WILD EARTH

VOLUME 1
NUMBER 3

5^{00}

Issue Theme:

The New Conservation Movement, continued

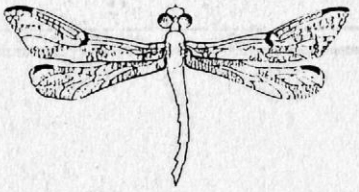
Articles and Essays by:

Michael P. Cohen
Farley Mowat
Elizabeth May
Chris Maser
Dolores LaChapelle
Terry Tempest Williams

Table of Contents

Volume 1
Number 3

ISSUE THEME: The New Conservation Movement continued (pieces scattered throughout)



DEPARTMENTS

Cover: This forest scene was inspired by the old-growth quests the artist, Rob Leverett, and his father, Robert Leverett, lead in the Northern Appalachians and Adirondacks. The Leveretts have found dozens of heretofore unidentified old-growth stands, and have won state protection for many of them.

Jackie Taylor of Asheville, North Carolina, designed the new presentation of the title.

WILD EARTHLINGS

Dave Foreman, Executive Editor
John Davis, Editor
Mary Byrd Davis, Publisher
Tom Butler, Assistant Editor
Reed Noss, Science Advisor
Dwight Tuinstra, Designer
Andy Molloy, Production Assistant
Sean Markey, Intern

Contributing Artists
Chris Billis, Brian Evans, Karen Gonzales, Cindy Hill, David LaChapelle, Rob Leverett, Gus Mueller, Chris Schimmoeller, Kurt Seaberg, Jackie Taylor, Tony Ullian, Hope Walker, Helen Wilson

Poetry Editors
Gary Lawless, Art Goodtimes

Editorial Advisors
David Abram, Rick Bonney, Michael P. Cohen, Bill Devall, Michael Frome, David Johns, Ron Kezar, Dolores LaChapelle, Jack Leoffler, Christopher Manes, Bill McKibben, Stephanie Mills, Gary Nabhan, Arne Naess, Roderick Nash, George Sessions, Kris Sommerville, Gary Snyder, Howie Wolke, Margaret Hays Young, Nancy Zierenberg

Correspondents
Joe Bernhard, Jasper Carlton, Dan Conner, Michael D'Amico, Barb Dugelby, Jim Eaton, Jeff Elliott, Roger Featherstone, Mitch Friedman, Trudy Frisk, Keith Hammer, Cindy Hill, Monte Hummel, Leslie Lyon, Sally Miller, Rod Mondt, Ned Mudd, R.F. Mueller, Doug Peacock, Tony Povilitis, P.J. Ryan, Jamie Sayen, John Seed, Dale Turner, Paul Watson, Ben White, Terry Tempest Williams, George Wuerthner, Buck Young

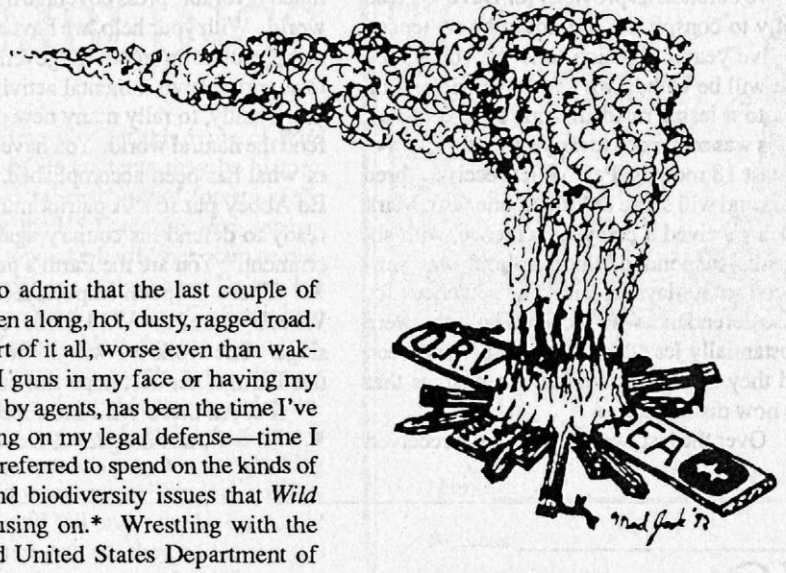
Manuscripts and drawings should be sent to John Davis, WILD EARTH, POB 492, Canton, NY 13617. Files in Microsoft Word or text-only format on 3.5-inch disks from Macintosh or IBM-style computers are welcome, provided they are accompanied by paper copies. Queries in advance of submission are recommended. Writers and artists who want their work returned should include a stamped, self-addressed envelope. WILD EARTH assumes no responsibility for unsolicited materials.

WILD EARTH (ISSN 1055-1166) is published quarterly for $20 per year by the Cenozoic Society, Inc., 68 Riverside Dr, Apt 1, Canton, NY 13617 (315-379-9940). Second-class postage paid at Canton, NY. POSTMASTER: send address changes to WILD EARTH, PO Box 492, Canton, NY 13617.

Subscriptions to Canada and Mexico are $25 per year; overseas via surface mail, $30 per year; overseas via air mail, $35 per year.

Wild Earth is printed on recycled paper.

Around the Campfire



I have to admit that the last couple of years have been a long, hot, dusty, ragged road. The worst part of it all, worse even than waking up to FBI guns in my face or having my wife harassed by agents, has been the time I've lost in working on my legal defense—time I would have preferred to spend on the kinds of wilderness and biodiversity issues that *Wild Earth* is focusing on.* Wrestling with the drolly-named United States Department of Justice is wrestling with a tar baby—a tar baby about the size and temperament of Jabba the Hut.

That, gladly, is over. I've gotten loose of Jabba's oily embrace and now can get back to devoting all of my energy to the fight to keep Earth wild. I'd be far from honest with you, though, if I didn't admit that I've been tempted to devote time to explaining why I agreed to a plea bargain, as well as to analyzing the political implications of the case, and castigating the attack on the Bill of Rights represented by the FBI's expensive campaign to "pop" me. After the trial, I spent nine days floating the River of No Return in Idaho. Rowing my raft, I chewed my cud over and over about this question. I got off the river convinced that doing so would be another long drive down another rocky, dead-end road, another tar baby taking my time and energy away from the far more important issue of biological diversity. My concern is with the other inhabitants of this living planet, with the continuation of evolution and biological diversity. I am not going to embrace the tar baby of continually re-living the campaign by the government to nail me. I won't be trapped into constantly explaining what I did or didn't do. I won't forever spin out explanations justifying the outcome of the trial. I've lost too much time and energy already on that washboard road.

To put the question to rest, let me say simply that the plea bargain was not at my initiative, that agreeing to it was the most agonized decision I have ever made, and that the prosecution would not consider a plea bargain unless it was a "package deal," in the words of the chief prosecutor. Ed Abbey wrote many years ago that he would never sacrifice a friend to an ideal. Ultimately, it was his counsel I listened to.

That said, the main thing I've learned from the past two years is just how important friends are, and how many friends I have. After my arrest, I wrote "An Open Letter to My Friends" in which I recalled how Tom Sawyer and Huck Finn, after escaping Injun Joe's Cave, got back to town just in time for their funeral. They crawled into the rafters of the church to hear person after person carry on about what wonderful young men Tom and Huck were. I wrote then that Tom and Huck were uniquely blessed to live to hear such praise, that for most of us such expressions of affection and respect come after we die and cannot hear them. I considered myself blessed two years ago to have had my funeral praise while I could still hear it. I consider myself doubly fortunate today after two years of selfless outpouring of support from many wonderful people. Thank you, friends. Thank you for all of your support and best wishes.

✣ ✣ ✣

Now back to the real work.

I've been tickled pink by the support and praise *Wild Earth* has received in its short life. John and Mary have done a marvelous job of putting this magazine out with scarcely a hand from me. (I will be spending more time on the magazine now. I'll even get my material in on time. I promise, John. You can count on that, Mary!) Mixed in with the praise for *Wild Earth* have been a few grumbles of concern and discontent from old friends who seem to have been hoping that *Wild Earth* would be a reincarnation of the Earth First! movement and the *Earth First! Journal*, say, circa 1983-85. That is not the intention of *Wild Earth*, and never has been. Those days are over. Today calls for different strategies, different styles. *Wild Earth* is not an organization. It is an independent magazine devoted to uniting grassroots wildland conservation activism with the principles, ideas, and wisdom of the growing science of conservation biology. As I said in our first issue, if that isn't the kind of fat you want to chew around the campfire, that's fine, but that's what you're going to hear around this campfire. While we respect a variety of approaches, styles, and strategies, we have chosen ours.

The primary approach we have chosen at *Wild Earth* is to develop a North American Wilderness Recovery Strategy. Our first issue presented some of the foundations for such a strategy: Identify large core wildernesses; surround them with buffer zones where human activity is limited; connect the cores together with biological corridors; and assist nature in restoring native ecological conditions complete with large predators.

In November, a dozen of us will meet in San Francisco to better refine our program, and to begin organizing working groups throughout North America to develop detailed Wilderness/Buffer Zone/Biological Corridor/Native Restoration proposals for our continent's ecoregions and to tie them together in a unified whole for the continent.

If you are interested in working on such a vision, in helping to realize it, please contact us at *Wild Earth*. We, of course, will report on our progress toward such a plan.

This issue of *Wild Earth* and the last have focused on the constituent groups of the New Conservation Movement. That is the flip side of our approach. We hope to publish a book next year on the New Conservation Movement with introductions to all of the groups that constitute it. Please send information on your group, if it has not yet been featured, to *Wild Earth*.

Happy trails, friends. It *is* good to be off Jabba's ragged road and back on the wilderness trail.

—Dave Foreman

*And the time others have spent working on my legal defense when they too would rather have been working on biodiversity issues.

TRIAL NEWS

DEAR FRIENDS OF THE BIG OUTSIDE:

We want to express our gratitude to you for your support of Dave Foreman and the principles for which he stands. Without your generosity and sacrifice, Dave would have been helpless to defend himself from unjust convictions on the numerous charges he faced. By charging Dave Foreman, the government wanted to send environmental activists a message to stay quiet or face the consequences. Our victory is that despite all the government's persecution and harassment, it's Dave's message that's still being heard.

The plea bargain which ended the trial for all five defendants provides for Dave to plead guilty to conspiracy and not to be sentenced for five years, at which time the conspiracy plea will be withdrawn and Dave will enter a plea to a lesser misdemeanor charge. Mark Davis was sentenced to six years and will serve at least 18 months. Peg Millet received three years and will serve as little as one year. Mark Baker received a one year sentence, with six months suspended. Ilse Asplund was sentenced to 30 days in jail. The sentences for those defendants who received jail time were substantially less than they would have been had they been convicted on the charges that are now dismissed.

Over the last two years we have received much favorable press coverage throughout the world. With your help, we have succeeded in raising public awareness of government efforts to suppress environmental activists and more importantly, to rally many new people to defend the natural world. You have all been part of what has been accomplished. As the late Ed Abbey put it: "A patriot must always be ready to defend his country against his government." You are the Earth's patriots.

There is much important work ahead. What is left of the Wild Earth remains under siege. The work we will all do together for this Earth is her best hope and our salvation.

For All that's Wild and Free,

—Jack Loeffler & David Johns

HOUSEKEEPING

The Wild Earthlings are now in a position to answer the question raised by Christopher Manes in our second issue, "Whatever happened to the Cenozoic?" The answer is that the Cenozoic is publishing *Wild Earth*. By the time you read this issue, the Cenozoic Society, Inc. will have taken the place of the unincorporated Wild Earth Association. The name and the address of the magazine will remain the same, though the corporate office will be in Vermont.

Like the Wild Earth Association, the Cenozoic Society is a non-member organization. We believe that the magazine can best serve the conservation movement by remaining independent. The initial board of directors consists of Tom Butler, John Davis, Dave Foreman, and myself, all *Wild Earth* staff members.

The articles of incorporation state that the society is not for profit.

Since we do not expect to be able to pay the magazine's way with subscriptions alone, we shall file for 501(c)3 status from the Internal Revenue Service. If we receive this status, donors will be able to deduct from their taxes gifts given directly to us. (Until that distant date, donations for which a tax deduction is desired, may be sent to Wilderness Covenant, POB 5217, Tucson, AZ 85703. Checks should be made payable to the foundation, but marked for WILD EARTH.)

Thus far approximately 1/4 of our funding has come from donations, 3/4 from subscriptions and sales of single issues. After we published the second issue, a generous individual in Texas sent us a check for $5000, which is enabling us to reach more people than would otherwise have been possible.

An intern, Sean Markey, a senior majoring in English and environmental studies at St Lawrence University here in Canton, joined us in September. Among other tasks, he will be assisting with the research for a revision of the preliminary survey of old-growth forest in the East, published last year by the old *Earth First! Journal*.

Now is the time for readers who spotted gaps in the initial survey or who are otherwise knowledgeable about areas of old growth in the East to speak out. Send information to us at the *Wild Earth* address.

Speaking of addresses, please use our post office box rather than our street address for all mail sent through the postal service. Mail delivery to the box is safer and speedier.

We have received so many poems lately that, to speed the review of poetry, we ask writers henceforth to send poems directly to one or both of our poetry editors: Gary Lawless, Gulf of Maine Books, 61 Maine St, Brunswick, ME 04011; Art Goodtimes, Box 1008, Telluride, CO 81435.

Acquisition of a clever Mac Classic computer is enabling us to read 3.5-inch disks written on IBM-style computers as well as on other Macs (MS Word or text only files). Sending us your articles on disk will help us greatly; always send also a double-spaced paper copy of your material. Thank you.

We thank all of you who took advantage of our special gift-subscription price in August and September. The champion purchaser was a Michigan supporter who gave us thirteen new subscriptions.

For the holiday season we are sending a small bonus to subscription givers. If you check the appropriate box on the order form, you will receive ten Wild Earth postcards, illustrated by Brush Wolf, in return for each gift subscription you purchase. We shall as usual send announcements to gift recipients.

Also for Yule, we are introducing Wild Earth cups. The cups, individually wheel-thrown earthenware, are the work of George Rector, a potter and a supporter of Wild Earth, who lives in the mountains of North Carolina. Decorated in slip (a clay solution) and designed to be cradled in the hands, they are approximately 3 3/4 inches tall. The glaze is free of lead. They should be ordered from Wild Earth, but will be shipped directly to you from the pottery. For guaranteed delivery before Yule, your order must reach us by December 2, but we will continue to sell the cups after this date.

—Mary Byrd Davis

Editor's Ramblings

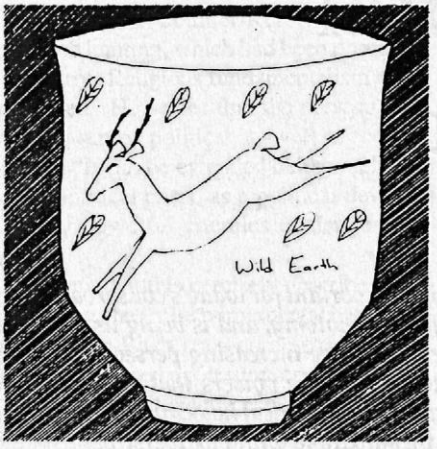
By the time you get this issue of *Wild Earth*, some of its contents may be history. The major federal manager of forests in the United States, the US Forest Service, appears to be edging toward a hard-liner coup as pivotal as the recent one in the Soviet Union. It's too early to predict the results. Suffice it here to say that if our wildest dreams come true, the hard-liners may be overthrown and a new Forest Service dedicated to ecological restoration may emerge. More likely—unless thousands of grassroots activists start dancing atop the bulldozers now rolling into our forests—the FS will fall under the leadership of timber beasts so ruthless they will make earlier FS officials look benign. Mike Bader reports in these pages on the early stages of the suppression of the reformers.

Appropriate to these tumultuous times, which will demand new tactics, we continue here with the theme begun last issue, The New Conservation Movement. Since life is paradoxical, we juxtapose pieces on the new conservation movement with articles on old growth. The grassroots groups profiled in this issue are in the Strategy section.

Also in these pages is a sub-theme: the language of wilderness preservation or lack thereof. More and more people in the conservation movement are realizing that in addition to new or better strategies, we need a new or better lexicon to communicate our aims. It has been said, for example, that 'old growth' sounds like a tumor, 'deep ecology' suggests the study of benthic organisms, and 'intrinsic value' is a term best given to economists and gurus.

Next issue we'll trek north (Trudy Frisk, Elizabeth May, and Farley Mowat having pointed the way in this issue) and explore threats to the boreal, sub-arctic, and arctic ecosystems of Canada. This discouraging theme, Devastation in the North, will be tempered by discussions of how Canadian wilderness proponents are successfully winning the support of the Canadian public. Now if only the politicians will listen ...

—John Davis



Approximation of design.

Yule and beyond ...

Please send _____
cup(s) at $14 each $ _____

Shipping ($3.50 for 1st cup;
$2 for each additional cup) $ _____

Add 7% sales tax for
delivery in New York state $ _____

Total $ _____

Name _____

Address _____

_____

_____

_____

(Attach additional sheet with any instructions for gifts)
Make check payable to Wild Earth, POB 492, Canton, NY 13617.

STATEMENT OF PURPOSE

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

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

Guest Editorial

Environmental Witch Hunt

Abstract: *This essay advances several claims important for today's conservationists: 1) The putative reason vs. emotion split is a false dichotomy, and is being used against wilderness defenders. 2) Wilderness defenders will face increasing persecution as the global ecological crisis worsens. 3) Efforts to appease the powers that run industrial civilization doom any hope that we might survive the ecological holocaust. 4) Ecological realism tells us that industrial civilization is incompatible with biodiversity.*

by Jamie Sayen

The FBI, which has already spent millions to frame Earth First!ers and other alleged "radical" environmentalists, recently singled out radical environmental groups and white supremacist groups as top problem militant organizations. The FBI's two top "major problem groups in the United States today are Aryan and Ecologically oriented groups." (Pace, *Concepts of Vice, Narcotics, and Organized Crime*, 3rd Edition, Prentice Hall, 1991) That our government has chosen to couple principled defenders of four billion years of evolving life with racist, hate groups should alarm even the most compromised mainstream environmentalists. This should be called by its proper term: a twentieth century witch-hunt—the persecution of unpopular, non-conforming elements of our Industrial Growth Society in a period of social fear and ecological holocaust. Earth defenders are the Witches, Jews, Gypsies, and Reds of the 1990s.

REASON AGAINST EMOTION — A FALSE DICHOTOMY

In the March 1991 issue of *Outside Magazine*, David Brower complained that Alston Chase's attack on "radical" environmental groups was unfair unless Chase also blamed the United Nations, mainstream environmental groups, and others for the dismal state of both the environment and the environmental movement. Chase responded that Brower's letter was emotional and that this proved his point, which was that groups resorting to "emotionalism" are weakening the movement.

In reply, Brower could refer to his autobiography, *For Earth's Sake*, in which he quotes Howard Zahniser's reply to an accusation of being emotional: "I am impressed by the passion with which you accuse me of being emotional."

The false dichotomy of "reason" versus "emotion" has been skillfully utilized by industry, governments and compromised environmentalists to muddle the debate over the ecological crisis. Thus, unfortunately, we need to respond to these critics. Nonsense, when dangerous, must be treated seriously, even though it is nonsense.

Chase has a large audience, and is passing himself off as an environmentalist while doing the bidding of those who are destroying biological diversity. So let's consider reason and emotion, in turn, to see if Chase is perhaps unfair in deriding us for being emotional.

Reason implies using the mind to arrive at sensible conclusions. Philosophy and science impose more stringent restrictions on thinking, such as the use of logic; but the full meaning of reason includes such concepts as "argument" and "persuasion." For the purposes of this essay, let us describe reason as the act of thinking intelligently, sensibly—or, in ecological terms, using the mind in the effective pursuit of sustainability and survivability.

Emotions are feelings or passions such as pain, desire, hope, love, fear, and anger. According to *Websters New Collegiate Dictionary*, "emotionalism" is a "tendency to regard things emotionally." It has been given a pejorative connotation: "the habit of cultivating or of weakly yielding to emotion."

The perceptive reader will detect a trick here. Both reason and emotion and their cognates have a wide range of meanings that describe qualities innate—that is, natural—to the human condition. The defenders of the Faith of Growth Economics, however, employ exceedingly narrow interpretations and loaded definitions of these concepts. Reason, to the Faithful, is good; emotion is bad, weak, womanly.

The implication of this line of (dare I say) reason is that one part of us is "good" and another part "bad." Konrad Lorenz knew how "inane it is to attribute the adjectives good or bad to any mechanism of behavior, such as love, aggression... and so on. Like any endocrine gland, every one of these mechanisms is indispensable and, again like a gland, every one, by its excess function, can lead to a destructive disequilibration. There is no human vice which is anything else than the excess of a function which in itself, is indispensable for the survival of the species."

Gregory Bateson was more blunt: "The rational part of the mind alone is necessarily pathogenic."

The greatest scientists know the limits of reason and the folly of restricting their labors to cold logic. They know there must be a place for leaps of the imagination. Historians of science believe that what set Einstein apart from those who may have been more accomplished mathematicians was his *intuitive* ability to sense the way things had to be. Later, he would employ logic to achieve the necessary connection between fact and theory. A former assistant quoted one of Einstein's irreverent aphorisms: "When we are working at something, we come down from our high logical horse and sniff around with our nose on the ground. Then we obliterate our traces in order to become more godlike."

In other words, powers of reason and non-reason are both essential. Using either of them unwisely can be disastrous. The blind faith of the defenders of Growth Economics in "science" and "reason" would be comical, were it

not so pernicious and so effective in muddling the debate over how to protect biological diversity.

WITCH HUNTS

Chase's attack on Brower represents the respectable, intellectual side of the contemporary witch hunt against environmentalists. While this attack is often ostensibly aimed at so-called radical environmentalists, it is, in effect, aimed at all those who value life more than profits.

Those representing the less respectable side of the witch hunt are increasingly resorting to violence. Rabid assailants of environmentalists practice deranged emotionalism that manifests itself in such acts as the bombing of Judi Bari and Darryl Cherney and in t-shirts that boast of eating Spotted Owls. Underneath Chase's bogus rationalism and the lunacy of the owl-eaters is the insane assumption that we can ignore ecological reality. Chase's alarmingly misinformed attacks on Earth defenders are a product of his (and many other "reasonable" environmentalists'), perhaps unwitting but nonetheless dangerous, acceptance of the institutions and values of Industrial Growth Society.

Historian H. R. Trevor-Roper's essay "The European Witch-Craze of the Sixteenth and Seventeenth Centuries" is extremely helpful in understanding the dynamics of witch hunts, whether they target witches, Jews, communists, or Earth defenders. Trevor-Roper believes that witch-crazes arise, during times of unrest and uncertainty, from social fears that manifest themselves in pressures to conform. Non-conformists become objects of fear and scapegoats for the ills of society. The objects of today's witch hunts are "emotional environmentalists" and "environmental extremists."

In the eyes of witch hunters, the world is divided into lightness and darkness (or reason vs. emotion, or jobs vs. environment). Circumstantial evidence is believed, no matter how flimsy; forced confessions and pressure to implicate others become tools of the inquisitors. Infiltration and spying are merely refinements of the practices of the inquisition, employed to stifle sceptics.

Trevor-Roper notes that any society is vulnerable to "collective emotion" which creates social stereotypes—the "stereotype of fear." In such times, differences in ideology are not decided by reason and debate, but by the social context. Trevor-Roper writes, "in times of fear, minds do not think clearly."

Rationalists must be viewed within the context of their age. The lawyers and clergy who were the driving force behind the persecution of witches, Trevor-Roper says, were the rationalists of their age.

The religious conflict between the Reformation and the Counter-Reformation revived witch hunting, which had been dormant for a century. Religious fundamentalism also was revived. He writes that the persecution of witches served political, as well as social, functions: "It can be extended deliberately in times of political crisis, as a political device, to destroy powerful enemies or dangerous persons."

I submit that this precisely describes our times. Today, the anti-environmental backlash of the Reagan-Bush era—complete with an energy policy based upon suppressing energy conservation and efficiency, expanded reliance upon ecologically disastrous forms of energy extraction (nuclear power, oil drilling in the Arctic National Wildlife Refuge and offshore, etc.), increasing subsidies to the interstate highway and trucking lobbies, and military adventurism in the Persian Gulf—has produced a climate in which it is disloyal to criticize the Gulf War or the government's censorship of the media. Environmentalists are assaulted, framed, and intimidated by government and industry goons, while the profiteers plundering the planet are honored as pillars of the community.

As Trevor-Roper notes (quoting Bertil Sundborg), the victory of orthodoxy is followed closely by persecutions. Indicative of the mood of America in the euphoria of our "victory" in the Gulf War is the treatment accorded anti-nuclear activist Helen Caldicott at the Foxboro, Massachusetts "Earth Day Concert." She stated that the Gulf War and the release of greenhouse gases from burning oil wells in Kuwait were an ecological disaster. The crowd booed her loudly. So much for Earth Day and its self-indulgent concerts.

JOBS *OR* ENVIRONMENT

"Rationalists" counsel "emotional" environmentalists that "we must be reasonable; we cannot cause the families of loggers in the Pacific Northwest to starve to death over a few spotted owls." The loggers have been whipped into a frenzy over this issue, and environmental activists have good reason to fear violence from them. Judi Bari has been permanently disabled by a bomb designed to kill her, or at least intimidate her from defending redwoods. Yet, far from attempting to quell the emotions of the loggers, the industry-sponsored voices of "reason" have heightened emotions with a campaign of disinformation and job blackmail.

To accept the validity of this emotional appeal to reason that pits jobs against owls and the environment requires swallowing several dubious assumptions: (1) loggers cannot be retrained, at least not while some ancient forest tracts remain standing; (2) protecting the ancient forests will cause logging families to starve; (3) the timber industry is not responsible for the fact that 95% of the ancient forests can't be cut (because they already have been cut)—instead, environmentalists are to blame; (4) future generations have no right to experience these forests; (5) the Spotted Owl is the only aspect of the ancient forest *ecosystem* requiring protection; (6) non-humans have no rights.

In any conflict between the defenders of the Faith of Growth Economics and ecological reality, similar logic will be employed. We must destroy James Bay and the native Cree and Inuit cultures because otherwise Québec will be plunged into darkness by 1998 (according to Liz Bacon, Québec Minister of Energy). We must tolerate discharges of dioxin by paper mills into rivers because the mills create jobs.

As growing numbers of citizens revolt against these perversions of truth and governmental power, the ruling order faces a serious problem. To defend the vested interests they have been designed to protect, governments must champion false science, if necessary by force. Sure, they claim they are defending "progress," but, it doesn't take a genius to realize that we are progressing toward extinction if we destroy biological diversity and poison our air, waters and earth.

So we have a new witch hunt of society's latest scapegoats—the environmentalists. By making scapegoats of a few, the many are silenced. The Inquisitors, Hitler, and Senator Joe McCarthy understood mass psychology.

This is the latest incarnation of fascism. Fascism is a bizarre blend of reactionary ideology and brutal, rational, technological, soulless, material progress. Witches, pagans, natives, Luddites, poets, and wildness become the scapegoats for the ills of society.

By a compelling appeal to the ideal of progress, a cooptation of the idea of reason, and a persecution of scapegoats, fascists manage to buy-off or intimidate all but a few citizens. Many Germans were appalled by the excesses of the Nazis, yet few did anything about it. Why? Some engaged in denial and pretended that while the Nazi rhetoric was excessive, the Nazis weren't really that bad, and besides, look at how they had restored German pride and the economy. Other "Good Germans" remained silent because they believed they could do more good if they worked within the system. Others were too intimidated to fight such a powerful enemy. Few realized that the system itself had to be overthrown. So,

continued next page

the Jews, Gypsies, socialists and other outcasts of German culture were gassed.

NON-NEGOTIABLE DEMANDS, OR ECOLOGY VS. POLITICS

However, today's ecological crisis is not merely another political or ideological conflict; it is the irreconcilable conflict pitting an ecologically unsustainable political and economic ethic against Nature. We are violating physical (not merely human) laws, and an amoral, natural, physical force will exact full retribution—not out of some cosmic sense of justice or vindictiveness, but merely as a natural, inevitable adjustment to an ecological disequilibrium brought about by human arrogance.

We have arrived at the end of The Age of Plunder. The plunderers will not throw in the towel peacefully, but their reign is nearly over, whether responsible humans arise to overthrow them or not. Ecological reality has caught up with us. Our choices are to change our ways pronto, or to go extinct. There is no room for negotiation. Alston Chase and his ilk may complain that non-negotiable demands are unreasonable, but Mother Earth isn't listening; there's no reason she should. It is, however, long past time for us to listen to Mother Earth.

Poet Gary Snyder once put it this way: "What we must find a way to do, then, is to incorporate the other people—what the Sioux Indians called the creeping people, and the standing people, and the flying people, and the swimming people—into the councils of government... If we don't do it, they will revolt against us. They will submit non-negotiable demands about our stay on the earth. We are beginning to get non-negotiable demands right now from the air, the water, the soil..." Twenty years have passed; and still we ignore the ecological imperative that natural processes, not human systems of economic exploitation, are the ultimate arbiters.

In the giddy aftermath of the military victory in the Persian Gulf, Americans don't take kindly to being told to submit to necessity. Our ecologically ignorant culture fails to appreciate that Saddam Hussein's military machine was not a threat comparable to the greenhouse effect, the diminishing ozone layer, rapidly increasing desertification, pollution, rapidly decreasing genetic and species diversity, and rampant starvation.

President Bush calls upon the wrong Greek, John Sununu, for advice. He would do better to consult the tragic poet Euripides, whose posthumous masterpiece, *The Bacchae*, offers wise counsel in matters of necessity, humility, reason, and passion.

Days of Man

Morning glory and chickory bloom
upon the road abandoned
Blackberry locks the garden gate
where once stood man and woman
the house is dark, the lane is still
the chimney, ivy covered
the Earth reclaims what was taken from her
in fields of crimson clover
the days of man are over

— Cindy Hill

The play concerns the consequences of man's refusal to accept the dictates of necessity as personified by the god Dionysus. According to Greek myth and religion, Dionysus gave humans wine, a gift by which "suffering mankind forgets its grief," and music — "the laughter of the flute." He is the god of dance, dreams and ecstasy; in short, he is the god of the non-rational. Abuse of the gifts and powers of Dionysus leads to intoxication and madness. Euripides's Dionysus describes himself as "most terrible, yet most gentle, to mankind."

The action of the play occurs in Thebes, home of the god's mother, Semele, whose sisters slandered her when she said that Zeus was the father of her child. Dionysus has returned to Thebes to punish the city for its treatment of his mother and its refusal to worship him as a god. The king of Thebes, his young cousin Pentheus, has outlawed Dionysian rites, and the drama centers upon the disastrous conflict between king and god.

A word of caution is in order: Dionysus should be understood not as a god or personage, but as the personification of the power of necessity; and his actions should not be judged in terms of human morality any more than the flooding of a river should be seen as immoral. Natural acts are amoral.

Pentheus orders the arrest of Dionysus. Dionysus escapes, and eventually tricks the king into spying upon the female revelers celebrating the Dionysian rites. Grotesquely outfitted in woman's dress, Pentheus is betrayed by Dionysus and torn limb from limb by the maddened revelers. The king's mother, Agave, sister of the god's mother, leads the attack, and still possessed, she proudly marches into town bearing her son's bloody head, mistaking it for a lion's. In town, her madness slowly lifts, replaced by the horror of what she has done. In a harrowing concluding scene, she and her aged father, Cadmus, founder of Thebes, acknowledge their sins against the god—that is, their sins against necessity. Wisdom comes late for them, and at a terrible price, but with it comes humility and the dignified acceptance of necessity.

Critics have identified some of the underlying themes of *The Bacchae*: the struggle between the rational and the non-rational; aristocratic skepticism vs. popular piety; civilized order vs. the eruptive forces of Nature and life. These are valid observations, but they do not fully account for the enduring power of this tragedy.

The Bacchae has fascinated and mystified critics for millennia, many of whom have been horrified by the "immorality" and "cruelty" of the god. This problem dissolves if one views the play from an ecological point of view. Euripides was a penetrating student of the human condition, and he has distilled a lifetime's insight and compassion into this play. A modern reader will understand that the Greek idea of the power of necessity is not restricted to matters of human psychology and mortality, but encompasses ecological necessity. Just as humans cannot deny their psychic make-up (which includes rational and non-rational qualities), neither can they deny physical and ecological realities. Earth will not long tolerate a society whose political and economic systems make water run uphill.

In attempting to suppress the rites of

Dionysus, King Pentheus accuses the Baccantes of worshipping Aphrodite, goddess of love. He dismisses them as sex-crazed, just as Earth defenders are dismissed as emotional. Pentheus seals his doom by rejecting the non-negotiable demands of necessity as embodied by Dionysus, who then plays upon Pentheus's deep ignorance of himself and his violent rejection of necessity. Irony abounds. Pentheus promises to hunt the Baccantes down, but instead he is hunted down by them. Although he represents social order—ostensibly a reasonable man—he is, in reality, a deeply unreasonable man who succumbs to his arrogance, ignorance and prurient curiosity.

Pentheus's grandfather, Cadmus, and the blind seer Teiresias, have been called "trimmers and compromisers" by one critic. These old men do not really believe in Dionysus, but they are savvy enough to pay homage to him, a hedging of their bets. Early in the play, they appear dressed in the garb of Baccantes, a pitiful sight. While they are spared the fate of Pentheus, they are not exempted from the catastrophe. (Compromising mainstream environmentalists, take note!) When Agave presents her father with the head of Pentheus, a sobered Cadmus delivers a speech modern-day defenders of the Faith of Growth Economics would do well to take to heart:

When you realize the horror you have done,
You shall suffer terribly. But if with luck
Your present madness lasts until you die,
You will seem to have, not having, happiness.

Aldo Leopold once wrote that those with an ecological education are condemned to live in a world of wounds. True, but they also know what Pentheus and George Bush and the high priests of Growth refuse to heed: you cannot fight against ecological necessity and win. Hunting down Earth defenders who are the bearers of such bad news will not stave off the catastrophe.

DO ENVIRONMENTALISTS *REALLY* WANT TO BE EFFECTIVE?

In asking this appalling question, I do not mean to imply that environmentalists want Exxon and the Pentagon to succeed in destroying biodiversity, but I do doubt that most environmentalists have the courage to confront the real issues effectively. I define *effective Earth defense* as the preservation of global, native biological diversity and natural processes on an evolutionary scale.

Sure, there have been some successes, and some individuals and groups are willing to confront the forces of madness. They can be identified easily; they are the objects of today's witch hunts.

Business as usual has failed. In the premier issue of *Wild Earth*, Dolores LaChapelle wrote: "During the past 20 years there has been more beautiful writing, more research and more planning on matters of the environment than all the years before put together. The results: every aspect of the environment, including wildlife, is worse off than before. It's time to recognize we can't stop the destruction of the environment, the destruction of wild life, by these 'rational' means." She should have added one more word at the end of that quote: 'alone'. We must not fall into the trap of rejecting reason any more than we should be tyrannized by Alston Chase and the PR departments of the multinational Earth-rapers. We need both reason and emotion—and humility.

We cannot stop the destruction of the environment as long as our culture worships the Faith of Growth Economics. I must emphasize here that I use the term 'growth', not 'unlimited growth', advisedly. The pernicious doctrine of "sustainable growth" advanced by the Brundtland Report and the multinationals pretends to accept some "limits." This revisionist Faith of Growth is actually more ecologically dangerous than the James Watt growth-maniac mentality, since mainstream environmentalists and politicians who want to be called pro-environment have adopted the deception.

Now, there are many isms that contribute to the current ecological holocaust, including anthropocentrism, racism, and resourcism, as well as culturally-imprinted estrangement from Nature. But right now, the principal threat to the integrity of the biosphere comes from the growth ethic, the driving "logic" behind the multinationals and their client governments—and the brainwashed consumer societies that they require.

As long as mainstream environmentalists, politicians and well-meaning citizens believe that reforms, such as small refuges, the Clean Air Act, and EPA regulations on "safe" levels of CFC and dioxin discharges, are the solution, the holocaust will worsen. Confronting this reality is ecologically necessary. Mother Earth, or Dionysus, or Fate, offers us no choice, except the fate of Pentheus. Environmentalists must become leaders in this struggle for the survival of evolving life.

Those of us who accept necessity can look forward to persecution by such heirs of Pentheus as George Bush and his FBI. We can look forward to Quislings such as Alston Chase muddying the waters at a time when clarity of vision is critical. And, unfortunately, we can look forward to some mainstream environmentalists branding Earth defenders "terrorists" or "emotionalists."

Until mainstream environmentalists stand up and defy the witch hunters, we are all in Bush's "deep doo-doo." They must realize that they, too, will become targets of the witch hunters. Jews who converted to Christianity and tried to pass themselves off as "good Germans" learned, too late, that their cowardice would not save them from the gas chambers. Academicians who cowered in the face of McCarthyism learned, too late, that academic freedom had been undermined. Cadmus, the compromiser, did not escape the calamity that befell his family. Appeasement always fails. The destroyers feel only contempt for the appeasers.

It is easy to see why some environmentalists defend the corporations and foundations who pay their salaries: job security. They feel the same fear that drives loggers from the Pacific Northwest to engage in acts of violence against Earth defenders.

In his essay on the witch-craze, Trevor-Roper concludes: "What ultimately destroyed the witch-craze, on an intellectual level, was not the two-edged arguments of the sceptics, nor was it modern 'rationalism', which could exist only within a new context of thought.... It was the new philosophy, a philosophical revolution which changed the whole concept of Nature and its operations. That revolution did not occur within the narrow field of demonology ... It occurred in a far wider field, and the men who made it did not launch their attack on so marginal an area of Nature as demonology.... The attack was directed at the centre; and when it had prevailed at the centre, there was no need to struggle for the outworks; they had been turned."

Unfortunately, the new philosophy opened a whole new can of worms, for it was the Cartesian philosophy of rationalism that ultimately defeated medieval religious persecutions. I have not written this long essay to come full circle and stab myself in the back. We are at the point in history when we must now overthrow the Cartesian paradigm and its attendant version of witch hunting.

The way this must be done is to realize that merely standing up to the witch hunters (and we absolutely must do this!) will not halt the ecological crisis. We must attack the dominant philosophy: Cartesian rationalism and Growth Economics. As long as major environmental groups are financially (and psychically) tied to the dominant powers, this will not happen. Instead, we shall have to

continued next page

await the nightmare consequences of such a default of responsibility. We shall have to await our day of reckoning. It's not far off, and there will be a lot of bloody, severed heads on that unhappy day.

Mainstream environmentalists, and citizens of the world, the choice is ours: We can act sensibly and embrace ecological necessity, or we can join Pentheus and George Bush.

Author's note: This essay has been heavily edited by John Davis, for which the author is deeply appreciative.

Jamie Sayen is a long-time defender of the Northern Appalachians. He is presently writing his second book, Disinventing the Wheel.

LETTERS TO THE EDITORS

Wild Earth *invites letters from readers. We can neither print nor respond to all of them, and those printed may be edited down for space, but we will strive to print a representative cross-section. Expressed opinions, no matter how heterodox, do not necessarily reflect those of the editors or any other contributors to these pages.*

CLUB NOT THE CLUB

Thanks for the first issue of *Wild Earth.* Naturally, I am excited about any group that advocates 66 million acres of wilderness in the Great Basin, 27.5 million acres in the California desert, and 16 million acres in the Canyonlands. Your map on page 34 indicates that most of Nevada qualifies for wilderness. Now we just have to accomplish this goal. It will take time and a lot of hard work on the part of many individuals and groups.

Perhaps it is this realization that we must all work together that leads me to question statements in the article, "How to Deal with the Sierra Club" by Hart Schaefer and the unsigned article, "Club Courtesy Conflicts with Conservation." I have no quarrel with criticism of any group or strategy, as long as this criticism does not divert us from our real goal—saving the earth and its creatures. But the amount of time and effort spent lately on ripping apart the "Big Ten" and particularly the Sierra Club could far better be spent fighting Big Timber, the 1872 Mining Law, the military takeover of land and skies, the oil developers, and other interests too numerous to list, sparked by those who care about nothing but money or power. It is exactly these interests who are most delighted about attacks on the Club from within the environmental community, since the Sierra Club is the group they hate and fear the most.

I do agree that the best thing those who are concerned can do is to join the Sierra Club and actively participate. I can assure you that there is room in the Club for a myriad of opinions on almost any issue. As a volunteer on a regional level, I don't feel stifled or managed. Part of my job is to see that everyone gets the opportunity to speak and to participate in the policy-making process. I do understand that often the necessity of reaching consensus means that those holding different points of view feel disenfranchised. However, if they will just hang in there and continue to participate, they may find that their opinion suddenly becomes the majority opinion, and new policy develops.

—Marge Sill, Reno, Nevada

NO MORE LAWNS!

Have you ever wondered about America's national passion for manicured lawns? All across this country, regardless of climate, terrain, wildlife, indeed, in defiance of every reasonable consideration, we insist on making lawns. We spend an incredible amount of our free time and our disposable income on this obsession, and we destroy the natural landscape in the process.

Lawn cultivation is utterly inappropriate in many parts of North America. From Arizona to Maine, from Florida to Idaho, we force grass to grow where it is not needed. It is one of the most tangible signs of our modern determination to dominate Nature. We go to "heroic" lengths to force short grass to grow on every kind of land so that it can masquerade as Northern Europe countryside.

We pour millions of gallons of chemicals into the ground, and waste billions of gallons of fresh water each year in pursuit of living astroturf. Why do we do it? Does every American family really have a secret desire to be English gentry? Do we so detest the native landscape that we must make it look like something else?

This chemical dependency is dangerous. About 70% of Americans now live in coastal areas. The runoff from lawn chemicals is choking our bays and estuaries, and destroying the fish and shellfish.

We need to ask ourselves whether all these lawns are really necessary. What if husbands across America were to stand up and say "I'm not mowing any more lawns. Ever."? What if we offered a national tax credit for native plant landscaping? We could give

landowners a small financial incentive to plant only native plants on land under their control. (This approach was taken some years back in Tucson, AZ, and it seems to have worked pretty well. Perhaps it should be extended to the rest of the country.) Or we could go further, and establish a National Native Organic Gardening Act, with the goal of helping to regenerate native ecosystems on private lands.

Just think of the water we could save, and the dams we wouldn't build! The battle over the Two Forks Dam on the Platte River need never have happened: Denver, for whom the dam was largely to be built, spends 51% of its water on lawns. And think of all the wildlife that could be saved! We were ready to sacrifice 500,000 Sandhill Cranes for the Two Forks Dam.

Remember, our backyards are habitat, too. At home, as elsewhere, we need to realize that even if we "own" the land, it isn't just there for us. By simply not mowing, seeding, or "feeding" our lawns, we could provide millions of acres of wildlife habitat, cut groundwater and coastal pollution, liberate suburban husbands and begin to reduce our national mania for the domination of Nature—all by not doing something we should never have done in the first place!

—Margaret Hays Young, Wildlife Chair, New York City Sierra Club

ENVIRONMENTAL AMENDMENT NEEDED

While out of town last month, I was given a copy of volume 1, number 1 of your fine publication. It was the first I'd heard of it. I was delighted! The kind of conversation *Wild Earth* is fostering is urgently needed.

I was particularly struck by the discussion of legislative "next steps" in the articles "A Native Ecosystems Act" by Reed Noss and "Environmental Law" by Cindy Hill. It was good to see writers whose thought is not habitual, not limited to the forms of legislation proposed in the past, nor so narrow that it considers the battle at hand without reference to the larger societal and historical context.

However, I believe that Noss and Hill have still not thought the matter through as deeply and completely as is needed. The information contained in the enclosed *Environmental Amendment Circular No.4* raises basic questions I think they need to consider. [*ed. note: Circular is available for $3 from The Comprehensive Environmental Amendment Project, 4353 East 119th Way, Thornton, CO 80233-1738. See also blurb in Noteworthy Articles.*]

Reed Noss proposes a Native Ecosystems Act to protect the essential native plant and animal communities of our nation from final destruction. He admits, however, that this proposal is far more "ambitious" than existing bills which are now "floundering."

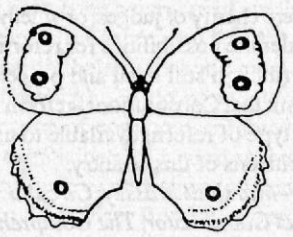
Just how ambitious Noss's proposal is, is underscored by the findings reported in the article "Has Statutory Environmentalism Reached the Limit of What It Can Achieve?" in *Circular #4*. For in that article we may read that the Supreme Court never once, in the twenty years from 1970 to 1990, took the environmental side in any case brought under NEPA before it. And we must bear in mind that the court is likely to be even more anti-environmental in the future than in the past, now that its liberal members have retired and been replaced by Reagan-Bush appointees.

The same article also indicates that the legislative and executive branches of our government have shown a pattern of unwillingness or inability to stick to previously-made statutory commitments to the environment, for reasons which appear to be systemic.

The argument of the article in the *Circular*, of course, is that a mere statute—such as Noss's proposed Act—is likely to prove too weak, in the face of economic pressures and establishmentarian political philosophies, to achieve the goal being sought. Thus the environmental amendment movement has been talking about establishing protection for biological systems, including ecosystems, on a more basic Constitutional level, for more than ten years.

The nature of the amendment proposals in the *Circular* is particularly interesting in the light of Cindy Hill's endorsement of the legal-standing-for-ecosystems idea. I might note, in passing, that Cindy Hill has the facts a trifle wrong: the Club did not present the argument that natural objects and systems should have standing; it was Christopher Stone, the author of *Should Trees Have Standing?*, who argued this. But what is more pertinent is that she is also mistaken in thinking that the Supreme Court's ruling in *Sierra Club v Morton* put an end to Christopher Stone's proposal. It remains very much alive in the form of Richard Cartwright Austin's "Civil Rights for Nature" Constitutional amendment proposal. Section 3 of my own Nature Amendment proposal addresses the same need in an admittedly less flashy but, I think, more practical form.

Like Noss, Cindy Hill offers proposals which would not involve any fundamental restructuring of our legal/political system, but would rely on the continued indulgence of judges, politicians and special interests to achieve their stated goals. In particular, Cindy Hill's idea that the courts be asked to appoint legal guardians for future generations, or for wildlife, is an idea whose worth depends entirely on the courts' willingness to appoint *good* guardians. Can we really be confident that a district judge in Appalachia, asked to appoint a guardian for a valley endangered by strip mining, will appoint an upright environmentalist? Would it not be at least equally likely that such a judge will appoint some good buddy who used to work for the energy industry?



Alas, the message of history is that governments can't be relied upon to do the right thing purely out of the goodness of their hearts. That's why the framers of our Constitution compelled our leaders to answer to the electorate at regular intervals, and why they set up competing branches of government (executive, legislative, judicial) instead of a single all-powerful decision-making body. It is all very well to say, as Cindy Hill says, that a single judge may prove easier to convince than Congress or the nation as a whole. Occasionally it is even true. But the Supreme Court's voting record does not encourage us to invest much hope in this approach.

Even when judges or Presidents or Congress rule for the environment again and again, if the nation at large remains unpersuaded of the need for such rulings, we wind up with a Sagebrush Rebellion that erases our gains and then some. Thus, it would seem to me, our only real hope for lasting protection for wilderness, species, and natural systems is to persuade the people as a whole. But as long as we're persuading the people as a whole, why not convert the consensus we are building into a set of durable, pro-environment Constitutional mechanisms? It would save us a lot of trouble in ensuing years!

It's wonderful to read that your magazine and its writers are committed to what Dave Foreman calls "a re-thinking of the role of humans within the life community." To the degree that this re-thinking must involve a change in the fundamental commitments and decision-making processes of American society, it will inevitably involve some sort of reform of our political system.

The question I would ask Hill, Noss and your readers to consider, then, is whether the

continued next page

pro-wilderness movement represented by *Wild Earth* should put its faith in mere statutes, or the mere charity of judges, or whether it should consider the possibilities for reform at a more basic (though still legal and peaceable) level. I submit that Constitutional reform is the most basic type of reform available to us as peaceable citizens of this country.

—Marshall Massey, Circular Editor & Project Coordinator, The Comprehensive Environmental Amendment Project

RESPONSE TO MARSHALL MASSEY

I would like to respond to a number of misconceptions in your letter regarding my article on environmental law and your proposal of an environmental Constitutional amendment. First, in regards to the *Mineral King v. Morton* case, it was indeed the Sierra Club who filed suit in the name of Mineral King Mountain. Christopher Stone was not a party to the suit and had no role in argumentation. The Stone article did not get written until well after the case was under way. Legal legend has it that Stone wrote "Should Trees Have Standing" in collaboration with Justice Douglas and at Douglas's request, in order that he have something on which to base his dissenting opinion. The legend even speculates that the article was printed in a midnight, unscheduled law review run to make it to press in time for the case to be decided. While, as you correctly point out, commentators and activists have kept the idea of legal standing for ecosystems alive, it has been, as I stated, a dead issue as far as litigation is concerned. I am aware of no cases on the state or federal level since that time which have attempted to seek standing for natural objects; and I am sure if there are any that they have made no progress.

You have wrongly presumed that, because my discussion emphasized common law and litigation, I have not "thought the matter through as deeply and completely as is needed" to reach agreement with your conclusion that a Constitutional amendment is necessary. To the contrary, as an environmental attorney and a professor of both Constitutional and environmental law, I have given the concept of an environmental Constitutional amendment considerable thought and rejected it as inappropriate and ineffective.

Your letter assumes a correlation between changing the minds of the populace and adopting a Constitutional amendment. All the Constitutional protections regarding civil rights have done little to change people's attitudes toward racism; today, decades after *Brown v. Board of Education*, white supremacist groups are still assassinating federal judges and burning crosses, and racial poverty is a generally accepted feature of our cultural landscape. I agree that the public attitude and knowledge regarding the environment needs to be changed; I disagree that a Constitutional amendment will effectuate, or even adequately express, that change.

The example of racial attitudes points out another flaw in your argument: although the Constitution and its amendments contain numerous protections of civil rights, it was not until over a hundred years of Constitutional case law that, through litigation, the Supreme Court decided to end racial segregation. You seem to say that, if we just change the Constitution, we will no longer have to rely on court cases, judges, and the Supreme Court, to make environmental decisions. The opposite is true: courts, the Supreme Court in particular, are the ultimate arbiters of the Constitution and its amendments. It would take decades of litigation to begin to define what any new amendment would mean in application. And any one interpretation cannot be guaranteed; for example, the Constitutional protection against unreasonable searches and seizures was pretty much meaningless prior to case law in the 1950s and 60s which established very strong protections against warrantless searches. Today, the Supreme Court is swinging back the other way, and many of those strong protections are being weakened.

Other obstacles to achieving your environmental goals through Constitutional alteration present themselves. For example, I have serious doubts that the doctrine of sovereign immunity would be waived to permit citizens to sue the government regarding a "pattern of neglect" in environmental management, as the language of your proposal suggests. Nor do I see anything in your materials which suggests who would have the right to enforce this amendment and how it could be done. The concern which you voice at my suggestion that guardians *ad litem* be appointed for natural resources—that we have to figure out who a "right" and "good" guardian would be—still applies to your proposal: we would have to rely on "right" and "good" people to bring enforcement actions. Obviously, that's a problem no matter which approach is taken.

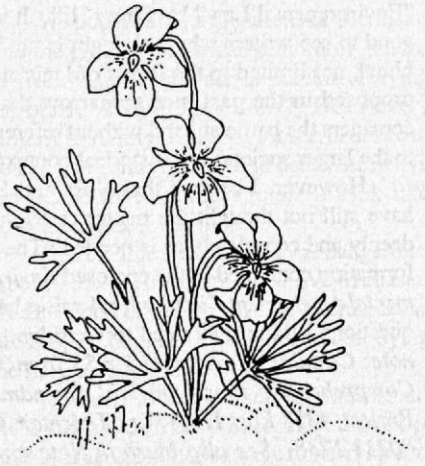
Finally, amending the Constitution is not a matter to be taken lightly. There are numerous organizations such as your own seeking Constitutional amendments to, among other things: ban abortion, secure the legality of abortion, give the President line-item veto powers, give juries the right to change law as well as issue verdicts, ban flag burning, and (remember this one?) secure the right of freedom from discrimination on the basis of sex. The lesson of the Equal Rights Amendment efforts is that the state-by-state method of securing a Constitutional amendment is likely to fail. This means that an open Constitutional convention would probably be the method to obtain an amendment. Most people don't realize that once you call a Constitutional convention the entire document is on the table. Given the present conservative mood of the country, I am not willing to risk what might result, especially since I doubt the effectiveness of the amendment sought.

Remember that the purpose of the Constitution was to define the specific powers to be afforded to the federal government, and to reserve the remainder of all rights and powers to the people and the states. The bill of rights contains protections against governmental intrusions only; an amendment seeking to establish rights against other private individuals is an extreme deviation from the present governmental structure.

For these reasons, I look not to creating new laws, whether they be statutory or Constitutional in nature, but to the vast ancient body of common law, which belongs to the people and to the courts. A resurrection of the public trust doctrine and other basic rights reserved to the people, together with the change in attitude of the populace which you embrace, will take us in the right direction without the risks inherent in Constitutional change.

—Cindy Hill Couture, President and Legal Action Coordinator, Preserve Appalachian Wilderness Network Inc.

ed. note: *Marshall Massey answered Cindy Hill's rejoinder with a compelling rebuttal. We cannot print it here for it is 16 pages long, so we encourage readers to order the next* Circular, *which will carry this fascinating debate.*



DEEP ECOLOGY & OVERPOPULATION

I find it troubling that many environmentalists ridicule deep ecology and/or pay little or no attention to the problem of overpopulation. I have some thoughts on both phenomena:

Nature: Interaction with nature is necessary for the development of a deep ecologist. One needs to know the joys of nature to fully grasp the destruction being wrought upon her. How much interaction? Depends on the person. For some a small garden in the city or witnessing a bird's nesting in a windowsill may be the inspiration needed to develop an ecocentric outlook. For others, a life in the outdoors surrounded by wild flora and fauna does not lead to any sort of ecological consciousness. Every day I witness many a farmer who is as removed from nature and ecocentric thoughts as it is possible to get. (Today's farmers are pathetic. They stare at computer screens; they attend meetings to learn of the latest pesticides. Most feel uncomfortable about any talk of nature. The state universities tell them that farming is a business and should be treated as such.)

Regardless of how much or how little interaction with nature is needed to inspire an ecocentric view and ethic, for most people who might be called environmentalists, nature is somewhat remote: Contact with nature largely consists of wearing clothes from L.L. Bean or paging through one or two of the slick nature magazines. It may sound discouraging, but people from this pool can be very dedicated and helpful. This is the pool from which deep ecologists will add to their ranks in the future. They're well read and concerned about things. What they don't experience firsthand they can experience intellectually other ways: Most people will never go to the Antarctica (Antarctica is much better off without the lot of us trooping off to see it); but most environmentalists have read about it and will do things to protect Antarctica.

The bottom line is that we must put aside any snobbish tendencies and stay with the real work, which includes making deep ecology's case to the rest of the world.

Self-Righteousness: At their best deep ecologists are clear and down to earth in their approach to life and issues. But too often they come off as self-righteous and, sometimes, spacy. Such phrases as "introspective purification," "self and earth wisdom," however apt and essential, can contribute to bad perceptions. Describing reform ecologists' work as "limited, piecemeal and shallow," however true, can set off a lot of people. For these and other reasons, it has become environmentally chic to ridicule deep ecologists. And ridicule is the precursor to dismissal from further consideration.

Fear: While people may like to ridicule deep ecology, there is something more at work here. Deep ecologists come off as a severe and grim lot who would probably do away with lots of fun things. We would forbid gourmet food and jazz. No kidding, I've heard such fears only half jokingly expressed.

Deep ecologists perceive that because of man the environment is going to hell rapidly, and we scoff at the notion that science, not fundamental change in our numbers and the way we live, can do anything to ease the pain of inevitable crash and die-off. We perceive that the usual solutions only aggravate the situation because they enlarge the overshoot.

Our conclusions may be true but unacceptable. T.S. Eliot said, "Humankind cannot stand very much reality." A smart man Mr. Eliot was. Deep Ecology's message is too frightening and threatening for many people. If you can't ridicule and dismiss deep ecologists, then ignore them.

Sine Qua Non: *Sine qua non* is a Latin phrase whose literal meaning is "without which not." It's a way of saying that something is an indispensable requisite. Lawyers use it. We should use it. We should use it to point out that every goddamned thing environmentalists do is worthless as hell unless we halt the increase and start a decrease in human population. William Catton Jr.'s book *Overshoot* is "must" reading. He enables one to properly interpret the events of the day. Such "solutions" as the "green revolution" do not solve anything: they just increase the overshoot, putting off the day of reckoning when the crash will be worse. Mr. Catton tells about the introduction of reindeer to an island in the Bering Sea. 29 reindeer were introduced in 1944. Estimated carrying capacity was between 1600 and 2300. In 1957 1350 reindeer were counted; by 1963 the herd had increased to 6000. In 1966 there were just 42 left on the island: "An overgrazing herd steals from its own posterity. OVERSHOOT LEADS TO HABITAT DAMAGE, so crash plummets population to a level BELOW that which it might have sustained had it not overshot."

If we don't do something about overpopulation, all environmental work amounts to little more than the proverbial rearranging of the deck chairs on the Titantic. Or at most you could say we are bailing with a cup. Bailing with a cup may keep the ship afloat longer than if we stood at the rail and had a last smoke—perhaps about .00003 seconds. In the final analysis the real difference is that the bailer just feels better about himself.

In this country there has never been a national discussion of carrying capacity. (There have been a number of studies on this and the results of those studies that don't assume pie-in-the-sky technological fixes are very sobering.) To do so would require a combination of common sense and courage. We try to anticipate and guard against all sorts of things: war, earthquakes, tornadoes, hurricanes, whatever. But overpopulation is brushed aside. Are we afraid of what we might have to face? Do we feel something we hold dear will be threatened?

Mr. Catton suggests there is something else at play: redundancy anxiety. Redundancy anxiety is defined as "a morbid apprehension arising from population pressure, based on the more or less conscious realization that if there is an excess of population in relation to carrying capacity, the population surplus may include oneself, not just others." I think the man has put his finger on *the* basic problem in getting population policy onto the front page. It doesn't matter what people say or deny. What they sense may scare the hell out of them and cause all manner of avoidance behavior. We're all familiar with redundancy anxiety. Think of people you've encountered who are employed in some job where what they do is of no importance and it really doesn't matter whether they show up for work or not because they do nothing but fuss about nothing all day long. Unless they're brain dead (don't rule that out) they're probably uncomfortable and defensive. Well, my friends, unless you're doing something of genuine value toward implementing the Deep Ecology principles as enunciated by Naess and Sessions, you may be subject to a redundancy anxiety attack.

Beauty: For our own good and for the good of our cause we must not neglect witnessing and experiencing and then talking about the beauty out there. Beauty is the real reason we're passionate about the environment. We may call ourselves scientists or conservationists or deep ecologists or whatever. But essentially we are romantics. And let's not be afraid to admit it.

—Ed Detrixhie, Clyde, KS

ASSORTED AND SORDID MATTERS

Ted Turner, founder of Turner Broadcasting, former World Cup yacht racer, new owner of many of Hollywood's classic films, etc., recently announced he is replacing the cattle on his Montana ranch with a herd of 7000 Buffalo. He feels Buffalo look better (cows have "fat asses") and is disturbed by how badly the ranchland is being destroyed by beef. He made this announcement to a gathering of the Na-

continued next page

tional Audubon Society and urged them to get involved in the issue—to end the destructive cattle ranching out West.

—*BC*

P.S. One alien plant not mentioned in the excellent Biodiversity Report is *Vinca minor*, an evergreen groundcover, European in origin. A common landscaping plant, I've come across it in forests where it makes a dense mat, completely covering any ground dwelling natives. It's even worse than *Aegopodium podograria* (Bishop's Goutweed), a taller growing, more rampant groundcover which seems to be less capable of dominating when growing in heavy shade.

P.P.S. Walter Hickel has opened the Dalton Highway from Fairbanks to Prudhoe Bay. It parallels the pipeline, and will allow public access to 420 miles of otherwise pristine wilderness. It might be worth alerting the federal government to the security problems for the pipeline and get the damn thing closed.

THE DOCTOR'S FULL OF DIOXIN

I enjoy reading your new publication. But I have a problem with the "Dr. Dioxin" character. He refers to various detrimental effects of dioxin without giving us any supporting documentation. He seems to behave in much the same manner as a TV private eye. Really; this sort of exode went out with *Barnaby Jones*.

Why not have a reputable scientist, perhaps a toxicologist, report to us on the "detrimental effects of 2,3,7,8 Tetrachlorodibenzo–p–dioxin" instead of this pick-up truck driving, glib lawyer and his childish micro-cassette reports from the "toxic trail?"

—*Dr. Carlo Payne, Ph.D., Trenton, NJ*

THE DOCTOR REPLIES—NAY, RETALIATES

Loosen up Carlo; you want documentation, call the boys (& gals) over at the US Fish and Wildlife Service, EPA, MS Dept of Enviro Quality, Greenpiss, etc. As for your other bits of cackle, I happen to love B. Jones reruns. Next time you're down in Dixie, give me a ring. I'll take you out to Larry's BBQ for pork chops, home fries, and a couple pitchers of beer. Then it's up to the swamp where you'll be left to fend for yourself amongst the gators and toxic crawfish. *Luv, Dr. Dioxin.*

BIODIVERSITY REPORTS

FS FELLS FAIRVIEW

Thirteen wilderness activists were arrested and charged with felony crimes during a protest on September 7 in the Shawnee National Forest in Illinois. Two people were charged with unlawful restraint after chaining themselves to vehicles in a convoy of loaded logging trucks and preventing the convoy's progress for three hours. Eleven others were arrested and charged with conspiracy to commit unlawful restraint, also a felony.

Chris van Daalen, a founder of Save America's Forests, says he was run over by loggers during the action. After being taken to jail (no, not a hospital, jail!), he commented, "The action was a direct protest to the East Perry Lumber Company's harvesting of the Fairview wilderness area, which was one of three significant areas of contiguous wilderness in the Shawnee Forest. The Fairview tract provided critical habitat for migratory bird populations." Though van Daalen suffered only minor injuries, activists are demanding that the Forest Service investigate the incident.

Last year Congressional funding for Forest Service even-aged management practices (clearcutting) in the Shawnee NF was removed. Subsequently, the Regional Association of Concerned Environmentalists (RACE), with Greenpeace, the Environmental Defense Fund, and Save America's Forests, successfully blocked the Fairview timber sale in court. However, the US Forest Service reworded its timber sale plan to allow the East Perry Lumber Company to harvest the Fairview tract in a patchwork of even-aged and individual selection cutting which favors clearcutting.

Four Fairview Freedom Fighters, including long-time Shawnee defender Jan Wilder-Thomas, began the Shawnee Solidarity Hunger Strike on September 3, planning to persevere until the cutting is stopped. They are asking others to join the strike for at least one day. For information, contact Shawnee Defense Fund, Rt. 1 Box 313, Brookport, IL 62910; 618-564-2878.

—*Sean Markey*

PAW CHALLENGES GMNF TIMBER SALES

On 18 June 1991, Preserve Appalachian Wilderness (PAW) filed an administrative appeal of the Camp 17 Timber Sale on the Green Mountain National Forest. This is the third appeal filed in the past few months on the Green Mountain National Forest (GMNF) against the Forest Service (FS) by PAW for violations of the National Environmental Policy Act and the National Forest Management Act. The two previous appeals were on the Fowler Brook Timber Sale, and the North Texas Timber Sale. In addition, PAW filed an appeal of a sale on the Finger Lakes National Forest (in New York but also under the GMNF management), which was granted immediately (the sale was withdrawn).

These appeals have drawn a heavy backlash from special interest groups including the Multiple Use Association, the Vermont Timber, Truckers & Producers Association, and the A Johnson Corp. These pro-industry groups have announced plans to intervene in the appeals.

In the Camp 17 Timber Sale, the Forest Service recommends the cutting of 453,000 board feet of timber on 116 acres in the Manchester Ranger District of the Green Mountain National Forest. The Deerfield River, a candidate for the federal Wild, Scenic, and Recreational River System, runs through the sale area.

The Fowler Brook Timber Sale, also on the Manchester District, is the first timber sale offered in the White Rocks National Recreation Area since this area was designated. For the North Texas Timber Sale, on the Rochester District, the FS recommends 51 acres for clearcutting and shelterwood cutting.

Both the Camp 17 and the Fowler Brook Timber Sales will be conducted at great expense to the taxpayer, with two dollars spent for every one taken in on Camp 17. The Camp 17 is a re-offering of a sale defaulted on in 1989—evidence that there is no need for the timber. Six timber sales offered on the GMNF last year attracted no bidders. Rather than reduce the number of sales, the Forest Service is trying to develop new markets for their trees.

Offering trees at a loss (below-cost timber sales) devalues private timber holdings in Vermont and surrounding areas, and makes proper management on private lands economically impossible.

The Green Mountain National Forest lost $600,000 on timber sales in the last fiscal year. In effect, the Forest Service and Congress are forcing taxpayers to subsidize the destruction of their National Forests.

That the Forest Plan for the GMNF is touted as an environmentally sound "model" demonstrates that the Forest Service is a two-faced agency. It uses environmental rhetoric while simultaneously decimating wildlife habitat, in order to meet congressionally designated timber quotas. The Green Mountain National Forest makes up only 5% of Vermont's land base and is one of only two National Forests in New England (the other being the White Mountain in New Hampshire). The GMNF is one of the few areas in the state capable of providing large, contiguous, undisturbed habitat for wildlife.

In the 1800s, the Northern Appalachian forests and most of the other Eastern forests were razed to the ground. The saws then moved west, and today have reached the shores of the Pacific. The timber industries are now gearing up to return to the Eastern National Forests, large portions of which are 150 or so years old and on their way back to being healthy old-growth ecosystems. The Forest Service plans to triple their timber harvesting on Eastern Forests in the next fifty years. PAW intends to use every legal tactic necessary to stop them.

—Buck Young, PAW Green Mountain/ Finger Lakes National Forest Task Force, POB 52A, Bondville, VT 05340; 802-297-1022

SANDBENCH SUMMER: LEOPOLD OR SCANGA?

In spite of the sunshine, Colorado is still in the dark ages in terms of the preservation of ancient forest. According to forest ecologist Peter Morrison, in Colorado less than 1% of the forest with trees over 150 years old of commercial value is left (nationwide, 2% remains). Sandbench is one of those last old-growth remnants. A 1300-acre forest tract in the San Juan National Forest, Sandbench has Quaking Aspen, Douglas-fir, Engelmann Spruce and Subalpine Fir; some of the trees are over 400 years old. Although it has an elevation of 9000 feet, the trees, growing vigorously on the flat bench, have commercial value and were sold by the Forest Service to a multinational corporation, Stone Container. The Forest Service actually claims to be improving the area by logging it. To quote Sam Scanga, Pagosa District ranger, "We ought to be smart enough as humans to go out and manipulate Mother Nature." Kevin Cain, Stone regional timber manager, agrees: "God put us on this Earth to utilize the resources we have."

The dark ages indeed. But light has been shed on this insanity from the tree platform occupied by Mike Long of Denver for two weeks in June. Since Colorado had not yet been the scene of logging blockades, the authorities were baffled by the protest camp, tree-sitters, and activists willing to chain themselves to cattleguards to prevent the entrance of the logging equipment. By the end of June, however, the camp had been evacuated and an area four times the size of Sandbench had been closed to the public, with members of the press only allowed in on guided Forest Service (FS) tours. A 2.6 mile road was then punched in, and at the end of July, the forest was reopened.

The Forest Service and Stone thought the environmentalists would then give up the fight. They believe that they will be able to "log in peace" next year. Meanwhile, they have mounted the usual "beware of eco-terrorists" campaign. As soon as the base camp had been evacuated and the forest closed, the FS found spiked trees. Unusually spiked trees. Creatively spiked trees. They were spiked below the cut line with 10 penny nails and most of the spiked trees were not those marked for cutting. It was certainly not environmental spiking and the effect was to focus the press on the glamour issue of spiking rather than the real issue of logging the last ancient forests.

Ancient Forest Rescue decided to fight back. They posted a $10,000 reward for information leading to the conviction of anyone fabricating tree-spiking in an attempt to discredit environmentalists and divert the public's attention from the main point: the promotion of logging by the Forest Service. The press picked up the story but the FS, of a sudden, lost interest in the topic. Ancient Forest Rescue believes that a supporter of logging spiked the trees, and if that can be brought to the attention of the public, environmentalists will score a victory. For much of the public still believes that the Forest Service has the best interests of the public (and the forests) at heart.

Stone Container is a multinational corporation with a poor track record for both logging and labor relations. They also have some shady dealings with high risk junk bonds. They do not seem to care about a "green image," and despite the public outcry, they have continued logging. Since Stone bags and paper products are everywhere, a boycott does not seem feasible, but environmentalists in Colorado have been working to pressure retail outlets to switch from Stone to other paper companies. That switch can be made to companies using higher post-consumer recycled materials. The main target has been supermarket chain King Soopers. They have boasted of their "greeness" for years, but despite mounting pressure (protests and pickets, letter writing campaigns) they have refused to budge.

This has been a tough year (like most) for Colorado's wilderness. Colorado's two US senators, Tim Wirth and Hank Brown, compromised on a wilderness bill and ended up with a proposal that would protect only 641,000 acres, without water rights and with grazing on what isn't rock or ice [see Biodiversity Reports last issue]. Meanwhile the annual allowable cut remains at 200 million board feet in a state that is largely desert, rock and ice. AFR continues to pressure Representative David Skaggs to produce a better wilderness bill which would include Sandbench and other endangered ancient forest areas, along with strong water rights.

Ancient Forest Rescue will continue to work on all fronts, from pickets to letter writing to political pressuring to tree sitting and road blockades. When logging starts next summer in Sandbench, the machines of destruction will be met (and hopefully halted) by environmentalists. Camus wrote, "He who despairs of events is a coward," and Ghandi himself said that being a coward was even worse than being violent.

Aldo Leopold wrote "The last word in ignorance is the man who says of an animal or plant: 'what good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of eons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."

Leopold or Scanga? The choice will be made next summer. Sandbench, ironically, is one of the few areas that has been scientifically studied. William Romme and David Jamieson, plant ecologists teaching at Fort Lewis College in Durango, did an extensive study of Sandbench (completed just one week before the start of logging) funded by The Nature Conservancy. Their report urged total preservation of the area and listed hundreds of plants (some of them unique to the San Juan Mountains) and animals (including the possibility of *biologically* endangered birds such as the Goshawk and Mexican Spotted Owl) that need such forests. Conservationists have proposed both the Northern Goshawk and Mexican Spotted Owl for listing as Endangered species. The Sierra Club Legal Defense Fund has filed a lawsuit to speed the listing of

continued next page

the Goshawk.

Residents of Colorado and the Southwest can help stop the destruction of Sandbench and the ancient forests by joining the Ancient Forest Rescue protests and gatherings, writing letters to Representative Skaggs, and pressuring King Soopers. Concerned environmentalists living outside the area might consider refusing to be a tourist in a state liquidating its ancient forests. Only visit Colorado to join blockades and base camps. A letter to a Colorado newspaper, travel agent, chamber of commerce and elected official explaining why the visit is for protest, not tourism, would be effective.

Ancient Forest Rescue believes that only grassroots activism will save the ancient forests. Novelist Allen Garganus wrote, "Real history is written not in the third person but in the urgent first. The truth is always radical."

For more information write: Ancient Forest Rescue, Box 1309, Lyons, CO 80540 (303-823-5429). These newspapers need to hear from us:

Daily Camera, 1048 Pearl St, Boulder, CO 80302;

Denver Post, 650 Fifteenth St, Denver, CO 80202;

Rocky Mountain News, 400 Colfax St, Denver, CO 80204.

Also, phone Gary Cargill, Chief Forester, at 303-263-9659 and protest the logging of Sandbench.

—Naomi Rachel

NEW FORESTRY THREATENS KALMIOPSIS

In his article "What Can Wilderness Do For Biodiversity" (*Wild Earth*, summer 1991), Reed Noss notes that National Forest management plans ignore "the value of wilderness as a reservoir of biodiversity and natural processes ... even though National Forest Management Act (NFMA) regulations require that forest managers, when evaluating the wilderness potential of their lands, consider proximity to other wilderness lands and potential effects on biodiversity." A classic case in point is the attempted excision of virtually every unprotected roadless area contiguous to the Kalmiopsis Wilderness in southwestern Oregon. The Siskiyou National Forest, with its "New Perspectives" program, intends to road and log both the long-contested North Kalmiopsis, which presently functions as a major corridor between the protected Kalmiopsis and Wild Rogue Wilderness Areas, and the South Kalmiopsis.

When the great ecologist, Robert Whittaker, wrote that the Klamath Mountain Province (southwestern Oregon/northwestern California) was, "... as dramatic an expression of relations of natural communities to geological formations as is to be found anywhere in the world," he could have been specifically describing the 104,000-acre South Kalmiopsis, one of the largest remaining unprotected RARE II roadless areas in the Pacific Northwest.

The area of protected Wilderness in the Kalmiopsis is only about 180,000 acres, but the area currently functioning as a biodiversity reserve is more than twice that size, and is characterized by the close juxtaposition of widely contrasting geologic and vegetation types. A substantially intact crescent of *de facto* wilderness, contiguous with the southeast boundary of the Kalmiopsis Wilderness, stretches from the Fiddler, Canyon, and Josephine Creek drainages northwest of Cave Junction, south through the rugged redrock of Rough and Ready Creek and west into Baldface Creek, a tributary of the North Fork of the Smith River, a much more densely forested area. The current Forest Service New Perspectives program would impact the northern and southern thirds of this 50-75,000 acre crescent.

The first area to go on the block, the Canyon Project, is the northern third of the crescent, encompassing the drainages of Canyon Creek, Fiddler Gulch, and Days Gulch. Upper Canyon Creek is pristine at present. Upper Fiddler Gulch has a couple of clearcuts, but is still largely intact; while Days Gulch, the most northerly of these drainages, is somewhat more heavily impacted by roads and past cuts.

At the end of September 1991, the Siskiyou National Forest will publish its draft environmental impact statement (DEIS) on the 23,500-acre Canyon Integrated Resource Project. "Canyon" is the watershed for Josephine Creek which contributes 20% of the flow to the troubled Wild and Scenic Illinois River.

The genetically intact wild anadromous fish stocks of the Illinois are threatened with extinctions due to mismanagement, deforestation of the watershed and water withdrawals for human residential and agricultural consumption. The Canyon Project is the first of seven sales in major roadless areas that will impact the Illinois. These roadless areas are the refugia of biological diversity necessary for the recovery of the system. The Siskiyou National Forest managers plan to enter all seven roadless areas in the next three to five years.

The Forest Service's proposed action in Canyon calls for cutting 14 million board feet of timber on 536 acres, and building 11 miles of new road. Logging 536 acres out of 23,500 may not sound bad, but these figures mask the real impact of removing that much volume from the diverse and geologically complex landscape of the planning area.

In reality, only about 16% of Canyon's acres are field verified suitable for timber harvest. Most of the remaining 84% are designated TMR Land (easiest to remember as "Too Many Rocks"), classified unsuitable because of "regeneration" problems. Some TMR ground in Canyon does currently support dense beautiful forests, but most is the botanically rich but open serpentine/peridotite Jeffrey Pine grasslands.

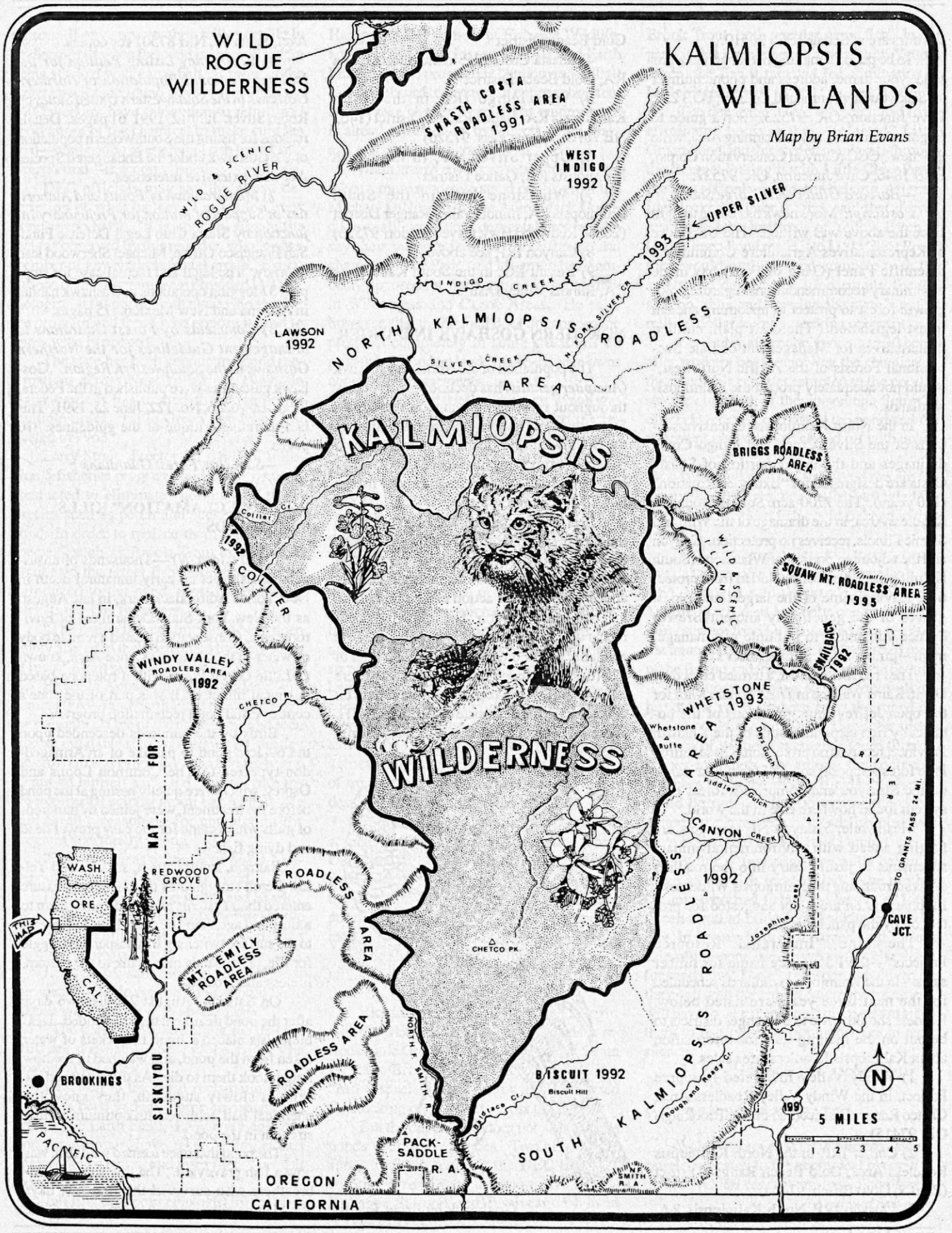
The dense forests more typical of the Northwest balance this unique landscape and provide critical habitat for Canyon's Spotted Owls, Black-tailed deer, Black Bear, Northern Goshawks, etc. They collect moisture from summer fogs and maintain moist, cool microsites. They stabilize a naturally flashy (flood-prone) stream system. They keep stream temperatures cool, providing habitat for wild salmon, Steelhead, and Cutthroat and Rainbow Trout. Opening up such sites increases the risk of fire and disease.

Under existing natural conditions little of the planning area meets the Siskiyou Forest Plan's guidelines for thermal cover and none meets optimal thermal cover criteria (FLMP p. IV-31 & 32). The Siskiyou Environmental Council has asked the FS to develop a restoration alternative not tied to logging or roadbuilding, focusing on the biologic, geologic, botanical, and cultural values and related recreation in the Canyon Planning Area. The FS answer has been silence.

What You Can Do

Currently the Siskiyou managers are proposing only a 45 day comment period on the DEIS, so please act promptly. Write Bill Gasow, Canyon Planner, Siskiyou NF, POB 440, Grants Pass, OR 97526; and Denny Holthus, District Ranger, Illinois Valley Ranger District, 26568 Redwood Hwy, Cave Junction, OR 97523. 1) Ask for an extension of the comment period to 90 days from date of issue. 2) Ask that the Forest Service develop and adopt a restoration alternative. 3) Ask that "Canyon" and the South Kalmiopsis be studied for World Heritage designation. 4) Ask to receive a copy of the DEIS and make detailed comment (not one tree cut; not one inch of road built).

Support the inclusion of the entire North and South Kalmiopsis Roadless Areas in any national ancient forest legislation. Express support for legislation that would protect all remaining ancient and native forests nationwide. Representatives are at US House of Representatives, Washington, DC 20515;


WILD ROGUE WILDERNESS
KALMIOPSIS WILDLANDS
Map by Brian Evans
SNASTA COSTA ROADLESS AREA 1991
WEST INDIGO 1992
WILD & SCENIC ROGUE RIVER
UPPER SILVER
1993
INDIGO CREEK
N. FORK SILVER CR.
LAWSON 1992
NORTH KALMIOPSIS ROADLESS AREA
SILVER CREEK
KALMIOPSIS
BRIGGS ROADLESS AREA
Collier Cr.
1992 COLLIER
WILD & SCENIC ILLINOIS
SQUAW MT. ROADLESS AREA 1995
SNAILBACK 1992
WINDY VALLEY ROADLESS AREA 1992
CHETCO R.
WHETSTONE 1993
Whetstone Butte
Dorr Gulch
Fiddler Gulch
WILDERNESS
CANYON CREEK 1992
TO GRANTS PASS 24 MI.
CAVE JCT.
WASH.
ORE.
CAL.
THIS MAP
NAT. FOR.
REDWOOD GROVE
ROADLESS AREA
MT. EMILY ROADLESS AREA
CHETCO PK.
Josephine Creek
KALMIOPSIS ROADLESS AREA
ROADLESS AREA
NORTH F. SMITH R.
BISCUIT 1992
Biscuit Hill
Rough and Ready Cr.
BROOKINGS
SISKIYOU
PACIFIC
PACK-SADDLE R. A.
SOUTH
NF SMITH R. A.
OREGON
CALIFORNIA
199
5 MILES
1 2 3 4 5
N

senators are at Senate, DC 20510.

To be put on a mailing list for action alerts send your name, address and phone number to: Siskiyou Environmental Council, POB 220, Cave Junction, OR 97523. For a guide to forgotten trails of Canyon Planning Area, write the "new" CCC (Canyon Conservation Corps), POB 1846, Cave Junction, OR 97527.

—Barbara Ullian and George Shook

Postscript: More news has come to light since the above was written. The US House of Representatives Agriculture Committee's Scientific Panel (Gang of Four) has made preliminary recommendations regarding old-growth forest to protect in upcoming ancient forest legislation. The draft plan, entitled "Alternatives for Management of Late Successional Forests of the Pacific Northwest," would not adequately protect the Kalmiopsis wildlands.

In the North Kalmiopsis, extensive sections of the Silver Creek and Indigo Creek drainages and the upper portion of Shasta Costa are designated for "Extended Rotation" (180 years). The 7700-acre Squaw Mountain Roadless Area, in the drainage of the Wild and Scenic Illinois, receives no protection. Canyon and the adjoining portion of Whetstone (South Kalmiopsis) have been excluded from protection, leaving some of the largest and oldest groves of the genetically ancient Brewer Spruce vulnerable to multiple use management—timber sales, mining, ORVs....

The "red rock" forest, a termed coined by David Rains Wallace in *The Klamath Knot* for the open Jeffrey Pine grasslands of the botanically rich serpentine soils of the Klamath Province, receives no protection. These Jeffrey Pine forests support some of the oldest stands on the Siskiyou and comprise a forest ecosystem found nowhere else in the world.

Meanwhile, Siskiyou NF managers are forging ahead with environmental impact statements to justify entry into the roadless areas surrounding the Kalmiopsis Wilderness. Emphasis is on areas not suggested for protection by the panel.

The nine "Integrated Resource Projects"—the FS's fancy name for timber sales—in the Kalmiopsis wildlands scheduled for the next three years are listed below. Readers should write to the ranger districts to be put on the mailing lists for information about Kalmiopsis Roadless Area sales.

1) Windy Valley Integrated Resource Project, in the Windy Valley Roadless Area, Chetco Ranger District (555 5th St, Brookings, OR 97415)

2) Collier IRP, in the North Kalmiopsis Roadless Area, Gold Beach Ranger District (POB 7, Gold Beach 97444)

3) Lawson IRP, North Kalmiopsis RA, Gold Beach District

4) Shasta Costa IRP, in the Shasta Costa RA, Gold Beach District

5) West Indigo IRP, in the North Kalmiopsis RA, Galice Ranger District (1465 NE 7th St, Grants Pass 97526)

6) Upper Silver IRP, in the North Kalmiopsis RA, Galice District

7) Whetstone IRP, in the South Kalmiopsis RA, Illinois Valley Ranger District (26568 Redwood Hwy, Cave Junction 97523)

8) Canyon IRP, see above

9) Biscuit IRP, in the South Kalmiopsis RA, Illinois Valley District

NORTHERN GOSHAWK IN DANGER

The population of the Northern Goshawk (*Accipiter gentilis)* has declined precipitously throughout most of its range in the United States owing to habitat loss from logging. In the Southwest, the Goshawk is in imminent danger of extinction. Elsewhere, the Goshawk is at significant risk as its closed-canopy habitat falls to the chainsaw.

It is important that all Forest Service timber sales in the Pacific Northwest, Alaska, Northern Rockies, portions of the Central Rockies and the Southwest be administratively appealed until court action can be brought to halt habitat destruction The following documents will help in filing an appeal. They are available from Forest Guardians for a total of $20 (our cost of copying and shipping). There will hopefully be a comprehensive article on Goshawks in the next issue of WILD EARTH. Write to Forest Guardians, 616 Don Gaspar Ave., Santa Fe, NM 87501 for copies.

Goshawk *by Brian Evans*

1) *Emergency Listing Petition for the Isolated Regional Population of Northern Goshawk in the Southwestern United States* by Robin Silver. July 12, 1991 61 pages. Details reasons for listing the Southwestern population of the Goshawk under the Endangered Species Act with extensive references.

2) *Memorandum of Points and Authorities in Support of Motion for Preliminary Injunction* by Sierra Club Legal Defense Fund, San Francisco Office, Michael Sherwood lead attorney. The legal and factual case for stopping 37 logging operations in Goshawk habitat in Arizona and New Mexico. 75 pages.

3) *Comments by Forest Guardians to Management Guidelines for the Northern Goshawk in the Southwestern Region.* Goshawk guidelines were published in the Federal Register, Vol 56, No. 122, June 25, 1991. This is a narrative critique of the guidelines. 10 pages.

—Sam Hitt, Forest Guardians

POND "RECLAMATION" KILLS THOUSANDS

Santa Clara, NY—Thousands of unsuspecting fish met an early unnatural death in New York's Adirondack Park, in late August, as the New York State Department of Environmental Conservation treated a remote body of water in the St. Regis Canoe Area, known as Little Green Pond, with a rotenone-based chemical mixture. It was part of the state's controversial pond reclamation program.

Birds by the hundreds descended upon the 69-acre pond to partake of an Armageddon-type feast. The Common Loons and Osprey, which were quietly nesting at the pond before the treatment, were joined by hundreds of gulls which came for the easy prey of dead and dying fish.

Salmon, trout, catfish, suckers and Yellow Perch struggled as the chemical mixture entered their systems and condemned them to a slow and agonizing death. Thousands swam to the surface twitching in a desperate struggle for life. Thousands more sank to the bottom, lifeless and bloated.

On Saturday August 24, just two days after the pond treatment began, it ended. DEC biologists placed salmon in buckets of water taken from the pond, and watched to see how long it took them to die. As they watched the salmon slowly succumb, they knew the chemical had achieved its optimum killing strength in the pond.

The pond that once teemed with fish, was now a fish graveyard. The few fish and gill-breathers who survived the first few days would gradually succumb to the effects of the

poison. If any survive, they will most likely be discovered when the pond is checked before being stocked with game fish. If some of the target species are found alive at that time, the DEC workers have the option to return and apply more of the chemical to make sure the goal—eliminating every living fish from Little Green Pond—is accomplished.

DEC officials may say the above description of what happened at Little Green Pond is too harsh. It is, though, simply the facts as observed by this reporter, who is not a member of any environmental group. Explanations of the program were provided by DEC biologists at the pond. Both those who support the program and those who oppose it need to know what happened.

The state has been conducting pond reclamations across New York since 1949. In many cases it has treated the same ponds multiple times. Little Green Pond was last treated in 1963.

Larry Strait, director for the DEC's Region 5 fisheries program, said the program is conducted to eliminate "non-native" target species such as perch and suckers from the ponds in order to replace them with "native species" such as Brook Trout and salmon. Strait said the target fish were inadvertently introduced to the pond, most likely in bait buckets used by fishermen.

"The native fish communities have been highly altered to their detriment by the actions of men," Strait said.

Preserve Appalachian/Adirondack Wilderness (PAW) and Earth First! tried to prevent the poisoning. One of the protesters, who rode atop an inflatable shark on August 20, the day the program was originally scheduled to begin, identified himself as "Land Shark", with the environmental activist group Earth First! He said Strait's reasoning for conducting the program was totally wrong.

"This is a clear example of *homo-sapiens* putting themselves first," he said.

DEC workers agreed with Land Shark.

"This is clearly a case of prioritizing the species," one of the DEC workers said, "and we don't apologize for it."

Land Shark said the best thing the department could do for the pond, would be to "take a walk and leave the pond alone."

"The pond spirits are telling me that the DEC are non-native species," he said, as he floated on his shark.

Reaction to the pond reclamation program has been varied. Some environmental groups like Earth First!, PAW and Legal Action for Animals, have taken strong stands against the program, and even filed a lawsuit to stop it.

Jeff Elliott, a former biologist for the New Hampshire Department of Fish and Wildlife, and an active participant with PAW and Earth First!, said the program is "ludicrous." Elliott said it is absurd to destroy an entire ecosystem for the sake of sportsmen. "The environment is already stressed by the effects of acid rain and other interventions by man," he said.

Mainstream environmental groups have taken a more moderate stand on the program. Michael DiNunzio, of the Adirondack Council, a coalition of environmental groups who say their purpose is to preserve the natural character of the Park, said his group has rigorously opposed the pond reclamation program in Wilderness and Canoe Areas. He said, however, that the council does not oppose the program completely in some situations on private lands and on lands where the state owns conservation easements.

The Adirondack Park Agency, which was entrusted by the state in 1972 with the responsibility to protect the natural resources of the park, issued the permit for the treatment to proceed. But APA chairman, Herman "Woody" Cole Jr., expressed his personal opinions opposing the program in a letter to *Adirondack Life* magazine in response to an article it ran on pond reclamations.

"Rotenone is being applied to systems while we are ignorant of vital microbial impacts, species interactions and the particularized complex organic interrelationships that make up pond/wetland systems. Perhaps in some distant day those working in the biological and ecological science fields will know enough to say with confidence what happens to systems under the stress from toxins such as rotenone, but for now the DEC or any agency using the excuse of saving a few strains of trout should not be allowed to risk habitat destruction," Cole said in his letter.

Sportsmen's groups, on the other hand, strongly support the DEC's program. Trout Unlimited and the New York State Conservation Council see the program as vital to protect the native species of fish in the Park and to provide recreational opportunities to sportsmen.

The state's fisheries program is a multimillion dollar business and is a priority with the DEC.

Richard Preall, Franklin County biologist with the DEC, said the department plans to restock Little Green Pond with Horn Lake Strain Heritage Brook Trout, which it claims is a "native species." The trout will then be used for stocking other ponds across the area.

But the department does not just stock its ponds with native species. Two of the main species of fish used by the DEC in its restocking program are the non-native Pacific Kokanee Salmon and Temiscamie hybrid Brook Trout, both popular game fish. In the past, it has even stocked ponds with Yellow Perch, the fish it targeted for elimination at Little Green Pond.

The department said the perch had to be eliminated because they "infested" Little Green Pond and threatened to migrate through the channel linking it with Little Clear Pond, the state's only pond for raising Atlantic Landlocked Salmon. Strait said that if even just two of the hundreds of Yellow Perch in Little Green Pond made it to Little Clear Pond, they would multiply and compete with the smelt and deplete the food supply for the salmon, thus endangering the state's multimillion dollar salmon stocking program.

On Friday afternoon, more than 30 hours after workers began applying the chemical to the pond, this reporter returned to the pond to see the aftermath of the poisoning. Some 20 officers were still on duty at the pond and the treatment area was still closed off with police lines.

The smell of dead fish filled the air. In the marked off area, one catfish struggled for life. No other dead fish could be seen in that area.

A conservation officer said there weren't any dead fish near the shore all day long. A DEC biologist said thousands of smelt and Yellow Perch died but only one trout and 6 salmon were found to have died as a result of the treatment. He said the birds cleaned most of the fish up and the others sank to the bottom.

But upon further investigation, walking just a few yards upshore from the roped off area, I could see dead fish along the shore. Dozens of salmon, averaging more than 12 inches in length, lay among the roots and branches along the shore. Hundreds of smelt could be seen on the bottom of the pond. Among the hundreds of dead fish observed were only three small Yellow Perch.

Within a few days, the gulls began to leave as the fish feast ended. The mother Osprey, who had fished the waters of Little Green Pond to bring food back to her fledgling, in its nest high in the trees on the south side of the pond, will have to fly elsewhere for food now. The mother loon, who lived on the pond with her babies before the treatment, will have to take them some place else to teach them to fish. For the pond now lies in eerie silence.

—Larry Maxwell, freelance reporter

WALDEN POND UPDATE

Walden Forever Wild, a citizens organization dedicated to the ecological restoration of the Walden ecosystem, has joined forces

continued next page

with Preserve Appalachian Wilderness Network to sue the Commonwealth of Massachusetts seeking to reverse present park management practices. Walden Pond is managed by the state agencies as a heavily used recreational facility. Rather than maintaining Thoreau's meditative retreat as required in the deeds donating the land to the state, state agency managers allowed the clearcutting of a wooded area for a developed beach. They truck in sand every year to maintain the swimming area. They eliminated the native fish species, replacing them with more popular stocked fishing varieties. The shores of the pond are highly eroded and its woodlands lack underbrush and wildflowers because the soil is compacted from the trampling of thousands of visitors.

WFW and PAW hope to base their court suit on a 1960 decision of the state's highest court declaring that Walden is to be restored and preserved in a natural state. The litigation promises to be an opportunity to illustrate the difference between a park containing trees and water, and a true "natural condition". Other organizations, including the international Thoreau Society, have expressed interest in the litigation. The Thoreau Society recently held it's fiftieth anniversary Jubilee, which consisted of a two week program dedicated to the ecology of the Walden ecosystem.

For more information regarding Walden or the WFW litigation, contact PAW, 81 Middle Street, Lancaster, NH 03584 (603-788-2918) or Walden Forever Wild, Inc., Box 275, Concord, MA 01742.

—Cindy Hill, PAW

LOON MOUNTAIN UPDATE

The Lincoln Concerned Citizen's Coalition, a grassroots organization of residents of the town that serves as a base for the Loon Mountain Ski Resort in the White Mountain National Forest, New Hampshire, is asking regional and national environmental organizations for help in protecting their town's water supply and natural environment from the proposed South Mountain Expansion. A primary concern of LCCC is water rights to Loon Pond. Historical records indicate clearly that Loon Pond is owned by the town, and thus private commercial use would violate the state public trust doctrine. Loon Corporation plans to draw the pond down for snow-making. Other LCCC concerns include aesthetics, air quality, water quality in the Pemigewasset River, traffic, and effects on the local economy.

LCCC and Preserve Appalachian Wilderness have announced their intent to appeal the South Mountain project on a number of grounds. Citing their lack of both technical and economic resources, LCCC is also seeking help from the Sierra Club, The Wilderness Society, and other national groups with the skills to tackle a project of this nature. A working coalition should be in place by the time the final Environmental Impact Statement is released in late October.

To contact LCCC, write Wilfred Bishop, Box 157, Lincoln, NH 03251.

—Cindy Hill, PAW

PROTECTION SOUGHT FOR THE TIMBER RATTLESNAKE

In September, the Biodiversity Legal Foundation of Boulder, Colorado, and researcher Andrew Weisburd, formally petitioned the US Fish and Wildlife Service to list and protect the Timber Rattlesnake (*Crotalus horridus*) as Endangered under the Endangered Species Act.

The geographic range and, correspondingly, the population of the Timber Rattlesnake have been steadily shrinking for many decades. The building of roads, commercial snake hunting, the growth in human population with resultant encroachment on summer range, and the general impact of heavy persecution by humans have all contributed to the decline.

The Timber Rattlesnake once ranged from the bluffs of the upper Missouri River, south to Texas, and east to the Atlantic Ocean. It occurred in large numbers throughout the Big Woods that once covered the eastern United States and southeastern Canada.

The Timber Rattlesnake was once so common that no matter where one walked in the woods, one was likely to meet a rattler. Some Native Americans believe that the Timber Rattler (called Utsa'nati by the Cherokee people) is the guardian of the Earth's sacred places, and that it is here to teach humans to mind where they step.

In colonial times the Timber Rattler was still common, and in the War for Independence from England this snake was chosen to represent the desire of the colonists to live as a free and independent nation. By the late 1800s logging and the westward migration of European settlers virtually eliminated the Big Woods, and with the timber went most of the rattlesnakes that had been named for it.

Until the 1950s, isolated populations of Timber Rattlesnakes survived in remote and rugged locations. Today it is threatened with extirpation in most of its known historic range, due in part to several relatively new threats.

Four wheel drive trucks (and later ATVs), new roads, resort and second home construction in the mountains and the clearing of bottomland forests in the Midwest and Southeast, destroyed Timber Rattlesnake habitat and put an increasing number of humans into direct contact with the snakes. These factors, combined with the increasing popularity of informal and government-sanctioned Timber Rattlesnake hunts and roundups, created an environment extremely hostile to the snakes. The Timber Rattlesnake produces very few young, and only infrequently. Its sensitivity to human disturbance cannot be over-emphasized. The Timber Rattlesnake survives in viable numbers in only a few locations. Most of these critical sites have inadequate protection.

Timber Rattlesnakes are major predators of mice, voles, shrews, rats, and other small mammals and some small birds. They generally feed on these other species in the same proportion that they occur in the forest. In this way the Timber Rattlesnake may play a vital role in maintaining the balance of life in forest ecosystems. In their turn, young rattlesnakes are preferred food for hawks and owls, which limit the number of Timber Rattlers that are able to reach maturity.

Within 90 days of receipt of the formal petition, the Fish and Wildlife Service must make a finding as to whether the petition represents substantial information such that the listing may be warranted.

—Biodiversity Legal Foundation, POB 18327, Boulder, CO 80308-8327

ENVIRONMENTAL AND ANIMAL PROTECTION GROUPS SUE TO HALT MT GRIZZLY BEAR HUNT

On 28 August 1991, Jasper Carlton, director of the Biodiversity Legal Foundation; the Swan View Coalition, a Montana-based environmental organization; and the Fund For Animals filed suit against the US Fish and Wildlife Service (FWS) in US District Court in Washington, DC, claiming that its authorization of a sport hunting season for Grizzly Bears in Montana is illegal under the provisions of the Endangered Species Act (ESA). This effort comes in the wake of Montana's first ever spring trophy hunt of Grizzly Bears, when hunters killed three healthy bears, including a 21-year-old male.

Specifically, the suit asks the court to enjoin the sport hunting of the Grizzly Bear in Montana, direct the FWS to terminate its funding of endangered species programs in Montana until the state is in compliance with the ESA, and, at the very least, take all necessary steps to prevent Montana from instituting a spring Grizzly Bear hunt in 1992. Within a week plaintiffs will file a motion for a preliminary injunction in an attempt to stop a fall 1991 Grizzly Bear hunt. The case will be

heard by US District Court Judge Michael Boudin.

The Grizzly Bear, which was classified as a federally Threatened species in 1975 and today numbers less than 1000 individuals throughout the coterminous United States, is still legally hunted in the Northern Continental Divide Ecosystem (NCDE) in northwestern Montana. In fact, of the 171 known Grizzly Bear deaths in the past 11 years, licensed trophy hunters have killed 78—or 46 percent of all bears killed. This, at a time when each bear should be treated as the last, and when the killing of a female Grizzly Bear eliminates generations of reproduction. The Montana Grizzly Bear hunt has also allowed the killing of Grizzlies in both the Bob Marshall and Great Bear Wilderness Areas—the very areas where biologists and ranchers alike would prefer to have the bear prosper.

The plaintiffs claim that the existing hunting is a clear violation of the take provision of the Endangered Species Act. Pursuant to the provisions of the ESA, such a "regulated taking" can only be warranted "in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved." Plaintiffs contend that the FWS and the Montana Department of Fish, Wildlife, and Parks have basically admitted that they have no evidence that there are any population pressures in the ecosystem. Attorneys for the plaintiffs will be providing affidavits from leading Grizzly Bear biologists clearly indicating that no "extraordinary case" circumstance exists.

According to Jasper Carlton, "The state of Montana continues to place states' rights and the desires of trophy hunters above the needs of the Threatened Grizzly Bear. At the same time the state and the US Fish and Wildlife Service have allowed excessive commercial logging, roading, subdividing, and energy development to fragment, degrade, and destroy the last large, natural, diverse ecosystems upon which the survival of the Grizzly Bear and many other species depend."

Carlton adds that Montana has "interfered with the federal listing and protection of the Woodland Caribou, the Fluvial Arctic Grayling, and most recently, the Paddlefish. If Montana persists in its 1800s mentality, all of these issues could end up in federal court. A cooperative effort by all state and federal agencies, as well as the private sector, is needed to work for the full recovery of these biologically endangered species in the wild."

The state of Montana also sponsors a hunting season of the majestic Tundra Swan and is proposing a Sandhill Crane hunting season in the Pacific flyway portion of Montana for 1992.

The lawsuit, if successful, will not prevent the government from removing or relocating specific problem bears that are threatening human life or property.

WHAT YOU CAN DO: Write John Turner, Director, US Fish and Wildlife Service, 18th & C Streets NW, Washington, DC 20240, and insist that the FWS terminate the sport hunting of the Grizzly Bear in Montana and take stronger steps to protect the habitat of this Threatened species in the Northern Rockies. Support this important legal action by sending your financial contributions to the Biodiversity Legal Foundation, POB 18327, Boulder, CO 80308-8327 and The Swan View Coalition, POB 1901, Kalispell, MT 59903. Thank you.

CABEZA PRIETA WILDERNESS IN JEOPARDY

Last winter the Cabeza Prieta National Wildlife Refuge of southwestern Arizona was granted Wilderness protection. However, because the US Fish and Wildlife Service (FWS) has yet to develop its "wilderness management plan," the fate of over 800,000 acres of Sonoran Desert is still undecided.

The Wilderness designation was weakened from the start by the inclusion of a vehicle "corridor," a four-wheel drive road—the Camino del Diablo—that runs the length of the refuge. The FWS plans to keep it open.

Splitting off the Camino del Diablo at regular intervals are "management trails," jeep roads heading off into the wilderness, usually to water impoundments. These retention basins were blasted out of the mountains with dynamite, and the resulting holes rimmed by concrete dams to increase capacity. Water developments are intended to enhance the Bighorn Sheep population; there is no data to suggest that they aid the Sonoran Pronghorn, a subspecies in far greater danger of extinction than the Bighorn. Only 100 to 400 of these "antelope" survive, and human poaching and other intrusions on their historic range may soon finish them.

Wilderness advocates have been resting on their laurels since the Cabeza was designated Wilderness. Meanwhile, hunting, ORV and mountain bike interests have been clamoring to "improve" the Camino del Diablo. Further, they want access to the many management trails, and the managers would like motorized access to the trails to water developments.

The Cabeza needs your help. Once the machines (trucks, bikes, rifles) get in, it will be hard to get them out. Please send letters *now* to Robert Schumacher, Refuge Manager, Cabeza Prieta NWR, 1611 N 2nd Ave, Ajo, AZ 85321. Stress that all vehicle access should be eliminated, even for Refuge personnel. Say that water developments should be abandoned, and the Bighorn population left to return to the natural carrying capacity. The Cabeza managers are sensitive to the plight of the Pronghorn, and letters should emphasize that the Refuge is primarily for the biota, not for human visitors.

—Jim Malusa, ecologist,
The Nature Conservancy

James Bay

or The Largest Hydro Development in North America?

by Farley Mowat and Elizabeth May

The names we give things often reflect the nature of our culture. Take, for example, the wilderness of northern Quebec which is the proposed site for the largest hydro-electric development on Earth. In 1610, Henry Hudson "discovered" a great inland sea in what we now call northeastern Canada; Hudson Bay was named after him. The mighty paunch that hangs south below Hudson Bay was named James Bay, after its nominal discoverer. In 1670, when King Charles II of England granted virtually all of what is now northern Quebec, together with all of Manitoba, most of Ontario, Saskatchewan, and a big piece of Alberta, to his cousin Prince Rupert, the territory was modestly named "Rupert's Land". Like all colonial powers, the British chose their own designations for their "discoveries," thus firmly rejecting the notion that the indigenous occupants might have rights to a place...or the possibility that it might already have a name.

Cultural mentality has changed little in the last three hundred years. The new discoverers of James and Hudson Bays, the technocrats and developers of southern Quebec, have designated virtually the entire region as a vast hydro-electric project. Viewing the area as a barren wasteland, they quite simply re-named rivers, forests and estuaries by engineering titles for "projects"—LG1, LG2, and NBR.

Before the arrival of Europeans, that portion of Rupert's Land lying south, east and west of James Bay had, for countless generations, been known to its human inhabitants, the Cree people, as *Kistikani*, The Garden. This sub-arctic world (which southern Canadians generally regard as worthless scrub) remains the garden of their lives. Although it takes a hundred years for the Black Spruce trees of the region, huddling just south of the timberline, to achieve a girth of six inches, this country nevertheless supported the Cree and their forbearers through some five thousand years—so long as they honored and respected its natural rhythms, and the other animals with whom they shared it.

THE GARDEN

Every spring, as the ice breaks up, millions of hungry shorebirds descend on the coasts of James Bay to feast and fatten in preparation for their breeding season. The interaction of fresh and salt water has produced tidal flats, salt marshes and bogs exceptionally rich in nutrients. The population of one tiny species of clam, *Malcoma balthica*, exceeds 7300 individuals per square meter and is a favoured food of the visiting birds. Every fall, migrants actually double their body weight, providing fuel enough for the long migration south. Two of the world's six major migration routes, the Atlantic and Mississippi flyways, converge at James Bay. The list of waterfowl and shorebird species that rely on this region as a vital staging ground includes the endangered Eskimo Curlew; Snow, Blue and Canada Geese; Brant; Black Scoter; Old Squaw and many other ducks; Sandhill Crane; Black-bellied, Golden and Semipalmated Plovers; Ruddy Turnstone; Greater and Lesser Yellowlegs; Whimbrel; Marbled and Hudsonian Godwits; Red Knot; Sanderling; Semipalmated Sandpiper; Least, White-rumped, and Pectoral Sandpipers; Dunlin, Short-billed Dowitcher, Common Snipe...

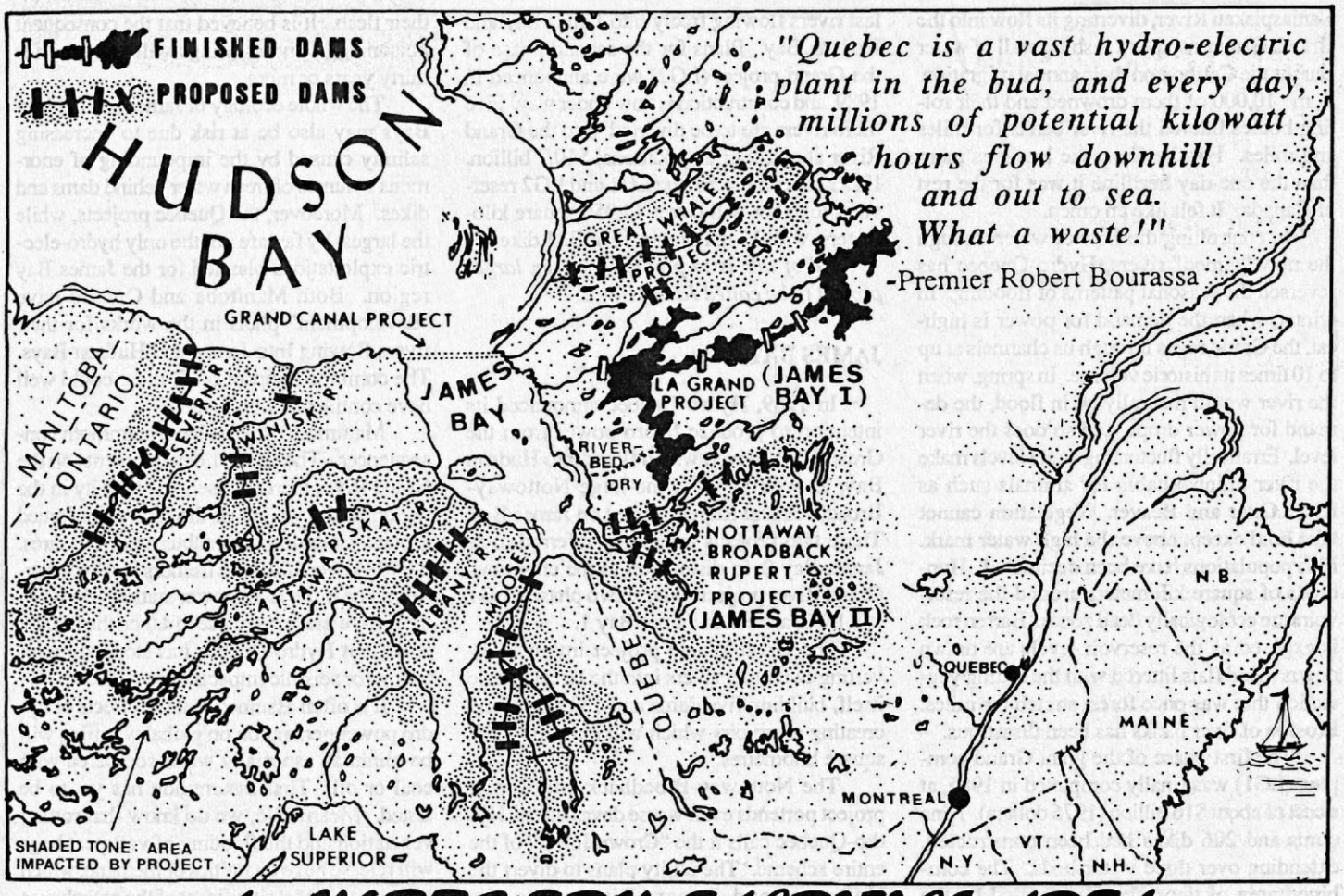
The waters of James Bay and Hudson Bay are part of the garden. They support great numbers of seals which in turn are the chief support of many Inuit, living to the north of the Cree, as well as of some Cree. Hudson Bay harbors Walrus, some of which descend into James Bay. Beluga Whales congregate around small islands and in the mouths and estuaries of major rivers. Hundreds of Polar Bears go "south" to the west coast of James Bay each summer to wait until they can again go sealing on the new winter ice. Freshwater seals inhabit some of the region's lakes—the only such land-locked seals known anywhere in the world outside of Siberia's Lake Baikal. The northern landscape pulses with the ebb and flow of one of the planet's largest Caribou herds. Moose, Black Bear, Beaver, River Otter, Muskrat, Lynx, and Gray Wolf help provide for most of northern Quebec's 25,000 Cree, Inuit and Naskapi people, whose diet is also enriched by Lake Trout, Whitefish and Grayling.

During the almost four hundred years after Henry Hudson and James sailed into "their" bays, white explorers, settlers, entrepreneurs and adventurers following their lead had surprisingly little effect on the Cree, or the neighboring nations of Inuit and Naskapi people. The trading posts did open the country to commerce of a sort, and missionaries duly arrived to bring the Word of God. Prospectors, scientists and *wander-voegel* drifted through the forests and across the barrens; but despite these cultural invasions, the Cree remained remarkably self-sufficient—and self-sustaining. Each generation continued to teach the next how to survive; how to make snowshoes from Tamarack boughs and raw-hide strips; how to make moccasins from Moose hide; how to hunt the Caribou, the Moose, the Beaver, and the seal. Each of these creatures continued to play a mystical as well as a practical role in Cree life. The Whapmagoostui Cree band believe they owe their survival to the freshwater seal because once, long ago, the Great Seal Hunter, a shaman, killed such a seal in order to save the band from famine. To this day the Cree remember the seal with deep respect. As Cree elder John Petagumskum says: "Its spirit is sacred. The land and the rivers where we hunt and fish are a garden, a gift from the Creator, and the seal is the most beautiful flower." Land, sea, lakes and rivers, and all life therein, were integral parts of a common *living* world. This was the world the Cree knew.

In the early 1970s everything they had known changed forever.

"THE WORLD BEGINS TODAY"

In April 1971, Quebec's Premier, Robert Bourassa, unveiled "the Project of the Century." It was to be the largest hydro-electric development in the world. Bourassa made his announcement in a Quebec City auditorium. A large screen flashed "125,000 jobs" and as the Premier took the stage, the m.c. told the cheering throng, "The world begins today."



A NORTHERN SACRIFICE AREA

The unveiling of Bourassa's dream of limitless power from Nouveau Quebec, as Quebec's north was now known, had as much to do with politics as it did with economic growth. Quebec was making a bid for world attention as a nation in the making while preparing to sacrifice the wild lands, lakes and rivers of the north for US dollars. This was the birth of the now infamous James Bay Development. Its first phase, called LG-1 (La Grande 1), centered on the Grand River.

The Cree learned of the impending death of the Grand, and of what would become the ecologically catastrophic diversion of four other adjoining rivers, from the newspapers. They had not been consulted. There were no public hearings. No environmental assessment was undertaken before construction began in 1972. However, environmental groups in southern Canada and in the US soon joined with the Cree in opposing the "development." The Sierra Club published one of its Battle Books, James Bay: *the plot to drown the North Woods*, by Canadian writer Boyce Richardson. In 1973 the Cree won an injunction to halt construction; only to have the decision overturned a week later. Construction was not even slowed.

In 1975, a negotiated settlement between the Cree, the Inuit, and the governments of Quebec and Canada was reached. At first, *The James Bay and Northern Quebec Agreement* seemed at least a partial victory for the area's aboriginal people. They received $225 million in compensation for the ever-spreading damage done to their garden, and were promised a voice in any future "development" decisions affecting 150,000 square kilometers of what had once been their own land. But they did not know the true magnitude of what they had lost.

THE DEATH OF THE RIVERS

Perhaps the most devastating effect of the Grand "development" was created by drowned and rotting vegetation leaching natural mercury from the rocks. As methyl mercury contaminated the aquatic food chain, the Cree continued to eat fish. The presence of minute quantities of mercury in ground-water had been noted in the region before the great complex of dams was built; but the creation of five vast reservoirs, drowning 11,335 square kilometers in the first phase of the Grand project, enormously escalated the amount of mercury in the affected rivers. In 1984, a study revealed that 64% of the villagers in Chisasibi, at the mouth of the Grand River, had dangerous concentrations of mercury in their bodies. Some had levels twenty times the nominally "acceptable" levels, and had developed neurological symptoms of mercury poisoning. The Cree called it *nimass aksiwin* or fish disease.

Hydro-Quebec assured the Cree that the problem would be of relatively short duration—high mercury levels would disappear within six years, the experts said. Now they estimate that fish from the affected waters will be unsafe for human consumption for *thirty* years!

The flooding has tragically disrupted the lives of many other New Quebec inhabitants. One of the most gruesome events took place in 1984 when floodgates were opened on the

continued next page

Caniaspiskau River, diverting its flow into the Grand. The consequent rushing wall of water caught the Caribou on their annual migration. Some 10,000 of them drowned and their rotting bodies littered the river banks for miles and miles. For the Cree, the loss was more than the one-day headline it was for the rest of Canada. It felt like an omen.

In controlling the flow of water through the now "tamed" rivers, Hydro-Quebec has reversed the seasonal patterns of flooding. In winter, when the demand for power is highest, the Grand rages through its channels at up to 10 times its historic volume. In spring, when the river would naturally be in flood, the demand for power drops, and so does the river level. Erratically fluctuating water levels make the river uninhabitable for animals such as River Otter and Beaver. Vegetation cannot take hold except above the high water mark. Fish populations have been decimated. Hundreds of square kilometers around the reservoirs are ecologically dead zones. Barren rock is exposed as the reservoir levels are drawn down. Mud flats littered with the rotting vegetation that was once forest stretch for miles. Erosion of river banks has been disastrous.

The first phase of the giant Grand complex (LG1) was finally completed in 1985, at a cost of about $16 billion (1976 dollars). Nine dams and 206 dikes had been constructed, extending over three watersheds. The combined area of the reservoirs created by the project was equal in size to Lake Ontario.

HISTORY REPEATS ITSELF

Now, at the beginning of the 1990s, the pattern of "development" in Nouveau Quebec seems about to repeat itself. Following a scandal-ridden end to his first stint as premier, Robert Bourassa managed to refurbish his political image and return to power in 1985. He immediately began implementing plans for even more grandiose and gargantuan hydro-electric exploitation of Nouveau Quebec.

However, the political scene has changed since 1971. To be against Hydro-Quebec's plans is no longer to be against Quebec. In fact, the main political opposition to Bourassa's Liberal government, the separatist Parti Quebecois, has called for a moratorium on the next phase of construction. Public opinion polls in Quebec show that support for Hydro Quebec's plans has shrunk to around 22%. A coalition of over one million Quebecers, including labour unions, environmental groups and others, have joined forces to call for a public inquiry into Hydro-Quebec's activities in general.

Still, the premier and the utility are hellbent to proceed with the damming of the last rivers flowing freely into James Bay and Hudson Bay. Plans for the second phase of the Grand project (LG2) were announced in 1989, and construction is now under way. Five more rivers are to be diverted into the Grand River at a cost of an additional $10.7 billion. If LG2 is completed, the LG1 and LG2 reservoirs together will cover 14,950 square kilometers, with 15 major dams and 331 dikes.

All of this is to precede an even larger project to be called James Bay 2.

JAMES BAY 2

In 1989, Hydro Quebec announced its intention to produce hydro power from the Great Whale River, which flows into Hudson Bay, as well as from the huge Nottoway-Broadback and Rupert project on James Bay. These two projects are jointly referred to as James Bay 2, in distinction to the enormous Grand River projects whose two phases, LG1 and LG2, are called James Bay 1.

The Great Whale project involves diverting two other rivers into the Great Whale itself, building five dams and 133 dikes, and creating reservoirs which will inundate 4387 square kilometres.

The Nottoway-Broadback and Rupert project portends even worse devastation. Hydro-Quebec calls it the "Crown Jewel" of the entire scheme. The utility plans to divert the Nottoway and Rupert Rivers into the Broadback River and, by building 16 dams and 115 dikes, drown another 6497 square kilometers.

Hydro-Quebec would then have reshaped a watershed the size of France, and created reservoirs submerging in total an area the size of Vermont. The chief beneficiaries will be electrical utilities in New York and Vermont which have already contracted to purchase much of the power. Quebec has also lured more aluminum smelters to the province with the promise of abundant and cheap electricity. Hydro-Quebec is so sensitive about the attractive deals they have offered transnational aluminum companies that they sought and obtained court injunctions forbidding the media from publishing contract details. Ordinary Quebec consumers will be saddled with an astronomical provincial debt. By the year 2000 Hydro-Quebec's debt would reach an estimated $60 billion—a sum exceeding the debt of most nations. As an exercise in economic megalomania, Robert Bourassa's mega-project may well be unique.

The beneficiaries are more easily identified than are the victims. Methyl mercury entering the food chain of the whole Hudson Bay and James Bay system will affect millions of animals, as well as every human who eats their flesh. It is believed that the consequent poisoning of living beings will continue for thirty years or more.

The whole ecology of James and Hudson Bays may also be at risk due to decreasing salinity caused by the impounding of enormous volumes of fresh water behind dams and dikes. Moreover, the Quebec projects, while the largest by far, are not the only hydro-electric exploitations planned for the James Bay region. Both Manitoba and Ontario have "development" plans in the works for their rivers flowing into James and Hudson Bays. The combined impact of all these could well have continental implications.

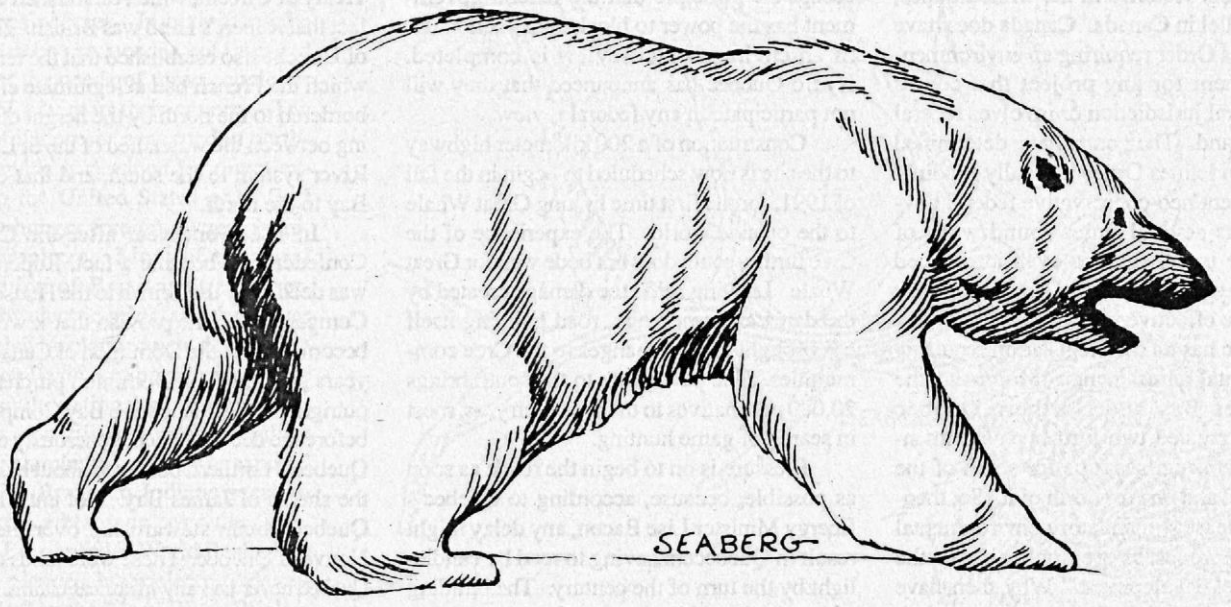
Mammoth projects have mammoth consequences. The phase 1 developments on the Grand River increased seismic activity in the region as the weight of the reservoirs forced ground water deep into subterranean fissures. By 1981 over 100 earth tremors had been registered near the LG2 power station. Some of these have measured close to 4.0 on the Richter scale; but Hydro-Quebec has stopped monitoring for seismic impacts.

It is often assumed that the effects of hydro power generation on global warming will be minimal, especially when compared with coal or oil. That assumption has yet to be tested. Meanwhile, we do know that rotting vegetation and the flooding of vast peat bogs will release huge quantities of methane, which is one of the most significant of the greenhouse gases.

Hydro-Quebec insists that LG1 caused little, if any, damage to the region's biotic community. In truth, it is impossible to evaluate the damage *because no environmental assessment was ever done.* No base line data was collected before construction started, so no one can prove whether the anecdotal evidence that Belugas are disappearing from the off-shore waters near the La Grande project is correct or not. No one knows what the Belugas numbered *before* the project began. No one knows how much the waterfowl, or Lynx or Beaver populations have declined. The Cree and Inuit believe a massive decline in the numbers of many animal species has taken place.

THE HARD SELL

Since early 1991, Hydro-Quebec has been waging a multi-million dollar advertising campaign to convince the public that the environmental impact of the first phase has not been adverse. Maybe, so Hydro-Quebec suggests, it has even been beneficial. The utility's spokesmen claim the Caribou population has actually increased from 200,000 to 700,000 since the first dams were built.



Hydro-Quebec also points to an increase in the Cree population as proof that the projects have been good for the natives. Its spokesmen ridicule charges by the Cree that the ongoing "developments" spell cultural genocide, for themselves and for the Inuit and Naskapi. "How can one speak of genocide in a population that is increasing?", they ask with affecting incredulity.

The advertisements have been sufficiently dubious to elicit an angry response from usually reserved and dispassionate federal government scientists of the Canadian Wildlife Service. To Hydro-Quebec's claim that it had obtained its wildlife information from Canadian Wildlife Service studies, Charles Drolet, head of the Service's migratory bird management section in Quebec, responded, "It's intellectual dishonesty. There is demagogy behind those ads." Drolet's boss, Jean-Pierre Gauthier, chief of the federal government's Department of the Environment in Quebec, wrote to the Hydro-Quebec chair, complaining that his Department's studies had been misused: "We would like to bring to your attention that the Canadian Wildlife Service has never done an exhaustive evaluation of the territory touched by the LaGrande complex." As the basis for its claim that "fewer than 10,000 pairs of birds" had been displaced, Hydro-Quebec used data from a preliminary study conducted in 1972-73 as a partial evaluation of waterfowl habitat. This study was not an inventory of birds, and included only a small part of the region affected by LG1. As to Hydro Quebec's intimation that hunting is more damaging to bird populations than the flooding of huge areas, Drolet responded, "Hunting only has a temporary effect. But the development is a permanent change to the habitat. These reservoirs are not being used by migratory birds at all." Wildlife scientists also reject Hydro-Quebec's implicit suggestion that development has benefitted Caribou. The Caribou population of northern Quebec was increasing long before the damming of the Grand. In fact LG1 destroyed much valuable Caribou habitat.

THE CREE CAMPAIGN TO SAVE THEIR LAND

The focal point for the next phase of the fight to protect the rivers of northern Quebec is the remote community of Great Whale, between the mouth of the Great Whale River and the frigid waters of Hudson Bay. Some one thousand souls live in two communities—the Inuit village of Kuutjuuraapik, along side the Cree of Whapmagoostui. No roads reach this small community. It is accessible by air; the rivers are its main highways. The pace of life meets that of the seasons. Yet, it finds itself on the brink of major construction, links with the south through new roads and airports, and the loss of the only highways that have ever mattered to the natives.

Both Cree mayor Robbie Dick and Inuit mayor Sappa Fleming are at the heart of the campaign to stop Hydro-Quebec's plans for their village and its adjacent rivers. Robbie Dick and Sappa Fleming have traveled through southern Canada and the United States in an effort to stop the project. Says Dick to US consumers, "Every time you turn on your light switch, you're killing my people."

Young and articulate, Matthew Coon-Come, Grand Chief of the Grand Council of the Cree, is blunt in his assessment of Hydro-Quebec's plans: "It is environmental racism." He says that if the devastation slated for the northern Quebec wilderness threatened Vermont or southern Quebec, it would not be tolerated.

The Cree are fighting the project with every available tool, including appeals to the general public, legal challenges, and interventions in electric power export hearings, both in Canada and the US. One of their first bids for public support was launched in the spring of 1990 by the community of Great Whale itself. A group of Cree and Inuit paddlers traveled from Great Whale to New York City. Their vessel was half-kayak and half-canoe, symbolic of the fact that the community is half Cree and half Inuit. On Earth Day, 22 April 1990, they paddled past the skyscrapers of Manhattan to warn the outer world of the disaster threatening the far North.

The Cree have filed at least six legal actions challenging various aspects of the development. The Cree have attacked the constitutionality of the James Bay and Northern Quebec Agreement and the secret contracts between transnational aluminum companies and Hydro-Quebec for subsidized power rates. They are seeking an injunction to prevent the start of construction at Great Whale until a full and proper environmental assessment has been made.

WHERE IS THE ENVIRONMENTAL ASSESSMENT?

The National Environmental Policy Act (NEPA), which has been the basis for many

continued next page

environmental victories in the United States, has no parallel in Canada. Canada does have a Guidelines Order requiring an environmental assessment for any project that comes within federal jurisdiction or involves federal monies or land. The courts have determined that this Guidelines Order is legally binding, but the current neo-conservative federal government has several times found ways of evading the issue, and has even introduced legislation to weaken the Order's already questionable effectiveness.

Quebec has its own legislation requiring environmental assessments. Moreover, the 1975 James Bay and Northern Quebec Agreement created two further environmental assessment regimes, one for south of the 55th parallel and one for north of it. So, theoretically at least, 4 mandatory environmental assessment processes are applicable to the Great Whale "development." Why, then, have the Cree felt obliged to take legal action to halt construction until an assessment can be conducted? The truth is that construction of the Great Whale project will be well advanced long before any proper environmental evaluation, as required both by federal and provincial law, takes place—if it ever does take place.

In order to evade the law, Hydro-Quebec, with provincial government compliance, indulged in a little sleight of hand. Where originally there had been one project, the utility created two. It divorced the building of roads, airports and other aspects of "access infrastructure" from the building of dams, dikes and power stations. A partial assessment was then conducted, but *only* on the access infrastructure. Hydro-Quebec made its environmental impact statement available only to a few interested parties, and the Cree were given one copy of the voluminous set of documents, in French, which few Cree can speak or read. The Sierra Club of Canada and other environmental watchdogs requested copies of what would normally be considered a public document, and were refused. Public information sessions were to be held but were boycotted by the Cree. When the provincial government panel landed in Great Whale in late June to begin their meetings, Cree protesters jammed the airstrip so effectively that the government committee members were forced to retreat to Quebec City—without ever setting foot off the tarmac.

Meanwhile, the new federal environment minister, Jean Charest, has announced that the federal government will go it alone and do a comprehensive environmental assessment. But Charest undermined his own announcement by suggesting that the environmental review at the federal level might approve the project in phases. Moreover, he refused to accept the principle that the federal government has the power to block construction until an environmental review is completed. Hydro-Quebec has announced that they will not participate in any federal review.

Construction of a 200 kilometer highway to the site is now scheduled to begin in the fall of 1991, for the first time linking Great Whale to the outside world. The experience of the Cree further south does not bode well for Great Whale. Leaving aside the damage created by the dams and reservoirs, road building itself has brought drastic changes to the Cree communities. The paved link to the south brings 20,000 non-natives to the area each year, most in search of game hunting.

Pressure is on to begin the roads as soon as possible, because, according to Quebec's Energy Minister Lise Bacon, any delay might result in Quebecers having to read by candlelight by the turn of the century. The building of hundreds of kilometres of roads and two airports for the Great Whale project alone will cost over $600 million, but Hydro-Quebec maintains that this expenditure will not constitute an irrevocable decision to proceed with the project as a whole. In the event that an environmental assessment should demonstrate that the environmental damage would be unacceptable, H-Q would abandon the "development"—so its spokesmen say. They claim the utility would take the same position with regard to the preparatory construction at the Nottoway-Broadback and Rupert project. Although work on this giant project is not actually due to begin in earnest for several years, the Forest Act of Quebec has already been amended to permit "salvage logging," clearcutting of the area slated to be flooded. The rationale seems to be that since these forests are to be flooded anyway, there is no point in practising good harvesting procedures. Obviously there is no intention of abandoning this project, no matter how horrific the environmental assessment might turn out to be.

WHOSE LAND IS IT?

As long as Quebec remains within the Canadian Confederation, the prevailing view is that the southeastern and eastern portions of the James Bay region will remain part of Quebec. Even leaving aside the issue of aboriginal title, however, the question must be asked: "Does Quebec really have any inherent rights in, or title to, the region in question, other than what has been given to the province by the Canadian nation as a whole?" To answer that we must go back to the original grant made by King Charles to his cousin Rupert in 1670. The legitimacy of this grant was confirmed in international law in 1713 by the Treaty of Utrecht, which established as a legal fact that Rupert's Land was British. The treaty of Utrecht also established that the territory to which the French had a legitimate claim was bordered to the north by the height of land lying between the watershed of the St Lawrence River system to the south, and that of James Bay to the north.

In 1868, one year after the Canadian Confederation became a fact, Rupert's Land was deeded by the British to the Hudson's Bay Company, with the proviso that it would also become part of the Dominion of Canada. Two years later the new Dominion purchased title outright from the Hudson's Bay Company; and before the decade ended, generously extended Quebec's northern border to about halfway up the shores of James Bay. Not until 1912 did Quebec obtain stewardship over the rest of Nouveau Quebec. These were lands to which Quebec never had any historical claims. Quebec did not bring them into Confederation. It is exceedingly unlikely that the province will be permitted to keep them if it departs from Confederation, as it now appears determined to do.

GLOBAL DIMENSIONS OF THE CONFLICT OVER JAMES BAY

As efforts to halt construction in Quebec's North accelerate, Cree, Inuit and southern Canadian environmentalists alike are increasingly relying on international support to help turn the tide. A powerful coalition has assembled under the banner of the Sierra Club's James Bay and Northern Quebec Taskforce. It includes Canadian groups like Cultural Survival, the Canadian Arctic Resources Committee, and of course the Canadian Sierra Club, along with specifically Quebec organizations such as the Centre d'Analyse des Politiques Energetiques, Greenpeace Montreal, the Grand Council of the Cree, and the Inuit of Great Whale. US members include the Environmental Defense Fund, and Sierra Club chapters from throughout the US Northeast. International support has come from as far away as Brazil, whose Environment Minister, Jose Lutzenberger, wrote to Canada's Environment Minister last year condemning the project. Indigenous groups from the Amazon have linked arms with the Cree. Matthew Coon-Come traveled to the remote village of Aucre on the Xingu River to meet with Kaiapo leader Paulino Paiakan, recent winner of the Sierra Club's Chico Mendes Award, to discuss their mutual struggles to curb devastating hydro power projects.

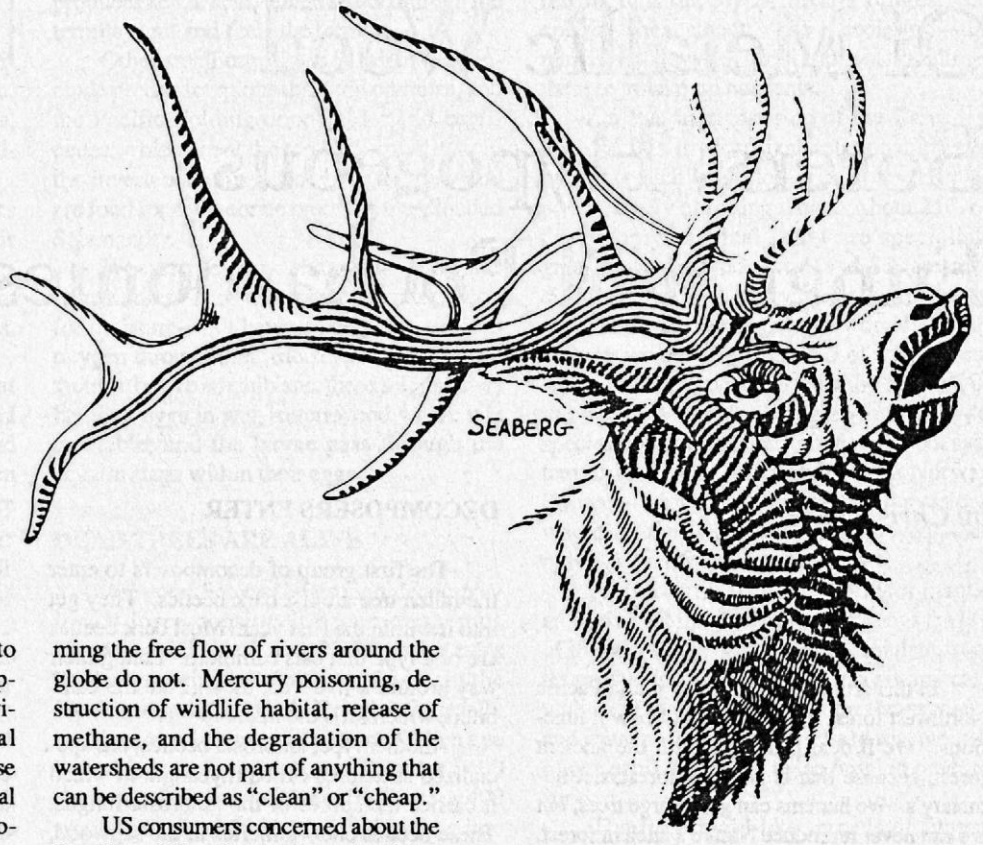
The struggles of the Cree and the Kaiapo have some surprising similarities. Canadian and Brazilian state-owned power companies are both visiting massive disruptions on re-

gions inhabited and claimed by indigenous peoples. In both cases the power to be produced is not intended to meet the needs of these people, or even of others in their country. The bulk of the power generated in northern Canada is destined for direct export to the United States or to feed energy-hungry foreign-owned aluminum smelters. Most of the rural population of Brazil isn't even serviced by electric grids, and the power generated by planned new dams in the Amazon Basin is to be a lure for those same multi-national aluminum companies. Brazilian environmentalists refer to aluminum as a "power export."

The Brazilian Indians seem to have one advantage over the Cree. When Brazil needed World Bank loans for its planned hydroelectric "developments" on the Xingu River, Paiakan and another Kaiapo leader, Kubei, traveled to Washington to ask the World Bank not to approve the loan. They were supported by environmentalists waging an international campaign to persuade the World Bank to refuse the loan. An unprecedented meeting of tribal groups from throughout the Amazon to protest the dam building gained world-wide media attention. The outcry led to a World Bank decision to refuse monies for any further hydro-electric dam construction on the Xingu River. Perhaps the Cree would have more success in their efforts to save their land from hydro-electric "development" if Canada was a Third World country in need of World Bank loans.

The same mechanistic mentality, the same pursuit of political ends, and, above all, the same insatiable greed for electricity, threatens to degrade almost all the planet's last free-flowing rivers. Often the same companies are involved. Lavelin Company, the Quebec consulting firm that supervised LG1 building, is advising China on how to build the Three Gorges Dam on the Yangtze. Hydro-Quebec, with a contract from the Canadian government aid agency, CIDA, is also "helping" the Chinese.

The Tehri and Narmada Dams in India, the Tucurui Dam on the Tocantins River of Brazil, the Aswan on the Nile are now legendary examples of the kind of ecological destruction and human suffering the principle of mindless production for witless consumption has engendered in modern man. And yet, somehow, hydro generation manages to maintain its image as a source of "clean, cheap power." Indeed, small-scale "run of the river" hydro generators do produce clean and inexpensive power; but the giant dams now stemming the free flow of rivers around the globe do not. Mercury poisoning, destruction of wildlife habitat, release of methane, and the degradation of the watersheds are not part of anything that can be described as "clean" or "cheap."



US consumers concerned about the flooding of Cree land to keep the lights burning in Vermont have been stigmatized as people who would rather have coal or nuclear generated power than "clean, environmentally friendly" hydro power. In truth coal, oil, nuclear and hydro mega-projects are all of a piece. As long as the need for energy efficiency and conservation takes second place, as long as people are prepared to create vast wastelands, whether in the Amazon, the Arctic National Wildlife Refuge, or in James Bay, there will be no incentive to shift our reliance to *truly* "friendly" renewable energy. As long as the dominant theme of power planning depends on the constant search for and exploitation of new sources of supply, instead of on controlling demand, the rivers will be doomed. And, when all the rivers are gone, nuclear plants will proliferate to fill the void.

We must change the way we think about energy, before we kill the planet. Not only are we converting the wild rivers into endangered species—we seem to be pursuing that dubious distinction for ourselves as well.

Farley Mowat is the author of numerous books, including the classics Never Cry Wolf *and* Sea of Slaughter. *Elizabeth May is a writer and activist with Cultural Survival in Canada.*

The next issue of Wild Earth *will provide details on how readers can help save James Bay. Below are addresses of groups opposing Hydro-Quebec's dams, and of government officials who need to hear our views on these projects:*

Northeast Alliance to Protect James Bay, 139 Antrim St, Cambridge, MA 02139

James Bay Action Network, Box 3637, Poughkeepsie, NY 12603

Friends of James Bay, Box 31, Barnet, VT 05821

Sierra Club Canada, 420 1 Nicholous St, Ottawa, Ontario KIN 787

Grand Council of the Crees, 24 Bayswater Ave, Ottawa, Ontario K1Y 2E4

Ministry of Environment, House of Commons, Room 5115 Center Block, Ottawa, Ontario K1A 0A6

Governor Howard Dean, 109 State St. 5th Floor, Montpelier, VT 05602

Governor Mario Cuomo, State Capitol, Albany, NY 12224

Of Metallic Wood Borers, Hypogeous Fungi, and Pooparoonies

by Chris Maser

In this article, we'll journey into a Pacific Northwest forest and see a little of how it functions. We'll deal primarily with the ancient forest, because that is Nature's forest, not humanity's. We humans can grow large trees, but we can never reproduce Nature's ancient forest.

A TREE FALLS

Theoretically, a tree is immortal, because it renews all of its living tissue every year—its entire immune system. Unlike our bodies, which have organs and parts that wear out, trees potentially can live forever, and some of them do live over 3500 years.

What kills trees are the rigors of the environment, not "old age." Trees generally either get blown over by wind or die standing. When trees sway in the wind, their roots are strained below ground. If the roots get strained enough and abrade on rocks, pathogens gain entry, and the tree starts to die unless it can wall off the pathogens. It may take a tree 100 to 200 years to finally die.

There are three major areas of a tree inside the bark. Just underneath the outer bark is the inner bark, or cambium, where the protein is stored. It disappears in the first year after a tree falls; it is eaten. The second portion is the sapwood, which is mainly carbohydrates. It, too, is eaten quickly. The third part is the heartwood. The heartwood is mostly lignin, and decomposes very slowly.

Three things happen to wood as it decomposes: It loses density (becomes spongy), increases in moisture, and increases in nutrients. What killed the tree largely determines how it will decompose internally. Let's decompose a healthy tree that falls over.

DECOMPOSERS ENTER

The first group of decomposers to enter the fallen tree are the bark beetles. They get into it within the first year. Most bark beetles are of a type that eats cambium. Eating their way around a live tree, they girdle the cambium, which kills the tree.

Another type, ambrosia beetles, has specialized structures called mycangia in which it carries the spores of the ambrosia fungus. These beetles chew galleries in the sapwood, and when the fungus they carry germinates, it grows along the galleries. Timing is important for the ambrosia beetles, for if the wood is too wet the fungus explodes, and the beetles smother in the fungus, their own food supply. If the wood is too dry, the fungus doesn't grow well, and the beetles starve.

As the beetles invade the wood they also bring nitrogen-fixing bacteria. Nitrogen-fixing bacteria have the ability to take nitrogen out of the air and change it to an ammonia compound, which makes it available to other organisms to use.

The second group that comes into the fallen tree, also within the first year, are flatheaded or metallic wood borers. These beetles tend to live in the sapwood, but they lay their eggs on the bark. The larvae hatch, penetrate the wood and then eat their way through it.

With a prey base in the wood, the third group to enter tend to be predators, such as the Red-bellied Checker Beetle. It feeds on the eggs and larvae of the first two.

As the wood continues to decompose, mites enter. Mites are related to spiders. As a whole, they are generalists; as small groups, they're specialists. One group is the oribatid mites, which feed on decaying vegetation. Another group feeds on animal droppings, another is predacious, another feeds on wood, and another grazes the bacteria that are decomposing the wood.

Springtails also infiltrate the wood. Springtails are tiny, flightless insects which get their name from the long appendage normally folded up underneath the belly area. If you touch them, they rapidly depress this and it catapults them forward. If you cross-country ski, you know these as snowfleas. Springtails are at the bottom of the food chain; they eat bacteria and also the thread-like parts of fungi.

When the wood becomes sufficiently wet, carpenter ants join the community. Carpenter ants do not eat the wood, but they chew out their galleries in it. One type of carpenter ant collects aphids, and milks and herds them like cows. These ants take their aphid "cows" in the form of eggs to the galleries in winter and protect them over the winter, then put them out to pasture in the spring. The aphids give off a waste product, "honeydew," which is simply excess, highly sweetened plant sap, which the ants eat.

Another type of carpenter ant is predacious. These ants are particularly important in the forests of the drier areas east of the Cascade Mountains in Washington and Oregon. These carpenter ants and the red forest ants, which live in stumps and make mounds (ant hills, we call them), go from the ground up into the tree tops. They feed on the eggs, larvae, and pupae of the Western Spruce Budworm and the Douglas-fir Tussock Moth, defoliating insects that eat the needles of conifers.

Carpenter ants have their long-term colonies in the dead part of live, ancient trees. When we cut down the ancient trees, we lose the prime ant colonies. In the Northwest, carpenter ants comprise the main part of the diet of the Pileated Woodpecker. So as we remove the coarse woody debris on the ground and the standing ancient trees, we affect the Pileated Woodpecker.

We now know that birds can control 80% of the Western Spruce Budworm population when the budworm is in an endemic stage (normal background levels). As we alter the structure of the forest through management,

we alter the birds' ability to live there. Without the birds, the ants can still control about 80% of the budworm, but we're also eliminating the ants' habitat—large logs and large, live old trees. With both ants and birds gone, virtually 100% of the Western Spruce Budworm can survive and defoliate the forest.

(It's worth noting here that the outbreaks of Western Spruce Budworm, Douglas-fir Tussock Moth, Mountain Pine Bark Beetle, laminated root rot, red-ring rot, and black-stain root rot are all management created problems. We created them.)

Another group important to the health of the ancient forest are the millipedes. (When I was a kid I played with millipedes and found out they stank. The reason they stink is that in each section are two small glands that produce pure hydrogen cyanide gas. They're poisonous enough that if you put them in a jar and then put in a butterfly, it is usually dead in seconds.) The millipedes feed on decaying vegetation, and so convert vegetation to fertilizer.

When the wood of a fallen tree is very wet, some of the long-horned wood borers or the round-headed wood borers enter. One of these good-sized beetles is the Ponderous Borer: it's about three inches long when mature. These are heartwood feeders. Because the heartwood is low in nutrients, it takes them from three to seven years to mature. But the larvae leave behind a burrow about an inch in diameter. Salamanders later use these burrows.

When the wood is nearly saturated, termites get in. In the Northwest, we have the Pacific Dampwood Termite, which is really three organisms in one.

In the fall, termites swarm at the entrance to their colonies, in preparation for the "nuptial flight." They all mature sexually within one-half hour before flight time. When they have mated, they land on the wood that is right for them to inhabit and eat; they detect this by the odors given off by the fungi decomposing the wood. Once in the wood they shed their wings.

Termites have strong mandibles, but they cannot digest the wood. So they chew up the wood, which goes into the gut where it is attacked by a protozoan (a one-celled animal). The protozoan can digest the cellulose in the cell walls, but the protozoan requires a constant supply of nitrogen, and wood does not have a constant supply of nitrogen.

The nitrogen content of wood varies, even within the same tree. So Nature has provided nitrogen-fixing bacteria in the termite's gut that take nitrogen out of the air and convert it to an ammonia product that the protozoan can use. The protozoan, in turn, gives off a waste product that the bacteria use for food. Those two together cause a fermentation process that produces acetic acid, which soaks through the termite's gut and fuels the termite.

Other small organisms in fallen trees include pseudoscorpions that feed on mites, and the Pacific Folding-door Spider and centipedes, which are at the top of the predators in the invertebrate line. Sowbugs in the wood are food for a vertebrate predator, the Clouded Salamander.

Western Oregon has four lungless salamanders. They require the decaying wood for moisture—not having lungs, they absorb oxygen through their moist skin. Also, even though they're amphibians, these salamanders lay their eggs in wet, rotten wood where it is available; and the larvae pass through the aquatic stage within their eggs.

DEAD TREES ARE ALIVE

As wood lies on the ground decomposing, it loses density; it becomes spongy. Residence time is the length of time that trees lie decomposing on the forest floor. In the Northwest, a 400-year-old Douglas-fir usually lasts between 200 and 250 years as a fallen tree before it is recycled, but may last over 400 years. An 800-year-old Douglas-fir takes 400 years or more to decompose and recycle into the system.

So about two-thirds of the tree's useful life is while it is living, and the last third is when it's dead. After death, it serves an entirely different suite of functions, which are necessary to keep the forest going.

One of the mistakes we've made for years in wildlife biology has been to argue for structural diversity without understanding functional diversity. What killed the tree and how it decomposes determines how it functions once it's dead. If we could ever get rid of disease in the forest, it would alter the entire functional dynamics of the system. And if we alter the wood that we produce, by making it grow faster and have larger annual rings with less density, we alter how the entire forest functions.

Among the kinds of decomposition in an old log are brown-cubicle rot, white-pocket rot, and the ever-present beetle galleries. The roots of young Western Hemlock grow into the down wood and follow the white-pocket rot; this rot separates the annual rings of the wood. The hemlock roots follow the white-pocket rot down these lines of least resistance and absorb the moisture and nutrients in an ideal rooting medium.

FUNGI ARE INDISPENSABLE

One of the major groups of mushrooms are the ectomycorrhizal fungi. The prefix *ecto* means outside, *myco* means fungus, and *rrhizal* means root. The association—the marriage—between fungi and root tips allows the tree to take up nutrients.

On the drier east side of the Cascades, 66% of this mycorrhizal relationship is in humus, which is the top organic layer, composed largely of rotting wood. About 21% of the ectomycorrhizal fungi are specialists growing in decayed wood, and 8% are specialists in charcoal. Only 5% grow in mineral soil. Thus, as we remove the wood from our system, we are affecting 95% of a fungal association that is necessary for the survival of the trees. A healthy Douglas-fir has 30-40 species of these fungi attached to its root system at all times. In Germany, the Norway Spruce—which now grows on plantations where all the fallen wood is removed—has only 3-5 such species today.

A mycorrhizal fungus forms a mantle around a root tip. The fungus prolongs the life of the root tip, protects it, and stimulates root tip production. A root tip that is not infected with the fungus cannot take up the nutrients and water necessary for the tree to survive. All of our conifers require these fungi in order to survive.

The little mold-like threads of fungus reach out into the soil, forming a hyphal mat. In effect, the fungus is an extension of the tree's root system, picking up water, phosphorus, and nitrogen from the soil and moving them up into the tree's root tips. From there the nutrients go up into the top of the tree. The tree in turn feeds the fungus sugars from photosynthesis, which go down the tree, out into the roots, and out into the fungus.

Two types of fungi form this mycorrhizal relationship with the trees. One group is called the *epigeous*, or aboveground-fruiting mushrooms. These include the *Boletus*, in which the reproductive spores come down little tubes and out little pores. Another form is the gilled mushrooms, whose spores fall off either side of the thin, sharp gills.

The epigeous fungi depend on wind to blow their spores throughout the forest, and rain, to wash the spores down into the soil. In a very dry year or a very cold year, the mushrooms don't grow, and the forest goes without their inoculation that year.

A limitation of wind as a dispersal mechanism is that there is very little wind close to the ground in our dense forests. The wind increases as you move up higher. In the more open forests on the East Coast, wind is a very important factor.

The Northwest has a second type of mycorrhizal fungi—belowground-fruiting, or *hypogeous*, fungi called truffles or false

continued next page

truffles. The entire system of hypogeous fungi is below ground. The fruiting body looks like a small potato, with the spore-bearing tissue surrounded by a tough outer coat. Fruiting bodies are produced once or twice a year—when the weather is right, enough sugars have been stored, and soil moisture is sufficient.

These fungi cannot disperse their spores by themselves. They have evolved to be eaten by animals, primarily mammals. As the mammals disperse fecal pellets throughout the woods, they inoculate the soil with viable spores of a fungus.

LOGS ARE RESERVOIRS

As wood lies on the ground decomposing, its water-holding capacity increases. If it is under a forest canopy, be it a young forest or an ancient forest, it holds water throughout the year, partly metabolic water—water produced by the respiration of wood-decaying bacteria. When a fallen tree is mostly decomposed, and most of what remains is heartwood, the sapwood having sloughed off, it is saturated. The wood is so wet you can squeeze water out of it.

Along with storing water, this down wood slows erosion. Look at the up-slope side of a fallen tree lying along the contour, across the slope. Notice the soil kept by the tree from moving down-slope. (Wood oriented up and down the slope does little to prevent erosion.) On the downhill side of the tree, you'll notice an open triangle. This is cover or habitat for the small mammals that disperse the spores of the mycorrhizal fungi. The interface between the soil and the bottom of a fallen tree is one of the richest areas in the forest in terms of nutrient cycling and exchange.

One fungus that specializes in rotting wood is *Rhizopogon vinicolor.* (It doesn't have a common name.) It forms mycorrhizae with Douglas-fir and has small "appendages" called rhizomorphs, which are like tiny siphons. They grow in the fallen wood and move water from the wood into the living tree.

So down wood is a reservoir that makes water available to the Douglas-fir throughout the drought part of the summer, because of the fungus's ability to withdraw and move water. When Douglas-firs are planted in clearcuts on a hot site, if they have this fungus attached to the root system, they're twice as drought resistant as those that don't have it.

In addition to water, nutrients accumulate in the wood as it decomposes. In particular, nitrogen accumulates over time. Before discussing how we *think* this happens, though, let's summarize the foregoing.

A large, ancient tree falls over. As the wood decomposes, it simplifies internally, because it gets eaten; yet, at the same time, the plant and animal communities on and in the wood increase in complexity. In fact, at its peak of species richness, a large, decaying fallen tree has twice the number of living cells (including all the living organisms) that could be found in the live tree. Thus, in a sense, a large, fallen tree is "twice as alive" as was the live tree!

As the fallen tree decomposes, the plant community on the outside gradually enfolds the tree in leaves and branches, creating a humid environment that prolongs the life of the wood. (On the drier east side of the Cascade Range, wood decomposes much faster.) Finally the sapwood is gone and all that's left is the heartwood. Then the community simplifies dramatically—almost immediately, compared to the length of time it took it to build up the complexity.

MAMMALS INOCULATE HEMLOCKS

Western Hemlocks germinate on the fallen wood. The hemlock is an understory tree in the ancient forest; it can live in its own shade. It can grow underneath the Douglas-fir and become the climax species, though it may depend on periodic, small treefall gaps in order to get enough light to grow into the canopy. Douglas-fir is not a climax species because it is not self-reproducing in its own shade; it requires large openings created by fire or major windstorms. The duff layer underneath the Doug-fir is so deep that the hemlocks can't get their roots down to the mineral soil before the summer drought kills them, so they've evolved to grow in rotting wood.

Rotting wood is an ideal medium: it's spongy, wet, and high in nutrients. Like other conifers, the hemlocks need mycorrhizal fungi attached to their root tips; but they have evolved the ability to survive for over a year without the mycorrhizae. The other trees have to be inoculated within a year. After a year or so, though, the little hemlocks must have their roots inoculated.

Some are inoculated by wind-borne spores, but most by spores that small mammals carry. Such rodents as deer mice, chipmunks, and flying squirrels "poop" on the log, and—pooparoonies being full of spores—the rain washes the spores into the wood. As the spores come in contact with the hemlock root tips, the roots become inoculated with the mycorrhizal fungi.

The little hemlock then can tap the resources inside the "nurse log" on which it is growing. The wood gradually rots out from under the growing hemlock and leaves it on stilts.

BACTERIA FIX NITROGEN

We discovered a few years ago that inside the fungus were nitrogen-fixing bacteria. We found that fungus and bacteria can only survive together. Their symbiotic relationship is obligatory. The fungus feeds the bacteria a "fungal extract." We don't know what it is, but it functions like a food, as does the substance the protozoan feeds the bacteria inside the termite.

The bacteria, in turn, take nitrogen and fix it so that the fungus can use it. This association is inside the fruiting bodies of the fungi and the mantle of mycorrhizal tissue that covers the root tips of the Douglas-fir. Inside the root tips of our trees are small nitrogen pumps, ceaselessly pumping minuscule amounts of nitrogen into the tree.

So the way we see it now, the tree feeds the fungus sugar from photosynthesis. The fungus goes out into the soil, picks up water, phosphorus, and nitrogen, and moves it into the tree root tips. Inside the tree root tips are bacteria that feed on the product given off by the fungus. The bacteria fix nitrogen which, along with the other nutrients, is available to the tree and the fungus.

We've known for a while that small mammals feed on mycorrhizal fungi and that the fungal spores remain viable. Now we also know that the pellets contain nitrogen fixing bacteria. (From the small mammals' little pooparoonies, we were able to grow bacteria.) Here in the Northwest, we had the best known nitrogen-fixing bacteria in the world in our trees, *Azospirillum* spp., and we didn't know it until a few years ago. It's being disseminated by the small mammals.

In the deer mouse, which we spent millions of dollars poisoning for years, we found another nitrogen-fixing bacterium, *Clostridium butyricum.* This is important because the deer mouse is one of the first animals to use a clearing.

Deer mice can survive forest fires. Their tunnels have many kinks in them, so oxygen is trapped and the heat doesn't suck it all out. A resting stage of the bacteria, called an endospore, can withstand temperatures of 176 degrees Fahrenheit (80 degrees Celsius). That means they can withstand the surface temperatures of soils that get as hot as soils do in the Sahara during summer—160 degrees F. So deer mice can reinoculate logged and burned areas with nitrogen-fixing bacteria, as well as the spores of mycorrhizal fungi.

MAMMALS SPREAD YEAST

Also in small mammals, including flying squirrels, we found yeast propagules. From

the squirrel's stomach the small intestine goes down to a pouch called the cecum. From the cecum, the large intestine goes to the rectum. The cecum is like an eddy along a swift stream; it collects and concentrates organisms, in this case yeast (which is a fungus), nitrogen-fixing bacteria, and mycorrhizal fungal spores. Some of the mycorrhizal spores, when they come out of the fecal matter, require the extract of another fungus to germinate; that's what the yeast does. The yeast has to be alive; dead yeast leaves no extract.

If a deer mouse has been feeding on a fungus, each little pellet may have between 500,000 and 800,000 spores, plus yeast, plus nitrogen-fixing bacteria. It's about 300,000 spores per Red-backed Vole's pellet and about 10,000,000 per deer pellet. About 1000 to 10,000 spores are needed to inoculate a Douglas-fir seedling, so one pellet has more than enough inoculum to give life to a seedling.

LOGGING BREAKS THE CYCLES

With current logging practices, we're removing as much of the large woody material as possible. And most of what's left goes up and down on the slope, because logs are pulled upward toward spar trees with cables. Those vertical logs (even if left in place) have little value compared to logs lying along the contours of the slope.

When fallen wood is mostly rotted and only the heartwood remains, 50-100 years of nutrient cycling remain in the wood. The heartwood is the most important part of the tree, because inside the lignin is a substance called vanillic acid, which can be broken down by the bacteria and by fungi who use it as their source of food. But we scatter or pull apart this heartwood with tractors during logging activities, and once its structure is gone its function is also destroyed.

Again, the hypogeous fungi (truffle and false truffle) reproduce with belowground-fruiting bodies. Immature fruiting bodies are white; they get darker as the spores increase in maturity. Each gives off its own odor, and we can detect some of these.

In Europe they train dogs and sows to sniff them out of the soil. The famous black truffle of Europe sells these days for $400 to $600 a pound because the Europeans are losing their forests, their truffle habitat. They used sows because boars won't sniff them out. The chemical odor given off by these fungi is identical to that of a boar ready to reproduce. Which tells us that this association has been around for a long time.

In the Pacific Northwest, small squirrels—the Chickaree of western Oregon and Washington, and the Red Squirrel of eastern Oregon and Washington slopes—and other small mammals, such as shrews, sniff out the truffles. The Red-backed Vole of Oregon and a different species of Red-backed Vole in the coastal Olympic Mountains of Washington feed on these fungi 98% of the time, throughout the year. In the Cascade Mountains of western Oregon and northwestern California, the indigenous Red-backed Vole feeds on the hypogeous fungi 85% of the time. The species of Red-backed Vole in Washington's Cascade Mountains also feeds on truffles about 75-85% of the time. (This last vole is native clear to the East Coast; but in the East, it eats nuts and vegetation above ground because belowground fungal food is not so prevalent in the East, where most of the forest is hardwood.) When the ancient forest is clearcut or burned, the Red-backed Vole in Oregon dies out within a year because its food, the fungus, disappears.

Another vole, the Creeping Vole, which lives only in northwestern California, western Oregon, western Washington, and southwest British Columbia, can also feed on these fungi in an ancient forest; but when the canopy is removed and grasses and forbs come in, it shifts its diet completely to grasses and forbs and its numbers explode. When the forest returns, they reverse. In the forest, the Red-backed Vole is dominant; the Creeping Vole is subordinate.

RODENTS SPEED REGENERATION

Chipmunks and deer mice are important for forest regeneration. They visit clearcuts from out of the ancient forest, deposit their droppings—inoculating the clearcut as they do—and go back. The trees do best around the edges of the clearcut—the distance into the clearing that these small mammals travel in their daily visitations.

In high elevation forests, mantled ground squirrels and flying squirrels serve to spread mycorrhizal fungi. Flying squirrels feed on these fungi all year in southwestern Oregon. Farther north, up into Alaska, they feed on them spring, summer, and fall; and in winter switch their diet to hair moss or lichens in the treetops. (They also make their nests from moss.) These squirrels glide to the ground at night to dig out the fungus, which they detect by odor.

That's why Cougars, Martens, and Coyotes can catch and eat them; that's why we've found flying squirrel remains in their droppings. Again, these squirrels flourish in forests with a large amount of woody material on the ground because the fungus is associated with that woody material.

When a flying squirrel comes down to the forest floor and digs out a fungus, if it happens to expose a root tip that has not yet been inoculated and it poops there, the spores from its droppings can germinate and inoculate that root tip. If, on the other hand, it digs out an already inoculated root tip and its droppings contain spores of the same species of fungus already in the root tip, the non-reproductive portions of those fungi can fuse, and that's how genetic material is exchanged.

In a sense, then, without knowing it, the squirrel takes care of the tree it inhabits. The flying squirrel, in turn, is the main food of the Northern Spotted Owl in Oregon and Washington. Since its prey base feeds almost entirely on the fungi associated with wet, rotting wood, the Northern Spotted Owl also requires a large amount of woody debris on the ground.

EUROPEAN FORESTS OFFER WARNINGS

You have probably seen photographs of the tidy forests of Europe, the German forests in southern Bavaria, for instance. You may have noted the lack of wood on the ground. It was all picked up and burned in homes. In central Europe, most of the wildlife is in the cities.

In the month that my wife and I traveled around France, Switzerland, and Germany—most of the time with foresters and in the field—we saw woodpecker workings once. We saw a lot of deer, one mouse, and a slug. That was the third largest wildlife species we saw: a slug.

German forests are intensively managed; they are stressed, strained. Legally, forest managers must peel the bark off their coniferous trees before they take them out of the forest so that bark beetles don't get into them.

Here in the United States, to an increasing extent, we're practicing European plantation management. As we liquidate old-growth forests, we are designing the forests of the future ... and we've thrown away Nature's blueprint.

Nature designed a forest as an experiment in unpredictability. We're trying to design a regulated forest.

Nature designed a forest to be self-sustaining and self-repairing. We're designing a forest to require increasing external subsidies: fertilizers, herbicides, pesticides.

Nature designed Pacific Northwest forests to live 500 to 1200 years. We're designing a forest that will seldom live 100 years.

Nature designed Pacific Northwest forests to be the richest conifer forests anywhere: 25 conifer species, the longest-lived and largest of their genera anywhere. We're designing a

continued next page

forest based largely on a single species, Douglas-fir, in short rotations.

We're redesigning our upper slopes. We're cutting the high elevation forests five times faster than we cut the low elevation forests to maintain the same output of wood fiber. At what costs to long-term water supplies? Our water comes from forested watersheds. In Poland today, 90% of the water is too polluted for human consumption. They have virtually no forested watersheds. Czechoslovakia expects to lose their forest by the year 2000.

No nation that 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. Nature's ancient forests are not renewable. The choice is ours, but the consequences belong to the generations of the future.

Chris Maser is a private consultant in sustainable forestry and author of The Redesigned Forest *(1988),* Forest Primeval *(1989), and* Driftwood *(1992, with James Sidell). He hails from Corvallis, Oregon, and is a leading researcher of the big trees.*

Identifying Old-Growth Forest in the East

by Robert T. Leverett

INTRODUCTION

This is the first of several articles on the identification of old-growth forest. The information presented should apply throughout the ranges of the tree species covered, but the geographical area of primary interest is the Appalachian Mountain chain from Maine to Georgia.

This first article will (1) review the existence of old-growth forest in the Berkshire region of Massachusetts as indicative of its occurrence elsewhere in the Appalachians; (2) develop a working definition of old-growth suitable to the Appalachians and particularly the Northeast; (3) provide clues on where to look for relict stands; (4) present criteria for qualifying a stand as old-growth; and (5) present a general synopsis of old-growth characteristics in preparation for subsequent articles which will deal with the old-growth characteristics of particular species.

It seems strange to be writing this article in 1991. With our modern technology, it is reasonable to believe that every square inch of old-growth forest has already been mapped by professionals for reasons relating both to preservation and exploitation. Five years ago I would not have questioned the premise. Since then, discoveries made by my son, Rob, and I along with others clearly show that the important task of locating our Eastern old-growth is unfinished. There are patches yet to be found in most, if not all, of our mountain states.

Every region probably has at least one individual who knows the whereabouts of some old-growth that hasn't been officially cataloged. Unfortunately, though, many people attuned to the world of woody stemmed plants, who might add to the collective bank of knowledge, are unable to recognize old-growth. There is no shortage of good books on tree identification, but the present repertory of written materials is of little help. Information on old-growth characteristics of Eastern species is lacking in otherwise authoritative books. While individually old trees may be found in yards, parks, and along country roads, genuine areas of old-growth forest in the East are truly few and far between. Understandably, then, past authors perceived little need to describe what they doubted their readers would ever see.

Over the past five years Rob and I have spent countless hours searching out and confirming remnants of old-growth forest. In the beginning we felt alone in our quest, but ties to others on similar missions have gradually developed. One acquaintance described hunting for old-growth as truly virgin territory—an intended pun, I'm sure. In the past year Rob and I have had many opportunities to compare our observations with those of other old-growth advocates, and I am relieved to say that our confirmations have withstood all tests to date. We now feel ready to share our knowledge with others.

AN IMPROBABLE SCENE

The Berkshire country of western Massachusetts is known for its quaint hill towns, apples, maple syrup, picturesque autumns, skiing, and Tanglewood. The typical visitor to the Bay State, regardless of destination (excepting a few places such as the Cape Cod National Seashore), is likely to associate Massachusetts with important historical events and relegate Mother Nature to a subsidiary role. But the Berkshires have offerings more valuable than the ephemeral imprints of our culture.

Nestled in a location known to few is an open field set against the backdrop of a 1000 foot high ridge. The boundary of the field consists of young White Pines and hardwoods

barely 60 years old. The hardwoods include Red Maple, White and Black Birch, ash, hickory, Bigtooth Aspen, Black Cherry, and Sugar Maple, a composition representing an intermediate stage in the succession to mature forest from what was open field. The young pines and hardwoods form a strip parallel to the base of the high ridge. The western edge of the strip is sharply defined by an old rock wall punctuated by a line of colonial-aged Sugar Maples. Many of these remnants of bygone days have lost branches and sport sparse foliage at their tops. They are nearing the end of their productive lives. Several maples reach heights of over 100 feet, but one huge specimen wins the tale of the tape at slightly over 18 feet in circumference. These old Sugar Maples contrast sharply with the younger trees to their east.

A walk along the line of "sugar bushes" induces reveries of maple syrup as the just reward for enduring harsh winter and a life of toil. Northward, the rock wall ends and the young growth blends with mature specimens of remarkable heights. Straight boles of ash, Sugar Maple, and Northern Red Oak are barren of branches for 50 to 60 feet. A half dozen trees top 120 feet. One stately Sugar Maple reaches 134 feet into the air, pushing the limit for the species in the Berkshire country.

With the exception of the height and girth of the two superlative Sugar Maples, this scene is not unique within nor to the Berkshires. Other fields bordered by colonial aged rock walls and stately maples accent handsome ridge-side forests. Such bucolic sights are the visual feasts of New England that have been immortalized on canvas. What, then, is noteworthy about this location? The answer lies up the ridge. The rock wall and mature maples form a dividing line between the trees just described and far older specimens growing a short distance up the slope. The junior members of this older clan, growing on the lower part of the ridge, date back to the mid 1800s. A short distance farther up, the true elders are found. Ring counts on downed hardwoods and conifers reveal specimens well over the 200 year mark and evidence exists for trees that have long passed their 300th birthday, though heart rot usually prevents a complete dating.

Protected spots between adjacent rock ledges harbor a rich growth of mature Mountain Laurel and Hobble Bush. As light filters through the dense undergrowth, the light-barked trunks of beech and isolated White Oaks appear as specters, vying for dominance with the darker cloaks of Black Birch, Northern Red Oak, and Eastern Hemlock. Near the edge of a 50 foot precipice, a huge hemlock clings tenaciously to life. Measuring over 12 feet in circumference, it may exceed 350 years in age. Other nearby hemlocks are younger, perhaps having witnessed the passing of a mere 250 winters. Not to be surpassed, venerable hardwoods jut through the laurel understory, revealing signs of advanced age. A downed Black Birch had grown agonizingly slowly. Members of this species that began life during the mid-1800s are considered old by most who study trees. However, this surprising specimen may have rivaled the huge hemlock in age. Twelve of its 29 centimeters of radius produced 184 growth rings. Projecting the average growth rate for the 12 centimeters to the full 29 yields a wildly improbable 444 years. Had the tree grown twice as fast for the remaining 17 centimeters as the average for the first 12, the tree would be 314 years old—a more reasonable estimate. Given the growing conditions of the site, it is unlikely that there would have been a long period of sustained fast growth.

The old-growth is tattered and weather beaten, having engaged in battles with the uncompromising forces of nature. While past human intrusion is certain, rock ledges culminating in a boulder field effectively deterred small-scale logging operations. Protected by rugged terrain, between 50 and 75 acres of old-growth on this and an adjacent ridge have survived to maintain watch over the merging waters of the Deerfield and Cold Rivers in the valley beneath. The ancient trees are relicts from a time when no heavier-than-air machines infringed above nor wheeled vehicles violated the earth below. Here one need not rely on the artist's brush to recreate a pre-colonial New England forest scene.

How have these sturdy veterans of centuries past gone unidentified as old-growth? Are they the lone survivors of a once proud Berkshire forest?

The Berkshire/Taconic region of western Massachusetts may seem an unlikely place to find old forest. By all prior accounts, old-growth simply does not exist in Massachusetts. But the area described above is one of over 30 such places within the confines of a two county area, totaling perhaps 3000 acres of bonafide old-growth or "near old-growth" forest. The Hopper on the west side of Mount Greylock, the Cold River tract, the watersheds of Fife, Dunbar, and Bashbish Brooks, and the east side of Mount Everett all harbor trees that reach between 100 and 120 feet in height and vary in age from 150 to 300 years. The oldest of the hemlocks in most of these stands approach or exceed 400 years in age. No longer do the Berkshires bow to the higher mountain ranges in adjacent states. They are cloaked by a garment of green as valuable as any covering their sister ranges.

Of the approximately 3,000,000 acres of forested land in Massachusetts, the state's old-growth stands represent a mere one-tenth of one percent—almost infinitesimal. Is so little old-growth really worth preserving? Many do not think so, believing that the trees in these or any stands achieve their greatest value when converted into lawn furniture. What an appalling end that would be for the big Dunbar Brook pine lifting nutrients from the soil to glossy needles 152 feet above! And have the 300-year-old primeval hemlocks in the Cold River Gorge, on the sides of Mt. Greylock and Mt. Everett survived the insatiable appetites of the charcoal industry and the tanneries of 19th century Massachusetts only to succumb to the excessive desires of 20th century society? The fragmented Berkshire old-growth provides Massachusetts with a tiny but authentic share of what was once the "Great American Forest." Whatever the nature of the power possessed by trees, old-growth forest distills and concentrates the elixir. Mother Nature uses time and the elements to sculpt the forest; she makes a place for trees of many species and ages. It is an ecosystem in balance. It feels right ... looks right. It is right!

A PROBLEM OF RECOGNITION

The old-growth spots of the Berkshire/Taconic uplands have gone unrecognized until recently, due to people's lack of familiarity with the characteristics of these places. Remnant stands of Eastern old-growth do not resemble their Pacific Coast counterparts. In our Eastern woodlands one does not encounter redwoods, Sitka Spruce, Douglas-fir or other classic old-growth giants. Our old-growth trees achieve much more modest ages and proportions. To compound the problem, the few remaining large undisturbed tracts of old forest in the East, such as those in the Great Smoky Mountains of North Carolina and Tennessee and the Adirondacks of upstate New York, may bear only slight resemblance to the remnant patches of old-growth that still survive on hillsides surrounded by land denuded of its forest cover. Girths and heights achieved by vigorous second growth may exceed the sizes of the largest trees in an upland old-growth forest on a dry site. There also is the challenge of conflicting evidence. Small stands progressively lose old-growth characteristics as the larger trees topple and pioneer species fill the gaps. Such areas may resemble a forest selectively logged a century ago.

A NEED FOR DEFINITIONS

Although the preceding paragraphs use the term freely, there is no single, universally

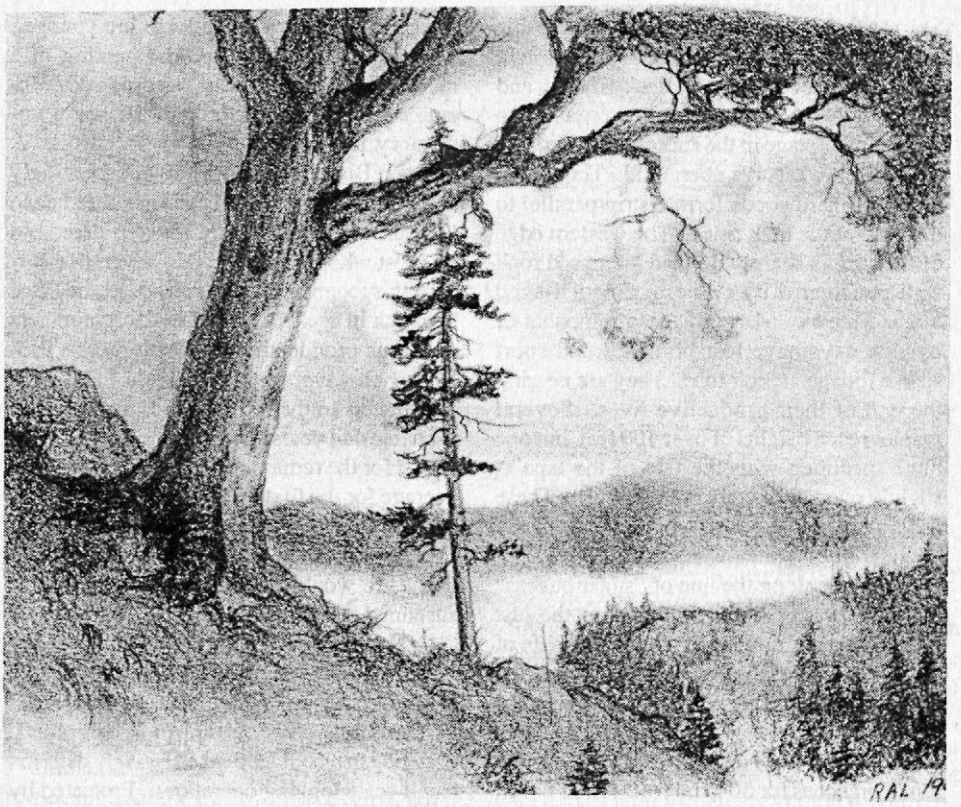
continued next page

accepted definition for old-growth—nor should there be. Old-growth means different things to different groups. Among professional foresters the term is frequently used to classify forests that have passed their economic zenith. Foresters have been known to label an 80-year-old stand as old-growth. Such classifications are used to justify early "harvesting." The exploitation motive that fuels the forestry machine does not apply to the forest ecologist. Ecologists often use the terms 'old-growth' and 'virgin forest' interchangeably. Virgin and old-growth have been applied to areas that: (1) possess a significant percentage of trees that have reached at least 50% of the maximum age for the species represented, (2) have not been visibly altered by human use, and (3) contain a distribution of species that tends to be stable for relatively long time periods. Definitions born of such criteria are motivated by the desire to achieve scientific precision. [*Gordon Whitney clarified the differences between the terms "virgin" and "old growth" in 1988 in* Natural Areas Journal.—*sci. ed.*]

Unfortunately, for the Berkshires, definitions proposed by the ecologists may be overly demanding. The patchwork of Berkshire old-growth has been subjected to too many disturbances to maintain a stable distribution of species. In the past 180 years, all areas have endured human incursions, harsh winters, drought, fires, and two catastrophic hurricanes—one in 1815, one in 1938. With the exceptions of 4 of the 30 plus Berkshire locations, the original old-growth is found in stands of only a few acres. It is unlikely that any area of a few acres can faithfully retain the composition and characteristics of the forest that spawned its oldest surviving members, but definitions of old-growth that demand stability of species distribution and no human interference would exclude "pristine looking" areas, small though they might be, with 300-year-old trees. Such places should qualify as some class of old-growth. Besides, after a hundred years, human induced changes, such as those caused by anthropogenic fires, may be indistinguishable from changes caused by natural disturbances such as lightning-induced fires.

A WORKING DEFINITION

It is not the purpose of this article to critique existing definitions of old-growth. I would prefer to set the issue aside altogether, since too much emphasis on definitions obscures the underlying need to preserve forested areas regardless of their old-growth status. But how can the interested amateur recognize what has not been defined? More critically, the specter of our remaining old-growth being decimated by the "profits justify cutting everything" crowd weighs heavily while others debate the appropriate percentages of standing versus fallen trees, amount of biomass, average age of the stand, etc. The absence of any definition is likely to be exploited by those seeking to downgrade the importance of forests that might otherwise receive protection in some type of old-growth classification through a state natural heritage or other land preservation program.



Old-Growth Forest *by Rob Leverett*

Since a definition is needed that makes sense for the Northeast, I will humbly present my own. Old-growth will mean a forested area of at least 5 acres that: (1) contains at least one, preferably several, tree species that have attained an average age of 150 years or more in the mature specimens; (2) has gone undisturbed by human activity for a sufficiently long period to permit re-establishment of the old-growth forest characteristics such as windthrow mounds, accumulation of course woody debris, re-colonization of herbaceous indicator plant species, and the obscuring of obvious human signs of land use such as stumps and coppice growth; and (3) contains a density of at least 8 mature trees in the 150-year-old age bracket per acre.

This last criterion needs a good deal of thought. One is frequently confronted by a patchwork of original old-growth that has been subjected to natural disturbances that have thinned the mature trees to the point that the area resembles selectively harvested areas containing species that were never logged. Given sufficient time, second growth achieves maturity and determination of what areas were never disturbed by logging may be almost impossible. In either case a point is reached where a stand is reduced to a marginal number of truly old trees interspersed among substantially younger stems. If the number of old trees is below 8 per acre, classification of the area could go either way. At 8-12 old trees, I am willing to call it old-growth. Above 12 stems per acre, I believe we have *prima facie* evidence for old-growth.*

A SYSTEM OF INDIVIDUAL TREE CLASSIFICATION

How do we apply the above criteria? We will begin by examining individual trees. A tree will be classified as an old-growth specimen if it is at least 150 years old. Age will be determined by visual inspection. Through observing overall shape, crown characteristics, root spread, and bark appearance in the young and old members of a species, many trees can be accurately classified as either old-growth or not. The visual approach to classification is advocated because subjecting old-growth trees to injury through core extraction to satisfy curiosity about age is contrary to the preservation ethic. However, there are pitfalls in relying exclusively on visual indicators. A

200-year-old hemlock is not necessarily distinguishable from a 250-year-old one, or even a 300-year-old. Fortunately, though, both are distinguishable from 100-year-old specimens. The old-growth characteristics of hemlocks become clearly visible between 150 and 200 years of age. Really young specimens, i.e., under 60 years of age, are easy to recognize. The problem for a beginner will start after that. Once one learns to recognize hemlocks in the 60-120 year age bracket, a comparison to only a few specimens in the old-growth class reveals striking differences in appearance. An ideal training method is to core date as many trees as possible that have recently fallen. This will facilitate the process of "calibrating" the eye. Errors will always occur for trees close to the old-growth point, e.g., those in the 125-175 year age bracket. However, truly old trees will almost always be correctly identified.

I have informally employed the above system for the past two years. Concurrently I have experimented with more age subdivisions. I tried a broader scheme of young, middle-aged, old-growth, and primeval, with primeval implying pre-settlement age trees, i.e., before settlement by Europeans. However, increasing the number of age categories in an already subjective system compounded the number of inaccurate classifications. In addition, a more intractable problem with the multiple age category system is its application to different species. Short- and long-lived species should not necessarily have the same year ranges. For example, Sugar Maples in the Northeast might be classified as young if under 80 years in age, middle-aged if 81-149, old-growth if from 150 to whenever the region was settled by Europeans, and primeval if older. Hemlocks, which can live longer, might be classified as young if under 100 years, middle-aged from 100-199, old-growth from 200 to the settlement period, and primeval over that. The same classification could be applied to White Pines. However, Red Maples, most birches, and other fairly short-lived species should have lower ranges, lest we exclude them altogether from old-growth status, which does not seem logical. I would be hard-pressed to defend these or any other age divisions. Given the problems with too many categories, I invariably returned to the simple "old-growth" versus not "old-growth" classification system, with 150 years of age as the transition point.

RECOGNIZING OLD-GROWTH TREES

To save old-growth, we must be able to recognize it. The opposition won't permit us many classification mistakes. We may begin with books on tree identification, but the visual aids one typically finds are limited to illustrations of buds, twigs, flowers and leaves. Some books provide silhouettes of "characteristic" shapes while others provide photographs. Unfortunately, for those wanting to recognize old-growth, the photographs and illustrations are usually of young to middle-aged trees grown in open conditions. There is a need to portray differences in the shapes resulting from growth in the open as opposed to within a closed canopy forest.

Old trees exhibit signs of aging just as humans do. Young trees have thin bark, fine twigging, and a somewhat symmetrical shape. As a tree matures, its bark thickens and may change color, independent of moss and lichen coverings. Competition with other trees, weather, environmental stresses such as poor soil, insect damage, and disease result in loss of limbs and branches. The tree progressively loses its symmetrical shape. The crown often becomes broader and flatter, or "stag-headed" in appearance. The tree's other extremity, its root structure, becomes more prominent and thickens. This can be partly due to exposure of the structure to erosion around the base of the tree; but also, swelling and thickening accompany aging. As a word of caution, premature aging from disease can lead to mis-identification of old-growth characteristics. However, a tree dying at the age of 125 years does not have the composite characteristics of a 300-year-old.

RECOGNIZING OLD-GROWTH ENVIRONMENTS

Recognizing individual old trees is an easier skill to master than recognizing old-growth environments. Telltale signs of an old-growth forest include advanced age in a large number of trees, wind-throw mounds in varying states of erosion, crisscrossing logs in varying stages of decay, a distribution of tree species representative of the particular forest type, an absence of signs of human disturbance, and a forest floor rich in mosses, lichens, fungi, and herbaceous plants well established over a wide area. Cut stumps, old rock walls, apple trees, etc. provide unmistakable evidence of human intrusion; but visible signs from selective logging more than 100 years ago may be lacking. The absence of certain tree species in the forest canopy can be an indication, but not proof, of prior logging. (In New England, Black Cherry and Basswood have frequently been listed as highly attractive species for selective logging.) Coppice stems, or stump sprouts, are good indicators or past clearings. Charcoal in the soil may indicate a past forest fire.

Systematic searches for old-growth in the Appalachians should begin in areas containing rugged terrain features such as cliffs, boulder fields, and steep, narrow ravines. Gorges and areas around waterfalls are excellent candidates. Rugged terrain presented major obstacles to small-scale lumbering and frequently the trees that grew in such places were twisted and gnarled, making them of limited commercial value. Even though an area may have been subjected to disturbances, it may harbor old-growth. Take core samples from downed trees.

RATES OF GROWTH

It is not unusual for old-growth specimens to average 15 to 20 growth rings per inch in locations where trees are under high stress. Relatively fast growth in many old-growth stands is 8 to 10 annual growth rings per inch. Contrast this with trees grown in the open near water which can put on an inch in 4 years. Frequently, the first and last few inches of an old-growth specimen will show the slowest growth. A tree two feet in diameter might average 10 rings per inch for half its radius and 20 rings per inch for the other half. This would make the tree 180 years old. Most of the old-growth sites in the Berkshires have many trees that exceed 180 years in age and exhibit growth patterns even slower than 20 rings per inch. One downed hemlock in the Cold River tract revealed 375 rings at roughly 40 feet up the trunk. At the base of the tree the count would likely have been 425 to 475 years.

DEVELOPING THE SKILL

The first step in calibrating the eye toward estimating age is to observe the changes in appearance that accompany age. A single tree reveals a lot. Scan the bark up and down the tree trunk. Notice the changes in texture and color. Notice the conditions under which a tree is growing. Is it in a stand among similar-sized trees? Again, most species have two characteristic shapes, and the one commonly included in tree books assumes growth in relatively open conditions. Inside a closed canopy environment, competition for light forces most of the tree growth to be upward instead of outward. In both environments, trees tend to exhibit a symmetrical shape when young. Hardwoods such as maples have a round to pear shape for the first 50 to 75 years of life. Early symmetry is progressively lost as competition with other trees and the pruning effects of weather and disease cause loss of limbs and branches. Young trees have finer branching and twigging than older counterparts. Mid-life finds most trees with stouter branches,

continued next page

thicker bark, and a broadened and thickened root structure. Under a forest canopy, deprived of light, the lower branches drop off, leaving the foliage in clumps near the top of the tree. Advanced age in many trees is frequently accompanied by broad "stag-headed" crowns which are conspicuous on ridges and hillsides even from great distances. Some trees, including Northern Red Oaks, have an easily recognizable shape in a closed canopy environment. A large conspicuous trunk culminates in a spread of foliage not unlike a spear of broccoli. Except for the root swell, many old-growth trees in a closed canopy forest retain approximately the same trunk diameter to the point of first major branching.

With experience, shape can be used as an age indicator, but beginners may find bark appearance easier to use. Older trees usually have deeper furrows and thicker bark than their younger counterparts. In some species age lightens the color of the bark, while the reverse is true for other species. However, color can be misleading where moss, lichen, or fungus growing on the trunk obscure underlying color. Size can be important in estimating age, but it is frequently misleading, since it depends on growing conditions. The oldest trees of a species are frequently not the largest. In many trees bark softens as it ages and strips fall off or are shredded by animals. The loss of the outer bark may reveal flat underlying surfaces that have a plate-like appearance. Descriptions that characterize the older trees of a species as having plate-like bark may be identifying the under layers of bark.

CONCLUSION

This first article has begun to build a base for both overall environment and individual species recognition. But no amount of description can replace first-hand observation. There are numerous places one can go to examine old-growth forest characteristics and study individual species. Mary Davis's excellent compilation of Eastern locations [available for $5 from *Wild Earth*] is sufficient to provide anyone with plenty of locations covering all the species that will be presented in this series.

Robert Leverett is a preeminent old-growth sleuth. He inspires efforts to save forests by taking groups on old-growth quests.

* The numbers of old trees in old growth vary widely, depending on the area. Our science editor notes that gap formation, which increases as a forest ages, creates a situation where the oldest forests may have a lower density of old trees than younger old forests.

Can *Canis rufus* Survive the 20th Century?

by Ned Mudd

The Red Wolf, *Canis rufus*, is considered one of the most endangered carnivores in the world. It was long thought that the Red Wolf emerged during the Pleistocene as a separate species with the distinction of being "the only North American wolf to have evolved entirely in the New World." New evidence based on mitochondrial DNA analysis, however, indicates that the Red Wolf may have arisen as a hybrid between Gray Wolves (*Canis lupus*) and Coyotes (*Canis latrans*), or as an unusual subspecies of Gray Wolf that hybridized with Coyotes over much of its previous range.

Unfortunately, as settlers migrated into Red Wolf territory [the southeastern and south-central United States] throughout the 19th and 20th centuries, their destruction of habitat and prey led to a long, slow decline for *Canis rufus*. By the early 1900s, humans had extirpated this splendid creature from almost all of its range, leaving it to cluster in small enclaves in swampy parts of Louisiana and Texas. In the early 1970s, the US Fish and Wildlife Service (FWS) decided to intervene to preserve the genetic integrity of the Red Wolf.

FWS began taking Red Wolves from the wild and putting them in Point Defiance Zoo in Tacoma, Washington. Here an intensive captive breeding program began. Fifteen years later, FWS calls the project "the most successful endangered species captive effort in the United States."

By the mid 1980s, a site was procured in Dare County, North Carolina, for a reintroduction attempt. Dubbed the Alligator River National Wildlife Refuge (NWR), this 120,000-acre site is currently the keystone of the Fish & Wildlife Service's reintroduction strategy.

Several additional sites are used as part of the long-range plan to reestablish Red Wolf populations in the wild: Bulls Island NWR, South Carolina; St. Vincent Island NWR, Florida; Horn Island, Mississippi; and the privately owned Durant Island just north of Alligator River NWR. Under FWS's "island strategy," adult Red Wolves are held on these islands for breeding and whelping. When pups are born, small radio transmitters are placed in their abdomens for telemetry tracking. The entire family is then released to roam until FWS decides to recapture the group, renew the adults' breeding program, and eventually release the now "wild conditioned" young wolves into the wild. According to FWS, the technique "appears to be succeeding."

Meanwhile, zoos are attempting to increase the Red Wolf population. To date, 10 zoos across the US are housing Red Wolf pairs in hopes of providing more genetic diversity for the recovery plan. Eight additional zoos are expected to join in the future. FWS has a goal of 350 Red Wolves in captivity and 200 in the wild.

However, even a cursory look at *The Big Outside*, by Dave Foreman and Howie Wolke, illustrates a major problem facing FWS's Red Wolf recovery plan: The Southeast is now nearly devoid of large wild areas, and this species requires vast areas of habitat to maintain its genetic integrity. FWS believes that "150,000 acres is a minimum size for a reintroduction effort."

According to Foreman and Wolke, Okefenokee Swamp (spanning the Georgia and Florida border) at 400,000 acres, Atchafalaya Swamp (Louisiana) at 800,000

acres, Big Cypress Swamp (FL) at 583,000 acres, the Everglades (FL) at 1,658,000 acres, Great Smoky Mountains West (North Carolina) at 227,000 acres, and Great Smoky Mountains East (NC & Tennessee) at 163,000 acres are the remnants of Dixie's Big Outside that could accommodate FWS's requirements. Unfortunately, even these areas must be considered poorly managed, fragmented habitats. Many conservation biologists believe that only very large and unfragmented spaces of land can harbor a balanced intact community of native species that includes top carnivores. "Moreover, wide-ranging, wilderness-dependent species such as Eastern Panther, Ivory-billed Woodpecker, Red Wolf ... can't survive in isolated natural islands even as large as the Everglades-Big Cypress and the Great Smoky Mts NP...." Whether Red Wolf will be able to sustain viable populations within the space currently under consideration is questionable.

So how are the reintroduced wolves faring? Since 1987, the Fish & Wildlife Service has released 34 Red Wolves into Alligator River National Wildlife Refuge. The Refuge has an estimated Red Wolf carrying capacity of 25. As of late 1990, 11 of the released wolves had died; all of the deaths were "natural or accidental and apparently not the result of a citizen acting irresponsibly or out of some unfounded hatred for wolves." Considering man's track record where wolves are concerned, this is significant. Alarmingly, however, roadkill has been a major cause of death.

Hurricane Hugo, detouring across Bulls Island, SC, created problems for recovery efforts there. Hugo's winds damaged almost every tree on the island. All of the island's wolves survived the hurricane, but a male wolf died shortly thereafter from suspected storm-related injuries. Interestingly, Alligators have eaten several of Bulls Island's wolves.

FWS recently announced plans to reestablish Red Wolves in Great Smoky Mountains National Park. This site may offer the species an opportunity to expand its gene pool once again without a further influx of Coyote genes. Maintaining its genetic heritage will be a key to Red Wolf's future.

While FWS experiments with cryopreservation, semen collection, and artificial insemination, the real question remains: Will we set aside enough wild territory for Red Wolf recovery?

WHAT WE CAN DO

Foreman and Wolke say it succinctly in *The Big Outside*: "Pity the poor South. Once it had the richest temperate forest on Earth, with Tuliptrees more than 200 feet tall, Carolina Parakeets, Ivory-billed Woodpeckers, Black Bears and Eastern Panthers galore, Elk in the mountains and giant 'gators in the lowlands.... But a century or two of Europeans changed all that."

Aiding Red Wolf recovery means taking up the larger issues: preserving and restoring vast wild areas; halting road construction in roadless areas, and closing many existing roads; removing public lands from any activity that degrades natural diversity.... In short, it means working for the restoration of Wild America!

Tacoma Zoological Society has set up a fund to help produce the Red Wolf Newsletter and disseminate information. If you wish to donate and receive the newsletter, write The Red Wolf Fund, c/o Tacoma Zoological Society, 5400 Pearl St, Tacoma, WA 98407.

Do the usual letter writing to Congress, on behalf of Red Wolves and wilderness recovery. Also write US Fish & Wildlife Service, Warren Parker, 100 Otis St, Rm 224, Asheville, NC 28801; and John Turner, Director of FWS, 18th & C Sts NW, Washington, DC 20240.

SOURCES

1. FWS Red Wolf Management Series, Technical Report #3.

2. *Red Wolf Newsletter*, Vol.2, No.1

3. *The Big Outside*, Foreman & Wolke, Ned Ludd Books.

4. Mitochondrial DNA analysis supports a hybrid origin for the endangered Red Wolf (*Canis rufus*). R.K. Wayne and S.M. Jenks. Paper presented at 5th Annual Meeting, Society for Conservation Biology, Madison, WI, 6-20-91.

Wind and Rock

I will lay my body smooth
face down in the soft granite.
It will stretch into me,
surround me like a fossil.
I will sink into a slow opening,
a barely covered, still exposed rock,
that the ice has cracked
and the roots have crawled.
I will crouch low to watch the wind
fill the spaces with tamarack
and Labrador tea, and wrap the
boulder that rests there on the ledge.
I will feel the wind lift
the rough-legged high and away,
and cool the flanks of the caribou
as they move up and over,
always touching everything.

—Patricia D'Angelo, Maine

Trans-Boundary Ecosystem Preservation

by Trudy Frisk

A cultural line divides the biological integrity of North America's trans-boundary ecosystems. Laws, land tenure, politics, management priorities, even awareness of urgency, differ considerably on either side of the Canada/US border. As American and Canadian members of the Greater Ecosystem Alliance (GEA) focus on protecting the entire North Cascades Ecosystem (from Washington state to interior British Columbia), we are identifying strengths and weaknesses which will, we hope, benefit others who believe that our national boundary must not be a barrier to ecological preservation.

To no one's surprise, GEA's work reinforces the premise that everything is connected. Free trade agreements signed in Washington and Ottawa, increasing human population in California, depletion of Western aquifers, provincial governments' acquiescence to international timber companies — all will affect our ability to protect the North Cascades and other trans-boundary ecosystems.

Retaining viable trans-boundary populations, especially of large, mobile predators, depends upon preserving sufficient expanses of contiguous habitat with connecting corridors. Habitat destruction of the magnitude that will occur in BC if current forestry and mining practices continue, and proposed power developments materialize, will seriously undermine wilderness integrity in western North America.

Wildlife and wilderness still flourish in British Columbia, which forms the northern boundary of Washington, Idaho and western Montana. The province has three-quarters of Canada's mammal species, and is home to many globally significant populations. Seventy-five percent of the world's Stone Sheep [a blackish color phase of Dall Sheep] live here, 60% of the world's Mountain Goats, 25% of the world's Grizzly Bears, 60% of the world's Trumpeter Swans and Blue Grouse, and 25% of the world's Bald Eagles. Wild stock from BC has been used in transplants to the former US ranges of Beaver, Fisher, Mountain Goat, Woodland Caribou, Bighorn Sheep, Sharp-tailed Grouse, and eagles. Gray Wolves from BC would be used in reintroduction to Yellowstone National Park and the Selway-Bitterroot Wilderness. BC wolves have already established packs naturally in the Flathead watershed of northwestern Montana and may be responsible for sightings in the North Cascades.

However, British Columbia's magnificent landscapes, from rainforest to semi-arid grassland, from estuary to alpine meadow, are bitterly contested by the same forces vying over wilderness worldwide. Multinational corporations oppose regional, watershed control of the land. Workers dispute "resource" allocation with wilderness defenders. Aboriginal people fight to retain their land and culture. Humanist, growth-oriented political parties are challenged by a conserver Green Party.

Economic prosperity in BC depends on primary resource extraction; the largest industries are forestry and mining. Tourism, the third largest industry, markets the very image — "Super Natural" — that the other two destroy!

FORESTRY

Most public land in the United States is federal land. In Canada, in contrast, most public or "Crown" land is under provincial jurisdiction. Since almost 90% of BC's public land is classified as forest, the forest industry will play a major role in determining the fate of biodiversity in the North Cascades, Selkirks and Monashees.

Theoretically, management of BC's public land is in government hands. In reality, timber firms control the land. John Weinard, former Operations Manager for the Kamloops Forest District, explains: "For all practical purposes, twenty-year tree farm and forest licenses, with companies monitoring their own cutting and reforestation, place control in the hands of a few trans-national forest companies." (personal communication, 1-91) A recent study concluded that ownership of BC's forest companies has shifted from local ownership in the 1970s to an industry dominated by foreign ownership. Beneficial share ownerships create four major power blocks. (A beneficial share ownership is a situation where ownership of corporate shares is registered in the name of a broker or bank but benefits accrue to the actual investor.) Interlocking corporate directorships in the four big groups mean that almost 67% of BC's forest is controlled by one corporate power group. The major costs of management are still the responsibility of the province since, ostensibly, ownership of the land is retained by the public.

Resource exploitation creates unlikely allies. A consortium composed of Power Corporation (Canadian), Stone Container (American), and the government of mainland China is bargaining with the BC government to obtain Pulp Harvesting Agreement #9, which would give them de facto control of the southeastern part of the province. This agreement affects the North Cascades. In order to preserve the ecosystem, we must influence not only the provincial government, but executives of corporations headquartered far from the wilderness they would destroy.

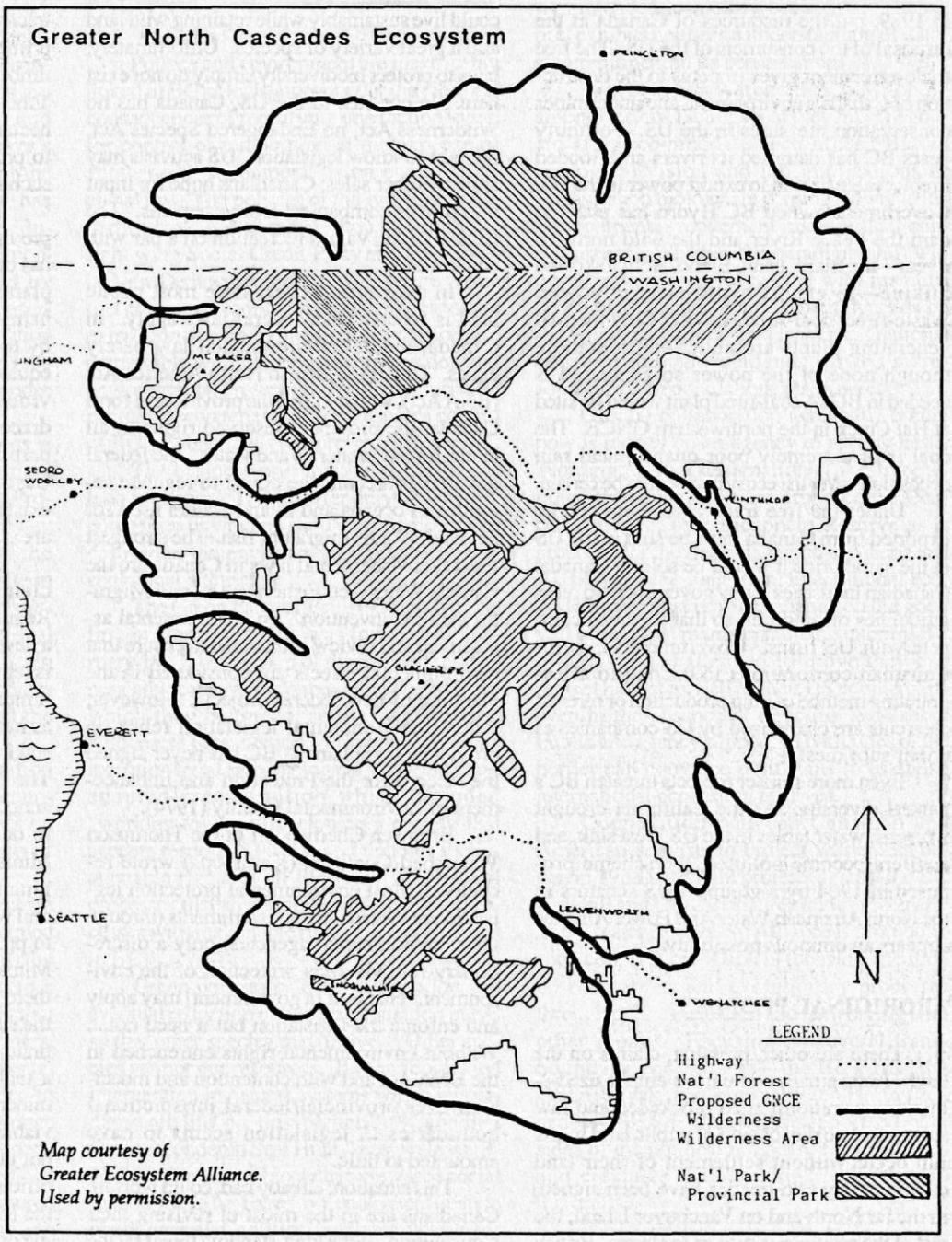
As wilderness becomes a precious and protected commodity elsewhere, multinational companies focus on BC to maintain their profits. New Zealand sets aside 17% of its land in parks; New Zealand-based Fletcher-Challenge insists it must log BC's Stein Valley, the last pristine wilderness in the lower part of the province, directly adjacent to the North Cascades. In the US portion of the Pacific Northwest, the Northern Spotted Owl is declared a Threatened species; in the BC portion, Weyerhaeuser intensifies its cutting.

The Canadian part of the Greater North Cascades Ecosystem (GNCE) lies within the Merritt Timber Supply Area (TSA), where Weyerhaeuser and Fletcher-Challenge hold cutting rights. The focus here, as elsewhere in BC forests, is on marketing the forest "resource." The Forest Ministry employs neither

biologists nor ecologists. Its concession to protection of other species is to allow Ministry of Environment fish and wildlife biologists to note habitat requirements on companies' cutting plans: notations which, the biologists say, are usually ignored. There is some management for Bighorn Sheep in the Ashnola River drainage and forestry managers say they try to leave Grizzly areas alone. Given the size of the bear's home range, this sounds improbable.

The Forest Ministry is also responsible for public grazing allotments. In the Merritt TSA 25,000 head of cattle graze what was dry-belt, open "parkland" forest and ungulate range. Other aspects of forest "management" similarly affect biodiversity; in 1985-86 large-scale chemical control of "pests" and "competing" vegetation began, in response to pressure from Weyerhaeuser. This chemical warfare is now almost universal on forest land. Province-wide opposition has had limited success.

Forest companies and workers are accustomed to considering BC's public forest land as their private preserve. Protection of the land is considered an attack on the industry.



Map courtesy of Greater Ecosystem Alliance. Used by permission.

MINING

Although most confrontations over wilderness preservation in British Columbia have involved forest companies, the most powerful industry supported by the strongest legal statutes is mining, which is predominant in the Canadian North Cascades. The Skagit Valley is heavily staked in mineral claims, as are the Similkameen and Princeton areas. Even if mines do not open in the immediate future, the presence of the mineral claims will preclude any Park or wilderness designation.

TOURISM

British Columbia's third major industry, tourism, promotes BC wilderness as "eco-tourist" destinations. Eco-tourists demand home comforts in the back-country. Ecological damage and conflicts with wild creatures are inevitable. Commercial back-country use is expanding, assisted by a development-oriented government. Despite evidence that most "adventure tourists" are fearful of wilderness and wary of adventure, the provincial government has issued a discussion paper on commercial recreation on Crown land which, if adopted, would give commercial operators a virtual monopoly on wild land in BC. It would restrict access by the general public, ban public hunting and fishing in any wild area where a commercial guide operated, and establish permanent structures in remote wild places. Restricting public recreation in the Canadian Greater North Cascades to established parks would not only prevent the outdoor enthusiast from enjoying the wild places, but also from observing and monitoring destruction caused by permanent camps and over-use.

FREE TRADE

All three industries justify their adverse effects on the land by pointing to jobs created for British Columbia's growing population, ignoring evidence that economic benefits obtained by unsustainable exploitation of primary resources are temporary and outweighed by environmental costs. Nor are the jobs created just for British Columbians. Commonly the industries ship raw logs and minerals—and with them, the manufacturing jobs—outside the country.

Moreover, the free trade agreement between the United States and Canada, signed

continued next page

in 1989, put the resources of Canada at the disposal of the consumers of the US. The free trade agreement gives impetus to the destruction of Canada's environment, and undermines conservation measures in the US. For thirty years BC has dammed its rivers and flooded irreplaceable habitat to export power to the US. Government-owned BC Hydro has plans to dam the Peace River and the wild northern rivers—the Liard, Iskut, Elaho, Homathko and Stikine—to export hydro-electric power. Waste-fired, coal-fired, and gas-fired thermal generating plants are under consideration, though none of the power so generated is needed in BC. A coal-fired plant would be sited at Hat Creek in the northwestern GNCE. The coal is of extremely poor quality; acid rain depositions over the ecosystem would be certain.

Under the free trade agreement energy exported from Canada must be sold in the US at the same price it would be sold in Canada. Canadian industries lobby government to relax guidelines on acid rain so that they can compete with US firms. Government funds for Canadian corporations to change to a less polluting method of pulp production or reforest clearcuts are challenged by US companies as unfair subsidies!

Even more sinister projects threaten BC's natural diversity. As the California drought worsens, water tables in the US West sink, and aquifers become polluted, the scheme proposed in 1964 by a group of US senators as the North American Water And Power Alliance appears an ominous possibility.

ABORIGINAL PEOPLES

There are other, pressing, claims on the land. Aboriginal people have emphasized—by demonstrations, road blockades and law suits—that no disposition of public land in BC can occur without settlement of their land claims. Only two treaties have been signed, in the far North and on Vancouver Island; the rest of the province is subject to claims. British Columbians support a just settlement of aboriginal claims and the government is beginning discussion. Wilderness advocates have long equated settlement of land claims with ecological preservation and, on that basis, unhesitatingly championed aboriginal groups. Indian leaders, while welcoming the support, forthrightly state that their priority is to obtain a land base and economic security for their people.

LAWS AND BIODIVERSITY

British Columbia's human population is still comparatively small. If industrial excess were curbed, this is one place where humans could live sustainably while retaining wild land and a great variety of species. Unfortunately, laws to protect biodiversity simply do not exist here. In contrast to the US, Canada has no Wilderness Act, no Endangered Species Act, no right-to-know legislation. US activists may appeal timber sales; Canadians hope for input into timber companies' five year plans. The BC Parks Act values recreation on a par with conservation.

In the United States, since most public land is federal land, federal laws apply. In Canada, federal environmental law barely exists. Under the British North America Act (BNA Act), which joined the provinces to form Canada, the provinces reserved rights to all lands, forests, minerals and water. The federal government retains the power to regulate activities in oceans and inland waters used for navigation or by migratory fish. The strongest federal environmental laws in Canada are the Canada Water Act, Fisheries Act, and Migratory Bird Convention. An environmental assessment and review is intended to ensure that environmental effects are considered in the planning of new federal projects. However, federal environmental legislation relies on provincial compliance. BC has never signed the Accord for the Protection and Enhancement of Environmental Quality (1974).

Bronwen Chernencoff of the Thompson Watershed Coalition (Kamloops) wrote recently: "Most environmental protection legislation in Canada gives governments (through their environmental agencies) only a discretionary role vis-a-vis protection of the environment. That is, it [a government] may apply and enforce the legislation but it need not.... Without environmental rights entrenched in the BNA Act and with contention and indecision over provincial/federal jurisdictional boundaries ... legislation seems to have amounted to little."

This situation, already bad, could worsen. Canadians are in the midst of revising their Constitution. If the long-standing threat by the province of Quebec to separate from the rest of Canada materializes, some of the Western provinces, including BC, may well follow. Even if a loose confederation continues, much more power will devolve from the federal government to the provinces.

WHITHER WILDERNESS?

The future for wilderness in BC is uncertain. Wilderness preservation is recommended, not required, by the BC Forest Act. Under that Act, Wilderness Areas would be designated by Order in Council of the Provincial Cabinet. What Cabinet gives, it can take away, should resource extraction be more attractive than "locking up the land." In fact the prime responsibility of the Forest Ministry is timber production; wilderness preservation is almost a conflict of interest. The areas of 1000 hectares described in the Act are inadequate to protect ecosystems; creating a myriad of such reserves would not suffice.

The BC Ministry of Parks, the other provincial agency responsible for wilderness, has been directed to develop a final park master plan for all BC by the end of 1991. It is hampered in its ability to preserve biodiversity by the lack of a biological data base, inadequate research funding, the mandate to provide "recreational opportunities," and a draconian Mineral Tenure Act. This last is particularly significant in the Greater North Cascades, where numerous mineral claims exist in the Skagit, Similkameen and Princeton areas.

Under the Mineral Tenure Act, proclaimed in 1988, and a Recreation Area Regulation passed in 1989, the possibility of a new Provincial Park being established in BC is remote. Prior to any Park being established it must first be designated a Recreation Area, as has been done in the Skagit Valley. Claim staking may continue in a Recreation Area. The Minister of Parks, at his/her discretion, announces to the Minister of Mines an intent to declare the region a class A Park. The Ministry of Mines must commission a preliminary geological survey to determine mineral worth. Until that is done no further action to protect the area can be taken. The Mines Ministry will do the survey when it wishes; there is no time requirement. From the time the survey is complete, exploration may continue for ten years. When this period expires, a ten-year extension may be granted if the minerals are deemed to have future economic viability—which argues a degree of prescience not common in the mining community. An official in the Ministry of Parks has likened the Mineral Tenure Act to a window of mining opportunity which never quite closes! The Parks now existing in BC seem doomed to become ecological islands.

PEOPLE POWER?

The environment is the first priority of British Columbians, according to opinion polls. Increased population, pollution, clearcutting, herbicide use, and waste disposal problems have alarmed residents. It is clear that BC's environment, particularly wilderness, is under siege. People have responded. Throughout the province such traditional groups as Greenpeace and the Sierra Club are augmented by well-informed, well-organized Watershed Alliances which share information

and strategy. These groups, invariably more knowledgeable than government representatives, mount intensive research and public information campaigns. New partnerships are forming between environmentalists and workers. The Pulp, Paper and Woodworker's Union, recognizing that processes harming the environment threaten workers' health, has made common cause with activists. The International Woodworkers of America Union, which has been skillfully manipulated by corporations pitting loggers against conservationists, is slower to acknowledge mutual interest, but there are signs of change. In the Kootenays the IWA joined activists to oppose Pulp Harvesting Agreement #9.

Determination to save BC wilderness is dramatic. Hundreds have turned out to fight for Wells Gray, Strathcona and Valhalla Provincial Parks. The South Moresby railway train brought Canadians from across the country to the defense of this beautiful site in the Queen Charlotte Islands and made preserving BC wilderness a matter of national pride. Thousands attend the annual Stein Festival to show support for this roadless drainage between the Coast Range and the North Cascades.

Unfortunately, most BC conservation groups, more moderate than their US counterparts, still base wilderness proposals on "stewardship" and "wise use." The rights of other species to exist and evolve regardless of their utility to humans has yet to permeate environmental thinking. That lack, coupled with an incomplete understanding of the principles of conservation biology, led to a proposal, in 1988, by the Valhalla Society that 12% of the province be set aside as wilderness. Impelled by a desire to achieve environmental peace, they identified areas which, added to existing parks, would comprise 12% (since increased to 13%) of BC, then offered a deal. If these lands (which included the GNCE's Skagit watershed) were set aside, they assured government, industry, aboriginal groups and labour, they would never ask for more.

No consensus had been reached among the various activist groups in BC prior to the proposal being offered. The arrangement is repudiated by a number of wilderness and wildlife groups on the basis that it represents neither ecosystem needs nor public and scientific guidance. Fred Marshall, Registered Professional Forester and consultant to the Ministry of Forests, states that preservation of 40% of BC's land base, representing a full range of biodiversity, is compatible with sustainable, ecological forestry.(Presentation to Parks Plan 90, 2-91)

POLITICS

Politics and environment are inextricably linked in BC as legislators ponder the electoral consequences of mollifying one faction vying for control of public land at the expense of another. "Environment" is on every politicians' lips. The policies of the two traditional parties have not changed, though. Both the right wing Social Credit Party and the socialist New Democratic Party (NDP) assure voters that continued economic growth and resource extraction for an expanding population are compatible with wilderness conservation and environmental protection. Neither exhibits an ecological awareness; neither disputes control of BC's public lands by foreign interests.

The business-oriented Social Credit and labour-supported NDP differ only on whether companies or workers should profit most from destroying the environment. Yet there is an ecological alternative.

The Green Party of British Columbia, the first in North America, was founded in February 1983, by a group of disgruntled wilderness advocates who doubted that the NDP, to which they belonged, seriously supported wilderness preservation. Influenced from its inception by a Deep Ecological wing, the Party adopted a constitution which included "working towards developing a society that accepts responsibility for and upholds the inalienable rights of all life forms and natural processes that share the Earth." Natural processes with inalienable rights? Radical words in BC!

Green policies call for stabilization and eventual reduction of human population in BC so that other species may thrive. "Other species are not our resources. It is our continued intervention in natural systems which jeopardizes all life on this planet." ("Canadian Greens Condemn Seal Hunt," press release, 3-30-90) The Green biocentric view that social justice must be based on ecological justice challenges the political analysis which for generations has polarised BC politics between left and right. Predictably, both major parties respond with angry denials. As the similarity between the two becomes apparent, cautious BC voters look more favourably at the Greens.

THE FUTURE

British Columbia is a province in transition. The government is requesting public input on allocation of Crown lands. A recent Forest Resources Commission report touted biodiversity, but when studied in depth, it is seen to be a mechanism to deliver BC's public land to multinational forest companies. Use of the term 'biodiversity' in the press release was intended to mollify ecologists. The report exhibits neither an understanding of it nor a commitment to its preservation!

A grudging awareness is developing among various factions that they must negotiate and accommodate each other. But an ecological vision and the implications of conservation biology are coming slowly to the environmental movement and political consciousness. Whether the paradigm shift will occur in time to preserve the wild magnificence of BC is uncertain. Much depends on the will to resist pressures from multinational corporations and demands on BC's "resources" from populations elsewhere.

Official collaboration across the border now is mostly on an agency to agency basis, avoiding special designations [like International Peace Parks, as are proposed for Central America; or a Biosphere Reserve as is proposed for the Beringia region of Siberia and Alaska]. In the long term, international ecosystem law must replace reliance on the good will of regional managers. In the interim, BC officials are challenged to prove they can protect habitat as well as their US counterparts even in the absence of directing legislation. Public and agency support on both sides of the border can convince politicians to establish international ecosystem reserves.

Cooperation between Canadian and American activists to protect wilderness began in 1988 with joint protests against the BC wolf kill and US/Canada free trade agreement. The Greater Ecosystem Alliance is promoting such cooperation. GEA is focusing attention on ecosystems and evolutionary processes through public education and networking with other groups. Focusing on several transboundary ecosystems—the Selkirks, the Cabinet/Yaak, and especially the North Cascades—GEA is providing support on both sides of the political boundary for wild lands and creatures that "belong" truly only to themselves.

Trudy Frisk is the BC/Yukon Representative to the Federal Green Party of Canada Council. She also serves on the Greater Ecosystem Alliance (POB 2813, Bellingham, WA 98227) board of directors.

Poison or Perish: ADC vs the California Condor

(nonfiction)

But the condor put the spirit into the hunter ... So Coniraya blessed him. "You shall fly wherever you want. There won't be any place in the sky or on the earth where you can't go. No one will get to where you build your nest. You'll never lack for food: and he who kills you will die.

—Eduardo Galeano, *Memory of Fire: Genesis*

by Joe Bernhard

23 May 1965, 3:10 PM, Pinehurst, Fresno County, California—the last of the rainbow earth: grass browning, dying white and purple Brodea mixed with maroon and white and yellow Mariposa Lilies, plus thousands of two-foot-tall, lavender Farewell-to-Springs, an appropriately named flower even though chronometrically the season has a month to go.

Motorcycling along Millwood Road, Mr. G.B. Coigny leisurely enjoyed the last of the flowers and one of the last fecund days before dry heat would burn off spring's lushness. Noticing a large shadow on the ground Coigny stopped, looked up and watched a slowly circling California Condor give an added dimension to the blue sky. For a second the bird was out of sight. When it reappeared at power-line height it was falling fast and with "an explosive suddenness" hit the road, landing on its back. Mr. Coigny reached the crash site in time to see the condor blink its eyes and weakly move its legs—indications of central nervous system damage. Then all that remained was a cadaver weighing nineteen and a quarter pounds with a nine foot one inch wingspan.

It was an ignominious end for a year-old, seemingly healthy bird just learning its way around the two foraging corridors in central and southern California. Coigny photographed his find—after trussing it with wires to get pictures as impressive as possible—put it in the refrigerator, then called a constable and a game warden. The next day, the bird was wrapped in ice and taken to the Fish and Game laboratory in Sacramento.

In death the Pinehurst thunderbird became the most significant of all California Condors, though not as famous as its nephew, AC-9, the last free big bird, who was shoved into a cage like a spark plug into an engine block on Easter Sunday 1987. In fact, if the messages emanated by the Pinehurst corpse hadn't been ignored, AC-9 might still be soaring and roaring in the West Coast sky—which needs all the beautification it can get.

(The condor was called the "thunderbird" by all Native Americans because of the sound the wind made rushing through its primary feathers when it dived. European invaders, who couldn't tell one big bird from another, laid that handle on eagles.)

X-rays showed no broken bones nor any pieces of bullet or shot. There was no evidence of a missile having passed through the bird, as was further substantiated when the cadaver was skinned.

Pinehurst was the first condor on which attempts at thorough examination were made. Two autopsies were performed: one by the California Department of Agriculture, the other by the US Fish and Wildlife Service (FWS) with help from California University and Fish and Game biologists and an independent veterinarian.

Both autopsies revealed the presence of DDT and its sibling, DDE, in fat, heart, kidney and liver tissues and in the crop contents, with the greatest concentrations found in the visceral fat: 30 parts DDE and 18 parts DDT per million parts condor. Nobody checked for the presence of sodium monofluorocitrate (FC), nor did Agriculture try to find any sodium monofluoroacetate (SMF). FWS attempted no analysis for the latter in the crop contents but did find more than seven and half parts per million in the bird's stomach lining and heart tissues. Because an effective method for uncovering sodium monofluoroacetate in all parts of the bird didn't exist then (nor does one today), Dr. Mike Fry of UC Davis believes the total content of this toxicant in the bird could have been as high as 50 parts per million. For the past few years Dr. Fry has been experimenting with the effects of Compound 1080 (SMF) on Turkey Vultures, the most similar non-endangered bird to the condor readily available. In 1946 Justus E. Ward and D.A. Spencer killed five of seven buzzards by feeding them less than 20 parts per million of 1080.

The official cause given was that the Pinehurst condor struck "some object—power line, brace, etc. which stunned it and caused it to fall unimpeded to the pavement below." All subsequent reports of the Pinehurst condor's death list it as the result of a collision, and collision is cited as a major cause of California Condor decline. Yet, no death by collision has ever been documented. One of nine California thunderbirds feeding on a bovine carcass and surprised by humans collided with the top wire of a fence while taking off but survived. A zoo-bred Andean Condor, after begging Big Macs from Southern California Edison Company workers in the Sespe Forest, was found dead near the pole where he was seeking lunch and his death is officially listed as from "collision."

"Collision" is a newspeak word employed by the above mentioned institutions to cover up the destruction perpetrated by the Animal Damage Control Agency (ADC), where many a colleague, many a buddy works. Even if we totally accept the "collision" explanation, it doesn't get ADC off the hook. At that time ADC was spreading 610,000 pounds of Compound 1080 annually, one-sixth in condor territory. Dr. Fry, in fact, has tightened the hook by releasing results showing that sublethal doses of SMF cause permanent brain damage, lethargy (to the point where vultures roost on the ground and don't even move when approached by their most dangerous enemy—humans), and ataxia: the inability to taxi—to

fly around poles, for example. One way or another, Compound 1080 likely killed the Pinehurst condor.

GENESIS OF A POISON

SMF is a synthesis of a substance that develops organically in some African, Australian and Brazilian plants. Belgians experimented with the stuff off and on for three-quarters of a century and concluded that it might be useful in killing rats. Then Nazi Germany established a Bureau of Chemical Warfare in its search for ways to knock off nonaryans. Its scientists—who were inventing such poisons known today as dioxin, agent orange, parathion, and malathion—had good reason to believe sodium monofluoroacetate might help them achieve their goal. One five-hundredth of an ounce would kill a grown man without his knowing anything was wrong for four to eight hours after it had gotten inside, which was just as well, as no antidote existed then, and none does today.

Being odorless, tasteless, and water soluble, 1080 was conducive to widespread, undetected distribution. When swallowed, inhaled, or absorbed through the skin it kills by entering the central nervous, cardiovascular, and respiratory systems. It lasts indefinitely, decomposing very slowly when acted upon by topsoil and root bacteria. The only way to destroy it rapidly is to expose it to temperatures over 200 degrees centigrade.

Nonetheless, 1080 did not fit into Nazi plans; chemical warfare is a two way street, and their intelligence was well aware of the Allies' retaliatory capability. The scientists suggested, though, that it might be useful for killing rats.

The American Office of Strategic Services got the formula from the British, and after considerable study turned it over to Animal Damage Control, suggesting it might be useful for killing rats.

And thousands of rats were killed until three little girls ate 1080-loaded vanilla wafers and four more died after presumably drinking water poisoned with SMF set out for the rodents. Then, in the late 1950s, the ADC switched its attack to squirrels, prairie dogs and Coyotes.

ADC VS GROUNDSQUIRRELS

By the time the Pinehurst condor lethally plummeted from the sky, 506,310 pounds of 1080 were being scattered annually to kill California groundsquirrels, almost all of it on rangeland where, the ADC alleges, these squirrels destroy up to 38% of feed. This figure was arrived at by Dr. Henry S. Fitch, who conducted a controlled study of the groundsquirrel *Citellus beecheyi beecheyi* on an 80-acre enclosure at the San Joaquin Experiment Rangeland between 1938 and 1946. The 38% destruction included tar weed and other forage cattle don't eat. Because of confinement, the squirrels could consume and destroy what was available, not necessarily the food of choice. Considerable destruction was caused by humans constantly walking to check traps and the 200 traps themselves. No competition for forage between cattle and squirrels was noted in summer and fall. Most *beecheyi* destruction was done during March and April when feed grows so fast there's more than enough available for everyone. What was destroyed or eaten was green and contained 75% moisture.

Three decades later, Sarah Woodmansee and Frank Schitoskey Jr. studied groundsquirrels at San Joaquin in an uncontrolled, unconfined experiment using microtechniques that were only clouds in the minds of dreamers during the Fitch period. Taking into account such factors as dry versus wet weight, their report determined that *beecheyis* took .03% of all rangeland forage.

As ADC's main purpose is job perpetuation, the modern study doesn't exist as far as the agency is concerned, and Fitch is always cited (even though Schitoskey's report was his Ph.D. thesis and his professor was Dr. Walter E. "Howdy" Howard, High Priest of 1080 and lifelong member of the National Animal Damage Control Association). Nor is any attention paid to the conclusion reached by Thomas F. Newman and Don A. Duncan of the San Joaquin staff that *beecheyi beecheyi* is "very important ecologically and economically to foothill rangelands."

The other reasons given for killing groundsquirrels are hardly worthy of comment. One is that horses step in *beecheyi* holes and break their legs. It takes a very dumb cowboy to let his horse step in a hole and then almost invariably it's a Badger hole. Another is that squirrels cause erosion. Cattle grazing west of the Mississippi each year produces more erosion than the Colorado and Mississippi Rivers combined—500,000,000 tons annually (according to Denzel and Nancy Ferguson in their book, *Sacred Cows at the Public Trough*, and to Lynn Jacobs in various articles). A third claimed reason is that fleas and ticks carried by *beecheyis* carry rabies, tularemia, bubonic plague and Lyme's disease. A check of all counties in condor territory for the past decade reveals that none of these diseases was attributed to fleas and ticks carried by groundsquirrels.

Ah, those destructive holes. The main ingredient of California rangeland is decomposed granite which absorbs slightly more water than asphalt. In a 50 square foot area, groundsquirrels can dig up to 50 burrows 2-4 feet deep, 4 inches in diameter and 5-30 feet long. Melvin C. Simons, generally considered the best geologist and hydrologist in the central-western Sierra, states that these burrows are major conduits for recharge in the zone overlying the fractured rock groundwater system, and provide repositories to prevent

continued next page

eroded topsoil from filling lakes or being washed away. As soil layers in the foothills may take up to 40,000 years to develop a foot and a half, the interception of the precious substance by rodent burrows is clearly beneficial.

Even when the ADC was pushing 1080 as the most effective rodenticide available, orchard and vineyard growers rarely used it and never repeated the use once they started finding their pets dead. Highly selective anticoagulants were always preferred and today new ones are more effective and selective than ever.

ADC VS THE ESA

When the Endangered Species Act (ESA) was passed in 1973, it became illegal to poison in areas inhabited or frequented by protected animals. Yet hundreds of thousands of pounds of SMF were baited annually in such areas under ADC's supervision.

There never was any "control" involved in the mass killing. Counties could order as much 1080 as they wanted. A Special Advisory Board on Wildlife Management for the Secretary of the Interior, chaired by A. Starker Leopold (Aldo's son), concluded in the 1960s: "there is no legal machinery extant that can stop a county from acquiring and using 1080 any way it sees fit."

ADC VS TRUTH

In the beginning ADC claimed sodium monofluoroacetate was highly selective—killing only targeted species. Consequently it was used in bait stations aimed at Coyotes. Bait stations are simply poisoned chunks of meat. Knowing the life span of SMF it's hard to imagine that ADC got away with its "highly selective" line for nearly two decades. The person who finally exposed this lie wasn't a PhD wildlife biologist but simply a field poisoner who'd trapped and hunted all his life (like most of the ADC poisoners, trappers, and hunters I've met, drank with, shot pool with, bullshitted with; the type of folks you don't mind having around your campfire, the type of folks who'd do anything—and there's the rub—to earn their living off and on the wild earth).

Dick Randall had been finding carcasses around his bait station; and when ADC put a yellow tracer into its 1080 he began collecting these corpses, freezing them, then examining them on his own time—which wasn't much because sheep ranchers were always clamoring for more poison. Still he managed to haul in 150 bodies. The collection included dogs, Coyotes, Badgers, Black Bears, Pine Martens, Minks, skunks, weasels, Golden Eagles, Great Horned Owls, Red-tailed Hawks, magpies and Prairie Falcons.

After a considerable while, evidence presented by Randall and others before a new ADC Commission headed by Dr. Stanley S. Cain (with Leopold still on board) led to the banning of 1080 as a predacide, in 1972—a ban that lasted until 1985. ADC more than made up for the slack, though, by increasing grain baiting to nearly 610,000 pounds annually (83% distributed to California groundsquirrels, 15% to Colorado prairie dogs).

In 1981 a new invention, the toxic collar, promised some SMF diversity and was highly praised and proselyted by ADC. This device includes a neck band with a little monofluoroacetate-filled bag attached. The collar is fastened around a lamb's neck and if it is bitten by the targeted species the rancher loses a sheep but gains a Coyote. Because of the loss, and the cost of the collar, it hasn't won any popularity awards within the wool growing community.

The California groundsquirrel is, in varying degrees, the bread of the rangeland to over a dozen species, some threatened like the Golden Eagle and Cooper's Hawk, others Endangered like the Bald Eagle and the California Condor. It comprises about half the diet of the Red-tailed Hawk and the Coyote, 80% of the Gopher Snake's.

Still the ADC assured the world there would be no secondary nor tertiary poisoning from 1080 now like there had been with the bait stations, whether the toxicant was broadcast from planes or on horseback. Because of SMF's slow action the *beecheyis* would have plenty of time after feeling sick to crawl into their underground homes to die, their corpses then being unavailable to scavengers. And even if some couldn't make it home, ADC regulators would be out the next day to pick up the strays and bury them at least two feet deep. Furthermore, residents living on land adjoining the poisoned area would be warned so they could keep their domestic animals cooped. And poison signs would be posted as a warning to domestic animals not living on adjacent lands.

The ADC doctors of science either hadn't learned or deemed unworthy of mention that when animals ingest slow acting poisons, they almost invariably vomit, and that many animals (dogs and Coyotes, kittens and Bobcats, for example) eat puke. The toxicant won't deter them, since it's odorless and tasteless.

ADC GENESIS

US government involvement in killing wildlife dates back to the 1800s. The current program of annihilation was established by the Animal Damage Control Act of 1931 which called for "the best methods of eradication, suppression or bringing under control... mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jack rabbits and other animals injurious to agriculture."

ADC, then named the Division of Predatory Animal and Rodent Control, was in the Department of Agriculture until 1939 when it was transferred to Interior, renamed the Branch of Predator and Rodent Control, and positioned directly under the Fish and Wildlife Service. In 1964, after release of the Leopold report, it changed its name again, to the Division of Wildlife Services. (One can't help being fascinated by the way the government euphemizes what it does. The way ADC "services" wildlife is similar to the way the air force serviced Iraqi citizens with "collateral damage.") In 1972 another ADC Commission report elaborated on the Leopold findings so the name was changed once again, this time to the Office of Animal Damage Control.

ADC never was happy in the Interior Department. ADC's purpose is to subsidize agriculture whether it needs it or not. So rancher-owned legislators sneaked a proviso into a bill, passed during the confusion of a Congress hell-bent on getting home for Christmas in 1989, transferring the agency back to Agriculture and into the friendly hands of its Animal and Plant Health Inspection Service (another euphemism), commonly referred to as APHIS.

Officially that's what the ADC is but actually it is much more than that: ADC spends its federal $30,000,000 plus another state $15,000,000 annually while working with and generally controlling the efforts of poisoners, trappers, snarers, injecters and shooters employed by the US Fish and Wildlife Service, APHIS, state and county departments of agriculture and health, fish and game agencies, land grant universities and colleges, ranchers, wool growers and trap and poison manufacturers ... as indicated by *The Probe*, the newsletter of the National Animal Damage Control Association. Until last year *The Probe's* logo was a Coyote with its tail between its legs and a Sahuaro flipping the finger. Now, with a new editor intent on image improvement, the Sahuaro is gone. In short, the poison or perish attitude pervades the ranks of the animal damage controllers no matter where salaries come from.

ADC VS UNINTENDED VICTIMS

In June 1977, an ADC team under the direction of Paul Hedgal spent time on 25,000 acres of rangeland in Tulare County, California. Prior to grain baiting with SMF the group attached transmitters to various non-target animals. California groundsquirrels were the

target. After application five of six radio-equipped Coyotes were found dead, as were a couple without broadcasting stations. Hedgal states that because of the slow action of 1080, other creatures could have eaten the poison and not been found. A Coyote might roam five or ten miles before dying. Three of ten Bobcats expired. Twelve cottontails died from primary feeding. The predators, lagomorphs and the 8% of the squirrel population that remained dead above ground immediately became bait stations: death traps awaiting carrion-eaters such as the condor known as The Tulare Express who used to fly 100 miles from Santa Barbara to Tulare and back again three times a week. Several Acorn Woodpeckers and White-breasted Nuthatches were found dead after feasting on grain-eating ants.

The Hedgal study is only one of several documenting the promiscuity of SMF. It confirmed the 1972 report of Dr. Stanley Cain's Animal Damage Control Advisory Committee to the Secretary of the Interior that 1080 is the least selective of all poisons.

While the secondary and tertiary toxic effects of 1080 have been proven, another ADC claim has been accepted without question—that sodium monofluoroacetate is destroyed by bacterial and soil action within six months and constitutes no danger to life. Strangely enough, contrary evidence was produced at the San Joaquin Range by ADCers Walter Howard and K.A. Wagnon of UC Davis and J.R. Bentley (doctors all) of the US Agriculture Department.

The researchers compared weights of cattle grazing on pastures with and without squirrels. Two hundred squirrels native to pasture 1 were poisoned with 1080 in the fall of 1950. In 1952 eighty squirrels were introduced into the poisoned area to join ten of their species already present. In 1953 only twenty remained. The population peaked at 40% of its pre-toxic average in 1955 then dropped to 29% in 1956. A California groundsquirrel litter averages close to seven, in times of stress nearly double that. Old age, disease and natural predation do not seem likely to account for such a dramatic population drop. The doctors offered no explanation why the land didn't now support the number of *beecheyis* it had before sodium monofluoroacetate was applied. They stated simply: "The reasons for these changes are not known."

In the toxicant world LD 50s are constantly thrown around. LD 50—lethal dose 50%—refers to the amount of poison it takes to kill half of a population. Years ago LD 50s were estimated for dozens of species. All estimates were invalid. Mike Fry discovered that the amount of SMF necessary to kill a critter with the temperature at 90 degrees Fahrenheit was approximately one-third that needed at 35 degrees. In previous killings, ADC had not recorded the temperatures.

Condor specialists assert that only half the thunderbirds breed in the wild. However, as no fertility studies were made prior to 1080 baiting, chick production in natural conditions is unknown. ADC avian scientist Sanford R. Wilbur wrote in 1978 that "Determining the cause of reduced reproduction and correcting the situation is currently the key to condor survival," and also mentioned in the same report: "The number of dead condors found and the rumors of other losses in Kern County during the early 1960s suggest an unusually significant period of condor mortality."

Nine corpses were actually found—all in 1080 grain baiting areas. How many others flew away to die in seclusion is unknown. The four most experienced condor experts in the world—Carl Koford, Alden Miller, and Ian and Eben McMillan—were sent into the field by the UC Berkeley Museum of Vertebrate Zoology. ADC denied any knowledge of thunderbird deaths and made the investigation difficult, at one time prohibiting the McMillans access to the Sespe National Forest for three months. Years later it was revealed that the poisoners were writing reports of condor deaths at the very time they were making their denials.

Squirrels are the condors' third favorite food after venison and veal, according to Alden H. Miller and Ian and Eben McMillan. During the 1960s there was so much 1080 baited in Kern County that posting was unnecessary. All the ranchers had to do to know the toxicant was being distributed was to look at the sky where condors were circling above the poisoners. Known fatalities amounted to about a fourth the condor population. None had been shot. None had body damage. One had maggots on it, which soon fell dead. The most tell-tale cadaver was found on 11 August 1960. After rotting in a barn it was transported to the museum in Berkeley on 10 July 1963 where dermestid beetle larvae clean hides just as maggots do in Kern County. And just like the Kern maggots the entire larvae colony died: 1080 tertiary poisoning three years later.

THE FINAL CAPTURE

In the winter of 1985-86 five condors disappeared. Strangely enough, they were the only ones left in the wild without radios attached. Drs. Bill Toone and Michael Jackson, Ornithological Curators of the San Diego Wildlife Park and the Los Angeles Zoo respectively, and Dr. Hank Pattee, then of the Condor Recovery Center, believe it likely that the birds disappeared after eating the same corpse. There are many reports of up to 20 condors feeding on a deer or a cow and Gladys McMillan saw nine sharing the remains of a domestic cat. It is very possible that a Coyote ate a 1080-poisoned squirrel and the thunderbirds ate the Coyote.

Plans had been around for three decades to imprison all California Condors and this disappearance provided the excuse for fulfilling the plans. The last thunderbird was caged on Easter Sunday 1987.

If the one carcass theory is true, and if it was a poisoned Coyote, we can get an idea of what the canid went through from this description written by John P. Weigand after attending an ADC meeting in Twin Falls, Idaho in August 1981. "We were 'treated' to 30 minutes of movies of coyotes' reaction to 1080. Although time-lapse photography was used, we watched a healthy adult female Coyote experience 20 minutes of convulsions (shivering, shaking, and paw-peddling while on its side); this had been preceded by 5 minutes of coyote dry-heaves and disoriented running. Although I am a biologist and a hunter, and learned a lot about 1080 poisoning, I was repulsed by the sequence."

POISONS & POOL

One beer drinking night I was shooting pool with an ADCer who was pissed off at me because three years before I'd talked a big rancher out of using 1080. As a result of lifelong indoctrination he knew in his heart of hearts that the only good varmint was a dead varmint and the groundsquirrel was the varmintest of all varmints. I didn't even try to explain the benefits of groundsquirrels. Instead I pointed out the secondary and tertiary effects of SMF and how those effects destroy the dozen plus squirrel predators and how the *beecheyis* have multiple litters and breed at younger ages when under stress and consequently within a couple of years there are more rodents than ever; whereas nature keeps the squirrel population at normal levels and doesn't cost a cent.

When the rancher canceled grain baiting he had not only explained why but named me as the source of the why—which I didn't know until my pool opponent brought it up as the Budweiser lubricated his tonsils, loosened his tongue and riled his innards. Finally, holding his cue stick with both hands, horizontally, he looked me in the eye and said low and mean: "The balance of nature doesn't feed my kids. 1080 does."

I nodded, accidentally on purpose sank the eight ball even though I had three solids left, returned my cue to the rack, bought him

continued next page

another beer—the cost of losing—said I had to go outside to put a leak and drove into the safety of distance.

ADC VS EPA

On 22 November 1985, Director Douglas D. Campt of the Environmental Protection Agency's Registration Division sent a certified letter to Tull Allen of the Tull Chemical Company, Oxford, Alabama—the sole manufacturer of 1080 in the US—outlining requirements that had to be met if the use of SMF was to be continued in this country. The company was given 90 days to respond.

It didn't, but continued fluoroacetate registration was supported by the Colorado Department of Agriculture and by the California Department of Food and Agriculture. EPA determined that of the 1985 requirements for use California fully satisfied eight, partially satisfied one, failed to satisfy seventeen and neglected to address two at all.

In October 1989, Director Campt, after informing Tull Allen that "EPA will attempt to adopt the option which will impose the least burden on you," and after extending Tull Allen's response time from 90 days to nearly three years, banned the use of 1080—except for experimental research such as in toxic collars.

It's been banned before—and unbanned.

Tull Allen did not need to respond. Taxpayers were providing California and Colorado with funds to do so for him. Besides, he exports 90% of his product.

To this day taxpayers and ranchers are still helping him. The California Cattlemen's Association has a Recreation and Wildlife Committee. The Committee recreates by promoting Mountain Lion killing, trapping wildlife, and expanding the use of 1080. The CCA-controlled Vertebrate Pest Control Research Advisory Committee has talked the California Department of Food and Agriculture into placing a fifty cent surcharge on every pound of rodenticide sold to pay for studies they hope will increase 1080 distribution. Ranchers, and especially crop farmers who have never used SMF and don't want to, must pay this tax.

Much of the 90% of monofluoroacetate exported ends up in Mexico. One of the last Grizzly Bears left in Chihuahua was killed by 1080, experiencing a long day's dying described by Montana rancher and State Senator Arnold Rieder, quoted by Francois Leydet: "A frenzy of howls and shrieks of pain, vomiting and retching as froth collects on tightly drawn lips ... racked by painful convulsions from the most inhumane poison conceived by man."

On 21 May 1991, a cowboy told me that within the year he had grain-baited 1080 on a large ranch, adding it was his understanding that despite the ban counties were authorized to use up what SMF they had on hand. The next day I talked with Jerry P. Clark, Senior Biologist with the California Department of Food and Agriculture, who said this was not true—that all monofluoroacetate use stopped on 12 October 1989. He also told me there were 70 pounds of the poison stashed in various counties throughout the state, bringing to mind the Leopold Advisory Board's conclusion that counties could use 1080 in any way they deemed fit.

In addition to the 70 pounds scattered throughout California, there's probably SMF stored in Colorado. Some experiments, such as testing for LD 50s and the effects of sublethal doses on Turkey Vultures, are continuing in universities and FWS laboratories and a few field tests on toxic collars are being done. Tons of the stuff are manufactured, stored and exported from Oxford, Alabama.

WHAT SHOULD BE DONE

Every year a bill that would prevent exportation of pesticides banned in the US comes closer to being passed in Congress. A nice beginning but nowhere near enough. Not only should banned pesticides, herbicides and rodenticides not be exported, their manufacture should be outlawed—with hard time dealt to violators—and every ounce of the poisons should be destroyed—with hard time dealt to illegal storers. A call or letter to one's representative and senators might help enlarge the bill's purview and expedite its passage. A picket line in front of the Tull Allen factory might bring some badly needed publicity to the problem.

For three years the US Fish and Wildlife Service, with considerable help from the Los Angeles Zoo and other institutions, has released, fed and observed zoo-bred Andean Condors in the Sespe National Forest. Generally the birds are three to four months old when released. Of 14 condors only the bird that supposedly hit the power line or pole was lost, though another died from a fairly common attack called "transport shock" while being shipped on a very hot day.

This was the first time zoo-bred condors had ever been released in an area void of thunderbirds. Unlike Turkey Vultures, condors have practically no sense of smell and they find carrion by observing birds with similar habits, preferably of their own species, but in a pinch vultures, ravens and eagles will do. This underdeveloped olfactory process probably explains why the first things they eat on a carcass are its softest features, the anus and mouth.

Survival techniques such as roosting and learning how to fly above, below and around power lines and poles are best learned from other condors. Some of the released Andean Condors have learned the techniques so well they are becoming less dependent on human handouts and are venturing farther and farther away from the release site. These manifestations of freedom will prove costly, however, for if the plan to release two-, three-, or four-year-old California Condors in early 1992 is fulfilled, the older Andeans will go back to jail, as the wildlife biologists and ornithologists controlling their destinies want the young Californians to learn the tricks of the trade from young, still dependent Andeans.

The habitat has not changed much since the capture of the last California Condor; foraging areas hundreds of miles from the release site remain intact. The Nature Conservancy has acquired a 10,000-acre ranch and made it a sanctuary. Developments in condor country generally are built next to other developments and thousands of square miles of rangelands still offer plenty of food. The Sierra Club and others are working hard to get much of the Sespe River declared Wild and Scenic and two bills to that effect are now in Congress.

Most of the Sespe National Forest has not experienced a fire in 80 years and is in dire need of a control burn, which would increase the availability of forage for wildlife. The Forest Service has been talking about a burn for half that many years and while it hasn't produced any smoke, it has come up with a lot of excuses for not doing so.

As fragments of lead, including a 22 bullet, were found in three autopsied California Condors, a change of lead slugs to copper ones—which are just as accurate and effective as lead—might lengthen the life of a bird or two; but you've got to take on the National Rifle Association to enact that improvement. Lead shot is already outlawed in National Parks. (Steel shot is not consistently accurate and leads to maiming animals instead of killing them.)

Estimates of the thunderbird population increased from 40 in 1940 to 60 in 1960, a period of extensive hunting in condor territory. Shortly thereafter came massive grain baiting and a decline in the number of condors, a decline that intensified even after the banning of DDT. As ADC was then a Fish and Wildlife Service agency, it's not hard to speculate why lead shot became the number one enemy.

(While I have never seen an explanation of why ingested lead shot kills condors, I frankly don't know enough condor biology to dispute the allegations made by scientists. [Chickens do very well after eating roofing tacks; yet waterfowl deaths due to ingestion of lead shot are well documented.] I know that a 1950 report detailing the poisoning of three

condors feeding on a Coyote carcass was suppressed by the same scientists who to this day deny that 1080 contributed to the big birds' decline in numbers.

Six dead birds have been examined thoroughly. Three had lead in their stomachs. One was killed biting into a scented cyanide-filled bag tied to a pole [a "coyote getter"] planted by ADC. A chick died from stress while being measured by condor savers under the supervision of the US Fish & Wildlife Service. And there was the Pinehurst Condor.)

A backroads drive from the Sespe Forest to Monterey County along the Pacific Coast Range and the western foothills of the Sierra reveals that, so far, development isn't a major threat to traditional condor range and probably had little to do with thunderbird decline. Hunters are fewer in number and more responsible than before; but there is little doubt that direct shooting killed condors in the past, and future shootings can't be ruled out. Pesticides—DDT in particular—must have adversely affected hatching in the past, but other raptors that were affected by DDT are holding their own these days.

Taking all these factors into consideration, noting that DDT hasn't been a major threat for twenty years, and remembering that the thunderbird population increased during the peak hunting period in condor territory and the rapid decline of the population began and accelerated during the years of massive 1080 baiting, SMF has to be recognized as the thunderbirds' major enemy—an enemy that must be prevented from returning.

Furthermore, 13 out of 14 is a good survival ratio. About the only reasons one can give as to why Andeans are making it where Californians weren't is their confinement to a relatively small territory and the fact that SMF has been banned during almost all of the experiment. Danger of residual 1080 or DDT poisoning to the birds seems minuscule. Other release areas within the California Condor's former range, including Arizona's Grand Canyon, are being considered.

The FWS plan may work. With the banning of SMF, a release of all jailed condors (Californians in California, Andeans in the Andes) probably would work. Keeping a thunderbird in a cage is like keeping a human in a refrigerator.

Joe Bernhard, a member of the Screenwriters' Guild, lives in the Nonose Valley of the central-western Sierra foothills. He founded the Sierra Association For Environment (SAFE) to stop P.G.&E. from constructing a paved road through the valley. In addition to winning that fight, SAFE stopped the damming of Dinkey Creek. Joe is presently writing two books: Trekkin' Down Abbey's Bumpy Road (The Diary of an Earth Firster) *and* The Condor Con Game.

BIBLIOGRAPHY

Atzert, Stephen P.; *A Review of Sodium Monofluoroacetate (Compound 1080)—Its Properties, Toxicology, and Uses in Predator and Rodent Control*; Bureau of Sports, Fishing and Wildlife, Division of Wildlife Services, Department of Interior, 1972.

Cain Report (Dr. Stanley A. Cain), Dept. of Interior, 1972.

Darlington, David; *In Condor Country*; Houghton-Mifflin, Boston, 1987.

Ferguson, Denzel & Nancy; *Sacred Cows at the Public Trough*; Maverick Publications, Bend, OR; 1983.

Fry, D. Michael, Santolo, Gary, Grau, C.R.; *Final Report for Interagency Agreement: Effects of Compound 1080 Poison on Turkey Vultures*, 11-86; Dept. of Avian Sciences, U f CA, Davis.

Hegdal, P.L., Gatz, T.A., Fagerstone, K.A., Glahm, J.F., Matsihe, G.H.; *Hazards to Wildlife Associated with 1080 Baiting for California Ground Squirrels*, EPA-1AG-D7-0049.

Koford, Carl B.; *The California Condor*; National Audubon Society, Dover Publications, NY; 1953.

Leopold, A. Starker; *Special Advisory Board on Wildlife Management 1963-1968*; Department of Interior, 1969.

McMillan, Ian and Eben, Miller, Alden H.; *The Current Status of the California Condor*, National Audubon Society, NY; 1965.

Phillips, David; *Cry of the Condor*, video; Earth Island Institute, San Francisco.

Schitoskey, Frank, Jr., and Woodmansee, Sarah R.; "Energy Requirements and Diet of California Ground Squirrel," *Journal of Wildlife Management*, 42-(2) 373-382.

CONDOR NATURAL HISTORY

In the beginning was *Teratornis terribilis* (some references say *Teratornis incredibilis*), whose 18-foot wingspan made it the largest flying bird that ever lived. Its range is unknown, as is the reason for its disappearance.

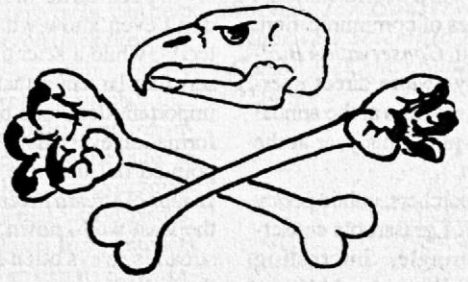
Terribilis was followed by *Gymnogyps amplus*, a condor larger than the biggest measured thunderbird, which had a wingspan of 11 feet 4 inches. *Amplus* ranged from coast to coast and one got stuck in the Los Angeles La Brea Tar Pits ten millennia ago, just as its relatives became mired down in Kern County oil pools in the 20th century. Four-fifths of California's decaying dinosaur bogs are in Kern County and 95% percent in condor country. They excrete into the atmosphere the amount of hydrocarbons emitted from 714,000 automobiles.

A relative, *Gymnogyps californius*, the California Condor, quite likely was a contemporary of *amplus* and resided in Washington and Oregon, filtering south when *amplus* vanished. We know the thunderbird abounded in Washington and Oregon into recent times. Lewis and Clark killed a few, the former complaining that not even the heaviest birdshot could bring one down. Along the Columbia River primary feathers were highly prized as pipe stems.

Reports of California Condor remains have reportedly been found in Florida and New York but they probably were of *amplus*. The thunderbird apparently ranged from western Canada south to lower Baja California, where its primary feathers were also used: here as a monetary token of exchange. A quill filled with gold dust could buy a seat at a poker table, a drink and other goods available during the gold rush days.

Under natural conditions the California Condor lays one egg a year and spends twice that amount of time rearing the chick. Under stress, new eggs are laid as fast as they are stolen. This is how the zoo scientists have increased the incarcerated population from 28 to 40 and, at the same time, made the birds think that Southern California Edison employees are their moms and dads.

—Joe Bernhard



Will Science Save the World?

A Report from the Society for Conservation Biology Conference

by Thomas L. Fleischner

The spirit of Aldo Leopold—eloquent conservation and ethical pioneer—served as a beacon this June, as five hundred biologists converged in Madison, Wisconsin and exchanged the latest ideas on conservation science, before returning to their far-flung homes to continue working to protect Earth's biological diversity.

The Society for Conservation Biology was founded in 1985 by a group of academic biologists concerned about the worsening global biodiversity crisis. Goals of the fledgling organization included promotion of the scientific study of biological diversity; encouragement of interdisciplinary research and exchange between the realms of biology, politics, and economics; promotion of the conservation of biological diversity; and advancement of its position on matters of public policy. SCB thus represents that all-too-rare beast: a group of scientists interested in biocentric change. SCB is now one of the fastest growing professional scientific societies in the world. Its membership, while primarily from the U.S., represents five continents and well over forty nations. Efforts are being made to encourage membership growth in second and third world nations. SCB has two main modes of communication. Its peer-reviewed journal, *Conservation Biology*, comes out quarterly. More direct interaction between members occurs at the annual conference, which took place this year at the University of Wisconsin.

When scientific researchers, public policy analysts, and a handful of grassroots conservation activists intermingle, interesting questions come to light. What should be the proper relationship between the scientific and activist communities? Are both groups working toward the same goals? How can an organization, or an individual, be most effective? Do scientists lose their credibility if they take a stance on issues?

The Madison conference— the fifth annual meeting of SCB— consisted of technical paper presentations, roundtable discussions, and a good deal of meeting and sharing between individuals. Technical session topics were as diverse as the membership, including forest and grassland habitat fragmentation, science in The Nature Conservancy, genetic diversity, and social and political issues. Several themes emerged from these presentations; while not all the data and ideas would have been clearly understood by the general public (nor were they by all the scientists present!), many of the insights and conclusions are of importance to all those concerned about the degradation of natural ecosystems.

One of the most pervasive—and disturbing—themes was how little we really know about the organisms and ecosystems we are trying to protect. The nature of conservation biology, as a crisis discipline, is such that decisions must be made immediately, without the luxury of a complete data base which would allow carefully reasoned action. Such behavior is anathema to some scientists, yet the problems facing Earth's ecosystems only intensify with each passing day. Non-action translates into a worsening crisis.

A sea turtle biologist commented "we don't even know what we are trying to protect!", while a scientist for The Nature Conservancy lamented that he was forced to "make important decisions based on insufficient information every day." An aquatic biologist pointed out that one of the most abundant groups of stream invertebrates (midges) is also the least well-known. He estimated that his stream surveys often found only one-tenth of the actual number of invertebrate species present. Not only is basic taxonomic understanding lacking; important details of population dynamics are also poorly understood. The degree of isolation between separate populations of certain species, such as the Leatherback Sea Turtle, is unknown. It is possible that there are distinct populations of this reptile which rarely interact. Without clarity on such issues, wise management of the genetic diversity within species cannot be planned.

The relevance of the biological species concept to the real world of conservation policy was explored. As our knowledge of organisms becomes sharper, often on a genetic level, we see that nature cannot be as neatly categorized as we once thought. This scientific insight has huge potential consequences for the realm of public policy. The Red Wolf, for example, is increasingly "suspected" of being a hybrid between the Gray Wolf and the Coyote, not a distinct species or subspecies. If molecular analysis verifies hybrid status for the Red Wolf, it could lose its protected status under the Endangered Species Act, regardless of the fact that it was an important top-level predator in its native ecosystem. The Florida Panther is currently undergoing similar heightened genetic scrutiny. The US Fish and Wildlife Service is currently evaluating potential guidelines for a hybrid policy, and such policy may also emerge with an amendment to the Endangered Species Act. Cases such as these illustrate that what may seem like esoteric microbiological research can have direct relevance to the grassroots conservationist trying to protect native wildlife.

One cause of this dearth of knowledge is the lack of long-term research. One speaker pointed out that the average duration of a biological study is three years—the normal research time needed for a PhD student to get a degree. Given that many ecological processes operate on cycles much longer than three years, this presents a serious problem.

This need for long-term perspectives—both backward and forward—was emphasized in several sessions. Rarely does careful ecological monitoring continue after a conservation strategy is implemented, yet, as one speaker pointed out, monitoring is "the only way to know if conservation is succeeding." We also sometimes lack a long enough historical perspective to fully understand a current problem. "Modern biology cannot be under-

stood in terms of modern conditions," according to one scientist, who explained the rapid evolutionary adaptation of a Hawaiian honeycreeper in response to recent extinctions of its historic plant food sources. As with human history, an understanding of the past is crucial to an understanding of the present and insightful planning for the future.

Perhaps the most significant step for SCB at this meeting was a strong clarification of the need to strengthen its role as an *advocate* for conservation of biodiversity. Although promotion of these concepts and advancement of Society positions on matters of public policy are stated goals of the organization, it has tended to shy away from controversy, fearing that its credibility as a scientific organization could be damaged. At the 1990 meeting (at the University of Florida) there was an undercurrent of dissension over this issue, which finally sprang into the open on the conference's last day. As a result, this year a roundtable discussion on the question "An Advocacy Role for the Society for Conservation Biology?" was planned.

The evening of the roundtable, almost a hundred people jammed into a small room to participate. Internationally known scientists and young students touched shoulders as discussion circled about the appropriate means for the Society to achieve its goals. After a half hour discussion defining what was meant by "advocacy," someone called for a straw poll: "who here is in favor of SCB taking on a stronger advocacy role?" Every hand in the room went up. "Opposed?" Total silence, then happy laughter. After reaching such easy consensus for greater advocacy, the group settled in to the harder task of determining the most appropriate and effective means. The conversation kept circling back to what individuals can do; participants would then remind themselves that the organization had a different role to play than its constituent members. A Mexican scientist reminded Americans that some of the activities being discussed are already happening in Latin America. A variety of approaches were discussed: compiling a list of SCB scientists willing to provide expert testimony on issues, producing "white papers" on specific topics, funding a Congressional intern, and working more closely with the media. A special committee will be appointed to determine the best way to apply the limited resources of the organization to the unlimited threats facing biodiversity. All in all, this was a very heartening and exciting session.

The following day the organization had an opportunity to test its new resolve for greater advocacy. A formal resolution had been proposed supporting preservation of biodiversity on Mt. Graham, Arizona, and condemning political interference with the implementation of the Endangered Species Act there. Careful, critical discussion followed, indicating the concerns of the membership. Should SCB make statements on political processes when its primary expertise is in the realm of biology? Or is the realm of politics precisely where stands must be taken? Well-founded respect was shown for facts; if political coercion and interference had not been so well documented in this particular case (in courtroom testimony and a government report), it is unlikely that SCB would have supported this resolution. The scientists of SCB were careful to make certain that data on which they were basing decisions was unimpeachable. Given that habitat destruction on Mt. Graham would clearly diminish biodiversity, and that politicians had clearly undermined the Endangered Species Act, the resolution passed with only one dissenting vote. This action, on the heels of the advocacy discussion, seems to represent a coming of age for SCB as it begins to follow its own mandate to *promote* the conservation of biological diversity in the realm of public policy.

So, what can the activist and scientific communities learn from each other? Scientists can provide important insights—"ammunition," if you will— to activists. If scientists had not begun analyzing island biogeographic theory and population viability some years back, the concept of biological diversity would not be part of the common conservation parlance today, nor would there be such compelling arguments for Big Wilderness and ecosystem management. New insight keeps clarifying what it is we are fighting for. Biologists, for example, can remind us of the folly of our own human-centeredness by elucidating what is at stake in terms of ecological and evolutionary processes. Through basic natural history and systematics research, scientists can help answer some fundamental questions: who lives here? how many live here? which habitats are most diverse? most susceptible to disturbance? Through applied research in restoration ecology, techniques can be devised to help bring damaged lands and waters back to some semblance of their pre-settlement selves.

Grassroots activists, conversely, can help keep conservation scientists on track (keeping them, for example, from becoming overly enamored of glitzy high-tech approaches that avoid real issues). Local activists seeking input from scientists can encourage the latter to emerge from their professional comfort zones and apply their efforts to real-world issues. Scientists have much to learn from activists about political savvy and strategy. Some biologists, who have not previously waded into the murky waters of policy, assume that certain things "just can't happen." The experience of activists often tells a different tale.

So—will science save the world? Not by itself. New insights do not implant themselves automatically into the public consciousness. Scientific inquiry and public advocacy are separate processes. One of the important acknowledgements of this conference, however, is that both are essential and need not be undertaken by separate entities.

Change—both positive and negative—happens in increments. The general feeling among participants at this conference was that they had taken a large positive step together. At the final banquet each place setting included a mysterious disc of polished pine. In later comments it came clear that Stan Temple, a wildlife ecologist at UW-Madison, had salvaged some branches from trees that were being pruned at the Leopold Memorial Preserve, in the "sand counties" to the north. Decades earlier Aldo Leopold had painstakingly planted these very pines in his ongoing efforts to restore ecological integrity to the Wisconsin River bottomland that was the inspiration for his seminal work, *A Sand County Almanac*. Leopold's words have been tremendously influential over the years, encouraging us to view "the land" as something with important ethical value. Pine saplings he planted half a century ago have grown tall enough to need thinning. As several hundred conservation biologists left Madison with pieces of Leopold's work in their hands, excitement was palpable in the air. Here, too, important seeds had been planted. It is the responsibility of scientists and activists, working with mutual respect, to nurture those seeds.

—Thomas L. Fleischner
Prescott College
220 Grove Ave.
Prescott, AZ 86301

Thomas L. Fleischner teaches conservation biology, field ecology, and resource management in the Environmental Studies Program at Prescott College in Arizona.

Membership in the Society for Conservation Biology is open to all; to join contact: Society for Conservation Biology, c/o Blackwell Scientific Publications, Three Cambridge Center, Suite 208, Cambridge, MA 02142.

Cascade Holistic Economic Consultants

POB 3479, Eugene, OR 97403

An Economic Approach to Biocentrism

A major factor in the decline of the Spotted Owl is its place in the food chain. The owl preys mainly on animals like the California Tree Vole and the Northern Flying Squirrel. These animals live almost exclusively in old-growth forests because only old-growth trees grow branches large enough to support them. A California Tree Vole, for example, may spend its entire life in the large lower branches of an old-growth Douglas-fir tree.

But the Spotted Owl is not at the top of the food chain. The larger Great Horned Owl will eat Spotted Owls when it can. The Great Horned Owl will knock Spotted Owl nests out of trees and prey on the eggs and juvenile Spotted Owls that have fallen to the forest floor.

To defend their nests, the Spotted Owls place them in the forks of broken-topped trees. The nests are safe if the forks are narrower than the wingspans of a Great Horned Owl. Only in an old-growth forest are there broken-top trees of sufficient size for Spotted Owl nests. So the Spotted Owl depends on old-growth trees both for its prey and its defense against predators.

This is just a sample of the innumerable number of complex interdependencies in a healthy, fully functioning ecosystem. Several observations are obvious to anyone familiar with a natural ecosystem such as an old-growth Douglas-fir forest:

- The ecosystem is completely decentralized. There is no forest planner decreeing that Spotted Owls should live in particular trees, or that Great Horned Owls should harvest so many Spotted Owls this year.
- There are no altruists in the ecosystem. Each individual of each species is in it for itself — or, to be precise, for its genes. No one expects a California Tree Vole to voluntarily give up its life for a Spotted Owl, and no one expects a Great Horned Owl to be ethical enough to not prey on one of the last Spotted Owls.
- Each individual in the ecosystem is responsible for its own actions. If a Spotted Owl builds a nest in an area exposed to Great Horned Owl attacks, only that Spotted Owl (and its genes) suffers. Each individual pays the costs of its actions.
- Healthy ecosystems work despite the lack of planning and altruism. Their strength comes from their complexity. No sane ecologist would ever claim that an ecosystem could be improved by simplifying it — say, by clearcutting old growth, spraying herbicides, and planting only Douglas-fir.

For those seeking to protect ecosystems like ancient forests, wetlands, and prairies, these lessons are important because of the inherent similarities between ecology and economics. Both words are derived from the same Greek root: *oikos*, meaning house. Ecology means "study of the house" and economics means "management of the house."

The Greeks applied the word 'economist' to someone who was hired to manage a house or estate. This is where the first lesson of the ecosystem can be applied. The planet Earth, or any significant portion of it, is too complicated to be managed by a single manager or group of planners.

The Soviet Union has spent the last half century proving this. The once-feared Communist leaders have five-year-planned their country into third world status. Their former satellites in Eastern Europe are now seeking a more decentralized way of operating their economies.

On a smaller scale, the Forest Service has spent the last decade or so proving the same thing. The forest planning process is so superficial that even the agency's top leaders say that the plans do not make any real decisions. Now that the dust has settled on nearly all the FORPLAN runs, we realize that the Forest Service manages the National Forests the same way that the Soviets tried to manage their entire economy.

The effect of a central planning process is to produce huge surpluses of some things and shortages of others. The Soviet Union is the world's largest producer of cement. But cement does its citizens little good when there is no food. Similarly, the Forest Service produces a surplus of timber, as measured by the loss of money on most of the timber it sells. Meanwhile, primitive recreation, clean water, and native diversity are in short supply.

To manage resources, an economy, like an ecosystem, must be decentralized. But to effectively decentralize the economy, we must learn the second lesson of the ecosystem: that we cannot rely on altruism or ethics.

I used to hope that the day would come when people would voluntarily want to save the Spotted Owl, ancient forests, the ozone layer, and other essential parts of the planet — even if doing so cost them their jobs or part of their income. After all, humans abolished slavery, so why wouldn't they take the next step and protect other parts of the biosphere?

Then I read a history of the Civil War which pointed out that a farm managed with slaves in the South was far less productive than an otherwise similar farm managed with paid workers in the North. Paying people gave them an incentive to do a good job. The North was able to beat the South not because slavery was morally wrong — indeed, only a small percentage of northerners supported abolition — but because slavery was inefficient.

Selfishness is a part of being alive. A selfless Spotted Owl might give itself up to be eaten by a hungry Great Horned Owl. That Spotted Owl's genes would disappear and its niche would be filled by another owl who wasn't so selfless. Only the selfish owls would survive. It is only natural for owls — and people — to be selfish.

We can do better than wait for the millennial day when people are no longer selfish. We can design our economy the way the ecosystem is designed: so that people's greed leads them to do the right thing for the environment.

The best way to do this is through the third lesson of the ecosystem: Make everyone fully responsible for their own activities. Everyone should pay all of the costs of the resources they consume. A full pay-as-you-go system will greatly reduce most environmental problems.

Most National Forests are mismanaged because the local sawmills profit from subsi-

dies paid by federal taxpayers. If the subsidies were eliminated, many sawmills could not afford to buy the timber, and Forest Service timber sales would fall by about 50 percent.

But a full pay-as-you-go system works more subtly — and elegantly — than just eliminating tax subsidies to timber purchasers. A properly functioning system would also insure that timber purchasers paid the environmental costs of their activities.

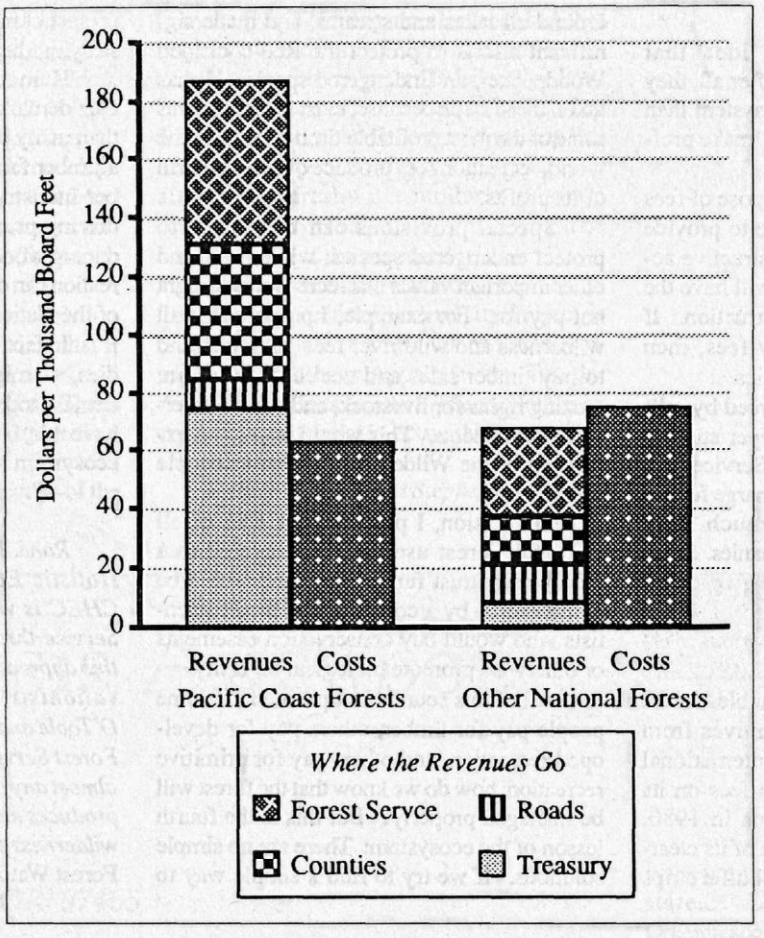
The key is to focus, not on the timber purchasers, but on the forest managers. They decide whether a stand of trees is to be cut down. Their decision will be based on "selfish" grounds.

Look at how the Forest Service works today:

- Congress gives the Forest Service tax dollars — some $69 per thousand board feet in 1990 — to build roads and arrange and administer timber sales.
- Forest managers use competitive bidding to sell the timber for the highest price they can get.
- Managers can require the timber purchasers to build the roads. The estimated cost of the road is deducted from the price the purchaser pays for the timber.
- The managers are then allowed to spend on "forest improvements" as much of the sale receipts as they want.
- However, 25% of the receipts (including the phantom road money and the money spent on improvements) is paid to local counties.
- The U.S. Treasury gets whatever is left.

It's easy to think of ways to "improve" the forest. Timber managers want to plant seedlings. Wildlife biologists want to close roads. Range managers want to build guzzlers. Hydrologists want to restore watersheds. Recreation managers want to build trails. The Forest Service is creative at thinking up improvements, so little money is returned to the Treasury.

For example, timber purchasers cut nearly 5 billion board feet of timber in 1990 from the National Forests outside of Oregon, Washington, and California. The purchasers were supposed to have paid an average of $68 per thousand board feet for this timber. But $12 of that was paid in the form of road construction. Another $31 was kept by the Forest Service for improvements. Counties received $17, leaving the U.S. Treasury a mere $8 per thousand board feet. This barely begins to cover the costs to taxpayers, which were greater than $70 per thousand.



The graph (above) shows why the Forest Service likes timber sales so much. Although timber receipts were far greater than costs in the Pacific Coast forests, and only slightly less than costs elsewhere, the actual returns to the Treasury were only slightly more than costs in the Pacific Coast forests and far less than costs elsewhere. The Forest Service came out on top, not only spending the timber sale costs but adding a large portion of the receipts to its own budget. (*Source*: TSPIRS worksheets provided by the Forest Service.)

Taxpayers fared a little better in the Pacific Coast National Forests, mainly because timber is so valuable here that forest managers have a hard time finding ways to spend all the receipts. In 1990, timber purchasers cut about 5.6 billion board feet of timber from these forests, ostensibly paying an average of $187 per thousand board feet. Of this, $10 went to roads, the Forest Service kept $56, and counties received $47. The Treasury thus collected $74 per thousand, or just $11 more than the $63 per thousand that the Forest Service spent on timber sales.

In short, National Forest timber sales earned taxpayers $11 per thousand board feet in the Pacific Coast states but cost taxpayers $67 per thousand elsewhere. The big winners were the Forest managers: They not only spent $69 per thousand board feet (or over $720 million) of tax dollars on timber sales, they got to keep $44 per thousand board feet (or over $460 million) out of timber sale receipts. In one way or another, timber provided over half of the $2 billion 1990 National Forest budget.

This system motivates Forest managers throughout the agency to support timber sales. Congress is stingy with funds for non-timber resources, so wildlife biologists and hydrologists who want to do projects for their areas must support timber sales to get the funding. Recreation managers have been known to propose timber sales in recreation areas to fund campgrounds. Timber is clearcut from Giant Sequoia groves to provide funds for prescribed burning to reduce fire hazards to the Sequoias.

Officials at every level of the Forest Service gain from this policy because they all get a share of the take. For every dollar of timber receipts that a district ranger spends on improvements, the Washington Office automatically gets about 5¢ for overhead. The regional office gets between 10¢ and 20¢, while the supervisor's office gets from 20¢ to 80¢. On the average, nearly a third of the money retained from timber sales is spent on overhead rather than actual on-the-ground improvements.

Timber sales have thus become a way for Forest managers to generate cash. The managers are not unscrupulous, they are merely responding to incentives built into the system — the same way a Great Horned Owl would respond if a Spotted Owl were foolish enough to build a nest in the open. Fixing the problem means changing the system, not chastising the managers.

A pay-as-you-go system will help give managers the right incentives. But it is not enough to change the incentives for timber. We must also give managers sound incentives for non-timber resources. This means that recreationists, as well as timber cutters, must

continued next page

be on a pay-as-you-go system.

Many people resist the idea that recreationists should pay fees. After all, they cause far less damage to the ecosystem than the timber cutters, and they don't make profits from their activities.

But remember, the basic purpose of fees is to give managers the incentive to provide the things you want. If only destructive activities pay fees, then managers will have the incentive to encourage only destruction. If only commercial activities pay fees, then managers will ignore private parties.

Recreation fees can be enforced by selling visible permits, such as bumper stickers or ski lift–type tags. The Forest Service estimates that, if it were allowed to charge fees, it could collect three times as much from recreationists as from timber companies. Since 80% of all National Forest timber revenues come from only 25% of the National Forests, on most Forests recreation fees would overwhelm timber receipts.

Even where timber is valuable, forest managers would gain new incentives from recreation fees. For example, International Paper began charging recreation fees on its lands in Arkansas and Louisiana in 1980. Since then it has reduced the size of its clearcuts by 70%, begun leaving large buffer strips around all lakes and streams, and made significant efforts to protect the Red-cockaded Woodpecker, an Endangered species. It has taken these steps because, even though it owns some of the most profitable timber lands in the world, recreation fees produce over one-fourth of its profits.

Special provisions can be created to protect endangered species, wilderness, and other important values that recreationists might not pay for. For example, I propose that all wilderness and wild river fees go into a fund to buy timber sales and not cut them down, grazing rights for livestock, and other conservation easements. This would lead to an expansion of the Wilderness System as people use it.

In addition, I propose that 10% of all National Forest user fees be devoted to a biodiversity trust fund. This fund would be administered by a committee of forest scientists who would buy conservation easements or otherwise promote biological diversity.

All of this sounds complicated. If some people pay for timber, others pay for developed recreation, and others pay for primitive recreation, how do we know that the forest will be managed properly? But this is the fourth lesson of the ecosystem: There are no simple solutions. If we try to find a simple way to protect complex systems, we will end up destroying the ecosystem.

Humans are as diverse as ecosystems. Our demands for development are far lower than many people believe. Rather than facing a timber famine, the real problem of the timber industry has always been a timber glut driving prices down below the cost of producing wood. Developed and motorized recreation can comfortably fit into a small fraction of the National Forest system.

In fact, were it not for government subsidies, we might have three times as much wilderness today as we actually do. We still can have this, but to do so we need to think like an ecosystem rather than a dictatorial planner.

—Randal O'Toole

Randal O'Toole is the founder of Cascade Holistic Economic Consultants (CHEC). CHEC is working to reform the US Forest Service through market incentives. Though this approach is controversial among conservationists, few would deny that Randal O'Toole and other CHEC leaders have caused Forest Service bureaucrats more misery than almost any other critics in the country. CHEC produces numerous publications of import for wilderness proponents, including its magazine Forest Watch.

Strategy

Forest Protection/ Biodiversity Project

POB 1101, Knoxville, TN 37901
615-524-4771

The Foundation for Global Sustainability was formed to provide leadership and vision on pressing environmental problems in the Southern Appalachians bioregion. The Forest Protection/Biodiversity Project is one of four Global Sustainability projects in the bioregion; the others are the Oak Ridge Education Project, Broader Horizons Clean Water Project, and the Center for Global Sustainability.

Although, since its creation, the Forest Protection/Biodiversity Project has worked to raise awareness about tropical rainforest destruction, our emphasis is on the Forest Service and Tennessee Valley Authority's plans to destroy forest locally. The Project has become a catalyst for bringing together activists from SouthPAW (the southern extension of Preserve Appalachian Wilderness), Earthworks in Chattanooga, TN, and TAGER (Tennesseans/ Alabamans/Georgians for Environmental Responsibility), to address bioregional concerns.

The Forest Protection/Biodiversity Project supports SouthPAW on issues in the Cherokee National Forest in Tennessee and the Nantahala/Pisgah National Forests in North Carolina. By taking a Deep Ecology approach, SouthPAW has challenged the traditional mainstream groups who have been accepting piecemeal victories (and losses) for years. This challenge has strengthened the posture of the mainstreamers and given them some new ideas. SouthPAW's Katuah Manifesto calls for restoration of 3.5 million acres of public forest land in Georgia, North Carolina, South Carolina, Tennessee, and southwest Virginia. This refuge would be linked to others that PAW activists are seeking to restore in neighboring bioregions. With the Biodiversity Legal Foundation, the Forest Protection/Biodiversity Project plans to form a Greater Smoky Mountains Ecosystem Alliance to advance this whole ecosystems approach.

TAGER and Earthworks face a challenge of monstrous proportions: the proposed and existing Tennessee Valley chipper mills. Take

for example, the environmental assessment for one proposed chipper mill project, Donghae Pulp of Alabama, Inc. (actually of Korea Inc.), along the Tennessee River, Mile 412.4. This single mill would, "purchase 600,000 green tons per year of low-quality hardwood logs from local sources." Rumors claim that 24 or more chipper mills are seeking construction permits to build on the banks of the Tennessee River.

These mills would have abominable impacts on the region. One study claims that if four of them are built, 1.5 million acres will be deforested over a twenty year period. These mills entail deforesting to the fullest extent, taking whole trees up to 23" in diameter, chipping each from the trunk to the tops of the branches, and leaving no slash behind that might slow erosion. This would have irreversible impacts on over 20 federally listed Endangered species and more than 24 category 1 and 2 species on the Endangered waiting list. Most of the species who would be directly affected are freshwater mollusks who are acutely sensitive to siltation, which would be a major result of the proposed mills.

Through research, education, and action, the Forest Protection/Biodiversity Project is raising awareness of a new vision for the forest in the Southern Appalachians. Tax-deductible donations for our work and letters or comments that assist in networking are gratefully accepted.

—Rodney Webb and Stephen Smith

Hope Walker

Strategy

Kalmiopsis Audubon Society

POB 1265, Port Orford, OR 97465

This article describes the activities of the Kalmiopsis Audubon Society, gives our views on some current issues in the activist community, and offers some ideas about how regional and national organizations can better support local groups. Kalmiopsis Audubon was recently named outstanding environmental organization of the year by the Oregon Natural Resources Council.

Our chapter is the major environmental organization in Curry County, in the southwest corner of Oregon: a 1700 square mile area of mostly federal forests, with a human population of 20,000, and 70 miles of coastline. Our membership is steadily increasing, probably due to an influx of new residents who are more environmentally aware than the long-time residents. Our board of directors has an average age of over 60 and several of our most active members are over 70. Typical activists in Kalmiopsis Audubon own their own homes, have grandchildren, and are involved in a wide variety of community activities.

WHAT WE DO

Our chapter has evening programs with speakers at least once a month and sponsors hikes and birdwalks. We have an active school program, building birdhouses and taking children on birdwalks. In cooperation with Oregon Department of Fish and Wildlife we conduct surveys of certain rare birds, such as the Peregrine Falcon.

Our corner of the state still has ridge to ridge old-growth outside Wilderness Areas; typically steep and rugged, which is why it has not yet been entirely logged. We cover three ranger districts and three BLM resource areas and are involved in about 25% of the roughly 200 million board feet of timber sales offered yearly in this area. We have a good track record at stopping or modifying timber sales. From our formation about ten years ago, we have probably always had at least one appeal or lawsuit in progress. We were plaintiffs on all the recent Spotted Owl and Section 318 lawsuits. The lobbying of our chapter's founders was responsible for the creation of Grassy Knob Wilderness, a low elevation old-growth forest near Port Orford.

Although forest activism is our primary focus, we find ourselves continually involved with fishing and ocean issues, as Port Orford is the westernmost town in the contiguous 48 states. Last fall we cooperated with Greenpeace to protest a government research ship gathering data for possible ocean mineral mining.

We take an active interest in county land use decisions that may affect sensitive areas, particularly wetlands and coastal high hazard areas. We try to have observers at county and city government and planning commission meetings. Recently we successfully appealed a decision that, if unchallenged, would have opened an area of fragile coastline to development. We have begun mapping wetlands, as we find that without maps on file with planning departments, wetland laws are ignored. We are trying to get the ordinances governing building in coastal high hazard areas changed to be more restrictive.

We deal with an alphabet soup of federal, state, regional and local agencies. Judge Dwyer in his recent Spotted Owl decision clearly brought out the fact that the Forest Service is not obeying the laws where they find them inconvenient. As one descends the government ladder from the federal to the city level, the amount of ignorance and avoidance of environmental laws just goes up.

In approaching issues we are pragmatic. We are not against all logging; it is necessary to modern life, and acceptable if practiced respectfully on the proper scale. But we vig-

continued next page

Jeffrey Pine (*Pinus jeffreyi) by Tony Ullian — at the northern extent of its range in the Siskiyous, it is found elsewhere only in northern California and the eastern Sierra.*

orously oppose clearcutting under all its cute euphemisms, roading roadless areas, and degrading fish habitat. We support the reintroduction of locally extirpated species such as the Gray Wolf.

We cooperate with setting up timber sales that take a light touch and use thinning and true selection cutting. Our group includes foresters who know how to conduct logging with environmental sensitivity. Kalmiopsis Audubon often brings more tree-cutting experience to the negotiating table than does the Forest Service. We want our local sawmills to stay in business and would like to see timber sales offered in small volumes with low bonds so small mills could bid on the sales.

Because we reject crocodile tears and trickle down economics, we reject the popular delusion that the only way to save jobs is to subsidize clearcutting old-growth by big timber companies. Protecting jobs requires a complete ban on log exports.

ANCIENT FOREST LEGISLATION & THE NATIONALS

We support Representative Jim Jontz's efforts. He has been out in the woods with us and understands our problems. We trust him to lead us to the end of clearcutting old-growth as fast as the political process will allow. We support the Jontz/Audubon legislative strategy because it was drafted by the Northwest Audubon chapters working together, and in consultation with National Audubon Society, which usually consults us when they make decisions. We are as much a part of the process as we want to be.

We support the national environmental organizations because it is impossible to pass legislation without them. Moreover, when we have local problems that we cannot solve by ourselves, the nationals often step in and help. Some local activists have negative attitudes toward the nationals—we don't. To us, nationals are part of the diversity of the ancient forest political ecosystem. We do, however, question their policy of fighting "bad corporate America" with money raised from "good corporate America." Now that the timber companies and labor unions have formed an unholy alliance to fight ancient forest legislation, a natural line of counterattack would be to expose the abysmal safety records and union busting activities of these companies. Can corporate environmentalists ever raise essentially class issues? It is the nationals' agreement not to raise these sorts of issues that corporate America is really buying with their so-called "corporate giving."

We support Judi Bari's ideas about the need to forge alliances with workers. Whether it is the big timber companies clearcutting the trees or the factory trawlers mining the ocean of 220,000,000 pounds of whiting per year off our local coast, we see extractive industry at war with the environment and with working class people. Environmental laws are being avoided or evaded at every political level. Activism must proceed on two fronts; we must be vigilant about the enforcement of existing laws as we work to pass new ones.

When the ancient forest campaign is won, the next frontier is to regulate logging on private lands. We have participated in two major newspaper stories that explored the abusive logging on private land in the Pistol River drainage nearby.

WHAT LOCAL ACTIVISTS NEED

Here are a few things that regional and national groups and grant-making organizations could do to support local activist groups (besides sending money):

- Provide technical support on filing appeals, obtaining non-profit status, setting up mailing lists, using bulk mail, and obtaining computers.
- Help locals navigate the grants maze. We badly need professional help in developing grant proposals and funding applications.
- Provide scholarships when meetings and conferences require entry fees. Even small fees often screen out the people who need the conferences the most.
- Provide a system allowing activists to talk to each other without running up huge phone bills. This would save at least 5000 acres of old-growth in the first year. At a minimum, when locals call professionals, offer to call back to save the activist the cost of the call.
- Start a reprint and distribution service for technical material so we can keep better informed. Local groups cannot easily obtain a wide range of Northwest newspapers and journals, nor do we have time to read through them all. Environmental journals should be furnished to activists at low rates. Setting up a clipping service would fill an important need.
- Urban professional groups could "adopt" grassroots activists. The areas that still have old-growth don't have many liberals with money.

THE LONG TERM

Our chapter, because of our remote location and diversity of issues, has developed relationships with many organizations. We think watershed and local groups need to network better both with other environmental organizations, and with local, state, and federal government entities. Telephone trees should be formally organized and coordinated. Environmental activism, if based on a spiritual foundation and if combined with "outdoors" activities, provides a sense of community and purpose which is sadly lacking from modern life.

—Jim Britell, Conservation Chair

SAFE

by Jim O'Conner

Today's standard high school curricula fail to adequately reflect the global environmental decline. Hence, many students feel dissatisfied. This is a proposal for an alternative school that would promote student activism on behalf of social and planetary needs.

SAFE stands for Students Against Failing the Environment—with your help, soon to be a PRO-EARTH model school. A Pro-Earth school is an idea that *will* catch on. Students in regular schools are now stirring—will soon be demanding! Consider the following quote from a paper by a student at a conservative school in the Washington, DC area:

People are being killed for possibly nothing more than cheap oil and the ambitions of a few unscrupulous politicians and greedy corporate executives. Fragile Saudi desert ecosystems are getting trampled and otherwise obliterated; the Persian Gulf is being suffocated and boiled alive; and we are being forced to do class-work that doesn't pertain to any of it. It's time for the students to insist on a change since the teachers won't take it upon themselves. What good is it to be learning "Hamlet" when we're not encouraged to learn from his mistake and act before it's too late? In our school we're being asked to put aside the fact that people and the planet's life-support systems are being killed while we learn of the "Ascent of Mankind." What a joke!

She's right. Today's schools are in deep trouble. Like her, I'm not talking here about the reasons usually touted—such as students not learning the basics (reading, writing, math, etc.)—but about the much more serious problem of content not reflecting the ever-pressing social and environmental dilemmas they hear about constantly from all other media sources. They see the forests and fields (if lucky enough to live where some greenery remains) going under concrete, or otherwise suffering from anthropogenic threats. For those who never get out of the city, just hearing the air-quality warnings that accompany weather reports is enough to quell any desire to take a standard school assignment seriously.

Michael Cohen founded the most relevant secondary and college program in America today, The Audubon Expedition Institute, which pursues head-on today's environmental and social dilemmas. Cohen says in his book, *How Nature Works*, that schools are teaching an anti-Earth curriculum. He's correct. Twenty-six years as an educator, with experience at all levels from elementary through graduate school, have convinced me of his wisdom. We are the only species that is adapting the environment to its perceived needs rather than adapting to the environment. With the global human population growing by over 90 million yearly, high schools need to be part of a solution NOW, while there is still a chance for a human-initiated solution.

For the students who would act now, the questions that must be asked whenever discussing any piece of literature, classic or otherwise, regardless of content area, are: "Did this reflect a biocentric view; should it have; could it have; what analogies would a Shakespeare use today, etc.?"

I'd like to start a genuine alternative high school whose main thrust is pro-Earth activism. It will be based largely on a curriculum that springs from deep and critical analyses of all media sources and prevailing, as well as minority, viewpoints. Students will critically read and view everything from establishment periodicals, news broadcasts, popular films, music, etc., to nursery rhymes and other sources of acculturation or paradigm promotion. Core texts will include *A Sand County Almanac*, *Overshoot*, *Thinking Like a Mountain*, *Earth Wisdom*, other classics in conservation, and some of the plethora of new studies and essays appearing in print. Names like Peter Matthiessen, Annie Dillard, Alice Walker, will become common classroom references. The aim is to promote analytical and other higher-level thinking skills, and application (action). Responding to what they find will constitute the students' major classroom activities. Group discussions will be integral. Grades will be based on drawing supportable conclusions and acting accordingly. That is, once a student agrees that someone should do something, it will be his/her responsibility to take a first step. For instance, if a student's research supports the conclusion that a regular school curriculum is anti-Earth unless somehow tied into our absolute interdependence with the rest of the biosphere, the student must take action to improve the situation—even if merely writing a letter to a school board. If, on the other hand, some come to the conclusion that the regular curriculum is appropriate, then it will be their responsibility to show why they think so.

Since most students who enroll will already believe that humans have initiated an environmental crisis, they likely will find fault with the usual school curriculum. Nevertheless, ideas about such matters will not be foisted upon them. The stand-up lecture format will be replaced with a student research approach, so that students start seeing themselves as problem solvers rather than being stultified by denial.

Equally important will be wilderness experiences such as backpacking, rafting, mountaineering and deep ecology meditation in the wilds. These will help ground the students in the real world.

For the last 13 years, I have been the Director of a public alternative high school for students unwilling to cooperate in regular school programs. We offer a cross-disciplined approach to academics with an emphasis on ecology and problem solving. Wilderness experiences are an integral part of the program. Even though the typical student here comes with rather weak academic credentials, experience has shown me that such a program grounds the students in the only "real" world; and that, from this perspective, students take heart and act accordingly.

The approach developed in this program has led to many of the ideas I intend to use in the SAFE school. In fact, the name SAFE was proposed by former students who became active in presenting their environmental views in their neighborhoods and in the chambers of their county and state legislators. Locally they disseminated action alerts that they drew up

continued next page

after their research suggested that the issue of Recycling vs. Incineration was not beyond their grasp. At the state level, they spoke before the General Assembly on bills up for consideration. For their efforts they received, along with much praise and awards from politicians and educators alike, a healthy dose of self-respect and empowerment.

Meanwhile, regular schools with high academic standards are producing students who feel overwhelmed by the problems depicted by the media. Little or no time is spent in the classroom helping students find roles in solving the imminent problems. The standard curriculum is used, as if the pressing issues will somehow vanish or be solved by others.

In talking with teachers about these issues, I find them defensive or evasive. They say they must teach the mandated curriculum or suffer poor evaluations by school officials. Or they say the students can't psychologically and emotionally handle such issues. The truth is that students are handling the inescapable bad news—and handling it poorly. Many with "successful" parents have developed the attitude, "Let's party till we're vaporized." Others are striving to position themselves so that they will be the last to feel the consequences of a biological or nuclear meltdown—that is, they're dreaming of living in some far-off, unspoiled place. Or they're playing the old one-upmanship game when, in fact, cooperation is our last hope. As Harrison Brown put it in his classic book *The Future of Mankind*, either we will all hang together or we will, most assuredly, all hang separately. And, alas, ever-increasing numbers of our disenchanted students are committing suicide.

At some level of consciousness these students realize that today's curriculum is fundamentally anti-life. They know their elders and teachers, in insisting on school as usual, are denying this truth. Hence, dismay prevails. If there is an answer to such a dilemma, it can only be in teaching them, nay, leading them, to take action.

These students can contribute much to the critical mass that, once attained, might still allow complex life to celebrate a future existence. Who knows? The SAFE idea might spread like a natural forest fire, cleaning out excessive litter and preparing the soil for long-term recovery.

To get a school like this started, I'll need benefactors and sponsors, a few dedicated teachers and teacher assistants willing to serve for modest wages, a grant writer or fund-raiser, and some advisors familiar with school law and accreditation requirements for different jurisdicitions. If you or anybody you know can help, please write Jim O'Conner, 14037 Breeze Hill Lane, Wheaton, MD 20906.

Save America's Forests

Strategy

4 Library Court, SE, Washington, DC 20003
202-544-9219

Taking a New Environmental Agenda to Congress

Save America's Forests is a voice for the grassroots biocentric conservation movement in Washington, DC. Our goal is winning comprehensive nationwide forest ecosystem protection through the US Congress. Our approach is two-tiered: grassroots organizing and political action. First, we are working to create an unprecedented unified front, bringing together individual activists, environmental groups, and businesses with a concern for the Earth. We have created an integrated platform for forest protection and economic conversion to express a "common ground" agenda for a diverse coalition. Second, we are setting forth a progressive new agenda in the US Congress to pass strong environmental laws.

A GROWING CRISIS

This Fall will be a time of crisis and opportunity for America's forests in Congress. Even as progressive legislation gains momentum, the timber industry is attempting to undermine the Endangered Species Act, to revise Forest Service timber planning regulations, and to strip citizens' rights to judicial review.

The biggest battle is over the fate of the Ancient Forests of the Pacific Northwest. Locked in a power struggle to author the final resolution, the House Interior and Agriculture Committees are considering numerous proposals. A final House vote is likely this fall. A bill proposed by Jim Jontz (D-IN), the Ancient Forest Protection Act, though offering the *minimum* acceptable level of protection, is still the best Ancient Forest bill being considered in the House. However, a significant weakening seems likely as committee chairmen Miller, Vento, and Volkmer guide a compromise between Jontz's already modest bill and the industry's outrageous proposals. Recently, Senator Brock Adams (D-WA) introduced a stronger bill, lending hope that the situation could improve in the Senate.

INDUSTRY ATTACKS

While media attention is trained on the Northwest's Ancient Forests, the potential danger goes far beyond Washington, Oregon, and California. The timber industry is attempting to use this regional dispute to disguise an attack on forests nationwide. The most serious affront comes in the form of the "Forests and Families Protection Act," by Representative Huckaby and Senator Packwood. Masquerading as an Ancient Forest and worker protection proposal, it attacks the Endangered Species Act and citizen rights to due process of judicial review.

Meanwhile, the Forest Service has proposed changes to their forest planning regulations under the National Forest Management Act (NFMA) and the National Environmental Policy Act (NEPA). These changes, while offering new conceptual ecological guidelines (read: lip service), would remove administra-

tive appeal rights, and requirements for adequate Environmental Impact Statements on FS timber programs. Furthermore, the Bush administration and the timber industry Congressmen have been mapping a strategy to cripple the Endangered Species Act when it comes up for reauthorization in 1992.

A NEW STRATEGY

If we are to effectively defend our forests from these industry attacks, we must mount an aggressive new strategy to spread the ideas of ecosystem integrity and biodiversity. For too long the timber industry and the Forest Service have set the agenda for public lands struggles by launching direct attacks on ecosystems and judicial rights. The environmental response to this intimidation has been defensive strategies to hold on to *some* of what is being attacked.

To effectively defend our forests, we must use the strength of nationally coordinated action to set forth a ***New Environmental Agenda.*** *We must insist that congressional decisions be based upon biological realities* rather than backroom politics. In short, the best defense is a good offense.

We therefore propose the following comprehensive package:

1) Enact complete protection for ancient, virgin, and native forests nationwide, as embodied in the proposed Native Forest Protection Act;

2) Ban clearcutting on all federal forestlands;

3) Mandate biodiversity;

4) End "money-losing" timber sales and shift federal funding priorities from road-building and timber management to forest restoration;

5) Provide economic assistance for timber-dependent workers, communities, counties, and schools;

6) End exports of minimally processed timber products;

7) Create new incentives for paper recycling and alternative fiber use;

8) Add to existing forest systems through federal acquisition;

9) Improve tax codes for non-industrial private forests to encourage preservation of biodiversity and to discourage clearcutting.

Representative John Bryant's (D-TX) Forest Biodiversity and Clearcutting Prohibition Act (HR 1969) stands out as the most promising tool for rewriting forest issue politics in the United States. Bryant's bill, which would ban destructive clearcutting on all federal lands and force agencies to shift to selection management or stop logging, is now gaining steam in the House. It has gained 22 cosponsors from across the political spectrum, including Jim Jontz.

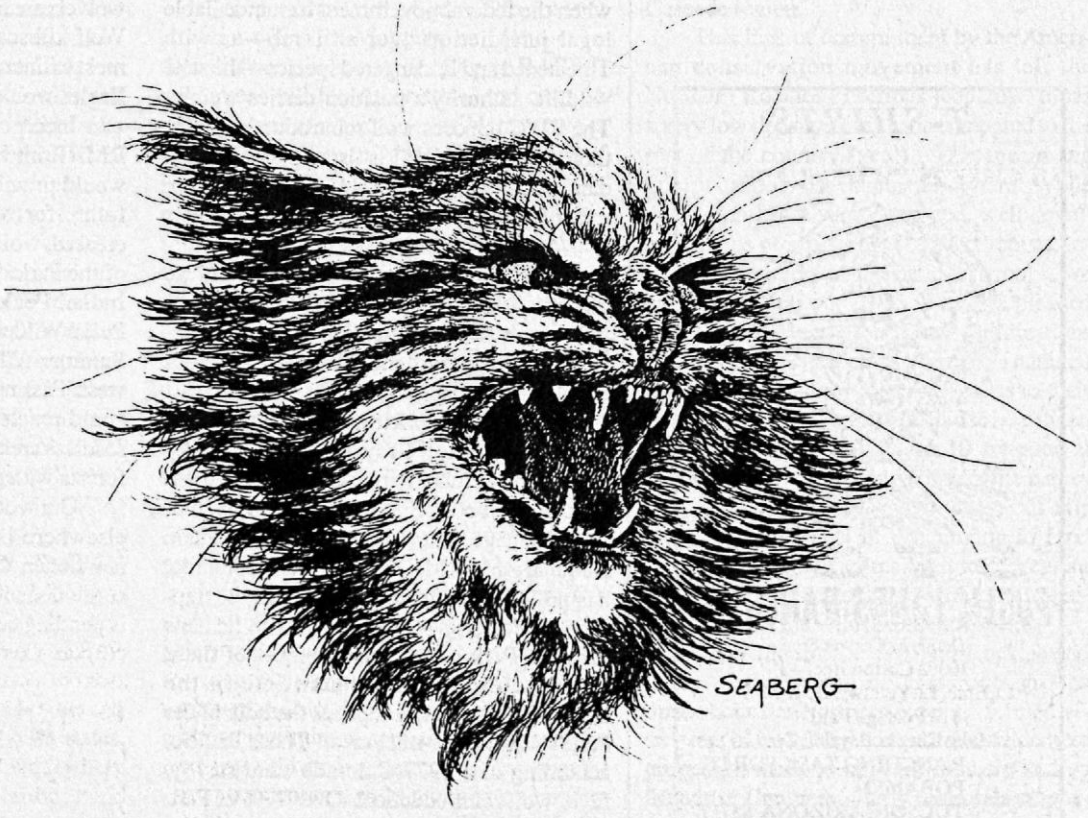
This is the only bill in Congress to embody three ingredients essential for successful environmental legislation: nationwide standards and scope, mandated native biodiversity, and enforceability. To be effective in achieving comprehensive long-term goals, we must play a strong hand in the present congressional crisis. HR 1969 is a stepping stone toward the vision of large-scale ecosystem integrity. The bill presents our grassroots forest movement with an opportunity to establish itself as an effective political force in Congress.

One of the Bryant bill's strengths is its citizen enforcement provision, which empowers people to sue an agency if it violates the law, and penalizes the agency's budget. The Forest Service cannot be trusted to adhere to environmental laws. It has repeatedly violated NEPA and NFMA, disregarded the ESA, and is now reported to be violating the mapped boundaries of the recently passed Tongass Timber Reform Act. Because most current forest laws contain no citizen enforcement provision, concerned citizens do not have a legal means to stop violations of these laws. If HR 1969 were to pass, it would provide the "teeth" so lacking in existing forest protection laws.

The Clearcutting Prohibition Act can also influence the Ancient Forest debate. It broadens the legislative horizon by offering basic ecological concepts, and by directly challenging Forest Service practices nationwide. Also, whatever Ancient Forest bill finally passes needs a citizen enforcement provision to curb Forest Service "mistakes" such as logging in Wilderness Areas. By pushing the Bryant bill and Ancient Forest protection in combination, we can show the need for enforceability in all forest legislation.

IN CONCLUSION

The last time Congress passed national legislation concerning our public forests, it failed to protect them from the timber industry. This is our last chance. Meet your Congresspersons face to face and tell them where you stand on the issues.



Sinapu

1900 Allison St, Lakewood, CO 80215
303-237-6280

by Michael Robinson and Glen Ayers

Sinapu (pronounced *seen-op-you*) is the Ute word for wolves and it expresses our entire agenda—restoring and maintaining a free-ranging population of Gray Wolves in Colorado. We operate through education and political advocacy. We hope you'll join the Sinapu campaign; it will take public involvement to get wolves back to the San Juans, the Uncompahgre Plateau, and Rocky Mountain National Park.

A major obstacle to recovery of both the Gray Wolf and the Grizzly Bear in the state is the Colorado Wildlife Commission (CWC). Individual states formulate most wildlife policy in our country. The tradition of state authority for wildlife is so strong that even when the federal government has undeniable legal jurisdiction over an issue—as with Threatened and Endangered species—the state wildlife authority's position carries weight. The CWC opposes wolf reintroduction, even though the Gray Wolf is listed under the Endangered Species Act (ESA) and is therefore under federal jurisdiction.

Among Sinapu's tasks will be reforming the CWC. The current Colorado Wildlife Commissioners need to be replaced. Commissioners should have expertise in conservation biology and should be advocates of intact ecosystems.

Sinapu is working in particular for reintroduction of Gray Wolves to Rocky Mountain National Park. Unlike areas managed by the Forest Service and the Bureau of Land Management (BLM), Rocky Mountain National Park (RMNP), in northern Colorado, has no livestock grazing, no hunting or trapping, no logging. Over two million humans visit the Park each year, but most of these people do not spend much time in the backcountry, which comprises the bulk of the Park's 400-square-mile area. Those that do, according to a 1977 Colorado state survey, favor wolf reintroduction. Over 77% of Park visitors surveyed said they would not be discouraged from backpacking in the Park by the presence of wolves; and over 74% favored wolf reintroduction.

However, the Park itself, at about 262,000 acres, represents a poor compromise between careful preservation and resource exploitation. RMNP is the triumph of an aesthetic rather than a biological ideal. Much of the Park is alpine tundra, which does not afford winter range for Elk and other ungulates, and is not good year-round habitat for wolves. Still, though not perfect, RMNP does hold great potential for wolves.

A 1976 study concluded that the Park could support up to 24 wolves without significant declines in Elk or other prey species. No one can gauge all the positive results of returning a native species to its home, but the study mentioned that the Park's Elk population is so high that the Elk may be inhibiting recovery of willow trees in riparian areas. Beaver, also a seasonal source of food for wolves, are likewise overpopulated in RMNP. Wolf-kill scavengers such as Wolverines (almost extinct in Colorado), ravens, and Golden Eagles would benefit from wolf recovery.

Incorporating public lands surrounding RMNP into a plan for wolf reintroduction would provide excellent habitat and a bright future for wolves. As their population increased, wolves would eventually migrate out of the Park. To the south is the 116,000-acre Indian Peaks Wilderness. The Comanche Peaks Wilderness is to the east, and the Never Summer Wilderness and Bowen Gulch to the west. Passing through alpine areas, the wolves could reach the 117,000-acre Troublesome roadless area, which provides lower elevation forests with good winter range.

Our work to restore wolves to RMNP and elsewhere is covered in our new quarterly newsletter, *Colorado Wolf Tracks*. We welcome donations and volunteer help. Sinapu is pending certification with the IRS as a 501 c(3) tax-exempt organization.

Northern Rockies Ecosystem vs. Washington DC Political System

by Mike Bader

In recent years there has been growing concern about the increasingly bureaucratic and corporate makeup of major national environmental organizations. Many feel that these organizations have strayed from their grassroots origins, as the "inside the beltway" mentality prevails. Cues are taken from the corporate world, and a preponderance of MBAs, accountants, and lawyers have replaced naturalists, resource-oriented refugees from the federal land management agencies, and old-time conservationists. The organization of which I am a part, the Alliance for the Wild Rockies (AWR), has experienced these frustrations first hand. Our most recent encounters have been with the Sierra Club bureaucracy, but the problems are not restricted to the Club. They persist throughout the ranks of the big ten, and they need to be dealt with.

The Alliance for the Wild Rockies consists of 135 member organizations and businesses and thousands of individuals working for comprehensive protection of the remaining wildlands in the Wild Rockies Bioregion (see *Wild Earth*, Vol. 1, no. 2). Together we've drafted the Northern Rockies Ecosystem Protection Act for introduction in Congress. This bill would protect over 17 million acres of public wildlands as Wilderness, National Park and Preserves, Wild and Scenic Rivers, Biological Connecting Corridors, and Wildland Recovery Areas.

Some background is in order. The Wild Rockies Bioregion includes Idaho, Montana, northwest Wyoming, northeast Oregon, and Eastern Washington, as well as parts of British Columbia and Alberta. It's known to most as the Northern Rockies. It is the largest and most intact wild region left in the 48 states, and the only area south of Canada where Grizzly Bears, Gray Wolves, Caribou, and several species of anadromous fish occur together. The diversity of ecosystems includes high desert, ancient conifer forests (including 3000 year old cedars in western Montana), and alpine glaciated tundra. The Northern Rockies contain the largest concentration of National Forest land in the country; 26 of the 156 National Forests are located here. Millions of acres of BLM lands complement these public forests.

The region has a long history of conservation. It contains the world's first National Park, Yellowstone; the first Forest Service administratively designated Wilderness Area, the Bob Marshall; and the first citizen initiated Wilderness, the Scapegoat. Despite this treasure trove of national heritage and native biodiversity, the region has been seriously neglected by national groups.

Some examples: the Sierra Club does not have an office in Montana or Idaho even though there still has not been a post RARE II wilderness bill for either state, and over 15 million acres of unprotected wilderness are at stake. Their office in Wyoming is so short of resources they cannot afford to keep track of roadless areas and their most recent maps are from 1978. The Wilderness Society has been threatening to close its Idaho office; only pressure from major politicians has delayed its closing. The National Audubon Society's closest office is in Denver, although the dedicated grassroots folks at the chapter levels have pooled resources for an office of their own in Helena, Montana. The National Wildlife Federation and The Wilderness Society have Montana offices but their folks take direction from Washington and their advice to state-wide groups has been to set their sights low, avoiding conflict with industry and its cronies. The illusion of power, money, and access to politicians which they create has set a bad example for state-wide groups, some of whom have emulated the big boys. The chief function of national group representatives in the region appears to be as negotiators for the congressional delegations, making sure that conservationists stay "reasonable." This includes helping get the cut out on the National Forests, by giving de facto approval of bloated ASQs (allowable sale quantities) and "suitable" timber delineations via weak wilderness proposals.

Most of the major national groups maintain offices in Seattle and Portland. However, virtually all of their time is spent working on ancient forest bills. Pitifully few resources head east for the wilderness battles in the Northern Rockies.

Another measure of neglect is the amount of coverage national groups give to Wild Rockies wilderness. According to the *National News Report Index* published by the Sierra Club, the *Report* carried only two articles about Montana and Idaho wilderness battles last year, compared to 16 on the ancient forests of the Cascade region.

This lack of commitment by the American conservation movement has left the Northern Rockies in serious jeopardy. It has a very low density of humans compared to the rest of the country (yea!). This means big groups cannot raise much money here. While the region has a very dedicated, well-developed corps of grassroots conservationists, including members of the national groups, we can't save it on our own. We have pleaded with the big ten environmental organizations to promote the Northern Rockies on a national level, such as mass mailings of alerts to their members. But we are always told to be patient, our time will come. The big 10 are good at raising grant money using high profile names like Yellowstone and the Grizzly, but this money mostly stays in Washington to fund overhead. Hardly any makes it to the region; none trickles down to the grassroots. Reaganomics strikes the wilderness movement.

The Alliance for the Wild Rockies and many of the other fine grassroots groups throughout the Northern Rockies formed after years of traditional compromise wilderness proposals, made to appease industry and its friends in Congress. Early proposals empha-

continued next page

sized recreation as the main justification for wilderness protection. These "rocks and ice" proposals would result in predominantly high alpine hiking areas, very scenic, but much lower in overall biodiversity than old-growth and riparian areas. (See *Wilderness on the Rocks*, by Howie Wolke, Ned Ludd Books.) With other areas sacrificed to the chainsaw, these areas would be unable to sustain the full complement of ecological processes. In order to appear "reasonable," mainstream environmentalists are studiously avoiding logging areas identified by the Forest Service and the timber industry. In Montana their state-wide proposal, "Alternative W," formulated during the RARE II debacle, called for about 1/3 of the unprotected wilderness to be protected. Proponents proudly proclaimed it would affect less than 2% of the "suitable" timber base (read ancient and native forest). In Idaho it has been the Idaho Wilderness Act, a similar compromise. Wyoming, Oregon, and Washington have already passed weak state-wide bills.

The state by state wilderness legislation formula, patterned after RARE II, has been an unmitigated ecological disaster. Hence what Dave Foreman has coined the *new conservation movement* is taking a different approach. The Northern Rockies Ecosystem Protection Act is the product of this new-found energy, fusing grassroots activism with cutting edge principles of conservation biology.

Now our troubles with the Sierra Club: Howie Wolke in *Wild Earth*, Vol. 1, no. 2, detailed some of the troubles experienced last October. Since then they have expanded.

In the winter of 1990-91, after Alliance members had made several trips to Washington, DC, Representative Peter Kostmayer (D-PA) gave the board of the Alliance a commitment that he would sponsor the Northern Rockies Ecosystem Protection Act. At least one prominent member of Congress has committed to be an initial co-sponsor and several have indicated they would be as well. In February 1991 Kostmayer informed AWR he could probably have the bill in the hopper by the end of the month but later indicated he needed more time to prepare.

In early May AWR board member Ric Bailey and I went back to Washington. Kostmayer had the House Legislative Counsel draft the bill into official legal format, and everything was ready to go. He said he could probably introduce the bill by the end of the week.

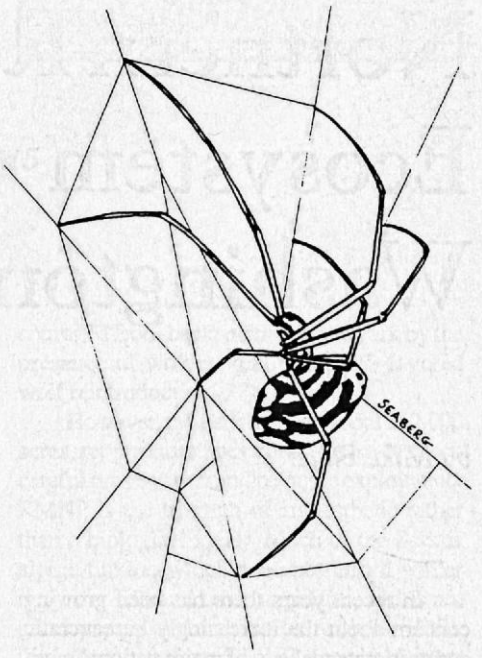
Unfortunately, a funny thing happened on the way to the forum. According to a reliable source, just before Kostmayer was to introduce the bill, Sierra Club lobbyist Jim Blomquist, based in Washington, advised Kostmayer not to introduce it. Blomquist reportedly claimed that it contained federal interstate highways and even towns within the proposed Wilderness boundaries. Concerned about the allegations, Kostmayer postponed introduction of the bill. He requested that AWR representatives travel to Washington at the end of May to meet with a Sierra Club representative in his office.

On May 28 Carole King and I met with Kostmayer, his staff, and David Gardiner, director of lobbying for the Sierra Club Washington office. We agreed on a process for resolving differences over the bill. The Congressman again stated his desire to introduce the bill and told Gardiner he did not want to hear opposition to the bill based on a desire for a state-by-state approach. He said the Rockies needs a multi-state, bioregional bill. The Club agreed to provide maps to the Congressman by June 15 to document factors that would disqualify areas proposed for Wilderness. We attempted to work out differences with local Sierra Club staff and chapters. We provided maps and the names of organizations and individuals who had proposed different areas in the bill, as well as a list of the organizations and businesses who have endorsed it (to date nearly 150 organizations and businesses representing nearly 4 million people).

June 15 passed without any maps from the Club. Instead they sent a letter to Kostmayer outlining reasons why they feel the bill is not ready for introduction. These included a list of alleged discrepancies (e.g., minor boundary disputes over suitability of areas for inclusion in the Wilderness System). The criticisms were based on a display map that contained minor errors which were quickly rectified. Many of the Club's claims were unsubstantiated and later proven inaccurate.

Unfortunately, nobody has done much to help with maps. The Forest Service, of course, has been less than helpful. Ironically, it took pressure from US Senator Conrad Burns (R-MT) to get Forest Service officials to comply with information requests. Currently there is no absolutely up-to-date inventory of unprotected wild lands due to the record pace at which they are being logged. We have taken action by sending a Freedom of Information Act request to all 26 National Forests in the Wild Rockies, the first of its kind in the nation, for a list and maps of all development projects that have taken place within inventoried roadless areas since the Forest Plans were issued. We're also filing appeals successfully, something the national group representatives in the region should be but are not doing.

Club leaders have given a number of excuses for not supporting the AWR proposal. The most ludicrous of these is that proponents of the Northern Rockies bill have not talked to the grassroots. Grassroots support ranges the full conservation spectrum, from



sportsmen's groups such as the Idaho Sportsman's Coalition, to the Humane Society, homeowners groups, Audubon chapters and every kind of wildland protection group.

We have responded to legitimate concerns within the Club that we need to inform more Club members about the proposal, seeking their input. We sent an information package to nearly 1500 Club leaders around the country, asking them to inform their members and boards and to seek their support. This only brought more charges from the Club bureaucracy. James Conner, Montana chapter chair, called it "a contemptuous gesture and a slap in the face." The Montana and Northern Rockies chapters responded with their own bulk mail letter to Club leaders urging them not to take any action on our request for help, the main reasoning being, "The Alliance's proposal is not—repeat, NOT—the Sierra Club's proposal" (emphasis in the original). A disturbing pattern has emerged. As one Sierra Club activist has written, "In the Club, only certain proposals are made known to the members. Others remain hidden."

The letter charged that local Sierra Club leaders were not approached about the proposal, and have not seen maps or text. This is totally untrue. Major Club players have known about it for years. Maps and copies of the proposal had already been provided to James Conner, as well as to John Osborn, conservation chair, Northern Rockies Chapter; Larry Mehlhaff, Northern Plains regional director; Rick Johnson, associate Northwest regional director; and jonathan stoke, vice-chairman of the national Sierra Club council and Northern Rockies Chapter officer. Details and philosophy behind the proposal have been discussed

with Debbie Sease, public lands director in the DC office. Dennis Baird of the Sierra Club National Forest Policy Committee also knew of our efforts. Alliance members attempted to set up meetings with Jim Blomquist every time we were in Washington. He was always too busy to even return a call.

In May of 1990, Rick Johnson announced at the Idaho Conservation League convention that "the Sierra Club could probably push the Kostmayer bill [the Idaho Wilderness Act introduced by Kostmayer for five straight years until 1991, when he did not] through the House, but we're not going to do that." Along with George Frampton, president of The Wilderness Society, he announced his group's intention to negotiate instead with the timber industry for a bill. These negotiations are a potential disaster. Conservationists are considering assuring the timber industry a guaranteed, appeal-free ASQ in exchange for wilderness acres. Since then, folks with the Idaho Conservation League, originators of the Idaho Wilderness Act, have told us the proposal has been scrapped, and they are working on a new one.

In Montana, the council of the Montana Wilderness Association, originators of Alternative W, voted to void Alternative W, and entered negotiations with union sawmill workers. This produced the Lolo-Kootenai Accords (S 72 sponsored by Senator Max Baucus [D-MT]), which called for the release of 35 roadless areas on the Lolo and Kootenai National Forests and serious limitations on appeals and judicial review rights, as well as terrible water rights language. The purpose of the Accords became all too clear when megacorporations Champion International (timber) and ASARCO (mining) publicly endorsed them.

The latest development came in a recent Gannett News Service article about the split between the emerging grassroots groups and the established nationals. The Sierra Club's executive director, Carl Pope, opposed the Northern Rockies Ecosystem Protection act as "too skeletal." Where are they coming from? Club leaders have indicated at various times that NREPA is way too big, too small, too skeletal, doesn't do enough for ecosystem protection, too radical; we should be doing more mailings to Club members, we should not be doing mailings to Club members, etc.

The lure of power is strong. Many of the mainstream people have forgotten that they are supposed to be protecting the land, not themselves. We are told the Sierra Club is working on its own proposal—but it may be two years before they are ready. If one reviews the current timber sale schedules in the Wild Rockies, it is apparent that by then the issue will be moot. The war will be lost.

Already these petty shenanigans are costing us precious wilderness. *Every* timber sale EA and EIS in this region planned for a roadless area states, "This area has never been proposed for wilderness designation by a member of Congress." Thus the Forest Service rationalizes away the need to maintain the roadless character of the land or to prepare a wilderness recommendation alternative the public can support. The best opportunity in the contiguous 48 states for a landscape-level biodiversity reserve system, tens of millions of acres in size, with a minimum of direct management and restoration required to sustain it, is rapidly slipping away.

The national groups put the Northern Rockies on hold. Now the Forest Service, sensing the void, has declared an all-out war on Wild Rockies wilderness. While it cannot be proven as yet, many seasoned conservationists suspect the Northern Rockies have been made a national sacrifice region, traded away in exchange for high profile issues elsewhere.

The dynamic at play here will doubtless be repeated throughout the country as regional grassroots alliances spring up (several already have) to protect and restore big wilderness via visionary, biologically-based proposals. We need to pool our energy, and force the mainstream compromisers to listen.

Don't get me wrong. I'm not calling for a harmonic convergence of uniform conservation thought and action. Diversity of groups and ideas is necessary and positive. That is the strength of the AWR. Many groups with different agendas combine their strengths for a common ecological good. Hunters and nonhunters work together for habitat protection. Even ranchers and loggers have joined to stop the logging juggernaut. Other arguments and issues will come later. If we do not save the wildlands, all our issues become moot.

I admit I run the risk of overreacting. Sometimes the best response is no response, in order to conserve energy for the fights ahead. I agree with Dave and others that we must avoid caving in to turfdom, ego, and reactionary emotion. Rashness must be avoided. However, serious allegations meant to damage the prospects of visionary proposals must be answered. This will happen again. The new conservation movement, and the revitalized grassroots movement it represents (including the hundreds of thousands of dedicated members of national groups), is a major threat to the status quo bureaucracies and the business-as-usual they represent. The right-wing power establishment has targeted the environmental movement. Keep doing what you are doing, but keep your eyes open.

A final recommendation. Singling out the Club and bashing it is wrong. Don't do it. We need their help, and we should support those trying to reform the Club and other national groups. Most of the major groups are good. The problem lies with a few individuals who have managed to centralize power into their own hands exclusively. The problems are related to the corrupting influences of power and money, and tired bureaucrats who do not spend nearly enough time in the wilderness. The people within the conservation movement who have caused damage have inadvertently defended the power structure that they have become a part of. They are not bad people. They are tired and worn out by a system in serious need of reform, if not total overhaul. Maybe they need a break. I personally feel that nobody in the conservation movement should be allowed to live and work in Washington, DC for more than six weeks at a time. Rotating out to the field would keep them fresh and in touch with the situation on the ground. In this way, the true cost and pain of political compromises would be more real and thus dealmaking more rare.

Besides, we need the help of *all* conservationists. The battle has been joined in full. Let's pull together and turn the tide for enduring ecosystems.

Mike Bader is a founder of the Alliance for the Wild Rockies and a long-time wilderness defender.

AWR (POB 8731, Missoula, MT 59807; 406-549-0882) offers a package on the Northern Rockies Ecosystem Protection Act for $6. It includes a draft of the proposed legislation, supporting material, and a colored map.

The member of Congress who most needs to hear your opinion of the Act is Representative George Miller (D-CA), chairman of the House Interior and Insular Affairs Committee (US House of Representatives, Washington, DC 20515), the committee in which Representative Peter Kostmayer would introduce the act.

Forest Service Purge Begins

by Mike Bader

In a dramatic coup, hard-liners in the US Forest Service, backed by members of Congress, recently declared all-out war on wilderness in the Wild Northern Rockies. The first victim was Region 1 Regional Forester John Mumma. He was forced out of his job after failing to log the full ASQ (allowable sale quantity) in roadless areas. Mumma's job was known to be on the line following a letter sent last winter from an anonymous Forest Service employee in Region 1, warning that he would be axed for failing to accelerate logging. Rather than be put out to pasture in a Washington, DC desk job, Mumma announced his retirement. He refused comment, saying only that his decision was "a matter of principle." Meanwhile Forest Service officials from the region to the chief's office have been mum.

Members of Congress, acting on behalf of the timber industry, played a major role. Senator Larry Craig (R-ID), who inherited retired anti-wilderness Senator James McClure's job, recently wrote a letter to Forest Service Chief Dale Robertson demanding that the ASQ be met. Mumma also received public criticism from Senator Conrad Burns (R-MT) and Representative Ron Marlenee (R-MT) for failing to log the full ASQ. Democrats, most notably Senator Max Baucus (D-MT), have also applied pressure to log the full ASQ.

The hard-liners made their plans known earlier this year with rumblings about making EISs exempt from appeals. Secretary of Agriculture Edward Madigan, a George Bush appointee, recently said the Forest Service could do "a much better job cutting timber without interference from the courts." He called for an end to the appeals process and judicial review. Former Region 1 Regional Forester James Overbay, now the Deputy Chief in charge of all National Forest System planning, came to Missoula, Montana, in early September with more hard-liner rhetoric. He said he was visiting the Regional Office to shape things up and make sure that plans to build thousands of miles of logging roads and clearcut thousands of acres of roadless wilderness are carried out. He said "we need to move aggressively to cut timber in roadless areas." He promised manpower and money to make sure it happens. He also forecast Mumma's departure.

Mumma's ultimatum was apparently delivered to him during a stormy meeting with Assistant Secretary of Agriculture John Beuter at the Denver airport.

These events follow quick on the heels of other acts of war on Wild Rockies wilderness. The Alliance for the Wild Rockies and the Friends of the Wild Swan recently lost their appeal to the Chief of the Forest Service contesting Mumma's decision to amend 11 of 13 National Forest Plans in Region 1 dividing the ASQ into two components, roaded and roadless. According to the 8-21-91 *Missoulian*, "The chief of the Forest Service on Tuesday approved amendments to 11 national forest management plans that will force his agency to cut timber in wild, unroaded areas of western Montana and north Idaho."

Just a week later, the Alliance uncovered a secret timber sale program on the Lolo National Forest, apparently implemented under intense pressure to meet the outrageously bloated ASQs. At a Missoula press conference, the Alliance revealed 25 illegally planned timber sales for which no EA or EIS had ever been prepared; thus no alternatives and no public involvement. The sales are based on decisions dating back 7-11 years. Some may be from the massive timber buy-back in the early 1980s when the Reagan Administration subsidized a multi-billion dollar bail-out of the timber industry.

The Lolo is pulling the old decisions out of the closet, dusting them off, and selling them with no public notice. Many are in roadless areas. One was 16 million board feet and included ancient cedars 6 feet in diameter. Hard money roads have been built secretly. The Alliance is considering a lawsuit to halt this insidious program.

Other National Forests have joined the illegal sales act. On the Panhandle and Clearwater National Forests in Idaho, timber sale EAs are being prepared with only two alternatives, theirs (logging and road-building) and no action (which they do not analyze at all). An anonymous Forest Service employee has indicated the Forests are using Knutson - Vandenburg funds to build roads and log in roadless areas.

The coup is far from over. Several Forest Supervisors may, rumors suggest, be cut soon. Not surprisingly, they're the ones who either have not met their ASQs, or have announced they need to cut back on their ASQs. Those Region 1 Forest Supervisors who signed a joint letter to Dale Robertson, stating that the ASQs cannot be met, are apparently on the hit list.

Much of the blame for this emergency situation can be placed on those in the mainstream environmental movement who have thwarted efforts to get the Northern Rockies Ecosystem Protection Act introduced in Congress. A common refrain in virtually every Forest Service roadless area timber sale EA and EIS goes, "This area has never been proposed for wilderness by a member of Congress." Nationally prominent legislation needs to be in place to block the cut and run wilderness destroyers in the Forest Service.

And surprise! Edward Madigan will choose the new Regional Forester for Region 1.

LATE NEWS

Senator Max Baucus has introduced a bill in the US Senate that would fulfill the Forest Service hard-liner demands for roading and logging roadless areas in Montana. The Montana National Forest Management Act would protect as Wilderness only 1.3 million acres of more than 6 million eligible acres on National Forests in Montana. Confirming that these areas are rocks and ice, Baucus stated, "All but a tiny speck of public and private timber base would be available to the forest products industry—less than a 1% impact."

The bill contains release language that would prohibit appeals and judicial review of timber sales in roadless areas and of Forest Plan allocations (logging areas and ASQs). The bill grandfathers grazing into Wilderness Areas permanently; leaves all patented mining claims out of Wilderness; grants no water rights to Wilderness Areas; and designates National Recreation Areas, with mandated

ORV and snowmobile use, in pristine roadless areas.

The Baucus bill, coming amidst the growing Forestgate scandal, is further confirmation of the dominance of the timber industry over the Forest Service and Western politicians. Despite repeated complaints from National Forest supervisors that the ASQ timber targets are way too high, a Baucus spokesman said the Senator doesn't believe the targets are too high and a "wilderness bill" that opens all the wilderness for logging is the way to meet the targets.

The day after Baucus introduced his bill, in the face of intense political pressure to overcut, the Lolo National Forest in Montana announced it is reducing its ASQ from 107 to 51 million board feet a year. Supervisor Orville Daniels stated the reduction is necessary due to overcutting on timber industry and Forest Service lands, and increased public support for Wilderness. He concluded, the "land, wildlife, and water need a rest." This decision follows public statements by the supervisors on the Panhandle and Clearwater National Forests in Idaho that their ASQs are too high and can't be met. Clearwater Supervisor Win Green said, "Right now we have a timber target that is unrealistic and I don't hold my people accountable for something that is unattainable." Panhandle Supervisor Bill Morden said reductions are necessary because they are moving away from clearcutting, and need to protect old growth, habitat for Grizzly and Caribou, and stream channels. Earlier this year the GAO concluded that the Flathead National Forest ASQ could not be met without major violations of Forest Plan standards for wildlife protection, particularly habitat requirements for Grizzly Bear and Gray Wolf.

Only days after the Lolo decision, FS Chief Dale Robertson sent a memo to Region 1 supervisors warning them not to follow the lead of the Lolo in cutting ASQs. Congressional hearings on the Forestgate controversy are scheduled for September 24 in the House Civil Service Committee, to consider charges that direct political interference has resulted in illegally high logging levels and forced certain Forest Service employees to willfully violate environmental laws. Forest Service officials have been subpoenaed, including one who will testify that illegal wiretaps were installed on the phone of recently ousted Regional Forester John Mumma.

A national outcry has erupted. Stories on the controversy have hit the front pages of the *New York Times* and *Washington Post*. 60 Minutes is investigating. This is just the beginning.

Beyond the Wall

On The Toxic Trail With Dr. Dioxin

Patty Sue sends the following telefax:

Dear Dr. D. Trouble in paradise. Senior partners grumbling. Contract dispute inevitable. Recommend proceed with Plan 9 From Outer Space. Call me. At home. Love, Patty Sue.

I travel on, irrespective of the news. My pickup truck cuts through the night, more or less invisible to all but the nocturnal creatures whose eyes are wired for seeing in the dark. I am returning from one of the dimmest regions in America: Southern Mississippi.

Let's be honest: Mississippi is gone. Alabama, south of Montgomery is gone. Ditto for parts of Georgia and much of Louisiana. Florida is doomed. It is true that the land remains; but, it is a land sorely abused and changed by the hand of homo erectus asphaltus. The Longleaf Pine that I see are but faint shadows of the spectacular stands of softwoods which once dominated the Coastal Plains. Hardwood succession is ubiquitous. Yet, even these species appear scrawny, incapable of rejuvenating what is left of Dixie's once rich heritage of diverse forest ecosystems. Toilet paper has transformed the land of General Robert E. Lee.

I cross an old concrete bridge which serves as a reminder that somewhere below, out of sight in this darkness, flows an analog of a Mississippi River. I imagine it is a tannin saturated black-water stream, the sort that the Pulp & Paper Industry points to as proof that their smelly, ebony effluent is "natural."

Much weirdness emanates from Atlanta's giant skyscrapers. Strange calls from affiliated members of various state bar associations around the country. Dioxin is merely a buzzword; it is the edge of the pollution game. Lawyers smell the cattle call of punitive awards years before the fall. The pigs are coming home to roost. Even the industry lawyers enjoy this game; they charge by the hour, after hour, after hour ... Years go by. A new Lincoln Town car for the wife.

To the Doctor, dioxin is not a way of life. There is simply a (sleazy) job to be done. Somebody has to do it. They chose me. I am Dr. Dioxin; and this is the toxic trail. Patty Sue's message is but a slight irritant. The Doctor writes his own contracts. They are as tight as two dogs in the act of love. It is humorous to witness erudite gentlemen in smooth grey flannel suits become parodies of J. R. Ewing, all the while professing to heal the sick, cure the blind.

The judge hates all of this. Clearing the docket is the rule. Asbestos clogs more than America's lungs. Lawyers clad in dark suits crawl like parasites along the streets of Pascagoula, Mobile, Ourtown. Each carries a neat stack of X-rays; every picture tells a story, a verdict, a settlement opportunity.

I travel on through the night. Cicadas thunder from beyond the road's edge. What a beat. I hold my micro-cassette recorder out the window. Patty Sue adores bug sounds. What was moments ago only the dark of night suddenly becomes a late summer storm. Brilliant flashes of ionized air split the sky.

PLAN 9 FROM OUTER SPACE

The State of Alabama has a formula designed to protect you from dioxin related cancers. It goes something like this:

$$\text{conc. (mg/l)} = \frac{(HBW \times RL)}{(CPF \times FCR \times BCF)}$$

where:

HBW = human body weight, set at 70 kg

RL = risk level, set at 1×10^{-5}

CPF = cancer potency factor, in (kg-day)/mg

FCR = fish consumption rate, set at 0.0065 kg/day

BCF = bioconcentration factor, in 1/kg (at 5,000)

The formula makes certain basic assumptions. Like that most folks only consume 6.5 grams of fish per day, weigh in at 70 kg. Nice try; not true. It is not true because State water quality standards must protect those people actually at risk. Plebes in Birmingham tend to avoid freshwater fish on a daily basis. They eat hog meat and veal and weigh more

continued next page

than 70 kg. They are thus "protected." But Alabama is peopled by a large rural contingency; they fish to live—not live to fish. Many of them consume large quantities of catfish (Hail to the trot-line!), bass, perch, crappie, shrimp, oysters, crabs, etc. These good folks are breaking the mold, tipping the scale, upsetting the formula. They slip through the protective net of State protection, are left to fend for themselves. Same for birds of prey.

Alabama's Attorney General is on record as professing that the State's dioxin standard "may violate the equal protection laws of the State of Alabama and the United States." He never mentions that millions of aquatic creatures who actually live IN Alabama's waters are not afforded any protection, much less equal protection. In fact, fish have been found to bioconcentrate dioxin as much as 159,000 times (concentration up the food chain). As they act out their natural carnivorous lifestyles, each intake of sustenance increases their daily dose of dioxin. Not to mention other noxious chemicals that call Alabama's waters home.

In essence, state governments are allowing favored industries to kill a prescribed number of the citizenry. Death by dioxin. Death by PCBs. Better living through chemistry. And the reasons? Is white paper really that god-damned important? Does the average American's ass know the difference between the lily white and the creamy vanilla? Or is there more . . . call your broker.

America's conscience speaks in fits and starts. Edward Abbey admonished us to traverse beyond the wall. "The defense of wildlife is a moral issue," said he. And; "Human needs do not take precedence over other forms of life." Indeed. The Doctor has seen the writing on the wall: cancerphobia; soft tissue sarcoma; AH factors; chlorine pimples. The nomenclature of dioxin. Nowhere do the halls of justice hear the pitiful cries of the critters. No knight in shining polyester pleads the case of the wild. Nature has no standing. This is a "man's" world.

"It is a man's duty to speak for the voiceless; a woman's obligation to aid the defenseless." Abbey.

Trials and tribulations appear on the horizon. Dr. Dioxin will report from the fray. He vows to have the truth be known, whatever that truth becomes. There are no heros in this game. Unless one considers catfish heroic. The Dr. does.

"And power, now as always, is the natural enemy of truth." Abbey again.

Wilderness Proposals

The George Washington National Forest

Central Appalachian Wilderness in Perspective

by R.F. Mueller

To the uninitiated, the Eastern mountains present an aspect of sameness, of continuous lush deciduous/conifer forest-covered ridges and valleys that contrast with the terrain diversity of the Western mountains. To the initiated, however, this is an illusion, merely concealing a rich underpinning of biological diversity that faithfully reflects geologic, geographic, topographic and elevational variations. In many instances this illusion is perpetrated by the US Forest Service (FS) and the state agencies, which refuse to recognize this cryptic but real diversity and treat all the mountain ecosystems in the same way. In some instances the Forest Service has misclassified the vegetation of the higher ridges even to the extent of erroneously listing tree species. To a large degree this failing is attributable to the exploitative and anthropocentric bent of these agencies. Recognizing different forest types and the presence of rare and unusual biologic communities and habitats gets in the way of timber sales and "game management" as well as other development schemes.

A sickening example, documented by Virginians for Wilderness, is the notorious California Timber Sale in Virginia (*Earth First! Journal*, 8-90), in which a diverse bottomland forest was sacrificed to biologic ignorance and greed. This shoddy management style is also reflected in the FS's persistent attempts to justify clearcutting by arguing that in the absence of such daylight-exposing activities the forest would revert to less desirable, shade-tolerant timber species. In its extreme form this mind warp holds that with proper management virtually any species of native tree can be made to grow where intended. This illogic ignores the fact that 90% of the George Washington and Jefferson National Forests—lying as they do in a xeric oak-chestnut belt with shallow, stony soils—can only support such drought-resistant and shade-intolerant species as oaks, with only minor mesic components. By contrast, shade-tolerant species, such as Eastern Hemlock, Sugar Maple, American Beech and White Basswood, are confined to topographically restricted high-moisture coves and riparian zones.

Interestingly the self-serving "dread climax" theory also fails in the case of the Monongahela National Forest, where hemlock, beech, Sugar Maple and other mesic species dominate because of the cool, moist climate. Because all these species except hemlock generally sprout as prolifically as oak, clearcutting, unless it destroys the soil, can only result in more of the same. Thus in the Monongahela, mesic species will generally out-compete oaks. On all three of these Central Appalachian National Forests, the substitution of early successional for late successional forest by clearcutting may result in the loss of mast production as well as other mature and old-growth food sources and values.[1]

The knowledge we need to place Eastern ecosystems on a track to recovery must include what we can determine of the presettlement systems. The 80-90 year old forests, many of them even-aged, that now occupy the Central Appalachians are only poor reminders of what

once existed here. When Lucy Braun published her classic work *Deciduous Forests of Eastern North America* (regrettably now out of print) in 1950, only scattered remnants remained and now even some of these remnants, such as Wilson Creek in the George Washington National Forest, have been destroyed or severely degraded. Existing forests, except for isolated tracts, are almost devoid of the vertical structure of high broken canopy and layered understory, the large hollow trees (some of a size to provide living quarters for bears), and the all important large debris on the forest floor and in water courses forming cover and fish-rich pools. Gone also is most of the rich ground cover of vernal flora (spring wildflowers) and other flora described by Braun, with its nutritional variety of greens, bulbs, and fungi, as well as the micro and macro flora and fauna that depend on the multiple features that only old-growth can provide. In most localities soils have been degraded. Complex mixed mesophytic forests, with their deep organic mull soils, have been replaced by simple stands of a few rapidly-growing pioneer species like Tuliptree and Virginia Pine.

Extirpated also for most of the settlement period was the Beaver, the great diversifier (Elliot, *Earth First! Journal*, 5-90). In the Central Appalachians this animal is of even greater importance than in the North, since we lack the many wetlands formed by glacial action (so we really need to leave it to Beaver). Happily the toothy wonder is returning to many parts of our region from which it once was extirpated. However, it will be some time before there is a presettlement array of ponds, meadows, successional vegetation and the many other elements of Beaver-induced ecosystems that are now missing.

It is from the two-fold perspective of past diversity and present opportunity that wilderness preserve systems should be devised. Given the constraints of land availability, our efforts should focus on loci of high nutrient and moisture availability, on areas of low to moderate relief, and on riparian zones. Unviolated riparian areas may, on a unit-area basis, be as effective at overcoming the general effects of fragmentation as many times that amount of unfragmented upland habitat. This point has been made repeatedly to the Forest Service by Virginians for Wilderness, who have stressed the need to close roads along streams.

The Virginias, and the Appalachians as a whole, are a mosaic of natural areas with varying degrees of disturbance and interconnectedness. In this mosaic the tracts owned by the Forest Service dominate, at least south of Pennsylvania, but there are also many quite large tracts of state and private lands in a substantially natural condition (if one forgets

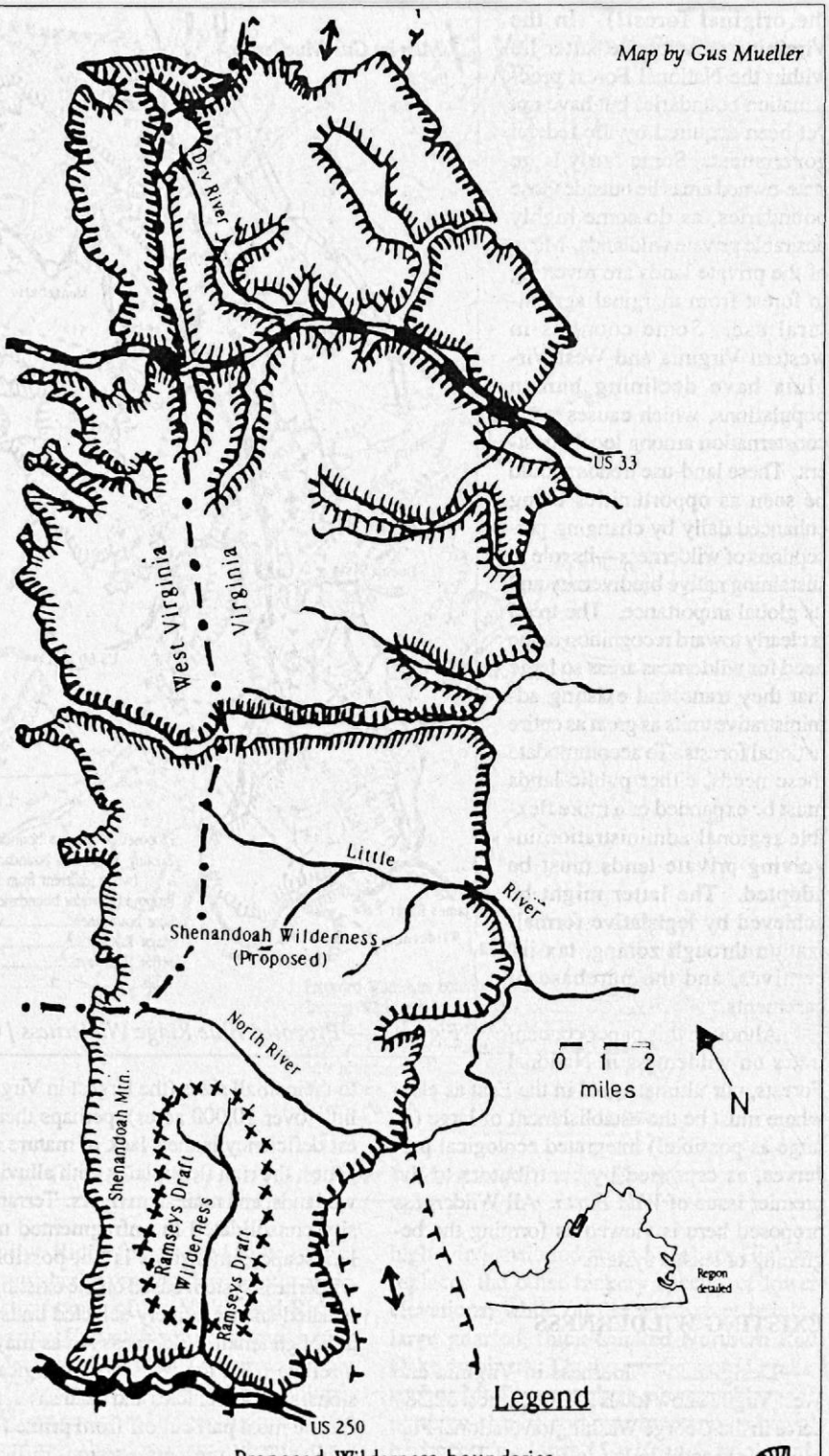


Figure 1 — Proposed Shenandoah Mountain Wilderness / Corridor Complex

the original forest!). In the Virginias most of the latter lie within the National Forest proclamation boundaries but have not yet been acquired by the federal government. Some fairly large state-owned areas lie outside those boundaries, as do some highly desirable private wildlands. Many of the private lands are reverting to forest from marginal agricultural use. Some counties in western Virginia and West Virginia have declining human populations, which causes great consternation among local boosters. These land-use trends should be seen as opportunities being enhanced daily by changing perceptions of wilderness—its role in sustaining native biodiversity and its global importance. The trend is clearly toward recognition of the need for wilderness areas so large that they transcend existing administrative units as great as entire national forests. To accommodate these needs, either public lands must be expanded or a more flexible regional administration involving private lands must be adopted. The latter might be achieved by legislative formalization through zoning, tax incentives, and the purchase of easements.

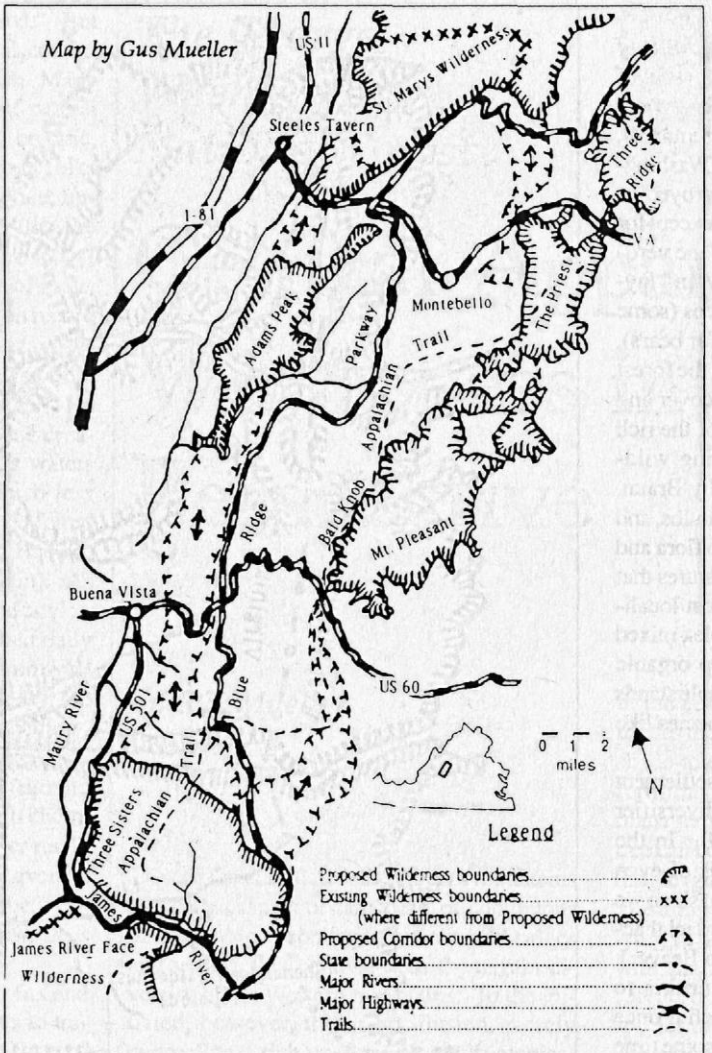


Figure 2 — Proposed Blue Ridge Wilderness / Corridor Complex

Although this paper concentrates on wilderness in National Forests, our ultimate goal in the East as elsewhere must be the establishment of large (as large as possible!) integrated ecological preserves, as espoused by contributors to the premier issue of *Wild Earth*. All Wilderness proposed here is viewed as forming the beginning of such a system.

EXISTING WILDERNESS

Designated Wilderness in Virginia and West Virginia now totals 252,681 acres: 32,384 acres in the George Washington National Forest; 59,906 acres in the Jefferson NF; 78,131 in the Monongahela NF; and 82,260 in Shenandoah National Park.[2] In Virginia, Wilderness accounts for about 0.7% of the total land area. In the George Washington, it amounts to about 3% compared to about 17% of National Forests as a whole. Virtually all Wilderness Areas are situated on the steepest, rockiest and most inhospitable terrain. In aggregate they fall far short of representing all ecosystem types even in their immediate vicinities. Next to their small sizes (the largest in Virginia is a little over 10,000 acres), perhaps their greatest deficiency is their lack of mature riparian zones, the rich floodplains with alluvial soils, wetlands, and mainstem rivers. Terrain diversity consolidated in unfragmented tracts of landscape dimensions is not possible for a wilderness system based on the existing small, isolated and negatively-selected units. Thus, although small Wilderness Areas may afford a refuge from the worst technological intrusions, such as vehicles and chainsaws, they are for the most part cut off from prime foraging habitat. This presents a serious difficulty for shy, wide-ranging species, for those with varying seasonal requirements, and even for rare plants which may be isolated from their fellows.

PROPOSED WILDERNESS/ CORRIDOR SYSTEM FOR THE GEORGE WASHINGTON

The following is an outline of a Wilderness/Corridor System (Noss, *Natural Areas Journal*, vol 7(1), 1987) for the George Washington National Forest. It is a slightly modified version of one presented by Virginians for Wilderness as an alternative management plan to the George Washington planning staff and it appeared as "Alternative 3" with 12 other alternatives in the Forest planning papers.

Because a number of existing and proposed Wilderness Areas extend to or near Forest ownership boundaries, no buffer zones are presented. However, in many cases general National Forest can be regarded as serving this function. It is recommended that buffer zones be established as soon as land becomes available for purchase or through zoning or easements.

Although some roads would of necessity remain open in the corridors, it is envisioned that management of the corridors would otherwise follow that of Wilderness, with the elimination of all timber harvesting and other extractive activities. This would favor the subsequent establishment of late-successional vegetation modified only by natural disturbances.

For the time being, the only opportunities for even moderately large Wilderness Areas in the Central Appalachians are afforded by certain blocks of low-road-density land in the George Washington and Monongahela National Forests. One of the largest of such blocks lies in the Shenandoah Range astride the Virginia-West Virginia line and was proposed earlier as a 65,000-acre Shenandoah Wilderness (*EF!*, 9-86). This is the southernmost block. There are also several large blocks (not shown in figures) just southwest of US Route 250 along the Shenandoah Range and the North Mountain spur. This complex of almost contiguous blocks amounts to several hundred thousand acres with high wilderness potential and can be readily linked by corridors to other areas.

Designation of large Wilderness blocks in the Shenandoah Range and adjacent areas would give a substantial boost to biodiversity. The Range contains the largest and most numerous concentrations of old-growth (greater than 150 years in age) on the George Washington including the spectacular hemlocks and cove hardwoods of the existing Ramseys Draft Wilderness.[3] The Range is home to several

rare endemic species including the Cow Knob Salamander (*Plethodon punctatus*), a candidate for listing as Endangered, and a millipede (*Nannaria shenandoah*), as well as a variety of disjunct northern plants such as Paper Birch (*Betula papyrifera*), Trembling Aspen (*Populus tremuloides*) and birds such as the Red Crossbill (*Loxia curvirostra*). It also appears to be prime habitat for the Eastern Woodrat (*Neotoma floridana*), which has suffered declines in other parts of the East. According to the Forest Service, the "probability is very high that a number of [other] rare species are present in the area." (Roadless Area Review and Evaluation, Draft Working Paper, 2-15-91)

Also proposed here is the restoration of the upper North River riparian zone, a rich floodplain now degraded by an ill-conceived road (F.R. 95) and associated unregulated vehicle camping. Even the Forest Service and state agencies admit that fragmentation of habitat should be guarded against for species like the Cow Knob Salamander. Wilderness status, particularly along the North River, could extend these safeguards to other, perhaps as yet unknown, species that presently suffer from fragmentation.

In parts of the George Washington lacking large contiguous areas of low road density, there are generally "pods" of potential wilderness ranging in size from a few thousand to more than 30,000 acres, some of which contain important elements of diversity that need protection. Such is the case for a series of areas along the eastern edge of the Blue Ridge in the Pedlar Ranger District (Fig. 2), which lie along the Appalachian Trail, the backbone of the Preserve Appalachian Wilderness (PAW) ecological corridor system. Going from southwest to northeast, these areas are Three Sisters Knobs (adjacent to the James River and the existing James River Face Wilderness), Mt. Pleasant, The Priest, and Three Ridges. On the western Blue Ridge lie part of the Three Sisters Knobs, the proposed Adams Peak, and a greatly expanded St. Marys Wilderness Areas. All have been connected by corridors, in our proposal.

The eastern Blue Ridge illustrates well the effect of cryptic diversity. To the distant observer the forest on these ridges appears little different from that of the western Blue Ridge or the Valley and Ridge Province. Yet the species composition and distribution is quite different. Since most of the eastern Blue Ridge here is developed on granodioritic metamorphic and igneous rocks of the Pedlar Formation, as distinguished from the sandstones, quartzites and shales of the mountains to the west, its soils have a far better capacity for moisture retention. As a consequence the eastern Blue Ridge forests tend to be mesic, as distinguished from the dominantly xeric oak-chestnut types of the Valley and Ridge. Thus one may find such moisture-loving species as Jack in the Pulpit (*Arisæma*), Cow Parsnip (*Heracleum maximum*) and trilliums on the highest peaks and ridges, a situation far different from the dominantly heath-type ground cover to the west.

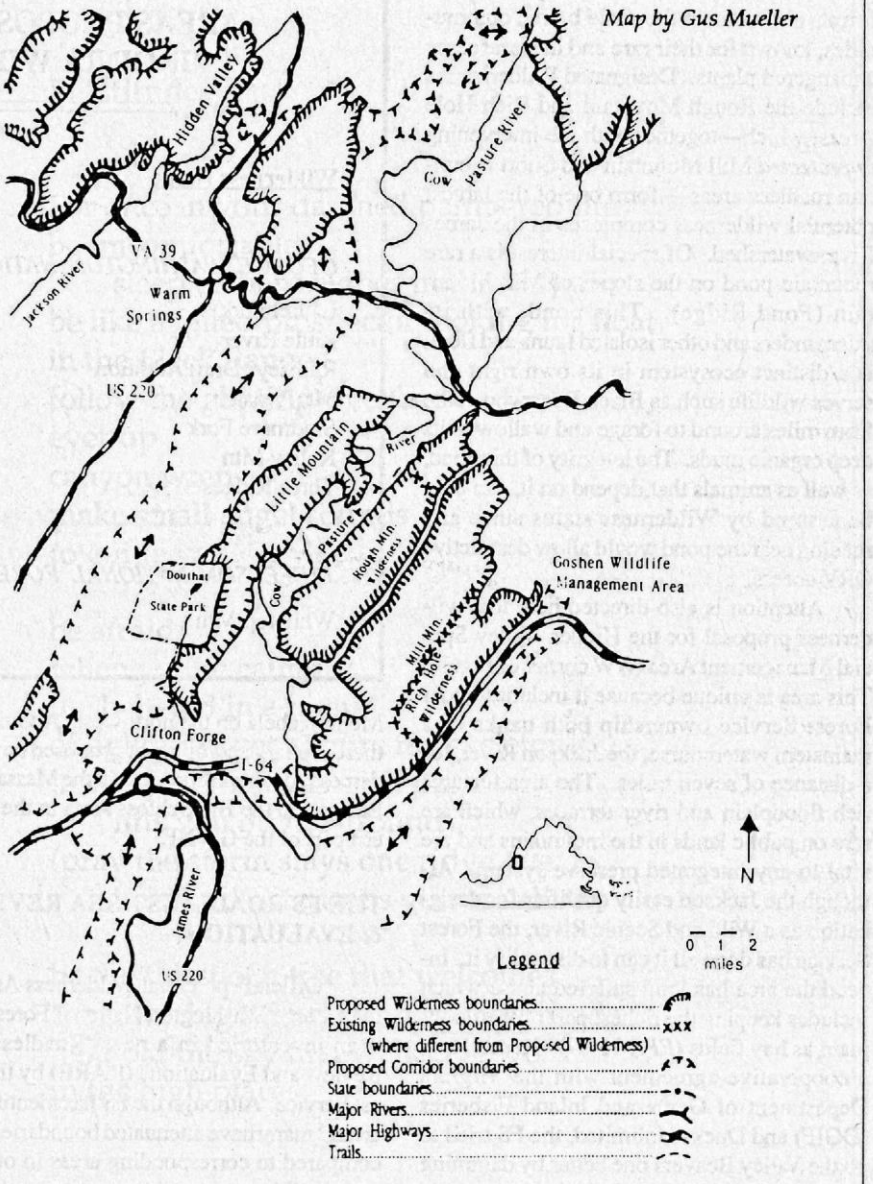


Figure 3 — Proposed James River Wilderness / Corridor Complex

Due to this moisture-enhanced diversity and high local relief (up to 3000 feet in 2.5 miles) on the eastern Blue Ridge, there are conspicuous elevational changes in the flora with such southern species as Chestnut Oak and Tuliptree confined to successively lower levels and characteristically northern species (Yellow Birch, Mountain Ash, *Clintonia borealis*, etc.) appearing at higher elevations. In high wind-sheltered areas Shagbark Hickory replaces the other hickory species of lower elevations; while on the windswept heights large gnarled, thick-trunked Northern Red Oaks dominate. On the most exposed peaks, such as Mt. Pleasant, there are assemblages of northern shrubs and rare montane or boreal herbaceous plants (*Saxifraga michauxi, Arenaria grœnlandica*). The Forest Service admits that it has paid little attention to this impressive floral (and perhaps faunal?) diversity. With a gradual return of more natural forest this native diversity can only increase.

The more xeric oak-chestnut type forests of the Valley and Ridge (Fig. 3) have their own characteristic diversity, which includes a great variety of heaths and associated acid-loving

continued next page

plants of other families. The Valley and Ridge forests also contain the shale barren communities, known for their rare and in some cases endangered plants. Designated Wildernesses include the Rough Mountain and Rich Hole Areas, which—together with the intervening *unprotected* Mill Mountain and Short Mountain roadless areas— form one of the largest potential wilderness complexes in the James River watershed. Of special interest is a rare mountain pond on the slopes of Mill Mountain (Pond Ridge). This pond, with its salamanders and other isolated fauna and flora, is a distinct ecosystem in its own right and serves wildlife such as Black Bear who come from miles around to forage and wallow in its deep organic muds. The integrity of this pond, as well as animals that depend on it, can only be assured by Wilderness status since any roading near the pond would allow destructive ORV access.

Attention is also directed here to a wilderness proposal for the Hidden Valley Special Management Area (NW corner of Fig. 3). This area is unique because it includes under Forest Service ownership both banks of a mainstem watercourse, the Jackson River, for a distance of seven miles. The area features rich floodplain and river terraces, which are rare on public lands in the mountains and are vital to any integrated preserve system. Although the Jackson easily qualifies for designation as a Wild and Scenic River, the Forest Service has done all it can to disqualify it. Indeed the area has long suffered abuse which includes keeping the richest part of the floodplain as hay fields (*EF!*, 11-89). Recently, in a cooperative agreement with the Virginia Department of Game and Inland Fisheries (DGIF) and Ducks Unlimited, the FS tried to go the Valley Beavers one better by damming a small tributary to form "duck ponds."[4] Hidden Valley is a priority wilderness recovery area.

Farther to the northwest (beyond the areas mapped here) is a transition in a broad ecotone from oak-chestnut forest to a more mesic type, with a dominantly northern aspect, at the Virginia-West Virginia line. In some localities, usually above 3500 feet in elevation and increasing in frequency westward into the Monongahela NF of West Virginia, are stands of montane forest characterized by Red Spruce. One such area, which is part of the George Washington NF, is the Laurel Fork proposed wilderness (described in *EF! Journal*, 3-90).

The foregoing overview of our proposed wilderness-corridor system covers perhaps one-third of the George Washington National Forest. Left out of our discussion are large areas linking the system to the Jefferson National Forest to the southwest and to the Monongahela on the northwest. Additionally there is a large complex of proposed new Wilderness Areas and corridors in the Massanutten Range and the Big Schloss Area in the northern part of the GWNF.

AREAS PROPOSED FOR WILDERNESS BY VIRGINIA WILDERNESS COMMITTEE

Wilderness Name	Size	Ranger District
GEORGE WASHINGTON NATIONAL FOREST:		
Laurel Fork	10,900 acres	Warm Springs
Little River	28,000 acres	Dry River
Ramseys Draft Addition	13,000 acres	Deerfield/Dry River
Mt. Pleasant	8,500 acres	Pedlar
Skidmore Fork	5,600 acres	Dry River
Kelley Mtn	7,900 acres	Pedlar
Three Ridges	4,800 acres	Pedlar
JEFFERSON NATIONAL FOREST:		
Whitetop Mtn	4,500 acres	Mt. Rogers NRA

THE FS ROADLESS AREA REVIEW & EVALUATION

"Official" potential Wilderness Areas of the George Washington National Forest have been inventoried in a new "Roadless Area Review and Evaluation" (RARE) by the Forest Service. Although the FS has identified 26 areas,[5] many have attenuated boundaries when compared to corresponding areas in our proposed wilderness-corridor system.

Regrettably the Forest Service's printed evaluations are narrow in scope and frequently based on erroneous concepts that contradict conservation biology. Also implicated in these flawed evaluations are the state agencies, including the DGIF and the Division of Natural Heritage (DNH), which is specifically charged with the protection of natural diversity. For example the DNH would like to create "research natural areas" or "special interest areas" to protect rare plant communities, in some cases within the large roadless or low-road-density tracts. Unfortunately, since such areas would be served by well marked trails or, as is often the case, even by old low-standard woods roads, they would expose large areas to incursion by ORV bubbas and other undesirable elements. By the admission of biologists, this further fragmentation would negatively impact the Cow Knob Salamander and perhaps other species; yet with reference to one of the RARE areas, Kelley Mountain, the DNH states that "new roads and trails and timber harvest...should not be excluded entirely..." (RARE, Kelley Mtn., Pedlar R.D., p.15, 1991). Surely this demonstrates a less than profound grasp of what is needed to protect biodiversity!

CURRENT WILDERNESS PROPOSALS

Citizens led by the Virginia Wilderness Committee, a group that promoted the 1984 Virginia Wilderness Bill, have proposed eight new or expanded Wilderness Areas in Virginia based on the Forest Service RARE study, seven in the George Washington NF and one in the Jefferson NF. (See table on page 67.) Although the proposed areas do not require any system road closings, several (Little River and Ramseys Draft Addition) fall within the boundaries of the proposed Shenandoah Wilderness or other large blocks along the Shenandoah Range (Skidmore Fork). The Laurel Fork, Mt. Pleasant and Three Ridges areas are the same as previously discussed under our wilderness-corridor system, albeit at different acreages; while Kelley Mountain corresponds roughly to our suggested St. Marys Addition. Viewed as "politically realistic," these proposals are a step toward eventual big, ecologically significant wilderness and deserve our support, especially since they would afford some protection to the rare species previously discussed.

CONCLUSION

Management of the George Washington National Forest is in a state of flux, as it is in the National Forest System as a whole. In the evolving mental climate of the administrators, the true function of big wilderness—as the imperative for biodiversity and the evolutionary process—is still only faintly grasped. Commodity extraction still has the highest priority, even to the extent of deception and collusion with industry down to the district ranger level; and wilderness is seen as a recreational resource—or worse, as an inconvenience that doesn't create management jobs. The virtue of roadlessness is appreciated by perhaps ten percent of administrators and roadless areas exist only by virtue of the expense of roading them. In western Virginia, a vociferous, ill-informed opposition—led by timber, pulp industry and ORV interests—circulates before various local government bodies asking, and frequently getting, anti-wilderness resolutions. In some cases this opposition even garners the support of retired rangers who continue what they did on the job. But none of this should discourage us from promoting big wilderness in the Appalachians, or anywhere in the East.

We need to write letters to the Forest Service in support of the Wilderness-Corridor System alternative management plan for the George Washington, and to give credence and a morale boost to the enlightened minority in the Forest Service who are trying to give conservation biology a fair hearing. Write Supervisor, GWNF, POB 233, Harrisonburg, VA 22801. We also need to explore the forest to become imprinted with our favorite wildlands, as advocated by Dave Foreman and Howie Wolke, and so we won't depend on the Forest Service for knowledge of what's there!

We should also give attention to the upcoming Virginia wilderness legislation (for areas in Table 1). Please write your representatives and senators: House of Representatives, Washington, DC 20515; Senate, DC 20510.

ACKNOWLEDGEMENTS

The writer appreciates steadfast assistance in the field as well as many stimulating discussions with Crickett Hammond, Mike Jones, Steve Krichbaum and Gus Mueller. He is also grateful to Chuck Bailey for steering him to the rare flora of the Mt. Pleasant Area and to Brenda Vest for drawing our attention to Pond Ridge.

Be/atitudes

For once in your damned pampered life
be uncomfortable
    sleep on hard slopes in thin dry air
be like a failed prospector looking for float
in the Black Range
follow the glinting creekbed
ever up
canyon wrens
make small angel sounds
to guide you

be afraid
when you're caught
unsheltered in a night
of lightning, yet admire the skeleton
inside your hand as each flash
    lifts you off the ground
(pray the storm stays one ridge over)
    be afraid it means you are alive

be the thirst of a tree that welcomes
the towering rain-gods in thunderheads
be/hold the sky that walks the world
in the high places.

—Suzanne Freeman, Austin, TX

FOOTNOTES

1) An excellent treatment of old growth issues in the Appalachians is that of Zahner (*Earth First!*, Dec. 21, 1989)

2) Acreages on authority of George Washington planning staff

3) The character of old growth in this and other parts of the George Washington has been summarized by Mary Davis ("Old Growth in the East," *Earth First! Journal*, June 21, 1990)

4) Characteristically all this was done without scoping notices or an Environmental Assessment, a clear violation of regulations!

5) Based on the criterion of less than 1/2 mile of system roads per 1000 acres.

Bob Mueller is a retired NASA scientist who now works with Virginians for Wilderness and PAW.

Is Population Control Genocide? *Part 3*

by Bill McCormick

WHAT IS POPULATION CONTROL?

Before we go any further, it might be useful to go back and look at the term "population control." One of the primary reasons Dick Gregory felt population control is genocide was that he believed it implied someone else controlling his fertility.(1) People of color have good reason not to believe everything told to them by the white power structure. Further, some advocates of population control have made unnecessarily exaggerated claims about the need for coercive or inhumane birth control measures, which have set back the cause of population limitation and served as ideal rallying points for pro-natalists of every political and theological stripe eager for the chance to portray advocates of population control as unfeeling racists.(2)

Nevertheless, to return to Dick Gregory's article, a large majority of those who commented felt his fears were unfounded. The black population of North America is not decreasing in size, and except for some tribal groups, such as the Penan of Malaysia, or those of the Amazon basin, it seems fair to say that the "genocide" rhetoric has gotten out of hand.

There is also the danger, as with the "boy who cried wolf," that those who glibly toss around such emotionally-loaded terms as "genocide," "fascist," and so forth are helping to cheapen the language, and making a mockery of those tribal groups who are facing real genocide.

In his excellent book, *Genocide?*, Robert Weisbord writes: "population control is used to connote the belief that for the good of the society, in light of overpopulation, individuals and groups should reduce the number of children they produce."(3) If, following Gary Snyder, we expand Weisbord's somewhat limited view of society to include non-human communities, this seems to me to be as good a definition as any. It does not imply in any sense that light-skinned people ought to be plotting to kill off all the dark-skinned ones, or vice versa. Despite the enlightened testimony of W.E.B. DuBois, Martin Luther King Jr., Shirley Chisholm, Alice Walker and other people of color, it seems likely that, for the foreseeable future, wildly exaggerated fears of population control will continue to circulate.(4) However, as we shall see in the next section, these fears can be minimized.

A SHORT HISTORY OF THE INTERNATIONAL DEBATE

As I pointed out in Part 1, native and natural people all over the world practiced varying forms of birth control with varying degrees of success long before recorded history, and seemed to be very clear on the point that the ecology of a given place, human and otherwise, only works well when all members of the community function within limits.(5) Therefore, it would be difficult to question the legitimacy of population control as a time-honored necessity; though, as we saw in part 2, many marxists and anarchists, along with their historic enemies, the capitalists, have done just that, helping to solidify the illusion of "limitless growth."

To give an example of the peculiar nature of population dynamics on the international level, at the United Nations Conference on the Environment at Stockholm in 1972, the Chinese and other delegations declared there was no such thing as a population problem, that such talk was merely a ploy of the imperialists. Interestingly, back at home, in direct contradiction to their stated marxist "people are the ultimate resource" position, the Chinese government had already instituted one of the most coercive population control policies on Earth. I am not arguing in favor of coercive population policies—in fact, it is the very spectre of authoritarianism that makes the democratization of birth control so imperative—but the example is instructive. Seemingly without "imperialist" intervention, China and many other less-developed-countries found what the ecologists had been telling them was true: namely, that unrestrained population growth is the best way to court environmental devastation, economic disaster and widespread human suffering.

Even more ironic, by the time of the UN Population conference at Mexico City in 1984, the majority of less-developed-countries fully supported the cause of population limitation and were eager for family planning information.(6) However, by the 1980s, buttressed by the asininity of Ronald Reagan and his cornucopian gurus, Julian Simon and Ben Wattenberg, the US had adopted the old maoist "full speed ahead on population growth" principle, albeit with a new free enterprise twist. Eager to accommodate the "right-to-life" constituency that elected him, Reagan cut off funding to UN and Planned Parenthood international family planning efforts in 1985.(7) This prompted leaders from 43 countries (including Bangladesh, India, and Kenya) representing over half the Earth's population, to issue a statement saying in part:

At present there are 76 million more births than deaths on our planet each year. If present rates continue, by the year 2000, there will be 100 million more births than deaths. A billion people have been added in the last 13 years and the next billion will be added in 12 years.

Degradation of the world environment, income inequality, and the potential for conflict exist today because of over-consumption and overpopulation. If this unprecedented population growth continues, future generations of children will not have adequate food, housing, medical care, education, earth resources and employment opportunities.

We believe that the time has come now to recognize the world-wide necessity to stop population growth within the near future... Measures for this purpose should be voluntary and should maintain individual human rights.(8)

Another statement of international import was issued after the Global Forum of Spiritual and Parlimentary Leaders in Moscow in January of 1990, and signed by Elise Boulding, Jesse Jackson, Chief Oren Lyons, members of the Soviet community and many others. It also clearly spelled out the overpopulation component of the current ecologic crisis:

When our numbers were small and our technology feeble, we were powerless to influence the environment of our world. But today, suddenly ... our numbers have become

immense and our technology has achieved vast, even awesome powers.

They go on to call for "a voluntary halt to world population growth—without which many of the other approaches to preserve the environment will be nullified."(9)

Even with their reformist tone, such statements are extremely heartening, as they signify the emergence of a worldwide consensus on the seriousness of continued human overpopulation. Thus the final irony is that now many less-developed-countries are asking for more help with population control and receiving less. An exotic assemblage of the Reagan right, Roman Catholic and fundamentalist "pro-lifers," angry neo-marxists and/or anarchists, and born-again feminists like Germaine Greer(10) are in the forefront of opposing population control. (Perhaps all that is needed now is for Chairman Mao to return to life and preside over this ad hoc far right/left pro-natalist coalition, with Richard Nixon as ambassador at large.)

THE ROLE OF WOMEN

Having looked at some of the highlights of the population debate, one is struck by the vastness of this topic. An especially important aspect I have yet to touch upon is the role of women in fertility dynamics. Indeed, Ms. Nafis Sadik of the UN Population Fund says that one of the best ways to control population "is to invest in improving women's status, access to education and health care, and access to family planning."(11) Others have pointed out "1400 women die every day from the complications of pregnancy and abortion. Childbirth itself can be a life-threatening experience, all the more so in developing nations where proper health care can be hard to come by. Many of these 1400 deaths would not occur if their victims did not face unwanted pregnancies."(12)

Contrary to the caricature of overzealous family planning representatives forcing their wares on unsuspecting villagers, Don Hinrichsen writes:

The World Fertility Survey, carried out in forty-one developing countries between 1972 and 1984, revealed a striking unmet need for contraception and family planning. If all women who said they wanted no more children were able to stop childbearing, the number of births would be reduced by 27 percent in Africa, 33 percent in Asia, and 35 percent in Latin America. These figures imply a cruelly inadequate supply of contraception to women who want it, and that there is a growing need for family planning.(13)

On a related note, a number of eco-feminist writers have questioned the validity of population control in recent years.(14) The gist of their challenges is that population control is imposed on women from above, and if women achieved full autonomy worldwide, they would make the correct decisions regarding reproduction, and the population problem would essentially take care of itself.

It is true that family planning programs have not always maintained respect for individual rights, especially in developing countries. But even if the abuses were as bad as critics maintain, this would in no way decrease the necessity of population control. There have been abuses in every worthwhile endeavor; environmental standards broken, human rights violated.

The position taken by some eco-feminists is reminiscent of some of the slogans used against population control by developing countries in the 1970s, such as "Development is the best contraceptive," and "Take care of the people and the population problem will take care of itself." A decade later, the vast majority of these countries were singing a very different tune, and now over 90% have some form of birth control program.

Many Third World critics of population control found that, important though it is to support womens' rights, workers' rights, and other such concerns, setting up one cause, whether it be socialism, feminism, or something else, and attempting to implement its values without addressing overpopulation directly has been a dismal failure. Even if we could achieve an ideal feminist, communitarian society overnight, there would still be an overpopulation problem, since humans have disturbed, used and abused so much of the planet that natural diversity and evolutionary integrity are threatened.

By all means let us have equality for women, equality for workers, equality for all species! But let us not be so carried away with our own program as to think that it alone will suffice to solve all other problems.

Regardless of what is said and done in the battle of the sexes and related struggles, as French anthropologist Claude Levi-Strauss said, "it would not modify in any way the fact that there is for humankind as for every living species an optimum density" and "what is taking place now ... is that people are getting so close together, if I may express myself simply, that each of them becomes a threat and hindrance to their fellow beings."(15)

THE ROLE OF FREEDOM

While the most acrimonious critics of population control have gotten a good deal of mileage out of the notion that it would restrict people's freedom in a cruel fashion, I would argue just the opposite: Only population control at this point can hold out any hope of the planet not being swallowed up by some sort of worldwide totalitarian system. Aldous Huxley summed up the threat concisely:

More babies mean more cannon fodder, more colonists for conquered territories, and also more misery, more need for centralized "planning," and more power for the political bosses, less liberty for the masses. Overcrowding and militarism are the guarantees of dictatorship.(16)

Arne Naess, who has been called the founder of the deep ecology movement, has been very clear on the point (though it has been purposefully ignored by his critics) that reduction in human numbers is necessary not only if the natural world is to survive, it is in the best of all humans as well: "Population stabilization and eventual reduction is a necessary condition for the richness and diversity of human cultures."(17) Authentic human cultures have little likelihood of flourishing under conditions of "giantism."

This point seems so obvious that it is hard to fathom how so many could miss it. Everyone knows from experience that the more crowded and pressured by others one becomes, the less likely one is to treat them with tolerance and respect. In this sense, we could even suggest that humans become more valuable in direct relation to their scarcity. No one is able to personally value all the millions of children who starve to death each year. They are simply too numerous; it numbs the mind.

So again, conversely to the critics' claim, only advocates of population reduction can ultimately lay claim to an ethic of caring about the human as well as the planetary fate. Those who refuse to educate people to the perils of overpopulation are favoring a future of inconceivable suffering and dislocation for the entire Earth community—the inevitable outcome if we continue on our present course of unlimited expansion in numbers and technology.

CONCLUSION

As Martin Luther King—who was a prophet in more ways than one—testified over 25 years ago: "we spend billions to create engines and strategies for war" but "we spend only paltry sums for population planning, even though its spontaneous growth is an urgent threat to life on our planet."(18)

To avert this threat, we need to work tirelessly to democratize birth control, educate people to the fallacy of the cornucopian theories of both the far right and far left, and improve the status of women worldwide. We also need to overturn the lunatic maoist position on

continued next page

population that Presidents Reagan and Bush have adopted from their court prophet, Julian Simon.(19)

Inasmuch as black nationalists, neo-marxists, pro-natalist feminists and others continue to cast the population debate in its antiquated form, ignoring the past 15 years of history in that department, they will be unwittingly helping the Simonites consolidate their power. Let us hope they wake up soon; Earth's wild creatures need all the help they can get from their less wise cousins.

NOTES

1. "I've never trusted anything white folks tried to give us with the word 'control' in it." Dick Gregory, "My Answer to Genocide," *Ebony*, 10-71, p.66.

2. Garrett Hardin's, "The Case Against Helping the Poor," *Psychology Today*, 9-74; case in point.

3. Robert Weisbord, *Genocide?*, Greenwood Press, Westport, CT, 1975.

4. W.E.B. DuBois, "Birth," *The Crisis*, 10-22. Martin Luther King Jr., *The Congressional Record - Senate*, 5-10-66, p.10164-65. Shirley Chisholm, *Unbought and Unbossed*, Houghton Mifflin, Boston, 1970. Alice Walker, Interview, *Animals' Agenda*, 4-88. All the above contain excellent statements by well-known black Americans on the need for population control. Martin Luther King's reads in part:

"There is no human circumstance more tragic than the persisting existence of a harmful condition for which the remedy is readily available. Family planning, to relate population to world resources, is possible, practical and necessary. Unlike the plagues of the Dark Ages or contemporary diseases we do not yet understand, the modern plague of overpopulation is soluble by means we have discovered and with resources we possess."

5. Wendell Berry provides a fascinating discussion of this in Stewart Brand's *Space Colonies*: "you cannot escape character; you can only change its understanding of its limits.... supposed infinity will be a perfect greenhouse for bad character; look at what mere abundance has already produced. Good character requires the discipline of finitude." p.83.

6. "In 1960 only two countries, India and Pakistan, had official policies to reduce their birth rates. By 1986 about 93% of the world's population and 91% of the people in LDC's lived in countries with some type of family planning program." G. Tyler Miller, *Living in the Environment*, Wadsworth, Belmont, CA, 1988, p.163.

7. There is no indication that this decision will be altered by Bush/Quayle.

8. In Werner Fornos's *Gaining People, Losing Ground*, The Population Institute, DC, 1987, p.110-11.

9. "Preserving and Cherishing the Earth," *Amicus Journal*, Summer 1990, p.52-3.

10. Germaine Greer, *Sex and Destiny*, Harper & Row, NY, 1984. Radical feminist reborn as propagandist for the pro-life movement, she has to be read to be appreciated.

11. "90s Population Boom May Prove Catastrophic," *New Orleans Times-Picayune*, 5-15-90.

12. Morris Udall, Introduction, *Gaining People, Losing Ground*, p.VII.

13. Don Hinrichsen, "The Decisive Decade," *Amicus Journal*, Winter 1990, p.30.

14. Betsy Hartman, *Reproductive Rights and Wrongs*, Harper & Row, New York, 1987; and Janet Biehl, "An Eco-Feminist Looks at Deep Ecology," *Kick It Over*, Winter 1987.

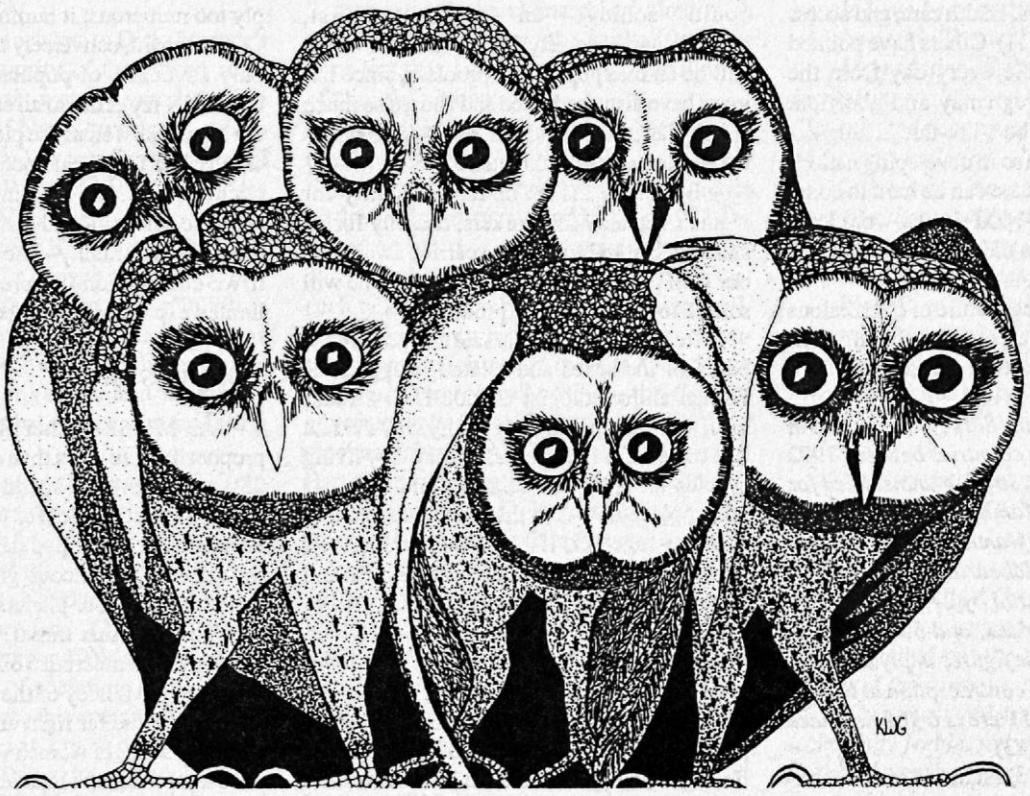
15. Claude Levi-Strauss, in Willem Oltmans, *On Growth*, Capricorn, New York, 1974, p.155. One of the best, though little known, books on growth-mania.

16. Aldous Huxley, *Themes and Variations*, Books for Libraries Press, Freeport, NY, 1950, p.247.

17. Arne Naess, "Ecosophy, Population, and Free Nature," *The Trumpeter*, Summer 1988, p.117.

18. Martin Luther King Jr. The Congressional Record - Senate.

19. In one of the most discouraging moves I have seen in a long time, an array of alternative or left-leaning periodicals have come out in praise of Simon's theories: Kevin Kelly, "Apocalypse Juggernaut, Goodbye," *Whole Earth Review*, Winter 1989; *The Progressive*, 9-90; and *The New Internationalist*, 10-87. Read the entire issues for the premier Simonite-socialist blend.



K. W. Gonzales

Dreaming Big Wilderness and the Constitution

by Stephen L. Saltonstall

Among the many changes that must occur if the dream of Big Wilderness is to become more than just a dream are two basic changes in American constitutional law.

The first is the modification of a judge-made doctrine known as the "fundamental right to procreate."

In a 1942 decision known as *Skinner v. Oklahoma*, the Unites States Supreme Court struck down a law that provided for the involuntary sterilization of twice-convicted felons. An Oklahoma court had ordered Skinner, a chicken thief, to submit to a vasectomy.

The Supreme Court, in a decision written by Justice William O. Douglas, warned that "marriage and procreation are fundamental to the very existence and survival of the race. The power to sterilize, if exercised, may have subtle, far-reaching and devastating effects. In evil or reckless hands it can cause races or types which are inimical to the dominant group to disappear."

Douglas's opinion was written during a period when the Nazis were sterilizing and exterminating Jews, Gypsies, and other minorities they despised. It is difficult to fault his view that if the state is given the awesome power to sterilize people, it will likely exercise that power in horrible and discriminatory ways. Were legislatures permitted to enact such laws today, they would likely target welfare recipients and racial minorities.

The Supreme Court again relied on the "fundamental right" of the individual to make decisions on whether or not to have children when it later nullified laws that made it a crime to use birth control devices. *Griswold v. Connecticut*, a 1965 case, invalidated a statute that made it a crime for married couples to use contraceptives. In 1972, in *Eisenstadt v. Baird*, the Court extended the right to use contraceptives to unmarried persons.

Justice Douglas reasoned in *Griswold* that, while there is no specific right to privacy in the bedroom contained in the Bill of Rights, the constitution casts a long shadow. The right to decide for one's self whether or not to have children is a "penumbral" right implicit in the specific rights, such as freedom of speech, set forth in the constitution.

While Douglas's reasoning has been criticized by legal scholars, it is difficult to argue with his result. Most Americans agree that the government should stay out of our bedrooms, and the state should not be allowed to discourage or outlaw the use of birth control.

Nevertheless, we know now that the "fundamental right to procreate" announced in *Skinner v. Oklahoma* is no longer necessary to ensure human existence or survival as Justice Douglas thought 50 years ago. In fact, the opposite is true: The problem of overpopulation is so serious that the state must in the future have the ability to require family planning. Our legal system must find a way to abandon the notion that individuals should be free to have as many children as they want.

Our law in this area must change, however, without repudiating the underlying theme of Skinner and Griswold: that we cannot trust government to make rational and non-discriminatory decisions affecting sexual behavior and private family matters. Our courts must ensure that any laws encouraging or requiring family planning be narrowly drawn and carefully scrutinized to avoid unnecessary infringement of individual liberty. Big Wilderness should not bring with it Big Brother.

Another necessary basic change in our law will require a constitutional amendment. The Bill of Rights is a wonderful document as far as it goes, but is protects only people. In fact, wildlife is nowhere mentioned in the federal constitution.

Some state constitutions, including that of my home state of Vermont, refer to animals, birds, and fish, but only in the context of a right of people to catch and hunt them in seasonable times. These state constitutional provisions have in some cases protected wildlife, but human desires and perceived needs are almost always deemed paramount.

Our legal system will begin to protect the Earth in a meaningful way only when the wilderness has legal rights that humans are required to respect. Hence, I propose that we adopt the following amendment to the US Constitution: "The people have the right to an environment that includes clean air, pure water, and abundant wilderness; and all species of wild creatures and living things have the right to sufficient habitat in which to survive and thrive free from human interference."

As a Vermonter, a dreamer, and a descendant of Transcendentalists, I believe in a return to the Big Wilderness. As an American lawyer, I believe that our legal system has the capacity to change, however awkwardly and haltingly, to accommodate this vision of a journey into the frontier past.

Stephen L. Saltonstall lives in the wilds of Sandgate, VT, and practices law in Bennington.

The ProblemS of Post Modern Wilderness

by Michael P. Cohen

Note: What follows is a minefield. For those who want to know why, here is an "explanation." For the adventurous, ignore the rest of this paragraph.... Almost as soon as the United States Congress passed the Wilderness Act of 1964, the meaning of the term (wilderness) began to erode. Broadly speaking, as Rod Nash has written, the word (wilderness) has never achieved the status of a noun. Consequently, what I believe might be called "The Real Life (Biodiversity) of the Earth" has been spoken by us in fragmented and subjective ways as "legal wilderness," "sociological wilderness," "poetic wilderness," or "scientific wilderness." As these fragments grate against each other, what we care about is in danger of falling through the coarse and imprecise net of our discourse. The situation has continued to deteriorate, as life on Earth has. This is ***not simply an academic problem!*** *What humans cannot name they cannot speak for.*

Somehow, in 1947, when David Brower reprinted Bob Marshall's 1930 *Scientific Monthly* essay, "The Problem of the Wilderness," the *Sierra Club Bulletin* pluralized Marshall's Problem into "The Problems of the Wilderness." Now, of course, not only these problems have split, but the wilderness as well. There is no wilderness; there are only small patches of wildernesses. We call this Fragmentation.

Marshall himself wrote, "Within the next few years the fate of the wilderness must be decided. This is a problem to be settled by deliberate rationality and not by personal prejudice." Between these two sentences is a huge chasm. Gap (Breach, Hole, Void, Emptiness). We call this a Gap.

The border (margin) between wilderness and not-wilderness is an Edge. From Aldo Leopold to modern Conservation Biologists and Ecologists (see Soulé, *Conservation Biology* or Botkin, *Discordant Harmonies*), the matter of Edges has grown in importance as a subject for discourse. Edges are not what they used to be. They used to mark (define) borders or boundaries. Now boundaries and margins penetrate ecosystems. Edges are far-reaching "effects," which are not what they appear. We call them Edges.

When we unfold (deploy) a map of the State of Utah, inscribed with lands proposed for Bureau of Land Management wilderness de(sign)ation, we read a study in edges. These edges define isolated fragments. We call this set of proposals for rectangular fragments "management." We know there is no power in a square. We call these Fragments.

Various groups, institutions, government agencies, etc. deploy, in preparation for a "battle." This "fight" (battle, struggle, etc.) grows more crude every day. The groups themselves are fragmented; some of the groups lie deliberately, others don't know better. Facts are not relevant here, if there are any facts. We say that Rhetoric escalates.

At a "wilderness conference" Richard White, an environmental historian, says, "the only way I know I am in a wilderness is when I go by the 'sign'" (designation). We might have it the opposite way, where the lack of sign marks the absence of the object. Post modern wilderness is surrounded and isolated by being in a sea of "not wilderness." We call this Isolation.

Yet we know that isolation is an illusion, like the sign, because it is time-bound and backward-looking. "We have to make something better out of change," the historian believes; "if we don't, others will."

Marshall thought wilderness was a place "uninhabited by human beings," where people might seek "solitude." Now we think that "there has been no wilderness without some kind of human presence for several hundred thousand years." (Gary Snyder)

We no longer believe that, as David Brower said, wilderness is where "the hand of man has not set foot." When we stopped believing that, we left a Gap. Some people have jumped into it.

"Since there is no longer any part of the Earth that is untouched by our actions in some way, either directly or indirectly, there are no wildernesses in the sense of places completely unaffected by people." (Daniel Botkin, *Discordant Harmonies*)

"Wilderness is UNNATURAL!" says a local "multiple use advocate," who attends a "wilderness conference" organized to oppose wilderness designation, "It is an ILLUSION." We call him my Neighbor.

Whatever solitude was, we thought we found it in "wilderness" (Stegner: the wilderness idea). We now call "solitude" by a new name: "alienation," which is about distance, isolation, the "modern" condition, although nobody knows what it means. (Are we alone when we write about "wilderness"?)

Humans have spent a great deal of time in the last hundred years writing about wilderness. They seem to have become most energetic in writing about it when it was about gone, or so they thought. We call this writing "Discourse." We speak of its timing as "belatedness."

"Man always kills the thing he loves, and so we pioneers have killed our wilderness. Some say we had to. Be that as it may, I am glad that I shall never be young without wild country to be young in. Of what avail are forty freedoms without a blank spot on the map." (Aldo Leopold, *A Sand County Almanac*) Bob Marshall called this (belated) complex of ideas about what we no longer have, "freedom of the wilderness."

"Annette Kolodny ... theorizes that the hero, fleeing a society that has been imagined as feminine, then imposes on nature some ideas of women which, no longer subject to real-life experience, become more and more fantastic ... one cannot deny the way in which heroes of American myth turn to nature as sweetheart and nurture, anticipating the satis-

faction of all desires through her and including among these the desires for mastery and power." (Nina Baym, "Melodramas of Beset Manhood")

We call the process "pioneers-killed-our-wilderness" by many names. One name is frontier (boundary, edge). We once spoke of "pushing" the frontier and of "taming the frontier," "conquering the West," etc. On the frontier, there were wagons. The wagons had wheels. The wheels left "traces." On the frontier there was language. We still use it. That language left "Traces."

Bob Marshall thought that in a wilderness there would be "no possibility of conveyance by any mechanical means." David Brower now speaks of wilderness as being the place where the industrial revolution cannot enter. Ed Abbey hoped wilderness would be the counterforce to the machine. Ecologists like Daniel Botkin "model" ecosystems with computers. We write about "wilderness" using computers. (Wendell Berry, Pace)

"An individual who lives in an oral culture uses his senses differently than one who lives in a literate culture ... As an individual reads and writes he gradually learns to close or inhibit the input of the sense, to inhibit or control the responses of his body, so as to train energy and thought upon the written words. He resists the environment outside him by distinguishing and controlling the one inside him." (Ann Carson, *Eros the Bittersweet*). We call this inhibiting of senses "Deployment."

"Appreciation of wilderness began in the cities." (Nash, *Wilderness and the American Mind*) In the index of Roderick Nash's *The Rights of Nature*, there are eight page citations to "Wilderness," with subcategories "as ecosystem," "as sacred," and "value of." This is how wilderness unfolds in a book; we call it "deployment."

Bob Marshall spoke of wilderness in terms of "benefits" (advantages, qualities, value, opportunities, freedom) versus "disadvantages" (costs, economic loss, loss of rights). He spent four pages on "benefits" and one half page on "disadvantages." We call this "Rhetoric."

Many people now believe that "literal language does not exist, except for the illusion of it." Those who speak are "subjects," and those who do not speak are "objects." The language of subjects does not tell us about objects. We call this theory of language "deconstruction."

Nobody knows what life no longer proliferates in the state of Utah. There is no measure of biodiversity except by absence. We can only measure loss. There are no Grizzly Bears in Utah. Maybe the absence of the Grizzly is a "sign." Maybe it is a Gap. We do not call this theory "deconstruction" yet.

"For in much wisdom is much grief: and he that increaseth knowledge increaseth sorrow." (Ecclesiastes)

Deconstructionists are not the only people who believe that "wilderness" has no referent outside "discourse." For instance, there are some people who speak of "wise use." We can read about them even in *Sierra*, where they receive dignified though satirical treatment. (May/June 1991)

Some historians, like Arthur McEvoy, think we need an "interactive theory of nature and culture" with three levels—ecology, production, and cognition: "Any explanation of environmental change should account for the embeddedness and reciprocal constitution of ecology, production, and cognition, the last either at the level of individuals, which we call ideology, or at the social level, which in the modern world we call law." (Arthur F. McEvoy, synopsis of *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850-1980*)

Daniel Botkin has written, "Nature in the twenty-first century will be a nature we make; the question is the degree to which this molding will be intentional or unintentional."

We live within the "traces" of our language. It is everywhere. For language, there is no "blank spot on the map." The Wilderness Act of 1964 creates Fragments and defines Edges. We call this Paradox.

When a woman says wilderness is an illusion that men made, like virginity, which is unnatural (*contra natura*) and narcissistic too, when she says what is beset is not nature but manhood, then we wonder whether she can subtract, but we respond by "lighting out for the territory." We call her a Critic.

Daniel Botkin believes wilderness proponents are confused, so he deconstructs their needs into three (why 3?) kinds of "natural areas."

We think about the word 'nature'. Nature, if it exists, is the ultimate "silent" voiceless "object," whose reality we cannot doubt, precisely because nature lacks language, does not engage in discourse, and will never speak, except through us.

Daniel Botkin offers us (1) areas untouched by direct human actions, which he calls "baseline"; (2) "preagricultural wilderness," which "gives the feeling of being untouched by people"; and (3) areas "set aside to conserve biological diversity" which require "active intervention on our part." The discourse of Daniel Botkin is not the discourse of David Brower.

"Nature" once had a thousand names but we still believed it existed as the primary level of what Donald Worster calls "Environmental History." Now Nature is only a thousand names. There are no roots or branches in this language, no deep or shallow. The world is flat, and each edge marks (signs, designates) the end of the world. We will never again have "Nature" as we once imagined it, or spoke of it.

Nancy Newhall once wrote, "The wilderness holds answers to more questions than we yet know how to ask." Now we know that we will never receive the answers from the questions, and that the questions themselves will always be flawed. The generation of Bob Marshall—"You are all a lost generation," said Gertrude Stein—has nothing on us. We are the lost generation.

Although we do not know how, we suspect that the destruction (sum of destructions, deconstruction) of our inner world is meshed with and inextricable from the destruction of our outer world, and both worlds are at root unknowable. What we know is the Edge. We call this Enigma.

Anger does not help, nor does desire. Just because you want something, doesn't mean you get it. Our explorations of wilderness in the future will be of Edges, the borders of Fragments, where the margins will reach to the centers and there will always be Traces, and we will discover huge Gaps, Paradoxes, Enigmas and Discontinuities. We may call this post-modern wilderness.

Danté was here. He wrote:

You may understand, therefore,
That all our knowledge shall be a dead thing from that moment on
When the door of the future is shut.

Note: This constitutes work in progress. The author claims no responsibility for these fragments, but believes they suggest, in sum, that **IT IS TIME TO FIND A BETTER WAY TO TALK ABOUT WILDERNESS. Not a new way. A better way.**

Michael P. Cohen is the author of The Pathless Way *and* The History of the Sierra Club *(both available from Ned Ludd Books, POB 5141, Tucson, AZ 85703). He receives correspondence at POB 34, Cedar City, UT 84721.*

The Need for a Deep Ecological Language

by Justin Askins

Christopher Manes's provocative essay "Ecology and the Language of Humanism" in the first issue of *Wild Earth* called for learning a "language of ecological humility by responding to the insights of ecology and evolutionary theory, which means metaphorically learning the language of the winds, the frogs, the waterfalls, the earthworms." However, Manes notes, such an education faces "the difficult task of overcoming the Renaissance rhetoric of humanism we speak today with its narcissism and preoccupation with intellect, with its giddy supposition that humankind is, Ptolemy-like, at the center of things" (Manes, p.62).

In researching and writing a literary study of deep ecology, I have found substantial evidence supporting Manes's egalitarian view. Our language has become a hodgepodge of elitist specializations. Science, medicine, government, literary criticism all embrace their own sterile and obfuscating jargons. Yet these areas simply can't remain separate if we hope to approach the global environmental crisis in a holistic manner. Morris Berman's *Reenchantment of the World*, Fritjof Capra's *The Turning Point*, Riane Eisler's *The Chalice and the Blade*, Paula Gunn Allen's *The Sacred Hoop*, Joseph Meeker's *The Comedy of Survival* and Gregory Bateson's *Mind and Nature* demonstrate the problems with the present divisions.

We need to find a communal language, one that will allow us to connect to the earth and to one another. Paleontologist Stephen Jay Gould writes, "The concepts of science, in all their richness and ambiguity, can be presented without any compromise, without any simplification counting as distortion, in language accessible to all intelligent people" (Gould, p.16). Yet today's specialized areas create a terrible hierarchy of both speakers and audience, where only a few priests are able to enter the temple, and a handful of faithful come to worship. For these overly detached fields to have any ethical direction and not be fragmented and self-indulgent, they must be centered on the health of the Earth and all its creatures, not on the isolated consciousness of the initiated few.

Since Norwegian philosopher Arne Naess published his 1973 essay "The Shallow and the Deep, Long-Range Ecology Movements," there has been an increasing awareness of deep ecology in both theory and practice. Articles appear with regularity and books like Bill Devall's Simple *in Means, Rich in Ends: Practicing Deep Ecology* are guiding more and more people toward living in relative harmony with Earth. Having much in kind with Native American culture, deep ecology unites us spiritually with the Earth and its interdependent creatures, thereby mitigating the pervasive influence of human self-absorption, in language and in all aspects of life.

Deep ecologists define "the modern Western self as an isolated ego striving primarily for hedonistic gratification or for a narrow sense of individual salvation in this life or the next" (Devall & Sessions, p.67). This is the major American self, from self-reliant pioneer to self-aggrandizing robber baron, from Puritan to Transcendentalist. It is the self of physical empire and celestial paradise, and it has proven amazingly durable in controlling both women and nature, contributing heavily to our hierarchical language.

However, there is another sense of self, which pertains to a major principle of deep ecology that Bill Devall and George Sessions call "self-realization," entailing "an identification which goes beyond humanity to include the nonhuman world" (Devall & Sessions, p.67). One of the main obstacles to achieving this extended self is our chauvinistic attitudes toward other languages, as evidenced by the belief that English (and other major "civilized" forms) is superior to pre-literate languages and also to non-human forms of communication.

The second major principle of deep ecology, the "intuition of biocentric equality," may be the key to changing these diastrous hierarchical views. Biocentric equality means "that all things in the biosphere have an equal right to live and blossom and to reach their own individual forms of unfolding and self-realization within the larger Self-realization." The basic intuition is that all organisms and entities in the ecosphere, as parts of the interrelated whole, are equal in intrinsic worth (Devall & Sessions, p.67).

Both tenets of deep ecology can be seen in the Native American consciousness. As Paula Gunn Allen points out: "tribal people allow all animals, vegetables, and minerals (the entire biota) the same or even greater privileges than humans" (Allen, p.57).

The greatest impediment to achieving self-realization and biocentric equality is our stridently empirical epistemology, now deeply embedded in our language. We need a process of knowing that moves far beyond the limits of empiricism. Because of our empirical myopia, noted Gregory Bateson, "Most of us have lost that sense of unity of biosphere and humanity which would bind and reassure us all with an affirmation of beauty." This loss, according to Bateson, "was, quite simply, an epistemological mistake" (Bateson, p.19). In arguing for a return to an aesthetic unity, Bateson points out "it was not the crudest, the simplest, the most animalistic and primitive aspects of the human species that were reflected in the natural phenomena. It was, rather, the more complex, the aesthetic, the intricate, and the elegant aspects of people that reflected nature" (p.5). Trying to understand those aspects changes our entire vision of nature. Epistemology, says Bateson, is simply defined as "how we can know anything," but "in the pronoun we, I of course include the starfish and the redwood forest, the segmenting egg, and the Senate of the United States" (p.4).

Obviously, communications in the form of language would be difficult with starfish and

redwood trees—one might justifiably add the Senate—but an intuitive connectedness is far from impossible. Edward Abbey writes, "No one knows precisely how sentient is a pinyon pine, for example, or to what degree such woody organisms can feel pain or fear ... but this much is clearly established as scientific fact: a living tree, once uprooted, takes many days to wholly die" (Abbey, p.74). Quantum physicists and chaos theorists have proven the inseparability of humans from the environment, but deep ecological questioning—in its holistic emphasis—leads to an emotional and spiritual awareness that "there is a core democracy in the biosphere," where all creatures and the Earth are sacred. The language (spoken, danced, and felt) of that core democracy would also be sacred and sharable.

A return to the sacred is an essential tenet of deep ecology. Gregory Bateson points out that "there is at least an impulse still in the human breast to unify and thereby sanctify the total natural world, of which we are" (Bateson, p.19). And for Arne Naess, deep ecology must have "a religious component, fundamental intuitions that everyone must cultivate if he or she is to have a life based on values and not function like a computer" (Naess, p.75-76).

When our spiritual, emotional, mental, and physical perceptions are intricately interwoven—unlike the prevailing Western notions of body and mind, body and soul, object and subject—the joy of life emerges from the dread of living in a violent and destructive civilization:

Deep Ecology is emerging as a way of developing a new balance and harmony between individuals, communities and Nature. It can potentially satisfy our deepest yearnings: faith and trust in our most basic intuitions; courage to take direct action; joyous confidence to dance with the sensuous harmonies discovered through spontaneous, playful intercourse with the rhythms of our bodies, the rhythms of flowing water, changes in the weather and seasons, and the overall processes of life on Earth. (Devall & Sessions, p.7)

One might be slightly suspicious, as Bill McKibben is in *The End of Nature*, about what "joyous confidence to dance with the sensuous harmonies" exactly means, but the overall sense of intuitive relatedness is growing as our dramatic impact on the global ecology becomes more apparent. Thomas Berry, a Catholic priest, says in his magical The Dream of the Earth: "We have even forgotten our primordial capacity for language at the elementary level of song and dance, wherein we share our existence with the animals and with all natural phenomena." (Berry, p.2)

Such emotional "knowledge" is part of what Paul Shepard calls "ecological thinking":

a kind of vision across boundaries. The epidermis of the skin is ecologically like a pond surface or a forest soil, not a shell so much as a delicate interpenetration. It reveals the self ennobled and extended rather than threatened as part of the landscape and the ecosystem, because the beauty and complexity of nature are continuous with ourselves. (Shepard, p.2)

Along with this unified sensibility comes an instinct for survival that rejects the tragic and apocalyptic world views that so dominate our lives and literature. The tragic vision, as Konrad Lorenz points out in the preface to Joseph Meeker's *Comedy of Survival*, sees "man and nature as polar opposites." Lorenz says this antagonistic emphasis "leads to the unavoidable doom of the human hero, but also to that of nature ... man's spiritual elevation above his natural environment—an essentially tragic assertion—also leads to the exclusive concentration of all his moral obligations on his fellow human beings: No moral or ethical limitations are imposed upon humanity in regard to the ruthless exploitation of all non-human nature."

Meeker notes that "the tragic view of humanity, for all its flattering optimism, has led to cultural and biological disasters, and it is time to look for alternatives which might encourage better the survival of our own and other species" (Meeker, p.39).

The main alternative that Meeker explores is a comedic one. After pointing out that "the intellectual presuppositions necessary to the creation of tragic literature have not been present in all civilizations," being "conspicuously absent ... in Oriental, Middle Eastern, and primitive cultures," Meeker states that only comedy "is very nearly universal" (p.38). For Meeker, the comedic vision is reflected in the natural world: "Productive and stable ecosystems are those which minimize destructive aggression, encourage maximum diversity, and seek to establish equilibrium among their participants—which is essentially what happens in literary comedy" (p.41). Noting that "The Western intellectual tradition has begun to seem bankrupt to many who have discovered how deep are the lies and distortion it has propagated," Meeker calls for a "literary ecology" which would examine "the biological themes and relationships which appear in literary works" (p.33,29). The greatest gain of a literary ecology would be to make "it possible for us to study the function of literary art as it influences the survival of the human species" (p.29).

A literary ecology would "not insist that it is possible to achieve all the expertise needed for fully understanding its subject, but only that literary study must take into account the intricate relationships found within and among literary works" (p.31). For Meeker, "A hopeless attempt to see things whole is at least as worthy as the equally hopeless task of isolating fragments for intensive study, and much more interesting" (p.31). We have forgotten that language does have severe limits—particularly in spiritual and intuitive aspects—something Irving Howe hints at when he points to "the common but mistaken notion that literature somehow has an obligation to encompass all areas of human experience, no matter how extreme or impenetrable they might be" (Howe, p.428).

A holistic literary ecology guided by the principles of deep ecology is in its infancy, but there are signs of major change. Native American literature is flourishing (Leslie Silko's *Ceremony* and Louise Erdrich's *Tracks* are two magnificent examples), and more and more people are becoming aware of our imbalance with the Earth. Embracing the principles of deep ecology is perhaps the most potent way to reject the tragic vision of Western humanism and achieve a language and life of integration with the Earth. The New Philosophy of Nature, as deep ecology is sometimes called, is not utopian wishful thinking. Rather, deep ecological thinking is growing in each person who thinks of acid rain, global warming, toxic waste, tropical deforestation.... It must continue to gather strength if we are to avoid our plunge toward apocalypse.

WORKS CITED

Abbey, Edward. *The Monkey Wrench Gang*. New York: Avon, 1975.

Allen, Paula Gunn. *The Sacred Hoop*. Boston: Beacon Press, 1986.

Bateson, Gregory. *Mind and Nature*. NY: Bantam, 1980.

Berry, Thomas. *The Dream of the Earth*. San Francisco: Sierra Club Books, 1988.

Devall, Bill and George Sessions. *Deep Ecology*. Salt Lake City: Gibbs Smith, 1985.

Gould, Stephen Jay. *Wonderful Life*.

Howe, Irving. *Selected Writings*. NY: HBJ, 1990.

Meeker, Joseph. *The Comedy of Survival*. Los Angeles: Guild of Tutors Press, 1972.

Shepard, Paul. *The Subversive Science*. Boston: Houghton Mifflin, 1967.

Justin Askin is an English professor at Rutgers University, and the author of numerous articles pertaining to literary ecology.

Fidel and the Ivory Bill

ed. note: The following is from issue #114 (2-90) of Thunderbear. *To subscribe to "the oldest alternative newsletter in the federal government," send $12 to Thunderbear, POB 71621, New Orleans, LA 70172-1621.*

by PJ Ryan

Late on a fine spring evening, in a year long gone by, I made a camp at Poncho Villa State Park in New Mexico. As the Milky Way seemed close enough to touch, I saw no reason to pitch a tent and trusted in the protection of Orion and other benevolent constellations.

I was soon asleep and traveling fast through the galaxies, to fetch up on a gravelly, desert planet inhabited by concerned, curious, but somewhat supercilious beings with round bodies and long necks who maneuvered about on stilts. They were talking to me or perhaps about me, in a strange, soft language that I could not understand.

As dreams go, it wasn't very interesting; no menace or terror, just a lot of strange beings from another world standing around and talking among themselves in the semi-darkness.

It was clearly one of those dreams in which one wished to switch channels.

I willed myself awake, as one can do, but nothing changed. I was wide awake and was still on a desert plain filled with strange beings.

It seems that a flock of thousands of Sandhill Cranes had landed in the campground during the night. To wake up among hundreds of birds towering three and four feet above your head is an unforgettable experience.

Now the common Western Sandhill Crane has a very uncommon southern brother in the Mississippi Sandhill Crane.

The Mississippi Sandhill Crane is one of our more obscure large Endangered species. Like the California Condor, it made the mistake of becoming exquisitely overspecialized, fitting itself into a not too extensive Gulf Coastal acidic wet prairie biome. This was not a wise evolutionary decision. The Whiteman came and changed things as he always does, first trying stock raising and farming on the coastal prairies and then big commercial forests of Loblolly Pine. None of the above was good for the Mississippi Sandhill Crane.

The Fish and Wildlife Service and Congress came to the rescue when the Mississippi Sandhills were down to about a score of breeding pairs, by establishing a 20,000 acre preserve for them near Pascagoula, Mississippi.

Now, buckaroos, our brother agency, the Fish & Wildlife Service, is often regarded as somewhat perverse by the environmental community, as one of their jobs is manipulating Nature to the artificial advantage of the more tasty of God's creatures so that we will have something to shoot at come fall.

Now, neighbors, I do not choose to be drawn into the discussions of the pros and cons of such an operation, except to say that the FWS personnel are well trained, dedicated, and very good at what they do.

However, in the case of the Mississippi Sandhill Crane Refuge, the refuge is exactly that: No hunting.

As the refuge is relatively new, this doesn't set too well with the locals or at least some of the locals who used to run deer with dogs in the area that is now the refuge. The thought has occurred to more than one deer hunter that if something were to happen to the Mississippi Sandhill Cranes, well, hell, ther'd be no need for a refuge and we could run deer like before!

This has resulted in lots of patrolling, plus an outreach program to the local schools on the part of refuge personnel, who are dedicated to achieving and maintaining a breeding population of a least 35 pairs of cranes.

After tramping the refuge in a fruitless attempt to find at least one crane (where one can hide a 4 foot tall bird beats the hell out of me!), I stopped by the little visitor center to talk to the staff, who were quite pleasant and outgoing even though their main job is not interpretation. Inevitably, the conversation turned to the mournful subject of extinction. The Fish & Wildlife Service winds up as sort of a hospice for creatures headed in that direction.

I mentioned an oft-told rumor that there might be a breeding pair or two of the nearly mythic Ivory-billed Woodpecker in the deep reaches of the FWS's Offeekenoffee Swamp in south Georgia.*

The answer, sadly, was no.

Then the Ivory Bill had joined that ever lengthening casualty list of "progress," including the Passenger Pigeon, the Carolina Parakeet, in final extinction?

Not quite.

There were still a few rumors floating about.

According to the Fish & Wildlife man, there were persistent stories of as many as five breeding pair of Ivory Bills in the hills behind the Guantanamo Naval Base in Cuba.

If the rumors are true, then there is a bit of irony here: an endangered bird and an endangered dictatorship.

Perhaps President Bush and Premier Castro could arrange a swap: birds for the Base.

The Soviets have found that they can no longer afford their one billion dollar subsidy to keep the Cuban economy going and have warned Fidel that he might be on his own in a very short time.

On our side of the fence, Congress has been after the Military to close down "non-essential" bases. The Military would be delighted to do so, but politely asks which

congressperson would like to sacrifice a base in his/her district.

Fortunately, buckaroos, Congress doesn't have that problem with Guantanamo Naval Base; being located in Cuba, it has no constituency!

Exactly why we are operating a Teddy Roosevelt style naval base in another country without that country's permission is one of the fun things about American foreign policy that has always endeared us to Latin Americans of every political persuasion.

Although Guantanamo is as obsolete as Fort Jefferson National Monument, it is by no means inexpensive to operate, having a budget considerably greater than that of Yellowstone National Park.

We can show the flag far better by unloading this military white elephant on Mr. Castro, for which he would agree to keep us in Ivory-billed Woodpeckers until we are able to develop a viable population of our own in the Offeekenoffee, and, eventually, the rest of the Gulf Coast.

Now, buckaroos, before you chuckle derisively, consider this: Who would have thought that the lowly ping-pong ball and paddle would prove to be the key that opened up China! What a children's game can do, a woodpecker can do!

**ed. note: "Offeekenoffee Swamp" is the vernacular. The FWS calls it the Okefenokee National Wildlife Refuge.*

Biodiversity

The Yellowstone Elk Controversy

Lessons on Population Perturbations and Management Minimization

by George Wuerthner

Some observers of Yellowstone National Park have alleged that ungulate populations, particularly of Elk, are excessive. They argue that Elk overgraze their winter range, causing serious soil erosion, eliminating grasses, destroying shrubs, causing the decline of Quaking Aspen, and displacing other native herbivores including Pronghorn, White-tailed Deer, and Bighorn Sheep. They suggest that lack of aspen regeneration, loss of riparian vegetation, the absence of Beaver, short cropping of grasses and heavy browsing of willows supports their contention that the Park has too many Elk, Bison, and other grazers.

Some critics even argue that Elk and Bison are not native to the Park, but were driven there after the establishment of the Park by heavy hunting on the nearby plains. Historical records, however, contradict these critics. Whether today's herds are excessive may be debated, but certainly Elk and Bison were always residents of the Greater Yellowstone Ecosystem, including the area now within the Park boundaries.

Early written references to Elk are limited because most early explorers and trappers did not keep journals; but Osborn Russell, a fur trapper who wandered in and around the Yellowstone region between 1834 and 1843, is an important exception. In his journal, Russell often noted the abundance of big game. On 24 June 1835, for instance, Russell commented on the abundance of Bison, Elk, deer and antelope (Pronghorn) he found in Pierre's Hole below the west slope of the Tetons, near what is now Driggs, Idaho. By July 4, Russell had crossed the mountains and in Jackson Hole he noted the country "abounds with game." Later that summer, on August 21, Russell mentions killing a huge bull Elk, with 14 tines on one side and 12 on the other, beside the upper Gallatin River near the northwest corner of what is now Yellowstone Park. The following year, on August 19, Russell wrote about the area near the outlet of Yellowstone Lake: "This valley was interspersed with scattered groves of tall pines, forming shady retreats for the numerous elk and deer during the heat of the day." On 28 July 1839, Russell commented that Indians had shot a large band of Elk near Yellowstone Lake; and near Heart Lake, Russell's party encountered a large herd of Elk and killed several.

Although other trappers entered the Yellowstone region during the intervening years, few other written accounts occur until the 1870 exploratory expeditions. On one of these, N.P. Langford noted that around Yellowstone Lake they found "... an abundance of the tracks of elk and bear, occasionally the track of a mountain lion."

Just after the Park was established, but before there was any game regulation or control, hunters killed thousands of Elk, Bison and other large mammals. Writing in 1877, Park Superintendent P.W. Norris noted that 2000 hides of Elk, plus "nearly as many each of the bighorn, deer, and antelope, and scores if not hundreds of moose and bison were taken out of the park in the spring of 1875 ..." (Some claim the Superintendent exaggerated the amount of poaching to justify additional funding for park operations.)

Sightings varied, and vary, a great deal in frequency. Many parties found abundant Elk, but some traveled for days without seeing any. However, a lack of sightings and especially a lack of hunting success does not imply an absence of animals. One can travel throughout the Yellowstone backcountry and see few animals. I recently spent a week backpacking around the entire southeast corner of the Park and across a portion of the Washakie Wilderness and only saw eight Elk—all in one group. And though there are thousands of Elk in the northern herd, I have

continued next page

not successfully killed an Elk in the Ecosystem despite numerous hunting trips. If someone were to read my journal a hundred years later, they might incorrectly assume that very few Elk inhabited Yellowstone Park in the 1970s and 1980s—when in fact there were probably close to 30,000 animals "hidden" somewhere in the Park's boundaries and many more outside.

Moreover, the herds themselves vary a great deal in numbers. Population increases may have resulted from long-term climatic changes. During the early to mid-1800s North America experienced a "mini" Ice Age. Glaciers throughout the West were larger than at present due to greater snowfall and cooler temperatures. High areas like Yellowstone, marginal winter habitat for big game species even during equable times, may have been even less suitable as winter range during this period. As the climate has warmed, snow at the higher elevations has likely decreased in average depth and duration, enabling more animals to use Yellowstone for wintering than in the past.

Many critics have condemned Park management after only casual observation. Close scrutiny reveals differences between the effects of wildlife use of the winter range and superficially similar impacts from livestock. Native ungulates evolved with the native vegetation, so it is not surprising that they have adapted somewhat to each other.

One difference between native wildlife and domestic animals is the season of use. Elk graze the low elevation range primarily in winter after grass plants are dormant. Because grasses normally translocate stored carbohydrates to the roots after dormancy sets in, the removal of above-ground parts does little damage. Damage usually only results when cropping occurs repeatedly while the plant is growing.

Recent studies in the Park suggest that wildlife grazing is not contributing to a significant decline in grassland species. The research suggests that yearly climatic variation will cause a greater change in plant community structure than will wild ungulate grazing. For example, root biomass, one index of grazing influence, was found to be the same in both the wildlife-grazed and ungrazed exclosures in the Park, whereas the amount of new root development varies with annual precipitation. One observed difference between a plot grazed by native ungulates and grasslands inside an exclosure was the reduction in the former of standing dead and litter biomass, but this did not significantly affect plant productivity. A positive effect of wildlife grazing pressure was an increase in protein content of grazed plants. The decrease in litter as a result of wildlife grazing may increase soil moisture evaporation and perhaps lead to increased levels of sheet erosion, but whether this exceeds "natural" levels is debatable. After all, an exclosure is a totally unnatural situation.

Yellowstone has experienced a decrease in size and extent of willows, aspen and other riparian and shrub species but the causes are not necessarily all attributable to Elk. Many shallow lakes and marshy areas have dried up during the past 100 years, and some biologists suggest that climate change has led to the observed reductions in some of these plant communities.

While no one can be certain of the long-term influence of climatic shift on the distribution of riparian plant communities, almost everyone agrees that Elk browsing has had a significant effect upon the height and structure of these plant communities. Today most willows on the winter range persist as low dense shrubs, while young aspen seedlings seldom grow beyond a foot or two in height before Elk crop them. Based on comparisons between historic photos and retakes of the same position today, independent researcher Charles Kay suggests that aspen groves are gone from 95% of the places they historically occurred in Yellowstone. Such dramatic declines in such a short time, Kay suggests, can only be the result of excessive wildlife browsing. In addition, Kay suggests that excessive Elk numbers have led to declines in many other species including White-tailed Deer, Bighorn Sheep, and Pronghorn. However, others believe fire suppression and climatic change may be the causes of the observed declines.

Another possibility is that both arguments are correct: There may be a synergistic effect whereby Elk browsing has an additive influence on plants already stressed by climatic shifts or plant community changes due to fire suppression, especially if that habitat is already of marginal quality for herbivores. Declines in the numbers of species like Bighorn Sheep outside of the Park may be more the result of past overhunting and competition with domestic livestock than direct competition with Elk. Elk may have merely filled a void created by subtle changes in habitat resulting from wildfire suppression and climatic changes. Such changes, together with declines in other species—due to excessive hunting or disease or other apparently unrelated factors—may favor Elk over other large ungulates in the Greater Yellowstone Ecosystem.

Kay also theorizes that Indian hunting pressure may have been greater than most people realize and consequently may have kept wildlife populations severely depressed. However, Yellowstone's high elevations were largely uninhabitable for humans due to cold temperatures and deep snows—just as they are today. It is doubtful, some say, that Indian numbers were ever significant in the region, except in the lower valleys on the fringes of the ecosystem, hence the predation pressure from humans was likely a small mortality factor. Some tribes visited Yellowstone or traveled through on their way to other hunting grounds, but there were few year-round human residents.

In the absence of human hunters, and in the absence of a large predator like the Gray Wolf, starvation in winter is now the leading mortality factor in the Park. Whether wolf predation or human hunting would be additive or merely compensatory to the existing mortality is hotly debated.

The claim that high sedimentation levels in the Lamar, Gardner, and other rivers result from Elk overgrazing has been questioned. Soils are usually frozen in winter when most Elk use the the winter range; consequently, little erosion results from hoof action. Recent research suggests that soils in the northern and eastern portions of Yellowstone Park are highly unstable, and though sedimentation levels are high, wildlife numbers have not contributed to any significant increase.

Beginning in the 1930s, the common wisdom was that there were too many Elk in Yellowstone. Thousands of Elk were removed from the Park by trapping (and used for reintroductions throughout the West) or shooting by rangers. This population control continued up through the 1960s. In 1962 more than 4600 Elk were removed from the Park. Control programs were terminated in 1968. (Sport hunting still occurs in Grand Teton National Park and 729 Elk were killed within Park borders in 1989.)

In 1969 a new policy was adopted which stated that Yellowstone's wildlife would be allowed to self regulate. Elk populations have increased from lows of around 5000 when control ended in the 1960s to 15,000-19,000 Elk on the northern range by 1988. With the increase in herd numbers, migration outside of the Park increased from 7% of the population in 1970 to more than 17% of the total numbers by 1988. The drought in 1988, coupled with the famous fires, reduced forage availability considerably. These factors, together with hunting outside the Park and winter kill, reduced the Elk herd by 40%. By late spring of 1989, the Elk were down to 10,900 animals. Since 1989, herds have rebounded, partially in response to the increased forage that resulted from regrowth in burned areas.

The idea of "natural regulation" is rejected by those who say Yellowstone is no longer natural. It has been, and continues to be, manipulated by humans, they argue, thus

only more manipulation can make it "natural." Others counter that while Yellowstone may not be totally pristine, it is still more natural than surrounding National Forests, where trapping, logging, livestock grazing and a host of other human activities are permitted.

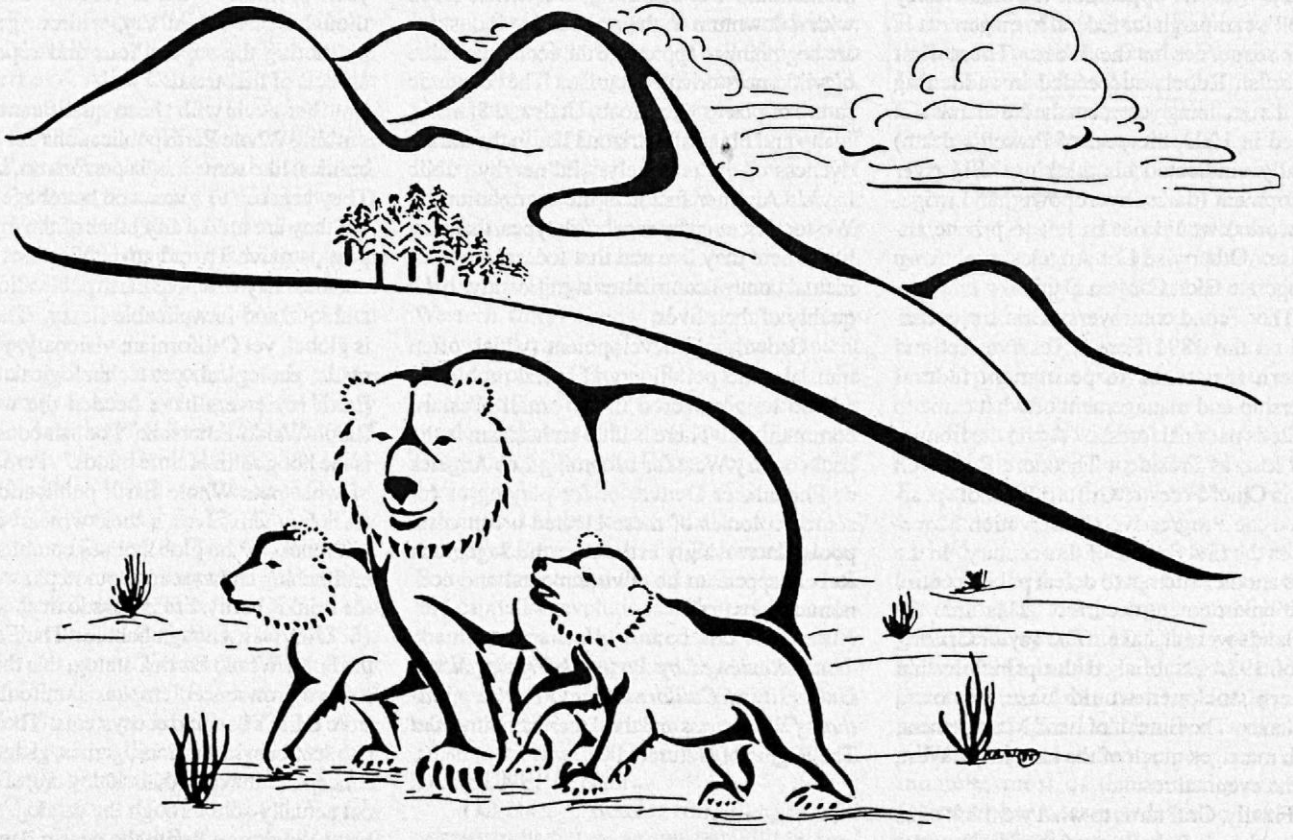
The much debated issue of Elk overpopulation in Yellowstone strikes at the heart of the issue of appropriate management. Are there too many Elk in Yellowstone? Or are all other Elk populations outside the Park so regulated by hunting that we no longer know how Elk are supposed to interact with the environment? Perhaps heavy browsing on aspen is natural at least some of the time. And if we allowed Elk to die off occasionally, perhaps the aspen would get the respite from browsing they need to reestablish themselves on the range.

We should question basic wildlife management assumptions, such as that it is necessary to "cull" "excess" animals. Is anything really "excess" from an ecological perspective? Does removing Elk by hunting remove potential food for scavengers who would otherwise feed on the animals as carrion? Is it wise to manage wildlife to maintain "stable" populations by shooting "excess" Elk or feeding them supplemental foods when their numbers begin to decline? We don't know because, except in a few parks, we manipulate nearly all wildlife populations. Yellowstone Park is not pristine, and some influences, including major predators such as Gray Wolves and Indian hunters, have been removed; but it is still closer to a natural condition than areas outside, where Elk herds are heavily manipulated. Furthermore, we could bring it closer to its original pristine state by reintroducing wolves.

Only in a few areas like Yellowstone are animal populations allowed to fluctuate without intense human interference. Is heavy browsing by Elk on aspen and willows necessarily bad? If heavy winter use of the Park lands is partly the result of moderate winters, would we see a shift in winter use, and a consequent rest from browsing pressure for aspen and willows, if snowfall increased again as may have occurred in the early to mid-1800s? Unlike domestic cattle populations, which do not vary significantly from year to year, wild animal numbers may decrease dramatically—as happened after the drought and fires of 1988—providing plant communities the periodic rest they need to recuperate and expand. The fires of 88 have stimulated aspen production and seedling establishment, but it appears that Elk browsing is removing all this regeneration. This may suggest that our time frame needs to be centuries, not years. We already know what managed populations look like since nearly all Elk populations are under game management—usually culling by hunting. Perhaps we need a few more "controls" like Yellowstone, where wildlife finds its own balances with the landscape, so we may learn secrets of unmanipulated populations.

Nothing in nature is static. Rather than preserve a specific number of Elk or so many acres of aspen, the goal of the Park Service should be to preserve the ecological processes that govern animal and plant relationships. If processes are preserved, animal populations will fluctuate, ranges of plants and animals will expand and decrease, some species may even go locally extinct. However, as long as the processes are free of human manipulation, then the National Park objectives will have been successful.

George Wuerthner is a freelance environmental writer and wildlife biologist based in Montana. His numerous books include The Fires of Yellowstone.



Helen Wilson

Book Reviews

WILDERNESS PRESERVATION AND THE SAGEBRUSH REBELLIONS

by William L. Graf; Rowman and Littlefield Publishers, Savage, MD; 1990; 329pp., $38.50.

William Graf, a distinguished earth scientist and public land historian, has adopted an interdisciplinary approach in this useful book. His purpose is to trace the history of American public land policy through examination of the principal efforts to resist federal control of Western land and resources. This book, then, is about the bad guys in *Wild Earth* terms. If it is valuable to understand your enemies' ideology and methods, Graf's work is important.

Using the 1980s term "Sagebrush Rebellion" anachronistically, Graf begins his account with the opposition to John Wesley Powell's campaign for federal management of water resources in the West. These first Sagebrush Rebels succeeded in saddening Powell's declining years, but the Newlands Act (passed in 1902, the year of Powell's death) partially vindicated his thinking. Big river development (dams, hydropower, and irrigation works) would not be left to private enterprise. Otherwise Los Angeles might own and operate Glen Canyon Dam!

The second controversy Graf treats centered on the 1891 Forest Reserve Act and Western resistance to permanent federal ownership and management of what came to be called "national forests." Again the frontier types lost, as President Theodore Roosevelt and his Chief Forester Gifford Pinchot spearheaded the Progressive Conservation Movement in the first decade of this century. In the 1930s another attempt to defeat public control of the environment occurred. This time the grasslands were at stake. The Taylor Grazing Act of 1934 established the principle that Western stockmen would lease, not own, grasslands. The Bureau of Land Management, which manages much of the land in the West, was the eventual result.

Finally, Graf turns to what we think of as the Sagebrush Rebellion of the last few decades. He discerns its roots in 1960s opposition to the idea of a wilderness act and a national wilderness preservation system. Once again, the rebels came up short in their attempt to reassign federal property to private and state owners. But the opposition to the Wilderness Act did result in a watered down version and prevented the realization in 1964 of something along the lines of what Dave Foreman and Howie Wolke have called the "Big Outside."

While this highly professional study is of value to environmental and public policy historians, Graf is so caught up in his wilderness preservationists versus Sagebrush Rebels paradigm that he does not take adequate account of signs that the dichotomy may be moderating. Granted, President Ronald Reagan and his notorious Secretary of the Interior James Watt revived the rebellion idea in the 1980s, but there are signs that even in the Western hinterlands the movement is losing momentum. For one thing, Westerners faced with a downturn in their extractive industries are beginning to appreciate the economic value of wilderness-oriented tourism. The economic future of places like Moab, Utah and Salmon, Idaho and Flagstaff, Arizona lies in the attractiveness of the relatively wild nearby public lands. Another factor is the recognition by Westerners, even by sagebrush types, that they like where they live and that federal environmental control contributes significantly to the quality of their lives.

Growth and development (which often translate into pollution and social problems) are no longer sacred in the small Western communities. There is little enthusiasm in the backcountry West for becoming Los Angeles or Phoenix or Denver or for playing as resource colonies of these bloated urban cesspools. Increasingly in the West the Sagebrush Rebels appear to be environmental and economic dinosaurs.

—Reviewed by Roderick Frazier Nash, University of California Santa Barbara, author of Wilderness and the American Mind *and* The Rights of Nature.

WHOLE EARTH ECOLOG, The Best of Environmental Tools and Ideas

edited by J. Baldwin, foreword by Stewart Brand; 1990; Harmony Books, 201 E 50th St, NY, NY 10022; 125 oversize pages; $15.95 paper.

Whole Earth publications are like Duck-billed Platypuses. They defy easy categorization. Placing the latter in the class Mammalia, the taxonomist faces the embarrassment of the Duck-bill's oviparous mode of parturition. Placing the former in the class New Age due to the frequent display of computer features, the literary taxonomist faces the enigma of numerous articles promoting decidedly old-fashioned or ecological ideas. The quarterly *Whole Earth Review* and the occasional Whole Earth Catalogs have through the years promoted what is good about new age thought, one might say, without generally promoting the supercilious and superfluous aspects of that trend.

Yet even with these qualifications, describing Whole Earth publications as New Age entities, like some media persons do, is unfair. They hearken to a new and better age, surely, but they are unlike any other of the myriad of post-patriarchal paradigm publications coming out these days. Whole Earth publications have a unique and inexplicable flavor. The flavor is global, yet Californian; visionary, yet pragmatic; ecological, yet technological. Whole Earth reviewers have heeded the words of Ralph Waldo Emerson: "Foolish consistency is the hobgoblin of little minds." Perhaps part of what puts Whole Earth publications in a class by themselves is their writers' obvious awareness of the global crises combined with unflinching enthusiasm about steps away from the brink. Verily, life is paradoxical.

Anyway, enough babble. The *Ecolog* is the latest Whole Earth Catalog, this time with a more pronounced emphasis on tools to restore Earth's battered ecosystems. The diverse publications, institutions, games, gadgets, and concepts featured in this catalog are, of course, not actually sold through the catalog. (Imagine the nightmare, with the new and ungainly postal rates, of sending, say, Dixon Land Im-

printers first class. Let's see, 29 cents, plus 16 times 23 cents times, oh, about 1200 ...)

For us Luddites, some of the tools are worthless or even downright objectionable: computer games and aerodynamic cars, for example. Much of the stuff, however, is of great value to the would-be land and water healer.

Here's a hasty list of some of the books they recommend which you may want to seek in, or request for, your local library: *The Coevolution of Climate and Life*, Stephen Schneider & Randi Londer, Sierra Club Books; *The Greenpeace Book of Antarctica*, John May, Doubleday; *A Forest Journey*, John Perlin, Norton; *Forest Primeval*, Chris Maser, Sierra Club Books; *From the Forest to the Sea*, Chris Maser et. al., Government Printing Office, USDA Forest Service; *Lessons of the Rainforest*, Suzanne Head & Robert Heinzman eds., Sierra Club Books; *Adopting A Stream*, Steve Yates, U of WA Press; *Adopting A Wetland*, Yates, Adopt A Stream Foundation (POB 5558, Everett, WA 98206); *Overtapped Oasis*, Marc Reisner & Sarah Bates, Island Press; *Soil and Civilization*, Edward Hyams, State Mutual Books; *Why Big Fierce Animals Are Rare*, Paul Colinvaux, Princeton U Press; *Biodiversity*, E.O. Wilson ed., National Academy Press; *The Fragmented Forest*, Larry Harris, U of Chicago Press; *Where Have All the Birds Gone?*, John Terborgh, Princeton U Press; *Environmental Restoration*, John Berger, Island Press; *Questioning Technology*, John Zerzan & Alice Carnes eds., Left Bank Distributors; *Notes on the Underground*, Rosalind Williams, MIT Press; *A Wildlife, Coastal and Parkland Conservation Act*, Esther Feldman, Planning & Conservation League Foundation (909 12th St. Suite 203, Sacramento 95814); *Land-Saving Action*, Russell Brenneman & Sarah Bates, Island Press. Many of these are available from Ned Ludd Books.

Among *Ecolog*'s recommended periodicals you may want to look for in your library are these: *American Midland Naturalist* (U of Notre Dame, Notre Dame, IN 48556), *Wildflower* (National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725), *Plant Conservation* (Center for Plant Conservation, 125 The Arborway, Jamaica Plain, MA 02130), *Park Science* (free from NPS; 4150 SW Fairhaven Dr, Corvallis, OR 97333), *Wetlands Research Update* (free from EPA; Corvallis Environmental Research Lab, 200 SW 35th St, Corvallis, OR 97333). The *Ecolog* also highlights many books and magazines you probably already know about, such as *Ecodefense*, *Hayduke Lives!*, *The Big Outside*, *Conservation Biology*, and *Natural Areas Journal*.

So, though you may think the name would fit better on something you put in your fireplace to reduce particulate emissions, you'll like the *Ecolog*. Even for those frugal people not wanting to buy more stuff, the *Ecolog* is well worth perusing for its many reviews, excerpts, and articles containing wise counsel on how to help make Earth whole again.

—Reviewed by John Davis.

THE IDEA OF WILDERNESS: Prehistory to the Age of Ecology

by Max Oelschlaeger; 1991; Yale University Press, 92A Yale Station, New Haven, CT 06520; $29.95 hard, 460pp.

The Idea of Wilderness is thick, rich, and redolent with meaning for a society apparently hellbent on terminating 450,000,000 years of vertebrate evolution. Max Oelschlaeger wrote this book, he says, with the "conviction that reason influences cultural outcomes"; that a democratic society can thinkingly change direction. If this be true—if we are not all simply pleasure maximizers who will drive other species to extinction when that's what it takes to get to the supermarket—then his *Idea* presages a paradigm shift.

Actually, the paradigm shift has already begun; but as is the way with new worldviews, according to Oelschlaeger, it will take time to ripen and will only gradually replace the old. Oelschlaeger's acknowledgement of continuity and multiple factors is a major strength of his historical treatise. In tracing the roots of the modern ecological crisis, Oelschlaeger avoids pinning all the blame on just two or three traditions, as some scholars have done. He sees a progressive demythologization of the Western world's view of Nature, with key events and traditions in this "disenchantment of the world" (Morris Berman) being the Neolithic Revolution (the rise of agriculture); the development of hierarchical civilizations; Greek rationalism; the Hebraic conception of a transcendent god; the union of Greek rationalism and Hebraic monotheism in Christianity; the Renaissance; the Reformation; the Enlightenment; and the scientific, industrial, and capitalist revolutions. Most of these elements are causally linked and temporally overlapping, and together they lead to modernism—the worldview now shared by most of humanity's affluent minority, and extinguishing at least 100 species a day (Mustafa Tolba, UNEP director).

Oelschlaeger makes a compelling case for readoption of elements of Paleolithic consciousness—the myth-grounded and metaphor-laden mindset that prevailed among hunter-gatherers for at least 200,000 years, until agricultural fertility rites began to displace rituals related to the Great Hunt 10,000 years ago. Oelschlaeger's favorable portrayal of Paleolithic culture—in which overpopulation, material affluence, and private property and their correlates, epidemics, poverty, and war, were relatively unknown—can be gainsaid only by determined dismissal of the facts.

Given the sordid history of civilization, then, and the spreading fascination with shopping malls, to what antecedents can we look for guidance back into the wilderness? Ironically, two such sources of inspiration, at least, are products of the scientific revolution. Evolutionary theory and ecology are both subversive offshoots of the prevailing paradigm. Post-modern thought, Oelschlaeger surmises, will draw heavily from ecology and evolutionary biology. (Other scientific strains may also help: quantum and relativity physics, fractal geometry, and conservation biology, in particular.)

Also of great import for developing a post-modern worldview will be appeal to the minority traditions and thinkers who have, through the centuries, condemned whatever Western demythologizing dogma was then at work. Key critics of anthropocentric and mechanistic attitudes include St. Francis of Assissi, Benedict Spinoza, Rousseau and the Romantic poets (especially Wordsworth), Arthur Shopenhauer, Charles Darwin, Henry David Thoreau, John Muir, and Aldo Leopold. These last three are important enough to merit their own chapters, and these chapters again reveal Oelschlaeger's appreciation for continuity, change, and evolution. As a process historian, he presents each of these ecological geniuses as a peripatetic individual on a difficult and winding path toward an organic, holistic appreciation of wilderness. Their views evolved markedly, though many scholars have tried to portray the body of thought of each as static and monolithic.

Some critics will (as is their wont) deride Oelschlaeger for failing to describe the many Eastern traditions or such minority Western traditions as European paganism, witchcraft, and women's writings (unpublished, perforce) of the Middle Ages; the various views of ethnic minorities; and the arguments of 19th and 20th century animal rights proponents. However, Oelschlaeger's project here is to describe traditions that have shaped our modern perceptions of Nature, as well as what will shape post-modern perceptions. Unfortunately, most of the minority elements Oelschlaeger does not describe have been successfully suppressed.

continued next page

For wise counsel spoken in the last few decades, Oelschlaeger looks to such original thinkers as process philosopher Albert North Whitehead, anthropologists Stanley Diamond and Paul Shepard, deep ecologist Dolores LaChapelle, and poets Robinson Jeffers and Gary Snyder. These last two earn a duly laudatory chapter of their own. Jeffers was the poet and prophet of "inhumanism," a forerunner of "ecocentrism." Snyder is the once beat now venerable "poet laureate of deep ecology."

Ecofeminists (e.g., Rosemary Ruether, Carolyn Merchant, Mary Daly), biocentrists (e.g., Holmes Rolston), ecocentrists (e.g., Baird Callicot), and deep ecologists (e.g., Bill Devall, Arne Naess, George Sessions) also receive considerable attention, in the chapter "Contemporary Wilderness Philosophy." Oelschlaeger says the dominant idea of wilderness now is *resourcism*, which represents modernism's attempt to conserve resources for sustained exploitation. Oelschlaeger suggests the present alternatives to this solipsistic view are *preservationism, biocentrism, ecocentrism, deep ecology*, and *ecofeminism*, all of which are helping lead us to a "postmodern" idea of wilderness—an ecologically informed, evolutionary, revolutionary old-new way of relating to the natural world.

It is apparent from reading this chapter that wilderness philosophers often obfuscate each other's terms. A few examples deserve special note from wilderness proponents. Some "environmentalists" (a bad term, but what should replace it?) conflate biocentrism, ecocentrism, and deep ecology; whereas some, including Oelschlaeger, see them as distinct, though overlapping philosophies. "Conservation" for Oelschlaeger belongs with the resourcism school of thought; yet conservation biologists favor that term over "preservation" (which, they aver, suggests holding the natural world in an artificially static state). "Preservation" for Oelschlaeger is holistic yet anthropocentric; for Stephen Fox (author of *The American Conservation Movement: John Muir and his Legacy*), it is the goal of the radical amateurs in the tradition of John Muir. Oelschlaeger replaces the "non-human world" with the "infrahuman" world: a slight improvement over the former, vacuous and fatuous, term (as well speak of the "non-White Wartyback Pearly Mussel world"), but not aesthetically pleasing. For Oelschlaeger, ecofeminism complements deep ecology, and Dolores LaChapelle has advanced some of the most cogent theses pertaining to ecofeminism. For some ecofeminists, and Dolores emphatically denies being one, deep ecology is but a green version of androcentrism (malecenteredness).

These semantic problems may seem trivial, but Oelschlaeger (backed by the works of Heidegger and Wittgenstein) argues persuasively that language generates culture. More likely, culture generates language even as language generates culture; but regardless, what we say does affect the natural world. Ecologists (but what is an ecologist: any person who appreciates and advocates the natural world, or only that group of scientists who study the interactions of organisms and their environments ...?) need a vernacular understood by all.

"Postmodern," too, is a nebulous term, but necessarily so at this early stage in the paradigm shift. Postmodernism is a paradigm in the making. If it is made in time, our headlong rush into oblivion may be averted. Oelschlaeger's book will contribute much to this making.

—Reviewed by John Davis.

IN THE ABSENCE OF THE SACRED: The Failure of Technology and the Survival of the Indian Nations

by Jerry Mander; 1991; Sierra Club Books, 100 Bush St, 13th Floor, San Francisco, CA 94104; 400pp.; $25 cloth.

"...the idea that technology is neutral is itself not neutral—it directly serves the interests of the people who benefit from our inability to see where the juggernaut is headed.

"...Computers, like television, are far more valuable and helpful to the military, to multinational corporations, to international banking, to governments, and to institutions of surveillance and control—all of whom use this technology on a scale and with a speed that are beyond our imaginings—than they ever will be to you and me.

"Computers have made it possible to instantaneously move staggering amounts of capital, information, and equipment throughout the world, giving unprecedented power to the largest institutions on the earth. In fact, computers make these institutions possible. Meanwhile, we use our personal computers to edit our copy and hook into our information networks—and believe that makes us more powerful.

"Even environmentalists have contributed to the problem by failing to effectively criticize technical evolution despite its obvious, growing, and inherent bias against nature...." (Mander, p.3)

Now there's a brave man! Despite the overwhelming evidence against it (deforestation rate: 20 million hectares a year; species extinction rate: over 100 a day; etc.), environmentalists seldom criticize technology *per se* (and even use the vile stuff!). Along with a few renegade scholars such as Christopher Manes and Robert Mueller, and a growing number of Indians, Mander is in the tiny group of visionaries who are publicly challenging our society's blind acceptance of modern technology.

Mander is also a rarity in exploring why humans find technology so attractive. He suggests that our fascination with machines may stem in part from an evolutionarily adaptive trait. Early hominids benefitted from a fascination with things new, different, changing. Our ancient ability to detect and interpret changes in weather, new members of the biotic community and such may, paradoxically, be a source of our bizarre attraction to what must objectively be seen as useless gadgets (how else explain the existence of electric can openers?).

Mander is not as relentless in his critique of technology as some Luddites might like. He sees small-scale decentralized technology, solar power for instance, as potentially appropriate. He generally refrains from pronouncing things positively good or bad. His aim is to make people question technology, not reject it unilaterally. He argues that any new technology ought to be thoroughly evaluated before being released.

If the first half of *In the Absence of the Sacred* is about the *absence*, the second half is about the *sacred*. Mander describes various indigenous cultures and their benign ways of life. He discusses how and why Western society has exterminated or suppressed indigenous peoples throughout the world. Here Mander is on ground familiar to many readers, but he goes farther than other critics of genocide. He shows why ending the repression of native peoples is essential to ending the global ecological crisis. For these are the people who know how to live lightly on the land. They are the ones who still see life as sacred.

It is not too late, judging by this book, to reverse historic trends and allow a resurgence of native cultures. Thousands of indigenous groups survive, many of them living essentially as they have for millennia, most of them doing just fine without self-defrosting refrigerators.

Mander's skillful juxtaposition of the indigenous and native with the technological and modern will leave few readers unconvinced that we must change directions fast. In a chilling epilogue, Mander describes the new world order being created by the industrialized nations. With George Bush at the helm, a mega-technological global economy is being realized. The recent Gulf War and the fall of the so-called communist economies signified this trend.

In discussing the need for change in our society's present course, on which we are hurtling toward oblivion, Mander quotes Thomas Berry's *The Dream of the Earth*, saying we must break "our entrancement with an industrially driven society." Rather than outlining in detail how we might do that, Mander cites an array of individuals and groups—including Natives, bioregionalists, and deep ecologists—who are pointing the way toward reintegration of *Homo sapiens* with the natural world. To those who say "we can never go back," Mander optimistically counters, "it is not really going back; it is merely getting back on track, as it were, after a short unhappy diversion into fantasy. It is going forward to a renewed relationship with timeless values and principles that have been kept alive for Western society by the very people we have tried to destroy."

Mander, too, is keeping these values alive. If you read only one more book this year, read *In the Absence of the Sacred.*

—Reviewed by John Davis.

Readings

On "The Fit" Between the Human and the Natural World

A Review of *Gary Snyder: Dimensions of a Life* and *Shifting*

I once interpreted "the survival of the fit" using "fit" as an adjective that described the kind of life that survives — strong animals, well-camouflaged animals, or intelligent animals. Now I think of "fit" as a noun. The survival of The Fit. Both life and its environment might change but The Fit between them will survive.

—Paul Krapfel

by Dolores LaChapelle

During the dark days last winter I was in despair over Bush's oil war, specifically designed to manipulate the millions of television addicts, allowing the government to throw out twenty years of progress in environmental laws and push the oil and nuclear power industries.

In the spring, however, with the arrival of review copies of two new books, hope returned. With startling clarity Paul Krapfel lays out the elegantly simple and deeply true new paradigm of "The Fit"; while in John Halper's book sixty-five people, deeply influenced by Gary Snyder's life and work, have come together to show how he influenced them. Together, these essays tell us that there is a "way," Snyder is continuously living it, and so can we.

In the ever-deepening despair we face with the increasing loss of species and wild lands and overpopulation, we begin to give up the fight. There seems so little time to do anything. Yet we know that the necessary changes cannot come from the top down, nor from planning or science, because that's how we got into this disaster. The big question is "What can we do now?" Snyder's life and work show us "the way". As George Sessions points out, "Snyder worked out a coherent, sophisticated, spiritual, ecocentric position, both in its theoretical and practical aspects, before 1970." He quotes from Snyder's "Four Changes": "If man is to remain on earth he must transform the five-milennia-long urbanizing civilization tradition into a new ecologically-sensitive harmony-oriented wild-minded scientific-spiritual culture. 'Wildness is the state of complete awareness. That's why we need it'."

This wild-minded, "complete awareness" is shown on an immediate, practical level, in the book, *Shifting*, where Paul Krapfel tells of working in small ways with natural forces over the years, and together restoring health to a field. He explains the process in detail but here I will only note that first the willows sprouted and within four years wild geese were stopping off there on their migration. He explains that in Sand Canyon where he worked as park naturalist he "saw possibilities draining away from the land. Here in the field I saw possibilities appearing...Downward spirals of erosion reverse direction and become upward spirals of healing. Processes I had previously cursed magically transform into allies." Krapfel continues:

I no longer saw myself confronting and halting erosion singlehandedly. I began seeing my work as that of shifting balances, little balances, wherever I encountered the opportunity. Whenever a balance shifts, an ally will appear to help me with the work...Each unpredictable discovery of an unimagined possibility left me feeling delightfully unsure of what was possible and what was impossible. The freshness of this delight made me realize that for years I had practiced looking for reasons why hope was impossible...I acted less and doubted more...But participating in Gaia's unimagined possibilities released my energy for action. I lost interest in deciding what was impossible and became more interested in what was possible...The downward spiral of cynicism reversed and rose as the upward spiral of hope.

My spirit was healing. I felt what it was like to participate in a process that is billions of years old and which is capable of extending billions of years into the future...The work

continued next page

was healing me as much as it was healing the fields. This made sense in a strange way because I, too, was part of the life in those fields. A spiral of healing joined us both.

This state of continual awareness, which we are just now rediscovering, was called "future primitive" by Jerry Gorsline and Freeman House in an article of that name in *Planet Drum*. They define a future primitive life as: "a community of beings joined by rim and basin, air and watershed, food chains — ceremonies...We will be informed by earthworms and plankton. We will study that authority which resides in place and act out our lives accordingly. There is no separate existence."

Gary Snyder contributes further insight into this state in his *Recovery of the Commons Bundle #1* (Snyder & Swenson, self-published Xerox, 1984), quoted by Lee Swenson in *Dimensions of a Life* :

The Commons is this universe we live in, these cells, these bodies and minds we all share. Historically the commons is the hinterlands, the space between villages, shared forests and meadows, wild land and open space outside the village deer-fence.

The commons is the hunting territory, the wild plant and herb-gathering valley, the mountainside for firewood, the pasture. The commons is not just common property, it is the next order of organization of the community, the neighborhood of other beings. The air, the water, the tropical rainforests, the starry night sky, old growth Douglas fir stands, birdsongs, are the commons.

Original nature, original mind, basic joy and basic pain. Birth at home and death with friends (or with the boots on) — is the commons. A free vernacular language, jokes and riddles, parties and dances, religion or no religion — are the commons. The bounty of nature, the sun and the green, the genes. Cabbage and eggplant.

All of this is expressed through and in Gary, his family's and friends' daily life at Kitkitdizze. Peter Coyote writes, "The facts and implications of Gary's house were an epiphany for me that demanded a reexamination of some of my personal beliefs and premises. In the body of this house, craft, family, community, and a host of attendant values were expressed without cant or didacticism, calmly attesting to the silent power of mindfulness, respect for particulars, and unremitting effort. Only a fool could ignore a dialogue with benefactors like those, and though I may have *been* a fool, I decided then and there that I was not going to *remain* one forever."

Peter Coyote gives the best summary in the entire book of Gary's *real work* :

The real work is his ability to sensitize the contemporary American psyche to more appreciative, less exploitive social and economic possibilities than are currently widely available within the strictures of Western worldviews and values. His point, as I understand it, is to nurture ways of life that are more consciously interdependent with other species and with ancient human traditions...Such values reside within the realm of what Gary refers to as "the Great Underground" — the shamanistic, yogic, poetic wisdom tradition extant since the Paleolithic, forty thousand years ago. This perspective, which treats Mother Nature and human nature, wilderness and wilderness-of-mind with the same respect, has been submerged but never vanquished by the "high civilizations" that have evolved from it... Gary's work...is nothing less than the tangible manifestation of viable cultural and economic possibilities informed by this tradition. This is the center around which the disparate expressions of his personality gravitate — the artist, homemaker, community member, and Buddhist.

Here again we have the future primitive viewpoint.

Gary's poetry is his "cash crop". When he goes off to read he is selling this cash crop and returning to his place, Kitkitdizze, plowing the profits back into place. Peter Coyote tells us that "Gary does everything as well as he does anything. He builds a house, fells a tree, fixes a Jeep, with the same dedication with which he writes a poem...His poems are also tools, wedges of insight, designed to crack rigid mental assumptions about ourselves and, consequently, the world we roam about in."

Scott McLean explains that Gary's poetry "has the authenticity and currency it does because of his profound rootedness in place, and his work argues that if one wants to touch the deepest levels of our humanity, one must learn within the relationships of responsibility that bind family, community and place." Snyder's recent book of poems, *Axe Handles* , has this dedication: "This book is for San Juan Ridge" (in California). With this inspiration I dedicated my *Sacred Land Sacred Sex* to the San Juan Mountains of my own place here in Colorado.

Ron Scollon explains: "Gary's poems are an interesting example of day-to-day culture that walks right into the study to remind us that the work is still going on outside. But notice: He took off his boots at the door and washed his hands and face. He reminds us of the work but still respects the quiet of contemplation. Work is one way, study is another. The point is not to lie to yourself about what you're doing or about what those inside or outside are doing either. This is 'the real work' — doing what you're doing honestly, not being elsewhere in your mind all the time...Culture in this sense is paying attention to what grows up when you don't do anything, eating what comes when you don't interfere; it's making yourself ready for the wildness of a place."

This "paying attention" is the crux of the matter. In *Shifting* , Paul Krapfel gives us an example of "The Fit," which he learned by "paying attention":

The tundra buttercups turning with the sun...Their white petals form a parabolic dish making each flower look like a radar screen. These white petals reflect the sunlight and concentrate its heat near the center of the flower where the reproductive parts are located. By always facing the sun this part stays warm throughout the day. This concentrated warmth allows the seeds to develop despite the cool air of early June.

But the flowers must be pollinated by insects before their seeds can develop. Insects can not create their own heat so they are sluggish in cold air. But like a warm friendly inn on a cold night, the center of each sun-following buttercup provides a warm place filled with food. An insect can gather enough energy at one flower to survive the cold flight to the next, nearby flower. The flowers make it possible for insects to be active during this cold season. On the other hand the insects make it possible for the plants to flower and be pollinated early. Which cause which?...Neither is The Cause. The cause lies in their spiraling relationship."

Krapfel points out this as but one example of the the relationship between insects and flowers in a great spiral of change that created the botanical spectacle around us.

He gives another example of energy flow in the interests of life. Long ago "rivers were a one-way flow from the land to the sea. But now they are two-way roads for the salmon which connect the deep ocean with the shallow forest streams where the salmon hatch." The tiny hatchlings head back for the sea where they range for food, "gathering the ocean's fertility into their growing bodies." Some years later they swim against the current all the way up-river to lay and fertilize their eggs and then die.

Their bodies drift downstream. Bears, eagles, and gulls flock to this salmon feast. The fish-stuffed animals defecate abundantly; thousands of tons of nitrogen and phosphate-

rich fertilizer rain upon the forests. It is no coincidence that salmon spawn in areas surrounded by fertile forests; these forests have been receiving a lavish gift of potent fertilizer from the distant sea for millions of years."

Explaining that this upstream moving gift was impossible a billion years ago, Krapfel "feels humble gratitude for the life preceding me and the life surrounding me." Using the metaphor of a wedge of wild geese, he explains the great "wedge of life". At first primitive bacteria and algae began the passage through the harsh environment and behind them other life followed. "The wedge has now stretched out over thousands of millions of years and broadened into millions of species. We humans are part of the recently emerged, youngest generation flying at the very back of the wedge. We fly within the protection of all that has gone before, a protection so vast and powerful that we scarcely feel the harsh resistance of that primal environment." Krapfel says that as he matures, "a desire grows within me to press forward...to help cleave a passage" for the new forms of life that follow behind in this wedge of life.

The salmon and those who eat them—bears and other predators higher up on the chain of life—together bring life-giving nutrients to the forests. Snyder sees poetry in a similar way. Suzie Scollon writes of Gary talking about "getting higher up the information chain. The job of the poet is to take the work of information hunters such as linguists and anthropologists and digest it for human consumption...He is interested in seeing what happens if you treat language as a wild, open fluctuating system. What happens if you listen to the Earth instead of English language tapes."

This is why Snyder has managed to infuse poetry with the excitement of wildness never achieved before. Scott McLean writes: "It was said that Wordsworth had lifted up the skirt of nature and promptly dropped it, running back in terror." Later writers here in the United States had similar problems. Alan Williamson explains:

John Muir attempted to import the language of Emersonian idealism, but it didn't stick, except in second-rate travel writing. Robinson Jeffers imagined the loneliness as a Calvinist god, demanding sacrifice and immolation; but beyond that God waited a calm Maternal Nothing ... D.H. Lawrence valued the landscape precisely because it was so subversive of human purposes, and could madden.

Will Baker, in one of the best pieces in the book, tells when Snyder accomplished his breakthrough, publicly. It was back in 1956. Baker, an undergraduate at the University of Washington, was supposed to find someone for a program in a lecture series on Careers for English Majors. Baker's favorite prof told him of a former student and his friend just passing through the town and said they were poets and might give a reading. When Baker met them in the academic office "it was a shock." "One of them, a Mister Ginsberg, looked like an undernourished deckhand...The other, a Mister Snyder, I recognized instantly from his boots, his mackinaw, and a beard several weeks along. This was surely an unemployed logger." Baker assumed there was plenty of time for them to get cleaned up before the reading that night; but they arrived in precisely the same state as before. Baker's description of the reading is worth quoting at length:

So here in dark, dank Parrington Hall the unthinkable was happening right before the eyes and ears of the nice people. The first graphic sketch of the pastimes of lonely sailors went by most of the alumnae ladies, but soon even the most dumbfounded among them grasped that they were, in fact, hearing the very words they at first could not believe they were hearing. One by one they reeled to their feet, some with kerchiefs clutched to their lips, others supporting themselves on gallant volunteer cadavers. The rest of us, however, had been effectively nailed to our chairs.

Then, after Ginsberg, "Mister Synder took over the lectern...This stubby man with copper whiskers and eyes squinty from too much sun exuded high spirits, something approaching hilarity just under control. He brought us out of the urban maelstrom with the solid jerk a hungover wrangler gives to a string of balky mules going over a pass. He was taking us, he said, to the mountains and rivers. And he did."

AFTERWORD

Does *Dimensions of a Life* do all I say it does? Let me tell you what happened this June at the annual Talking Gourds Festival in Telluride, which Art Goodtimes, *Wild Earth* Poetry Editor, organizes each year. Art has me scheduled for a "walk," taking everyone who wants to go on a Pawnee Hako type pilgrimage (see LaChapelle, *Sacred Land Sacred Sex*, pp.202-213) to a waterfall. Last year we had twenty people; this year, sixty! I asked Art, "How are we going to handle this many?" Then I said, "We'll have to start out with silence." And we did, walking Tai Chi style with periods of total silence, followed by chanting and drumming and passing the gourd for anyone to do a reading to honor the natural gods of the place as we moved among them — trees, rocks etc. I read appropriate bits from *Dimensions of a Life* at times during the two hours it took to get to the waterfall. By the time I read the last bit, about poets taking the work of information hunters and digesting it for human consumption, there was wild cheering. We finished with a passing of the gourd right alongside the thundering waterfall. Randy Morgan best expressed the whole event — "It's magic!" he said and it was. The incredible beauty of the place was inextricably woven together for us by the life and work of Gary Snyder.

NOTES

1) Paul Krapfel, *Shifting*. 18080 Brincat Manor Dr., Cottonwood, CA 96022; 1990. 185 pages, $11 + $1 postage. After years of living in the wilderness and being a naturalist for the National Park Service, he wrote this book. In his Acknowledgements he thanks Gary Snyder and says: "I began my years in the Park Service with a quote of his taped to the wall. It went something like this: 'It is best to think of this as a revolution, not of guns, but of consciousness which will be won by seizing the key myths, archetypes, eschatologies, and ecstasies so that life won't seem worth living unless one is on the transforming energy's side.'"

2) *Gary Snyder: Dimensions of a Life*, was put together and edited by Jon Halper in honor of Snyder's 60th birthday. Sixty-five people deeply influenced by him contributed. Obviously I only cover a few of these pieces above. Below I list them alphabetically:

Will Baker, "Poets on the Bum."
Peter Coyote, "Gary Snyder and the Real Work."
Scott McLean, "Thirty Miles of Dust: There is no Other Life."
Ron Scollon, "Snyder's Culture."
Suzie Scollon, "Genuine Culture."
George Sessions, "Gary Snyder: Post-Modern Man."
Lee Swenson, "Swimming in a Sea of Friends."
Alan Williamson, "Some Tenses of Snyder."

John Halper, *Gary Snyder: Dimensions of a Life*. San Francisco, Sierra Club Books, 1991. 451 pages. $17 + $1.50 postage.

Both books are available from WAY OF THE MOUNTAIN CENTER, BOX 542, Silverton, CO 81433.

3) Jerry Gorsline and Freeman House, "Future Primitive." *Planet Drum.*

4) For information on the annual Talking Gourds Festival write Art Goodtimes, Box 160, Norwood, CO 81423.

Exceptional Excerpts: Selections from Special Books

THE YEAR OF THE TURTLE: A Natural History

by David M. Carroll; Camden House Publishing, POB 1004, Charlotte, VT 05445; 170pp., $17.95 paper.

Turtle history—Chelonian evolution—goes back at least 180 million years, yet during all these millennia probably no lovelier book on turtle ecology and conservation has been written than The Year of the Turtle. *Covering especially the Spotted Turtle, Painted Turtle, and Snapping Turtle (three of the species inhabiting his favorite New England swamp), David Carroll beautifully illustrates and describes the lives of and threats to some of Earth's 225 or so extant turtle species. The excerpt below is from Chapter 5, "Hatching."—JD*

A keen sense of vision plays a vital role in the ability of freshwater turtles to locate water upon hatching. The same senses that guide migrations and homing in older turtles are probably at work in the hatchlings, before they have ever seen or felt the water that will become the medium for their lives. An ability to distinguish brightness and color no doubt helps them, as does an instinct to move away from dark shapes of tree masses and geographical features such as ridges and hills, even in the dark. It is possible that newly emerged turtles can detect moisture gradients or even smell water. More obscure factors, such as a sensitivity to temperature or magnetic fields, also may be at work. With immeasurably long evolutionary and genetic ties to signals from the sun and earth, air and water, hatchling turtles have many possible cues to guide them on the critical first migration of their potentially long lives.

Another remarkable aspect of turtle hatching is that some do have the capacity for overwintering in the nest. In some cases this is related to the vagaries of prevailing temperatures over a season of incubation; in others it reflects a deliberate way of dealing with the environment or evading the relentless predation to which turtles are subject. The timing of autumn or spring emergence has genetic as well as environmental components; a hatchling may be "programmed" to wait out the winter in the nest, no matter how favorable the summer incubation period or the autumn above the nest. Some northern populations survive a short, cool summer by overwintering as advanced embryos or as hatchlings; yet populations far to the south may remain in their nests until the following spring even though they had time and warmth enough to develop fully and make a fall emergence. For these turtles, the conditions prevailing in the wet spring are far more favorable than those of the hot, drought-plagued autumn. A hatchling in the latter circumstance would not be able to find the shallow, weed-choked waters necessary for his survival and growth. The autumn and winter environment in the nest beneath the earth, while not without its hazards, is safer than that of the world above ground, and the turtles have the resources to stay in place an extra half year or so and dig out at the time of propitious spring rains. From north to south, varying among species and within populations of the same species, in concert with or independent of the climate of any one season, some turtles leave the nest in the fall, and others await spring, another expression of behavioral plasticity in an animal that might seem on first inspection to be statically primitive, fixed in time and place.

Individually and collectively, turtles are able to take life's limits to remarkable degrees. The capacity for a hatchling to overwinter in the nest, coupled with the ability of the females of some turtle species to retain viable sperm for four years or so could produce an extension of biological limits that would seem unimaginable. A turtle could mate one season, and four springs later, if she had not encountered a male over the intervening breeding seasons, still produce fertile eggs as a result of that mating. These eggs could lie in the nest through the summer and produce hatchlings that overwinter in the nest. Baby turtles could emerge the following spring, scramble to the water, and take up life there, the progeny of a mating that took place five years before.

SNOWY PLOVERS

by Terry Tempest Williams, from **REFUGE: An Unnatural History of Family and Place** to be published this fall by Pantheon Books, New York.

The day the pumps were turned on, the lake did an about-face on its own. Great Salt Lake is receding, having dropped more than two feet from last year's lake level high of 4211.85'.

Where the water has pulled back, the land looks as though it is recovering from a long illness. Barbed-wire fences act as strainers. Sheets of algae and rotting vegetation hang like handmade paper and bobs of tangled hair.

A "bomb catcher" is being built in the West Desert. It is the newest component of the West Desert Pumping Project.

The United States Air Force has disclosed information from their own environmental assessment report: although most bombs exploded on impact during training missions conducted since World War II, some did not. There is a fear that unexploded bombs, including some in watertight containers embedded in the salt flats, might be dislodged by the pond water and float toward Great Salt Lake.

"Imagine a giant comb about eleven hundred feet long," says Brent S. Bingham, president of Bingham Engineering, Inc., the Salt Lake City company that has designed the

bomb catcher. "It consists of twenty-two hundred fiberglass bars, five feet tall and six inches apart, that will span the spillway, preventing bombs from being carried into the lake by the stream of water pouring out of the new holding pond west of the Newfoundland Mountains."

Mr. Bingham told newspaper reporters today that no bombs have been seen floating in the pond, which is two and a half to three feet deep, but state officials don't want to take any chances.

Dee Hansen, Director of the Utah Department of Natural Resources says, "The bomb catcher is not for major bombs. It's for phosphorous bombs and different types of bombs in canvas bags . . . The Air Force experimented with a bunch of stuff out there. Most of it has probably deteriorated if it didn't explode. But the Air Force is pretty cautious, and we want them to be." He adds, "An explosive ordnance disposal unit from Hill Air Force Base inspected the corridor for the twelve-mile-long Newfoundland Dike before construction began. They found some unexploded ordnance in the area, which were retrieved."

All I can see are thousands upon thousands of tumbleweeds cartwheeling over the surface of the water, beating the floating bombs to the strainer.

The West Desert Pumping Project is one of thirteen engineering efforts nominated for the 1988 Outstanding Civil Engineering Achievement Award presented by the American Society of Civil Engineers.

"The award recognizes engineering projects that demonstrate the greatest engineering skills and represent the greatest contribution to civil engineering progress and mankind," said Sheila Brand, spokesperson for the society.

✣ ✣

We had several calls at the museum today from people who wanted to know if there had been an earthquake. According to the seismology station on campus, there had been no tremors.

It turns out the rattling vibrations were in the air, not the ground.

Atmospheric shock waves were generated when the air force exploded twenty-five thousand pounds of munitions near Great Salt Lake at 2:30 p.m.

Airman First Class Jay Joerz, with Hill Air Force Base public affairs, said, "Munitions are disposed of on a regular basis at the test and training range just west of the lake. Weather conditions must have been just right for the shock wave to carry so far. Yesterday we had another twenty-five thousand pound explosion and nobody noticed."

✣ ✣

Snowy plovers have shown a 50 percent decline in abundance on the California, Oregon, and Washington coasts since the 1960s, due to the loss of coastal habitats. The National Audubon Society petitioned the U.S. Fish and Wildlife Service in March, 1988, to list the coastal population of the western snowy plover as a threatened species. The present population estimate for the western United States, excluding Utah, is ten thousand adult snowy plovers, rising to thirteen thousand individuals after breeding season. Knowing inland population numbers, distribution, and ecology is essential to our understanding of the status of the species as a whole. That's why we are counting them in Utah.

I have been combing the salt flats north of Crocodile Mountain for them since early morning. So far, my count is zero.

Margy Halpern, a non-game biologist leading the survey for the Utah Division of Wildlife Resources, and I are walking parallel to each other, maybe a half-mile apart. The distance between us feels greater than it is because of the intense heat and glare of the alkaline terrain.

I walk slowly, following the western shoreline of Great Salt Lake. Clay bluffs along the water's edge resemble Normandy: they have eroded into fantastic shapes, alcoves, and tunnels from past wave action. There are no footprints here.

Windrows of brine flies and ladybug carcasses twist along the beach. Otherwise, it is littered with limestone chips, which clamor like coins when walked upon. The heat is brutal. I pause to dip my scarf in the lake and tie it back around my forehead.

I turn west away from the lake and walk back across the salt flats. Another hour passes. I see movement. Two snowy plovers skitter ahead. Margy also has them in view—we motion each other simultaneously. If they were not dashing across the white-brocaded landscape, they would be impossible to see. They are perfectly camouflaged.

Margy and I join each other and sit on the salt to watch them. I have to squint through my binoculars to shut out the light reflecting off the flats. Heatwaves blur the plovers. They appear to be foraging on half-inch golden beetles. We pick up one of the insects for a better examination of what the plovers are eating. The golden carapace is translucent, gemlike. We set the creature back on its course, and it skeeters away.

Snowy plovers are the scribes of the salt flats. Their tracks are cursive writing, cabalistic messages for the bird-watcher who cares enough to follow their eccentric wanderings.

We spot two more adult plovers with chicks. Two chicks. Margy and I check with each other to make sure.

"Ku-wheet! Ku-wheet! Ku-wheet!"

On this day, their calls are the only dialogue in the desert.

The snowy plover is considered to be an uncommon summer resident around the shores of Great Salt Lake, so our total count of six on June 11, 1988, is no surprise. They are listed as common residents of Pyramid Lake in Nevada and Mono Lake in California. Long-term distribution records show that snowy plover populations rise as Great Salt Lake retreats. More habitat supports more birds.

What intrigues me about these tiny white birds with brown bands across their breasts is how they manage their lives in such a forbidding landscape. The only shade on the salt flats is the shadow they cast. There is little fresh water, if any. And their diet consists of insects indigenous to alkaline habitats—brine flies and beetles.

Fred Ryser explains, in *Birds of the Great Basin*, how this "wet food, even during the driest and hottest time of year, contains much water of succulence . . . with each mouthful of food, the plover drinks."

To cool off, the snowy plover stands in the salt water and lets the brackish water evaporate from its body.

Another question rises with the heat of the salt desert. Why don't their eggs bake?

Snowy plovers nest in shallow scrapes, open and exposed. Some plovers will use brine fly pupal carcasses for a nesting bed, and then line them with small pebbles and shells. Both male and female snowys incubate the eggs; on hot days, such as today, they trade places frequently, alternating from sitting to standing (not so unlike us). Parenting plovers have been seen to soak in salt water and, upon returning to their clutch of eggs, will ruffle their wet feathers, sprinkling the eggs with water. An average clutch size is three eggs. Research suggests half the broods in Utah might each fledge two young.

Margy and I share drinks from her canteen. I have a throbbing headache, which tells me I have been ignoring my own need for water. I fear I may be suffering from heatstroke and begin to worry about getting home. Too much exposure.

Before walking back through shoulder-high greasewood, I take a quick swim in the lake. The silky waters of Great Salt Lake cool my parched skin, even though the salt burns. This offers a momentary reprieve from my nausea. I lick my swollen lips and am careful not to rub my eyes.

continued next page

I catch up with Margy and follow her through the maze of greasewood. We hear rattles and stop. It is the driest sound on earth. We take another path and walk briskly toward Crocodile Mountain.

Driving home alone on the solitary dirt road that winds around the lake, I am struck with delirium. I stop the car. Nothing looks familiar. I get out and heave violently behind the sagebrush.

The next thing I remember is waking up in a dark motel room in Tremonton, Utah. I call Brooke to see if he can tell me what happened. He is not home. Snowy plovers come to mind. They can teach me how to survive.

✣ ✣

Lettie Romney Dixon passed away at noon from a lingering illness. My grandfather, Sanky, has not left her side for months. Last night, I sat with them all night long. Death has become a familiar landscape. I can smell it.

We prepare her body. Her tiny arms stiff around her chest are like chicken wings because of Parkinson's Disease. They have not been able to hold those she loved for years. This was the pain I could not embrace. Her blue eyes did. And now they are closed.

My uncle Don, from out of town, walks into the room. We hug. I see my mother's face in his and do not hear a word he says.

Once home, I split open a ripe pomegranate. Red juice trickles over my hand and spills on to my lap as I eat the tart, succulent seeds.

Mothers. Daughters. Granddaughters. The myth of Demeter and Persephone lives through us.

✣ ✣

"This cannot be a coincidence, can it?" I ask my cousin Lynne, over the telephone. "Three women in one family unrelated by blood, all contract cancer within months of each other?"

"I have no idea, Terry. All I know is that my mother has breast cancer and her surgery is tomorrow."

"Is there a pattern here, Lynne, that we are not seeing?"

Lynne's voice breaks. "What I do know," she says, "is that I resent so much being asked of the women and so little being asked of the men." There is a long pause. "I'm scared, Terry. I'm scared for you and me."

"So am I. So am I."

✣ ✣

Something is wrong and I can't figure it out—the egg collection at the Museum of Natural History. On first appearance, these clutches of eggs arranged in a nest of cotton move me. The size range and color differentiation is stunning, from the pink and brown splotching of a peregrine falcon's eggs to the perfectly white, perfectly round eggs of a great horned owl. And the smaller birds' eggs are individual works of art, canvases on calcium spheres—some spotted, some striped.

But when I hold one of these eggs, there is no gravity in my hand. A weightless shell. Life has literally been blown out through a pinhole.

It dawns on me, eggs are not meant to be seen. This collection is a sacrilege, the exposed medicine bundles of a tribe. These eggs are the hidden wealth of a species, tenderly guarded beneath the warm, bare brood patch of a female bird.

Secrets were housed inside these shells, enough avian lives to repopulate a marsh, even Bear River. But we have sacrificed them in the name of biology to substantiate the obvious, that we know where each bird comes from. These hollow eggs are our stockpile of evidence.

On my way home, I drop by to visit Mimi. She is painting on her easel in the dining room. She rinses her brushes and we sit in her turquoise study.

"What's on your mind?" she asks.

"Tell me what eggs symbolize?"

She runs her hand through her short gray hair. "For me, it is where life originates. In mythic times, the Cosmic Egg was believed to be held within the pelvis of the ancient Bird Goddess. Why do you ask?"

I describe my encounter with the egg collection at the museum, how disturbing it was.

"The hollow eggs translated into hollow wombs. The earth is not well and neither are

First thing I hear:
Ravens (Old Grandfather)
sitka spruce, ancient cedar,
raven, duck, bald eagle.
I want to open myself to them all.
hear what they have to say.
Learning to speak with raven.
Learning to breathe with duck.

"we don't say anything bad about the animals"
that bear had put her in a trance.
the shaman saw their tracks, followed them.

snowy mountain slopes in sunlight
harbor under cloud
sea lions and gulls mark the passage of herring
Raven calls from a nearby tree.

Things are done to keep the balance.

—*Gary Lawless, from* Sitka Spring

(1991, by Gary Lawless with art by Li Ching; Blackberry Books, RR 1 Box 228, Nobleboro, ME 04555)

we. I saw the health of the planet as our own."

Mimi listened intently. She stood and turned sideways to switch on the lamp. It was dusk. I could not help but notice her distended belly, pregnant with tumor.

"It's all related," she said. "I feel certain."

✣ ✣

"The total number of snowy plovers counted around Great Salt Lake was 487, with 26 young in 11 broods," I tell Mimi as we drive out to Stansbury Island. "Biologists figure we may have two thousand breeding pairs in Utah." She wanted to get out of the house for a change of view. Her strength is holding in spite of the cancer.

We had just seen four snowy scurrying between clumps of pickleweed.

Just outside Grantsville, thousands of Wilson's phalaropes and eared grebes were feeding in the median ponds adjacent to the freeway. No doubt a migratory stop.

In recognition of Great Salt Lake's critical role as a migrational mirror reflecting ducks, geese, swans, and shorebirds down for food and rest, the Western Hemisphere Shorebird Reserve Network has identified the lake as a crucial link in the chain of primary migratory, breeding, and wintering sites along the great shorebird flyways that extend from the arctic to the southern tip of South America.

By becoming part of the network, Great Salt Lake could gain international support for local conservation efforts and wetlands management. It has been nominated by the Utah Division of Wildlife Resources, the US Fish and Wildlife Service, and Bureau of Land Management. And just recently, the Utah Division of Parks and Recreation, along with the Division of State Lands and Forestry, endorsed the nomination.

To qualify, a site must entertain in excess of 250,000 birds a year, or more than 30 percent of a species' flyway population.

Great Salt Lake qualifies. It hosts millions of birds in a season. Don Paul points out, however, that the lake qualifies on the basis of Wilson's phalaropes alone—flocks of 500,000 to 1,000,000 are not uncommon during July and August, when they are en route to South America.

The Western Hemisphere Shorebird Reserve Network has paired Great Salt Lake with Laguna Del Mar Chiquita, the salt lake in the Cordoba province of Argentina where the phalaropes winter. They are sister reserves.

"Think about one phalarope flying those distances," Mimi said, looking through her binoculars. "And then think about flocks of phalaropes, millions of individuals being driven on their collective journey. We go about our lives giving little thought, if any, to such miracles."

There is a chorus of wings navigating the planet. Twenty million shorebirds migrate through the United States each year to arctic breeding grounds in the spring and back to their wintering sites in South America. One bird may cover as many as fifteen thousand miles in a year.

Great Salt Lake is a refuge for these migrants. And there are certainly other strategic sites along the migratory path, essential to the health and well-being of those birds dependent upon wetlands. The Copper River Delta in northern Alaska, Canada's Bay of Fundy, Grays Harbor in Washington, the Cheyenne Bottoms of Kansas, and Delaware Bay in New Jersey are just a few of the oases that nurture hundreds of thousands of shorebirds.

Without these places of refuge, successful migrations will cease for millions of birds. None of these sites are secure. Conservation laws are only as strong as the people who support them. We look away and they are in danger of being overturned, compromised, and weakened.

Wetlands have a long history of being dredged, drained and filled, or regarded as wastelands on the periphery of our towns. Already in Utah, there are those who envision a saltfree Great Salt Lake. A proposal has been drafted for the Utah State Legislature to introduce the concept of "Lake Wasatch." The Lake Wasatch Coalition would impound freshwater flowing into Great Salt Lake from the Bear, Weber, Ogden, and Jordan Rivers and other tributaries, by means of more than eighteen miles of interisland dikes stretching through four counties between Interstate-80, Antelope Island, Fremont Island, and Promontory Point.

They see Lake Wasatch as fifty-two miles long and twelve and a half miles wide—three times the size of Lake Powell in southern Utah and northwest Arizona.

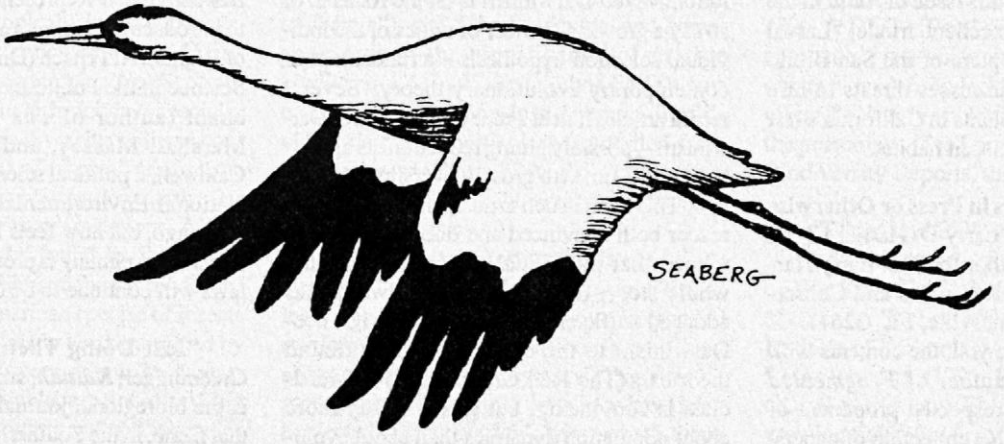
With 192 miles of shoreline, which unlike Lake Powell, is mostly under private ownership, there would be opportunities for unlimited lakeside development. Promoters already have plans for Antelope Island. They see it as an ideal site for a theme park with high-rise hotels and condominiums.

Lake Wasatch is a chamber of commerce dream. Finally, the Great Salt Lake would be worth something.

What about the birds?

Mimi turns to me, her legs outstretched on the sands of Half-Moon Bay.

"How do you place a value on inspiration? How do you quantify the wildness of birds, when for the most part, they lead secret and anonymous lives?"



NOTEWORTHY ARTICLES

A Look at Conservation Literature

by John Davis

"Dense Colonies of the South Texas Tree Snail (*Rabdotus alternatus*): An Endangered Phenomenon?" by Raymond Neck; ***Atala: The Journal of Invertebrate Conservation***, vol.16 (1-2) 1990. Unfortunately, speaking for the spineless is not a favored avocation of most conservationists. Fortunately, the Xerces Society (10 SW Ash St, Portland, OR 97204), through its picture-filled magazine *Wings* and its more scientific *Atala*, is providing the means whereby conservationists can expand their constituency to include insects, mollusks, arachnids, and others of the downtrodden masses. (As Xerces reminds us, "invertebrates account for 90% of the animal biomass of our planet and 95% of all animal species.")

This snail article is typical of the sophisticated conservation spin in *Atala* articles. We hear incessantly about endangered species; we hear increasingly about endangered ecosystems; but we seldom hear about endangered *phenomena*. Neck suggests we recognize the imperilment of biological phenomena too: The South Texas Tree Snail survives in appreciable numbers, yet dense colonies of this winsome gastropod are now almost non-existent, due to agriculture and other types of habitat destruction. While perusing this issue of *Atala* in the library, see also the excellent article, "Larval Hosts of Microlepidoptera of the San Bruno Mountains," which discusses threats to rare moths and their host plants in California's last relatively intact Franciscan habitat.

"Selected Papers in Press or Otherwise Hard to Access," by Larry D. Harris, 12-90; available from the author for $10: Larry Harris, School of Forest Resources and Conservation, U of FL, Gainesville, FL 32611. If the title doesn't excite you, the contents will. Larry Harris is the author of *Fragmented Forest* and a widely respected proponent of habitat corridors. In this collection of papers, Harris pays special attention to the plight of Florida's large mammals (of 11 historically present, only 2 are still secure), how an interconnected system of faunal dispersal corridors could ameliorate this dire situation, and how corridors are being used elsewhere. The lessons are of great import for all conservationists. See especially "Between the Devil and the Deep Blue Sea: Implications of Climate Change for Florida's Flora and Fauna" (we're already losing the Everglades), "The Role of the Endangered Species Act in the Conservation of Biological Diversity" (the ESA is necessary but not sufficient; diversity at the species level is of no greater intrinsic value than at other levels on the natural hierarchy, from genes to biomes), "Forest Fragmentation and the Conservation of Biological Diversity" (Florida has a deforestation rate even higher than Brazil's), and "The Nature of Cumulative Impacts on Biotic Diversity of Vertebrates in Wetlands" (waterfowl populations have declined due to ingestion of lead shot, harvesting by shooters, and habitat loss; but the relative contribution of each factor is unknown).

"Ecology Denies Neo-Darwinism," by V.C. Wynne Edwards; ***The Ecologist*** (55 Hayward St, Cambridge, MA 02142), 6-91. "Much evidence exists to show that group selection is a second and more powerful form of natural selection than the individual selection held by neo-Darwinists to be the motor of evolution." Neo-Darwinism is on the rocks ... or so say a growing number of critics of the individual selection hypothesis—a fundament of contemporary evolutionary theory. Several recent articles hint at a renewed fight over Darwinism—possibly pitting reductionists against holists this time (to grossly oversimplify).

This is one such article, and it leaves the reader both convinced and dissatisfied: convinced that individual selection is not the whole story; dissatisfied that Edwards has adduced sufficient evidence to consign neo-Darwinism to the dung heap of moribund theories. (The Red Grouse study Edwards cites is convincing, but seems to say more about population dynamics than about evolutionary theory; and leaves one wondering: If species regulate their numbers in accordance with ecological needs, what went wrong with *Homo sapiens*?) Still, one can fairly wonder whether biologists will soon begin to describe natural selection as a scalar process—a fractal phenomenon even—acting on many levels and time frames, with selected individuals sandwiched somewhere between selfish genes and a self-regulating planet.

After finishing the above *Ecologist* article, see in the same issue Sandy Irvine's insightful letter critiquing the *power to the people* theme of this provocative British periodical.

"An Environmental Amendment to the Constitution," by Lynton K. Caldwell; ***Environmental Amendment Circular #4***, 6-91. The Comprehensive Environmental Amendment Project (4353 E 119th Way, Thornton, CO 80233-1738), through its *Circulars*, is generating discussion on the idea of an environmental amendment to the US Constitution. (See Marshall Massey's and Cindy Hill's letters in this issue of *Wild Earth*.) Among those encouraging the discussion are Kids Against Pollution (an environmental organization founded by 5th-graders in New Jersey, which has convinced Representative Frank Pallone to introduce in Congress an Environmental Bill of Rights), Al Fritsch (Director, Appalachia—Science in the Public Interest), Carolyn Merchant (author of *The Death of Nature*), Marshall Massey, and Lynton Caldwell. Caldwell, a political scientist, co-authored the National Environmental Policy Act twenty years ago, but now feels that until a Constitutional underpinning is provided, environmental laws will continue to be flouted.

"Just Doing Their Job," by Emmett Greendigger; ***Katuah***, summer 1991. *Katuah* is the bioregional journal for the province of that name, in the Southern Appalachians ($10/yr; POB 638, Leicester, NC 28748). Just doing their job got botanist Karin Heiman and

naturalist Chuck Roe fired from the Nantahala-Pisgah National Forests and the North Carolina Natural Heritage Program, respectively (but not respectfully). The Forest Service apparently feared that Heiman's rare plant surveys would interfere with timber sales, so they fired her. Chuck Roe defended Heiman in a letter to the FS, whereupon Forest Supervisor Bjorn Dahl wrote Roe's boss, the Director of the NC Division of Parks & Recreation. Said Director promptly fired Roe. Chew gum while reading this article, for you'll be gnashing your teeth all the while.

"The US National Park Service Experience With Exotic Species," by F. Eugene Hester; ***Natural Areas Journal***, 7-91. National Park managers, in a recent survey, rated invasion by exotics as an even more serious threat to Parks than poaching and overcrowding. Parks in all ten NPS regions are affected.

This issue of *Natural Areas Journal* is devoted to exotics, and the news is grim. Exotics are running amok throughout the country, and the methods of control practiced by many resource managers—especially herbicide spraying and biocontrol—may further disrupt ecological integrity. Biocontrol sometimes entails introducing several exotic insect species to reduce one invading plant. Regrettably, resource managers seem disinclined to attempt manual removal of invaders, as a benign alternative to employing chemicals or phytophagous organisms. Looking at a field overrun by Russian Thistles, though, it is easy to understand this disinclination.

"Science Times," ***New York Times***, 7-2-91. Every Tuesday, the *NYT* has a whole section devoted to science, the "Science Times," which includes articles on ecological issues. The *NYT* science editors simplify and summarize articles from numerous high-powered journals, such as *Nature* and *Science*. The July 2 issue has an unusual concentration of ecologically important news.

Article highlights include these: 1) Entomologists are finding temperate old-growth forests to be so rich in arthropods (especially mites) that the species diversity of these cool forests may rival that of tropical rainforests. (The studies, which are being done in the Pacific Northwest, raise many questions. Might not similar richness be found in old-growth remnants in the Smokies and the Adirondacks? How many North American species of insects and arachnids have already been extirpated by logging?) 2) In most poor countries, contraceptives, even if available, are not affordable for the masses; yet overseas "aid" agencies want to privatize contraceptive distribution services, which would put birth control farther out of reach of the poor. 3) Japan is about to dam one of its last two free-flowing rivers, the Nagara, at the expense of the archipelago's indigenous anadromous fish species, the Satsukimasu Trout. (***Animals' Agenda*** suggests protesting to Toshiki Kaifu, Prime Minister of Japan, 2-3-1 Nagata-cho, Chiyoda-ku, Tokyo 100, JAPAN.) 4) Peru plans to allow Texaco to begin oil development in the country's largest Amazon preserve, but environmentalists are contesting the plans. 5) Recent studies of coral reefs off Indonesia indicate that sea levels were 5-6 feet higher before the last ice age.

"Audubon Presses US to Reverse Population Policy," by Steve Cusick; ***Audubon Activist*** (950 Third Ave, NYC 10022), 7-8/91. This article tells of the grim news from the latest United Nations population report: The population is now projected to double 25 years sooner than was earlier thought—to 10.2 billion by 2050. National Audubon Society is lobbying congresspersons to support legislation to reverse the "Mexico City policy" adopted under Reagan (as HR 1179 would do), to increase US allocations to international family planning programs (as HR 1110 would do), and to renew funding for the UN Population Fund. Audubon suggests asking representatives to cosponsor HR 1179 and 1110.

"Marine Biological Diversity," by G. Carleton Ray et. al.; ***BioScience***, 7-8/91. This issue of *BioScience*, devoted mostly to marine biodiversity, has many important articles. Particularly worth reading are "Marine Biological Diversity" ("A scientific program to help conserve marine biological diversity is urgently needed"), "Deep-Sea Benthic Biodiversity" ("The ocean bottom supports communities that may be as diverse as those of any habitat on Earth"), "Marine Functional Diversity" ("Ocean and land ecosystems may have different time scales for their responses to change"), and "Sharks, squids, and horseshoe crabs—the significance of marine biodiversity." (In this last, Sylvia Earle warns us that we may soon lose some of Earth's oldest denizens; particularly imperiled from among the taxa that predate the dinosaurs are the 4 species of horseshoe crabs and many of the 300 shark species.)

If you've been tormented lately by the question, "why do biologists presume that at least one-half of all species live in tropical rainforests even though we know nary a thing about some marine ecosystems?" agonize no more. The answer is that the oceans have been neglected: Scientists don't know what's there. Recent studies suggest that the planet's benthic communities, long considered depauperate, may have at least 10^7 species. Unfortunately, conservationists are slow to defend the sediment-dwellers of the ocean floor. The number of people willing to put their lives on the line for polychaete worms and peracarid crustaceans probably does not exceed 10^3 (and may be orders of magnitude smaller). Marine ecosystems harbor 28 phyla, 13 of them endemic; whereas our preferred alternative, terrestrial ecosystems, have 11 phyla, only 1 of them endemic. Just because we can't pronounce them, doesn't mean we shouldn't defend them (from ocean dumping, oil drilling, mining, etc.).

While you're perusing this weighty number of *BioScience*, see also "New focus on wildlife health." "Tracking and controlling disease in the wild may be important to conservation efforts," because anthropogenic factors are making many species susceptible to epidemics.

"Poisoned Ponds," by Linda Laing; ***Adirondack Life*** (POB 97, Jay, NY 12941), 8-91. "Why is New York State hooked on reclamation?" In an article duly critical of sportsmen—uncharacteristically for this staid periodical—Laing says the answer in part is because fishermen have money and power. Fishermen want to catch big trout—usually exotics, since the native Brook Trout can no longer compete with the "trash" fish (perch, suckers, etc.) that the fishermen introduced (inadvertently, as bait)—so the New York Department of Environmental Conservation poisons ponds and streams in the Adirondacks, then releases hatchery trout. The poison, rotenone, kills almost all gill-breathing organisms. Laing and *Adirondack Life* deserve much credit for publishing this fine article. Some Adirondack sportsmen and officials are true thugs (as Jamie Sayen and Jeff Elliott of PAW learned last year when assaulted for protesting pond poisoning), and very few people stand up to them. See also the responses to Laing's article in the subsequent issue of *Adirondack Life*. A DEC official gave the standard pro-sportsmen, pro-poisoning view. In pleasant contrast, an Adirondack Park Agency official offered a deeply ecological argument against the poisoning. (See Larry Maxwell's article in Biodiversity Reports, this issue.)

"Ethics and Philosophy of the Environment: A Brief Review of the Major Literature," by Eric Katz; ***Environmental History Review*** (Center for Technology Studies, New Jersey Institute of Technology, Newark, NJ 07102; $24/yr); summer 1991. Some defenders of the natural world have little time to explore the growing field(s?) of environmental ethics and eco-philosophy. Environmental ethics and

continued next page

environmental defense are not always closely tied. The guest editor of this issue of the scholarly journal *Environmental History Review* does both scholars and activists a service here by offering a short but far-reaching summary of recent thought in environmental ethics. It is clear therefrom that a fundamental—perhaps *the* fundamental—division in environmental ethics today is between biocentrism and anthropocentrism, deep ecology and reform environmentalism.

Some activists scoff at ethicists, given the turgid lexicon the latter are wont to employ (replete with terms like 'instrumental value', 'environmental holism', 'transformative value', 'moral casuistry', and others seldom used by loggers). Granted, abstract concepts such as intrinsic value, moral duty, and ethical responsibility are mere human constructs. Penultimately, though, can we rein in our rampaging race without resorting to some rather contrived concepts by which we guide our behavior? That is, to reemerge from this very unnatural state in which we have put ourselves and most of the planet, will we not need a solid and well-planned ethical grounding?

"The Ecology of Magic," by David Abram; ***Orion***, summer 1991. Here is a provocative discussion of magic, animal intelligence, animism, and the failure of modern Western culture to acknowledge the importance of these. David Abram traveled in Nepal and Bali (Indonesia), studying with shamans and villagers, and learning lessons forgotten in industrial civilization regarding the relations between indigenous peoples and the natural world, and the importance of shamans in mediating these relations. Abram skillfully explains how shamans link the human and more-than-human communities.

See also Elizabeth Marshall Thomas's editorial, "A Manner of Speaking," in the same issue. Thomas says that writers and editors have abandoned personal and emotional terminology for animals, in favor of the antiseptic jargon of modern science. This is a problem, for it is difficult to arouse concern among people when, for example, animals no longer die but instead "experience mortality."

Writers need to bring animals back to life in the literature, and this issue of ***Orion*** will help. David Ehrenfeld's column, "Raritan Letter," in this issue is also important. Rights, Ehrenfeld shows, are a necessary but not sufficient part of environmental ethics.

"Recognizing Primary Cultures as Independent Nations and Creating a Framework for Them," by Alan Wittbecker; ***Pan Ecology***, summer 1991 ($12/yr; POB 566, Cambridge, MA 02238). *Pan Ecology* is not the definitive work on the microflora and fauna of unwashed cookware. That has not yet been written. Rather, *Pan Ecology* is "An Irregular Journal of Nature and Human Nature." Wittbecker's lengthy essay skillfully initiates a proposal for world-wide political decentralization into indigenous nations (of which 15,000 remain, comprising 500 million people), balanced by a central authority, akin to the United Nations, preventing international transgressions against Nature.

"Dirty Word, Clean Place," by David Quammen; ***Outside***, 8-91. David Quammen's column "Natural Acts" is *Outside's* outstanding landmark, and this one is especially significant. Quammen here explains that 'environment' and 'environmentalism' are inadequate, value-laden terms encouraging our separation from Nature. Quammen favors 'nature', 'biosphere', 'conservation' and other terms not tainted by dualism and anthropocentrism.

"Unenchanted Evening," by Stephen Jay Gould, and "World of the Living Dead," by Jared Diamond; ***Natural History***, 9-91. Two exceptionally insightful natural history writers, Stephen Jay Gould and Jared Diamond, have regular columns in *Natural History*: "This View of Life" and "Nature's Infinite Book," respectively. This issue, they both take a dim view of anthropogenic extinction.

Gould tells the sad story of extinctions of land snails on tropical islands following human introduction of exotic species. Tragically, in some cases, multiple species of endemic land snails have been eradicated by an exotic snail species introduced to eliminate another exotic snail species that had run amok after being introduced for culinary reasons.

Diamond answers the growing number of economists and shrinking number of scientists who contest the claims of conservation biologists about the present extinction crisis. Diamond says the failure of critics to perceive the crisis has to do with the *relative* security of popular (bird and mammal) species where most of the lists are kept, Europe and North America. It also has to do with the paucity of data on most groups of organisms in the tropical rainforests, where live most of the species being lost.

The whole enchilada; ***Conservation Biology***, 9-91. The latest issue of *Conservation Biology* has so much of importance for conservationists that it's best just to recommend you read the whole thing. If your library isn't receiving *CB*, tell the head librarian that any library worth its weight in pulp subcribes to this quarterly. (To join the Society for Conservation Biology and receive the magazine yourself, send $39.50 to Conservation Biology, Blackwell Scientific Publications, Three Cambridge Center, Suite 208, Cambridge, MA 02142.) Read with especial care "Biological Diversity, Agriculture, and the Liberal Arts," by David Orr (putting agriculture schools back into liberal arts programs would help reverse our society's growing ecological ignorance); "Six Biological Reasons Why the Endangered Species Act Doesn't Work—And What to Do About It," by Daniel Rohlf (monitoring of EISs and EAs by scientists could help remedy some of the failures); "Japanese Perceptions of Wildlife," by Stephen Kellert (the Japanese public is even less ecologically informed and concerned than the US public); "Effects of Supportive Breeding on the Genetically Effective Population Size," by Nils Ryman and Linda Laikre (captive breeding/augmentation programs can *decrease* genetic diversity); "How Many Species Are There? Revisited," by Terry Erwin (perhaps scores of millions, a disproportionate number of them in Amazon tree canopies); book review of *The Expendable Future: US Policy and the Protection of Biological Diversity*; book review of *Australian Ecosystems in Crisis*; and the first 6 articles in the special section on the Greater Yellowstone Ecosystem.

Librarian's note: If the articles listed above are not available in your local library, ask the library staff to obtain through interlibrary loan those that interest you. Give the librarian the bibliographic details about each article, plus the source of your information, WILD EARTH, vol. x, no. x, p. x. You will probably receive a photocopy of the article rather than a complete magazine, which would have to be returned.

Interlibrary loan service was once normally free of charge. Because of budget problems, some libraries now seek reimbursement for expenses. The quality of service varies greatly from state to state. In some states academic libraries do a far better job than public libraries. If a public library cannot obtain an article you are seeking, try a college or university library, if necessary through a friend associated with the institution.

ANNOUNCEMENTS

BIOLOGICAL POLLUTION SYMPOSIUM

A symposium on invasive exotic species, sponsored by the Indiana Academy of Science, will be held 25-26 October 1991 at the IUPUI University Place Conference Center in Indianapolis, Indiana. Biologists will discuss the impact and control of invasive exotic species. The conference will deal with both aquatic and terrestrial systems. For registration information, contact Bill McKnight, Indiana State Museum Society, 202 N Alabama, Indianapolis, IN 46204; 317-232-8178.

OVERGRAZING SLIDE SHOW

"The Eating of the West" graphically displays the devastation of Western public lands at the hands (and hooves) of the livestock industry. The show consists of over 100 slides from National Forests, National Wildlife Refuges, and BLM lands which portray the shocking magnitude of the problems caused by grazing. The slide show comes with a written script and is rented at cost, $10. Free copies of a 48-page tabloid on grazing are also available. Orders should include the name and phone number of a contact person, the date the show is needed (as well as alternates), and a street address for UPS delivery. Order from Ranching Task Force, POB 41652, Tucson, AZ 85717.

LEGAL SERVICES NEEDED

The Biodiversity Legal Foundation needs the services of pro bono attorneys for the defense of rare and endangered species, communities of species, and ecosystems in Wyoming, Montana, Utah, Nevada, New Mexico, Vermont, Tennessee, North Carolina, and Georgia. Work involves the integration of legal pleadings with sound biological data, and support for local grassroots activists. If you are an attorney interested in taking a visionary, cutting-edge approach to the defense of the elements of natural diversity, please write, The Biodiversity Legal Foundation, Attn: Jasper Carlton, POB 18327, Boulder, CO, 80308-8327.

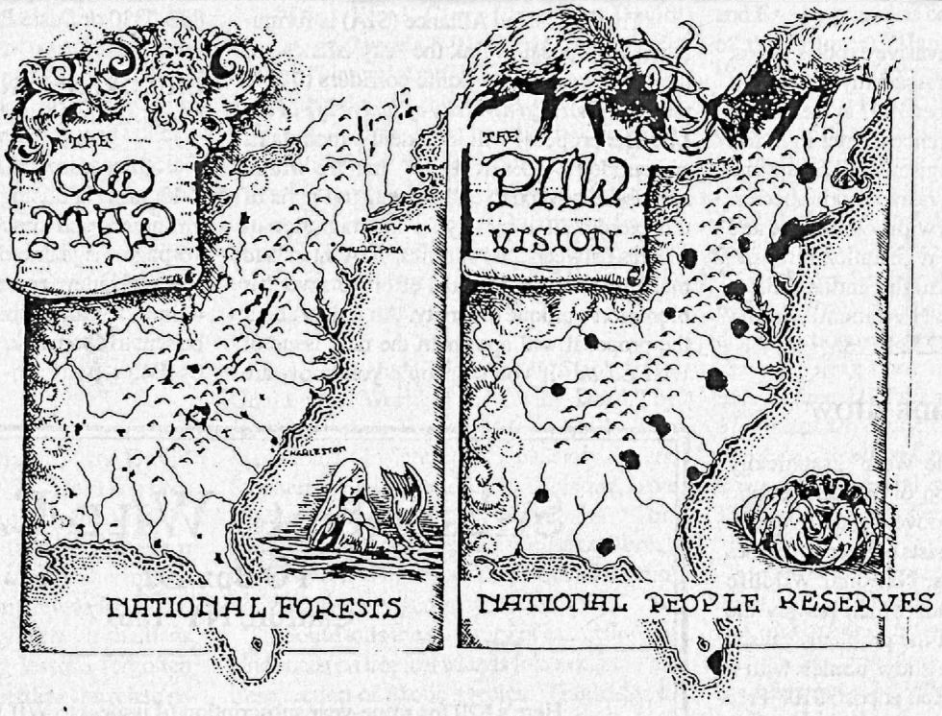
SKY ISLAND ALLIANCE

The Sky Island Alliance (SIA) is formulating a proposal to link the "sky islands" of the Southwest with wildlife corridors to help protect the ***richest diversity of native life in the US***. The proposal will include the mountains surrounded by desert "seas" that are within neighboring Mexico and are integral parts of this bioregion, necessary for the migration of species between the countries. SIA intends to make this an international effort to save this bioregion's unique diversity. An article about the proposal will appear in the next issue of *Wild Earth*. If you or people you know are working on sky island ecology, or are interested in doing so, please contact Paul Hirt 602-882-0830 or Susie Brandes 602-323-0547.

CHILDREN'S ENVIRONMENTAL MAGAZINE

Otterwise, a magazine for children ages 8-13, aims at raising awareness about the environment and concern for all animals. The 16-page magazine contains articles, puzzles, readers' letters and artwork, and is published 4 times a year. Subscriptions are $8 and may be sent to *Otterwise*. POB 1374, Portland, ME 04104.

Wild Earth
P.O. Box 492
Canton, NY 13617



Tired of environmental groups treating Eastern North America like a sacrifice zone?

Preserve Appalachian Wilderness is a network of Conservation Biologists, Lawyers, Writers, Artists, and other Activists using all the tools available to reclaim, preserve, and restore Eastern America's habitat and biodiversity.

PAW has member groups throughout the Appalachian Mountain range, following the tracks of the eastern mountain lion from Canada to Florida, from the waters of the Mississippi to the estuaries and bays of the Atlantic Ocean.

PAW brings eastern biocentric activists in contact with each other and trains them to be effective in their areas. We provide detailed instructions on grassroots activism, distribute information, and offer consultations on actions, appeals, lawsuits, and legislation. We provide activists with information on legal precedents, pertinent articles, and other available information. We bring them in contact with experts who have experience with the issues they are addressing.

PAW publishes a quarterly journal providing information and ammunition for **PAW** activists and detailing their work, as well as numerous regional newsletters. To receive the **PAW Journal** send $25 (sliding scale) to **PAW**. PAW needs your help!

PRESERVE APPALACHIAN WILDERNESS

81 Middle Street, Lancaster, New Hampshire 03584