that outfit and its strange new world of imaginative English.

First, it's important to understand that bulldozers don't gouge ugly roads into steep hillsides; they ACCESS remote stands of commercial timber. ACCESS is either a verb (to ACCESS) or a noun (to create ACCESS), and either way, ACCESS is the key to modern forest management. In the Forest Service, ACCESS implies that one can drive a pickup truck in the area. Without ACCESS, forest RANGERS would have to either walk or ride a horse. In other words, they'd have to range. The Forest Service (FS) also uses "road" as a verb. On a system wide level, each year the Forest Service ROADS over a million acres of unprotected de-facto wilderness. Yet in their language, they don't destroy wilderness. They ROAD it, to create ACCESS. Forest roads are also considered CAPITAL IMPROVEMENTS. The FS has even called roads LINEAR WILDLIFE FEEDING CORRIDORS.

I live on a 50 acre chunk of "private" ground within the Bitterroot National Forest (BNF) in western Montana. The BNF cloaks the foothills and highlands of the Bitterroot, Sapphire, and Anaconda-Pintlar Mountains, and it extends across the state line deep into the big green wilds of central Idaho. The Bitterroot is —or was— a rich landscape of impressive natural diversity characterized primarily by big Ponderosa Pines, Douglas-fir, Grand Fir, and Western Larch at low and mid elevations, and extensive forests of Lodgepole Pine, Engelmann Spruce, and Subalpine Fir in higher terrain. There's Whitebark Pine and Alpine Larch at tree-line, and a smattering of Western Red Cedar and Quaking Aspen in the low country. Rattlesnakes sun themselves in the grassy lower foothills of the Sapphires, while Mountain Goats cling to the cold snowy peaks of the Bitterroots. The BNF is typically cloudy and wet in the late spring and late fall; it's quite snowy in early to mid winter; and it's drier than dogshit in the desert during July and August. Usually it's either too wet or too dry, too hot or too cold. So please visit Boston, not Montana. Enjoy the culture. See the Red Sox.

Here's what's been happening since the early 1960s on much of the Bitterroot National Forest. Bulldozers routinely gouge new roads into steep mountainsides. The road cuts cause erosion, and silt washes into nearby streams, smothering trout spawning beds and destroying habitat for various aquatic organisms. Loggers enter the mixed conifer forest and clearcut 40 acre blocks. They skid the logs to nearby landing sites, destroying the structure of the topsoil and opening more of the earth to erosion from rain, wind, cows and all-terrain vehicles.

After the slash is piled and burned, work crews replant the ground with neat rows of Ponderosa Pine or Douglas-fir or both. Sometimes, the little seedlings grow. When they do, the new "forest" is a sterile place; simplified, lacking wildlife, and lacking nature's structural evidence of death and decay: snags and deadfall which are essential to wildlife and to such ecological functions of the forest as nutrient cycling.

The road network expands; more clearcuts and related forms of logging transform the entire landscape into an ugly road-laced patchwork of ever smaller parcels of standing native forest surrounded by eroding blotches of clearcuts growing back — if at all — very slowly in the short dry frost-free season of the Northern Rockies. Spotted Knapweed, a weedy invader native to Eurasia, quickly covers much of the bare dirt along roadsides and soon displaces native grasses in areas near the new roads, particularly on steep south and west facing slopes. Thus, Elk and deer lose valuable winter forage.

Old-growth and forest-interior mammals and birds — for example, Fisher, Pileated Woodpecker, and Winter Wren — lose habitat and disappear. Habitat fragmentation isolates populations of small mammals, birds, insects, and amphibians, leading to reductions in their genetic diversity. Therefore, the ability of life to adapt and evolve diminishes. The new planted trees lack the genetic diversity of those in the native forest: they've been selected for uniformity; in particular, for fast, straight growth. In short, the new "forest" is a manscape, not a natural landscape anymore. A manscape is the ugly antithesis of wild evolving nature. It's a brave new impoverished world.

In general terms, this description of the BNF already fits **most** of America's National Forests. Over 110 million acres of the 191 million acre National Forest System are intensively developed with roads, logging, and other kinds of exploitation. Unprotected wildlands without roads in tracts of 5000 acres or larger (the Wilderness Act's general minimum in order to qualify for legal Wilderness protection) constitute another 45-50 million acres. Because most of the developed National Forest lands have been badly overcut, the timber industry and Forest Service are now frantically invading these remaining unprotected roadless areas. About 32 million acres of National Forest is designated Wilderness, but much of this land is unproductive high altitude "Wilderness On the Rocks."

So, most of America's National Forest lands have already been severely damaged. But "damage" isn't a word that portrays the Forest Service in a favorable light. So let's try another word. Let's try "IMPACT." Road-building and clearcutting IMPACT the land. The Forest Service can admit that. IMPACT sounds less negative than "damage." IMPACT can be a noun (The clearcut will have an IMPACT) or a verb (it will IMPACT wildlife). This leads us to a very important verb. To understand the bureaucracy, one must have full command of the verb, MITIGATE. The IMPACTS of logging, road-building, mining, livestock grazing and off-road vehicles can always be MITIGATED. That's the most important concept in public land management today; land managers can MITIGATE anything. For example, they close logging roads during hunting season to give Elk more security. That's MITIGATION. Or, in an Environmental Analysis Report, a forest RANGER might note the proximity of a planned timber sale to designated Wilderness, and say the designated Wilderness MITIGATES the IMPACTS of the planned sale. Really.

Now, let's return to the Bitterroot National Forest clearcuts.

Movement Mutterings

When I look at the hacked up landscape, I see ugly damage. But beauty, and it seems reality, is in the eye of the beholder. A typical forest RANGER sees something quite different, something like this:

CAPITAL IMPROVEMENTS (new roads) ACCESS DECADENT AND OVERMATURE TIMBER (old growth), characterized by dead and dying trees falling to the ground and going to waste (structural and functional diversity). Erosion from log skidding and ROADING is a temporary problem that can be MITIGATED by restricting log hauling and other activities during spring breakup when the ground is saturated by snow-melt. If the erosion continues, the SERVICE has machines which resemble big vacuum cleaners, to suck silt out of streambeds to restore fish habitat. Again, anything can be MITIGATED.

Clearcuts are designed to create a piece of forest in which all of the trees are about the same age and size and usually the same species. Clearcutting is the key to EVEN-AGED MANAGEMENT, and about 70 or 80 years after the cut, the trees can all be HARVESTED again. That's quick, convenient, and economical. *

It's important to remember that loggers HARVEST trees; they don't "clearcut" them. They HARVEST entire stands in EVEN AGED SILVACULTURE SYSTEMS. For the SERVICE, trees are a crop; the forest is a TREE FARM. **

In the eyes of the forest RANGER, the new landscape is one of order; it produces goodies for consumers. The entire landscape is available for MULTIPLE USES, like firewood gathering, mountain biking, picnicking (in the LEAVE STRIPS of standing forest between the clearcuts), dirt biking, snowmobiling, road "hunting," and poaching. Moreover, not just the timber, but the land itself is a RESOURCE that does us little good if un-MANAGED. And yes, though EVEN-AGED MANAGEMENT does locally extirpate some wilderness-dependent, old-growth-dependent, and deep forest species, on the BNF that's MITIGATED by the proximity of the designated River of No Return and Selway—Bitterroot Wildernesses, both of which include parts of the BNF.

There are just a few more key concepts in the language of forest bureaucradome. MANAGEMENT of RENEWABLE RESOURCES is carefully designed to achieve what RANGERS call the DESIRED FUTURE CONDITION of the forest. Whose desire, you ask? Theirs. And it's there in black and white. The management of every National Forest is guided by a LAND MANAGEMENT PLAN that delineates, among many other things, the DESIRED FUTURE CONDITION for the various parts of the Forest. Usually, the DESIRED FUTURE CONDITION is similar to parts of the BNF described above.

The DESIRED FUTURE CONDITION of the Forest, though, isn't decided without the obligatory public controversy. Many individuals and INTEREST GROUPS comment on the

draft planning documents; in fact, the Forest Service always gives interested "PUBLICS" the opportunity to participate in THE PROCESS (I am a PUBLIC; you are a PUBLIC; they are PUBLICS. No kidding.)

As a result, forest RANGERS often brag, usually **nobody** likes what they do. The timber industry complains that MITIGATION is expensive and whines that every patch of woods should be available for HARVEST; environmental groups complain that every INTEGRATED RESOURCE PROJECT, every CAPITAL IMPROVEMENT results in a further net loss of wild habitat. That, according to Forest Service wisdom, signals success. The Forest Service defines success as its ability to get everybody PISSED OFF. That's no euphemism. That's one hell of an approach to managing the last of the unprotected American wilderness.

Howie Wolke, author of Wilderness On The Rocks, is a wilderness guide and defender based in the Bitterroot Mountains.



This stand of decadent and overmature timber on the Kaibab National Forest is easily accessed via the adjacent linear wildlife feeding corridor.

Photo by Ned Powell.

*For the timber company, that is. Most National Forest sales are below cost; they lose money because the FS pays more for roads, "reforestation," administration, "pre-commercial thinnings," and other forms of management than it receives for the timber.

**According to forest ecologist Chris Maser, tree-farming is doomed to fail: "No nation I know of has maintained, on a sustainable basis, plantation managed trees beyond three rotations. The famous Black Forest in Europe is a plantation; it and other European forests are dying at the end of the third rotation."

Envisioning Wildland Restoration

by George Wuerthner

One of the greatest obstacles to ecosystem and wildlands restoration is lack of imagination. We cannot create what we cannot envision. What follows is a vision of what is possible if we change some basic assumptions about how much of the landscape we "need" to use.

Many conservationists believe the best strategy for ensuring the long-term protection of biodiversity lies in preserving large tracts of undeveloped land connected by corridors. However, an obvious problem with implementation of such a scheme is that much of the North American continent is already committed to some kind of commodity production that compromises ecosystem integrity and function. The wild areas are, with few exceptions, not presently large enough to provide for landscape-wide ecological processes like fire or animal migrations, nor are they large enough to support minimum viable populations of all native species.

Two other alternatives for preserving biodiversity are often championed. One is intensive management of existing natural areas. For example, in the Midwest, isolated parcels of tallgrass prairie must be burned via controlled blazes. Most tracts are too small to burn frequently enough from natural lightning ignitions to maintain the grassland ecosystem. In many Midwest prairie preserves, active management and manipulation will be necessary until natural processes are restored across the landscape. Intensive management can also work for small, relict populations with naturally limited distribution. Many rare plants fall into this category.

A second option recently given much publicity is "ecologically sustainable" economic development. Increasingly, environmental groups as well as industry are latching on to the "ecologically sustainable" concept because it appears to be a win-win situation. Under this scenario exploitation is supposed to mimic natural ecological processes; and, in theory, people live off the "interest," not the capital, of the ecosystem. Although truly sustainable development may be a laudable goal, we need to recognize its limitations. We barely understand ecosystems. Lacking understanding, we will have difficulty designing any large-scale exploitation system that is sustainable over the long haul. Our attempts at ecologically sustainable logging, grazing, and farming are still no more than experimental. We haven't had time to see if these methods are any better—in the long term—than previous methods of exploitation. Caution in implementation of any exploitive policy is needed. At most, such techniques as "New Forestry" should be practiced on small parcels of already damaged land and evaluated for decades, if not centuries, before we pronounce them acceptable alternatives. Lands managed for livestock, timber or other commodity production are by definition simplified ecosystems. The goal of commodity production is to maximize outputs of a

By eliminating or restricting marginal commercial activities on public lands, combined with acquiring large tracts of undeveloped private lands across the country, we could restore wildness to hundreds of millions of acres across the country.

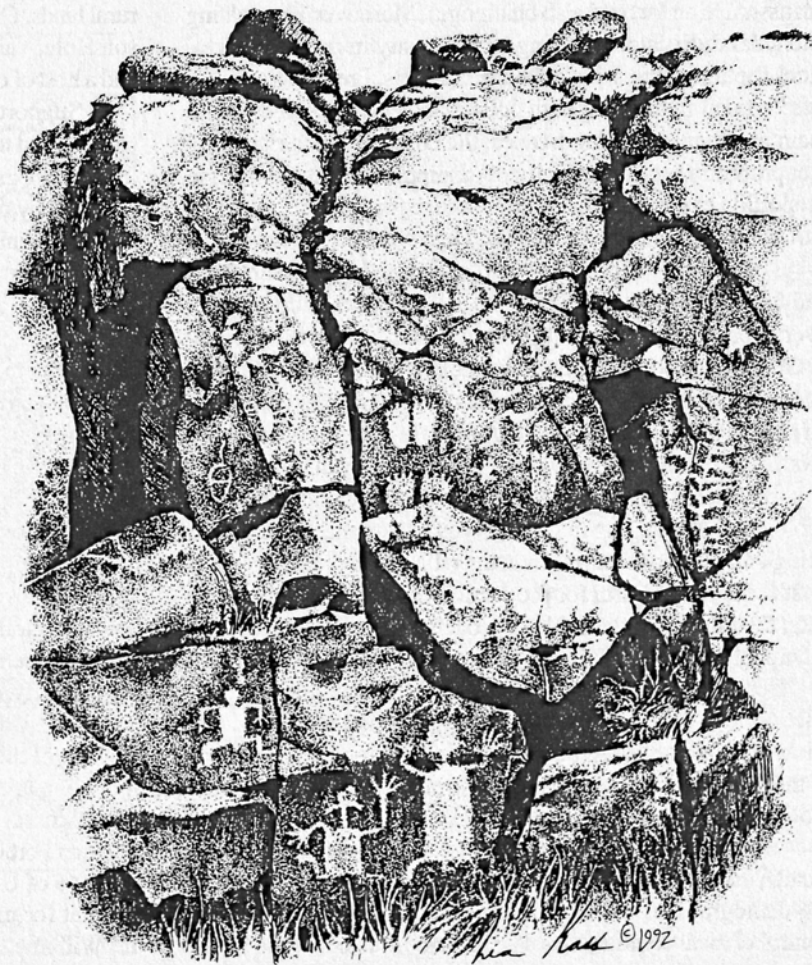
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particular resource. If you funnel energy into a few animals or particular species of plants, periodically removing those plants or animals from the local ecosystem, you change energy pathways. As Barry Commoner says, there is no free lunch. Furthermore, any stewardship, however benign, implies a degree of control and "USE" of resources that we should question.

An underlying assumption of public lands commodity extraction is that we must utilize most of our landscape for growing wheat, trees, cows, etc. (put in your favorite commodity) or we'll all starve or be living in cardboard boxes. Yet most of the acreage devoted to commodity production in the United States is not needed—even to maintain our present excessive standard of living. Many of the lands presently farmed, logged, or ranched are marginal in their ability to produce commodities, hence contribute little to the overall output of goods for that particular industry—and use of these lands has tremendous ecological costs.

For example, despite the large amounts of land logged annually in the Northern Rockies, these marginal forest stands contribute less than 1 percent of the total timber production in the nation. This is due to a short growing season, steep terrain, and high extraction costs. If we eliminated all timber harvests in the Northern Rocky Mountains, the change in timber supplies nationally would be insignificant. These same lands, if used for restoration of wildland complexes, would be large enough to sustain viable populations of wide-ranging species like the Grizzly Bear, Gray Wolf, and Wolverine. Even curtailment of timber production on all federal and state lands nationally would cut timber supplies by only 20%. Credible sources suggest that aggressive recycling programs could cut our nationwide timber demand by 50%. We don't need to continue sacrificing our forestlands to maintain our current (again excessive) wood products consumption. If less wood is available for house construction, paper products, and other uses, then alternative building materials and recycling become more attractive.

Notwithstanding the cowboy myth, most beef is produced in the Midwest and East, not in the West. Yet most land devoted to livestock production is in the West. This is a factor of limited rainfall and rugged terrain. Ninety percent of Nevada is public land, and nearly



all of that land—50 million acres, an area about twice the size of New York State—is leased to 880 permittees for livestock production. Yet, tiny Vermont—6 million acres in size—produces about the same amount of beef as all the public lands in Nevada. Considering that nearly 80% of Vermont's 6 million acres is forested, and not used for livestock production at all, the absurdity of trying to grow cows in Nevada becomes even more apparent.

Nationally, public lands only provide 2-3% of the forage consumed annually by all grazing livestock. Simply eliminating livestock grazing from Western public lands would free more than 300 million acres from the ecological impacts associated with cattle and sheep production—an area larger than the combined acreage of all the Eastern Seaboard states from Maine to Florida! Such a move would not only allow far more forage for native species, from Elk to grasshoppers, but would eliminate the “need” for predator control. It could also lead to restoration of the Black-footed Ferret, Gray Wolf and other carnivores in much of the West, as ranchers have been predators' primary opponents.

Given the small amount of meat actually produced from public lands forage, such a move would barely affect overall beef production and thus would not lower Americans' high standard of living—even if we accept producing beef as desirable (an assumption I would also challenge). Moreover, eliminating public lands livestock grazing would vastly improve opportunities for landscape-wide restoration efforts. Preservation is far less “costly” in terms of both dollars and energy than trying to maintain “unnatural” landscapes, the costs of which rise in direct proportion to the intensity of manipulation, and in inverse proportion to the quality of the landscape for production of that particular product.

Furthermore, since marginal land users receive subsidies and compete with producers on better lands, they reduce the overall profitability for all operators. A farmer growing a cow in Georgia is competing in the same market as a rancher producing a steer from Western rangelands. Eliminating subsidies on marginal lands should permit slightly higher profits for those producing commodities on better lands, thereby improving the opportunities for managing the lands we do exploit in a less ecologically damaging manner. If you accept that for the time being and perhaps forever, humans will modify and exploit at least some of the Earth for production of food and other products, then the most desirable approach is to restrict landscape manipulation and disturbance to as small an area as possible.

Some environmentalists defend marginal commercial production such as logging or ranching, asserting that if we don't allow ranchers to graze public lands or don't tolerate logging of the North Woods, subdivisions will quickly cover these lands. However, these are not our only choices.

Subdivisions are not driven by availability of private land. Rather, the driving force is increasing demand created by changing demographics or economic factors, which lie beyond the control of local communities. For instance, Idaho's Wood River

Valley, where the resort town of Sun Valley has invaded wild habitat, is essentially no different than the adjoining Lost River Valley or Lemhi River Valley, both nearly empty of people and development. The only qualitative difference is a ski area at Sun Valley that also supports bookstores, restaurants, and other cultural amenities. Sun Valley has seen extensive subdivision and population increase, while the Lost River Valley and Lemhi Valley have an overall population density of .5 person per square mile—less than that in Alaska. The latter two valleys actually have more private land than the Sun Valley area has.

Subsidized grazing and logging on public lands have not prevented subdivisions in attractive places with employment opportunities and cultural amenities. Yet, many conservation organizations support extractive industries under the presumption that their continued economic health will prevent land development. Thus we have the Northern Forest Lands Council and some environmental groups in the Northeast advocating tax breaks to subsidize timber production to maintain the “working forest.” Likewise, The Nature Conservancy in Montana and elsewhere in the West promotes “working ranches” on the assumption that viable livestock operations will prevent proliferation of vacation homes, and if managed “wisely” are compatible with preservation of biodiversity. Yet, there is no evidence anywhere that such approaches deter development of rural lands. On the contrary, subdivisions have occurred in Jackson Hole, Vail, Santa Fe, Bend, Lake Placid, Moosehead Lake and a host of other areas despite “working” ranches and forests.

Supporting marginal industries will not prevent conversion of land to housing developments. As land values rise, low value land uses such as agriculture or timber production are replaced by uses with higher economic returns. This is just as true for scenic mountain valleys in the West as it is for dairy farms in Vermont, timberlands in Maine, or orange groves in southern California.

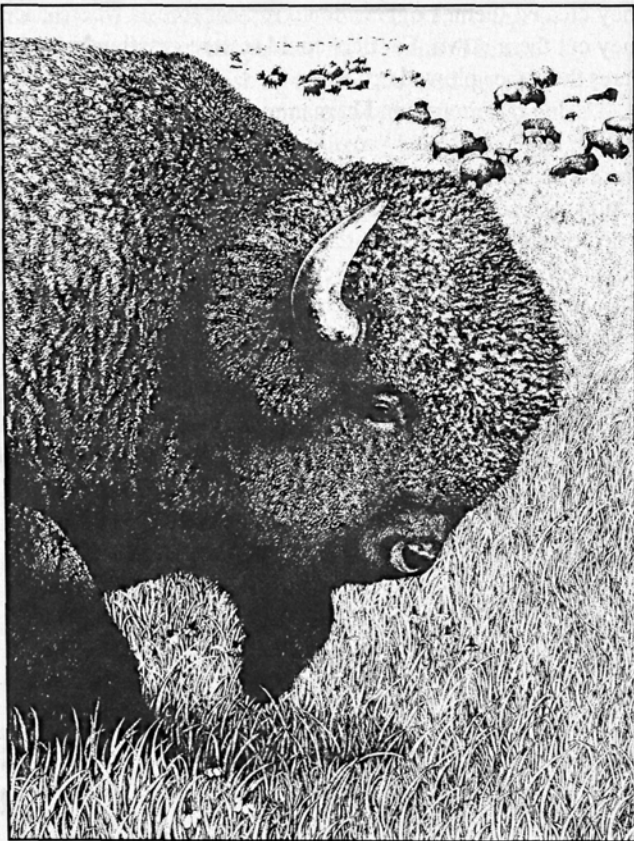
Furthermore, “working forests” and “working ranches,” even under the best management, still are impoverished in terms of biodiversity and ecological processes. Where subdivisions are a threat, we need to address the problem head-on using zoning, land use planning, conservation easements and outright fee purchase. Furthermore, I am convinced, the only way to ensure long-term (over generations) protection of wildlands is by public ownership.

Moreover, the focus on subdivisions misses an essential point. Contrary to common opinion, subdivisions and expanding cities are not PRESENTLY the major threat to the ecological integrity of many regions of the country. Perspective is necessary. Urban areas, particularly in the West, do not occupy the bulk of the landscape. In most parts of the West beyond the sprawling urban zones are vast areas with low population densities. Most of Colorado's population lies along the Front Range between Fort Collins and Colorado Springs. The Wasatch Front has 90% of Utah's population. The Phoenix and Tucson areas account for more than 80% of Arizona's population. Outside the Willamette Valley and Portland area, most of Oregon is

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scarcely inhabited by humans. Nine out of ten people in Nevada live in Reno or Las Vegas. Even parts of the East show similar patterns. More than ten million acres in northern Maine have no permanent human community. With only a few mid-size cities, most of Michigan's Upper Peninsula has more deer than people. Many parts of these landscapes would essentially revert back to wilderness if commodity production were curtailed. In contrast, livestock production degrades hundreds of millions of acres in the West alone. About 410 million acres of public and private rangelands are considered to be in unsatisfactory condition by the Soil Conservation Service (SCS). This means that half of the major plants that should be there are absent, soil erosion is excessive, and productivity is reduced significantly. SCS range condition figures say nothing about other impacts, such as loss of native predators and forage competition with native species.

Similarly, logging, not subdividing, has nearly eliminated the Spotted Owl, Marbled Murrelet, and many salmon runs from the Pacific Northwest. The Maine Woods are not being destroyed by vacation homes; rather, millions of acres have been converted to fiber factories as part of the "working forest." Over much of the Great Plains, farming and ranching, not subdivisions, are the obstacles in the way of the restoring a "Buffalo Commons" complete with wolves and other presently extirpated species.



*American Bison (Bison bison) by D.D. Tyler
(available from Tyler Publishing, POB 243, Augusta, ME 04332)*

It may be argued that subdivisions tend to occupy the best lands, therefore have an impact upon the landscape that goes beyond the limited acreages involved. Not all development, though, means a major new loss in habitat. Many of the lands in question have already been made marginal for native species by competing human use. Trading an acre of wheat on the edge of a town for a subdivision does not necessarily represent a substantial loss in wildlife habitat—particularly for species that do not thrive in disturbed environments. In some cases the shrubbery and trees associated with a subdivision might actually provide more habitat niches than a monoculture field, though these niches, too, would be filled mostly by opportunistic "weedy" species adapted to early successional habitat.

Subdivisions are often just the final step on a long road of gradual habitat degradation, rather than the primary source of this degradation. By contrast, logging and livestock production are the prime agents responsible for the regional extirpations of the Gray Wolf, Grizzly Bear, Black-footed Ferret, Sage Grouse, Columbia Sharp-tail Grouse, Bison, Swift Fox, Arctic Grayling, Bull Trout, and a host of other species that were once widespread and abundant.

Readers should not interpret my remarks as casual acceptance of subdivisions and urbanization. Increasing and expanding human populations bring a host of problems including new roads, weed invasions, smog, and the conversion of land more or less permanently to non-ecological uses. Recognizing this, we must support control of such development on private lands through conservation easements, fee purchase, and any other measures available.

Nevertheless, we ought to recognize that the present causes of biological diversity losses over a large percentage of the landscape are not housing and malls, but marginal farming, ranching and logging. It is unlikely that one will remove Los Angeles; nor does anyone really believe San Francisco will disappear any time soon. By eliminating or restricting marginal commercial activities on public lands, combined with acquiring large tracts of undeveloped private lands across the country, we could restore wildness to hundreds of millions of acres across the country.

This kind of restoration has already occurred in other parts of the country, most notably in the Northeast. For example, in the 1800s the Adirondack Mountains of New York were privately owned and heavily logged. When the Adirondack State Park was created in 1894, more than a third of the present park had recently been logged. The state of New York began purchasing parcels of formerly logged over lands, and managing them as "forever wild." Today several million acres are reforested, providing the nucleus for wildlands restoration in that region. Some animals that were extirpated, like the Fisher, have been reintroduced and are once more abundant. Moose are naturally recolonizing the region. Lynx were recently reintroduced, and there is discussion of restoring Gray Wolf and Mountain Lion. The Adirondacks are now wilder than they were 100 years ago, even though ten million people vacation in them annually.

Despite this success, it's important to note that the present

amount of the landscape devoted to wildlands restoration is still insufficient to provide for long-term ecosystem protection. [Indeed, the reintroduced Lynx are faring poorly, due to roads.-Ed.] Much more land acquisition and restoration will be necessary to reverse the effects of 100 years of exploitation and growing human population pressures.

Big Bend National Park in Texas is another example of a landscape undergoing restoration. In the 1930s, all of what is now Big Bend National Park was private rangeland. The state and federal government purchased private holdings in the late 1930s and early 40s to create the Park. Marginal livestock production was eliminated. Since then, Mountain Lion and Sierra Del Carmen White-tailed Deer have flourished. Black Bear have recently recolonized the Park. Big Bend is one of the prime potential recovery sites for the Mexican Wolf. As with the Adirondacks, the process of ecosystem restoration is only partially complete, but the trend is positive.

These examples demonstrate that wildlands restoration is feasible once marginal extractive industries are eliminated and natural ecological processes are permitted to function again. It may be some time before we have a large restored tallgrass prairie covering millions of acres in the Midwest. For now, most of this land will continue to be used to raise many of the crops we consume. (However, since 70% of the grains grown in the US are fed to livestock, a vegetarian diet might enable us to restore much of the prairie to native grasslands too!) In most parts of the country, though, supporting marginal industries makes neither ecological nor economic sense. Growing wheat or cows or cutting trees in states like Montana, Wyoming, and Colorado is foolish. We can do those things in other parts of the country, disturbing less land and using fewer energy inputs. Yet the mountains and plains of the West could produce abundant populations of Grizzly Bears, Bison, Elk, Pronghorn, and Sage Grouse if we allow them to return to wilderness.

Limited urban development need not compromise an entire region's potential for wildland restoration. Look at Alaska for a "working" model. If you go 30 miles outside of Anchorage, you are in undeveloped land complete with Moose, Grizzly Bears, and Gray Wolves. In a very real sense, Anchorage is an island of urbanization surrounded by wilderness. Anchorage's close association with wilderness is possible because no significant amount of farming, ranching or logging occurs on the lands around the city.

Such a model for urban/wildlands interfacing is also possible in much of the West, particularly where public lands surround urban areas. Wildlife species can co-exist with humans if we show tolerance and give them the space they need. Mountain Lions can be seen in Golden Gate National Recreation Area 15 miles from San Francisco. Wolves are now denning 10 miles from Missoula, Montana. Grizzlies have recently been seen less than 10 miles from Bozeman, Montana.

I am not suggesting that we extend the urban margin out to the presently undeveloped landscape, but rather that we bring the undeveloped landscape closer to our communities by shrink-

ing the amount of land consumed by extractive industries. In some landscapes, a smattering of small communities can fit into the wildlands matrix, if people have a proper attitude about how to work with nature. Small "cities" appear in Yellowstone, Yosemite, and other National Parks each summer, yet the conflicts between wildlife, ecological processes, and people are generally minimal because nature, not human needs, is usually (not always) given first priority. Parks serve as a useful paragon of how we could live with nature.

Though we may not see Grizzlies in the Puget Sound lowlands any time soon, there is no reason why we should accept their extirpation from the Cascade Range. We may not want wildfires burning through Oakland, but we can certainly have them in the forests of the Sierra Nevada. There may never be wolves stalking the woods among the housing developments in New Jersey, but they should be restored to the Adirondacks and northern New England. *Massive land restoration is possible because we don't need to "use" most of the landscape to meet our basic needs or even our excessive wants.*

We could eliminate marginal resource extraction industries and land uses from public lands simply by removing the subsidies that sustain them. The money saved could be used to purchase additional private lands in key locations. Individuals working in those industries could be reemployed on restoration projects. Bulldozer operators could rip out roads where once they created them. Loggers could replant forests where once they cut them down. Farmers could restore grasslands on the acres they once plowed up.

Using our money and human resources wisely, we could restore large core areas providing the basis for a continental wildlands reserve system. Land use planning, zoning, conservation easements and outright fee purchase of some high value lands could complete the system by ensuring the protection of broad habitat linkages. Just because marginal lands may be the easier targets for landscape restoration, does not mean we must accept the complete conversion of productive lands to human use. Efforts to foster recovery of productive lands should also be a priority. Meaningful representation of all ecosystem types should be a part of the recovery strategy.

In a Continental Wildlands Reserve System, such as advocated by The Wildlands Project, wilderness would surround "Civilization Areas" of varying size and extent. These Civilization Areas would be connected by roads, and other corridors, but would be set within a wild matrix. At least 50% or more of the continental United States could be restored to wildlands if we eliminated marginal extractive activities.

The major barrier to such a plan is a lack of imagination and vision. Wildland proponents need to spread the vision.

George Wuerthner (Box 273, Livingston, MT 59047) is a wilderness explorer, freelance writer, and member of The Wildlands Project board of directors.

Mycophobia

Demeans The Below Powers

by Art Goodtimes

Mycophobia is a uniquely Anglo-American trait. For most of our childhoods toadstools and fairy rings inhabited the illusory netherworld of legend and tale. Many of us remember that it was a mushroom that killed Babar's father, poisoning him at the very beginning of that imperial childhood classic.

In this country, with hunter/gatherer traditions dying out among all but the oddballs, witches and weedeaters, it's not surprising that mushroom field guides list most species as "edibility unknown." Truth is, far more poisonous vegetables and flowers grow in our immediate environments than do any of the deadly Amanitas or LBMs (Little Brown Mushrooms—to be avoided as a group). In fact, many unique fungi have always been rare species. The conditions for their flourishing are still beyond our ken, and they can't (yet) be cultivated outside the wild.

That last phrase, "outside the wild," is key.

Mushrooms are denizens of the wild. They are the primary decomposers, working in mycorrhizal interaction with tree rootlets, recycling the dead ancients into molecules the young saplings can absorb.

At the 12th Annual Telluride Mushroom Festival last year, Dolores LaChapelle gave a fascinating lecture on the "below powers," as she called them. Worshipped in many cultures, members of the fungal kingdom are indeed among the most sacred of below powers. As the renowned ecologist Eugene Odum once noted, "There is more information stored in a square meter of forest duff than all the libraries of the world."

Other cultures celebrated that truth. Dolores noted how the Hindi tradition consecrates the lotus as the ultimate symbol of beauty, a flower that rises out of the mud and slime.

Most Western religions, she added, split the world between the spiritual realm above and the black dirty earth below, whereas traditional peoples understood the interconnectedness of above and below.

I once asked a Cochiti Pueblo woman what "the beauty way" meant. She drew a circle in the dust. Outside that circle is the dark, she said, while inside the

circle is the light; and the beauty way is to walk the circle between the two.

As Dolores stressed, Christianity, Islam—sky religions in general—encourage the individual to concentrate energies on some abstracted plane beyond the material, and thus the material world is allowed to go to hell in a handbasket. Some forms of Buddhism preach this special kind of otherworldliness as virtue, whereas "mountain Buddhism," as Gary Snyder practices, draws on a rich counter-tradition of embodied enlightenment. As the great poet Saigyó taught in the 12th century, "Plants enlighten us."

Maybe there's something in the British/American psyche that needs to place a taboo on something so biologically powerful and world-changing as mushrooms.

Terence McKenna's books, *Archaic Revival* and *Food of the Gods*, have posited a fascinating theory: that the genesis of human consciousness can be attributed to the ingestion of *Psilocybe* species by our arboreal ancestors. He suggests that mycophobia is simply a defense mechanism of a culture where all forms of ecstasy beyond drunken inebriation are outlawed.

I have nothing but admiration for Christopher Manes, one of the conservation movement's stronger voices. But even he was not without a taint of mycophobia in his essay "Fungus and the American Way of Life" in the Summer 1992 *Wild Earth*.

Amanita virosa is deadly, but it's hardly a seductress killing "even the most cautious mushroom expert." *Amanita* species are readily identifiable by their spore color and the tell-tale vulva at the stipe's base. They comprise a powerful genus, with a number of members who can kill, some delicious edibles, and a species that some call an "entheogen" (i.e., "what takes you to god," in Greek) and others call merely a "deliriant."

Christopher recounts the popular legend of the Berserkers and their reliance on *Amanita muscaria*, though he admits that the tale may be "fanciful." As he says, *A. muscaria* does contain trace elements of muscarine, but this toxic substance is not the hallucinogen. The active mind-altering ingredient in this



mushroom is ibotenic acid which degrades to muscimol upon heating (stomach heat is sufficient). The great mushroom researcher R. Gordon Wasson insisted that *A. muscaria* was the fabled elixir "soma" of the *Rig Veda*, sacred Sanskrit texts. The anthropologist Levi-Strauss attributed the development of shamanism in the world to the ingestion of *A. muscaria* among Siberian tribal peoples. And *A. muscaria* expert Mark Niemoeller led a panel discussion at the Telluride event in which he described a liquid preparation of *A. muscaria* with powerful hallucinogenic effects.

The history of America is characterized by fear and loathing of mushrooms, except for Midwestern immigrants who celebrate the fruiting of the morels each year and a few isolated foreigners and mycophiles. I realize Christopher was using the mushroom metaphor in his article to illuminate some issues of concern in this country, including the exploitation of ancient systems for short-term satisfaction.

But it's a mistake, I think, to suggest that *partaking of the flesh of the below power gods* is unwise because you might die. The metaphor here is sacramental: indeed, eating mushrooms you risk "dying" to the old self and being reborn to a new sense of self. Snyder has written, "Some make you mighty sick they say/Or bring you close to God/So here's to the mushroom family/A friendly, far-flung clan/For food, for fun, for poison/They are a help to man."

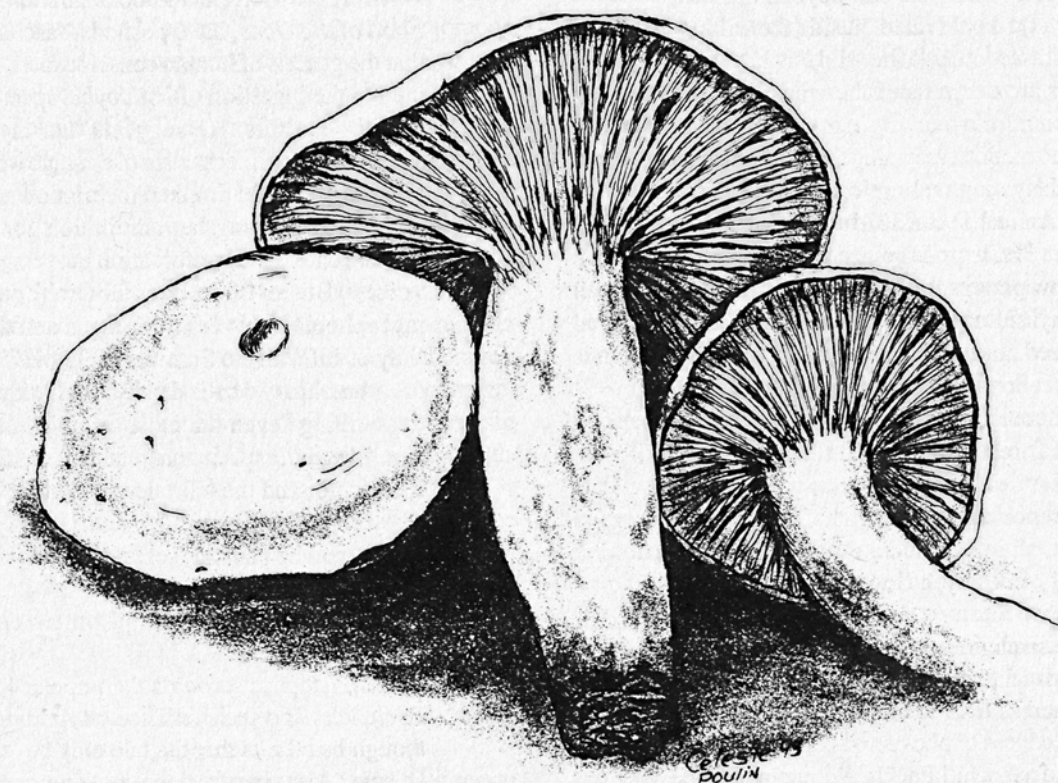
Celebration is the appropriate mode for approaching the mushroom world. In honoring these representatives of the be-

low powers, we join in an ancient, Paleolithic worship. According to Dolores, the paradigm of unseen, hidden connections between things, the mycelial mat underlying the fruiting bodies, is a better model of understanding social interactions than the top-down models our science has emphasized. Bateson calls knowledge "the pattern that connects" and in the mycelial mat, Dolores says, any one point is connected directly to any other point. Mycelia's symbiotic relationship with trees is a perfect Taoist symbol of the interrelatedness of all things in this world.

By staying in one place, going slow and learning the flow-ers, as the bard counsels, we can reestablish our own personal connection to the natural. As Dolores never tires of saying, it's not that we discover things but that the natural world affords us the opportunity to learn things. The mushroom world can reconnect us to our hunter/gatherer roots—critical information if we are to return to a true state of humanness, according to thinkers like Paul Shepard. It can teach us respect for the below powers, those hidden forces that keep us on the beauty way. And it can offer us food, fun and poisons.

Fear of mushrooms is fear of the wild—a cancer deep in the bones of this American culture. To overcome that fear, come walk in the woods with us fungophiles and you too will soon learn to taste and eat the forest's gift to us—wild mushrooms.

Art Goodtimes (Cloud Acre, Box 160, Norwood, CO 81423) is a bard of the San Juan Mountains.



Leucopaxillus albissima var. *paradoxa* by Celeste Poulin

The Rhizome Connection

by Dolores LaChapelle

Fundamental in the Plains Indians' concept of their world is the teaching of the Six Powers: the above Powers, the below Powers and the Powers of the four directions. The tribe lived within these sacred powers. Our Eurocentric culture trivialized the four direction powers into mere points on the compass, concentrated the above powers into one single male god up there in the sky, and turned the below powers into Hell—where the damned go.

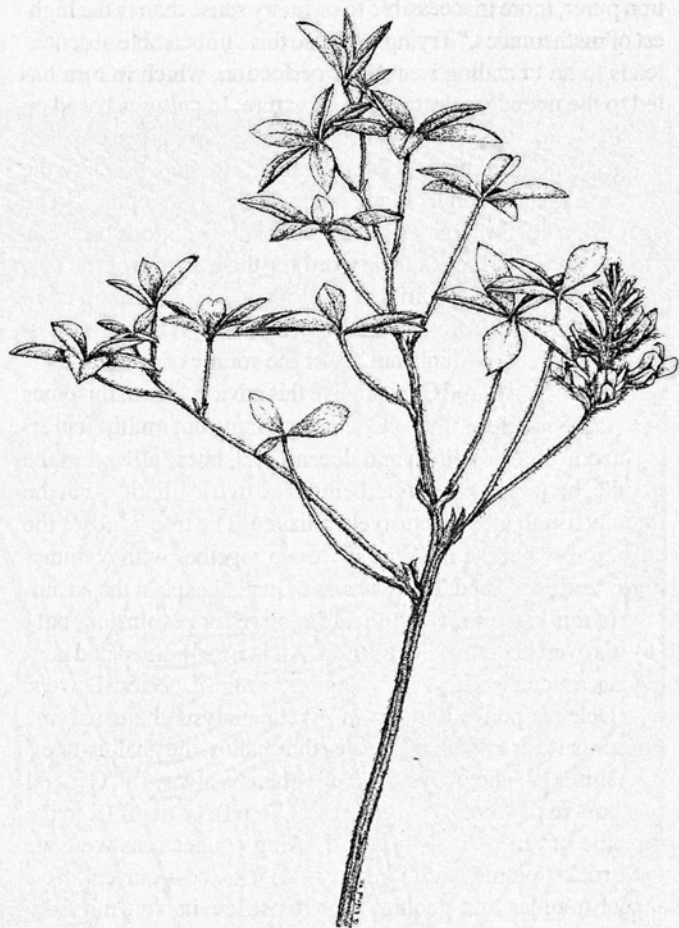
With innovative research on the forest as an interconnected system — not just a collection of trees — modern peoples are finally beginning to recognize the “below Powers.” We are beginning to see that the below Powers may well be the most important of all, not only for human life but for all life on Earth.

The metaphor of the tree has “dominated Western reality, and all of Western thought, from botany to biology and anatomy, and also gnosticism, theology, ontology, philosophy,” according to the French philosophers Deleuze and Guattari. The tree leads to a hierarchical order of a central trunk with larger branches and smaller branches. The trunk forms the connection between all the parts, thus in a way limiting connections.

The rhizome is quite different. Any point on a rhizome can be connected with any other. A tree can be cut down... and they are, ruthlessly, these days. Rhizomes are much less subject to destruction. A rhizome can grow again along another line if broken at any point.

A rhizome is a thickened stem for food storage that grows horizontally along or under the surface of the soil. Roots, flower stalks and foliage grow from buds on the rhizome. The rhizome spreads underground and comes up wherever it wants, often providing humans food without plowing up the land: a true give-away from nature to us.

Rhizomes produce food for much of the world outside European areas. Taro is the main food plant for Polynesia and Hawaii, and grows also in Japan and China. In fact, rice began as a weed in taro patches. Banana trees are a rhizomatous plant now growing in Africa, Asia, Australia and Latin America. Bam-



Indian Turnip (Psoralea esculenta) by Gary Eldred

boo, the main structural material for many Asian cultures is another rhizomatous plant. Manioc (cassava) is a prime food in South America and cattails for Indian cultures in North America.

Possibly, the very structure of a healthy relationship with nature depends on the free and easy give-away by rhizome plants of food to humans, as opposed to the hard work and uncertainty of agriculture. If you can count on a taro plant to send up new plants, continually, your relationship to nature is one of eternal gratitude and trust. With agriculture come doubt, worry, and pleafull prayers. Consider crab grass, a rhizomatous plant related to millet. It is an extremely successful weed, as any suburban perfectionist lawn person knows. You can't get rid of it. Compare that and a food plant we must continue to care for and worry over.

Deleuze and Guattari have developed an entire system of thinking based on the rhizome. They ask: "Isn't there in the East, notably in Oceania, a kind of rhizomatic model that contrasts in every respect with the Western model of the tree?" They wonder if this is "a reason for the opposition between the morals or philosophies of transcendence dear to the West and those of immanence in the East." "The demands made on the mind are, like this God's name, unspeakable. Brain and conscience are commanded to vest belief, obedience, love in an abstraction purer, more inaccessible to ordinary sense than is the highest of mathematics." Trying to please this "unbearable absence" leads to an unending search for perfection, which in turn has led to the unending destruction of nature. In cultures based on the rhizome as food, including most so-called primitive cultures, the gods are multiple and ever-present. The gods are like the rhizome, "which connects any point with any other point." The Tsembaga of New Guinea have a whole class of gods based on the word *mai*, which is their word for the rhizome of the taro plant. These gods or spirits of the low ground are involved in the cycle of fertility, growth and decay. But decay is not considered merely death, as we think, but rather the source of more life.

Deleuze and Guattari give this advice: "Form rhizomes and not roots. Be neither a One nor a Many, but multiplicities! A rhizome doesn't begin and doesn't end, but is always in the middle, between things, interbeing. The tree is filiation, but the rhizome is alliance, exclusively alliance. The tree imposes the verb 'to be' but the rhizome is woven together with conjunctions: 'and...and...and.'" Deleuze and Guattari explain the advantage of this kind of metaphorical structure for **revolution**, but I say it's even better for **devolution**. All beings, human and non-human, are connected in the bioregion through the below Powers.

Deleuze points out that in psychoanalysis the usual tree metaphor leads to "central organs, the phallus, the phallus-tree." This limits psychoanalysis because there is always a "General or a boss in psychoanalysis (General Freud)." Cut off from the rhizome of our place—the interlocking connections we have with rocks, plants, and animals of that place—our culture's sexual traumas and phobias are almost inevitable. In a truly place-centered culture, a vast network of interlocking rhizomes links each to all.

Jung began the break out of the narrowly human, Freudian self, when near the end of his life he wrote: "Life has always seemed to me like a plant that lives on its rhizome. Its true life is invisible, hidden in the rhizome. The part that appears above ground lasts only a single summer...What we see is the blossom, which passes. The rhizome remains."

A further development occurred when Arne Naess defined what he calls the ecological self: "We don't like the distinction between humans and environment... We take the ecological view where you are in a network in which you cannot single out anything, an interrelated network which is intrinsic." A true rhizome network!

Just last year, the radical Jungian James Hillman wrote: "Maybe the idea of self has to be redefined." He pointed out that the usual self as defined in psychology all these years "is the interiorization of the invisible God beyond...I would rather define self as the interiorization of community...something more ecological...A psychic field. And if I'm not in a psychic field with others—with people, animals, trees—I am not." Hillman further states "therapy—even the best deep therapy—contributes to the world's destruction. We have to have new thinking—or much older thinking—go back before Romanticism, and especially out of Western history to tribal animistic psychologies that are mainly concerned, not with individualities, but with the soul of things ('environmental concerns,' 'deep ecology,' as it's now called) and propitiatory acts that keep the world on its course." The rhizome represents deep connections through the very ground of the place.

How do we get back down to our grounded rhizome connections? I'll give you two examples—one, how I personally discovered rhizomes; the other, an indigenous myth. I first noticed the power of rhizomes after moving to Silverton, Colorado twenty years ago. The very soil of the town site has been trashed both by old smelting dumps and modern big machines; yet when the first miners came here they called it Baker's Park, it was so beautiful. Amidst the smelter tailings and scraped soil, I kept seeing patches of the lovely wild Rocky Mountain Iris. When I dug iris up to transplant, I discovered it was a rhizome—which keeps on growing and spreading and blossoming in the refuse of this old high altitude mining town.

Swamp dancers, cattails, show us the way to the rhizome connection through myth. This rhizomatous plant can provide us with many of life's necessities, as it did for Native American tribes in most parts of the continent. Each part of the plant is edible at some time from early spring until the snow flies. This is how Doug Elliott retells the myth for us:

According to an old Indian story, Coyote—that foolish trickster—was out walking one evening. He was following a trail along a ridge beside a low-lying area when he suddenly heard sounds coming from that low spot. It sounded like music. It was almost dark and he couldn't see very well, but he could hear the music. Yes, there was no mistaking; that was the sound of dance rattles. There was a dance going on.

There was nothing Coyote liked better than a dance. He knew he was the best dancer and he loved to get right in the middle of the dance circle and show off, so he hustled right down that hill and pushed his way into the middle of the crowd. He could hear the rhythmic rustling of the dance rattles. Swish, swish, swish, swish. There were so many of them and they were making beautiful music. Swish, swish, swish, swish. Everybody was swaying back and forth. Coyote started doing his fanciest steps and saying things like, "You think you know how to dance. I'll show you how I dance!" He started really strutting his stuff, but nobody seemed to notice. They just crowded around him and kept swaying back and forth. And the dance rattles kept their steady rhythm.

Coyote was getting tired, but he didn't want to be the first to quit. Finally he said, "You know sometimes when we dance, we rest!" But nobody stopped to rest, and when the dawn came, he realized that he had been dancing with swamp dancers.

That's the Native American name for cattails. And as Coyote looked around, bleary-eyed and exhausted, the swamp dancers were still swaying back and forth. They're still out there and they are still dancing.

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The books by Deleuze and Guattari, Doug Elliot, and Hillman and Ventura are all available from Way of the Mountain Center Orders, POB 2434, Durango, CO 81302 (800-578-5904). Elliot's new book is *Wildwoods Wisdom*. Paragon House, 1992.

Dolores LaChapelle is a teacher of Tai Chi, Taoist philosophy, deep ecology, primitive rituals, deep powder skiing, and other strains of Earth wisdom. Her latest book, on this last strain, *Deep Powder Snow: 40 Years of Ecstatic Skiing, Avalanches, and Earth Wisdom*, has just been published (Durango: Kivaki Press; 1993).



woodcut by Patrick Dengate

Toward Policy That Does Least Harm

by Virginia Abernethy

Improvement in people's well-being is possible, but only if worldwide population growth stops. Yet human population stabilization seems farther than ever from attainment in any humane way. Fertility remains stubbornly high in many countries, including some of the poorest, even though child mortality rates declined many years ago.

Assurances that the answers to high fertility are education, lower infant mortality, and a higher standard of living are based on the observation that, by the 1930s, industrialized western countries had lower fertility rates than other countries. The shift in family size in the west was described as a "demographic transition." We were assured that socioeconomic development and prosperity would lower people's preferred number of children, with the result that fertility rates would fall as soon as modern contraception became available worldwide.

Unfortunately, clues that the model did not work quickly accumulated. Time and again concepts derived from the European demographic transition failed to predict actual developments elsewhere. Nonetheless, the beliefs had captured the imagination of compassionate people. These well-meaning people do not want to let go of their comfortable beliefs.

In 1975, demographer Michael Teitelbaum wrote of demographic transition theory in these words: "Ironically, its explanatory power has come into increasing scientific doubt at the very time it is achieving its greatest acceptance by non-scientists" (Teitelbaum, M. 1975. Relevance of demographic transition theory for developing countries. *Science* 188, 420-425). Despite Teitelbaum's warning, concepts pertaining to the demographic transition are still widely accepted. In 1990, the president of the National Academy of Engineering, Robert White, editorialized, "History shows that without economic development there is no hope of changing the population patterns that are the root cause of global pressures (White, R.M. 1990. Editorial. *Issues in Science and Technology*, 1(3), 6). Vice President Albert Gore is another who repeats the prevailing platitudes, in his 1992 book, *Earth in the Balance*.

If people really want to help, they had best take a fresh look. Demographers Ansley Coale and S. Watkins show that, even in Europe, low fertility did not follow (i.e., was not caused by) declining infant mortality (*The Decline of Fertility in Europe*. Princeton: Princeton University Press, 1986). What is often conflicts with what one wants. Self-deception is unlikely to help anyone when it becomes the ground for policy. Concepts arising from the demographic transition in the industrialized world are what everyone wants to believe; and their application has almost cooked our goose.

For example, African fertility, which had been moderate, zoomed up to six and more children per woman at the same time (the 1960s) as infant mortality was dramatically reduced, health-care availability increased, literacy for women as well as men was rising, and general economic optimism pervaded more and more sectors of their society. All told, Africa received three times as much foreign aid per capita as any other continent, and African fertility rates climbed past all others.



A project in Khanna, India, meanwhile, showed that even the most comprehensive of family planning programs does not necessarily lower fertility. For six years, a group headed by British gynecologist John Wyon provided a whole village with education, nutritional supplements, and direct medical care. Eventually, everyone understood and had access to contraception, villagers had positive attitudes toward the health care providers and family planning, and infant mortality had fallen way down. **But the fertility rate stayed way up** (Wyon, J., and Gordon, J. E., *The Khanna Study: Population Problems in the Rural Punjab*, Harvard University Press, Cambridge, 1971).

Wyon's group soon figured out why. The village people liked large families. Khannaian were delighted that now, with lower infant mortality, they could have the six surviving children they had always wanted. The Wyon project, with all its resources, probably reinforced the preference for large families because it seemed to make extra children more affordable.

Results so contrary to the established demographic transition model raise questions: What are other instances of high and rising fertility?

Optimism and fertility both rose sharply in India and Algeria after these countries gained independence from colonial powers. In Cuba, Fidel Castro's populist revolution against Fulgencio Batista—promising redistribution of wealth—was also followed by a significant increase in fertility. Land redistribution in Turkey promoted a doubling in family size (to six) among formerly landless peasants. In the United States and much of Western Europe, a baby boom coincided with the broadbased prosperity of the 1950s. More water wells for the pastoralists of the African Sahel promoted larger herd size, earlier marriage and much higher fertility. The introduction of the potato into Ireland in about 1745 increased agricultural productivity and caused a baby boom. Still earlier, introduction into Europe of the stirrup popularized horses which facilitated deep plowing and, with the further introduction of beans, set the stage for triple cropping. This more productive and nutritious agriculture led Europe out of the Dark Ages to economic recovery, and thence to a tripling of population size between 1000 and 1200 A.D. (Abernethy, V. 1993. *Population Politics: The Choices that Shape Our Future* (NY: Plenum Press/Insight Books).

The consistency of these effects is dramatic. To see if they lead to a useful explanation of population change, the next step is finding instances of falling fertility. If optimism and prosperity made fertility rise, did perception of harder times make it fall? Well, yes.

- The 1930s was a period when declining fertility rates were caused by economic depression. As a multitude of American families hit the soup kitchens and the road in these desperate times, women delayed marriage, on average until 24 years of age.
- The US baby boom of the 1950s petered out in the early 1960s, when people began to feel stressed and jobs were becoming harder to find. After the 1973 oil shock, fertility fell to 1.7, well below the replacement level rate of 2.1 children per woman.

- In Ireland, land became scarce relative to the rapidly growing population by about 1800, whereupon fertility retreated to its low, pre-potato level. By 1830, only about half of women married while still of prime childbearing age. (Nevertheless, the momentum of growth carried the population beyond Ireland's sustainable carrying capacity, and blight to the potato crop precipitated a famine which lasted from 1845 to 1854.)
- In Burma today—where the economy is chaotic and essentially no modern contraception is available—fertility has fallen by 20 percent because couples have begun to delay marriage. Women marry five or six years later than was common just a decade ago.
- Much of Northern Africa—where unemployment now runs at 50 percent—is following this same trend of later marriage and falling fertility.
- Mexican unemployment rose 40 to 50 percent during the 1980s, while the fertility rate fell from 3.8 to 3.2 children per woman. In contrast, Mexican women who emigrate to the United States average four to five children each. (Is the differential an effect of perceived opportunity in the United States compared to the situation left behind?)

A fertility effect of moving from an overcrowded environment is becoming evident. From the perspective of places migrants leave, a study of 19th century England and Wales showed continuing high fertility in depressed communities that young people were leaving, in contrast to rapidly falling fertility in similar communities where emigration did not relieve population pressure. The same difference was found in Caribbean islands during the 1970s and 80s: Communities where many of the young emigrate have continuing high fertility, whereas fertility has declined rapidly in the communities where young remain.

Thus, migration may encourage higher fertility not only among immigrants but also among those left behind, who perceive spaces opening up in their own locality. Examples can be endlessly multiplied. Fertility goes up in response to perceived opportunity. It falls when conditions are indubitably deteriorating (Abernethy, 1993. *Population Politics*). Our efforts are counter-productive when they get in the way of people's correctly interpreting negative signals from their own, local environment.

US foreign policy should be constructive. The American people clearly support policies that enhance international well-being and alleviate human suffering. Americans assume that our foreign policy—including international aid and our very liberal immigration law—has constructive results.

However, any policy carries a risk of unintended and unwanted effects. As we continue to give foreign aid, and as immigration into the United States continues to grow, it is time to make sure that their principal effects are constructive.

Aid that is grandiose by local standards and a liberal immigration policy communicate the wrong message. Either policy is likely to be read by couples in the third world as a sign that wealth is abundant and opportunity beckoning. This interpretation neutralizes economic and environmental information

which would otherwise motivate people to exercise marital and reproductive caution.

Americans who want to do the right thing have traditionally supported a liberal immigration policy. We are a nation of immigrants and only reluctantly question the entitlement of those who come here in search of a better life, as many of us, or our ancestors, did. Now, however, it is beginning to appear that the ease of immigrating into the United States is an incentive for the poor in poor countries to have large families, even though overpopulation is a major cause of their poverty, unemployment, and environmental wastage.

The signal broadcast by our immigration policy is that we in the United States are unconcerned about resource availability and the environment's capacity to cope with pollution. It suggests to others that we will go on welcoming immigrants because we have so much reserve capacity and wealth that population growth cannot hurt us.

This message reflects neither reality nor the views of most Americans. Yet we broadcast it abroad. Acting as a safety valve for other countries' excess population, the United States will increase suffering in the very countries we most want to help.

We risk raising the expectations of the many millions who will never be able to emigrate. We must ask ourselves if the better lives for those who move justify possible harm to the far greater number who will never have the opportunity. We must recognize that "pull" factors, such as jobs and benefits in the United States, promote high fertility among those who actually make the move **and probably also** among those who only think about the possibility.

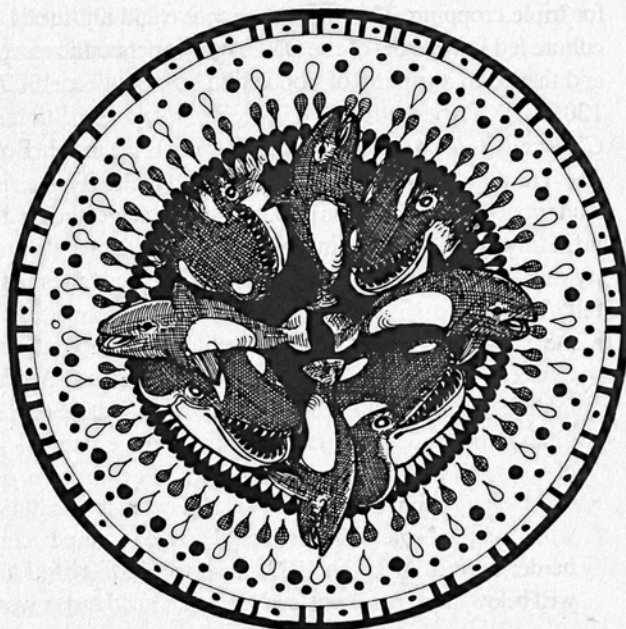
The effect of our immigration policy—that millions more will be born both here and in the third world—is tragic. Even allowing for our unquestioned good intentions, it is reprehensible.

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the spear shine in the sun

that warrior spirit
is too valuable to waste
on wars—
let it be placed
in a better context,
for instance
acting to save
our Mother Earth.
then the fire-
fangled feathers
really dangle,
the bow burn gold,
the spear shine
in the sun.

—Dennis Fritzinger



Book Reviews

EARTHFORCE: An Earth Warrior's Guide to Strategy

by Paul Watson. Chaco Press, LaCanada, CA; 1993.

From the outset, I should make it clear that I make no claim to being that elusive being, an "objective" reviewer. I've known Paul Watson for 17 years. I am an environmental realist (what those in denial call a cynic) but I continue to be astonished that, in these suicidal times, I can have a hero. My hero is Paul Watson. Who better to author a book on strategy than the master of media manipulation and, a rarity indeed, an uncompromising activist with both a superior intellect and an original sense of humor?

I am not alone. Richard Watts, a mainstream journalist for the Victoria, BC based *Times Colonist*, wrote an editorial praising Watson after Paul offered to train activists to spike trees in threatened Clayoquot Sound: "Watson has a personal charisma and an understanding of how to work the media that politicians...would die for. In person he is articulate and riveting. He has a naked integrity and a blunt honesty that is magnetic and convincing." That's almost as astounding as if William Buckley praised Dave Foreman. How many tree-splitters are honored for their media savvy?

Watson understands (and few other activists seem to grasp) the major difference between tactics and strategy. What may be a brilliant tactic in one campaign is sheer stupidity in another. Watson believes strategy is a martial discipline and, in writing about this discipline, he draws on four sources. First is *The Art of War*, a book written by Chinese general Sun Tzu over 125 years ago. Second is a book written in 1648 by Japanese warrior and philosopher Miyamoto Musashi titled *The Book of Five Rings*. As eclectic as one would expect from a master of the

media, Watson's third source is fellow Canadian Marshall McLuhan. The final source is Paul's own experiences: ramming pirate whalers, cutting drift nets, interfering with government funded wolf kills, tree spiking...

The juxtaposition of these sources is quintessential Watson.

It is said the warrior's way is the twofold way of pen and sword. (Musashi, 1648)

The way of the Earth warrior is the twofold way of camera and confrontation." (Watson, 1984)

This is a "how to" book for those of intelligence and courage. It covers working with and manipulation of the media, maneuvering, field confrontation, and even the use of intelligence agents.

To keep this review totally positive, I won't dwell on the New Age sentiments or formats. Just as I prefer drift nets at the bottom of the sea, I prefer even margins and the practical over the spiritual.

Paul's great power lies, in part, in his ability to heed his own advice. "Do not concern yourself with what others might think of you. The strategy of an Earth warrior activist is to say unpopular things, to piss people off, to undertake actions which anger and disturb people, and to boldly strike at issues and ideologies where none have dared to strike before." And then Paul sums it up in an Oscar Wilde nutshell: "The only thing worse than being talked about is not being talked about."

The book, the second edition to be printed on wood free-kenaf or hemp paper, can be ordered directly from Captain Paul Watson: 1314 Second Street, Santa Monica CA 90401. Send a check or money order payable to Paul Watson for \$15; signed copies \$22.

Reviewed by Naomi Rachel (954 Arroyo Chico, Boulder, CO 80302)

SAN JOAQUIN: A River Betrayed

by Gene Rose. Linrose Publishing Co., Fresno, CA. 1993. 138 p. \$25 hardcover.

All my life I've had an intense relationship with what's left of the San Joaquin River. Across a ravine in my west yard are 12 x 12 beams that supported the bridge across Big Sandy Creek, which carried all tools and equipment necessary for Kerckhoff powerhouse number one. A railroad bed crosses my south yard. Southern California Edison called it the San Joaquin and Eastern but it had other names: Slow, Jerky and Erratic, The Railroad That Lighted Los Angeles (and blighted the Sierra). It transported all the ingredients needed for the Big Creek Project, which by 1929 was the largest hydroelectric system on the planet, inspiring the slogan that the San Joaquin had "the hardest working waters in the world." Without Big Creek, Los Angeles couldn't be what it is today. Without the Big Creek project, the Grizzly (California's official animal which takes up nine-tenths of the State Flag) might still be alive and genocidal racism in Los Angeles dead.

In my east yard lie traces of the old wagon road to Kerckhoff, one of 19 dams and 27 powerhouses on the San Joaquin. The road was also used to build a gauging station for measuring Big Sandy's flow, to be calculated for the construction of Friant Dam, the pistol shot to the head of an already prone, dying river.

Well, Big Sandy, in my north yard, is not entirely dead; but a stream so skinny that wildfires have jumped it, at least three times in the past thirty years, hardly seems a river. If water had been released from a powerhouse dam or two the fires would have been contained on one side of the stream but electricity profits might have been diminished. I can remember spawning seasons when the

salmon heading upstream flapped so loud you couldn't sleep within a hundred yards of it. Now there are no salmon, no Indians, no nesting Bald Eagles, no Grizzly Bears. And Animal Damage Control's 1080 took care of the condor.

Gene Rose goes farther back in his history of the river than my reminiscences—50,000,000 years back—and he brings the history up to 1992. Probably no one is better equipped to do this, not only because of his exhaustive research but because of what he learned at the *Fresno Bee*. For forty years he was as close to being an environmental reporter as the agribiz-dependent McClathry empire would allow. Retired now, he seems to be saying a lot of things he couldn't before. Not scathingly, however. He's a journalist first.

Illustrated with photographs, some over a century old, *San Joaquin* starts out with an excellent description of the river as it appears today (second in size in California only to the Sacramento), briefly backtracks into the Jurassic Period, then gets into the relationship of the Indians with the river: an amiable affair that wasn't interrupted much when the Spaniards arrived, though the newcomers did not establish rapport with the oldtimers.

When Gringos came, life cascaded downhill. First were trappers, then farmers, then loggers, then miners.

Cattle and sheep were next. Entrepreneurs Henry Miller and Charles Lux acquired 1,400,000 acres. They irrigated. Thousands of salmon died at their dams because Miller figured that if people could eat fish free they wouldn't buy beef.

The big boys and the politicians they owned then took over. These corporations, whose executives rarely live within a hundred miles of their holdings, weren't farmers—they were growers (ever see a "grow"?) and sometimes they grew and sometimes they didn't, depending on whether the subsidy was higher for growing or not growing.

There were tax breaks and other subsidies but the biggest subsidy was water. Water diverted from Friant Dam to Kern

County can cost growers as little as \$1.50 an acre foot though the price to taxpayers is \$50 an acre foot. In seven out of eight years the river is sand for many miles below Friant. Then, at Mendota Pool, it comes alive again—as alive as a dehydrated person whose veins are filled with HIV blood—carrying everything from pesticides to wrecked cars, eventually entering the San Francisco Bay "where the sewer meets the sea."

The primary reason rivers are destroyed is to make money. The ancillary benefit is increased power to politicians and bureaucrats. Gene Rose covers the financial and political games played from 1858 to the present, and ends with an example of the "what goes around comes around" theory: the very water that allowed Valley lands to grow crops is now destroying that land with massive deposits of selenium and salts.

It's hard not to look at *San Joaquin* as a sequel to Marc Reisner's *Cadillac Desert*. The machinations Reisner describes on a national scale Rose telescopes into the death of a river.

Personally started, personally ended. Not explained in *San Joaquin* is that Southern Cal Edison ripped up the Slow, Jerky and Erratic in the thirties and sold the rails to the Japanese, who returned them part way December 7, 1941: dropping them on Pearl Harbor. Another event I would like to have seen recorded was when the salmon—obeying a spawning instinct developed over millennia—smashed themselves to death against Friant Dam and California Fish and Game refused to let Indians—obeying rules of

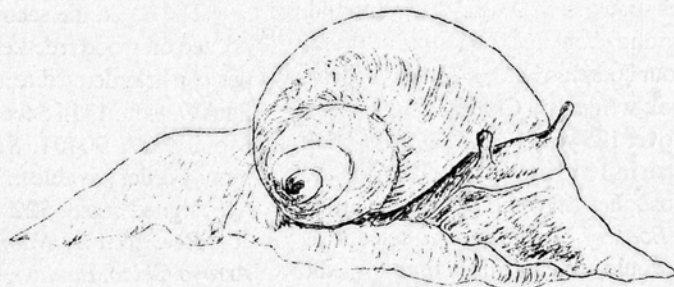
survival learned over millennia—harvest the dead fish. Friant Dam not only leached the remaining life out of the San Joaquin it terminated traditional Yokut-Mono existence. One cannot live by acorns alone.

Gene Rose ends *San Joaquin* with mild optimism, pointing out that a proposal to build a dam no longer meets *carte blanche* approval for construction, that for once a Central California congressman, Rick Lehman, opposed a new dam and was actually reelected after doing so. Stopping dams even though proposed by giant, subsidized corporations is becoming conventional: Dams were blocked at Dinkey Creek, Rodger's Crossing on the Kings, Bear Butte (a tributary to the San Joaquin), not to mention some eight hundred small stream sites in California, including one planned for damming by a George Bush neighbor. (Bush was then vice-president and his office intervened for his friend in the matter.)

While the Reagan administration openly promoted dams, it also came out with the most progressive dam proposal in government history. Interior Secretary Don Hodel advocated the dismantling of O'Shaughnessy (Hetch-Hetchy).

Hetch-Hetchy, Glen Canyon, Friant...these dams must be washed out to sea. The Pacific can handle them. Buy out the people downstream and move them to drier land. Rivers are for fishes and when they run free all critters—including nonfeathered twolegged ones—are a little less enslaved.

Reviewed by J.P. Bernhard, Clovis, CA



BEYOND THE LIMITS: Confronting Global Collapse, Envisioning a Sustainable Future

1992; by Donella Meadows, Dennis L. Meadows, Jorgen Randers; Chelsea Green Publishing Co., POB 130, Post Mills, VT 05068, 300 p., \$19.95.

This book has admirable intentions. It began as an update of *The Limits to Growth*, which was published more than 20 years ago as a report on the global environment. Advances in information technology, however, as well as dramatic worsening of some problems and recognition of new ones, required that the authors start again. The reams of data they compiled are here presented mostly in graph form to avoid overwhelming the reader. This effort alone justifies a look if one is concerned with the direction human occupation of this planet is leading. It's handy to have such information accessible in one place, to present to those who have never questioned our voyage on the good ship greed.

Unfortunately, the author's willingness to confront the manic purveyors of growth-as-salvation with hard evidence to the contrary is diminished in the larger part of the book, which becomes a course in computer modeling of possible solutions. Their reliance on this technology gives a clue to the basic assumption of this work: that more and better technical solutions are the key to solving the problems we have created with the aid of such interventions in the natural world. The authors do not adequately overcome the inherent neutrality of the distanced approach to infuse the reader with the emotional sense of urgency, which the evidence shows is necessary. In short, this book will fit the tendency of bureaucratic organizations to carefully analyze as a substitute for acting. The authors did not intend this, however, as shown in their plea to all to overcome the gridlock of vested opinions:

Can the world actually ease down below the limits and avoid collapse? Is there enough time? Is there enough

money, technology, freedom, vision, community, responsibility, foresight, discipline and love on a global scale?

Of all the hypothetical questions we have posed in this book those are the most unanswerable, though many people will pretend to know the answer. The ritual cheerfulness of many uninformed people, especially many world leaders, would say the questions are not even relevant; there are no meaningful limits. Many of those who are informed and worry about the problem of overshoot are infected with the deep public cynicism that lies just under the ritual cheerfulness. They would say there are severe problems already, with worse ones ahead, and that there's not a chance of solving them.

But those answers are based, of course, on mental models. The truth is that no one knows.

The assumption implicit in such a statement is that a computer model is better than a mental one, in that it is bound to be objective. Yet a computer must work with the information it is given, information that must be quantitative, not qualitative. The best case computer-generated model presented here would envision a world population stabilizing at eight billion people.

Quite likely, none of the alternatives considered in *Beyond The Limits* will prevail on a global scale. As we see now, there are places of devastation and places of stability; areas of environmental progress, and continuing loss. Just as in nature, there is constant change, at different rates and in different directions. This is the best hope of the planet—that natural patterns continue apart from our presumptive efforts to manage on a global scale. Indeed, the paradigm "Think Globally, Act Locally" might better be "Think Bioregionally; Act Appropriately." It is not time to install a better steering system on the ponderous, thin-hulled hulk we have been riding. It is time to disembark onto smaller, more humble craft and seek the narrow passages to shore.

Reviewed by Brian Carter

LAST REFUGE: The Environmental Showdown in Yellowstone and the American West

by Jim Robbins: 1993; William Morrow and Co., Inc., 1359 Avenue of the Americas, New York, NY 10019; 267 pp.

Seeing the Yellowstone ecosystem as a microcosm, and indeed the beating heart of the Rocky Mountain West, Robbins, an environmental journalist living in Montana, here surveys the problems and conflicts facing that region. The problems include leaky mines, destructive cattle ranching, ruinous logging practices, scarce water that "runs uphill" (to the rich and powerful), and overuse and degradation of National Parks and other natural areas. The conflicts pit the "Old West" (those who would pursue current practices without regard to environmental, economic, and social consequences) against the "New West" (a few miners, loggers, and ranchers backed by many other folks who want to save the environment and Western society by sustainable exploitation and a more diversified economy).

Notwithstanding possible misidentification of one or two persons with the "New West," and provided the error-ridden galleys are corrected, this book (due out in August 1993) will be a good overview of the war of the West.

Reviewed by Robert M. Davis



Other Recommended Titles

Who is Who In Service To The Earth

edited by Hans Keller; 1993; Vision Link Education Foundation; 130 Biodome Drive, Waynesville, NC 28786; 361p. \$30.

Who is Who is a second edition directory of over 8000 environmental organizations and individuals and their respective projects, from around the globe. The directory is divided into organizations, people, and countries, making cross referencing simple. Each listing provides the full name, address, telephone number, fax and description of the group and individual. Most of the groups profiled are mainstream conservation and social groups. The directory is a useful tool for networking and information gathering. —Kathleen Fitzgerald

Mastering NEPA: A Step-by-Step Approach

by Ronald E. Bass & Albert I. Herson; 1003; Solano Press Books, POB 773, Point Arena, CA 95468; 233p. \$35.

Mastering NEPA is a thorough review of the National Environmental Policy Act (NEPA). The authors explain the terminology of NEPA, the stipulations of NEPA, how to review and evaluate an EIS. This book is a valuable resource to groups and individuals interested in understanding and enforcing NEPA. —KHF

THIS LAND IS YOUR LAND: A Guide to North America's Endangered Ecosystems

by Jon Naar & Alex Naar; Harper Perennial; 1993; \$15; 388p.

This Land was meant to be, and is, an empowering book. It outlines for concerned citizens many of North America's ecosystems, the threats they face, and what common folk can do to help end these threats. The Naars cover rivers, lakes, coasts, oceans, grasslands, chaparral, tundra, forests, and deserts; laws affecting these ecosystem types; legislation that could affect them; and groups that work for them.

Typos and factual errors seem almost inevitable in the modern publishing world with works of broad scope; and this book does have some. Nonetheless, on the whole, it seems well researched. Though this book should inform and motivate readers of all ages and backgrounds, it could be especially beneficial in the hands of students, retired persons, office workers and others with the time, education, and inclination to prevent the collapse of North America's ecosystems. —John Davis

THE ATTENTIVE HEART: Conversations with Trees

by Stephanie Kaza, illustrations by Davis Te Selle; Fawcett Columbine (Ballantine Books), NY; 257p.; \$17.50.

The tendency of writers these days to speak of Nature as though it has naught but symbolic and spiritual value (portray-

ing wild places, for instance, as loci for spiritual enrichment; or wolves, say, as the embodiment of wilderness within us) is irksome and either selfish or disingenuous. It's selfish if the authors really value wild things only in human terms. It's disingenuous if the authors are ascribing human values to wild things because they think other people won't accept that trees have value as trees, rocks as rocks, slugs and slugs....

Stephanie Kaza in this beautiful book skillfully steers clear of this new age pitfall. She sees trees in symbolic and spiritual terms, yes, but she also sees them as trees—needing to be saved from human exploitation. More uniquely, she listens to trees. The lessons she has learned and here conveyed are both profound and mundane, like most important truths. Kaza tells why exotic trees don't belong, how chainsaws sunder us from Nature, how Douglas-firs and Giant Sequoias provide services for other organisms, and why we humans feel at home in oak savannas, among countless other pieces of wisdom. —JD

THE WAY: An Ecological World-view

by Edward Goldsmith, Shambhala Publications (Horticultural Hall, 300 Massachusetts Ave, Boston 02115); 1992; 442p., \$20.

Editor and political renegade Edward Goldsmith, who has been upsetting polite British society for over 20 years with his widely acclaimed social and environmental justice magazine *The Ecologist*, has finished his tome. Goldsmith challenges the paradigm of modern Western society—which is undergirded by mainstream science and economics—with 66 principles, which he explains in short chapters. Among those that many biologists will find hard to swallow are #5 "Ecology is teleological," #8 "Fundamental knowledge is ineffable and we mainly have access to it by intuition," #16 "Ecology is a faith," #21 "Gaia, seen as a spatio-temporal process, is the unit of evolution," #22 "Stability rather than change is the basic feature of the living world," #30 "Life processes are anticipatory," #39 "Competition is a secondary Gaian interrelationship," and #40 "Cooperation is the primary Gaian interrelationship."

I am not competent to judge the merits of *The Way*. In presenting a post-patriarchal paradigm, Goldsmith attacks everything held sacred by modern Western society ... even by modern Western environmentalists. Darwinian natural selection theory is among targets of Goldsmith that some conservation biologists will want to defend. Scientists, philosophers, politicians, and citizens need to read and debate this book.

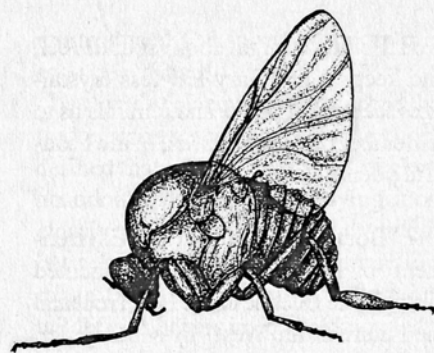
People need especially to heed Goldsmith's call for a return to vernacular cultures. Rejecting the disclaimer standard even to otherwise trenchant critiques of modernity ... of course, we can never go back ...

Goldsmith dares assert that tribal gathering and hunting societies worked unlike anything since. The Way, it seems, the only safe path, leads back from whence we came. —JD

Noteworthy Articles

A Look at Conservation Literature

by John Davis



"Whither Conservation Biology" by Reed Noss, "Bluefin Tuna in the West Atlantic: Negligent Management and the making of an Endangered Species" by Carl Safina, "Conservation in Action: Past, Present, and Future of the National Park System in Costa Rica" by Mario Boza, "Forest-Dwelling Native Amazonians and the Conservation of Biodiversity: Interests in Common or Collision" by Kent Redford & Allyn Stearman, "Post-Perturbation Genetic Changes in Populations of Endangered Virgin River Chubs" by Bruce Demarai et al., "Effects of Timber Harvesting on Southern Appalachian Salamanders" by James Petranka et al., "Biogeography of Recently Extinct Marine Species: Implications for Conservation" by Geerat Vermeij, "Environmental Perceptions and Social Relations in the Mapimi Biosphere Reserve" by Andrea Kaus, "Modified Cave Entrances: Thermal Effect of Body Mass and Resulting Decline of Endangered Indiana Bats (*Myotis sodalis*)" by Andreas Richter et al., "Altitudinal Distributions of Birds, Mammals, People, Forests, and Parks in Nepal" by Malcolm Hunter Jr & Pralad Youzon, "Ecotourism: New Partners, New Relationships" by Joan Giannecchini, "Tsitika to Baram: The Myth of Sustainability" by David Duffus; *Conservation Biology*, 6-93; annual membership in Society for Conservation Biology \$49; Blackwell Scientific Publications, 238 Main St, Cambridge, MA 02142.

As always, the SCB's quarterly is filled with articles of great import for conservationists, the above being outstanding. In order, here are some themes from them:

Incoming Editor Reed Noss (who

will remain *Wild Earth's* Science Editor and The Wildlands Project's Science Director notwithstanding his Herculean work load) will continue to guide *Conservation Biology* in directions set by outgoing Editor David Ehrenfeld, with even more emphasis on employing lessons from this soteriological science to save habitat.

"Costa Rica's national parks stand as a model for the preservation of biodiversity in the tropics, with 622,000 ha, or 12.2%, of the country set aside in preserves...."

The interests of conservation biologists do not always jibe with those of indigenous peoples; but by cooperating, both sides can forestall forest felling.

Fisheries managers inadvertently poisoned a large part of the population of Virgin River Chubs—an Endangered species of Utah, Arizona, and Nevada—in an effort to eradicate Red Shiners, an alien "implicated in the decline of native fish populations in the American West."

Timber harvesting sharply reduces the species richness and abundance of salamanders in the Southern Appalachians.

The extinctions of 15 marine and coastal animals since the Pleistocene (which many scientists, even, speak of as though it were past, though actually we are in the midst of it) suggest that, "contrary to the prevailing view that extinction is usually associated with a small range," species with large ranges may be vulnerable, too, and their extinctions may facilitate "the subsequent success of human-introduced species in sub-tidal and open-coast intertidal habitats...."

That's enough; you get the drift: Read *Conservation Biology*!

"Population Dynamics of *Cypripedium candidum* (Small White Ladyslipper) in a Western New York Fen" by Diana Falb & Donald Leopold, "Literature on Old-growth Forests of Eastern North America" by Gregory Nowacki & Paul Trianosky; *Natural Areas Journal*, 4-93 (A Quarterly Publication of Natural Areas Association, 320 S Third St, Rockford, IL 61104; \$25).

Natural Areas Editor Donald Leopold reveals some of the plant phenology characteristics that must be understood for plant conservation to succeed, in this article on a rare orchid. Nowacki gives 749 literature citations on old-growth forests in eastern North America, drawing still more attention to this mushrooming topic.

See also the State Reports. As usual they make rather insipid reading but offer many valuable insights; among which this time: Cheat Mountain Salamanders may be blocked from travel by heavily used trails (in WV); and some natural heritage programs are finding monies at the US Fish & Wildlife Service (sometimes ESA Section 6 funds), Forest Service, and even the Defense Department.

"Bioregional Culture"; *Raise The Stakes: The Planet Drum Review* #21 (Planet Drum Foundation, Box 31251, San Francisco, CA 94131).

On the eve of its 20th anniversary, Planet Drum (rooted in Shasta Bioregion, but speaking well to all bioregions) offers varying and palatable tastes of bioregional culture. Among the many fine writers in this issue, Marnie Muller, John Luther Adams, Stephanie Mills, and Dolores LaChapelle tell how a biore-

gional culture might look, sound, feel, and keep warm. Gary Lawless crystallizes feelings of place, and reminds us to remember our sea brethren, in the beautiful poem "Labrador South."

"Bounty Hunting for the Environment" by Dina Rasor, and "Fragmented Waters: The Decline of the Bull Trout and the Future of the West" by Mike Bader, Steve Kelly, & Keith Hammer; *Forest Watch*, 6-93 (\$22/yr for 12 issues; Cascade Holistic Economic Consultants, 14417 SE Laurie, Oak Grove, OR 97267).

I don't know Latin, so I'll quote, from paragraph 2:

Passed by Congress in 1986 mainly to help stem the widespread fraud in defense contracts, the qui tam provisions of the US False Claims Act can be equally effective in protecting national forests and rangelands. Qui tam provisions are designed to make every citizen a potential bounty hunter for those attempting to defraud the federal government. If a citizen knows that a company is submitting a false claim to the government, he or she can bring suit on behalf of the US government and get a percentage of the money recovered. (p.5)

California Wilderness Coalition reprinted this strategic article in its *Wilderness Record*. So if you have access to the *Record* but not the *Voice*, see it there.

I don't know fish well either, so I'll quote again, from paragraph 1-2:

Once one of the most widely distributed fish in the West, the bull trout is now in serious trouble throughout its range. Decades of logging, mining, grazing, dams and water diversions, and commercial development have combined to decimate bull trout populations from Oregon to Nevada. Already extirpated from much of its former habitat, the bull trout is in definite decline even in the Flathead River basin in Montana and the Pend Oreille basin in Idaho where the most viable populations are thought to exist.

A petition to list the bull trout as an endangered species is currently pending before the Fish and Wildlife Service. Their decision will reveal whether the Clinton administration is serious about

reforming the management of public lands in the West....

"The Shrinking Kingdom of the Quetzal" by Chris Wille, and "After the Fall" by Gerard Gorman; *Living Bird*, summer 93 (\$30/yr; Cornell Ornithology Lab, POB 223, Ithaca, NY 14853).

Rainforest Alliance co-director Chris Wille explains why preserving montane cloud forest in the mountains of Costa Rica is necessary but not sufficient to save the country's national bird, the Resplendent Quetzal. *Pharomachrus mocinno* (like bellbirds, contingas, toucans, macaws, umbrellabirds, and some other rainforest birds) is an altitudinal migrant, dependent also on lowland rainforests.

Eastern Europeans, too, seem to be migrating downward. Natural areas are not faring well in the new post-communist Eastern Europe: "...as Eastern Europe changes from communism to a free market economic system it is becoming increasingly clear that perhaps ... communism was better for birds."

"Animal Navigation," by David Ehrenfeld; *Orion*, summer 93 (\$18/yr; Orion Society, 136 E 64th St, NYC 10131).

David Ehrenfeld's column *Raritan Letter* is always a favorite part of The Orion Society's quarterly collection of essays on "People and Nature." This time, Dr. Ehrenfeld shows the inadequacy of reductionistic science by briefly recapitulating the history of theories on animal navigation. Each time researchers isolate one factor that supposedly guides migrating or homing animals—scents, stars, Earth's magnetic field, and the Sun are among the causal agents posited so far—other factors inevitably impinge upon the singular explanation. Ehrenfeld leaves the reader with little doubt that multiple and varying senses and factors are involved, and that many other animals are far better navigators than are people.

"Crisis for America's Bats" by Merlin Tuttle, "Bats, Mines and Politics" by

Donald Thomas, "Bats and Mines: Finding Solutions" by Patricia Brown et al.; *Bats*, summer 93 (\$25/yr; Bat Conservation International, POB 162603, Austin, TX 78716).

The Greek poets and philosophers may have had warped worldviews, but they surely showed wisdom in emphasizing tragedy, irony, and paradox. Case in point: so devastating have been our impacts on caves, trees, and other natural bat roosts that many bat species on this continent roost now in large numbers only in abandoned mine shafts. As these articles explain, mine closures, as mandated by mine reclamation laws in the US and Canada, could extinguish many bat populations. BCI urges readers to write congresspersons in support of HR 322 and S 257—to reform the General Mining Law of 1872—but to insist that the reform law be amended to require biological surveys and mitigation measures prior to reclamation.

"Island Adaptations," by Tim Higham; *Forest & Bird*, 5-93 (\$40/yr; Royal Forest and Bird Protection Society, PO Box 631, Wellington, NEW ZEALAND).

New Zealand's leading environmental group, the Royal Forest and Bird Protection Society, and its quarterly magazine will make US readers wonder why American mainstream environmental groups are so painfully moderate. For its blend of boldness and political savvy alone, *Forest and Bird* is worth joining; but this highly effective group also mixes conservation biology so well into its work and publications that even those of us who never plan to cross the Equator in a southerly direction will gain much from reading *F&B*. As always, their World Watch section highlights campaigns of global importance, among which this time: "Lessons from Lord Howe" Island, a partial preservation success story 700 km northeast of Sydney, Australia; "Saving the Okavango Delta" in southern Africa from cattle ranching; a "New Arctic Park" on Russia's Taymyr Peninsula. Then, a NZ Department of Conservation biologist discusses some of

the amazing evolutionary adaptations of animals and plants on oceanic islands, including New Zealand's. Reptiles and birds show especially amazing diversity on islands, due to their vagility (reptiles can endure "long sea voyages on rafts of vegetation, so like seabirds are well suited to island colonisation.")

"Protected Areas and Aboriginal Interests in Canada," a **WWF Canada Discussion Paper**; 7-93; by James Morrison (WWF Canada, 90 Eglinton Ave E, Suite 504, Toronto, Ontario M4P 2Z7).

WWF Canada deserves accolades for tackling this tough topic. The interests of wilderness advocates and native peoples in Canada, WWF shows, sometimes coincide, often are compatible, but occasionally conflict. Sadly, many native groups now insist on continuing their "traditional" hunting, fishing, and trapping, even in otherwise protected areas, including parks, using such industrial technologies as guns, snowmobiles, airplanes and ATVs.

Editorial, "Sea of Troubles" by Sandy Irvine, "A Part of the Whole" by Stan Rowe, "The Stork Is the Bird of War" by Bill McCormick, and "Ground to a Halt" by Bill Devall; **Real World: The Voice of Ecopolitics**, summer 93 (91 Nuns Moor Rd, Newcastle upon Tyne, NE4 9BA, UNITED KINGDOM).

Sandy Irvine, whose provocative writings have appeared in *The Ecologist* (England's best-known radical environmental periodical), has started a new journal, which will likely gain acclaim quickly as a source of ecologically-informed, radical, lucid ... even pithy wisdom. The lead editorial this time chastises Greens for chastising leaders: Greens have remained relatively ineffectual partly due to their dogmatic insistence on consensus and egalitarian approaches; they need strong leaders.

Irvine then explains how Japan and Norway—through their insistence on killing whales—may upset chances for meaningful regulation of fisheries on the high seas, as well as further depleting whale populations. International waters

are suffering severe overfishing and pollution, and if we can't save the charismatic whales, what chance have the menhaden, haddock, and hagfish?

Stan Rowe argues eloquently for ecocentrism, which he says goes beyond biocentrism by considering all natural entities, not just organisms. Interestingly, Rowe sees Aldo Leopold (whose name is used to support most articles on ecological ethics these days, it seems) as "the influential exponent of ethics-by-extension," which "approach only strengthens anthropocentrism ..."

Bill McCormick challenges the various pro-natalist factions, who could—if more people do not effectively counter them, as Bill McCormick does here—undermine the upcoming global population conferences (First World Population Congress in Britain this year, UN Population Conference next year in England).

Bill Devall concludes that the deep ecology movement continues to grow in strength, but that "Earth First!" is no longer in the vanguard.

"Hyenas' fatal fighting ..." by Jane Stevens, "The flight of the California condor" by Jeffrey Cohn, and "The Keystone-Species Concept in Ecology and Conservation" by Scott Mills, Michael Soule, & Daniel Doak; **BioScience**, 4-93 (AIBS; \$50/yr, 730 4th St NW DC 20001).

Jane Stevens describes the complex, matriarchal social structure of Spotted Hyenas, in Africa, which "may be, next to humans, the most fatally aggressive species on Earth." (Having recently returned from an aborted trip into the Five Ponds Wilderness of New York's Adirondack State Park, I must disagree. I do not think hyenas can hold a candle to black flies, mosquitoes, or deer flies.)

The California Condor may yet survive, despite or because of captive breeding efforts (depending on which conservationist you ask, though proponents of captivity seem now to be in ascendancy). Hurdles—such as shortage of funds, shortage of habitat, and shortage of genes—remain to be cleared; but it looks as though semi-wild populations of

reintroduced California Condors may soon be realized.

Soulé et al. convincingly argue that the keystone species concept is so poorly defined that wildlife managers ought to abandon it in favor of studying more closely the various *interaction strengths* between species. Species interactions range from weak through strong, and wildlife managers need to acknowledge this complexity.

"Fungal Forgery" by Stephen Jay Gould, "The Allure of Symmetry" by Randy Thornhill; **Natural History**, 9-93.

In Gould's gold this issue, the protagonists are fungi that imitate flowers—mimicking their shape and to a degree even, their reproductive strategy. The lesson is that life is full of contingency and that humankind is a product largely of chance: We are no more inevitable, no more a locus of meaning, than the seemingly improbable fungi that have learned to produce insect-attracting reproductive structures.

Forget the surrealists. Symmetry is natural and desirable. Among the countless bilaterally symmetrical organisms, sexual selection often favors symmetry, with asymmetry a sign of genetic defects. For example, females of some volant species favor males with wings of equal lengths; and unequal wings suggest inferior genes or environmental stresses. From this uneducated reviewer's perspective, it seems that the general equation of fitness and symmetry has ramifications academic as well as aesthetic and ecological. If environmental stresses such as pollutants can cause asymmetry (sometimes by harming organisms at embryonic stages of development), perhaps it would be possible to roughly measure environmental decline in polluted or otherwise human-stressed environments by measuring resident organisms from generation to generation, plotting declines in symmetry of body parts.

"Some Questions about the Theoretical Foundations of W. Fox's Transpersonal Ecology and Arne Naess' Ecosophy T" by Chet Bowers, "Toccata

and Fugue: The Hegemony of the Eye/I and the Wisdom of the Ear" by Deborah St. George Butterfield"; *The Trumpeter: Journal of Ecosophy* (POB 5853 Stn B, Victoria BC, Canada V8R 6S8; \$20), summer 93.

The Author of *Education, Cultural Myths, and the Ecological Crisis* here elucidates some obstacles deep ecologists face in bringing about an ecological awakening. We are imbued in the same culture, follow the same semiotics (signs, symbols, and such), hold the same basic assumptions as those we're trying to convert. We use rational arguments to try to change people's minds, yet rational discourse is part of the problem.

Another part of the problem, landscape architect Deborah Butterfield explains, is that modern humans rely on eyesight to the exclusion of the other senses. She calls for us to "return from the exile of the dictatorship of reason and the tyranny of the eye ..."

See also in this issue Editor Alan Drengson's poignant editorial, Bill Devall's discussion of the Age of Ecology, and Arne Naess's perspicacious response to Bowers. *The Trumpeter* is heavy but important and all of it deserves conservationists' attention.

"Michigamme," by Stephanie Mills; *Whole Earth Review*, fall 93 (27 Gate 5 Rd, Sausalito, CA 94965; \$27/yr).

WER highlights trees this issue. Bioregional writer Stephanie Mills artfully describes her surprise and joy at learning of and making pilgrimage to remnant old growth in Michigan's Upper Peninsula. As her guides Doug Cornett and Kraig Klungness told *WE* readers several issues back, some of the Upper Peninsula old growth may yet be cut, as parts are owned by paper companies.

See also *WER* Editor Howard Rheingold's fascinating essay "The Shape of the Universe." It is a tree, Rheingold speculates, as are the shapes of countless other natural phenomena: river systems, dendrite crystals, lungs ... Even some unnatural systems, such as computer programs, employ dendritic, or recursive, structures. Rheingold and

Dolores LaChapelle should debate. In the *WE* issue you're reading, Dolores argues for the rhizome as the ideal metaphor.

Perspectives on the Hyporheic Zone, *Journal of the North American Benthological Society* (12(1)40-99, 3-93.

These 60 pages offer a weighty but understandable overview of a zone too oft overlooked in conservation efforts. The hyporheic zone is the area under and along streams and rivers where lotic and ground waters mix, often in interstitial gravels. It is the area where biologists meet hydrologists (not literally, for neither could crawl through the anoxic alluvium or glacial till).

These zones, biologists are discovering, harbor a vast, virtually unknown array of organisms. The most useful articles for the non-scientist among these may be the introduction, "A perspective on stream-catchment connections" by KE Bencala, and "An ecosystem perspective of alluvial rivers: connectivity and the hyporheic corridor" by JA Stanford & JV Ward. Stanford & Ward offer a capsule statement both uplifting and depressing: "Quite likely, deep penetration of amphibionts into hyporheic zones of large alluvial rivers is a universal phenomenon, although river pollution and flow regulation may have extirpated these unique species in many locations."

Option 9 articles. President Clinton's proposed resolution of the Pacific Northwest ancient forest controversy, Option 9, has elicited numerous articles from environmental writers. A common feeling among mainstream environmentalists seems to be, Option 9 is *not all that bad*. Many grassroots forest defenders, however, have pronounced it a disaster. For analyses, see late summer issues of *Save America's Forests'* newsletter (4 Library Court SE, DC 20003), *High Country News*, *Forest Watch* (address above), and *Forest Voice* (Native Forest Council, POB 2171, Eugene, OR 97402). See also Alexander Cockburn's highly critical and controversial article in *The Nation*. Cockburn angered some mainstream environmentalists by charging them with acquiescing to a compromise that will mean still more cutting of ancient forest.

In the 8-93 issue of *Forest Watch*, see also the articles by Jeffrey St. Clair, Editor—"Bruce Babbitt: a [highly critical] reappraisal"; "Espy Defends Dismissal of Mumma as Two More Forest Supervisors are Forced Out of Northern Region"; "Dealing Away Dwyer"—and Jim Britell's "Is No Cutting the Only Viable Option?"; and Evan Frost's "Thinning Their Way Through the Forest: the newest threat to Northwest ecosystems." In sum, these articles make clear that despite the new administration, the Forest Service remains what it falsely accuses the ancient forests of being: overmature, senescent, decadent, and diseased.

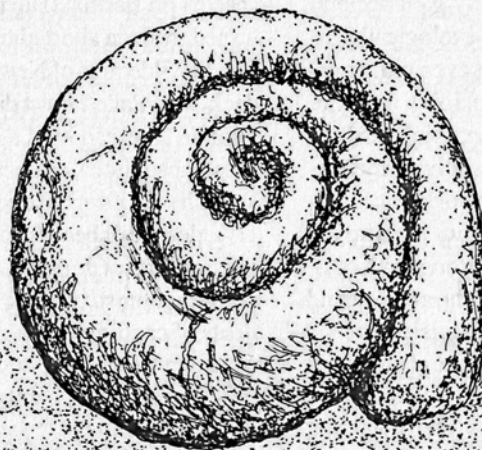


illustration by Jerry Lee Hutchens

Announcements

"From the Ground Up" Mining Video

If you have ever wondered about the environmental and social impacts of mining, but been put off by the morass of technical information, see this video. In just 40 minutes, "From the Ground Up" gives you an overview of mining—and what local citizens can do to stop it—by examining the specific case of Noranda Minerals, and the copper-zinc mining operations proposed and in progress along the Rhinelander-Ladysmith Greenstone Belt in northern Wisconsin.

For a copy, send a check or money order for \$9 payable to "From the Ground Up," POB 16471, Milwaukee, WI 53216.

North American Temperate Forest Conference

The Native Forest Network (NFN) will host the First North American Temperate Forest Conference at the University of Vermont in Burlington, November 11-14.

The cost of the conference is \$45 pre-registration or \$50 starting November 11. For information see Announcements last issue and contact Orin Langelle, Eastern North American NFN, POB 57, Burlington, VT 05402, (802)658-2403.

ORV Erosion Study

Appalachia—Science in the Public Interest, in cooperation with a Kentucky university, is studying rates of erosion caused by off-road vehicles. Readers who know of similar projects, please contact the ASPI Forest Project, Route 5, Box 423, Livingston, KY 40445.

Second Annual PIE Conference

The Second annual Protecting Integrity and Ethics (PIE) conference will be held November 5-6 in Washington, DC. Sponsored by Public Employees for Environmental Responsibility (PEER), this year's conference will involve employees from state and federal environmental and land management agencies. The focus will be to help ethical public resource managers bring environmental integrity to their agencies. The conference will support employee demands for the rights of assembly and protected speech as a prerequisite for the trustworthy management of America's natural resources.

Part of PEER's strategy is to bridge the gap between ethical employees in the field

and the Clinton Administration—effectively bypassing special interests, who, according to Jeff DeBonis, executive director of PEER, "have embedded themselves into the decision-making process at many of the environmental and land management agencies at the expense of the American taxpayer and the environment."

According to Government Accountability Project (GAP) attorney Jeff Ruch, who is also chief counsel for PEER, "the coalitions of whistleblowers joined at last year's conference led to the creation of PEER." At last year's conference, sponsored by GAP and the Association of Forest Service Employees for Environmental Ethics (AFSEEE), participants voiced the need for a broad-based organization that could offer support to employees from all environmental and land management agencies who speak out against fraud, waste, and abuse at the workplace. Support for PEER has been tremendous because there is so much pent-up frustration within these agencies.

The second PIE conference represents the growth of an ethical employee movement. For information about the PIE conference or PEER, please contact PEER, 810 First St., NE, Suite 680, Washington, DC 20002; 202-408-0041.

Call for Papers on Protected Areas

Ecosystem Monitoring and Protected Areas 2nd international conference will be held May 16-20 1994 at Dalhousie University in Halifax, Nova Scotia. The conference will focus on the role of research and monitoring in the management of the protected areas. Suggested paper topics include ecological monitoring programs and networks, monitoring for landscape management, marine conservation areas, monitoring biodiversity, and defining ecosystem integrity. For more information contact Neil Munro, Canadian Parks Service, Historic Properties, Upper Water St., Halifax, Nova Scotia, Canada, B3J 1S9.

The Lake Ontario Log

The first issue of *The Lake Ontario Log* was published this past summer. The subject of this newsletter is Lake Ontario—its environment, its human users, and their interaction with the lake. The first issue included

"Aliens Among Us": a look at non-native fish, "Sturgeon Restoration," and "How to get Ontario's ecosystem back into balance." Send \$10 for a year of the quarterly to Lake Ontario Log, POB 202, Walcott, NY 14590.

Wise Use Information Needed

Kent Goshorn is doing research on deep ecology and the "Wise" Use backlash for his doctoral dissertation and requests interviews (anonymous). The study is about values, attitudes, and reasoning processes. Please contact Kent Goshorn, Anneberg School for Communication, U. of Pennsylvania, 3620 Walnut Street, Philadelphia, PA 19104 if you can participate.

Courses Offered in Costa Rica

The Tropical Science Center (TSC), founded in 1962 as a private non-profit association, is offering a Tropical Dendrology course and a Life Zone Ecology course in Costa Rica. The Tropical Dendrology Course runs from March 21 to April 8, 1994. Instruction in field identification of neotropical trees and shrubs will be given. The Life Zone Ecology course runs from April 25 to May 13, 1994. Instruction will be given in the practical and theoretical use of the World Life Zone System of Ecological Classification developed by Dr. L.R. Holdridge.

Both courses are taught in Spanish. (English will be offered if the demand is high.) Space is limited for the courses and the deadline for applications is December 17, 1993. For additional information contact Dr. Humberto Jiménez Saa, Program Coordinator, Tropical Science Center, POB 8-3870-1000, San José, Costa Rica.

Wetlands 1994 Conservation Calendar

Wildlife photographer, naturalist, and *Tracking and the Art of Seeing* author Paul Rezendes has produced a 1994 North American wetlands calendar. Rezendes's photographs are breathtaking images of fresh water swamps, bogs, and wet meadows. Each month features a full-color picture of a wetland area, a close up photograph of a plant or animal that inhabits the area, and a brief description of their interrelationship. The calendar costs \$10.95 and can be ordered through Camden House Publishing, Ferry Road, Charlotte, VT 05445.

ABOUT SUBMISSIONS

Wild Earth welcomes submissions. **Poems** should be sent directly to our Poetry Editors, Art Goodtimes (Box 1008, Telluride, CO 81435) and Gary Lawless (Gulf of Maine Books, 61 Maine St, Brunswick, ME 04011). Poets should realize that we receive hundreds more poems each quarter than we can publish.

Artwork, articles and letters should be sent to the Art Director or Editor at our main address (POB 455, Richmond, VT 05477). *Wild Earth* welcomes submissions of original illustrations or high-resolution facsimiles thereof. Botanical/zoological/landscapes are eagerly sought, with depictions of enigmatic micro-flora especially prized. Representational drawings should include common and scientific names.

Articles and letters should be typed or neatly hand-written, double-spaced. Those who use a computer **should include a copy on disk**. We use Macintosh (3.5" disk) but can convert from PCs. Writers who want their material returned should enclose a self-addressed stamped envelope. Deadlines are two months before the changes in seasons (e.g., 10-20 for winter issue).

Articles, if accepted, may be edited down for space or clarity, though if substantive changes are made, the author's approval will be sought. Articles with significant scientific content (e.g., most biodiversity reports and wilderness proposals) will be reviewed by our Science Editor for accuracy and clarity. Wilderness proposals will also be reviewed by our Executive Editor, and controversial or complicated pieces may be peer reviewed. Lengthy biologically-based articles generally should include literature citations.

Wild Earth occasionally reprints articles; but due to the surfeit of submissions we receive, reprints will usually be low priority. If an article is being submitted to other publications as well as *Wild Earth*, the writer should indicate so. We usually try to avoid duplication. We generally welcome other periodicals to reprint articles from *Wild Earth*, provided they properly credit the articles.

In matters of style, we follow the *Chicago Manual of Style* loosely and Strunk's & White's *Elements of Style* religiously. Also, we suggest that authors remember several basic rules when writing for *Wild Earth*, since we always have far more material than we can print and we expect our writers to be lucid, perspicacious, and ineffably winsome.

1. Eschew surplusage (Twain).
2. Thou shalt not verbalize nouns (Abbey 1988).
3. Do not affect a breezy manner (Strunk & White 1959).
4. Watch your antecedents (Davis 1988).
5. **Include a goddam floppy** (Butler 1992).

DOUGLAS W. MOORE



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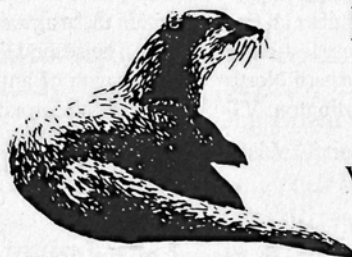
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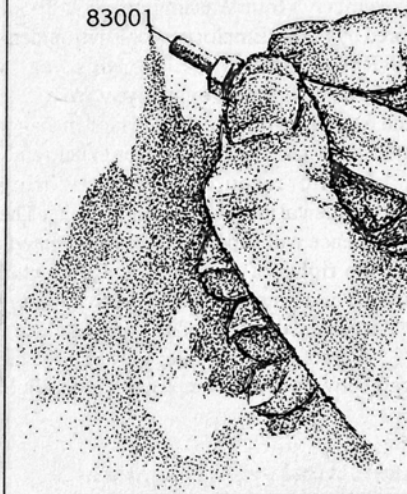


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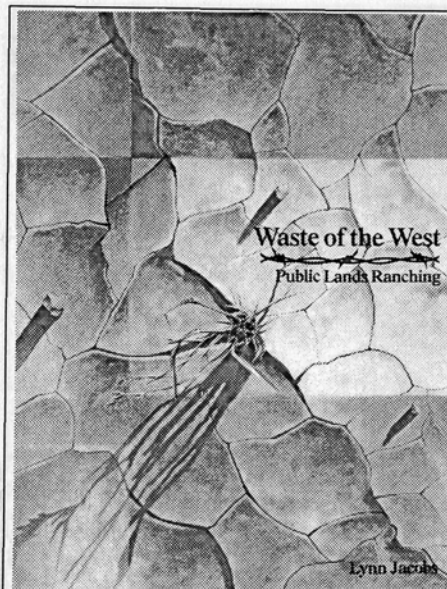
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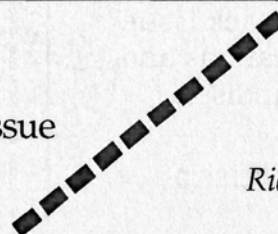
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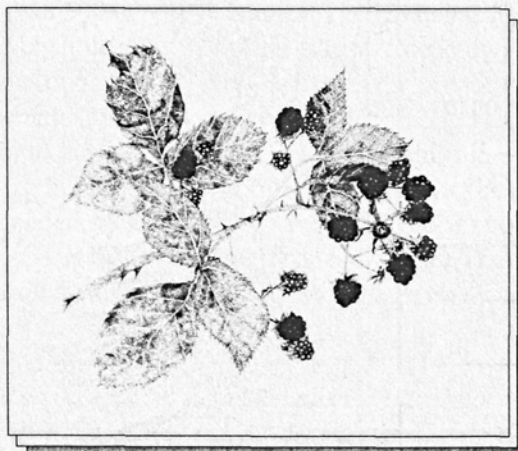
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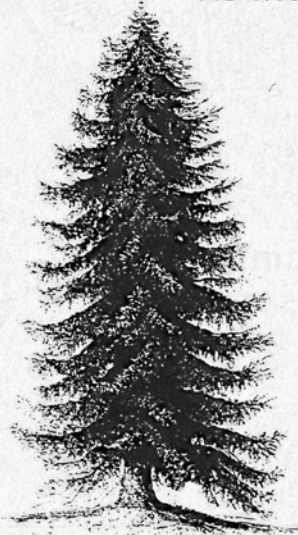
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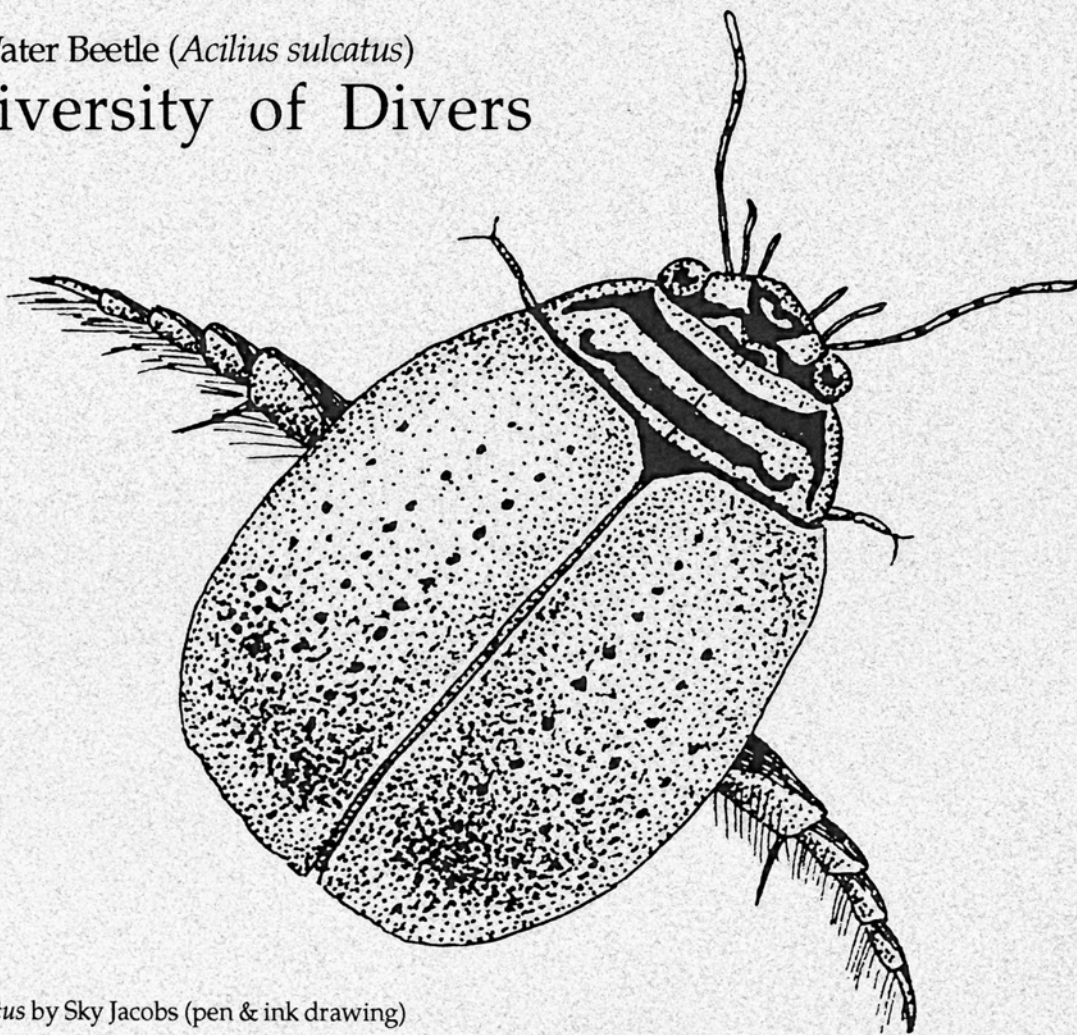
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Lesser Water Beetle (*Acilius sulcatus*)

A Diversity of Divers



Acilius sulcatus by Sky Jacobs (pen & ink drawing)

The Lesser Water Beetle is a member of the family Dytiscidae—predacious diving beetles, of which 2500 species have been described, including over 500 in North America. The US being an entomologically-challenged nation, our citizens know comparatively little about dytiscids. This we do know: *Acilius sulcatus* shares basic life history patterns with many other predacious diving beetles. Adults live on the surface of lentic systems (still waters, such as ponds), diving often for prey. The female lays her eggs above water among grass roots or in moist soil. The larvae crawl along lake bottoms; they return to land to pupate, then return again to the water as adults. Volant and taciturn, the beetles occasionally fly quietly to other bodies of water. Predacious diving beetles eat other aquatic insects, and large diving beetles will even take salamanders, snails, tadpoles, and small fish. In turn, diving beetles are parasitized—as eggs—by several species of tiny wasps, and—as larvae—by thread worms. They pass winters buried in mud. Less celebrated than the Narrow-foot Hygrostus Diving Beetle, the Lesser Water Beetle is so in size only: it is no less deserving of our affections.

At 16 years of age, Tucson artist Sky Jacobs is already an accomplished illustrator whose work has appeared in Wild Earth, Animal Damage Review, and other publications. He works primarily in pen and ink and specializes in ornithological illustrations.



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It's Hard to Destroy Wilderness **WITHOUT ROADS**

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Unpaved roads are an even greater cause of soil erosion than clearcut land.

Few people truly favor construction of more roads. The dollar cost is astounding, and society cannot even afford to repair existing roads. But as long as government and industry promote growth involving new roads, better transportation modes such as biking, walking and renewable-energy electric rail will be undercut—and more wilderness will be destroyed. Meanwhile, the oil used for asphalt and motor vehicles will keep getting scarcer and scarcer, and is responsible for a huge part of the trade deficit and wars involving oil reserves.

Help us stop this waste and destruction!

To preserve wilderness, we must preserve the small amount of roadless area left in North America and elsewhere. And to restore wilderness, we must close and revegetate hundreds of thousands of miles of roads.

The Alliance for a Paving Moratorium works with activists on these campaigns as we call for a halt to construction of new roads, road widenings, and parking lots, with exemptions only for repair of existing key roads and for bike and footpaths. We also call for closure of countless logging roads.

Pledge your opposition to more roads and share in our dream of generating a new ethic of respect for and restoration of the land. An additional benefit of a paving moratorium will be the realization of community self-sufficiency. We also foresee employment through fixing key roads, depaving, and other alternatives to more roads.

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Jan C. Lundberg - founder

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