

Editorial

Karen Lyman

This journal is the last in our series celebrating Women in Natural Resources' 15 years of publication. Fifteen years ago is a long time and when I was asked to recount some of my early field work, I naturally thought first of my job right after college with a big timber company paying a good salary. But that job was made in hell and fortunately my memories are mercifully fuzzy. So I want to go further back to my earliest summer field work—which closely resembled *Laurel and Hardy Work in the Woods*. This I remember like it was yesterday.

I was thrilled with this first field job. I liked my boss and the work honestly seemed interesting too. It could have been perfect except for one tiny problem. I had no idea what I was doing in amongst actual trees. And my crew partner knew about as much as I did. Which added up to a grand total of Zip.

We were in trouble from the git-go. Neither of us knew anything about camping—a vital part of this job. We had to be trained slowly and carefully, like a couple of not-too-smart dogs, to put up our tent, take down our tent. Chop the firewood. Start a fire. Cook our dinner. Unroll our sleeping bags. Get in, close our eyes and don't think about bears. Don't think about strange men with axes wandering through your campsite. We were creative worriers if nothing else.

On our first day of work, during which we enjoyed mild typhoon-like weather (which would later prove to be downright accommodating compared to the rest of the summer) I managed to acquire a tick in a most sensitive spot. And in my attempt to convince the tick to vacate using the time-honored method of applying a hot match to the insect, I nearly set my privates ablaze. As my life passed before my eyes, I had an unpleasant vision of myself in the emergency room trying to explain this to a doctor. Thank heavens I was too wet to make very good kindling.

Having warmed up with this first accident, I proved to be a world-class klutz. On the first night of our first week-long trip, I overdid the back swing with a polaski (it was heavier than I thought) and nearly severed my spine. But I didn't dare say anything to anyone—it was way too embarrassing. So I limped along for the rest of the week cursing myself for having forgotten the Tylenol. Who knew it would be so easy to screw up?

That was also the summer I fractured several bones in my foot in an unfortunate accident. (Remember disco? Platform shoes?) But since I wouldn't have missed work for my own funeral I scissored up a tennis shoe to fit over my swollen appendage. My partner who frequented the local Army/Navy Surplus store for her field fashions was also a finely dressed specimen and I'm sure our superiors were congratulating themselves on having selected two such well-togged representatives for the U.S. government.

Strangely enough I ended up in the emergency room only once, when I made an impromptu zipper on my thumb with an exacto blade. We didn't take so much as the afternoon off. You could have called us a lot of things and been right, but you couldn't ever call us quitters.

That summer we racked up an amazing list of oddball occurrences. There was the time the creek flooded and washed our tent away (complete with sleeping bags and food). I was more than happy to sleep in a motel that night but being bagless and tentless was a problem. We did recover the whole mess later that week, mostly because our belongings were conspicuously clogging up the creek and we were afraid the Corps of Engineers would be called out to investigate.

We lost gas caps at service stations, compasses in the jungle, hard-hats in slash piles and borers we conveniently left in trees. We wrote with disappearing ink and learned that it is possible to outrun mosquitoes but not deer flies. We figured out how to get completely dressed in a mummy bag and get through a whole day on three squares of toilet paper.

It didn't help that we were trying to learn all this stuff during the wettest summer on record. Although we wore them every day, it rained so much that our boots moulded—this is absolutely true. I learned that there is practically no way to avoid getting wet when it's raining. Rain gear doesn't help all that much due to the secret sauna effect. As I climbed brush-infested hill after brush-infested hill in the pouring rain, I kept thinking of those rubber-girdle devices sold in the backs of women's magazine that promise to reduce your thighs by three inches while you vacuum your living room. If there were any truth to this theory I would have been a shadow of my former self.

However, to offset any health benefits, I learned to eat for recreation. My day revolved around food. Thinking of breakfast was the only way I could force myself out of my sleeping bag. Lunch was the main reason for starting work. And dinner, oh how I loved dinner. Evenings at our campsite would be feasts where we ate in courses, hunched over our plates lest the insects walk away with a crumb, savoring the delicate flavors of butane, wood chips, and ash.

But you know, I learned a lot on that job. Later, I realized that the hardships I'd thought were unendurable were actually pretty minor and that I really enjoyed this kind of work. Now as a seasoned veteran of many a spike camp, I have advice for young women just starting their first jobs, especially for those who choose field work. Stuff like, Buy the best boots and rain gear you can afford. Never drink water downstream from a beaver dam. Don't ever let your subscription to WiNR expire.

But the most important thing is to remember that when you are ready to perform your first tick surgery...extinguish the match.

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WOMEN IN NATURAL RESOURCES

June 1994

Volume 15, Number 4



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FEATURES

4

Rangeland Reform 1994

Jody Weil

Secretary Bruce Babbitt said that "our rangelands are in great need of improvement and many ranchers across the west have proven they are up to the task."

6

The Big Circle

Winifred Kessler

The evolution of range ecology practices and policy takes us back to our rangeland ecosystem roots.

8

Fighting Sex Discrimination in Hiring by the Federal Government

A. Joy Belsky

Have you ever thought of bringing suit for discrimination? This author went beyond "Thinking" and followed through.

This is a powerful story, with lessons for both women and men.

14

Why It Is Not Enough: Structural Change—Beyond Bureaucracy Part 2

Susan Odell

There is nothing more difficult [than] to take...the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.

(Machiavelli 1469-1527)

23

Environmental Education: A Teacher's Perspective

Deborah Simmons

What did teachers tell this researcher that they needed—or wanted—before they would be comfortable taking students to natural areas?

The answers may surprise you.

DEPARTMENTS

Inside front cover

Editorial: *Karen Lyman*

2

Letters & Opinions

21

Books Reviewed by

Jonne Hower

36

Research in Progress

Jessie A. Micales

38

Query

Ellen M. O'Donnell

39

People

45

News & Notes

49

Kiosk

Information for subscribers, advertisers, and contributors, p 48.

T-Shirt coupon is on page 33.

The cover photo

is of

Mollie Beattie

Director,

Fish and Wildlife Service

U.S. Department of Interior

Photos courtesy USF&WS

Walter Stieglitz, and

Tami Heilemann

FEATURES

28

Interview with Mollie Beattie

Daina Dravnieks Apple

Mollie Beattie is the new Director of the Department of Interior's Fish and Wildlife Service.

34

State Parks' Impact on

Alabama's Economy

Gary Leach

Nelda Claybrook

What Alabama industry provides almost 2,000 jobs and generates more than \$87 million in multiplier revenues a year—yet doesn't have enough money to repair its facilities?

40

The EIS Process in South America

Sylvia Hormazabal

Sheila Fay Helgath

These authors worked on environmental impact evaluations in South America. They note the problems—and similarities to U.S. procedures.

43

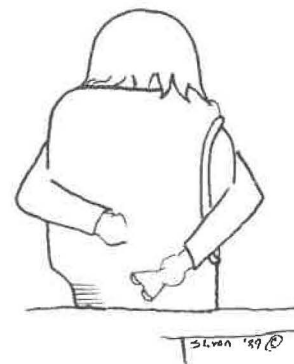
Women in Natural Resources Survey:

Part Three

Kathleen A. Griffin

Dixie L. Ehrenreich

More information from the informal women in Natural Resources Survey gives us a snapshot of how natural resources professionals are doing. The focus this time is on *harassment*.



Don't die on me, good and faithful servant!

I found the journal very interesting. Congratulations for the fine work. I receive the journal through our library at World Resources Institute where I work on sustainable agriculture and gender issues in Latin America.

Lori Ann Thrupp, Washington DC

Perhaps there is a reason that more women are not becoming hunters and anglers. The trends for men are definitely going down, so perhaps Christine Thomas and Tammy Peterson (Becoming an Outdoors-Woman, Vol. 15, No. 3) are really spitting in the wind trying to encourage women into a declining recreation. Nonetheless, women should be given the opportunities which haven't been very appealing to them previously, to make the decision on whether or not to take up these activities.

Aileen Knowles Brown, Reno, Nevada

Your thoughtful article (Vol. 15 No 3) on African American professionals by Drs. Diann Jordan and Jane Ford-Logan was followed by a similar—but more general—one in *The Chronicle of Higher Education* (June 15, 1994) by Alison Bernstein and Jacklyn Cock.

The Chronicle's figures also showed that black women are not benefitting from affirmative action at universities in the same way that white women are. Bernstein and Cock urge women to downplay the harassment issues and focus squarely on the equity issues for all women who are employed at any institution—and this includes the cafeteria working women—not just faculty or students. Jordan and Ford-Logan are to be commended for inquiring why African American women are not getting support and career enhancement ideas from their own friends, family, black males, and white women

colleagues—in addition to white males.

Adonea Washington, Austin, Texas

How many jobs have been lost in the federal government—especially in natural resources agencies—during the current downsizing? Does someone have that information?

Claude Menteer, Des Plaines, Illinois

Women in Natural Resources is preparing a focus issue on women professionals who work for the USDA Soil

Conservation Service.

If you have a paper in progress—or in mind—call the Editor at 208-885-6754, or fax a draft to 208-885-5878 for consideration.

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Model

Mary Mackey, Sacramento State University

Imagine yourself in a world where almost all the books you ever read are written by women. In these books the main characters are women—strong women who have adventures, look for the meaning of life, think about their own inner souls and the destiny of womankind. Men, in contrast, are pale little creatures who serve as a kind of fictional wallpaper for the women.

Imagine also that all the art you see has been painted by women, that as you stroll through a museum on a Sunday afternoon you see row after row of naked men hanging on the wall, their bodies reduced to objects of aesthetic contemplation. Imagine, in addition, that when you listen to music you are listening to the work of women composers, that the pieces are played by women, directed by women.

When you open your books, you see that out of several hundred writers only 10 or so are male. Your professors, (almost all women), tell you that this is because men have never produced any work of value, that they are only capable of using their emotions, not their minds.

If you had grown up in this world, you would have felt your own superiority very early. You would have had no trouble imagining what you were going to do

Excerpt from Women in Forestry July 1980 Volume 2, No. 2

when you grew up. Why you could be like the characters you had read about and seen—strong women who were able to get things done. You would have had thousands of models to choose from.

But how can a young woman really imagine herself growing up to be Robin Hood, or Stephen Dedalus, or Hamlet? And who in her right mind wants to be a Maid Marion, or Little Dorrit, or Ophelia—the bland, the simpering, and the dead? Remember how much fun it was to read *Jane Eyre* until Jane gave up her career to get married? Remember how Jane Austen's characters spent most of their time trying to trap a suitable man?

Women need models to grow up on... But models in our society are women who haunt magazines and fashion shows, showing other women how to dress, how to stand, how to become perfect glossy objects. Now we need new kinds of models. Models for our minds.

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Editor:
Dr. William R. Jordan III

Published: 2 / yr.
ISSN: 0733-0707

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SECRETARY BRUCE BABBITT SAID: *THE SIMPLE FACT IS THAT OUR RANGELANDS ARE IN GREAT NEED OF IMPROVEMENT, AND MANY RANCHERS ACROSS THE WEST HAVE PROVEN THEY ARE UP TO THE TASK.*

RANGELAND REFORM 1994

JODY WEIL

Rangelands help shape the character of the American West. They provide habitat for wildlife and natural resources for the economic and spiritual well-being of people and communities. They are relied upon for traditional uses such as livestock grazing and for meeting the growing demands for recreation and tourism.

Rangeland Reform '94 is a proposal to change the way BLM and the Forest Service manage 270 million acres of federal rangeland. The agencies are coordinating efforts to address some long-standing rangeland management problems.

The ecological condition of rangelands has been debated for at least the past decade. The Secretaries of the Interior and Agriculture recognize that management changes since the 1930s have brought improvements, but there is still much progress to be made. Interior Secretary Bruce Babbitt said, "the simple fact is that our rangelands are in great need of improvement, and many ranchers across the West have proven they are up to the task."

The purpose of Rangeland Reform '94 is to make the BLM's rangeland management program more consistent with ecosystem management, to accelerate restoration and improvement of the public rangelands, to give the public fair

and reasonable compensation for the grazing of livestock on public lands, and to streamline certain administrative functions.

The proposed changes in rangeland policies and regulations are being evaluated and implemented through the Rangeland Reform '94 Draft Environmental Impact Statement (EIS) and separate BLM and Forest Service rulemakings. The rulemakings are separate because the agencies operate under different regulatory authorities. The Final Environmental Impact Statement, Record of Decision and the Final Rules are expected to be signed in December 1994.

The proposed management changes addressed in Rangeland Reform '94 can be categorized as: (1) the Federal grazing fee and associated incentives, (2) effective public participation in rangeland management, (3) administrative practices, (4) range improvements and water rights and (5) standards and guidelines.

Grazing fee

The proposal calls for a BLM and Forest Service fee increase phased in over three years. Fees, currently set at \$1.98 per animal unit month (AUM), would climb to \$2.75 in 1995, \$3.50 in 1996 and \$3.96 in 1997. An AUM is the amount of forage needed for a cow and her calf per month. As of 1997, a new formula would be in place to determine the fee each year. The proposed fee formula would address the failure of

the existing formula to adequately reflect private grazing land market conditions by including a base value that considers the cost differences of operating on public lands compared to private leases.

Babbitt has also proposed a fee discount of 30 percent for ranchers who meet higher environmental standards. Ranchers meeting the higher environmental standards would have a rate of only \$2.77 in 1997. Details of the requirements for the incentive and qualifying environmental standards are still being worked out. They will be addressed in a separate regulation change.

Public participation in range management

The American rangelands can be — and are — used for far more than grazing. Hiking, bird watching, fishing, hunting and mountain biking are among the activities that are compatible with sound grazing practices. To represent all of these interests, the Rangeland Reform '94 proposal involves citizens with a variety of backgrounds in making recommendations. The proposal is to establish 15-member Multiple Resource Advisory Councils for each BLM District. One third of the membership will represent commodity industries active in the local area, one third will represent environmental and conservation groups, and one third will represent other public land users, state and local officials, and members of the public. The coun-

cils will address all BLM related issues including hiking, bird watching, fishing, hunting, mining and grazing. Their role is to give advice to the District managers on these issues.

"Those closest to the land — those who live on the land — are in the best position to care for it," said Babbitt. "That's why we're doing everything we can to draw the public into the process and allow for greater public input."

The Forest Service has not proposed Multiple Resource Advisory Councils.

Administrative practices

Changes in administrative practices include new regulations for disqualifying grazing permittees and leases, an expedited procedure for the review of administrative appeals and implementing decisions, a surcharge for the authorized leasing or subleasing of grazing preference associated with base property or pasturing livestock owned by other than the permittee or lessee, and unauthorized use.

-Disqualification - BLM would not issue new or additional permits to an applicant whose federal grazing permit has been canceled during the prior three years due to violations of terms and conditions of the permit.

-Full Force and Effect - Current BLM regulations allow actions taken by land managers under the

grazing program to be delayed for years by appeals. Under the new proposal, permittees will have 30 days to appeal action taken by BLM land managers and to request a stay. There will be a 45-day period to review a petition for stay. When a petition for stay of a decision has been filed and the request for stay is denied, implementation of the decision could be delayed up to 75 days. In the event a stay of the decision is granted, the decision would be stayed until determination of the appeal is made.

-Leasing and Subleasing - BLM would collect surcharges for leases and agreements involving federal grazing (often referred to as "subleasing" or "pasture agreements"). For approved transfers of a grazing permit attached to a base property, BLM would assess a surcharge of 20 percent per AUM. A 50 percent surcharge would be added for all livestock authorized under pasture agreements that allow ranchers to charge others for grazing on their allotment.

-Unauthorized Use - BLM field managers could make non-monetary settlements of unauthorized public range use in cases where such use was clearly unintentional, caused no resource damage and resulted in no substantial consumption of forage.

Most of these changes will bring the Forest Service and BLM rules closer to having matching requirements for rangeland management, thus making good stewardship easier for permittees.

Range improvements

All future grazing related permanent improvements on public lands, such as fences and ponds, would be owned by the Federal government. The proposal would not, in any way, affect valid existing rights to range improvements.

The proposal would also make BLM's water rights policy consistent with Forest Service policy. The Federal government would obtain water rights on public lands to be used for livestock watering under state law, providing that state law permits it. This policy would not affect valid existing water rights.

"The guiding principle behind our proposal for water rights is

simple: the water should stay with the land," said Babbitt.

Standards and guidelines

The proposal would, for the first time, require ranchers grazing livestock on lands controlled by the BLM to meet standards and guidelines, written and implemented at the state level. Initially, Babbitt proposed standards on a national scale, rather than the local scale that is now proposed. "Since our original proposal six months ago, I've heard from countless ranchers who agree on the need for standards and guidelines," said Babbitt.

BLM state directors in cooperation with the Multiple Resource Advisory Councils will draft standards and guidelines within 18 months after the Final rule is published. The state standards must address soil stability and watershed function; the distribution of nutrients and energy; and plant community recovery mechanisms. The guidelines would provide direction and address the following:

-Grazing management activities must assist in recovery planning for threatened or endangered species.

-Grazing practices must be designed to protect the public health and welfare, and must restore or enhance water quality to meet or exceed State water quality standards.

-Grazing plans should consider such issues as the timing of critical plant growth and regrowth.

-Grazing plans must address situations in which continuous season-long grazing would be consistent with achieving properly functioning conditions.

-Development of springs, seeps and other projects affecting water and associated resources must maintain or enhance the ecological values of those sites.

-In those areas where grazing may be authorized on ephemeral rangelands, a criteria for minimum levels of production must be set in advance.

-Criteria must be developed for the protection of riparian-wetland areas.

-Grazing plans must have utilization or residual vegetation targets which will maintain, improve or restore both herbaceous and woody species to a healthy and vigorous condition.

These state standards and guidelines are molded from minimum national requirements and must be approved by the Secretary of Interior. The national requirements include grazing practices that enhance or maintain properly functioning ecosystems, enhance or maintain properly functioning riparian systems, restore or enhance water quality and maintenance, and restore or enhance habitat for threatened or endangered species.

The Forest Service incorporates comparable national standards in its forest plans and will continue to do so.

Moving forward

As the process of producing final regulations continues, the Department of Interior is encouraging people to express their concerns and ideas on the draft regulations and the draft EIS. Several open houses and information sessions will be held throughout the west during the next

Cattle grazing is one of the many multiple use resource activities carried out on lands administered by the Bureau of Land Management. This scene is on BLM land near Melrose, Montana.



few months. In addition, hearings were held at various locations throughout the West on June 8.

"We have made our position quite clear," said Babbitt. "But with continued public involvement and with thoughtful comments from the West and elsewhere, this very good proposal can be made even better."

Jody L. Weil is Public Affairs Specialist, Bureau of Land Management, Montana State Office, doing public relations strategy planning, writing, and editing quarterly reports and newsletters, She was Team Leader for Rangeland Reform Implementation Outreach Team and helped write the Executive Summary of the Draft Environmental Impact Statement for Rangeland Reform '94. Her Bachelor's is in Political Economics, Colorado College, Colorado Springs.



THE *BIG* CIRCLE

WINIFRED KESSLER

I believe that range ecology and policy have evolved in a big circle, taking us back to our rangeland ecosystem roots. Just pick up the early textbooks on range management, and you will find ecological treatises focusing on native plant communities. Key topics included plant composition and vigor, soil as a life support system, and ecological relationships of native and domestic animals. It was a brand of rangeland management concerned with the health and productivity of complex ecological systems.

This view of range management has been upstaged in more recent decades by an agricultural production approach. Here the main focus is the land's potential to yield commodities, with the art and science of range management directed to this end. Often commodities can be more efficiently produced by replacing the native plant community with non-native species, or by otherwise concentrating the lion's share of nutrients and energy into the desired plant and animal products.

Which view or model is "right"—an agricultural production approach or an ecosystem approach? That depends on who owns rangeland and what their objectives may be. For many

private landowners, the objective is profitable livestock production to support livelihoods and chosen lifestyles. The agricultural production model may be the most efficient way to meet these objectives.

Two things are clear. First, you can't have it both ways. These are two distinctly different paradigms, or views of what rangeland ecology and management are all about. Second, for the USDA Forest Service, the ecosystem management approach is the course of the future.

Gaining perspective

The move to ecosystem management is not confined to the rangeland management program of the Forest Service. On June 4, 1992, Chief Dale Robertson announced the agency's adoption of this approach Service-wide (Robertson 1992). The decision to embrace ecosystem management did not happen overnight; rather, it was the culmination of a transition process called "New Perspectives." During this three-year period, the Forest Service took a hard, analytical look at the turmoil surrounding land and resources management (Kessler et al 1992). The purpose was to understand important changes underway in science and society, and to plot an appropriate new course

for managing the national forests and grasslands. It was my fortune to serve as Assistant Director for the New Perspectives effort, and that experience has greatly influenced my thinking about land and natural resources management.

A key part of New Perspectives was a challenge to our field managers and scientists to develop new and creative approaches for solving complex land management problems. This challenge was answered with nearly 300 projects featuring innovative management concepts, practices, and ways of involving people. These experiences confirmed that most land management problems today are far too complex to "fix" with improved techniques and technology alone.

We found that our fundamental approach to sustained-yield, multiple-use management lay at the heart of many of our difficulties. Linear thinking, focused on production goals, has prevailed in public land management for several decades (Congressional Research Service 1993). Although such thinking has important applications in the natural resource disciplines, it is in itself an inappropriate approach for solving today's complex problems involving land, natural resources, and people.

Competing uses, conflicting interests

What view of land and natural resources shaped analysis and management approaches in the 20th century? It was a very practical view, focusing on the important uses that are provided to humans by lands, water, and the living things that grow there.

This focus on uses is why the natural resources fields developed as they did; as a set of distinct disciplines, each oriented toward a particular resource of use to humans. Hence there are separate professions dealing with science and management of rangeland resources, of wildlife, of fisheries, of timber, of outdoor recreation, and so on. Within a given discipline, a key role has been to discover factors that limit production of that resource, and to remove those limitations through scientific management.

This approach had a long history of successful application in agriculture and industrial production. The approach shaped how the natural resource disciplines characterize lands and water: in terms of their potential to produce useful crops. For example, we talk about a range allotment's capability to provide animal-unit-months of grazing, the site index of a forest stand to produce timber, or the habitat

capability of a lake to produce fish and recreation user-days.

On lands having many stakeholders, such as the national forests and grasslands, management must produce not one but several uses. The Forest Service features each of several key uses in separate programs for range management, timber management, wildlife and fisheries, recreation, and others. Because each resource discipline has been concerned with improving production of its particular resource, what results is a model not just of multiple uses but of competing multiple uses. The choices are presented to stakeholder groups as tradeoffs among the different uses. (You want more wildlife? Okay, but how much decrease in timber are you willing to accept? You want more fish production? Fine, but it will cost you in livestock grazing use.)

Dealing with the issues

How do the conflicts about natural resources get expressed? Most often, they emerge as specific issues reflecting highly polarized viewpoints. For example, one of the hottest issues today is whether or not livestock should be permitted to graze on public rangelands.

An important thing to consider here is how, under the prevailing paradigm, we have defined and attempted to deal with resource issues. As issues arise, the procedure is to fit them into appropriate disciplinary or resource-use pigeonholes. For example, animals whose populations are declining become a wildlife problem—unless they live in the water portions of the landscape, in which case they are a fisheries problem.

What about endangered plants? Should this be considered a range problem? But what if the species occurs in timbered habitats, is it then a timber management problem? The Forest Service avoided that dilemma by making endangered plants a part of its wildlife and fisheries program.

Diseased trees are called a forest health problem—something that timber managers need to deal with. But once the trees die, they are of less interest to timber managers and instead become a fuels management problem. Fuels managers are quite capable of dealing with the problem through salvage or other means; however, the results of these solutions may give birth to a new set of visual resource problems, wildlife problems, and fisheries problems.

And so the vicious cycle goes on, with each group of specialists trying to “mitigate” the problem from their particular disciplinary perspective. Is this any way to run a rangeland, or a forest, or a wetland? The disciplinary filters we wear tend to blind us to what these lands and resources really represent. They are living, dynamic, complex systems of plants, animals, water, soil, air climate, topography, and people. In systems terminology, we have concerned ourselves with manipulating stocks and flows of resources, with far less attention to the state or condition of the systems from which those resources derive (Brooks and Grant 1992).

While focusing on production performance, we have ignored the vast complexity of rangeland and forest ecosystems. Resource relationships, inherently complex, have been stripped down to a set of production functions.

Thus what we call issues today are often just symptoms of the real problems, which are ecosystem problems. Complex ecological, social, and economic questions involving rangelands are buried in the debates about live-stock grazing.

Endangered species provide a vivid example of the problem. Is it really the *fact* of a species becoming rare that is troublesome? Or should we become more concerned with what the species' predicament tells us about the condition of the ecosystem of which the species (and human communi-

ties) are a part? A couple of cases will help illustrate these points.

Solving ecosystem problems

The forests of the Blue Mountains of northeastern Oregon and southeastern Washington are in trouble, with forest mortality occurring on a massive scale (Wickman 1992). What is the essence of this “forest health problem” in the Blue Mountains? Is it a problem of drying trees and lost timber volume? Or hazardous fuel accumulation? Or deteriorating wildlife habitat? The real problem spans all of these concerns—it is a story of a stagnant, ailing ecosystem. Many decades of fire exclusion have interrupted dynamic processes vital to the system's health, and the consequences reach widely in the ecology, economy, and social fabric of the region.

What is the real story of the declining fish stocks in the Columbia River system? Is it overgrazing around headwaters, and hence a range management problem? Or sediment from logging, and hence a timber management problem? Maybe it's overfishing by local people, and thus a socio-economic problem. Or maybe the dams are the real culprits, making this an engineering problem. In reality, it is all of the above and much more: it is an ecosystem problem. And it can only be solved as such, from an ecosystem perspective (Lee 1989).

For problems involving ecosystems (which I suspect is the case for most natural resources problems), all the partial remedies developed from a functional, competing-use perspective will not add up to a solution for the whole. That is why the Forest Service, this past June, adopted the new policy on ecosystem management. Its fundamental approach is to bring together a wealth of disciplines to solve complex problems involving lands, natural resources, and people.

Land use planning under the new model must go beyond establishing goals for selected uses that people may wish to make of lands and resources. It must include goals that relate to the health and sustainability of the system. After all, it is healthy ecosystems that will continue to provide the traditional multiple-use benefits, plus those benefits we do not often think about such as oxygen production, nutrient cycling, water conservation, and other life-support functions.

Rangeland forage, livestock, and the people who profit from them are important parts of rangeland ecosystems. But rangeland management must treat that particular use in the larger context of sustaining healthy, productive rangeland ecosystems in the long term.

Toward healthy rangeland ecosystems

You may be wondering whether the sudden policy change to ecosystem management has been a shock for our rangeland professionals. Quite the contrary; most of our range people view it as a positive sign that the rest of the Forest Service is catching up to them!

The current emphasis on sustaining ecosystem health and productivity—for the many uses, products, and values that healthy ecosystems offer to people—was adopted six years ago. You may recall this as the “Change on the Range” initiative, which shifted the focus from forage production and use to restoring and maintaining healthy rangeland ecosystems to meet the diverse needs of society. Thus our rangeland professionals committed to an ecosystem approach well before the rest of the Forest Service tested the waters with its New Perspectives, and certainly before ecosystem management was adopted as a Service-wide policy.

I will close by repeating my opening statement, that we have come full circle. The

Continued, page 22

HAVE YOU EVER THOUGHT OF BRINGING SUIT FOR DISCRIMINATION? THIS AUTHOR WENT BEYOND "THINKING" AND FOLLOWED THROUGH. THIS IS A POWERFUL STORY, WITH LESSONS FOR BOTH WOMEN AND MEN.

FIGHTING SEX DISCRIMINATION IN HIRING BY THE FEDERAL GOVERNMENT

A. JOY BELSKY

Several months ago, I lost a sex discrimination case against the U.S. government. It lasted 18 months, took approximately one day of my time per week, and cost \$16,000. It forced me to recognize the extent of sex discrimination occurring in the federal government, and made me realize how far organizations will go to prevent changes in the status quo. But I would do it all again. Why? Because I didn't allow myself to become a silent victim of sexism; because I emerged from the battle with new skills, increased self-respect, and new insights; and because it proved to be more interesting than my usual pastimes of writing research proposals and scientific papers.

When I decided to challenge a job non-selection (rejection) by the U.S. Bureau of Land Management (BLM) in early 1992, I was concerned. I recognized it would likely mean the end of my career in the male-dominated field of range ecology. I also felt I would be perceived as a poor sport and my case as "sour grapes" by my scientific colleagues; and I feared the U.S. government might retaliate in terms of future employment and grants.

However, I was tired of watching highly talented female friends, as well as myself, be

discriminated against and lose out in job searches and promotions to less qualified and less talented men. I was tired of watching people act illegally—with impunity. And I had learned that being dignified and keeping silent about sexual harassment had only earned Anita Hill scathing criticism and disbelief. Finally, I realized that by doing nothing, I would accomplish nothing. I also feared that I would become an accomplice in maintaining the status quo.

I'm writing this article to inform others about undertaking a sex-discrimination suit against a federal agency. I went down a path unfamiliar to most scientists: I never knew what to expect nor the steps to be taken next. In some ways it was like working on a dissertation without an advisor. Hopefully, my experiences will help others make informed decisions about their options when confronted with unfair and illegal treatment.

I approached the process as I would any research project. I kept detailed notes, collected and analyzed data, and attempted to reach objective conclusions. As with all new research into unfamiliar areas, I tried a variety of approaches. When in doubt about whether to try something, such as contacting my Congressman or the media, I usually did it, just to see what would happen. I knew too little about the process to

develop hypotheses or make predictions, so most of my activities can be classified as exploratory.

This report chronicles the history of my case against the U.S. government: the job application, evaluation, and complaint procedures; people making the decisions; data collected for my judicial hearing; and my journey through government bureaucracy. This case differs from discrimination cases in academia because, being a federal agency, the BLM left a paper trail made available through the Freedom of Information Act. In other words, the ease with which government employees were able to change a job description, ignore affirmative action regulations, distort qualifications, and in the end hire whomever they wanted, irrespective of qualifications or affirmative-action requirements, can be read in this trail. It makes fascinating if discouraging reading.

In this report, I do something shocking: I use the names of the individuals involved. One of my decisions during this process was to identify those involved. Perpetrators of sexual discrimination, and officials who silently allow it, are normally protected by their universities, agencies, or corporations. But they should not be. Whereas names of sex discrimination victims are often public knowledge, the names of

the individuals responsible, including members of academic search committees, are not. Discrimination breeds in secrecy. Without repercussions, such as a public challenge, there is no motivation to confront personal or institutional biases. As long as those in power are protected by their organizations, by 'polite' society's injunctions against gossip, and by women's good manners and avoidance of further embarrassment, there is nothing for them to fear from behaving illegally.

In mid-1991, I responded to a job announcement by the Bureau of Land Management (BLM), the federal agency that manages 180,000,000 acres of federal range and forest lands in the United States, for a position described as plant ecologist/range scientist/botanist to take scientific leadership of a ten-year, seven-state, multi-million dollar research project. The primary goal of the project was to develop techniques to restore 7,000,000 acres of severely overgrazed rangelands managed by BLM in the Great Basin. Secondary goals were to develop techniques to monitor vegetation, protect rare species, and study the effects of global climate change. Calling for a "senior scientist," the position was given a grade of GS 14 (a relatively high grade level in the federal government), and was advertised at \$52,000-\$68,000

annually. The selected applicant was to become a member of the BLM Cooperative Research Unit in Corvallis, Oregon, as well as Adjunct Professor in the Department of Rangeland Resources at Oregon State University (OSU).

Although I was highly qualified for the position, having spent the last 15 years working on grassland and rangeland ecology, I hesitated to apply. The BLM and the field of range science are considered to be old boys' clubs in which women have historically not been welcome. I haven't had luck getting this club to hire me; as a result, I have carried out my research in the savannas and rangelands of East Africa. But, I had heard from several sources that Congress was pressuring the Department of Interior and BLM to open up their hiring to women and minorities, and that BLM was seriously searching for experienced, senior-level women. Because the job sounded like a perfect fit with my experience and because it sounded as though the playing-field had been leveled by Congress, I decided to apply.

The evaluation criteria for the position were similar to those for most government positions. The first step was to fill out a SF 171 Form, which contains questions about one's education, job experience, and job interests. Next, I had to answer six questions, called KSAs (knowledge/skills/abilities), developed to determine whether I had the background judged necessary for the job. Each question required a one-to-several-page essay. These questions inquired about my experience in providing scientific leadership for complex research projects and in directing the work of other research scientists, and asked for examples of my initiative and originality in designing/conducting research and communicating the results to others. Finally, I was asked to describe my three most significant research accomplishments.

The first evaluation of applicants was by an independent

VOL. 15, No. 4

panel of range scientists from BLM, the U.S. Forest Service, and academia. This panel, established by BLM for this purpose, ranked all job applicants using a well defined set of criteria. Names of the seven top-ranked candidates were then sent to BLM's hiring official, Dr. Mike Collopy, the supervisor of the selected applicant. He was, at that time, in the process of moving from a position as chairman of the Department of Wildlife and Range Science at the University of Florida to head the BLM Research Unit in Corvallis.

I was informed by BLM that I had made the short list of candidates and that Dr. Collopy would phone me one week later for an hour-long interview. After that interview, I was invited as one of three candidates to be interviewed by BLM at their Oregon State Office in Portland and by the Department of Rangeland Resources at OSU in Corvallis. In early December, 1991, I spent a half day at BLM and two and a half days at OSU, where I was interviewed as for a regular academic position. The interview went well. My lecture was well received and my hosts were friendly.



Joy Belsky at work in Oregon

Three weeks later I was informed that I was not selected for the position.

I decided to research the possible reasons for my non-selection. There was a possibility that BLM had located a candidate with credentials superior to mine. On investigation, however, I found to my surprise that I had never heard of the selectee. Neither was his name known to an array of friends in range science throughout the United States. A library search at Cornell University, where I was working, informed me that far from being the "senior scientist" for which BLM advertised, the selectee was but an assistant professor in a range science department. He had few publications, had never run a large research program, had few of the qualifications called for in the job description, and had no publications on range restoration.

Determined to do something, I called the director of the Office of Equal Opportunity at Cornell, who recommended that I call Representative Patricia Schroeder of Colorado, the only person in the country he could think of who might have influence over a federal agency and who would definitely care. I called her office

and talked to her aide, who advised me to contact my own Representative in New York, Sherwood Boehlert, as well as New York Senators Daniel Patrick Moynihan and Alfonse D'Amato. He also gave me some interesting information: I had only 30 days after notification of non-selection to file a complaint against the government; sex-discrimination complaints against a federal agency can only be investigated by that same agency; and in these investigations, federal agencies find in their own favor 99 percent of the time. He said a complaint might take five or six years. It would be expensive and probably unsuccessful. However, he strongly urged me to file. Otherwise, nothing would change.

Next, I contacted my local representative and senators, whose aides also recommended that I file a complaint. They asked that I write detailed letters to their offices, but offered little help. Finally, I filed a complaint with BLM's Equal Employment Opportunity (EEO) office in Washington, D.C., which assigned Sherrie Reid, an EEO counselor from their Portland office, to the case. She promised me confidentiality, kept me well informed of every step of the process, sent papers for me to sign, and seemed like a friendly, sympathetic person. She was the only person at the Portland BLM office with whom I was allowed to communicate during the next 18 months.

Ms. Reid's first job was to carry out an "informal" investigation to determine whether the evidence warranted a "formal" investigation. This first investigation lasted several months and was only to ascertain whether I had received the same treatment as the other applicants. Qualifications were not considered. I was repeatedly assured that the BLM would try to settle the case at the lowest possible level and to everyone's satisfaction. Although I believed the counselor, this did not turn out to be true.

Throughout the process I tried to cooperate with Ms. Reid and gave her as much information as I could. Since I had no way of knowing how the other job candidates had been treated, I emphasized what I knew about sex discrimination in the field of range management, about the need for agencies such as BLM to hire experienced women who could then help attract talented women and act as their mentors. I informed her, for example, that although one-third of range science graduate students are women and they have been receiving Ph.D.'s in the field for 10 years, only four women currently hold tenure-track positions in range science in major western universities. In a recent poll by the Society of Range Management to which 60 percent of the members responded, 56 women reported holding Ph.D.'s. In spite of this large pool of professional women, there are no female range science faculty members at Arizona State University, Colorado State University, New Mexico State University, Oregon State University, Texas A and M, University of Idaho, University of Nevada, Utah State University, or University of Wyoming.

During the informal investigation, the counselor compiled a file of the original paperwork involved in the hire and interviewed the BLM hiring official, his supervisor, Elaine Zielinski, others at BLM, and the Chairman and Assistant Chairman, William Krueger and John Buckhouse, respectively, of the Department of Rangeland Resources at OSU.

Since the case was "complex" and "involved a high-level position," there was no attempt at a state-level resolution. My case then went to the BLM-Washington, D.C., EEO office for a formal investigation, to which a trained investigator, Michelle Strohmman, was assigned. A few months later, she came to Portland, where I had since moved, and interviewed the same people as before, this time

under oath and in front of a court reporter. By the time Ms. Strohmman arrived, I had received a letter from the personnel director at the Portland BLM Office, Thomas O'Donnell, who informed me of the reasons why I had not been selected. I also received a copy of the Report of the Informal Investigation, which I obtained through the Freedom of Information Act. The reasons given by the personnel director were surprising, since they involved requirements, such as having research experience in the Great Basin, which had never before been mentioned.

The reasons given by BLM's hiring officer, Mike Collopy, and his supervisor, Deputy State Director (now State Director) Elaine Zielinski, differed from those given by the personnel director. To convince their Washington D.C. office that I was unqualified for the job, their letters distorted my qualifications, my past research, and the quality of my research, while exaggerating the qualifications of the selected candidate. Without the Freedom of Information Act, I would never have discovered these distortions. During a 4 1/2 hour sworn interview with the investigator, I presented evidence, much of which was in my original application, showing that the reasons given for my non-selection by BLM were pure fabrications.

Six months later, BLM notified me that they had rejected my complaint—for lack of evidence of discrimination. I then had the option of going to federal court or filing an appeal with the Equal Employment Opportunity Commission (EEOC), the organization headed until recently by Supreme Court Justice Clarence Thomas.

I decided to hire a lawyer, which proved to be easier said than done. What I heard from most attorneys I interviewed was that (1) it is not illegal for BLM employees to lie during the selection process, only to lie to avoid hiring a member of a

protected group, i.e. a woman, racial minority, etc. And this motivation I would have to prove. (2) It is not illegal for the BLM to hire the least qualified applicant; it is only illegal to hire a less qualified applicant to avoid hiring a member of a protected group. (3) It is not illegal for the hiring official to be too incompetent to evaluate the applicants' credentials knowledgeably. The burden of proof lay with me. I had to prove that the only reason I was not hired was because I was a woman. Incompetence by the officials or their being intimidated by my strong qualifications are considered legal reasons for BLM to reject a candidate. So is the possibility that BLM had no real intention of hiring someone capable of doing the job.

After a month of interviews, I finally found an excellent and experienced attorney, Henry (Hank) Kaplan, who was willing to take the case. But he warned me that it would be difficult to win; and because of this, his law firm would not take my case on a contingency basis. I had to pay hourly fees of \$125 throughout.

Hank recommended that we go through an EEOC Administrative Hearing in front of an administrative judge, rather than to federal court with a jury, because it would cost less and because he felt the case was too legally and scientifically complex for a jury to understand. Also EEOC judges have more experience with discrimination cases. The downside of going with the EEOC was that most EEOC judges had been appointed by the Reagan and Bush Administrations and are very conservative. According to my attorney, it is harder to win an affirmative action case today than it was twelve years ago.

Six months after receiving BLM's final investigative report, we had a one-day hearing in Portland with an EEOC administrative judge, the Honorable James Carroll. In preparation for the hearing, we called a meeting with relevant BLM officials to obtain

sworn depositions. This was the only meeting besides the formal investigation by the BLM-EEO investigator and the one-day hearing. Before reaching this point I had to teach my attorney about the scientific culture (i.e. the meaning of senior authorship, citations, principal vs. co-principal investigators, etc.), about range restoration, vegetation monitoring, effects of livestock grazing on rangelands, statistics, and ecology. I researched publications by the other applicants (as well as by the hiring official), pored through the C.V.'s and application materials of each applicant, counted citations listed for each of us in *Science Citation Index*, and tried to match research to the job skills and experience outlined in the job description. After I discovered that the Department of Rangeland Resources at Oregon State University, a department with no women faculty members, had ranked me third out of the three interviewed candidates, I included its faculty members in my investigation.

Because we had no "smoking gun" consisting of a letter or conversation in which someone says that a woman should not be hired, Hank based our strategy on three lines of evidence: qualifications, statistics, and credibility. He wanted to show that (1) I was overwhelmingly more qualified than the hired candidate; (2) BLM had a history of systematically excluding women from its upper ranks; and (3) since most of the statements by the BLM officials in this case were demonstrably not true, their other reasons for rejecting me were also not credible. We tried to convince Judge Carroll that the reasons the BLM officials had given for rejecting me were not the real reasons, only pretexts.

Qualifications. We concentrated on qualifications emphasized in the job announcement, the KSAs, and the written job description. The job announcement and job description empha-

sized that the selected person must be a "senior scientist" and a "leader in the field of range ecology," as demonstrated by his/her research, funding, and publication records; by invitations to give lectures and to contribute synthesis papers to books, journals, and symposia.

We compared evidence for scientific seniority and leadership by evaluating the application material and C.V. of each applicant and by tabulating the number of citations in *Science Citation Index* for each. The number of times a scientist is cited (or quoted) in the scientific literature is an indication of the importance of the scientist's work to his or her field. Number of citations are often used to evaluate candidates for jobs and promotions. Taking a suggestion from a letter to the editor of *Science* (Dagg 1992), I also evaluated this same information for Dr. Collopy and members of the faculty of OSU's Department of Rangeland Resources.

I was ranked higher than the selected candidate by the panel established by BLM at the beginning of the process (95 vs. 87) and by every objective criteria such as numbers of published papers and number of citations (Table 1). In addition, in the 12 years since I had left graduate school, I had published a total of 19 senior-authored papers, while the selectee had published a total of four in the eight years since he had left graduate school. Interestingly, the hiring official, Mike Collopy, had a publication record nearly identical to that of the candidate he selected (Table 1).

Not only were my publications cited significantly more often than those of the selectee and the hiring official, but they were also cited 20 percent more often than those of the twelve members of the faculty of OSU's Department of Rangeland Resources combined. This department also favored the candidate whose citation record

most closely matched its own (Table 1).

The selectee and I also differed in our records of research funding. Whereas most of his research funding had come from advisors, training grants from his university, and from the state agriculture experiment station, most of my funding had come from the prestigious National Science Foundation. During the four years prior to our applications for this position, the selected candidate had been invited to give three lectures, none being at international conferences, while I had been invited to give 10 lectures in the U.S. and an additional five at international conferences.

The three most significant research accomplishments that the selectee described were carried out while he was a graduate student and postdoctoral fellow, and all

were funded in part or entirely by faculty members he worked under. The first major accomplishment the selectee described was his job as research assistant to his Ph.D. advisor, who was also the senior author of the paper he discussed. In contrast, my three most significant accomplishments referred to research I had carried out after finishing graduate school. In all cases, I had written the proposals and obtained the funding, carried out or directed the research, and was senior author of most of the major publications emerging from the studies.

I also had more experience than the selectee in all categories described in the KSAs and in the job description, such as leading large, complex research projects. And whereas the selectee had directed the work only of graduate students and technicians, I had

directed the research of university full professors and senior research scientists. Finally, in my published papers I had 49 examples of research experience in areas stressed in the job description, while the selectee had only four.

I also collected other interesting information during my research. Dr. John Laurence, Director of Environmental Biology at Boyce Thompson Institute at Cornell was on sabbatical in Corvallis during late 1991 and attended my interview lecture at OSU. He said, and later testified at the EEOC hearing, that it was one of the best interview seminars he had ever heard. I was also informed about alleged cases of sexual harassment, sexual discrimination, and an atmosphere of intimidation in the Department of Rangeland Resources at OSU.

Table 1. Rankings of the three top candidates for the BLM position by different groups, numbers of publications at time of application in 1991, and mean number of citations per year (*Science Citation Index*). Numbers of publications and citations of ranking officials included when known.

	Panel ranking	OSU ranking	BLM ranking	Senior-authored publications	Synthesis papers	Mean citations (1988-1991)
Job Finalists						
Joy Belsky	95	3	2	22	6	43.0
Selected candidate	87	2	1	8	1	15.8
Candidate # 3	?	1	3	?	?	8.3
BLM Hiring official						
Mike Collopy	Director, Research Unit			8	1	9.5
Oregon State University, Department of Rangeland Resources (1991)						
William Krueger	Dept. Chairman					3.0
John Buckhouse	Dept. Asst. Chairman					0.8
Tom Bedell	Professor					1.3
Lee Eddleman	Professor					1.5
Rick Miller	Professor					6.5
Steve Sharrow	Professor					6.3
Marty Vavra	Professor					3.5
Paul Doescher	Assoc. Professor					2.5
Doug Johnson	Assoc. Professor					1.3
Boone Kauffman	Assoc. Professor					6.0
Larry Larson	Assoc. Professor					0.3
Mike McInnis	Asst. Professor					1.8
Total for entire Department of Rangeland Resources						34.8

Although these stories strengthened my determination to continue with my case and attack sexism in the field of range science, we couldn't use this information since the case was against BLM, not OSU.

Statistics. I spent a year trying unsuccessfully to obtain information from BLM on their ratio of men-to-women in upper-level job categories, even enlisting the help of my new Oregon Congresswoman, Elizabeth Furse. But BLM refused to give me this information and they only sent Rep. Furse very general data about newly hired women at BLM. In the end, only my attorney was successful in obtaining this information.

Analysis by gender of BLM's Professional Category (as opposed to Administrative and Technical Categories) revealed significant under-utilization of women in BLM (Table 2). The reduction in the percentage of women from entry-level positions at GS 5-8 (30 percent) to the upper grades (5 percent) illustrates that women have had only limited success at penetrating the glass ceiling at BLM. In BLM Oregon/Washington, there is not a single woman in the GS 13-15 Professional Category.

Credibility. I compared the statements of BLM hiring official, Mike Collopy, and his supervisor, Elaine Zielinski, in their letters and interviews with information in my written application material. I will review only a few of their many statements that were gross misrepresentations. Dr. Collopy and Ms. Zielinski stated, for example, that I had never run a large complex research project, even though I had discussed the four-year, multi-site, multi-disciplinary project I had led in Kenya and an even more extensive program in Tanzania. They praised the selectee's experience running large research programs, even though he admitted that he had told Dr. Collopy that he had never run such a program. Dr. Collopy criticized me for saying that I would not begin research on the main project, range restoration, until the end of the 10-year program; however, my notes from the interview showed that I had stated that I would begin such research during year three. Finally, Dr. Collopy and Ms. Zielinski wrote that I had no experience in experimental research, although I had described four such studies in my written application and shown slides and data from several other such

studies in my seminar. Dr. Collopy also stated under oath that there was no special status attached to being first author of a scientific publication, as opposed to second or third author, and that grants from the National Science Foundation were not necessarily more prestigious than grants from state-run agricultural research stations.

Elaine Zielinski, who at that time oversaw natural resource issues from the State Office of Oregon/Washington-BLM, said she didn't know how to read the table showing the number of women employed by her office, a statement that relieved her of having to put into court record the fact that BLM-Oregon/Washington had no women in the GS 13-15 Professional Category. She also said that affirmative action required BLM to hire a woman or minority over a white male only when the two candidates were **absolutely** and **totally** identical in every way, which is impossible! Otherwise, BLM had no obligation to hire women or minorities.

When confronted at the EEOC hearings with evidence that their statements were patently untrue, both Dr. Collopy and Ms. Zielinski retreated to the one fact that we could not deny: that I had

no research experience in the rangelands of the Great Basin. Although we pointed out that neither the job announcement nor the job description called for Great Basin experience and that large organizations normally hire the best scientists they can attract for high-level positions, not just those who are locally available, the two BLM officials repeated that this was the main factor guiding their decision. When we pointed out that Ms. Zielinski had earlier told an investigator that she had purposely excluded Great Basin experience from the job announcement because it would have excluded women, who have historically been denied jobs in that region, she still maintained that this was the determining factor in the selection.

Although the hearing went well and we managed to refute nearly every statement made by BLM, my attorney was pessimistic. Legally, Judge Carroll had to find only one reason for my non-selection that did not sound like a lie or a pretext to rule against me. All other reasons could be completely untrue. During the week that we waited for the judge's verdict, the U.S. Supreme Court issued a ruling finding no reason to presume discrimination in a case in which **all** excuses given by an employer for firing an employee were untrue.

After one week of deliberation, the judge ruled against me. He stated that although I was highly qualified for the position and although many of the statements made by BLM were not credible, I had not made the case that Great Basin experience was **not** important, nor that my rejection was **only** due to sex discrimination. In other words, he ignored all qualifications stated in the job announcement and job description and ruled against me based on the one criteria that BLM had purposely not included because it would exclude women candidates. My having demonstrated greater qualifications in all other categories was ignored.

Table 2. The number of women and minorities employed by BLM in the Professional Category (1992). The job discussed in this paper was at the GS-14 level.

	BLM-Nationwide										
	Total	White		Black		Hispanic		Asian/ Native Amer.		Total	
		Male	Female	Male	Female	Male	Female	Male	Female	Female	Minorities
GS 5-8	142	91	40	0	1	4	1	4	1	30%	8%
GS 9-12	2540	2079	319	6	0	63	8	51	14	13%	6%
GS 13-15	355	316	14	4	1	4	1	14	1	5%	7%
BLM-Oregon/Washington											
GS 5-8	24	13	9	0	1	1	0	0	0	42%	8%
GS 9-12	592	513	59	1	0	5	2	12	0	10%	3%
GS 13-15	39	37	0	0	0	0	0	2	0	0%	5%

According to several attorneys I've talked to since then, the judge's decision was not uncommon. The judiciary of the United States has moved far to the right during the last 12 years. Use of affirmative-action regulations to guarantee fair hiring procedures was not in favor with recent Republican administrations, and the EEOC judges they appointed usually rule against women and minorities in these cases. In addition, it is far easier for a judge to rule for the defendant (the U.S. government) than for the plaintiff since the judge does not then have to calculate damages and determine remedies. The judge also doesn't have to worry about his or her decision being overturned later, since federal agencies, with their deep pockets, usually appeal cases they lose while individuals can seldom afford to. Finally, administrative judges work for the federal government and are concerned with the disturbance they may cause by forcing an agency to hire previously rejected candidates.

When I asked my attorney what mistakes I had made during the year I had pursued this case

alone, he said I had been naive in assuming that the EEO counselors and investigators were trying to be fair, or that they had interests beyond protecting their organization. By making such assumptions and trying to establish friendly relationships with the counselors, I had given away too much information and introduced extraneous material that could have been used against me. For example, he felt I had overemphasized the feminist perspective, such as mentioning the "old boy's club" and the "male-dominated range culture." Had he been BLM's lawyer, he said he would have painted me as a radical feminist, paranoid, defensive, and unstable.

I have definite recommendations for anyone considering filing a sex-discrimination case. First, do not tell anyone except members of your own group (gender, race, religion, etc.) about your legal actions against an employer. Others will not understand. When I told men, even close friends, about my case, they advised me not to take action. I would be labeled a trouble-maker, a poor sport. I would ruin my career. But when I told women, they

advised me to buy a cruise missile and bomb BLM headquarters.

Second, hire the best attorney you can afford, one who genuinely cares about affirmative action and fairness. It is difficult for a non-scientist to learn the various nuances that we scientists take for granted; it takes skill to determine when the opposition is lying on the stand. Having an excellent attorney did not help me win my case, but it does help to know it was probably unwinnable, given the current EEOC judiciary.

Finally, I urge women who feel they have been discriminated against to confront the system. We must ensure that there are always negative repercussions for discrimination, if only embarrassment. One thing is certain: if we women do not stand up for our rights, no one else will. And if we fail to fight sexism at every turn, we must ask ourselves, Are we part of the problem?

Acknowledgement

I thank R. Amundson, R. Donahoe, H. Kaplan, and the staff of Oregon Natural Resources Council for their comments on earlier drafts of this paper.

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Evolution of woods-working women

DeAnn Zwright 1988

THERE IS NOTHING MORE DIFFICULT [THAN] TO TAKE...THE LEAD IN THE INTRODUCTION OF A NEW ORDER OF THINGS, BECAUSE THE INNOVATOR HAS FOR ENEMIES ALL THOSE WHO HAVE DONE WELL UNDER THE OLD CONDITIONS, AND LUKEWARM DEFENDERS IN THOSE WHO MAY DO WELL UNDER THE NEW. (MACHIEVELLI 1469-1527)

WHY IT IS NOT ENOUGH: STRUCTURAL CHANGE—BEYOND BUREAUCRACY PART 2

SUSAN ODELL



Part one of this article can be found in
Women in Natural Resources 15:1

The Forest Service has embarked on a reinvention quest. The interest in reinventing the agency is not just a result of recent political changes, but part of a continuing search for real change in how we "Care for the Land and Serve the People" (our mission/motto). The search is for: (1) the agency to be "an employer of choice"; (2) work environments which encourage creativity and commitment; (3) highly productive employees and effective leaders; (4) an organization that can make ecosystem management a reality.

Change and the general reasons it is needed

There appears to be ample evidence that change is coming. In his first talk with employees in the Washington Office, new Forest Service Chief, Jack Ward Thomas agreed. He acknowledged that as an agency we have not found the ways yet to "involve citizens in decisions in an effective way." We have similar problems involving our employees in organizational decisions. The vast majority of these internal and external problems are a direct result of the bureaucratic structure which interferes with our learning from experiences and adapting to change. During his presentation at the Forest Conference in April, 1993, Dr. Thomas told President Clinton that the natural resource

agencies in the U.S. have "incredibly talented people. They are highly skilled. They are incredibly motivated. They can do marvelous things when they understand their mission and it is clear and it is concise and all of them move forward together."

Hanna Cortner and Margaret Shannon, writing in the *Journal of Forestry* (July 1993) state, "As public land managers are required to reach out and respond to the public's desires, changes must be made in how leadership is defined, evaluated, and rewarded. Managers also need to develop innovation, anticipation, and communication skills. To accomplish these goals for individuals and units, organizational structures and processes must incorporate change and learning." Cortner and Shannon highlight key points for *future* change in the public participation process, for developing shared decisionmaking, and for changes in organizational structures as they relate to long-standing dissatisfaction with existing processes.

As the Forest Service and other U.S. organizations chart their course of changes, they would do well to consider those who have researched fundamental change. In 1989, Merrelyn Emery (Centre for Continuing Education, Australian National University) in *Participative Design for Participative*

CHANGE PRODUCES — LOSS —

- Loss of Identity
- Loss of Control
- Loss of Meaning
- Loss of Belonging
- Loss of Future
- Loss of Competence

Democracy, described "a new and major wave of activity to democratize organizations for more learning, multiskilling and productivity. That wave continues to grow, both in Australia and internationally. One of the most positive aspects of the new wave is the trend towards explicit recognition that the enterprise or workplace of the future is a 'learning organization'. A learning organization is one structured in such a way that its members can learn and continue to learn within it. The organizational structure itself is an environment for continuing education."

Two principles

Two basic principles of organizational structural design exist: bureaucratic and democratic. The significant difference between the two is the relation of people, tasks, and supervisors within the structure. "For organizations to behave flexibly and adaptively, they must contain a degree of redundancy. There are two basic ways that redundancy can be built in.

(1) by adding redundant parts [people] to the system; each part [person] is replaceable as when one part [person] fails [gets sick, is not at work, doesn't produce work] another takes over;

(2) by adding redundant functions [skills] of any part [person] will be redundant to the role it is playing at the time; as and when a part [person] fails in the function it is performing, other parts can assume the function..."(Emery, F. 1977).

The first way creates a bureaucracy, also known as organizational Design Principle 1 (DP1). Perhaps this way of looking at a bureaucracy explains why our current agency structures are not flexible or adaptable enough to deal with modern changes—we are not able to maintain enough redundant parts/people when a person's skill fails or their vacated position can not be filled due to budget cuts (or they travel frequently or demand for their skills outstrips the time available to respond). Instead of blaming the

people or the agency, we should be blaming the bureaucratic structure and working to change it. But the bureaucratic structure has maintained its prominence in this country because of "[our] traditional belief that a hierarchy, one above the other, must mean that the superordinate has the right to order the subordinate to obey..." (Emery, M. 1993).

A non-dominant hierarchy alternative to bureaucracy exists and is known as the participatory democratic organization, based on Design Principle 2 (DP2)—the redundancy of function. When people understand organizational design principles, they are able to make structural changes in organizations based on what they know and what they continue to learn. Not only that, once people understand the principles, they also can make those changes without the chaos and inconsistency usually associated with organizational transitions. The principles provide a base for comparing and evaluating alternative organizational structures, making it possible for people to consistently screen out unsound ideas, fads, or ineffective proposals. I firmly believe that an understanding of the design principles is central and essential for leading organizational and cultural change.

The Emerys and their work

Thanks to years of research, many publications, and practical application of "participative design principles" by Merrelyn Emery and her husband Fred, and such social psychologists as Eric Trist and S.E. Asch, the alternative to bureaucracy (DP1) is functioning in many places around the globe. This alternative structure (DP2) is firmly based on the concepts of "participatory democracy," which are different from the concepts and structure of "representative democracy" currently used in the U.S. The work done by the Emerys and their peers is aimed at developing democratic organizational structures which create and sustain continuing learning envi-

ronments, particularly for managers and employees who are trying to behave responsibly in an environment characterized by rapidly growing uncertainty. Sound like anyone YOU know in an organization undergoing *downsizing* while *gearing-up* for new realities?

As far back as 1969, Fred Emery was working in Australia for democratization of the workplace—working with businesses, unions, and government agencies who were ready for a different organizational design. "As soon as Fred realized that the workers had already conceptualized the need for a more satisfying and productive design, there remained only the need to create optimal conditions for constructive utilization of the mutual trust required... Maximal effectiveness is obtained only by designing in the unique circumstances of people and environment, in *your place*. The tools themselves have proved to be cross cultural but their application and the final product in terms of a first new design is a matter of the creativity and collective concern of the participants. Among the benefits of a genuine participative design is that it goes a long way towards solving the problem of resistance [to organizational change]" (Emery M, 1993).

The Emerys have devised a workshop format to assist managers and employees to design and implement organizational transitions, including steps for clarifying the vision of the "new" structure and developing operational guidelines. They address the *who should attend* issues by saying "the most adequate and effective designs come from those whose jobs are under review...people pooling their various and usually fragmented, but always detailed, knowledge... The difficulties which are almost inevitably met in the initial phases of implementation may be found to be overwhelming if designs are imposed from above or by external agencies such as social scientists. The *people must own' their section of the organization*" (Emery F. & Emery M. 1992).

Psychological Criteria
Essential Elements for Employee Effectiveness

1. Adequate Elbow Room. The sense that you are your own boss and that, except for some unusual situations, you do not have some boss breathing down your neck.. But, not so much elbow room that you don't know just what to do next.

2. Learning on the Job. Opportunities exist to learn and go on learning, because you are able to (a) set goals that are reasonable challenges for you and (b) get feedback on results in time for you to correct your behavior.

3. Variety. Your job has an optimal level of variety; you can vary the work so as to avoid boredom and fatigue, and gain the best advantage from settling into a satisfying rhythm of work.

4. Mutual Support and Respect. Your working conditions are such that you can and do get help and respect from your co-workers. Conditions are avoided wherein it is in no one's interest to lift a finger to help another; where people are pitted against each other; where the group interest denies the individual's capabilities or inabilities.

5. Meaningfulness. You have a sense of your own work meaningfully contributing to social welfare versus something that could be done by a robot. Or something the society could be better served by not having it done or at least not having it done shoddily. Meaningfulness includes both the worth and quality of a product, and having a perception of the whole product.

6. Desirable Future. Your job is not a dead-end job; but hopefully one with a career path which will continue to allow personal growth and skills increase.

Experience has shown that these psychological requirements cannot be better met by simply fiddling with individual job specifications...If the nature of the work allows room for improvement this will be best achieved by locating responsibility, for control over effort and quality of personal work and for interpersonal co-ordination, with the people who are actually doing the job.
M. Emery, 1992.

Fundamentals of the two design principles

In Design Principle 1, Merrelyn Emery tells us that the redundancy of parts results in an organization built on the one person one shift unit, where responsibility for co-ordination, control, and outcome is located one level above where the work is being done. The principle module in the DP1 organization is the Supervisor and his/her unit; this module is replicated horizontally and vertically throughout the enterprise or agency. Reassigning jobs from one unit to another or reassigning tasks from one worker to another for "job enrichment" or "reinvention" has no chance of instituting real organizational transformation. Communication and coordination

are still funnelled through Supervisors; power is still wielded by the Supervisor. A bureaucracy is still in place and bureaucracies create oppressive, not empowering, work environments. Even in an organization such as the Forest Service, which has so proudly fought the effects of bureaucracy for so many years, the structure leads to a downward cycle of apathy, de-skilling, dissociation, and distrust. Even inspired leaders fight a losing battle if they don't understand the significance of organizational structure in the search for change or reinvention.

In Design Principle 2, the redundancy of functions results in an organization built on self-managing groups who hold responsibility for their own work,

their own co-ordination and control (Emery, M. 1993). The DP2 organizational structure establishes systems wherein people take responsibility for their own work and behavior. Therefore, such organizations are called "democratic" in contrast to autocratic or bureaucratic organizations. People work in self-managing groups and have clear goals for their responsibility to accomplishing the larger organizational goal. The jobs necessary for accomplishing the goals are identified as a group and are not just redistributed between the workers. Supervisors are no longer in the organization. Organizational hierarchies are flattened based on changes designed by the workers and managers within the organization rather than from above or outside the organization. This has been shown by the Emerys and their colleagues to produce greater vitality, creativity, cooperation, commitment to, and time spent on task. H-m-mm, sounds like some reinvention going on?

Two other exciting aspects of the Design Principle 2 (DP2) organization are (a) the concept of "multi-skilling" and (b) paying people for the highest skills they hold, not the organizational position held. This approach to training and paying employees could match quite well with one of Chief Thomas' other beliefs—that people should be allowed to achieve higher grades (become "master performers") without having to become supervisors or managers.

How do we make the ideas workable? Start with workshops.

The PD workshop provides people with a process, concepts and a structure for analyzing their individual needs. It also assists in (1) assessing the desired work environment against the actual/current work environment of the group; (2) determining the full extent of the skills needed to accomplish their primary goal; (3) evaluating the skills within the group; and (4) developing a de-

tailed set of goals, objectives, and actions for achieving their desired outcomes. The workshop(s) can be designed to help discrete work units from an organization design their own democratic organization in groups of four to 10 (maximum 15) people. Or the PD process may help a much larger organization bring together people from different levels, in a series of workshops to create designs for integration among various work teams.

Within a workshop of 25 to 35 people, small subgroups work on design tasks based upon real-life relationships in the workplace. For example, let's assume a portion of the staff and associate staff in a Forest Supervisor's Office (SO) have been selected to attend a workshop as three "teams": 10 from the Planning, Information Management, and Resources groups; 12 from the Administrative or Business Management fields of personnel, contracting, and others; and 10 people from the Recreation, Engineering, and Lands groups. Current supervisors or staff officers are blended into the teams as close to real-life ratios as possible. A different example would select three work teams that are each a mix of the entire SO. Another way may involve slices of people from the Districts and the SO in a series of workshops.

Regardless of the mix, whoever attends has the responsibility and instructions to take back concepts and process as a top priority. Then attention can be given to any tentative design—as part of a truly participative, creative process to develop a final design from the entire unit (SO or Forest).

Basic assumptions

Proceeding with a single PD workshop or a series of workshops assumes that top management has sanctioned or approved the process and that they understand the full consequences of such events. Like other significant undertakings, democratizing an organization can only be as successful as the quality of its planning and of

its leadership. No one need initiate PD workshops for democratization until the agency/company has made the decision to change from the bureaucratic structure.

The Emerys emphasize that another basic expectation about any organization initiating PD workshops is "that management has a set of policies or organization guidelines which can be used by design groups in the joint setting of goals. This understanding in particular will be furthered if management can participate in the design process itself, at beginning and end... Management will better appreciate the organizational implications concerning, for example, training requirements and possible costs thereof, [staffing] situations, recruitment strategies, etc., if they are present at the end to hear the team sum up their design efforts. Remember, [management] will be in their own PD workshop... What is required is a comprehensive and measurable set of goals, including occupational health and safety, environmental and social responsibility, and individual psychological and economic (career path) goals. All of these should fit within the organization's strategic plan—if not, there must be an adaptive adjustment to either the sections' goals or those of the organization" (Emery, F. & Emery, M. 1992).

If an organization wants to learn what democratization means and entails, a PD workshop can be conducted strictly for educational purposes. If this approach is chosen, all people involved must understand explicitly its limitations; all participants must accept that there may be no followup to the learning process. Also, a special PD workshop can be used to train people to manage the PD process and run workshops for organizations.

Assessing and defining the criteria

The Emerys have found six psychological criteria to be essential for employee effectiveness: elbow room, on-the-job learning,

variety, mutual support and respect, meaningfulness, and desirable future (see sidebar). The Participative Design workshop allows a group to work through different needs of and opportunities for its members—and work to optimize every member's work environment and career path.

Once a group of four to 10 has had the basic psychological criteria explained to them in the PD workshop, they rate their current work situation as individuals—recording the scores in a matrix (see table 1). The first three criteria are scored from -5 (too little) to +5 (too much), with 0 being optimal, since these criteria need to be optimal for each individual. The second three are scored from 0 (none) to 10 (lots) since an employee can never have enough of these other criteria. The entire group reviews the ratings to learn from each other and to build a group understanding of what the scores mean. Based on the group understanding, the scores can be changed to have a relevance for the group and to more accurately indicate the best and worst situations currently faced by individuals.

As a team, the design group then builds a second matrix (table 2) to assess the types of skills necessary and available to accomplish their assigned goals. The skills are listed first, then every group member's level of ability to perform that skill is rated: "expert" gets two check marks; "minimal" gets one check; and "none" gets a "0". The group analyzes the array of existing skills as compared to the skill needs. For the group to become self-managing, each skill required should have at least two people in the team at the "expert" level, with the exception of truly unique or professional qualifications.

Thus, the second matrix becomes the basis for employee training and development. The examples used in table 2 could be a portion of the matrix developed by a design group composed of

planners, public affairs officers, and resource specialists. Using both matrices, the group then gets its first opportunity to design a new organization that both optimizes each member's work environment and achieves the assigned work goals.

The process also looks at what should happen with people currently in supervisory positions, since an organizational redesign using self-managing groups eliminates such positions. People in supervisory positions usually move one of two directions: they either become part of a self-managing work group because of their technical or professional skills needed to accomplish the group's goals; or they become part of a management group to provide policy and overall leadership to the other groups. These assignments are proposed by the group, with the "former" supervisor as an active member of the group. (Some exceptions are allowed for any member of the group to not "buy in" to the new organizational design, but the group designs the protocol for how this is to work "back home").

After some additional information about Design Principle 2 and further work on organizational redesign, the group is given an assignment to develop:

- comprehensive and measurable goals and targets
- requirements for training and other things, such as equipment
- changes for career paths to recognize proven skills held
- an explanation of how their design improves the scores on their matrix for the six psychological requirements.

Groups work to finalize their redesign and the other assignments; completing all portions during the workshop is not required. The group must leave with a feeling and understanding for the remaining work, finalize it later, then negotiate with management.

One thing Merrelyn Emery is quite adamant about: "It is absolutely critical for the continued

good functioning and adaptiveness of a group that they have conceptual knowledge of the design principles and what is involved in self management. With this they can deliberately evolve their design towards greater group responsibility and effectiveness... Simply setting up groups and calling them self managing without their appreciation of what is entailed in responsibility for co-ordination and control, and without an opportunity to agree as a group on the 'how,' can induce frustration and short-lived cohesion. In large organizations with many levels of dominant hierarchy and diverse operations and products, it will be necessary to run PD workshops which have overlapping membership of the middle ranks. This increases the options of middle management as well as ensuring greater coherence of design and learning up and down the old hierarchy" (Emery, F. and Emery, M. 1992). If all employees can not attend a PD workshop, specific actions must be designed to ensure the entire workforce is educated (by peers, leaders, or others).

The Emerys said in one of their earliest work: "Changes in organizational design affect the nature of communication and power but the reverse does not hold. Provided we have a group and not just a collection of individuals or a mob, and that the group has accepted responsibility for a group task, then it will seek to make its life easier (or more productive for their ends) by: (a) communicating quickly, directly, and openly the needs for co-ordination arising from task or individual variability; (b) by allocating tasks and other rewards and punishments to control what they consider to be a fair contribution by members... These groups are self-managing, not autonomous...They are working with materials and equipment for which the company is responsible for getting an adequate return. Differing organizational circumstances will determine the range of responsibilities for differ-

ent working groups " (Emery & Emery, Part III, 1976).

Can DP2 start small and spread?

A key question needs attention: How do we extend the concepts and operational understanding of participatory democracy and DP2 beyond a single work unit interested in using self-managing groups? How do we make this extension to all levels and to the methods which link groups throughout an organization?

Grassroots actions have begun in the Forest Service as individual Ranger Districts have sought training from external consultants on "self-managing groups" or "self-directed teams." Employees are working with rural communities in collaborative processes and places like the Ochoco National Forest and the Eastern Region of the Forest Service. They have been commended by "organizational excellence" author Tom Peters and Vice President Gore's National Performance Review for their "pilot" efforts. With these examples, some could say: *The transition has already begun. Why do we need anything more? Why is this not enough?*

I think three reasons exist for "needing something more." First, I don't think we can afford the time for the trial-and-error method that has lead the Forest Service efforts to date; we need the concepts and tried-and-proven methods of participatory democracy and DP2. Some units have been lucky enough to discover solutions that are related to the larger change but we need people to teach the constructs of such change throughout the agency. The second reason for "needing something more" is related to the first reason. Without an understanding of the constructs of participatory democracy, when an enlightened manager of one of these "pilot" units leaves the next (PD-uneducated) manager can sabotage the changes or directly reverse the process—reverting to the old, familiar bureaucracy.

No change is currently moving consistently throughout the Forest Service to support the continuation or evolution of the new concepts. Several "exceptions" are being touted because individual Ranger Districts are successfully transitioning to "self-directed teams" or to organizations based on newly-delineated ecosystem management units. But until the entire organization understands the underlying concepts and supports the transformation, these examples are likely to remain exceptions.

And third, the current process being used by the Forest Service Reinvention Team encourages different levels of "learning" and "working through" issues, but the top managers in the agency and in USDA aren't *doing* the "learning" and "working through." How can they expect to "own" their part or the "whole" of a reinvented Forest Service if they have turned the learning over to a taskforce—the Reinvention Team? The Reinvention Team itself is doing a tremendous amount of learning; is this experiential learning transferable to the rest of the agency?

I think it's time to change the focus to teaching employees and managers (including all those at the top) the concepts underlying participative design so they may create a DP2 structure which matches the unique people, activities, resources, customers, and skills on their units.

Moving to a total organizational restructure

Fred Emery has identified four basic steps which are necessary for organizational restructuring to reach a successful conclusion, which I have modified somewhat to outline a process for a proposed Forest Service restructuring:

STEP ONE: Management and workers (including union representatives) need to explore in very concrete detail what could be achieved in the various levels and branches of the agency from moving toward an organization based on self-managing work

Table 1. Matrix for the 6 Criteria

Psychological Criteria	Name of Participants				
	Maria	Tao	Jon	Kim	Jose
1. Elbow room for decision making	-2	0	-1	-3	-2
2. Learning:					
(a) setting goals	-4	+3	-2	-3	-3
(b) getting feedback	-3	-4	0	+4	-4
3. Variety	-3	+5	0	-4	-3
4. Mutual Support and Respect	8	4	2	7	8
5. Meaningfulness:					
(a) socially useful	9	9	9	5	9
(b) seeing whole product	4	10	7	3	4
6. Desirable Future	3	7	6	2	2

Adapted from chart by M. Emery 1993

groups. Typically this would require some form of participative design workshop process/series since no other forum exists which can be replicated for effective vertical and horizontal organizational dialogue. The dialogue must address the specific function(s) or roles each level of the hierarchy serves from the ground—District, ecosystem, or whatever unit is selected—upwards.

STEP TWO: Once agreement has been reached that significant gains are to be achieved from such a redesign, then further agreements must be made regarding:

- Degree of autonomy (varies based on organizational unit)
- Levels of multiskilling required (to determine minimal staffing levels and to determine where multiskilling isn't feasible for specific expertise requirements)
- How increases in productivity are to benefit the workers/group

as well as the agency (this may be where changes in personnel policy are needed to pay people for their highest skills, institute "broadbanding" job classifications, etc.).

Both step one and two require more work than managers and employees currently must produce, because such change requires people to stop, think about, discuss, and *try* different processes and modes of working together. New "norms" are being established in this step; people in management positions must function as leaders—providing policy, resources, and encouragement—in their own self-managing group.

STEP THREE: Seek binding agreements with the appropriate "authority" (Congress, USDA, and the Executive branch).

STEP FOUR: Top management must redefine career structures for people in "foreman" positions and for middle managers. This redefi-

Table 2. Matrix for Skills Currently Held

Essential Skills	Maria	Tao	Jon	Kim	Jose
Strategic Planning	✓✓	✓	0	0	0
Technical Writing	✓	✓	✓	✓	✓✓
NEPA Process	0	✓✓	✓✓	0	✓
Media Writing	0	0	0	✓✓	0
Public Involvement	✓	0	✓✓	✓✓	0
GLS	✓	✓✓	✓	0	0
Watershed Analysis	✓	✓✓	✓	0	✓✓
Rural Development	✓✓	0	0	✓	✓
Etc.					

Adapted from chart by M. Emery 1993

*We have to see, I think, that
questioning the value of old rules
is different
from simply breaking them.*
Elizabeth Janeway

dition utilizes the participatory democracy concepts.

The Emerys (1993) note why step four is important: "Involvement evokes powerful feelings of psychological ownership and as the interests of the involved have been taken into account, so there are less people to resist the change...If the change proposed has been sufficiently broadly discussed to have encompassed the concerns of the potentially disadvantaged; e.g., middle management, and they have been instrumental in the resolution of their concerns, then the stronger it becomes...This assumes that at the beginning of the process guarantees will have been given as to the active sanctioning of the process and its outcomes [by top management]. We are not discussing here talkfests, sensitivity or coping, 'how to adapt', personal development activities. We are talking the hard realities of structural and economic change..."

If all the stages are successful, all employees would be exposed to the principles of Participatory Design and have the opportunity to design their own self-managing groups. Managers would not only hold their groups of employees accountable for organizational goals, but they would be held accountable by their employees to provide leadership. The ideal, which has long been discussed in the Forest Service, would become the reality: higher levels in the organization would provide services to the employees in direct contact with people and the land.

This process is not without tremendous cost

For employees, the emotions and reactions associated with the first two stages of change are the emotions associated with the

grieving process: denial, disorientation, worry or fear, anger, acknowledgement, and bargaining. There is also sadness, withdrawal, or depression. Many people in organizations are grieving—they are grieving the loss of the old, familiar ways and norms.

Other people may not be feeling any "grief" at this time: they've already progressed to the third stage of change, or they have not yet been touched by much of the chaos, or because they are fortunate to be in positions of power—directing the change, but not affected by it (yet). Using the Participative Design workshop process could put "learning" and "leadership" into the change process for everyone, and help people who are feeling the greatest sense of loss get to the third stage of change more quickly—the stage of new beginnings.

Taking responsibility

Chief Thomas has said he wants leaders "to have a passion about what they're doing" and he wants "the people that work for them to share that passion." He said, "I know it's there, but people don't seem to let it leak out much any more." The science of organizational structures shows that bureaucracy works against people's passions.

Authors Loden and Rosener said it another way in their book, *Workforce America! Managing Employee Diversity as a Vital Resource*: It is time for the organization to take responsibility for the lack of advancement and development of employees, and stop turning the victim (of the bureaucracy) into the individual villain. It is time for people to stop believing that individuals "just couldn't cut it," when the conventional organizational structure challenges even top-performing employees to maintain their passion and develop their competency.

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Books

Reviewed
by Jonne Hower

I recently attended a conference where the keynote speaker, a leading futurist, claimed that "strategic planning for the future" was an oxymoron. His claim was that we brought to the planning table an enormous amount of knowledge about the past, information about current relationships, and nothing about the future. The books I reviewed for this issue tend to confirm his statement. There are ideas in them, however, that can be extracted and used in the future planning process.

***Reinventing Government. How the Entrepreneurial Spirit is Transforming the Public Sector.* David Osborne & Ted Gaebler.** (Penguin Group. A Plume Book. 1993.)

Our governments are in deep trouble today. This book is for those who are disturbed by that reality. It is for those who care about government—because they work in government, or work with government, or study government, or simply want their governments to be more effective.

If you are involved in local government, i.e., a school board or neighborhood organization, this is a book for you. If you are involved in staff budgeting and have an opportunity to institute an innovation, read this. If you are a manager, and have been delegated autonomy and authority, read this, but it is highly likely your agency/work unit is already putting into practice many of these principles.

The authors look at government sectors which demand the largest share of the budgets: providing services such as education and police protection and, on the federal level, the Department of Defense. They detail countless examples of reorganizing—reinventing if you will—to provide the service needed.

The best examples are from the local level:

- The school boards which created choices, a form of com-

petition, among high schools and allowed students to select their school.

- A state which allowed high school juniors and seniors to enroll in college and earn dual high school/college credits. Ninety-five percent of the students were satisfied or very satisfied; 90 percent learned more than other high school students and studied more. Even though 60 percent were earning B, C, or D's in high school, 50 percent received A's or B's in the college courses.

- Public housing projects which organized themselves to manage and ultimately, purchase their project. With proceeds from cost savings of operation and management, they invested in additional housing.

- Fire departments which invested heavily in fire prevention, including installation of sprinklers in all new structures (even residences) and, therefore, have low fire-fighting costs.

In the chapters devoted to "Mission-driven Government: Transforming Rule-Drive Organizations" and "Results-Oriented Government: Funding Outcomes, Not Inputs," I glimpsed a vision to bring to my own natural resource agency work. In this economic and politically fast-moving time, every agency, including mine, is examining the "reinvention" question. Here in these chapters is language to bring to our own committees. For instance, the authors claim "institutions built around turf rather than mission tend to be schizophrenic." When done right, they say, a mission statement can drive an entire organization, from top to bottom. It can help people at all levels decide what they

should do and what they should stop doing.

"Results-Oriented Government" focuses on measuring what gets done and identifies the need to measure results. The authors claim if you can't see success, you can't reward it and if you are not rewarding success, you are probably rewarding failure.

A large portion of the book is dedicated to "customer service." And, I believe, that is the greatest question facing natural resource agencies today. Unless we can define the customer of our agency, we will continue to be tugged in opposing directions by the most effective (loudest) voices in interest groups, political constituencies, and industry. Are our customers our funding source, the federal Congress, the recreationist, industry, wilderness groups, or generations yet to be born?

If you are willing to work for ideas to reinvent your own office, this book has information for you. Or, if you work in local government, there are many examples to get the creative juices flowing.

***The Virtual Corporation. Structuring and Revitalizing the Corporation for the 21st Century.* William H. Davidow & Michael S. Malone.** (HarperBusiness, of HarperCollins Publishers. 1992.)

The virtual corporation began as a vision of futurists, became a possibility for business theorists, and is now an economic necessity for corporate executives. All of this has occurred in little more than a decade. The importance of this vision cannot be overstated. By

the year 2015 the United States will either be a leader in this new business revolution or it will be a postindustrial version of a developing country. Either a nation of independent knowledge workers or a colony of economic serfs. It will either enjoy a high standard of living or suffer increasing impoverishment. What a vision the authors offer for our future!

To an outside observer, a virtual corporation may appear to be edgeless, with permeable and continuously changing interfaces between customer and supplier. Inside, relationships will be even more amorphous, crossing department lines. A hallmark will be a corporation dedicated to thinking ahead and instituting change as a result of that.

What has created such a possibility? Information held in databases. In the past, the most powerful database for each of us was the one held in our own memories. Now, however, computers can provide infinite databases linked in infinite configurations. This is the basis for change in the marketplace and, therefore, in the workplace.

Employees will not look like their counterparts of our time. According to the authors, nonimmigrant white women will represent the fastest growing fraction of the labor force, contributing an estimated 42 percent of new workers between 1985 and 2000. Native, non-white women will hold a larger fraction of jobs. And, immigrants will remain one of the most dynamic components of the labor force with more immigrant men (13 percent) and immigrant women (9 percent) added to the work force before the end of the century than native nonwhite men (7 percent). If this is the corporate world, can government offices be far behind?

The authors offer a vision of the workplace where job descriptions will be intentionally vague, rewards linked to performance of teams, and the location where the work is to be done, unidenti-

fied. Restructuring of companies must be "meaningful" or organized along lines which support long term goals. And, the managers, often stripped of historical perquisites of power and authority, must cope with a fluid group of employees who are speaking up, challenging authority, and charting their own course.

What to do? The authors claim the answer lies with top management and the reward system they design. Of course, they go on to say that transition and change will not happen overnight and will rely on the level of support corporations receive from society. The final chapter explores what government and society will do to support the movement. In brief sections here, the authors examine industrial policy, tax policy, infrastructure, legal reform, and labor organizations.

Finally, they suggest trust and teamwork is an idea whose time has come. Really, don't they think it is necessary now?

Complexity. The Emerging Science at the Edge of Order and Chaos. M. Mitchell Waldrop. (Simon and Schuster, A Touchstone Book, New York. 1993.)

How could I pass up a book with this title? It seems to reflect the current state of natural resource management. Or, on second thought, the title mirrors my hope for the state of natural resource management—ecosystem based management. ("But we've always managed for the ecosystem.") Collaborative process. ("Don't we do enough public involvement, anyway?") Blurring of agency lines. (What? You mean let them know we are guessing?) Please, is there a framework to be found in this book? Well, maybe.

Although the foreword of this book (titled Visions of the Whole) says it is about the science of complexity, the book itself seems to be more about the founding of a think tank called the *Santa Fe Institute*. Interesting reading, sure, but it doesn't quite live up to its billing of the marriage of a new economic theory with both physical and life sciences. The foreword poses:

•Why did the Soviet Union's forty-year hegemony over eastern Europe collapse within a few months in 1989?

•Why do ancient species and ecosystems often remain stable for millions of years—and then either die out or transform themselves into something new in a geological instant?

•How did a primordial soup of amino acids and other simple molecules manage to turn itself into the first living cell?

•What is life, anyway?

And other tiny questions: "Why is there something rather than nothing?... The universe [is] governed by ... tendency toward disorder, dissolution, and decay ... [y]et ... has also managed to bring forth structure on every scale: galaxies, stars, planets, bacteria, plants, animals, and brains." How?

In the first chapter, the author introduces us to Brian Arthur, a young professional in the world of economic theory and application. And, he introduces us to his idea of "increasing returns" in the marketplace. Or, as the author translates: them that has gets.

The book goes on from there, detailing Arthur's professional life, crises, renewal and ultimate recognition. In the process we meet Nobel scientists and wannabes and receive a glimpse of their soap opera world. Eventually, the right mix of people hear about the right idea, they coalesce into a working group, go after funding and organize an interdisciplinary think tank.

This is great reading if you are interested in the minutiae of personalities behind the science. If, however, you are interested in the theory, possible applications of the theory, or answers to the tiny questions—this is a book to skip.

Reviewer Jonne Hower's Bachelor's is in Range Management from the University of Idaho and her Master's is in Communications from the University of Portland. She lives in Baker City, Oregon and works for the Bureau of Land Management. She is a WINR editor.

Kessler, *continued from page 8*

ecosystem view of rangeland management more strongly reflects that conveyed by my range professors many years ago, before linear thinking (and its analog, linear programming) changed the orientation of natural resources curricula.

And I believe it reflects the outlook of the Wyoming ranchers whose lands I hunt on each fall. Although disinclined to use jargon, these men and women have a decidedly "holistic" outlook on their operations. After all, these lands are their home, livelihood, way of life, and heritage for their descendants in the long run.

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This paper was first published by the Society of American Foresters in a proceedings of their Annual Meeting. It was then published with permission in *Rangelands* 15(3), June 1993, a publication of the American Range Society. The Society has given permission for publication in *Women in Natural Resources*.

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WHAT DID TEACHERS TELL THIS RESEARCHER THAT THEY NEEDED—OR WANTED BEFORE THEY WOULD BE COMFORTABLE TAKING STUDENTS TO NATURAL AREAS? THE ANSWERS MAY SURPRISE YOU.

ENVIRONMENTAL EDUCATION: A TEACHER'S PERSPECTIVE

DEBORAH SIMMONS

•Introduction

"We have a beautiful site. With woods, a meadow and a pond, what more could teachers want? We're even in the city limits. Why won't more teachers bring their classes?" Unfortunately, this is not a particularly unlikely scenario. Urban nature centers, parks, forest preserves and other natural areas are often underutilized as educational resources. Although it may be relatively common for teachers to arrange a trip to the zoo, museum or aquarium, they are far less likely to take their students to a nearby natural area for environmental education instruction (Simmons, 1994a).

We know that a number of dimensions factor into a given teacher's decision to teach environmental education at all, let alone whether they will take their students outside of the classroom for instruction. Research suggests that teachers' comfort level with nature, perceptions of various benefits and barriers to environmental education, and level of training all influence these decisions (see Ham and Sewing, 1988; Simmons, 1988; Simmons and Young, 1991; Young and Simmons, 1992; Simmons, 1993).

Additionally, there is growing evidence that teachers view natural areas distinctly, associating different educational affordances, benefits, and barriers with each setting (Simmons, 1993; Simmons, 1994b). That is, depending on the environmental context (e.g. amount of trees, openness of the area, presence of water, presence of buildings), teach-

ers determine the appropriateness of the place for environmental education instruction as well as their willingness to take their students there.

Given that teachers must make an extra effort to take their students to a natural area, it is important to understand what teachers feel they need to best facilitate these experiences. An examination focusing on the perceived benefits and barriers of providing nature experiences as well as personal comfort levels in nature can help.

But describing teachers' perceptions of their abilities and interests in providing nature experiences only enlightens one portion of the equation. To this point, investigations have virtually ignored the identification of those physical resources and support services most desired by teachers were they to take their students on a field trip to a natural area. What facilities do they feel they need? Do they want particular educational services to be available? To what degree do they feel that they need extra funding, staff help, or training? Are they concerned with getting lost or not having sufficient background information about the place?

The purpose of this paper is to identify those resources that teachers desire in order to provide experiences for their students in specific natural settings. With the answers to these questions natural area managers will be better equipped to provide teachers with the facilities and resources to encourage educational use of these sites.

•Research Methods

Personal interviews were conducted with 59 elementary school teachers from four cities in the Chicago metropolitan area, who teach primarily urban minority children (table



Photo of county park setting

1). An effort was made to include teachers with widely differing experiences with providing environmental education in natural settings. Each interview lasted approximately 45 minutes.

Building off of the results of previously conducted open-ended interviews with elementary school teachers (Simmons, 1993), an interview schedule was developed, tested and administered to research participants. The interview focused on questions concerning perceived resource needs, including the availability of bathrooms and water fountains, extra staff to chaperone the students, a good map of the area, background information on the area, special transportation, having lesson plans provided, and the need for special training. Four sets of photographs were used to portray varying natural settings that could be used for environmental education experiences: *Deep Woods*; *Rivers, Ponds, and Marshes*; *County Park*; and *Urban Nature*. (For an explanation of the methodology used to form the photographic groupings see Simmons, 1993.)

For each of four sets of photographs, depicting discrete settings (see below), teachers were asked to respond to the various questionnaire items.

•Photographic Groupings *Deep Woods*

These scenes are of heavily wooded, deciduous forests; a pine stand; and a prairie scene with woods in the background. There are no obvious indications of human impact; no structures, trail signs, or parking lots are visible.

Rivers, Ponds, and Marshes

This grouping represents a wide variety of water settings. One photograph showed

an urban river, another a recreational lake with a dock and rowboats, while another was of a turtle in a marsh.

County Park

These depict a rather manicured, developed park or forest preserve with mowed grass, big trees, picnic shelters, picnic tables, a water pump and parking lot.

Urban Nature

The photographs for this grouping, taken in downtown Chicago, all show some nature (e.g. trees, lawn, shrubs, Lake Michigan) juxtaposed with the cityscape.

•Study Participants

As can be seen in table 1, the teachers in this study were, for the most part, quite experienced. Eighty-three per cent have taught for more than five years; 42 percent have taught for more than 16 years. All were elementary school teachers, with 35 percent teaching kindergarten through third grade, 35 percent teaching fourth through sixth grade, and the remainder teaching multiple grades. Most of the teachers have completed a graduate degree (55 percent), with an additional 25 percent having completed some graduate coursework.

•Results

Perceived Resource Needs

The purpose of this study was to delineate the types of resources teachers feel they need in order to take their students to natural areas for environmental education. By determining what teachers consider essential, desirable, or unnecessary, resource managers can make informed decisions concerning site and program development.

As part of the interview, participants were asked to judge each photographic setting on the basis of 14 items related to perceived resource needs. The items, rated on a five point Likert scale (with 1 = not important - could go without it and 5 = essential - wouldn't go without it), were factor analyzed, resulting in four factors (table 2): *Logistical Supports*, *Site Information*, *Funding*, and *Educational Supports*.

Logistical Supports

Logistical Supports relates to meeting the basic needs of children while they are away from the school. Specifically, the *Logistical Supports* factor consists of two interview items concerning the perceived importance of having 1) bathrooms and water fountains available and 2) extra staff to chaperone the students.

Site Information

Unless the teachers are personally familiar with the specific area, they may worry about finding their way around the place. The *Site Information* factor includes four items describing the perceived level of im-

portance of having 1) a good map of the area, 2) trail guides or brochures, 3) background information on the area, and 4) visiting the site before they brought the students.

Funding

Going outside of the classroom for environmental education may only involve walking down the block to a nearby park or wooded area. However, many excursions require entrance or program fees and buses to the setting. The *Funding* factor included two items: extra funding and special transportation.

Educational Supports

The final factor consists of various resources that might be needed to strengthen or sustain the educational components of the experience. *Educational Supports* tap teachers' perceptions of the importance of having 1) lesson plans provided, 2) trained staff to help teach the students, 3) a naturalist or expert to teach the students, and 4) special training so that the teacher could teach students.

Perceived Resource Needs for Specific Settings

An examination of resource needs becomes particularly interesting when considered within the context of specific natural areas. What relationship, if any, exists between the environmental characteristics of a particular setting and perceived resource needs?

Deep Woods

The teachers felt strongly that they would need *Logistical Supports* (mean = 4.3) before they would take their students to the *Deep Woods* (table 3). In particular, they felt it was very important to have bathrooms and water fountains available (mean = 4.4) and to have extra staff to chaperone the students (mean = 4.2).

Equally important was the requirement for *Site Information* (mean = 4.3). It is interesting to note that the two most highly endorsed items, trail guides or brochures (mean = 4.5) and a good map of the area (mean = 4.5), are included in this factor. These two items were considered either very important or essential by 94 percent and 89 percent of the teachers, respectively (table 4). Likewise, the teachers expressed a strong desire for background information on the area (mean = 4.3) and the ability to visit the site before they brought the students (mean = 4.2).

Of significantly less importance was the perceived need for *Funding* (mean = 3.9). Interestingly, they seemed to feel that extra funding (mean = 4.0) was more strongly needed than special transportation (mean = 3.8).

Likewise, taken as a group, the teachers seemed to be only moderately concerned over the need for *Educational Supports* (mean = 3.7). With the exception of the desire to have a naturalist or expert to teach the students (mean = 3.9), the other items in this factor (i.e., special training, lesson plans, and staff to help) were all given mean ratings of 3.7. It should be noted, however, that these relatively low mean ratings do not signify a lack of overall endorsement by all of the teachers. For example, 63 percent of the teachers felt that having lesson plans provided was either very important or essential. Likewise, 56 percent felt that having special training so that they could teach their students was either very important or essential.

Rivers, Ponds and Marshes

As with *Deep Woods*, *Logistical Supports* (mean = 4.3) were highly endorsed for this particular setting. The availability of bathrooms and water fountains (mean = 4.5) was seen as nearly crucial. A full 90 percent of the teachers felt that it was very important or essential that these facilities were available.

Similarly, access to *Site Information* (mean = 4.2) was considered indispensable by the teachers. Over three-quarters of the study participants felt that having a good map (mean = 4.3), having background information (mean = 4.3), and visiting the site (mean = 4.2) were critical.

Although still considered important, the teachers are less concerned over the need for *Funding* (mean = 3.8). In particular, they felt that special transportation (mean = 3.9) was important, while extra funding (mean = 3.7) was considered less so.

Finally, the teachers were modestly supportive of the need for *Educational Supports* (mean = 3.6). Of the items in this factor, the participants were most interested in having a naturalist or expert to teach the students (mean = 3.7). Fifty-nine percent felt this was very important or essential. Sixty-five percent rated the availability of lesson plans (mean = 3.4) as very important or essential.

County Park

As with the other settings, it was felt that *Logistical Supports* (mean = 4.2) were critical for a trip to the *County Park*. Ninety percent of the teachers believe that access to bathrooms and water fountains is very important or essential (mean = 4.4).

The teachers were significantly less likely to feel the need for *Site Information* (mean = 3.6) should they take their students to the *County Park*. There was a modest amount of interest in visiting the site (mean = 3.8), but far less interest in having trail guides or brochures available (mean = 3.3).

Similarly, the teachers expressed only a moderate need for *Funding* (mean = 3.4),

with both items, extra funding and special transportation, receiving mean ratings of 3.4.

Educational Supports (mean = 2.9) were found to be significantly less important to the teachers. It is interesting to note that the score on this factor was the lowest given across all of the factors and settings. But even with these relatively low ratings, 42 percent of the teachers felt that it was very important or essential to have lesson plans provided and to have trained staff to help the teacher.

Urban Nature

The availability of *Logistical Supports* (mean = 4.3) is considered pivotal to a trip to *Urban Nature*. The teachers felt strongly that access to bathrooms and water fountains (mean = 4.4) and having extra staff to chaperone the students (mean = 4.2) were critical. Over 80 percent of the teachers felt these two resources were very important or essential.

Although considered significantly less important than *Logistical Supports*, *Site Information* (mean = 4.0) is still regarded as being needed. In particular, the teachers felt it was crucial to have a good map of the area (mean = 4.5). As might be expected, they were less certain of the need for trail guides or brochures (mean = 3.4).

They were, however, significantly more convinced of the need for *Funding* (mean = 4.2) before they took their students to *Urban Nature*. Specifically, they felt they would need special transportation (mean = 4.3).

Finally, the teachers were significantly less concerned about the availability of *Educational Supports* (mean = 3.1). Although they endorsed the need for special training (mean = 3.2) and staff to help teach (mean = 3.1) at only modest levels, they were most interested in having lesson plans provided (mean = 3.5). Over half of the teachers felt that lesson plans were either very important or essential.

•Discussion and Conclusions

The participants in this study clearly delineate a set of resources needed should they take their students to particular natural settings. The teachers were nearly unanimous in their desire for trail guides or brochures if they took their students to *Deep Woods*, bathrooms and water fountains were named the most desired resource for the *Rivers, Ponds, and Marshes* setting, while having a map was most important for a visit to *Urban Nature*. Although slightly different rankings of the resource needs were proposed across the four natural settings, there is a great deal of commonality.

There seems to be strong agreement that having bathrooms and water fountains available is important. It is only sensible that as teachers contemplate taking their stu-



Urban Nature



County Park



Rivers, Ponds & Marshes



Deep Woods

Table 1 Background Information

Gender	
Male	19%
Female	81
Age	
20-29	15%
30-39	21
40-49	38
50-59	26
Education	
College Degree	19%
Some Graduate Work	26
Graduate Degree	55
Years in Teaching	
less than 5	17%
6-10	19
11-15	22
more than 16	42
Grade Level Taught	
K - 3	35%
4 - 6	35
multiple	30
Where Teachers Grew Up	
Urban	40%
Suburban	24
Small Town	28
Rural	8
Ethnicity of Students	
Asian American	3%
African American	33
Hispanic	25
Native American	1
White	38
Ethnicity of Teachers	
African American	5
Hispanic	7
White	88

Table 2 Perceived Resource Needs**Logistics**

availability of bathrooms and water fountains
extra staff to chaperone the students

Site Information

a good map of the area
trail guides or brochure
background information on the area
visiting the site before I brought the students

Funding

extra funding
special transportation

Educational Supports

having lesson plans provided
trained staff to *help me* teach the students
a naturalist or expert to teach the students
special training so that I could teach my students

dents away from the security of the school, they worry about the children's basic needs. Similarly, a previous study suggested that as teachers venture out from the more structured environments of the classroom or even the museum, they become increasingly concerned over class management issues (Simmons, 1994b). They are worried about the children's safety, potential hazards, and exposure to other people who may cause problems (Simmons 1994b). Consequently, it is not unreasonable that they would identify strongly with the need for extra staff to serve as chaperones.

With the children's safety and physical needs at least partially addressed, the teachers focused next on meeting their own psychological need of knowing where they were going and what they might find when they got there. The importance of being well oriented to a place cannot be under estimated. There is considerable evidence that losing one's way or feeling disoriented is psychologically stressful (Zimring, 1982; Weisman, 1981). There was a strong desire for maps, trail guides or brochures, site visits and background information. The teachers needed to know that they would not get lost, and that they would have basic information available to them before they could commit to the educational program.

A next set of concerns relate to getting the students to the educational experience. Planning a trip away from the school may require a number of resources. In particular, they may need funding to pay for entrance fees and miscellaneous costs as well as special transportation to the setting.

Teachers identified a number of educational needs. The lower relative rankings of these items seem to outline a continuum that prioritized concerns for safety and physical necessities over perceived requirements for educational aids. However, the lower relative ratings do not necessarily indicate a complete lack of interest; a large percentage of the teachers did express a strong desire for various *Educational Supports*. As examples, 69 percent wanted a naturalist or expert to teach their students in the *Deep Woods* setting, 65 percent wanted to have lesson plans provided for the *Rivers, Ponds, and Marshes*, 44 percent expressed a desire for training so they could teach in *Urban Nature*, and 42 percent wanted to have trained staff to help them teach at the *County Park*.

The good news is that resource and site managers can meet most of the highly desired items easily by providing maps to well marked trails and study areas, and brochures with teacher-friendly background information. The task, of course, is to disseminate this information to the teachers.

In more remote or less developed areas it may be more difficult to provide access to restrooms and water fountains. Transporting water to the site in jugs or coolers can easily satisfy needs. On the other hand, providing restrooms may require some creativity such as making arrangements with nearby restaurants or stores. The resource manager must realize that if no access to restrooms can be arranged, it may not be a particularly suitable site for school use. However, by making certain that teachers know what facilities are present at the site, the teachers can make informed decisions and plan their programs appropriately.

Finally, when training programs are developed they should address the teachers' concerns over class management, funding issues, and background information for the site. It is recognized that site managers are rarely in the position to provide direct funding, transportation or chaperones. But, they are in the position to provide information concerning these issues, aiding teachers by helping them develop fund raising projects, find low cost transportation alternatives, and devise methods of recruiting and working with chaperones. Although some focus on teaching methods may be welcomed, the teachers may find sessions and support materials that confront directly their concerns about teaching in a particular setting most beneficial.

Generalizing research results from one region of the country to another is always a risky activity. However, there is nothing inherent in these resource needs to link them to the Chicago area; it is likely that teachers in New York, Atlanta, or Seattle would express similar needs. Consequently, adapting for local conditions, resource managers are encouraged to inventory the support services they provide at their sites with these teachers' perceptions in mind. As more of their needs are met, it is reasonable to assume that more teachers will be interested in utilizing the site for environmental education.

Table 3 Resource Needs for Specific Natural Settings

Factors	Natural Area Settings			
	Deep Woods	Rivers, Ponds & Marshes	County Park	Urban Nature
	Mean	Mean	Mean	Mean
Logistics	4.3	4.3	4.2	4.3
Site Information	4.3	4.2	3.6	4.0
Funding	3.9	3.8	3.4	4.2
Educational Supports	3.7	3.6	2.9	3.1

This study was funded, in part, by the USDA Forest Service, North Central Experiment Station, Chicago, Illinois.

Table 4 Relative Importance of Resource Needs

Resource Items	Natural Area Settings (Percent who say item is very important or essential)			
	Deep Woods	Rivers, Ponds & Marshes	County Park	Urban Nature
bathrooms & water fountains	86%	90%	90%	85%
a good map of the area	89	82	71	87
background information on the area	83	77	69	81
extra staff to chaperon the students	77	75	69	83
visiting the site before	75	77	71	73
tree/plant identification books	88	80	63	11
special transportation	65	71	62	83
trail guides or brochures	94	71	66	52
extra funding	67	67	54	77
having lesson plans provided	63	65	42	56
a naturalist or expert to teach	69	59	38	25
having science equipment provided	57	55	39	15
special training so I could teach	56	51	37	44
trained staff to <i>help me</i> teach	56	47	42	42

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MOLLIE BEATTIE

AN INTERVIEW BY DAINA DRAVNIKS APPLE

INTERVIEW

WiNR: In September 1993, you became Director of the U.S. Fish and Wildlife Service. According to press releases about you at that time, you have lived in Vermont for most of your work years?

Beattie: I did not grow up in Vermont, but have lived there almost 25 years—since 1968. Vermont is a place where, for literally hundreds of years, human beings and the landscape have worked together. It is a landscape that is still rich in natural resources, but one that has been very much molded by human influence. New England is small, was settled early, and has always had an agricultural and timber history. That tradition remains very much unchanged. At the same time, the environmental laws are very strong in Vermont. I notice now, having moved away, that development projects get a lot of scrutiny there, compared to other places. I am amazed at the lack of public reaction to large-scale development projects that will have an impact on resource-based industries in other places. People just do not seem to have an interest in the basics. It's almost as if New England, being so old, has learned earlier than the rest of the country. These lessons are now extremely applicable to many geographical locations.

WiNR: Can you give us an example of this long history of co-existence?

Beattie: My early professional years illustrate my point, I think. I went to the University of Vermont and got a Master's degree in forestry. At that time, if I recall, you had a choice between forestry or recreation out of the School of Natural Resources. It was very much an ecosystem approach, even though nobody talked about that. In fact, when I graduated, in my first job which was at Dartmouth College, I worked on the wildlife impact section of an environmental impact statement on a wood-fired power plant in Maine. In my second job, a year later, I was hired—even though I was a forester—by the university of Vermont to manage a game bird project in southern Vermont. Their thinking was—if you are going to harvest timber, what's the impact on wildlife? And if you are going to protect wildlife, what is the impact on timber? The schooling is even along those lines.

I also remember early on, many of us who started through graduate school in New England and had contact with people from other parts of the country were amazed to find that there was this great rift between "wildlifers" and foresters, and that if you were one, you were definitely not the other. Often there were conflicts between them. In New England, that didn't happen. We are much more interchangeable there, and have been for a long time.

WiNR: In your new position as Director of the Fish and Wildlife Service, will you continue that tradition?

Beattie: Now you see, interestingly enough, a person with a wildlife background as the head of the Forest Service, and a person with a forestry background as head of the Fish and Wildlife Service. And I think it does show that what we were thinking in New England for a long time is where we all ought to have been. Now the country is realizing that the nation's stewards in the different agencies really can't think of themselves in terms of different disciplines, but maybe as people with different perspectives on the same system that really need to hook together.

WiNR: This may also explain the apparent simultaneous rise of a number of women from New England who come from that tradition. For example, the Society of American Forester's past president Jane Difley is a Vice President of the American Forestry Association. She is from Vermont.

Beattie: That's right. The New England philosophy is based on its given limitations of geographic size and climate. It is very much an ethic there of realizing that there are limits and that you can only push things so far. I think what you have seen is the awareness of limits kind of rolling across the country, and then, *really* coming to bear lately in the Pacific Northwest with the various natural resources issues they are facing.

WiNR: Will the New England model help with endangered species? How will you handle ecosystem management vs protecting endangered species by single species which is the way Fish and Wildlife handles things now?

Beattie: The Fish and Wildlife Service is moving to try to manage more by ecosystem than by individual species. We do have some latitude to be able to set our priorities on places where there are multiple listings of species. We interpret multiple listings of species that are endangered as a signal, in fact almost by definition, that you will have a damaged ecosystem, an ecosystem that is unraveling. On the other hand, if you have a single species somewhere in an outlying area, you may be able to write that off to some specific sort of damage, but not to systemic damage. But where you have multiple listings, you probably are looking at serious impacts on an ecosystem. We do have a good degree of discretion and an ability to focus on those areas, as opposed to the single species.

WiNR: Can you change the way you do business that easily? Many groups complain that even the already listed species do not have plans.

Beattie: We have to do a better job of making sure we have our priorities set that way in order to do it. We do have to respond to lawsuits. We have had several about listed species. We can, I think, begin to defend ourselves from those lawsuits by proving that we are putting our resources where there are multiple listings. It is critical for us to do that, because we need to be talking more and more about endangered species not only as fellow creatures who have intrinsic value—making their survival an ethical issue—but as an issue of public health and safety and economics.

We are really working hard to get the message out that you cannot see, for instance, jobs and endangered species on opposite sides of the equation, or in confrontation with each other, because the endangered species are almost always a signal that those jobs are in danger, too. Endangered species signal a non-sustainable use of resources. To see the situation any other way puts us all at risk. It is very important to us to start to address multiple species listings, because that is the way in which we demonstrate that what we are really after is protection of our own species. And the message is very simple: multiple species in trouble show that the ecosystem upon which we depend is being threatened.

WiNR: What is the situation with the Endangered Species Act?

Beattie: The counter-pressure against the Act is tremendous. It is there largely because previous administrations have waited until the last minute, listed a species, and then used the Act to regulate. And that has created bad feeling, misunderstanding, and has sent a tremendously powerful counter-message. There has been no effort to talk about ecosystems, or to use the Act as a way to cooperate on long-term conservation planning—which the Act allows you to do. So we really are having to overcome twelve years of misuse of the Act that has resulted in a contrary

message. It's an uphill battle but we continue to make progress.

WiNR: In some of the press releases sent out at the time of your appointment, you mentioned an emphasis on international work for the Service. Could you talk a little about that?

Beattie: I think there is a lot of quiet and important work going on in international ecosystems work. And it dovetails with our own effort to redirect the Fish and Wildlife Service toward an ecosystem approach. NAFTA has certainly given a spur to our work on the U.S.-Mexican border, where we have had a number of cooperative efforts over time. But now we are stepping up activity with the Mexicans. In fact, we hope, in our 1995 budget, to be able to provide \$2 million to the Mexicans to really come up with an ecosystem approach. Our Canadian-U.S. efforts have always been very, very good. We have had wonderful migratory bird collaboration with the Canadians. We have begun looking at the Bering Sea and at the multiple species up there that are in trouble including the fish stocks and everything that depends on them like the sea birds and sea mammals. With each boundary contact—it may begin over a single species, the Mexican wolf, for example, or the sea lions—eventually we see that the whole system is in trouble and begin cooperative efforts.

WiNR: There is a high economic cost to environmental protection. How do you persuade collaborators that it's in their interest that there should be resources spent *now* for the long term?

Beattie: The problem is—they *do* understand that, but they literally don't have the financial resources. Our effort in the Fish and Wildlife Service is toward capacity building. For example, the development of local governmental and local public entities to deal with conservation, development of private non-governmental organizations (NGOs), and to fund the development of research and information libraries. This is really where our emphasis has been and I think you are going to see it also coming out of the State Department because we have been talking to them about it. We have had wonderful cooperative projects and fruitful cooperation particularly from the Mexicans. It has not proven true to say that a country that has so many other demanding, pressing problems can't afford to

Mollie Beattie is the new Director of the Department of Interior's Fish and Wildlife Service. She talks here about endangered species, cooperation with foreign countries, science, the Biological Survey, and her new job.



manage its natural resources or care about them. They care about them deeply, and they are enthusiastic. Our efforts have been at the local level with local institutions where I think they are tremendously successful.

WiNR: The "best science" clause in the Endangered Species Act bothers a lot of people because it essentially allows anyone to bring before a judge their view of what the best science is. Unlike the National Environmental Policy Act, the oversight agency has no advantage in its case of what the best science is. Is this likely to change or will agencies still spend much of their time in court?

Beattie: You're referring to the "my



expert versus your expert, and mine's as good as yours is" phenomenon. First of all, in court generally speaking, the rulings that you hear about are mostly procedural. We have been taken to court lately over (1) the Federal Advisory Committee Act, (2) whether or not we made the deadline on a listing, or (3) if we defined something properly. I am seeing that as a continuing trend, but it's not our science that people are questioning. They are getting us on procedural handles when they can.

WiNR: I'll rephrase the question then, to ask you what "best science" means to you.

Beattie: There is always this praise of good science, as if it is going to give us the

answers. Good science sometimes just gives us the questions, because you can often find conflicting indicators in science. I think the thing people really have to understand is that science almost never gives us *the answer*, and that the question we face in natural resources is rather: "What are you going to do until the science gets here?" My answer to that is: we should do the most conservative thing for the natural resources. Too often it has been the other way, which is, we have to let the species go into further decline until we know more and can act with science behind us. In fact, we should be making a conservative judgment, which is to admit that there is clearly some risk here, so we must act. Our natural resources are too precious to risk; therefore, we should not stand around until the science gets here. I think that is the "best science" issue that we face at the moment.

WiNR: Will the new National Biological Survey (NBS) help speed science information procurement?

Beattie: I am just astounded by who is attacking NBS and what they say in their attacks. The same people who are complaining about getting their bulldozer running or their shovel in the ground when an endangered species is found, seem to be the same people complaining about the National Biological Survey. They complain that its effort to gather and coordinate all the information that is out there about the biological resources of this country are somehow a communist plot to deprive people of their property rights. Yet you say to them, "I thought the problem was that you

hadn't known the endangered species was there before you started your project?" This effort will make that information available to them and should save them time and money while doing good work for science.

The National Biological Survey is not going to send people out across the countryside counting the flowers. They don't have the resources to do that. They are starting by pulling into one place all the data banks that are already in existence. They will then query the existing data: "What do we know about?" and "How much do we know about it?" That seems like an eminently rational way to go about the management of natural resources, particularly those that are rare, threatened, endangered or getting scarce

otherwise. But what critics are doing now is amending the National Biological Survey in any way they can, as if asking a question about what is out there is somehow a plot to undo rights. These are again the same people who complain that they never knew something was there until the last minute.

WiNR: You're saying it's being amended?

Beattie: There were many attempts to gut it when the authorization bill went through the Senate. It hasn't been through the House. The main thrusts to amend have to do with all kinds of private land/ rights protection stuff. The two that succeeded in the Senate were the amendment to make sure that anybody who goes on private property from NBS has a written permission. When you think about the scope of the project, that is a fairly onerous task to get each individual property owners' permission. I know how time consuming and defeating this is: I did my thesis on information that I got off private land. The second amendment was designed to keep volunteers out of NBS, to allay the fear that this survey was just a pretense to get some radical environmental group out on your land so they can find endangered species and shut down your livelihood.

WiNR: Biological survey work originated in Fish and Wildlife Service, didn't it?

Beattie: Yes, but it is splitting off into a separate Bureau. I think it's a good thing. Both the Fish and Wildlife Service and the National Biological Survey, however, will continue to face people saying on one hand, "We'll fault you for not having good science," and on the other hand, "Let's try to stop you from getting it." It's an interesting conundrum.

WiNR: In what part of the country do most of the Fish and Wildlife programs focus?

Beattie: It depends. Endangered species issues tend to follow the development belts. The southwest, the southeast, and the west coast are really where the endangered species' emphases are. We have a long history and a big program in migratory birds which tends to be in the midwest. The 91 million acres of refuges are spread widely, although 70 million of those are in Alaska.

WiNR: Where are the other refuges located?

Beattie: Everywhere—in every state. But you will see concentrations around the migratory bird fly-aways, because that was one of the original purposes of the refuges, to provide shelter and food for migrating birds. But now mammals and other endangered species have protection within the refuges.

WiNR: What's the Fish and Wildlife Service budget and workforce numbers?

Beattie: \$1.2 billion and 7,700 in the workforce.

WiNR: This compares to the Forest Service which has a lot of field locations with upwards of 40,000 employees during peak seasons, 191 million acres of land to manage, and in recent history, a more production-oriented philosophy. You are not forest and production oriented like the Forest Service, nor protection and recreation oriented like the Park Service, so how would you characterize the Service?

Beattie: We are very diversified. We have first of all to manage the public lands that we have, which are the 91 million acres of national wildlife refuges and some other categories called waterfowl production areas. We do enormous amounts of work with other federal agencies. The Endangered Species Act requires our personnel to consult on federal actions when species are approved, plans devised, authorized, whatever. We work also with the Army Corps of Engineers on waterways, with the Forest Service on a large number of timber sales. We have a private lands program, where we provide technical services to land owners for habitat improvement in exchange for long-term agreements with the land owners that those improvements will stay there. That is becoming a big part of our effort. We have the fisheries unit, which does everything from fish habitat restoration to sport fishing programs to managing 75 national fish hatcheries. We really are emphasizing what we call habitat conservation planning, where we have found endangered species, usually multiple listings, as we mentioned earlier. We go out with land owners and try to come up with a long-term plan. And that's different work from the private land owner effort, a totally different program which is much more complex.

WiNR: How can one person really get a complete picture of the organization?

Beattie: Good question—and the answer of course is that one person can't.

But I started on it. I think I am proudest of a decision I made as soon as I was confirmed—battling off all the pressure for my time that ensued instantly—to make it a point to visit all seven regional offices within the first six weeks of being confirmed. I visited wonderful places and people from Anchorage to Atlanta, and Hadley, Massachusetts to Albuquerque. Actually setting aside the time, saying "no" to everybody else, and doing it was a great success, because it was the most important thing I could have done in terms of my understanding the organization, and in terms of really letting the organization know that people are number one in importance.

WiNR: You mentioned confirmation. You are a political appointee. Could you tell us how a political appointment comes about?

Beattie: I don't think there is any one methodology, so I can't speak for other appointees. Mine was just like you see in the movies. I got a phone call, someone said, "Would you be interested in this job?" and a couple of days later, I was talking to Secretary Babbitt. In terms of what led up to the phone call, to tell you the honest truth, I really don't know.

WiNR: Had you been active in a lot of environmental groups or have contacted a lot of politically oriented, environmentally oriented people?

Beattie: On the second point, no. I have not been tremendously active politically. But I had been a political appointee in state government in Vermont for six years, however.

WiNR: Was the work you were doing

in Vermont germane and good preparation for this position?

Beattie: Yes. I held two positions in those years. I was first the Forest and Parks Commissioner for the State 1985-1989. I oversaw forestry, parks, other public lands, did fish and wildlife plans, handled taxation of resource lands, oversaw wetlands, pesticide use. In 1989 I became Deputy Secretary for the Agency of Natural Resources. It was pretty much all the natural resources and environmental protection—including clean air, clean water, energy, solid wastes—all in one unit. I was with Governor Kunin in Vermont for six years.

WiNR: Did Governor Kunin have anything to do with the appointment?

Beattie: Of course I thought that she had been the connection, but indeed she didn't know about it until she was called by Bruce Babbitt. We never figured this out. It's still a mystery. I don't have the time to find out now. Too busy!

WiNR: How are women doing in the Fish and Wildlife Service? Are they pretty well integrated and represented well in higher grades?

Beattie: The numbers are looking better all the time—out of 7,700 employees, we are up to 2,704 women. I have two photographs, which are absolutely wonderful, of the Realty Division in 1968, and the Realty Division in 1994. It's really very telling about the diversity improvement. Unfortunately, even today, like most agencies, women are really concentrated in the administrative and clerical. But things are changing.

Mollie H. Beattie of Grafton, Vermont, was nominated by President Bill Clinton to serve as Director of the U.S. Fish and Wildlife Service and was confirmed by the U.S. Senate on September 10, 1993.

Beattie's prior experience include:
Executive Director, The Richard A. Snelling Center for Government in Vermont
Deputy Secretary, Agency of Natural Resources, State of Vermont
Commissioner, Department of Forests, Parks and Recreation, State of Vermont
Program Director, Windham Foundation, Vermont

She has been a Board Member of the American Forestry Association, the Vermont Land Trust, Vermont Natural Resources Council. She was Vice-Chair of a Defenders of Wildlife commission on the condition and future of the National Wildlife Refuge System

Beattie holds a B.A. in Philosophy from Marymount College, Tarrytown, New York; a M.S. degree in Forestry from the University of Vermont; an M.P.A. from the Kennedy School of Government at Harvard.



Number (December 1993) of Fish & Wildlife Service employees: 7,700

<i>Position and Series</i>	<i>Total Number</i>	<i>Women</i>
General Biologist (401)	948	283
Fishery Biologist (482)	643	84
Refuge Management (485)	656	86
Wildlife Management (486)	642	126
Combined Totals	2,889	579

In addition, there are 106 women in the personnel series, 23 in EEO, 29 in professional administration, 1,013 in clerical, 68 in the computer series, 48 who are administrative officers, and 43 in management and program analysis: a total of 1,330 women in these series.

WiNR: Are you downsizing? How will that affect diversity?

Beattie: Yes, we are downsizing. We have a buy-out program, which we are deciding on right now. The deadline is today, close of business. A draft of the action plan for diversity that I asked our human resources people for, I am also just adding the final points on that. So we are really going to see progress in diversity; we have put a lot of emphasis on it. One thing I want to say about diversity. It didn't start when I got here. The management team at the moment, in terms of the assistant directors and the deputies, are all male. But to their credit, and particularly to some of the individuals among them, they have really emphasized this.

I'm going at it the way I think it needs to be gone at now, which is to go through our whole personnel system looking at everything from education and outreach to hiring, promotion, and the climate inside the organization. This is a way which I don't think has been done before. But in the meantime, the emphasis that people here have put on broadening the diversity in Fish and Wildlife Services is really to their credit.

WiNR: Do you spend a lot of time on the Hill with Members of Congress?

Beattie: Yes, I do. But communication is so essential that I don't think about the amount of time it takes. Without making those efforts, life would be a lot harder and the Service would suffer. There is so much change going on. We have the buy-out, for example. We have just turned toward ecosystem management in the whole organization. We are really dealing in a very straightforward way with a huge funding shortfall in the refuge system so

we are rethinking where we put our resources and where we don't. And then this last week we moved to reorganize the Washington office. So all those initiatives require everybody on the Hill knowing exactly what we are doing.

WiNR: Being Director is a rigorous job. What is your management style?

Beattie: I never know how to answer that. I have wonderful people. This organization, more than most, has people who are here because they care so deeply about the work they do. My management style is to give them as much of it to do as possible. We have a management team in here that makes collective decisions and tries to go forward always together as best we can.

WiNR: What part of your job do you like the most?

Beattie: I like the issues, the policy issues, particularly. Not only are they satisfyingly complex, but they are about something that really matters. My last job before I came here was as Director of the Richard A. Snelling Center for Government in Vermont which is an institute for public policy and service. So I come to that interest quite naturally. The other thing I like, again, are the people I work with. Every time I hear anybody use the word "bureaucrat" in a disparaging tone, which it usually is, I just get up and leave the room, because I work with people who probably would go on working as long as they could, even if we turned the paychecks off. So those are the two things I like the best.

And if you were to ask me what is the least satisfying part, I would say that living in the city is the worst.

WiNR: How does this tremendous responsibility influence your private life?

Beattie: Obviously it is very stressful. It is like you are an athlete perpetually in training. You watch the clock to make sure you get into bed in time, because you know you've got to get up at 4:00 to read a paper. It takes a lot of discipline. But given that one is going to work at some job all your adult life, this is the best of all possible worlds. I'm married but I don't have kids, so I don't have that balancing to do. I manage to keep it together and keep it pretty intact.

Interviewer Daina Dravnieks Apple is Assistant Regulatory Officer for the Forest Service, Information Systems and Technology Staff, Washington, D.C. Her 17-year career in the Forest Service includes serving as Management Analyst for the Regional Engineering Staff, Region 5, San Francisco; Regional Appeals Coordinator in Region 5, San Francisco; Economist at Pacific Southwest Research Station, Berkeley, where she published studies on public involvement in land use planning; designed administrative systems; conducted organizational analyses and developed organizational designs; and conducted strategic workforce planning.

Her B.Sc. is in Political Economy of Natural Resources, and her M.A. in Geography are both from the University of California, Berkeley.

She is currently Chairperson of the Communications Committee, and has served as Chairperson of the Continuing Education Committee of the Society of American Foresters National Capital Chapter; she was President of Phi Beta Kappa for Northern California and served as National Secretary; and she is a member of Sigma Xi Scientific Research Society.

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WHAT ALABAMA INDUSTRY PROVIDES ALMOST 2,000 JOBS AND GENERATES MORE THAN \$87 MILLION IN MULTIPLIER REVENUES A YEAR—YET DOESN'T HAVE ENOUGH MONEY TO REPAIR ITS FACILITIES?

STATE PARKS' *IMPACT* ON ALABAMA'S ECONOMY

GARY LEACH
NELDA CLAYBROOK

To understand the economic impact Alabama State Parks have on the state's economy, we have to look at the income and employment supported by park guest expenditures and at revenue to state and local government attributable to those guests. During peak season of fiscal year 1991-1992, Alabama State Parks employed more than 1,100 people—410 permanent and 700 temporary—who were paid more than \$12 million.

Using a factor of 68.84 per million dollars—factors derived from the U.S. Bureau of Economic Analysis Regional Input/Output Modeling System—those park salaries would generate another

821 jobs in the private and public sectors. Where does that money come from?

State income tax paid on park payroll dollars is \$427,171. Employee benefits amount to over \$3 million: FICA 31 percent, state retirement 20 percent, health insurance 48 percent and unemployment compensation 1 percent. Using a factor of 1.89 per dollar spent, approximately \$2.7 million would be generated through the private sector from health insurance alone. Parks also spent \$13 million for maintenance, supplies, utilities, equipment and capital projects. Using a factor of \$1.89 per dollar, this generated approxi-

mately \$24 million as it moved through the private sector.

Park guests spent about \$23.5 million on lodging, food, golf, rentals, entrance fees, camping, and other park activities. With more than 6 million people visiting and over one million overnight guests, the money spent outside the parks in local markets on gas, food, gifts, and other items would be significant. Another economic benefit to the state is the collection and payment of sales and lodging taxes. In FY 1991-92, parks collected and paid over \$1.1 million state and local taxes.

To estimate how much money park visitors contribute to local economies, let's say an "average

family" is 3.5 persons. If they visit one park and spend the night, they probably won't eat all their meals at the park—they shop or eat at local fast food outlets, convenience stores, restaurants, and other stores. They'll also purchase gas for their return trip and buy souvenirs to take home. If we assume that our average family spends a total of \$32 a day per person, then a million overnight park stays with a factor of 1.89 per dollar would contribute approximately \$60.5 million to local economies statewide.

The parks' actual revenue FY 91-92 totaled \$28,184,048 of which 23.5 million came from user fees. The remainder of the funds (some 3

percent) came from the general fund and cigarette tax. Total expenditures for the same period amount to \$28,777,741, resulting in a difference of \$593,693 which came from a revolving fund balance to keep the parks operating during off-season.

The six resort lodges of the Alabama State Park system (Lake Guntersville, Joe Wheeler, DeSoto, Mount Cheaha, Lakepoint Resort and Gulf State Park) generate the majority of income. Gulf State Park and Gulf State Park Resort together generate a profit of approximately \$800,000 which is incorporated into the State Park System.

The six resort facilities include gracefully designed lodges, individual lakeview cottages, and ridge top chalets. Majestic mountains, beaches, or lakeside views are seen from hotel-quality rooms. Six parks have picture-perfect golf courses and pro shops. Full service marinas can be found at Lakepoint and Joe Wheeler Parks. Fall foliage at Cheaha, Desoto and Guntersville attract visitors to their lodges. Oak Mountain and Wind Creek State Parks are not classified as resort lodges, but both support themselves.

The remaining 14 non-resort state parks generate income but are supported with revenue from the six resort lodge parks as well as general fund and cigarette tax revenues. We don't advocate that all State Parks should be self-supporting, because we believe our parks are for Alabama citizens, and fees should be kept at a level the majority of people can afford. And the park system also maintains several sites that may be too small to generate self-supporting income, but are immensely impor-

tant—the rugged, scenic beauty of Buck's Pocket State Park, for example, or the contribution of smaller parks to their communities, such as Chewacla State Park's impact on Auburn and Lee County.

Having said that, however, we do feel the state should support the park system with level funding, to allow lodges and parks that are self-supporting to use their profits to upgrade their facilities. If those revenue-generating resort parks can't use their profits to keep their quality high, they will deteriorate to the point they no longer support themselves or any other park.

Alabama State Parks are in the tourism business, which may be one of the biggest industries in our state. Our parks draw visitors from all over the United States and many foreign countries. Of the estimated 1,000,000 annual overnight park guests, about 60 percent are from Alabama, 21 percent from Georgia, Florida, Tennessee or Mississippi, and 19 percent from other states (with midwestern and southwestern states

contributing the most visitors). These 400,000 out-of-state guests have a tremendous impact on state and local economies. Local communities know the favorable impact parks have on their own economies and businesses as outlined above, but the state as a whole does not respond with revenue dollars.

State Parks do not rank high in appropriations compared to other state departments. But our parks are vitally necessary to the people of Alabama—both as parks and as profit producers. They contribute not only to our quality of life, they have proven they contribute to the quality of our economic livelihood, by returning to the state far more than they are apportioned from the state's general fund.

Gary Leach is Director of Parks for the State of Alabama. Prior to that he was with Resort Management & Marketing, Panama City Beach, Florida for six years, and even earlier, with Callaway Gardens, Pine Mountain, Georgia. Leach's Bachelor's is in Mathematics from Jacksonville State College.

Nelda Claybrook is a Parks Management Analyst for the Department of Conservation and Natural Resources. She has been there for 19 years working first in the Game and Fish Division (13 years) and then in the Parks Division (six years). Her Bachelor's is in Accounting from Troy State University-Montgomery.

Portions of this article are reprinted with permission from *Alabama Conservation* (Winter 1994).

Below: Eagle watching weekend at Lake Guntersville. Photo by Dan Brothers.



Research
in
Progress

Focus on

WOOD

Timber Bridges
Kim Stanfill-McMillan
Research General Engineer

When I tell people that I am a research engineer working with timber bridges, their first images are of quaint covered bridges in pastoral scenes. These thoughts are usually accompanied by questioning looks and comments such as "I thought we already knew how to build that type of bridge," or "I didn't know anyone still built timber bridges."

The new type of timber bridge that I am involved with originated in Ontario, Canada, as a way of fixing deficient bridge decks. Many bridges in Ontario are built with nail laminated decks, which are constructed by placing lumber on edge and nailing it together to form a bridge deck for traffic.

The lumber is usually 2"x10", 2"x12", or 2"x14", although glulam can be used for larger pieces (3"x18" and up) when needed. The nails in these decks may be pulled out due to repetitive loading by vehicles. One solution is to place steel bars horizontally in a transverse direction (perpendicular to the direction of traffic) over

the top and bottom of the bridge deck. The bars are then pulled together so that the deck acts as a single unit and is therefore much stronger. The bars are then covered with asphalt or another wearing surface to give the road a smooth surface.

This construction method for deck rehabilitation has advanced, and now high strength steel rods are inserted through drilled holes in the wide face of each piece. The rods are pulled together, forming the wood bridge deck. This is known as a stress-laminated, or STRESSLAM, deck.

This technique has been used to build over 300 timber bridges in 20 states since 1987. Diverse wood species are used, including Douglas fir, southern yellow pine, Eastern hemlock, red maple, red pine, cottonwood, beech, and red oak. Most of the stresslam bridges are on county roads and are built by contractors or county labor. In some cases, bridges have been built by "volunteer" (usually prison) labor. Some states have jurisdiction over their roads, in such cases the bridges would be built by state contractors or state laborers.

We are interested in monitoring the performance of these bridges and have monitoring equipment installed on approximately 40 bridges throughout the United States. We monitor the bar stress, moisture content of the wood, and the overall bridge performance. Some bridges are connected to a Datalogger that will collect instrument readings on an hourly basis. The data is transmitted over telephone lines to a computer at the Forest Products Labora-

tory, so the bridge is monitored remotely and continuously.

One method of measuring bridge performance is to perform a load test. Heavy trucks of known weight are driven onto the bridge, and the deck deflection is measured using a surveyor's level. The deck displacement can be one inch or more for a 40 foot bridge depending on the weight of the trucks used for the test. The bridge deck displacement is plotted and compared to a predicted value through use of a computer model. In this manner, we can predict how the bridge will behave under actual loaded conditions and bridge performance when the bridge is overloaded.

Another research project of mine is an analysis of the National Bridge Inventory (NBI). The NBI is administered by the Federal Highway Administration (FHWA) in Washington, D.C. It contains records on the structural status of most of the nation's bridges that are 20 feet or longer. Most bridges are inspected on a two-year cycle by private engineers or government employees. The NBI is updated continuously as new inspection data are received. I am currently updating the May, 1992 version of the inventory.

The purpose of the NBI is to identify those bridges in the United States that are in most need of repair, and to direct FHWA funding towards their repair or replacement. Research on the NBI is of wide interest to states, counties, bridge builders, and designers.

The data analysis indicates that the average age for a satisfactory steel, concrete, or



timber bridge is 35 years. Timber bridges are rated as deficient more often than concrete or steel bridges, not because of the performance of the wood, but because they were designed for a reduced load capacity.

With nearly one-half (240,000) of the nation's bridges rated as deficient, it is prudent to have as many options as possible when considering replacement structures. Timber bridges can help meet that need.

Kim Stanfill-McMillan works for the U.S. Forest Service at the Forest Products Laboratory in Madison, Wisconsin. She has two B.S. degrees from the University of Maine—in Wood Technology (1982) and Civil Engineering (1986). She obtained a M.S. degree from Colorado State University in Wood Engineering in 1984 and has been a registered professional engineer since 1989.

Composting Wood Waste *Jessie A. Micales* **Research Plant Pathologist**

Despite recycling efforts in recent years, the majority of our landfill space is taken up by forest products. Newspapers and other paper account for about 40 percent of landfill contents, wood and wood products (such as fiberboard and particleboard) amount to another 15 percent. Much of the wood in landfills is from demolition material and is often treated with preservatives, paint and other finishes, fire retardants, and other toxic chemicals.

Yard waste, including tree limbs and brush, takes up an additional 20 percent of our capacity. All of this woody material is biodegradable, but biodegradation occurs extremely slowly under the dry, anaerobic conditions of most landfills.

Many municipalities are turning to composting as a means to decrease the amount of material sent to landfills. Composting is an aerobic, microbiological process that converts organic matter into a fine, humic material that is an ideal soil conditioner.

Composting usually occurs in two stages: a thermophilic stage, in which the compost heats up to 50 - 60°C, killing most pathogens and weed seeds, and a cooler stage (15 - 35°C), in which toxic organic products are broken

down. The composting process can occur very rapidly—in a matter of weeks under ideal conditions. The volume of the waste is reduced by about 70 percent.

Although leaves, grass clippings, and food wastes are easily composted under the proper conditions, many woody materials are resistant to this process due to their high carbon:nitrogen ratio and their large lignin and cellulose content. In fact, wood shavings and chips are often used as a bulking material to compost sewage sludge, but they undergo so little decomposition that they must be screened out of the final product. Certain durable woods, and woods treated with preservatives and other chemicals, would be even more resistant to composting.

Certain wood-decay fungi are very effective at breaking down wood, but they have not been utilized successfully in composting. As part of a new recycling program on composting at the Forest Products Laboratory in Madison, Wisconsin, my colleagues and I will be attempting to incorporate wood-decay fungi into the composting process. These organisms probably would not be able to survive the thermophilic stage of composting, but they could be added during the second, cooler stage.

Some of these organisms are resistant to heavy metals

and other toxic chemicals and are being used in bioremediation to reclaim polluted soil and other contaminated materials. We will try to use them to break down chemically treated wood and to assess the toxin composition of the resulting compost.

Thousands of fungal cultures are available to us from the Center for Forest Mycology, also located at the Forest Products Laboratory. These cultures can be screened in the laboratory for their ability to decay wood and for their tolerance to toxic chemicals. Promising candidates will then be tested in the field under various composting conditions. This is an exciting area of research that may have many positive benefits for the environment.

Jessie Micales is a Research Plant Pathologist at the Forest Products Laboratory. She received her B.S. in Agronomy from Delaware Valley College of Science and Agriculture in 1979 and her Ph.D. in Plant Pathology from Virginia Polytechnic Institute and State University in 1985. She has edited this column

Women in Science:

Have We Made A Difference?

An essay by

Ellen M.

O'Donnell

If you randomly stopped 10 people on the street and asked them to name five prominent scientists, either living or dead, how many responses do you think would include women? How many of the respondents would be able to name five well-known female scientists? Can you?

The problem is not that the respondents are largely ill-informed, nor that women have failed to contribute to the field of science—but that women's scientific accomplishments have largely faded into obscurity simply because *they were not men*.

Londa Schiebinger, professor of history at Penn State, has written several books that deal with the history of women in science, including *The Mind Has No Sex? Women in the Origins of Modern Science* (1989). Her latest work, *Nature's Body: Gender in the Making of Modern Science* (1993) explores how sexual and racial tensions shaped European science in the 18th century. Schiebinger's research sheds some light on the depth of the historical gender-gap, and how it affects women today.

Along with other scholars in history, science, and women's studies, Dr. Schiebinger is reexamining history and finding that women, despite great obstacles, did indeed make significant contributions to many scientific fields. Although women were frequently denied entry to universities and scientific associations—and were often not granted degrees that they did earn when they *were* admitted—many early women scientists conducted research with or through their husbands (or other male rela-

tives). In addition, they often published under these males' names as a way to participate in their chosen scientific field.

The fact that Marie S. Curie won the Nobel Prize in Chemistry in 1911 but was turned down as a member of the Royal Academy of Sciences, would, as Schiebinger says, "be funny if it wasn't true." In fact, it's a sad commentary that the first woman was not admitted to the 300-year-old Royal Academy until 1979.

Another author who has looked closely at the relationship between gender and science is Marguerite Holloway. In her article, *A Lab of Her Own* (Scientific American, November 1993), she chronicles the challenges facing women scientists over history and relates their struggle with the biases women still face today. She writes: "Only nine women may have been awarded a Nobel Prize as opposed to more than 300 men, but there are many unsung women who have made vital contributions in all fields" (see box). Uncovering the struggles and accomplishments of our predecessors may not only help set history straight, but may also encourage more women to enter and excel in scientific fields today.

The tide *is* changing for women in science today, but progress is coming slowly. Women still make up only one percent of working environmental scientists and five percent of physics Ph.D.'s, but in biology, 41 percent of working biologists and life scientists are now women.

One way institutions and individuals are working to encourage women to ex-

cel in fields traditionally dominated by men is through specific programs and conferences, such as those directed at women in sciences or engineering. One conference I recently attended covered such subjects as:

- the chilly classroom climate
- dealing with harassment and sexism
- leveling the playing field through mentors and role models
- exploring gender and ethnic diversity.

France Cordova, chief scientist of NASA and keynote speaker for the program remarked:

NASA, along with other top government agencies, is beginning to look more like America—that is, there are more and more women and people of color sitting around the table working on solutions. When I look out at this audience, I don't see America, and that is part of the problem. The fact that we have to hold conferences like this is an indication that we still have a long way to go.

I hope that 10 years from now we won't have any need for conferences on women in science. I hope that by then, gender won't matter.

Another program director is concerned, too. National Science Foundation (NSF) Director Neal Lane commented in *The Scientist* earlier this year about the subject. In his article entitled "Women in Science: Much Has Been Accomplished, But Much Remains to Be Done" Lane writes:

We must redouble our efforts and continually push to increase the number of qualified women at all levels of involvement in sci-

ence, mathematics, and engineering. As a society, we must undertake these efforts because it is the right thing to do....Although society is moving beyond the simplistic stereotypes regarding women (and members of other underrepresented groups), many of the values and assumptions that underpin those stereotypes remain...

I call on all members of the science, mathematics, and engineering community to accelerate progress to provide women the same career opportunities as men. Let us work together to share approaches that have been shown to be effective and to explore new ideas. I invite readers to share with me their ideas on this matter—to let me know what more NSF can do.

Perhaps as organizations and individuals alike begin to honor women's roles in the advancement of science, well-known female scientists will become the rule, rather than the exception.

Editor's Note: If you have suggestions or comments regarding improving the standing of women in science, you may contact NSF Director Neal Lane by writing the National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230.

I also suggest that if you are interested in learning how women in science are faring in different cultures, consult *Comparisons Across Cultures: Women in Science* (*Science*, Vol. 263, March 11, 1994).

Ellen O'Donnell is a WiNR Editor.

**A Few of the Early Women Who Helped
Shape the History of Science**

*(Adapted from Marguerite Holloway's
A Lab of Her Own)*

Hypatia Circa 370-415

Egyptian mathematician, teacher, and philosopher who was murdered by a group of monks, possibly because they resented her lecturing.

Maria Sibylla Merian 1647-1717

German biologist who extended the field of entomology through her observations and illustrations of the life cycle of caterpillars and butterflies.

Sophie Germain 1776-1831

Self-taught French mathematician and physicist who produced original work in number theory and the theory of elasticity, although she was excluded from the male scientific community and received recognition for her work only late in her life.

Ellen Swallow Richards 1842-1911

An engineer lauded as the "women who founded ecology," she was denied an earned Ph.D. in chemistry at MIT, but later became the first woman to be elected to the American Institute of Mining and Metallurgical Engineers.

Marie S. Curie 1867-1934

French scientist who discovered radium and polonium. She shared the 1903 Nobel Prize in Physics with her husband, Pierre Curie, and Henri Becquerel, and won the 1911 Nobel Prize in Chemistry. She was denied entry to the Royal Academy of Sciences.

Florence Rena Sabin 1871-1953

Medical researcher who studied the lymphatic system and later tuberculosis. She was the first woman to be elected to the National Academy of Sciences.

Ethel Browne Harvey 1885-1965

American biologist and embryologist whose studies of induction preceded those of Nobel laureate Hans Spemann and Hilde Mangold by more than 10 years. An investigator at Princeton University for 25 years, she was never made a full professor.

Further Reading

The Politics of Women's Biology, 1990. Ruth Hubbard. Rutgers University Press.

The Outer Circle: Women in the Scientific Community, 1991. Edited by Harriet Zuckerman, Jonathan Cole, and John Bruer. W.W. Norton.

Biology and Feminism: A Dynamic Interaction, 1992. Sue Rosser. Twayne Publishers (Macmillan).

Nobel Prize Women in Science: Their Lives, Struggles and Momentous Discoveries, 1993. Sharon Bertsch McGrayne. Birch Lane Press.

Elaine Zielinski has been named the new State Director for the Bureau of Land Management in Oregon/Washington. She succeeds *D. Dean Bibbes*, who has accepted a new post with the Department of the Interior. BLM manages some 16 million acres of public land and an additional 40 million acres of subsurface mineral estate in Oregon and Washington. Her budget is around \$140 million with a workforce of 2,000 employees. Zielinski has 17 years experience with BLM and comes to the Directorship from having been Deputy State Director for Lands and Renewable Resources, and prior to that as the Associate District Manager for the Eugene District. Her Master's is in Business Administration from the University of Colorado, and her Bachelor's is in Mathematics from Blackburn College.



Carol O'Dahl is a recycling information specialist for the innovative Business and Industry Recycling Venture, a public-private partnership sponsored by the Greater Seattle Chamber of Commerce in coordination with city and county solid waste agencies. She provides information and referrals to King County businesses to help them recycle their own waste and consults with businesses who can be encouraged to buy recycled goods. Her Bachelor's is in environmental studies from UC-Santa Barbara.

Two women (out of 14 members) are serving on the Committee on Rangeland Classification chaired by *F.E. Busby*, Regional Director for U.S. Programs, Winrock International. The women are *Linda A. Joyce*, project leader, USDA Forest Service Rocky Mountain Forest & Range Experiment Station, Fort Collins, Colorado, and *Johanna H. Wald*, senior staff attorney, Natural Resources Defense Council, Washington, D.C. The committee recently released a report recommending (1) that ecological health be the first consideration in making decisions regarding grazing, recreation, or other uses of rangeland; and (2) that ecological standards be used to gauge the health of rangelands nationwide.

Gloria Manning has been named Deputy Regional Forester for Resources for the Southern Region of USDA Forest Service. In the Region there are 35 national forests and one grassland scattered across 13 states, Puerto Rico, and the Virgin Islands.

She began her career with the Forest Service in 1979 as a planner for the National Forests in North Carolina. Since that time, she has worked as a planner and interdisciplinary team leader for the Francis Marion and Sumter National Forests. In 1985 she became a planner and appeals coordinator in the Land Management Planning staff of the National Headquarters in Washington DC, then returned to the Southern Region in 1988 to become the Group Leader for Planning. In 1991, she was selected as the Assistant Director for Resources for the Cooperative Forestry Staff, State and Private Forestry in Washington. Her Bachelor's in liberal arts is from Florida A & M and her Master's is in land-use planning from Florida State University in Tallahassee. She currently is completing a Ph.D. in forestry from Michigan State University in East Lansing, Michigan.



Sue McGill, former superintendent of the National Park Service's Timpanogos Cave National Monument, Utah, will spend two years in Washington DC after being selected to receive the Bevinetto Congressional Fellowship, a program for NPS employees which provides them with two years of training and work experience in the area of legislation. McGill has been in the Park Service for 17 years and has worked at Mount Rainier, Mammoth Cave, Everglades, Mesa Verde, Glacier, Carlsbad Caverns, Bryce Canyon, Capulin Volcano, and the USS Arizona Memorial. Her Bachelor's in Parks & Recreation management is from Washington State University.

THESE AUTHORS WORKED ON ENVIRONMENTAL IMPACT EVALUATIONS IN SOUTH AMERICA. THEY NOTE THE PROBLEMS—AND SIMILARITIES TO U.S. PROCEDURES.

THE EIS PROCESS IN SOUTH AMERICA

SYLVIA HORMAZABAL
SHEILA FAY HELGATH

The environmental impact statement (EIS) process is a sophisticated procedure. It was developed by industrialized countries to protect the environment. The EIS process has been used successfully for more than thirty years in North America and Europe. Because of its success, the United States Agency for International Development (USAID), the United States Environmental Protection Agency (EPA) and international funding institutions such as the World Bank are advocating the use of environmental impact statements to protect the environment in Latin American countries.

Forexample, USAID includes strengthening environmental impact assessment procedures as one of the ten guiding principles for integrating environmental concerns into Agency projects (USAID and World Resources Institute 1993). However, a fundamental question remains. Can or should the EIS process that is used

in North America, Europe and more industrialized nations in Asia be transferred "as is" to South America? The experience of the Chilean government's land management agency, Corporación Nacional Forestal (CONAF), efforts to adapt the EIS process provides insights.

Background

The problems discussed here were encountered during the planning and development of an environmental impact statement process for CONAF. CONAF is a combination of the U.S. Forest Service, U. S. Fish and Wildlife Service and the U.S. National Park Service and is responsible for managing forest and biological reserves and national parks in Chile. A variety of activities occur on CONAF lands, such as, mineral, hydro-electric and petroleum development, ecological tourism, recreation and timber harvest. CONAF manages these lands under a series of laws, some more than 50 years old. Until recently environmental assessments were not required for resource development projects or forest management activities.

Two proposed laws, one similar to the U.S. National Environmental Policy Act (NEPA) and a Native Forest Management Law will require environmental impact statements for large projects and forestry activities. These draft laws and an increasing awareness that international funding agencies require environmental analysis are the impetus for agencies like CONAF to develop and use an environmental impact evaluation process. The process envisioned by these laws and within CONAF is differ-

ent than in North America. For example, the private industry proponent rather than government agencies will prepare the EIS and conduct public participation; there will be less public notification of decisions such as the decision not to require an EIS and CONAMA (Comisión Nacional de Medio Ambiente). An agency similar to the Environmental Protection Agency, will be the lead agency in every project, not the affected land management agency. Finally, because of government policies to promote development, the EIS will be more of a tool to develop mitigation, monitoring and emergency contingency plans rather than as it is used in North America as a decision making tool.

The analysis

CONAF, in anticipation of the passage of the two laws, created an environmental section in 1992. Two people (the authors of this article) were charged with developing an institutional structure, a description of the work tasks, training, identifying personnel, financing and a regulatory framework for the unit.

Our objectives were to create an institutional process that would insure that environmental protection issues raised by professionals in CONAF would be identified, analyzed and dealt with



in the national process. We approached this task by analyzing the processes of countries in Europe, Asia, North and South America for ideas and pitfalls and by consulting with Chilean professionals within and outside of CONAF. From these efforts three broad categories of problems emerged:

1) A lack of understanding of the role or context in which an EIS and different principle parties function in industrialized nations.

2) A lack of professional and institutional capacity to perform tasks that are required to complete and implement an environmental impact analysis process.

3) The presence of cultural and political constraints that negate fundamental assumptions used by northern industrial countries to implement the process.

It is likely that many agencies in Chile and in other Latin American countries face similar problems. (FINAID, the Finnish Development Agency, identified a similar set of problems for African countries attempting to develop an environmental impact process.) The CONAF program has attempted to resolve some of these problems directly; however, others remain. In the remainder of this article we will discuss specific examples in each of these areas and propose possible solutions.

I) The context and role of the EIS in the environmental protection process

One of the major problems in implementing an environmental impact statement process is to develop an understanding of the context and use of the EIS as it is applied in North America. In North America the EIS is a *government decision making* tool. It is used to present effects of the project, the alternatives to the project and to decide whether or not to proceed with the project. The environmental impact statement is *part of a triangle of strategies to protect the environment* comprised of forest plans, EIS's and forest practices regulations. Agencies use management objectives derived from plans and emissions standards imbedded in regulations, to review the adequacy of the analysis of effects

and mitigation efforts in the EIS. (In the U.S., for example, EIS's are often written in connection with program development or forest regional planning. Thus a plan becomes the mechanism for environmental evaluation and authorization for certain classes of activities.) Environmental impact statements are only a part of the process of environmental protection that also includes planning, evaluation, monitoring and enforcement.

Unfortunately, the matrix of plans and regulations found in North America does not exist in many Latin American countries. For example, regional plans have not been written for all of the park areas administered by CONAF and most of the forest reserves do not have written management plans. Air and water quality emission standards are just beginning to be developed for Chile. The lack of a regulatory and planning context leaves a vacuum by which to judge an EIS's adequacy. Until land management objectives are well defined and emission standards developed, their absence will continue to reduce the effectiveness of environmental impact evaluation processes on CONAF administered lands.

To overcome the lack of regulations and land use plans, the strategy developed for CONAF focuses in the short-term on creating a consistent process for: (1) selecting the most significant impacts of a project (2) transferring technology such as the methodologies to analyze these effects and (3) the standards by which to judge proposed mitigation activities.

The need for consistent treatment of different projects was balanced with the need for an EIS process that relies on the judgement of CONAF professionals. The Central Office of the Environmental Unit will be teaching CONAF professionals analytical procedures, such as scoping, public participation skills, providing copies of international emission and construction standards and tools such as standardized checklists. The longterm strategy is to tie the environmental evaluation process to a system wide land use

planning effort. (One of the problems the authors had was communicating to field based professionals that the EIS was not a way to create inventories, plans, or obtain general knowledge about the land unit—but needed to be focused upon the effects of the project.)

Marginal decisions and accumulative negative impacts are other concerns CONAF planners face in developing an EIS process. Formal environmental impact statements are a response to concerns about the effects of large projects and the draft Chilean law limits EIS's to large projects. But, much of the environmental damage in Latin America is the result of individual actions by small landowners and farmers, by the cumulative effects of small developments, by repetitive forest management activities—and as a result of urban expansion. Usually, these are difficult to control and small individual actions certainly don't merit the expense of formal EIS's.

Land management agencies in North America have developed other (often less formal) environmental evaluation procedures and regulations such as checklists, environmental assessments, plan and programmatic EIS's, forest practices regulations to cover these situations as well as zoning techniques to address cumulative negative environmental impacts. Agencies also use arbitration, mediation and negotiation in the project proposal and design stage to eliminate significant impacts thus avoiding the necessity and consequent expense of a formal EIS.

The CONAF program is considering applying these techniques to avoid marginal decision making. For example, forest practices regulations and regional planning would help solve some of these problems in Chile. International institutions could aid these efforts by presenting more information on informal mechanisms of environmental assessment, by demonstrating how planning and the EIS process are components of an overall environmental protection strategy and by developing other strategies to address cumulative impacts from marginal decisions.

II) A lack of professional and institutional capabilities to perform the tasks required to complete and or implement an environmental impact analysis process.

How to finance the EIS process is the biggest concern of Chilean administrators. Generally these agencies are underfunded and understaffed. The agency budget is often tied to development of resources on land that it administers. This funding situation alone will bias the EIS process because it is difficult for agency professionals to oppose any new development. In the case of CONAF, staff time for the process will come out of already strained and understaffed departments. A strategy being examined is to look for international funding assistance for obtaining training and staff but this is only a stop gap or short term measure. This problem has still to be resolved by CONAF.

International development agencies need to make greater efforts to develop sustainable funding mechanisms for the EIS process in Latin American countries. For example, international agencies can assist in the development of administrative procedures to track costs and charge companies, help develop equitable taxation, insure that land management agencies receive a fair portion of the economic benefits of resource development and by establishing and publishing information on the standard costs of environmental procedures (EIS's, mitigation and monitoring).

Another of the major constraints faced by CONAF is the lack of trained interdisciplinary staff. Most of the staff are foresters who were trained in very traditional forestry schools. The idea of professionals with multidisciplinary training such as forest economists, fisheries and forest biologists, or natural resource sociologists is new. The Chilean university systems foster a rigid separation between disciplines; often the different departments such as biology, botany, and forestry are not even on the same campuses. The structure of CONAF continues to encourage the separations. For

example, watershed management is a distinct department from the wildlife and parks department and from the control department. How to bridge traditional and institutionally static constraints between disciplines is a major problem in developing an environmental protection unit responsible for reviewing multidisciplinary EIS's.

To overcome the lack of interdisciplinary staff, the authors recommend special attention be given to the selection of personnel responsible for the EIS process. Emphasis has been put on selecting "people" oriented professionals who can work between departments and disciplines. Second, the work responsibility descriptions clearly state that all professionals within CONAF are expected to participate in the process. Finally, one of the reasons for encouraging public participation is to elicit comments from experts outside of CONAF. International groups can help by investigating and publishing how other countries have successfully applied interdisciplinary approaches. For example, USAID might publish a paper explaining how the team approach used by the U.S. Forest Service is structured and normally what disciplines are represented on the team.

There are many administrative functions available that support a successful EIS process; among them are computerized tracking systems for financial accounting, public participation, calendar deadlines and regulatory information. These systems are usually non-existent or minimally existent in land management agencies in Latin American. To overcome this problem, CONAF has been examining systems developed in other countries. For example, CONAF is considering the possibility of adapting the Washington State Department of Ecology Checklist as

the initial step in project review. International agencies can help by developing computerized programs that can be adapted to each country's context, similar to what the Nature Conservancy has done with its endangered species program. They can also help by identifying systems that are utilized in other countries and translating and modifying them for use in Latin America.

III) Cultural and political constraints that affect fundamental assumptions used in the north to implement the EIS process

Cultural and political constraints are often beyond the influence and scope of a land management agency. However, the effects on what is possible need to be recognized.

The concept of full disclosure of the effects of a project is basic to the EIS process and a distinctly democratic principle. Another fundamental concept is the opportunity for the public to oppose or challenge the project or the agency's decision through administrative appeals or in the court system. This possibility becomes part of the checks and balances that allows the system to work. Many Latin American countries have recently emerged from military dictatorships in which decisions were often made in secret and dissent was severely suppressed. Environmental activists are often seen as subversives and jailed; others have disappeared or have been killed in these countries.

While this issue has not been specifically addressed by CONAF, there are areas which can be emphasized to help overcome historical and cultural precedents. For example, training CONAF professionals in public participation techniques and encouraging CONAF professionals during public participation to develop contacts and solicit information from special interest groups and non governmental agencies. Another example is to require a response to all significant issues identified by the public. The Council of Environmental Quality (CEQ) regulations in the U.S. require agencies to respond to all significant issues. International agencies can help by continuing to tie social justice issues to environmental protection and encouraging regulations similar to CEQ required response to significant issues.

The electoral systems in Latin American countries are often distinct from North American systems. At times, there is not much cooperation

between ministries because the heads of different ministries are from different political parties. Often the executive of the government is not elected directly, but through a multiparty compromise and a part of the compromise is to give the top position in certain ministries to different parties. This can result in, for example, the environmental ministry or equivalent of the EPA and the head of the agricultural ministry which includes forestry activities having vastly different environmental perspectives.

In North America, regulations require that marginal or minority groups such as women and Native Americans be included in the analysis of the effects of a project. In Latin America these groups have traditionally been excluded from the decision making processes. For example, there is an attitude that rural and indigenous people are uneducated and therefore have nothing to contribute. Also women are often excluded from meetings. To overcome this cultural prejudice the authors would like to plan specific public participation workshops on how to communicate with marginalized groups. Technical assistance and examples of how other land management agencies have solved these problems would be useful.

Conclusion

The authors are optimistic that Chile and CONAF will develop an effective environmental evaluation process. This process will be a vast improvement over what exists at present. However, it will be different from the North American model. Reflecting the development policy of the government it will place more emphasis on monitoring, mitigation activities and contingency plans. Less emphasis will be placed on using the EIS as a tool to make a decision on whether the project should proceed or not. International agencies can help agencies such as CONAF by documenting the experiences of developed countries, by providing proven systems for tracking and analysis, and by assisting in the development of sustainable funding mechanisms.

Sylvia Hormazábal B., Ing. Forestal University of Chile, Director of the Unidad Medio Ambiente, Corporación Nacional Forestal, Santiago, Chile [Director of the Environmental Unit for the Forestry Corporation of Chile—equivalent to the U.S. Forest Service and National Park Service]. Her professional degree in Forest Management is from the University of Chile.

Sheila Fay Helgath, (light hair in photos), at the time of this writing, was Cooperante Técnica, U.S. Peace Corps, Santiago, Chile. Her Master's and Ph.D. are in Forest Management from Washington State University and the University of Washington, respectively.

The authors inspecting the TransAndean Oil Pipeline on the Nuble Reserve in the Andes. They are celebrating with Argentinean pipe benders where the pipeline crosses the Chilean Argentinean border. The flags above are of the two countries. The sign says PROTECT THE BIOLOGY. THIS IS A RESERVE.



MORE INFORMATION FROM THE INFORMAL WOMEN IN NATURAL RESOURCES SURVEY GIVES US A SNAPSHOT OF HOW NATURAL RESOURCES PROFESSIONALS ARE DOING. FOCUS THIS TIME ON *HARASSMENT*.

WINR SURVEY: PART THREE

KATHLEEN A. GRIFFIN
DIXIE L. EHRENREICH

This issue, we attempted to bring together some of the disparate information that came from the questions on the informal survey that WiNR conducted among subscribers. (To get the more complete picture, please refer to Volume 15, numbers 2 and 3 for the demographics, pay, ages, job satisfaction, marital status, and future plans of women who work in natural resources.)

We are focusing this time particularly on sexual harassment. Under that topic are correlations with some of the other questions we asked on the survey.

For example, under sexual harassment, we found that of women between the ages of 33 to 45 (our largest age group by far), 75 percent said they had personally experienced sexual harassment at some time in their careers (table 1). But when we went further and asked if it had happened recently, only 14 percent said yes.

Other interesting correlations: Federal employees reported the highest percentage of personal harassment—at some time in their working lives—at 75 percent, but university women reported seeing it at the highest percentage in their workplace at 42 percent (table 2).

While the numbers of self-employed women who returned surveys were small, they reported the highest levels of current harassment followed by state, county, and city employees. By region, the most harassment appears to be currently occurring in Alaska and Hawaii, followed distantly by the Lake states, the southeast and the northwest in that order (table 3). To avoid harassment, the best places for women to work appear to be the southwest and the northeast.

As we reported earlier, all age groups reported significant personally-experienced sexual harassment over time, but the 45-55 and the 20-32 age-groups are reporting recent harassment at 23 and 22 percent respectively—which is still high.

We tried to get at correlations for harassment in several ways. There did not seem to be much correlation between one's personal satisfaction with life and harassment on the job (table 4). We then wondered if fewer women in a particular workplace encouraged it, but found, to our surprise, that with 51 to 75 percent women in their workplace, the recent harassment was the worst at 27 percent—and 89 percent of those women had personally experienced it at some time (table 5). In workplaces with fewer than 10 women, 40 percent reported seeing it. And when we asked about career success and tried to see if "disappointed in their careers" would correlate

BACKPAGE

There were many opportunities to add additional comments to the WINR survey and many people took advantage of it. These "backpage" anonymous comments provided insight into the feelings of subscribers. Here are selected comments on careers and the working life. The authors have added where appropriate some of the information from the survey that the commentators checked.

I don't like being judged as a woman versus the job I do. **Forester, USFS, Rated career "very successful"**

At this stage of my career, I think professional advancement will depend on how much energy I spend politicking with powerful male supervisors. They tend to promote people they like personally, not necessarily the best qualified. **33-45 yr old, USFS**

I feel held back by old boys network and stereotypes. **20-32 yr old, Soil Conservation Service**

What do you like least about your job?...having to deal with so many interpersonal communication problems in the work force and with the public so that real listening

AGE	SEXUAL HARASSMENT								
	(Total)	In the Workplace		(Total)	Personally Experienced		(Total)	Recently	
		Yes	No		Yes	No		Yes	No
20-32	(88)	30 (26)	70 (62)	(87)	69 (60)	31 (27)	(67)	22 (15)	78 (52)
33-45	(208)	32 (66)	68 (142)	(213)	75 (159)	25 (54)	(161)	14 (23)	86 (138)
46-55	(38)	45 (17)	55 (21)	(38)	61 (23)	39 (15)	(26)	23 (6)	77 (20)
56-65	(7)	14 (1)	86 (6)	(7)	57 (4)	43 (3)	(5)	20 (1)	80 (4)

SEXUAL HARASSMENT

table 2

EMPLOYER	In the Workplace			Personally Experienced			Recently		
	(Total)	Yes	No	(Total)	Yes	No	(Total)	Yes	No
		% (n)	% (n)		% (n)	% (n)		% (n)	
Federal	(188)	36 (68)	64 (120)	(191)	75 (143)	25 (48)	(150)	17 (26)	83 (124)
St/Co/City	(71)	28 (20)	72 (51)	(70)	66 (46)	34 (24)	(51)	24 (12)	76 (39)
University	(36)	42 (15)	58 (21)	(38)	63 (24)	37 (14)	(23)	9 (2)	91 (21)
Private	(26)	19 (5)	81 (21)	(26)	62 (16)	38 (10)	(2)	0 (0)	100 (2)
Self Employed	(9)	22 (2)	78 (7)	(9)	78 (7)	22 (2)	(7)	43 (3)	57 (4)
Not For Profit	(7)	0 (0)	100 (7)	(7)	100 (7)	0 (0)	(6)	0 (0)	100 (6)
Unemployed	(3)	33 (1)	67 (2)	(3)	33 (1)	67 (2)	(1)	100 (1)	0 (0)

with harassment, we noted that there was not much difference in those who had experienced it earlier (66 to 76 percent for all categories had been harassed at some time), but a big difference in recent experiences: 38 percent of those “disappointed” in their careers reported current or recent on-the-job harassment as opposed to 15 to 18 percent of all the other categories (table 6). We consider that important information and it should come as no surprise to supervisors who are concerned about retention.

Next issue, we will conclude the non-scientific survey report with connections our respondents made about career success, personal satisfaction and many other topics we introduced on the survey. In the meantime, ponder the high numbers of those who have been harassed in their professional lives.

Kathleen A. Griffin teaches General Ecology and Wildlife Management at Central Washington University, Ellensburg. Her Bachelor's in Wildlife Management is from Humboldt State University and her Master's in Wildlife Biology is from Washington State University.

Dixie L. Ehrenreich is the Editor of Women in Natural Resources.

and problem solving doesn't get done. Only so much energy to go around. **Forest Supervisor, USFS**

I don't have a five-year plan. **“Moderately successful” career as Regional Manager with industry**

Why don't I belong to a professional society? It is irrelevant to me and backwards on issues. **Forest Supervisor, USFS**

Don't look at job titles or other labels, but do keep a tally of the skills you're learning as you work. You can put together an impressive list in a very short period of time, it's handy for an ego booster or putting together a resume or convincing the boss to give you a raise. **1 year in position as Urban Forestry Coordinator**

I feel professionally isolated in my present position. **Resource Management Specialist, National Park Service, <10% women colleagues in the workplace**

Most successful women in higher grades in the Forest Service are either single, divorced or have no children at home. What does this say about the cost of “being successful” at work

SEXUAL HARASSMENT

table 3

REGION	In the Workplace			Personally Experienced			Recently		
	(Total)	Yes	No	(Total)	Yes	No	(Total)	Yes	No
		% (n)	% (n)		% (n)	% (n)		% (n)	
Northwest	(93)	33 (31)	67 (62)	(92)	72 (66)	28 (26)	(69)	20 (14)	80 (55)
Northeast	(49)	24 (12)	76 (37)	(47)	60 (28)	40 (19)	(31)	10 (3)	90 (28)
Midwest	(44)	39 (17)	61 (27)	(46)	83 (38)	17 (8)	(36)	17 (6)	83 (30)
Southwest	(38)	37 (14)	63 (24)	(40)	58 (23)	42 (17)	(28)	7 (2)	93 (26)
Mountain west	(44)	23 (10)	77 (34)	(44)	77 (34)	23 (10)	(35)	17 (6)	83 (29)
Southeast	(45)	31 (14)	69 (31)	(45)	80 (36)	20 (9)	(34)	21 (7)	79 (27)
Lake states	(18)	44 (8)	56 (10)	(20)	70 (14)	30 (6)	(16)	25 (4)	75 (12)
AK and HI	(11)	45 (5)	55 (6)	(11)	64 (7)	36 (4)	(8)	38 (3)	63 (5)
Outside U.S.	(2)	50 (1)	50 (1)	(2)	50 (1)	50 (1)	(2)	0 (0)	100 (2)

SEXUAL HARASSMENT

table 4

	In the Workplace			Personally Experienced			Recently		
	Yes		No	Yes		No	Yes		No
	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)
PERSONAL SATISFACTION									
Very satisfied	(115)	33 (38)	67 (77)	(115)	61 (70)	39 (45)	(79)	16 (13)	84 (66)
Satisfied	(119)	36 (43)	64 (76)	(120)	78 (94)	22 (26)	(94)	18 (17)	82 (77)
Disappointed	(59)	10 (6)	90 (53)	(68)	75 (51)	25 (17)	(52)	21 (11)	79 (41)
Major changes	(33)	30 (10)	70 (23)	(38)	74 (28)	26 (10)	(29)	7 (2)	93 (27)

SEXUAL HARASSMENT

table 5

% WOMEN IN WORKPLACE	In the Workplace			Personally Experienced			Recently		
	Yes		No	Yes		No	Yes		No
	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)
Less than 10	(77)	40 (31)	60 (46)	(78)	72 (56)	28 (22)	(56)	20 (11)	80 (45)
11-25	(76)	32 (24)	68 (52)	(76)	72 (55)	28 (21)	(58)	16 (9)	84 (49)
26-50	(101)	28 (28)	72 (73)	(102)	64 (65)	36 (37)	(73)	15 (11)	85 (62)
51-75	(18)	33 (6)	67 (12)	(18)	89 (16)	11 (2)	(15)	27 (4)	73 (11)
76-100	(13)	23 (3)	77 (10)	(13)	69 (9)	31 (4)	(11)	9 (1)	91 (10)

to your home life? **A non-married USFS employee making >\$40,000 a year**

I never thought of myself as really career-oriented, but now when I look back on 38 years, I wonder if I haven't devoted too much time to career and not enough to my personal life. Finding a balance is always difficult. **"Moderately successful" career National Park Service, "somewhat disappointed" personal life.**

The "good old boys" *never die* **20-32 yr old Soil Scientist**

Feeling trained, competent, appreciated in career contributes to a good home life and health. **55-65 yr old National Park Service employee who has a moderately successful career and a "very satisfied" personal life**

Maybe I was too successful. **Soil Conservation Service, >\$40,000/yr, "very successful" career, "making major changes" in personal life**

Job Satisfaction?...Being recognized for work, employer cares about its employees and tries to better work environment. **"Very successful career" with Soil Conservation Service**

Need more women at the top to make the workplace more suitable/sensitive to needs to two career families and kids. **State Dept. of Natural Resources, married, no children**

Best part of job? Pride in the organization and what it stands for!! **14 yrs with USFS, currently Information Manager**

The early years of my career were very frustrating as a woman but I learned a lot and appreciate those difficult days (as a learning experience!). **33-45 yr old Resource Manager, making >\$40,000 a year**

I'm revving up and ready to go! **20-32 yr old, USFS**

Best part of job?...I do work I like in a supportive environment with sane, friendly, competent co-workers. **USFS**

Job satisfaction?...Women working for the Forest Service don't expect to have it. So it is very important to live a balanced life which includes family, spirit, arts, sports, friends (not work friends). **10 yrs Marketing Specialist, "Moderately successful" career, "Satisfactory" personal life**

SEXUAL HARASSMENT

table 6

CAREER SUCCESS	In the Workplace			Personally Experienced			Recently		
	Yes		No	Yes		No	Yes		No
	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)	(Total)	% (n)	% (n)
Very successful	(96)	31 (30)	69 (66)	(99)	75 (74)	25 (25)	(80)	15 (12)	85 (68)
Moderately successful	(182)	34 (62)	66 (120)	(182)	69 (125)	31 (57)	(132)	18 (24)	82 (108)
Disappointed	(17)	35 (6)	65 (11)	(17)	71 (12)	29 (5)	(13)	38 (5)	62 (8)
Major changes	(29)	34 (10)	66 (19)	(29)	76 (22)	24 (7)	(23)	17 (4)	83 (19)
Too early to tell	(35)	34 (12)	66 (23)	(35)	66 (23)	34 (12)	(22)	18 (4)	82 (18)

For parents, delusion at times is good

The newest psychological wisdom argues that one of the keys to mental health is overcoming denial, the instinct to reject unhappy realities. In order to be emotionally sound, goes the current thinking, we have to first acknowledge our rage, our addictions, our fears, our feelings about Aunt Melinda.

Now there is no question that denial among parents is especially dangerous. A mom or a dad, head in the sand, can have serious consequences for a child in need of vision. But still, I fear that if we jettison all denial in this compulsively truthful age, we may throw over the side one of the most useful coping strategies we have—the art of parental self-delusion.

When it comes to the stewardship of children, facing reality is vastly overrated. Indeed, there is actually a risk in gratuitous honesty. What, I ask you, is the point of confronting the truth about what the kids have done to the backseat of the car? Why should anybody have to admit to himself that he spent 24 hours and 22 bucks trying to make a Halloween wizard wand he could have bought for \$4.95? What possible good can come from acknowledging that your kids no longer listen to the second half of your sentences?

The worst moments are when we feel trapped by the unrelenting right-now-ness of our obligations, when the demands for socks or attention seem incessant, when there seems to be only this task, on this day, in this house. In short, when the present gets too

present. Watch an entire box of Rice Krispies spill on the floor and your perspective narrows a bit. In these darkest of times, we can't feel the past or the future. We can only feel this particular kitchen chaos. We lose touch with both our memories and our hopes. So parents who would be delusional have to become time-travelers, savor the long perspective, lift the bleak moments out of the noose of right-now, and put those suffocatingly present moments in the context of the future.

Hugh O'Neill, *Parenting*, April 1993

Thought Police should leave humus kinds of words alone

You use a word like *mankind* anymore and the Thought Police will rip your leaves off. After all, not all of the people in *mankind* are men. And there are perfectly rational alternatives that don't give offense. *Humankind* is such a word. For good measure, it's kind of elegant. But there is a branch of the Thought Police that gets its jollies from picking words apart and trying to find the word *man* hidden inside. And *huMANkind* has a man lurking in there. So that word is forbidden.

However, my wife who is an authority on the origins of English words, tells me the *man* in *humankind* is not the same *man* as in male. In fact, it is not a man at all. She says the word breaks apart in quite a different way from that: It doesn't break into the two parts *hu* and *man*. It breaks into the two parts *hum* and *an*. She says the *hum* means earth (just as

in *humus*). The *an* means *one who*. Thus *hum-an* means one who is of the earth. It means *earthling*.

Bill Hall, *Lewiston Morning Tribune*, June 12, 1994

Make ecological health first when considering range

A committee of the National Research Council's Board on Agriculture has released a report recommending that ecological health be the first consideration in making decisions regarding grazing, recreation, or other uses of rangeland. The report calls for a set of ecological standards that can be used to gauge the health of rangelands nationwide. There is considerable discrepancy in studies of the condition of the 770 million acres of rangeland in the U.S., with conclusions ranging from severe environmental degradation to the lands being in the best condition they have been in during this century. The committee reported that the most significant factor affecting the assessment of the condition of rangelands is the lack of a consistently defined standard of rangeland health.

The committee recommended that three criteria should be used by all federal agencies in evaluating rangeland conditions: the stability of soils and watersheds, the integrity of nutrient cycles and energy flows, and the functioning of ecological processes that enable rangelands to recover from damage. The committee also defined three categories of health for rangelands: 1) Healthy rangelands, in which ecological processes such as soil development, nutrient cycling, and functioning of animal and plant communities, are working properly, and which can sustain themselves over time; 2) at risk rangelands, in which some ecological damage has been done, but which could be reversed through different use or management or as natural conditions improve, and which are vulnerable to permanent, irreversible damage; 3) unhealthy rangelands, which are damaged beyond natural recovery, although reseeding or erosion control might restore some measure of ecological health.

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The committee's report recommended the formation of a multi-agency task force to develop and test criteria and methods for evaluating rangeland health. The task force should also develop plans for an ongoing survey of range processes, such as erosion and nutrient cycling. The committee warned that current methods of evaluating rangeland health, although inadequate, should not be abandoned until a new system is entirely in place, particularly as much of the existing data is the only historical data available.

Journal of Soil and Water Conservation, May-June 1994

What do the Pyramids and Grand Canyon have in common?

The Convention for the Protection of the World Cultural and Natural Heritage seeks to shelter cultural and natural legacies from the threat of damage and destruction. Under the Convention's umbrella stand historical buildings, ruins that point to the handiwork of the past, areas of natural beauty, habitats of valuable plants and animals, and untouched natural areas. The Convention defines these places as the common heritage of all humanity, and establishes an international system for cooperation and support in ensuring that they are passed down intact to future generations.

The Convention was adopted at the 17th general session of the United Nations Education, Scientific, and Cultural Organization (UNESCO) in 1972. Since that time, 136 countries have become signatories, and they have so far registered 305 places of world cultural heritage (including the Taj Mahal in India, the Palace of Versailles in France, the Pyramids of Egypt, and the Great Wall of China) and 90 places of world natural heritage (including the Galapagos Islands, the Canadian Rockies National Park, and the Grand Canyon).

Sixteen sites have been registered as both. One percent of UNESCO contributions is used to protect world legacies, but most of that money goes to maintain and preserve ruins that are threatened with destruction in developing

countries. Registration of sites as items of world heritage obligates signatories to work actively to protect, preserve, and maintain them.

Japan joined the Convention in June 1992 and in 1993, four Japanese sites were approved as world legacies: (1) The beautiful Himeji Castle, 130 kilometers from Kyoto, started in 1333; (2) The Temple Complex at Horyuji, the world's oldest surviving wooden structure circa 575; (3) Yakushima island, the "Alps of the ocean" is 1,000 km southwest of Tokyo and may be the wettest place in the world at 4,000mm of rain on the sub-tropical coast, and 10,000mm in the mountains which are often sub-arctic; (4) Shirakami-Sanchi, at the northernmost tip of Honshu, is a wilderness area, home to the world's largest (16,971 hectares) virgin beech forest.

Keiko Amemiya, *Look Japan*, May 1994

No free lunch for buying community trees, but the feds have some help

It has been estimated that municipalities with forestry programs spend between \$8 and \$11 per tree each year to support their trees on streets (61 percent), in parks (26 percent), cemeteries (two percent), nurseries and other public property (11 percent). J. James Kielbaso and Vincent Cotroneo of Michigan State University estimate that the total value of the nation's street trees is at \$30 billion. As our cities age, trees need to be replaced. There are some federal programs worth investigating which will assist towns in acquiring funds. They are:

(1) *Urban & Community Forestry Assistance Program*. Information is available through each state's urban and community forest staff.

(2) *Rural Community Assistance from National Forests*. Contact your nearest Forest Service Supervisor's Office or Regional Office.

(3) *Small Business Administration*. Talk to your State Forester's Office.

(4) *The National Tree Trust*. Their address is 1120 G. St. NW, Suite 770, Washington DC 20005 (202-628-8733).

(5) *National Urban & Community Forestry Advisory Council*. They can be reached at USDA Forest Service Cooperative Forestry, PO Box 96090, Washington DC 20090.

(6) *Resource Conservation & Development (RC&D) Programs*. Your local USDA Soil Conservation Service office can advise you.

James R. Fazio, *Tree City USA Bulletin*, No. 34

North Dakota wants you if you've got kids who fish

North Dakota lost nearly 30,000 children under the age of 16 between 1970 and 1990. Furthermore, the average number of children per North Dakota household dwindled from an average of 1.6 children in 1950 to 0.8 children in 1990. This dramatic decline means fewer anglers in future years. In addition, in 1950, there were 3,843 single-parent households, but by 1990, there were nearly 14,000, mostly women-headed. But women are much less likely to fish

(at 28 percent of adult anglers nationwide). Further, in a recently-completed survey in South Dakota, 87 percent of youth responding indicated they were taught to fish by a relative—so things are looking bleak for the future of fishing.

The North Dakota Game and Fish Department is fighting back because their research has told them that almost 70 percent of today's adult anglers started fishing by the time they were nine, and fewer than 14 percent learned to fish after they turned 14 years of age. The Department is hoping to provide fishing mentors for youth by instituting Project WILD/Aquatics, Pathway to Fishing, and Hooked on Fishing—Not on Drugs, and designating Special Fish Management Areas near communities for youth.

Greg Power, *North Dakota Outdoors*, April-May 1994

The Tomboy Club

Three years ago, the Tomboy Club, an Oregon all women

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fishing and hunting group, formed to learn to hunt, fish and survive on their own in the wilderness. They are also interested in the issues surrounding their sports. There are now 280 in the club and they have organized elk hunts (near John Day, Oregon), they help with state-wide wildlife habitat projects, testify before the legislature in defense of outdoor pursuits, and hold regular classes and seminars on hunting and fishing.

Scott Stouder, *Corvallis Gazette-Times*, January 3, 1994

Turning 30

I recently heard of a young Japanese woman who had discovered she was on the "short list" for marriage to the emperor's son. She was beautiful, from a prominent Tokyo family, but most important, she was 26. This young woman did not want to marry the emperor's son and had held her breath until her 27th birthday, when her name was stricken from the list. You see, the Japanese have an expression for women over the age of 26. "Old cake," they call them.

I am fast approaching an age I don't want to look. Recently, I stood in a mirrored hall of my apartment and asked myself: Do I look 30? Am I old cake?

I'd always fought my baby face, through most of my 20s, blowing piteous smoke rings in an attempt to appear urbane. I had never asked anyone if I looked 16 or 24 or 28. *Do I look 30?* This sentence crossed my lips like bitter food. Thirty is the age when joke birthday cards begin. The college students I teach presented me with a 30th birthday gift, a novel inscribed: *For Dani on the second occasion of her 29th birthday.*

I stop in at a nail salon for a manicure and sit in front of a wall of mirrors. Mirrors suddenly appear to be everywhere. Two young women walk through the doors, and I am struck by their beauty. I realize I have no idea how old they are, none at all. They look like some slightly distant version of myself, and I think I could be their friend. I think we are peers. Their mother walks in the door, greets them and plops down on the last remaining chair facing the mirror, and there we are: the two daughters, their mother and me, all in a row.

"What year are you in school?" The manicurist asks the question I have been dying to ask. "We're in the 9th grade," one says. This information hits me with all the force of a physical blow. *Nineth grade?* They are half my

age. I stare at all our reflections. Am I closer in age to their mother? Or to them. I watch their mother, who is wearing sweatpants and looks very tired. Her hair is thin. There are bags under her eyes. I wonder how she copes with her blooming daughters. I wonder how my mother managed my flourishing.

All our lives, up to a certain point, we are told we're at the perfect age. We are envied our childhoods, our adolescence, our 20s. It seems a pity that when we finally approach a truly enviable age, we are so often shot down by our own perceptions.

I will handle my yet unborn daughters as they begin to fill the air around them with a power all their own. I will hand them a torch, perhaps, an Olympian gesture I have learned somewhere along the way. I hope that with age comes the wisdom that passing a torch does not dim our own lights.

Dani Shapiro, *Glamour*, February 1994

Poisoning the pool?

What makes some fields open up to women and others not? And in those that have been "feminized," what has the impact been on the profession as a whole—and on the women in particular? The assumption was always that the prevalence of women in the workplace somehow poisoned the pool, causing earning levels and prestige to drop—partly because women were cheaper labor, partly because of trade-offs such as maternity leave and flextime, or simply because women with families couldn't work until 10pm or on weekends. Wrong. Research now shows that in many of these jobs, the opposite occurred: Status and pay had already dropped before the women ever showed up. Now leaders in several professions [e.g. the American Psychological Association] are studying ways to keep the prestige and pay scale up as their fields become increasingly feminized. Brooke Kroeger, *Working Woman*, July 1994

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August 26th is Women's Equality Day when workplaces throughout the country celebrate with speeches, displays, films, and other events. Congress designated the day in honor of women's continuing efforts to achieve gender equity. On August 26, 1920, the 19th Amendment to the U.S. Constitution was finally passed, granting women the right to vote. For prepared speeches, videos, posters, displays, write to the National Women's History Project, 7738 Bell Road, Windsor California 95492 (Phone 707-838-6000; Fax 838-0478).

The Symposium, Ecological Risk Assessment: Use, Abuse & Alternatives, will be held at Oregon State University November 15-16, 1994. For information, contact the conference assistant in the College of Forestry, Oregon State University, Corvallis, OR 97330 (503-737-2329; Fax 2668).

Write to Center of Concern, 3700 13th St. NE, Washington DC 20017 (202-635-2757) for a brochure on how you can impact the UN Fourth World Conference on Women even if you cannot attend the 1995 conference in Beijing. The center has devised a series of facilitator's packets and a speaker for workshops plus other materials for those who would like some input into the agenda.

The 6th National Wilderness Conference will be held in Santa Fe, New Mexico November 14-18, 1994. The conference purpose is to mark the 30th anniversary of the Wilderness Act with examinations of the original intent, accomplishments, and strategies for future action. Contact Peter Keller, NPS: Park Planning & Protection Rm 3230, 1849 C St NW, Washington DC 20240.

The U.S. Fish and Wildlife Service has a full color poster illustrated by artist Dorothy Michele Novick portraying endangered and threatened species success stories (see right). Send \$6.50 for stock number



024-010-00702-8 to Supt. of Documents, US Government Printing Office, Washington DC 20402 (202-783-3238).

The American Fisheries Society will meet in Halifax, Nova Scotia 21-15 August 1994. The theme is "Managing Now for the 21st Century: Food, Recreation, Diversity." Contact AFS at 301-897-8616 for registration materials.

The Society of American Foresters meet in Anchorage with the Canadian Institute of Forestry. The joint national convention is entitled: "Managing Forests to Meet Peoples' Needs." Invited speakers include the King of Sweden, Vice President Gore, and Sheila Copps, the Canadian Deputy Prime Minister and Minister of Environment. Contact SAF at 301-897-8720 X 109 for information.



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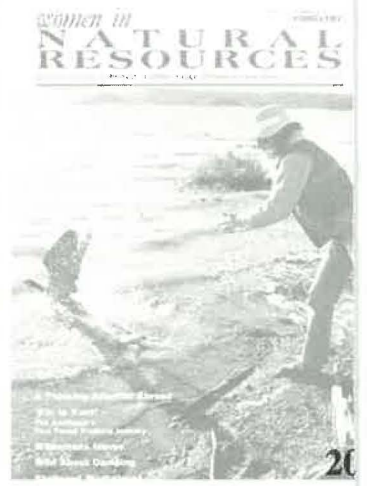
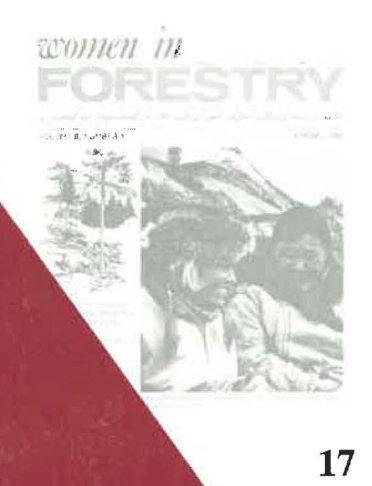
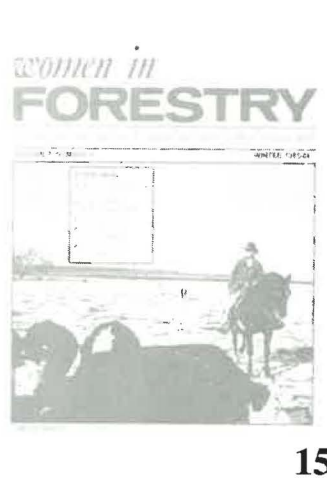
To be eligible, you must have a bachelor's degree with 30 semester credit hours in the biological sciences, of which 12 hours must be specialized to match the area in which you wish to work. Qualifications must be met by June of 1995. In addition, eligible candidates must take a written test to be held on September 24, 1994.

If you are interested, please send your name and summer address to:

Ms. Robyn J. Potter
 NYS Department of Environmental Conservation
 Division of Human Resources
 50 Wolf Road
 Albany, New York 12233-3010.

Please Note: We must have your summer address so that we can mail you an official application and the examination announcement in sufficient time for you to complete and submit your application to Civil Service by the filing deadline date of August 22, 1994. The examination announcement will give specific details about the positions and written tests. For more information call 518-457-7411.

NYS is an EOE: Women and Minorities are encouraged to apply



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