



women in
**NATURAL
RESOURCES**

Volume 14, Number 2 December 1992

*for professionals in
forestry, wildlife, range,
fisheries, recreation,
and related social sciences.*

In this Issue

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Subsistence in Alaska
Visiting Pandas in China
Agroforestry: wheat and shisham**

Editorial

Dixie L. Ehrenreich

We bought a cross country skiing exerciser the other day. I'm having a hard time learning how to use it efficiently. I tend to fall off—not at all what the manufacturer thinks should happen, clearly. It has cables for working the arms, to work the legs there are footrests on sliding rollers, and there is a padded rest for the gut to lean forward on. Legs and arms work in counterpoint as in nordic skiing, but I can't seem to get all five contact points—feet, hands, gut—to synchronize long enough to get the aerobic activity promised.

For years we had a rowing machine which I thought was aerobically efficient, easy to master, and about my speed. I miss the easy familiarity of sliding back and forth in the rowing machine saddle, my bottom firmly planted, legs working together and arms working together—all in view. When we moved to the new machine, I seemed to develop balance problems. When I look down to the striding-sliding position to see which leg is screwing up, I break rhythm and nearly topple off. As the topple starts, the cables offer no support for my arms as I twitch sideways. And finally, the abdominal rest (no velcro) lets me slide ignominiously off.

Why should I put myself through this, you ask? Because, I answer, I need the system's assistance to maintain conditioning so that I don't slide further down the slippery slope into flab and metabolic lethargy. To that end, the new machine is supposed to force me onto a higher plane of aerobic activity.

I know you are thinking by now that somehow I am going to relate all of this description to something which has to do with women who work in natural resources. And you are right. (I love analogy stretching and have been known to thin one down in the

stretch so far that it broke and snapped back in my face.) Anyway, I think women who are 30-something or 40-something now have the opportunity to try new methodologies for getting ahead in their work, getting into new professions—getting toppled off, too.

I think women who have worked hard, suffered much, and had some success should not be content to slide back and forth between the same rails, remaining secure and comfortable at last. I beg of you—don't take the safe way especially if you have been kicked around some, have fallen off the track a time or two, have the scars to prove it, and have the wisdom and energy to know when to get back on—or when to head for the showers and regroup.

As we get higher and higher in the professions, seasoned and tested women should continue to see if they can push themselves, get five contact points to synchronize efficiently when they had been using only three or four before. We know the opportunities are there, we know only too well how far we've come. And we know how the current-way-of-doing-things flab can weigh down the creative muscles. If the energy level drifts downward and the burn of excitement about the job dies out, the impetus for getting off the track onto something hotter fades away. Once the conditioning stops altogether, the flab and fat of old ideas clogs the arteries making a return to conditioning at any level problematical. (I've been known to snap the towel of cliches into tatters, too.)

I'm deadly serious, though, when I say that experienced women also are the repository of the information about energy efficient systems and also about places where aerobic bursts go to die and are buried. No need anymore to exhaust ourselves trying to fix cables and tracks on a system that is inherently

flawed. Don't do it, you don't have to. Don't invest in a machine or a workplace that is dangerous to your health because good, unflawed ones exist and are available to us.

Many observers believe that the new Clinton administration may create in the federal agencies more of a climate for those good places for women. That remains to be seen, but it certainly can't hurt to kick the conditioning into high gear to be ready for what he needs from us and what our society has a right to demand from us. We need to exercise the flab from the old body of ideas and ethics we are renowned for, advertise the fact that we are ready, suit up in our education and experience, then hop on and go for it. And after we've mastered that, it's time to get off, find a harder and more difficult project, and start shakily all over.

Dixie L. Ehrenreich

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Redefining Trust Land Management Priorities

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Subsistence is vital to the people in isolated Alaska villages and towns. Subsistence Rights Regulations hearings give rural Alaskans a chance to describe their culture and lives.

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This Pakistan study asks some fundamental questions about competition, spacing, and yield.

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Congressional Appropriations
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Washington DC

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Interview: Kathy Johnson

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She takes risks—to her reputation and her personal safety—in an effort to expand her own knowledge and that of her students.

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Older women use more vitamins and minerals than other population groups. This study looks at why they take them, and how that relates to health and the sense of control over one's own life.

I am writing to request your help with a project that has been proposed by the Federal Women's Program here on the Fremont National Forest. To celebrate the 25th anniversary of the Federal Women's Program, we would like to design a poster with the theme: "Women in the National Forest Service: Past and Present." Specifically, the poster will present photographs and brief biographies of prominent and influential women who have worked, or are currently working, for the National Forest Service. Your help is requested in the research stage of the poster's development. At this point, we have no specific women in mind who should be portrayed on the poster. Instead, it is our hope that you might be able to provide us with names, biographies, and/or photographs of women who have played an important role (past or present) in the National Forest Service.

Donna L. Gress, Bly, Oregon

Editor's note: We would be happy to help. In the 14 years we have been publishing the journal, many Forest Service movers and

shakers who are women have been featured. If readers want to contact you directly with poster ideas, they can call 503-353-2751. Perhaps we should do a focus issue on FWP.

As usual, I learned a lot from one of your focus issues. The Soil Conservation Service, like the rest of us in agency work, keeps the old work priorities going while being loaded with new ones. Some of their new priorities mesh very well with work we are doing. Your articles gave me some insight into where I can go for some help on a baffling problem we have—and it would probably be work they have already done.

Eloise Williams, Tucson, Arizona

Assistant Professor of Recreation Ecosystem Management

UNIVERSITY OF MONTANA at MISSOULA

The University of Montana's School of Forestry seeks applications and nominations for the position of Assistant Professor of Recreation Ecosystem Management. This full-time tenure track academic appointment involves the traditional academic role of teaching, research and public service.

Responsibilities include teaching undergraduate and graduate courses in park management, interpretation techniques, wildland recreation management, and recreation and park administration. Other courses that meet the program needs may be considered. The School of Forestry's Recreation Management Degree Program offers professional emphases in Recreation Resources Management and Recreation Program Services.

The job description and application information may be obtained from:

Chair, Recreation Management Search Committee

School of Forestry, The University of Montana, Missoula, Montana 59812

Phone 406-243-5522; FAX 406-243-4845.

Review of applications begins February 1, 1993, and will continue until an appointment is made.

The University of Montana is an affirmative action/equal opportunity employer

Way to go Soil Conservation Service! I find it amazing that someone getting promoted two or three times can still find upward mobility and a new job within driving distance of the same home. No wonder you have loyal employees.

Claire Ewald, Springfield, Illinois

As a fairly new employee of SCS, I read the articles with great interest. I had not heard of your journal previously and got a couple of back issues and was very impressed with their scope, breadth and timeliness.

Cheryl Trott, Richmond, Virginia

Deann Zwright's opinion piece was very annoying. Trade of all kinds—including timber—is good for everyone.

Shel Stack, Kamloops, B.C. Canada

USDA Soil Conservation Service

The Soil Conservation Service (SCS) in Colorado has periodic opportunities for civil or agricultural engineers, soil conservationists, soil scientists, range conservationists, and soil conservation technicians.

Applications are being accepted to establish a list of eligible applicants. When openings for these positions occur, Colorado SCS will consider the applicants on this list.

The SCS is the nation's foremost conservation agency assisting private landusers, groups, and units of government to conserve and protect our soil and water resources.

If the challenge of public service and working with our conservation team interests you, please contact Wynne Burns for further information at

USDA Soil Conservation Service

655 Parfet Street, Room E200C

Lakewood, Colorado 80215-5517 (303-236-2891).

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Opinion: about the new administration....

As with any changes in administration, we feel excited about the unknown. This is a new opportunity for us. We have proposed some sound and innovative management plans and we are optimistic that they will fit in very well with the direction of the new administration.

Dean Bibbes, State Director, Oregon and Washington USDI Bureau of Land Management (BLM).

Personally, I am enthusiastic about the potential for natural resources. The incoming President has said he will focus on three things first: 1. creating high-paying jobs, 2. decreasing debt—including foreign debt, 3. decreasing dependence on foreign oil. When I look at these priorities I don't see increases for natural resources research coming early in his administration. But within the jobs program, there will very likely be a program for tree planting and an emphasis on jobs that take care of the nation's urban forests and the timber base. Decreasing dependence on imported oil also implies that there will be a focus on technological advances in alternative power sources. That will probably be good news for solar power advocates and for those who research ways to use biomass to generate electricity. Wood, and wood by-products will receive a lot more attention. It should be interesting.

Barbara Weber, Director, Pacific Southwest Research Station, USDA Forest Service.

Whether you agree or disagree with their decisions, at least the Clinton administration will make decisions. For years, in Washington State, the Endangered Species Act has been a divisive issue affecting timber supply. The Bush administration always promised to make decisions and never delivered. At least now, something definitive will come forward.

Steve Gano, President, Gano and Associates (representing Plum Creek Timber and others), Olympia, Washington.

ASSISTANT PROFESSOR OF FOREST ECOLOGY

University of New Hampshire

This is a tenure track position. Teaching responsibility will include a 4 credit undergraduate course in forest ecology. In addition, the successful candidate will be responsible for advanced courses in one or more of the following areas: silviculture, forest ecosystem management, forest soils, professional field classes, or forest management. The incumbent will be expected to develop an externally fundable research program in forest ecology. A Ph.D. is required; postdoctoral experience and at least one degree in forestry preferred. Applicants should submit a curriculum vitae, transcripts, or a list of pertinent courses, a statement of professional interests, and three letters of reference by March 15, 1993 to **Dr. R.D. Harter, Dept. of Natural Resources, University of New Hampshire, Durham NH 03824.** THE UNIVERSITY OF NEW HAMPSHIRE IS AN AA/EEO EMPLOYER

UNIVERSITY OF THE SOUTH

Assistant Professor of Forestry

Applications are invited for a tenure-track position as Assistant Professor of Forestry, to begin fall semester 1993. Applicants should have expertise in and an interest in teaching several of the following subjects: natural resource economics and policy, natural resource and forest management, mensuration, geographic information systems, soils, and hydrology. Candidates should expect to share responsibility for an introductory course and to integrate quantitative methods into their courses. We seek a broadly educated forester with a strong commitment to teaching within an undergraduate liberal arts program. Applicants should have a doctorate or be in the final stages of degree completion, with at least one advanced degree in forestry.

The Sewanee campus lies within a 10,000 acre managed Forest Domain that is used for teaching, research, and recreation. The four-member Department of Forestry and Geology offers the B.S. in both Natural Resources and Geology.

Review of applications will begin February 1, 1993.

Applicants should send a curriculum vitae, undergraduate and graduate transcripts, three letters of recommendation and a statement of teaching interests and experience to:

Donald B. Potter, Forestry Search Committee
Department of Forestry and Geology

The University of the South

Sewanee, Tennessee 37375 (615-598-1479).

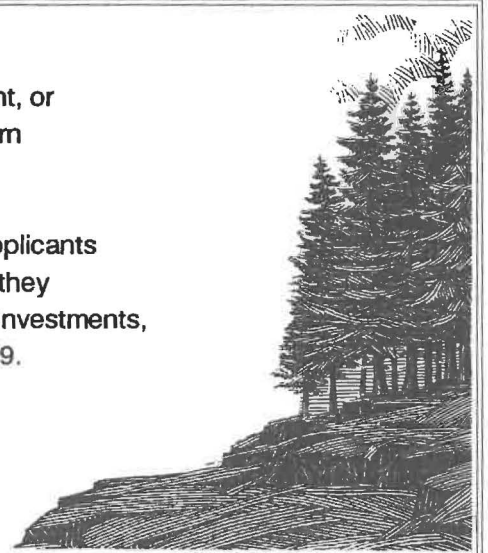
The University is an equal opportunity employer, and encourages applications from women and minorities.

If you or your firm has skills in timberland property management, or in providing specific forest management services in the southern states or the Northwest, we would like to hear from you.

Applications are being accepted to establish a list of eligible applicants from which selections may be made for future assignments as they occur. Please reply to: Frederick W. Blum, Prudential Timber Investments, Inc., 800 Boylston Street, Suite 4766, Boston, MA 02199.



PruTimber



IN THE STATE OF WASHINGTON, RETIRING COMMISSIONER OF PUBLIC LANDS BRIAN BOYLE RAN A FORWARD THINKING PROGRAM WHICH EARNED MONEY FOR SCHOOLS AND KEPT THE STATE OUT OF COURT.

REDEFINING TRUST LAND MANAGEMENT PRIORITIES

SALLY K. FAIRFAX
JON SOUDER

When pressed to brag a bit about his accomplishments as manager of Washington's considerable trust land resources, Brian Boyle (pictured right) emphasizes two. First, he points to the landscape, the scenic corridors, natural preserves and conservation areas that have been protected during his 12 years in office.

Second, he notes that alone among all public forest managers in the country, Washington's timber management program did not collapse into a nest of lawsuits during the 1980s. Market conditions have caused fluctuations in receipts to Washington's extensive timber management program, Boyle points out, not lawsuits blocking harvesting.

This dual emphasis on economic returns and environmental protection is the cutting edge of modern trust land management. Boyle's success in pursuing both goals simultaneously—indeed his ability to make revenue generation serve long-term environmental goals—has benefited both the Permanent School Fund and the general population of the state.

And, as academics who have been studying western state trust land management for most of Boyle's term of office, we are most impressed that programs initiated in Washington over the last decade have contributed significantly to redefinition of trust land management priorities. Unlike most publicly held resources, which are managed to achieve the ill-defined goal of "multiple use," the school and related trust lands are managed with a



specific mandate to make money. All states after Ohio joined the Union in 1803 received federal grants of one to four sections of land per township for the purpose of supporting common schools and other public institutions. For much of our early history, those lands and resources were sold or otherwise disposed of—many would say wasted—by state governments eager to encourage settlement.

Washington joined the union late in the process, when states were receiving two sections per township—about 2.38 million acres of school grant lands—and when the emphasis in school land policy had shifted toward retaining the lands and managing them as a trust, to produce revenues for the permanent school fund. Washington was also fortunate to receive lands which contained valuable timber resources. Many states retain and manage land with limited revenue production capacity. Only New Mexico and Wyoming, whose school lands contain valuable oil and other deposits, approach the approximately \$330 million in annual revenues which Washington's trust land management programs produce for schools and public institutions.

But the emphasis on retention and commodity-oriented management did not originally benefit the common

schools. Like the Forest Service and other federal land managing agencies, trust land resources are developed by leasing or selling them to private entrepreneurs—timber purchasers, oil and gas lessees, livestock operators and farmers. For many decades the lessees dominated decision making about the trust lands, effectively diverting trust resources to their own benefit through manipulation of provisions such as preference rights to lease renewal. Beginning in the late 1960s the trustee's obligation to maximize revenues for the beneficiary emerged as a major theme in trust land management.

This emerging emphasis on revenue generation, the obligation to act with "undivided loyalty" to the beneficiary in making the trust productive, has led many current trust land managers to argue that environmental "amenities"—especially those that could reduce annual income to the trust—have no place in their management priorities. This simplistic notion of maximized short-term revenues has put many trust managers at odds with the equally important trustee's obligation to make the trust productive while preserving the productive capacity of the lands and assets. It has also put them on a collision course with the environmental movement which focused in the 1980s on timber harvest-related battles over spotted owls, sustainability, and old growth.

Boyle's singular achievement is to succeed in both revenue generation and environmental protection. It is in the context of balancing revenue generation with environmental protection and preserving the long-

term productivity of the corpus—or stated another way, balancing short-term goals and long-term goals for the trust and the environment—that the Washington programs have been breaking important new ground.

Indeed, the characteristic feature of Washington's trust land management program during the 1980s has been to make revenue generation serve both the trust beneficiaries and environmental protection. This is a legal as well as a political straddle. It has been accomplished because Boyle's vision of trust lands is not tied to short-term cash flows; his term of office has spread the bounds of trust management while protecting both the spirit and the law of his obligation as trustee.

Boyle has been willing to identify growing and selling timber as the core task of the trustee and to pursue that priority vigorously. During his term of office, the trust lands timber program has been threatened from a number of predictable directions and some quite peculiar ones. One interesting effort has been to ban export of logs harvested from school lands. Boyle was successful in having proposed state export ban legislation altered so that the ban was a county option. Since the ostensible purpose of the legislation was to prevent the export of wood processing jobs, it is significant that no county has yet exercised that option. The state is also fighting in court federal legislation which prohibits export of 75 percent of the logs cut on state trust lands.

Defending the timber harvest program would not be possible, in our opinion, if that is all that Boyle had tried to do. Part of Boyle's success has stemmed, we believe, from his willingness to take the risk and the effort to develop inclusive discussions of controversial resource issues. The Sustainable Forestry Roundtable, the Old Growth Commission and the Timber, Fish and Wildlife Agreement are not without critics and disappointments, and appropriately so. It would be difficult to prove that these public education and discussion efforts have shielded the state's timber management programs from the acrimony and legal entanglements that have afflicted the Forest Service in the same

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time and place. However, the comparison is striking.

The Washington DNR under Boyle has also pioneered the idea of urban lands development—that trust land management could include developing commercial properties in and near urban areas. This is an important component of a new view of the trust lands—as a portfolio of assets rather than specific acres which the agency will hang onto come hell or high water. The portfolio notion has led to the idea of repositioning land assets in the trust. Washington's DNR has applied this familiar concept to public land management and as a result has been able to protect both environmentally sensitive lands and the timber resource base. One example is the DNR's extensive program of transferring trust assets of high environmental value to parks or other protected categories—with full compensation to the trust—and reinvesting the proceeds in high-value timber and transition lands which will continue to produce revenues for the trust beneficiaries. Another example is protecting green belts from conversion to urban development by effectively managing them for timber production.

It is fairly easy, perhaps even mandatory these days, to be cynical about what government can do, or what one individual can do. Washington's exemplary trust land

management program is not, of course, wholly the product of Brian Boyle's foresight and commitment. The state's granted lands are sufficiently valuable that they have long attracted the attention of dedicated resource management professionals. Boyle has, however, invigorated the DNR at a time when equally dedicated professionals elsewhere have been deflected by public hostility and lack of vision. And he has cut a path for future trust managers to follow in balancing conflicting public pressures on the peculiar grant lands. Perhaps his most important contribution, therefore, is not in trust land management per se, but in demonstrating the continuing importance and potential of public service.

Sally K. Fairfax is professor and associate dean of the College of Natural Resources and Jon A. Souder is a Ciriacy-Wantrup Fellow in the Haas School of Business, both at the University of California at Berkeley. They have been studying school trust land management for 10 years. The State Lands Project, which Souder directs, is about to produce an epic volume on that subject.

Photo on the preceding page is of Brian Boyle; this page, of Sally Fairfax and Jon Souder (courtesy Washington State DNR and Jon Souder). This article first appeared in *Totem*, Summer 1992.



Jessie A. Micales

Research

In

Progress

Focus on:

Microbiology

Toxicology

Alcohol from Wood
Vina Yang
Microbiologist

Since the continual decline of fossil fuel resources and our increased dependence on foreign fuel supplies, much research has been directed to using renewable raw materials for fuel energy production. Agricultural crop residues and forest and municipal waste are abundant carbohydrates in nature. In fact, their continued accumulation has become a serious problem as landfill space becomes less available.

Yeasts are used in commercial fermentations to convert carbohydrates to ethanol. Feed stocks that are normally used for these fermentations include sucrose, found in sugar cane, and glucose, obtained from the enzymatic hydrolysis of corn starch. Alcohol can also be made from the lignocellulose found in agricultural and wood residues. Using yeast to efficiently transform lignocellulose waste to alcohol has

been a major research goal at the Institute of Microbial and Biochemical Technology at the Forest Products Laboratory.

Lignocellulosic material is basically composed of cellulose, hemicellulose, and lignin. Cellulose and hemicellulose form up to 70 percent of the dry biomass. Acid or enzymatic hydrolysis of this material yields the sugars glucose, xylose, cellobiose, and small quantities of mannose, galactose, and arabinose. Next to glucose, xylose is the most abundant carbon source in nature. An efficient bioconversion of xylose to ethanol could make hemicellulose a valuable feed stock for ethanol production. Yeasts and bacteria are known to metabolize xylose to ethanol using separate biochemical pathways. In fact, bacteria such as *Escherichia coli* can metabolize both xylose and glucose, but the product of this fermentation is a mixture of organic acids with only a small quantity of ethanol. The common yeast, *Saccharomyces cerevisiae*, known to bread- and beer-makers, has long been known as a safe and efficient microorganism for fermenting glucose to ethanol with few contaminating by-products. This yeast is easy to culture, able to grow to high density with lysis, is not subject to viral infection, and has a high alcohol tolerance. Unfortunately, it does not metabolize xylose!

Research in our laboratory has sought new yeasts that will ferment xylose to ethanol. Xylose-fermenting yeasts were first discovered in the early 1980s. Since then, three yeasts, *Candida shehatae*, *Pachysolen tannophilus*, and *Pichia stipitis*, have been studied in great detail. We have been able to isolate mutants of *Pachysolen tannophilus* that show improved ethanol production. The rate of xylose fermentation is still lower than that observed in glucose fermentation by *Saccharomyces cerevisiae*, however. My research project is focused on developing new strains with improved xylose-fermenting abilities.

With recent advances in recombinant DNA and gene cloning techniques, the genetic engineering of bacteria and some of the glucose-



fermenting yeasts is possible. Less work has been done on the prospect of improving xylose-fermenting yeasts. A basic requirement for genetic engineering is transformation—the ability to move foreign DNA into the cells of the target organism. Until recently, there has been no effective means of doing this in the xylose-fermenting yeasts. We have recently developed a high efficiency transformation system. A shuttle vector, which contains the foreign DNA, is linked to genes for a selective nutritional mutation, so we can determine which colonies have been transformed. Transformation was achieved by “electroporation,” in which high voltage is used to puncture the cell walls and allow the shuttle vector to carry the foreign DNA into the cell. Eventually, we hope to use this system to introduce genes for ethanol fermentation into our xylose-fermenting yeasts in order to make ethanol production more efficient and economically feasible.

Vina Yang works for the USDA Forest Service at the Forest Products Laboratory in Madison Wisconsin. She has a B.A. in Botany from National Taiwan University and a M.S. in Biology from Occidental College, Los Angeles, California.

Toxic Alkaloids in Trees

**Lori Payne
Chemist**

My research as a graduate student grew out of my Peace Corps experience in Costa Rica. As a Peace Corps volunteer, I had a dual role as a resource for other forestry volunteers at Centro Agronomico Tropical de Investagacion (CATIE) in Turrialba, Costa Rica, an international agriculture research and training center. I was also a community resource in my area for community leaders, farmers, and teachers. My charge was to encourage small farmers to incorporate trees into their farming systems to control erosion and delay deforestation.

While at CATIE, I became involved with a new use of trees in agroforestry systems, namely their

use as food for animals. In tropical countries, such as Costa Rica, protein sources for animals are scarce. Many of the trees in Central America, both native and introduced, are nitrogen-fixing and therefore are high in protein content. I grew concerned that this new use of trees was not being adequately investigated. One of the proposed tree genera for this feed use was *Erythrina*, and it was known that the seeds of this genus contain toxic alkaloids.

At Louisiana State University, I began investigating different genetic clones of *Erythrina* to determine if the alkaloids were present in the leaves of this genus and whether there was variation of the alkaloid content of each varietal clone. I determined that toxic constituents were present in the leaves and that there was great variation in this content depending on the genetic clone analyzed. Low alkaloid clones were tagged for future research at CATIE.

In the second part of my research, the metabolic fate of these alkaloids in dairy goats was determined. Twelve dairy goats at CATIE were divided into three groups: one

control, one consuming *Erythrina berteriana*, and one consuming *Erythrina poeppigiana*. The toxic alkaloids were hydrogenated in the rumen of these goats, and these hydrogenated products were detected in small amounts in their milk. The goats themselves showed no toxic symptoms, and, in fact, seemed to thrive on the *Erythrina* foliage. It is known that some hydrogenated products of these alkaloids are more toxic to humans than the parent compounds. This research should alert investigators to the complex problems of introducing new technologies. The results of my study are being used by CATIE investigators to direct their work to establishing low alkaloid clones to eliminate the presence of these toxic compounds in animal products consumed by humans.

Lori Payne has a B.S. in Environmental Biochemistry from the University of California at Davis and a Ph.D. in Analytical Chemistry from Louisiana State University at Baton Rouge. She is currently a Senior Research Chemist at Merck Research Laboratories. Payne is an Editor for Women in Natural Resources.



SUBSISTANCE IS VITAL TO THE PEOPLE IN ISOLATED ALASKA VILLAGES AND TOWNS. SUBSISTANCE RIGHTS REGULATIONS HEARINGS GIVE RURAL ALASKANS A CHANCE TO DESCRIBE THEIR CULTURE AND LIFESTYLE.

TRIP TO BARROW, ALLAKAKET, BETTLES, KAKTOVIK, KOTZEBUE, AND FAIRBANKS

LEE DOUTHIT

Monday, October 29, 1990

This morning, I was to leave Fairbanks for Allakaket, in central Alaska, to begin a week of subsistence hearings on the proposed new Federal regulations for subsistence in Alaska. The issue has implications far beyond our managing wildlife on federal lands in Alaska, since it affects the lifestyle, culture, and well-being of many Alaskan residents.

The current situation arose after long legal battles over the constitutionality of the state's subsistence law; the law provided for subsistence rights to rural residents. The state of Alaska constitution, however, provides for equal access to wildlife resources for all residents of Alaska. The state law was tossed out in 1989.

Enter the federal government. Federal law—Alaska National Interest Lands Conservation Act of 1980 (ANILCA)—requires subsistence preference be given to rural residents. Further, if the state cannot pass a subsistence law, and does not meet ANILCA requirements, the federal agencies involved will take over management of wildlife on federal lands. Because the state legislature did not pass a subsistence law during their spring session, nor during a special session in June, the federal agencies took over management of wildlife on federal lands on July 1, 1990.

In Alaska, BLM manages the most land, but the National Park Service, U.S. Fish and Wildlife, U.S. Forest Service, and the Bureau of Indian Affairs also manage lands throughout the state. The state or regional director of each agency sits on the Federal Subsistence Board, determining regulations, special man-

agement needs, or adverse situations that need solution.

Draft regulations for the years 1990-1991 were issued in May, with only a 12-day comment period. Hearings were held in only four cities, and did not reach most of the people involved in subsistence in the state. Worse yet, no official presence from any federal agency was at the key Fairbanks meeting in June; the meeting was conducted by a judge from Utah, who was in Alaska for a hearing on a Native allotment case.

The fall round of meetings I am describing here are aimed at 60 cities and villages: 58 are in Alaska, including Juneau, Fairbanks, and Anchorage; surprisingly, one is in Seattle; and one is in Washington, D.C. The primary purpose is to gather comments regarding proposed subsistence hunting regulations and policy in preparation for an Environmental Impact Statement (EIS) to be published in 1991. [As of late 1992, it had been published and was in court.]

U.S. Fish & Wildlife is the lead agency for the EIS preparation, and thus, coordinated the four teams for visiting the villages. I am the only BLM'er on any of the teams. We will visit Interior and Arctic villages. Lou Swenson, Refuge Manager for the Yukon Flats Wildlife Refuge, and Herb Anungazuk, National Park Service interpretation, and I comprise the team. Tom Evans, Refuge Manager for the Kanuti Flats, and Johnson Moses, a Fish and Wildlife employee who has a house in Allakaket, were also along.

We were to leave Fairbanks at 10 a.m., but the plane left something behind and had to return to Anchorage, so we didn't leave until 11. Our plane was a twin engine Aero Commander, a very fast prop plane. We had baggage for five days, extra food, sleeping bags, tape recorder and tapes, flip charts, markers, sign-up sheets, mailers for write-in comments, and lots of warm clothes. We left behind a portable video player and monitor,

since we did not intend to show the video tape prepared by Fish & Wildlife. We decided it was patronizing and demeaning.

We got to Allakaket just after noon, unloaded the stuff we needed for the meeting, and had it taken to the community center by snow machine and sled. We walked in the -25° cold, and realized that we needed more clothes. I put on a pair of overpants, which meant I had on sheepskin boots, long johns, jeans, overpants, a T-shirt, wool sweater, parka, mittens, and a wool cap—the vision of fashion, if you're the abominable snowwoman. If I had fallen down, I wouldn't have been able to get up. The community center was cold, but the wood stoves had been lighted. Using the community center outhouse at -25 degrees was a real experience.

The original plan was for the informal meeting to begin at 4:30 with questions to us, followed by a potluck at 5:30, and the real meeting at 7:00. We would leave around 9:00 to fly to Bettles, about 14 miles up the river to spend the night in the Fish and Wildlife "bunkhouse."

Allakaket is a Koyukukhotana Athabaskan Indian village on the south bank of the Koyukuk River, just below the junction the South, Middle, and North forks. Just across the river is the Koyuk Eskimo village of Alatna. Population in Allakaket is close to 200, and in Alatna about 35. River or snow machine travel connects the two villages.

Allakaket has a store, school, a post office, a laundromat, a water system, and a community generator. We visited the city offices and the store to make connections, found that the meetings had been publicized, and talked to various people. We also visited St. John's-in-the-Wilderness Episcopal Church, founded in 1906 by Archdeacon Hudson Stuck. Stuck toured the state from Fort Yukon to Point Hope on the Chukchi Sea in a dogsled and by boat. There was a

large mission school and hospital here for years. The church is a log cabin with rustic pews and altar. We walked through much of the village, admiring dog lots—some people here are racing dog mushers—and visiting with folks.

The community center is an 8-sided (hogan-like) log building, with benches along the walls. We were standing in the middle, with Lou facilitating the meeting (good government term), Herb writing it down, and me recording on the tape recorder. We decided to go ahead with the formal meeting at 4:30. About 6:00, people had come in for the potluck, so we broke for dinner. We had fry bread, rolls, moose soup, moose stew, moose ribs, salmon in various forms, salad, and dessert. The food is always good at these affairs, and eating together gives us all a chance to visit without the formality of the meeting, or the "us" and "them" scene. Tom Evans did some visiting with people who use the Kanuti Flats refuge for subsistence. Johnson Moses, an Athabaskan, visited his friends and checked out his house. He and his wife, Bertha, live in Fairbanks, but maintain their village ties. I know both of them from St. Matthew's, the single most important connection for me with villagers. Since Fairbanks, where I live, is the commercial and health center for the Interior and North Slope, and since many of the villages have a long Episcopalian heritage, I see them in church in Fairbanks. It makes a difference when I go to the villages that I have also seen and talked to them in a non-threatening situation elsewhere.

A major concern for them was the definition of *traditional* and *customary*, which has plagued subsistence regulations since ANILCA was passed. To the villagers, it means that they hunt and fish whenever they need to. No matter what happens they still live off the land, first as a matter of culture, then as a matter of economics. "We have no jobs to buy meat, nor any supermarket to buy it from. It's our people, our land, our lifestyle. We were here first, and we want our grandchildren to be able to live this way."

Second was the problem of boundaries in an area where land ownership is complex, divided among U.S. Fish and Wildlife, the National Park Service (Gates of the Arctic National Park is part of the village's hunting area), BLM, the regional corporation, the State of Alaska, and the village corporation. Maps do not accurately show the boundaries and there are no fences. Under dual (state-federal) management, regulations change as they walk across the landscape. There is a strong possibility that hunters will need both a state and a federal hunting license or subsistence permit. Regulations are too complex now, and will get even more so.

We felt that the meeting was good, with concerns voiced rationally but with emotion.

There was a strong statement that they were land managers before we got here, and would continue to be so if allowed to.

By 8:30, everything that needed to be said had been, so we packed our stuff, got rides down to the airstrip, and loaded the plane for the short flight to Bettles. Johnson Moses was staying until the commercial flight later in the week. It had gotten colder, but the stars were bright. We taxied to the end of the snow-covered airstrip, but then ran into trouble when the plane's computer went down. Regulations do not allow flying after dark without an IFR computer. Nothing the pilot did worked, and it became obvious we would have to stay in the village until morning when we could fly without a computer. The days were getting much shorter, so sunrise wouldn't come until after 8:00 a.m. After an eternity of standing around in the cold, now -35°, some snow machines came back and hauled our necessary gear to the laundromat, which was heated and had—gasp! —running water, flush toilets, and showers. Not everyone had a mattress, so I handed over my parka for Tom to use as a mattress, blew up my trusty air mattress, and set up camp comfortably in the women's rest room.

Tuesday, October 30, 1990

We were awake and ready to go by 8:00 a.m. when it became light enough to fly the plane. After many phone calls and discussion, it was agreed to take us to Bettles (Lou, Herb, Tom, and me), then for the plane to

return to Anchorage for a new computer. It would return in the afternoon, hopefully in time for our scheduled trip to Anaktuvuk Pass for another meeting. We got to Bettles with no trouble, and took our stuff to the joint Park Service-Fish and Wildlife bunkhouse.

Bunkhouse to those agencies means something entirely different than it does to BLM. Our bunkhouses in Coldfoot, Umiat, and Ivtuk consist of a prefab cabin, with wooden bunks, a wood or oil stove for heat, an outhouse or propane toilet, and a Coleman gas stove for cooking whatever we brought with us. This bunkhouse had two stoves, carpet, showers, a fully equipped kitchen, central heat, a TV, and a telephone.

We called the Park Service and told the Gates of the Arctic superintendent not to come up for the Anaktuvuk meeting, since we didn't think we'd make it. He came anyway, and took the commercial flight into Anaktuvuk Pass to set up the meeting for us.

It was nice to have a totally unexpected day of leisure, so I took pictures, walked around the town, and read. Bettles is on the south bank of the Upper Koyukuk (just below the junction of the Middle and North forks) in the foothills of the Brooks Range to the north. Gates of the Arctic National Park has its headquarters here, and most access to the park is on floatplanes or small planes from Bettles. Foot access to the park is most often from the Dalton Highway. Winter trails connect Bettles to Allakaket and to Anaktuvuk Pass. The Native village of Evansville is

What is subsistence?*

To put subsistence needs into perspective, a household (an extended family group of 10-12 people) needs during a year: 1-10 mink, 10-20 muskrat, 1-8 wolf, 1-10 wolverine, 1-25 red fox, 1-10 otter, 50-100 arctic ground squirrels, 50-100 rabbits. Furs are used for cash and for clothing; muskrat is eaten or may be fed to dogs along with the other critters after the fur is removed. It takes 80 squirrel skins to make a parka.

Also needed are: 1-6 moose, 10-100 pike, 100-200 pounds of tom cod, 10-100 mudshark, 1-10 beluga whales—down from 20 in the old times, 2 or 3 king salmon, 15-20 oogrucks (fur seal), 1-3 walrus, 1-3 spotted seals, 3-5 sheep, 20-60 geese, 10-20 100# sacks of trout, 10-20 100# sacks of whitefish, 100-500

100# sacks of salmon, 1/2 sack of ducks, 1-5 gallons sea gull or duck eggs, and young caribou for parkas and mukluks. (They used to need 1500-3000 salmon for each dog on a dog team, but with snow machines, no more.)

In addition: 1-5 buckets of blueberries, blackberries, salmonberries, raspberries, stinkwood and tree gum for medical purposes, Labrador tea. Other miscellaneous requirements: 12-20 cords of wood for heating, 200-500 logs to make a house, 1-2 sled loads of alder to smoke salmon, 1-2 sled loads of cottonwood (for tools, carving, smoking, and making dishes) 200-300 pounds of moss for chinking.

**These figures are for the village of Noatak, the only village on the Noatak River, 8th longest in Alaska. The people still go down the river and up the coast to whale at Point Hope in the spring.*

adjacent to Bettles, which is also a center for outfitters and guides.

The plane didn't return from Anchorage until 6:00 p.m., and the pilot wouldn't fly into Anaktuvuk Pass for the meeting. He was close to his hours for the day (under regulations, they can only fly eight hours per day); it was dark, and Anaktuvuk Pass is in a black hole in a narrow pass on the north side of the Brooks Range. The clouds can come in rapidly, and make it impossible to find the place, or to get out safely. We called the Gates superintendent, who was disappointed that we weren't coming, since the village was ready for us. We rescheduled for two weeks later.

Wednesday, October 31, 1990

We left Bettles at 10:00 for Kaktovik, and an afternoon meeting. Tom Evans was staying in Bettles, so now we were Lou, Herb, the pilot, and me. The plane flew at 300 miles an hour as we angled northwest over the Dalton Highway and Trans-Alaska Pipeline, and over the Brooks Range onto the tundra.

Kaktovik is on Barter Island on the Beaufort Sea. The people are Iñupiat Eskimos who hunt whales and marine mammals on

the ocean, and caribou, musk oxen, and other animals in the Arctic National Wildlife Refuge. The village of about 200 has been in this location for centuries, although until the late 19th century was not occupied year round. Barter Island was a trading location for Iñuit from Canada and Iñupiat from Alaska as far away as the Bering Sea long before Europeans entered the area. After the 19th century, when whalers penetrated the Arctic Ocean, Barter Island and Kaktovik became a stop for Euro-American whalers, and a center of trade based on whaling ships and barges. Additional goods came from Herschel Island, a Royal Canadian Mounted Police outpost at the mouth of the MacKenzie River just east of Kaktovik. As isolated as Kaktovik appears on the map, the people have a long history of travel and trade through the Arctic region.

The airstrip is on a sand bar about a mile from town. The wind is usually blowing in Kaktovik, but today was clear, still, and about +4°. The ocean was frozen, and the whaling boats were beached. Bones from two whales killed during the fall season were visible on the beach, but beginning to be covered with snow. Houses in the town reflect the prosperity of the North Slope Borough and Arctic Slope Regional Corporation from oil revenues in Prudhoe Bay. That is, many homes were modern Arctic construction with triple glazed windows, double entries, and heavy insulation. Villagers heat with fuel oil, hauled into the village on barges during the short summer, ice-free season. The village has a centralized electric, water and TV system, but a honey bucket sewage system.

We prefer to have meetings at night so that people who work can come, but it was Halloween, and the only meeting place in Kaktovik was already reserved for the village Halloween party. The meeting began at 1:30 with five people there. Sunset was at 3:30.

The people's concerns here are quite different than in any other village. Most land hunting is done in the Arctic National Wildlife Refuge (ANWR), and most questions, comments, and concerns related to land use there, to U.S. Fish & Wildlife regulations, and to conflicts between USFWS and the State of Alaska managing the same animals in the same areas. For example, musk oxen were reintroduced into the ANWR some years ago, and hunting has been limited to 10 bulls per year on a first come, first served permit system. Guides stand in line for days to get permits for their clients, sometimes offering several thousand dollars to a person in front of them. The herd has been successful, and the limit in 1990 was 15 animals. The State Board of Game, on the other hand, also declared musk oxen to be a subsistence species. Thus, 10 permits were allotted to Kaktovik and Nuiqsut residents for subsistence purposes only.

Musk oxen were often a preferred species for the Iñupiat until the mid-19th century when modern rifles enabled them to kill off the North Slope population. Musk oxen bulls circle females and calves when they are being threatened, face outward, and present a formidable defense to wolves or other predators—except humans with rifles. They are particularly adapted to Arctic conditions, growing a long woolly undercoat, which sheds in spring, and which is highly valued: the qiviut, used for knitting yarns, is worth more per pound than gold. Otherwise, the critters look like short, shaggy cattle, smell like short, shaggy cattle, act like wild short, shaggy cattle, and taste like them, too. They dress out at the rate of one bull musk oxen for five to seven caribou.

We stayed at Fish & Wildlife's "cabin" in Kaktovik. It was a two-story, carpeted building with electricity, kitchen, and running water; no flush toilets.

Thursday, November 1, 1990

The sun comes up late this far north this time of year, so we didn't leave for Barrow until sunrise at 10:00 a.m. We flew west across the Beaufort Sea portion of the Arctic Ocean to Barrow. The ocean is frozen along the shore line, but there is open water in leads farther out. The week before, two wildlife biologists had been doing a polar bear survey out on the pack ice and had disappeared—no evidence of them on the ice had been found during extensive searches.

We finally landed about 11:30, got unpacked and sorted out to get to the Top of the World motel right on the Chukchi Sea beach. This meeting was also an afternoon one, although we hadn't known it, so instead of lunch we went to the North Slope Borough's offices, and set up. Our team was joined by Dee Ritchie, the BLM Arctic District Manager, and Rod Kuhn, detailed from the Forest Service to head the writing team for the Environmental Impact Statement on federal management of subsistence.

It was my turn to lead the meeting, which was being video-taped and audio-taped for later broadcast over the Barrow radio and TV stations. This was one way to let people in villages we weren't visiting know what was going on. In addition, this meeting was translated into Iñupiaq for those people, primarily elders, who don't follow in English very well. Most of the statements were prepared, and most of the presenters read them first in English, then in Iñupiaq. One elder, Daniel Leavitt, gave his presentation in Iñupiaq, and had it translated into English by the representative to the Alaska Legislature, Eileen McLean. As a result, the meeting lasted from 1:30 to 5:30.

Barrow had a number of concerns about dual management. Most of their land-based hunting, however, occurs on the National

Political realities

While comments from the villages are crucial, most of the voting power is in the cities. In addition, once the EIS is issued, comments can be made by *anyone in the U.S.* Each comment has equal weight; thus, 50 comments by animal rights activists in New York or California, for example, will have the same impact on the final EIS as 50 comments from Alaskan people who depend on fur trapping for their cash income. Each comment from an anti-hunter will be as important as a comment from someone in an isolated community who depends on hunting for the family's meat.

While it is not the intention of federal management to abolish subsistence hunting, the final result may be a great deal of change that no one anticipated or wanted.



Arctic snow contains very little water for the most part, so the annual precipitation is low. When the snow melts it does not soak into the ground because of permafrost, and the vegetation stays green. Kotzebue, Barrow, and Kaktovik are all north of the tree line. Kotzebue gets an average of 8.6 inches of precipitation a year, including 46 inches of snow. In comparison, Barrow averages about 7 inches of precipitation a year with 40 inches of snow; Kaktovik 6.5 inches with 39 inches of snow, and Allakaket about 14 inches and up to 10 feet of snow.

Petroleum Reserve-Alaska (NPRA), which is managed by BLM.

Another major concern was the possible classification of Barrow as non-rural. Under federal law, any village under 2,500 population is considered rural and eligible for subsistence hunting rights, and any town over 7,500 is considered urban and not eligible for subsistence rights. The law reads that those places with a population between 2,500 and 7,500 will be decided on an individual basis. Barrow has a population of about 4,000, and has a right to be concerned. While the Federal Subsistence Board has never considered Barrow to be non-rural, the issue could arise, and thus, there were many comments about the percentage of subsistence use, traditional and customary use, and cultural importance to the people of subsistence activities.

In addition, town spokesman said they were disturbed that only two of the 13 governmental entities in Barrow had been notified about the meeting. Admittedly, there is confusion among agencies who aren't familiar with Barrow about the situation, but then Fish & Wildlife could have worked through BLM which has more experience there.

There were also comments about the lack of lead time to prepare for the meeting—but this was true everywhere. Village councils and the elders need more time to think and talk among themselves about the implications of policies, and none of the federal agencies give enough lead time, or will schedule follow-up visits.

As I enabled this meeting, I did have the feeling that the feds are talking about one thing, and the town's people about another altogether. If the feds say or imply that they are protecting a culture/lifestyle, they are missing the point, and are being patronizing. We need to talk more about enabling the existing culture, while participating in the

ongoing cultural change. The people themselves will decide what to keep from the old and what to take from the new, and can decide those things responsibly if we can make ourselves let them do it. Their comments reinforced my thinking:

- We aren't talking about a lifestyle; we're talking about our lives.
- Nuiqsut shares fish with us, and we share caribou and whale with them.
- Our life is in a society with a culture that allows us to share.
- To write regulations, come to the experts in the North, us.
- The cash economy we have compromises our identity as Iñupiat; when the cash is gone, we'll still be here.

The sun will set in Barrow on November 18 and not rise again until January 24, so the days are very short now, dark by 2:30 in the afternoon. After the meeting we did a bit of shopping at the supermarket, and at the motel store. We finally got to go to dinner at Sam and Lee's Chinese restaurant, where with Dee and Rod, we talked over the meeting.

Friday, November 2, 1990

Since we didn't need to be in Kotzebue until the afternoon for an evening meeting, and since the sun doesn't come up until after 10 a.m., we were able to sleep in. We had breakfast at Pepe's Mexican Restaurant, advertised as the farthest north Mexican restaurant. You can have huevos rancheros or reindeer sausage for breakfast in addition to the normal things.

It wasn't very cold, about +20° and unusually calm in Barrow as we flew southwest to Kotzebue across the western Arctic. Kotzebue is located on a spit of Baldwin Peninsula in Kotzebue Sound, about three

miles long and from 1,000 to 3,500 feet wide. As we descended through the now thick clouds, the plane began icing at 3000 feet, and the pilot had to ascend and go west very rapidly to get out of the ice and to shake it off the plane. There are not many sounds more frightening than those of chunks of ice hitting an airplane, especially when one can see ice forming on the wings. We got up and out of the ice, got most of it off the propellers, then shot down through the clouds so it didn't have a chance to reform, and landed in a heavy snowstorm at the Kotzebue airport. It was 25° and snowing with about two feet on the ground. The sound is frozen now, and people were ice fishing.

Kotzebue has a population of almost 3,000, mostly Iñupiat Eskimo. There is a BLM office and cabin for the Kobuk District, the headquarters of the Selawik National Wildlife Refuge, and the headquarters of Cape Krusenstern National Monument, the Noatak National Preserve, and the Kobuk Valley National Park in the town.

•Cape Krusenstern National Monument contains some of the most important prehistoric sites in the Arctic: there are 114 beach ridges formed as sea levels changed and early inhabitants moved their camps closer to the beach.

•Kobuk Valley National Park contains the most important archeological site located to date in the Arctic—Onion Portage—where hunters camped waiting the migration of caribou across the Kobuk River. The entire park encompasses 1.5 million acres (Gates of the Arctic is 8 million acres) on the western edge of the Brooks Range that was ice free during the Pleistocene, and allowed human access from Asia to North America. The

Onion Portage site dates to about 10,000 years ago.

- The Noatak National Preserve consists of 6.6 million acres, 5.8 million of which are designated wilderness thus protecting the largest untouched mountain-ringed river basin in the Americas. UNESCO has designated the preserve an International Biosphere Reserve.

- Selawik National Wildlife Refuge holds 2.15 million acres of habitat for a multitude: migratory waterbirds, wintering caribou from the Western Arctic Caribou Herd, moose, grizzly bear, furbearers, and many resident fish.

Kotzebue is the center of the Seward Peninsula, Thompson Peninsula, and Noatak and Kobuk river valleys for commercial purposes, for regional government, for air travel north of Nome, and on the day we visited, for glamour—a Hollywood movie was being filmed in Kotzebue. We shopped in various stores, and toured the town, including St. George-in-the-Arctic Episcopal Church. We visited the Park Service visitor's center where Herb Anungazuk worked before transferring to Anchorage. The snow kept falling, though, and getting deeper; it became imperative to wear gaiters to keep my pants dry.

Helen Hankins, the BLM Kobuk District Manager, flew in to attend the evening meeting. We were staying in the BLM facility: nicely carpeted, flush toilets, central heat. The local Fish & Wildlife representative graciously cooked dinner for us.

The meeting began at 7:00, and was broadcast live throughout the listening area of about 48,000 square miles. Some village councils from Kivalina, Deering, Buckland, Noatak, and Kobuk were represented at the meeting, but many of the smaller villages were not. There is some resentment over the limited visits to the area by the federal teams. The regional corporation, NANA (Northwest Alaska Native Association) was represented by Walter Sampson, who spoke eloquently about cultural continuity between the past and the future. (Walter appeared in a pair of ostrich skin cowboy boots, so I gave him a hard time about walking in two feet of snow with cowboy boots instead of our skin and fur mukluks. Alaskans still laugh and ridicule Texans who froze their feet while insisting on wearing cowboy boots during the pipeline construction.)

The thrust of the comments was in an effort to make us understand the culture of the people:

- There are strong feelings that the people from northwest Alaska are not fully represented on the Board of Game or on the Federal Subsistence Board.

- Too many regulations make it harder to share in the old ways.

- Except for Kotzebue, the villages have

only small stores for things like flour, rice, sugar, so that as one elder said, "Our supermarket is the river, the ocean, and the land. Which is more important—a life or money?"

Saturday, November 3, 1990

We got up late to find still more snow on the ground. The pilot went down to the airport to check the plane and sweep the snow off the wings. We finally took off for Fairbanks about 10:30 as the sun was rising. We landed about 1:30 in the snow; I brushed it off my truck and went home.

Wednesday, November 14, 1990

Ryan Junior High was the scene for what promised to be a nasty confrontation in my hometown of Fairbanks. BLM had supplied monitors for showing the video that we refused to take up north, as well as sophisticated recording equipment.

Most of the attendees and speakers were Fairbanksans who are legally not considered to be subsistence users since the city is one of the urban areas in the state (Anchorage, Juneau, and Ketchikan are the others). However, many people who live in Fairbanks and who must hunt on sports licenses do use their harvest for subsistence purposes.

We had some not-unexpected emotional outbursts on that basis, some in favor of the Natives, some diatribes against Natives, a number of anti-federal government remarks, many of which are not printable, and one pro-government statement—at least in defense of those of us at the head table. We, the federal employees, have to sit and take this; supposedly these meetings are for us to gather information, and we are not supposed to get involved in argument or dialogue with the public in our defense.

It's not easy to keep your mouth shut under these circumstances, but it makes the meeting shorter and calmer, usually. One man, who moved to Alaska from Texas in the

1940's is the head of the Alaska Independent Party, which is trying to get a grassroots movement for Alaska to secede. (I wanted to tell this man to reread his American history—secession has been tried with less than positive results. This party nominated and elected the current governor, Walter Hickel, however, so they're riding high. We almost had a fistfight between one of his supporters and the head of a local Native corporation.)

This meeting was attended by federal managers, local politicians, and about 150 people. The video got the response we had expected from the villagers—people were insulted if they weren't laughing.

Our team won an award for surviving the worst meeting of the 60 throughout the state (for the Fairbanks meeting), and another award for the most modes of travel into the villages. The one for the Fairbanks meeting comes with a guarantee that we won't have to return to that city in the next round of meetings.

M. Lee Douthit is Assistant District Manager for Resources in the Coos Bay (Oregon) District Office of the Bureau of Land Management. She transferred to Oregon from Alaska in March, 1991. Her Bachelor's is in history from Texas Woman's University, and the M.A. and Ph.D. in Anthropology from The University of Texas at Austin. She has worked for BLM since 1981: as an archeologist at the Anasazi Heritage Center in Dolores, Colorado, district archeologist in Worland, Wyoming, and subsistence coordinator in Fairbanks, Alaska. In Coos Bay, where her staff of 19 includes timber specialists and Resources Other Than Timber (ROTT) she is responsible for cultural resources, wildlife biology, soils, air, water, threatened and endangered species (spotted owls), and other exotics as non-timber people are called. The division is now named, humorously, "Timber & ROTT."



This book of 12 essays on water policy and planning, wilderness, Native American concerns, and the spirit of the American West provides a much-needed point of view in resource management. Environmental activist and the Moses Lasky Professor of Law, Charles Wilkinson draws on his personal experience of wild land in the west and the law he teaches at University of Colorado.

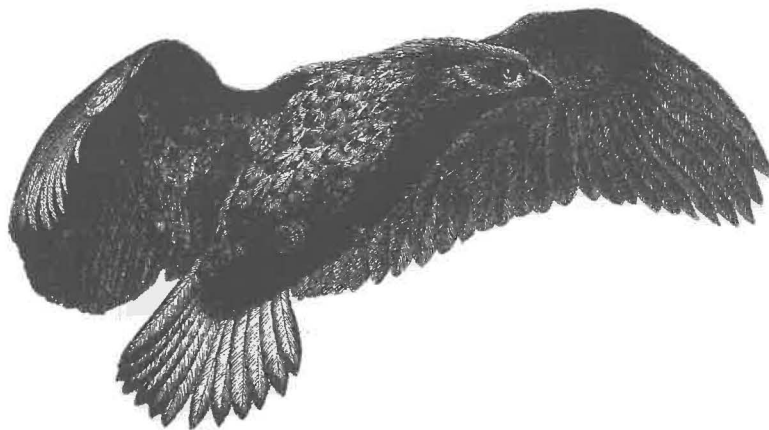
I found this book struck a calming note in my hectic, deadline-filled, urgent-decision-making life as a BLM staffer. I appreciated the crispness of Wilkinson's prose as compared to the recent airing of strident environmental or pro-industry concerns. Many of these essays have been revised considerably since their original publication in the Portland *Oregonian* newspaper, the *High Country News*, or a special 1985 edition of *American West*.

Each of the essays asks, in its own way, important questions. There are questions about our values as a society and our ability to relate to and respect older, native cultures.

Another is, what is the indefinable "spirit" of the west? There is a theme of timelessness. Taken together, the essays examine our land use policies to see how they hold up against a time span shorter than geologic time—but longer than my lifetime. When I read that there was evidence of Native Americans fishing at Celilo Falls (now buried by slack water on the Columbia River at The Dalles Dam) 11,000 years ago, I began to look at resource management decisions in a slightly different context.

In the first essay, "Three Places, Time, and Humanity," Wilkinson describes a coastal headland, a mountain meadow, and the headwaters of a salmon-bearing stream. In addition to the physical description, he notes that at these locations

Time flows and bends. It stretches out, back into misty regions, back into a deep space that the mind strains to explore, to comprehend. At places like these we are able to pause and wonder, to realize that the flow of time is perhaps the single greatest mystery about which we can ponder.



Wilkinson poses questions for us to address as we rapidly work our way into the next century. Both private individuals and those of us working for resource management agencies would benefit from asking ourselves these questions.

No one is against creating roads with stone, houses with wood, or electricity with water. However this is done, some products of the ages will be sacrificed.

The Eagle Bird by Charles F. Wilkinson

Random House, Inc. 1992

Reviewed by Jonne M. Hower

But it is wrong to do those things on short thought....It is not always easy to pause and assess our right to strip away the work of aeons in a few short years, a period so brief that it can scarcely be measured in the sweep of geologic time. It often seems inconvenient and abstract to worry about the flow of time and to wonder at it. Yet it is exactly the challenge of our people to meet the diverse and urgent calls of a churning era by trusting our most distinctively human qualities.

Using for an essay title a quote from John Muir, "Everything is bound fast by a thousand invisible cords," Wilkinson challenges those of us working in natural resource management to become more acquainted with classic conservation thought. He says that we should know better this body of literature and communicate it better to the public.

The classic conservation philosophers raise diverse arguments for good conservation practice. Their body of work blunts the all-too-common public perception that conservationists seek to protect a parcel of land because it is pretty or an animal

species because it is cute....but conservation thought also rests on...the precepts of several physical sciences, economics, homocentrics [man is most important], biocentrics [ecological web is most important], history, anthropology, sociology, and spiritual belief. Conservation is based on a challenging interdisciplinary body of thought...

Sounding a call to action he encourages us to lead our fellow westerners in coming to grips with western traditions, institutions, and "laws...bottomed in the dark aspect...the urge to conquer, control, and own nature in the name of progress." Too often, he claims, resources are consumed for short-term economic gain, while society in the long term is ignored. Wilkinson questions both the place of government regulation and the place of market economics.

Thus I would use multiple-objective planning, in which the ultimate goal is not just satisfactory results as measured by classical

economic analysis and its bottom line, but also satisfactory results as measured by community, wildlife, recreational, scientific, aesthetic, and spiritual values.

In "Language, Law, and the Eagle Bird," he examines the power and majesty of words, or alternatively, the stifled, emotionless prose of legal statutes. "Why it is that laws do not speak of the wonder and majesty of the bald eagle...[and] why words such as these matter so much..." Noting that lawyers claim that statutes must be absolutely precise and that there is no way to measure "majesty," Wilkinson suggests that "[e]vocative statutes with a strong emotional and scientific and philosophical content make a difference, even though the evocative language may be in a preamble." The language in the 1964 Wilderness Act is used as an example of this. He writes "the definition of wilderness in the great 1964 Act...begins to acknowledge yearnings, to evoke passion, and to depict an ideal."

The final essay, "When the Boom Times Return," offers a philosophy

Continued on page 36

AGROFORESTRY SYSTEMS HAVE BEEN DISCUSSED OFTEN, BUT THERE IS VERY LITTLE BASIC RESEARCH AVAILABLE WORLDWIDE. THIS PAKISTAN STUDY ASKS SOME FUNDAMENTAL QUESTIONS ABOUT COMPETITION, SPACING, AND YIELD.

WHEAT PRODUCTION AS AFFECTED BY SHISHAM

GHULAM SARWAR KHAN
JOHN H. EHRENREICH

Pakistan is a Muslim country in Asia with a population of more than 118.8 million in an area about the size of Texas. The national economy is based on agriculture, which comprises 70 percent of the total GNP (Government of Pakistan 1989). Like other developing countries, Pakistan faces many problems including illiteracy, poverty, food shortages, and shortages of wood fuel. The fuelwood shortage is so severe that the people are forced to burn cow dung, packing materials, crop residue and industrial waste for cooking and heating. The public forest provides only 10 percent of the fuelwood and 20 percent of the timber needs of the nation (Amjad and Khan 1988). The balance comes from agroforestry—growing trees on cultivated lands.

Agroforestry is a land-use system that involves a socially and ecologically acceptable integration of trees with agricultural crops and/or animals simultaneously or sequentially, so as to get increased total productivity of plants and animals in a sustainable manner from a unit of farmland. Farmers in Pakistan, however, have the impression that trees decrease crop yields as much as 50 percent, even though there is no research to support this idea. Farmers do recognize, however, that trees provide needed fuelwood, an additional cash crop, improve the environment, and provide soil and watershed protection.

There is little information world

wide about the exact losses or gains in crops when grown in combination with trees. Moreover, there is no coordination between most countrys' forest and agriculture departments in selecting the correct crop and tree species combinations, tree spacing, and optimum tree and crop rotation. As a result, at certain places, the potential is not fully realized; at other places there is a reduction in crop yield. Much research is needed to explore interactions between trees and field crops. One important dimension of this complex problem is to get data about the direct physical effect of trees on crop production.

Size, age, height, crown cover and root system morphology of trees will have different effects on crops as well as on their own development. Cultivation, fertilizers, pesticides, herbicides and irrigation not only affect crop growth but also tree growth. Trees share in the benefit of these inputs within their root zones. In turn, trees protect crops from climatic extremes. They enrich the soil by adding organic matter and nutrients through dead biomass and in some cases, through fixing atmospheric nitrogen.

Shisham (*Dalbergia sissoo*) is one of the most common trees grown by farmers in the province of Punjab, Pakistan. It is a legume, adding nitrogen to the soil and is an ecologically adapted species in the areas. It is managed with a 10 to 56 year rotation and is normally planted through stumps (root shoot cuttings). Among the local trees it is relatively fast growing. It provides fuelwood from the early stages of its life up to the harvest, and is also a

nationally recognized wood for quality furniture. Due to the established market, the farmers have no problem in selling shisham at any age and any time. To minimize its competition with crops, farmers often grow it as a border tree, as in this study.

Wheat (*Triticum aestivum*) is the staple food of the Pakistani people. It is cultivated both in irrigated as well as rainfed regions. It requires 18 inches of irrigation water.

Objectives of the study

In this study, wheat variety (Pak-81) as a crop—and Shisham as a border tree—were selected to obtain some basic data to answer the following questions: 1) How much of a planted wheat area is adversely affected by bordering Shisham trees? 2) What were the actual losses? 3) How did they compare with gains, if any? 4) Can we determine the significant differences in wheat yield with an increase in tree diameter? 5) On the basis of these data, what further studies are needed?

Review of literature

Efforts are now being made to reintroduce trees all over Pakistan and especially in cultivated areas, so recent studies are available. Some researchers argue that trees are beneficial to crops and that trees provide many other benefits to farmers including forage for livestock, fruits/nuts as dietary supplements, materials to support cottage industries, fertility enhancement through the addition of organic matters and

nitrogen fixation through roots, micro climate amelioration from adverse effects of winds, and environmental improvement. On the other hand, some studies have found that trees adversely affect crop yield; therefore, cropping fields should be free from trees. A brief review of the work done in Pakistan and selected other countries is presented here.

Khan (1975), while working in an intensive high input agriculture system, concluded that *D. sissoo* adversely affected wheat yield up to 6 meters from the main trunk. Beyond that there was an increase in wheat yield up to 13 meters. Khan and Khan (1988) reported that *D. sissoo* adversely affected cotton yield up to 8.5 meters to the north (due to shade) and 3.5 meters to the south from the main trunk of the trees. Beyond these critical limits there were beneficial effects of *D. sissoo* and the aggregate yield increased, relative to no trees on the boundary.

Atta-Karah and Sumberg (1988) found a high potential for *Gliricidia sepium* to improve crop production through soil fertility maintenance in alley cropping systems. Alley cropping systems are one of the means of achieving sustainability in crop production through strips of trees alternating with rows of crops. Ghuman and Lal (1990) reported that the rate of leaf fall and nutrient addition under the *Cassia siamea* canopy was significantly higher in the dry season. About 6.09 tons of leaves fell per hectare per year adding 113, 91, 13

and 40 kg respectively of Nitrogen, Calcium, Magnesium, and Potash to the soil. *Gliricidia sepium* produced an average of 10.8 tons of leaves and branches, per hectare through pruning.

Singh (1986) found that maximum quantities of nutrients were returned to the soil pool by litterfall, followed by throughfall, stemflow, and rain water. Shekhawat et al. (1988) found that fuel wood yields were not much different with or without fodder crops, but green fodder yields were reduced by up to 50 percent when inter-cropped. Total financial returns from intercropping (trees and crops grown together) were higher than mono-cropping.

Singh et al. (1989) reported that the green forage yield of karnal grass (*L. fusca*) was maximum under lopped *Prosopis juliflora*. The inorganic composition, including trace elements, made it a valuable fodder in an area with an adverse alkaline soil environment. The calcium and potash content of the grass increased and the sodium content decreased in successive cuts. Soil pH and electroconductivity decreased while organic carbon and available nitrogen content of the soil improved.

Materials and methods

The study was conducted in 1985-86 in two villages, Satrah and Bheaky, in District Sialkot, Province of Punjab, Pakistan. The study area is privately owned and was farmed by the owners.

The area is well known for rice and wheat production. Soil is fertile with a silt-loam texture. Both river and tube-well water are available for irrigation. Wheat is sown every year, followed by rice. Established Shisham trees—varying in diameter, size, spacing, and age—were already present on the field boundaries. The trees had been planted previously by the farmers and were not grown for scientific studies.

To determine the effect of Shisham on wheat yield, 78 trees were selected. Trees were on the southern boundary of the fields. Diameters of trees were measured with a vernier caliper, 1.30 meters above ground. Tree diameter ranged from 16 cm to 50 cm. These were arranged in following diameter classes (in cm), 16-19.9, 20-24.9, 25-29.9, 30-34.9, 35-39.9, 40-44.9, and 45-49.9. The numbers of trees in each class vary but not fewer than five in any class.

Wheat variety Pak-81 was sown on November 14, 1985. Phosphorus at the rate of 64 kg/ha was applied in the form of single super phosphate before sowing. Nitrogen was applied at the rate of 56 kg/ha in the form of urea with the first irrigation. All fields were treated equally in all agronomic treatments. Samples of wheat were taken at 1.0, 3.5, 6.0, 8.5, and 11.0 meter distances (one at each distance) from the main stem. The control sample was taken at about 30 meter distances where there was no effect of trees on wheat. One square

Table 1

Wheat yield parameters as affected by Shisham trees.					
Distance from Tree (meters)	Plant height (cm)	Tillers per square meter	Grains per spike	1000 grain weight (g)	Grain yield per hectare (100kg)
1.0	91.0a	85.3 a	45.3a	38.7a	16.8a
3.5	93.4 b	115.6 b	47.0ab	41.5ab	23.1 b
6.0	94.1 bc	136.0 c	47.3ab	43.5 b	26.8 c
8.5	95.3 bc	173.8 d	47.1ab	44.8 bcd	35.0 d
11.0	95.8 c	186.9 d	47.4ab	45.2 cd	36.2 d
control	95.8 c	182.4 d	48.9 b	47.4 d	33.8 d
Means sharing the same letter in a column do not differ significantly from each other at the 0.05 probability level. (For methods, see Ott 1977)					

meter quadrat was used for sampling. The following observations were recorded: (1) plant height (2) tillers (stems) per square meter (3) grain per spike (4) 1000 grain weight (5) biological yield and (6) grain yield.

All plants in the quadrat were harvested and weighed in a high accuracy balance in the field. The samples were threshed and grains were again weighed. Observations at each distance including the control were used as treatments. The diameter classes were used as blocks. The number of trees in each diameter class were taken as replications. Data was analyzed using analysis of variance, in a completely randomized block design. The means were separated by Tukey's test (Ott 1977) at 0.05 probability level.

Results and discussion

Wheat plant height was minimum near the trees and increased as the distance from trees increased. The trees significantly reduced the wheat height up to 3.5 meters from the main tree trunks. Beyond that there was no effect on plant height (Table 1). Changes in wheat height between 3.5 meters and control were non significant at 0.05 probability level.

Wheat tillers per square meter were most affected by shisham trees. The

tillers were 85.3 at one meter, 115.6 at 3.5 meters, and 136.0 at 6.0 meters. The tillers significantly differed at all the above distances. Tillers beyond 6.0 meters were 173.8 at 8.0 meters, 186.9 at 11.0 meters, and 182.4 at control. At distances more than 6.0 meters, the tillers per square meter were non-significant with each other, at the 0.05 probability level. The tillers at 11.0 meters were more than the control but it was not statistically significant (Table 1).

Wheat grains per spike were the least affected due to the presence of shisham trees. Statistically there was no difference in grains per spike up to 11.0 meters. The grains per spike at control significantly differed from the grains per spike at 1.0 meter at 0.05 probability level. Grains per spike were maximum at control.

The weight of 1000 grains was taken as a measure to judge grain weight. A healthy crop will have more weight than a weak crop. The 1000 grain weight was minimum (38.7 gm) at 1.0 meter, with a gradual increase up to control (47.4 gm). Statistically there was no effect of shisham trees on grain weight after 6.5 meters distance (Table 1).

The grain yield was minimum near trees, and gradually increased with increasing distance from trees up to 11.0 meters. Yield at 8.5 and 11.0 meters was higher than the yield at control. The yield

was 35.0 quintals at 8.5 meters, 36.2 at 11.0 and 33.8 at the control. Statistically the differences in yield at these three distances were non-significant at 0.05 probability level. On the other hand these three yield levels were significantly different than the yield at 1.0 to 6.0 meters. The yield at 1.0, 3.5 and 6.0 meters significantly differs from each other indicating the effects of shisham trees on wheat with changing distance from the tree (Table 1).

The yield components, plant height, tillers per square meter, grains per spike, 1000 grains weight and grain yield, showed a definite damaging effect in close proximity to the shisham trees. The damaging effect was confined up to 6.0 meters. After 6.0 meters either there was no effect or a beneficial effect. For example, tillers per square meter, were higher at 11.0 meters than control. Similarly the grain yield was higher at 8.5 and 11.0 meters than control. Maximum distance of the observations in this study was 11.0 meters, where yield was more than control. Indications are that the yield may be even higher after 11.0 meters, but no observations were recorded in this area. This indicates the beneficial effects of trees on wheat yield beyond six meters.

These results indicate that in future studies, the observations should be made

Table 2

Wheat yield parameters as affected by Shisham trees.					
Tree diameter (cm)	Plant height (cm)	Tillers per square meter	Grains per spike	1000 grain weight (g)	Grain yield per hectare (100kg)
16-19.9	94.2a	155.9a	48.7a	45.1ab	30.0a
20-24.9	94.6a	159.7a	47.1ab	45.8 b	30.1a
25-29.9	94.4a	151.1a	47.5ab	44.8ab	28.7ab
30-34.9	93.9a	148.3a	47.2ab	43.7abc	28.8ab
35-39.9	93.9a	144.5ab	47.0ab	42.6abc	29.3a
40-44.9	94.5a	141.8ab	46.9ab	41.6abc	27.8ab
45-49.9	93.9a	125.3 b	45.6 b	40.8 c	25.7 b
Means sharing the same letter in a column do not differ significantly from each other at the 0.05 probability level. (For methods, see Ott 1977)					

even beyond 11.00 meters. Decreases in yield in close proximity to the trees is attributed to root competition and shade. Roots compete for nutrients, water and space. Shade reduces the photosynthetic process. The increase in yield beyond six meters might be due to the addition of organic matter and nutrients: dead leaves, branches, roots, and bird droppings. Being a legume, the shisham adds nitrogen to the system through the root nodules. Further studies may provide insight regarding these critical relationships.

Results showing the effect of tree size on wheat yield parameters, are summarized in Table 2. The yield near smaller trees was more than near bigger trees but the differences due to tree size were much less than differences due to distance. Plant height did not show any significant difference with the changing size of trees. Tillers per square meter, grains per spike, 1000 grain weight and grain yield were statistically the same with 16 cm to 45 cm diameter. The biggest trees with 45-50cm diameter, adversely affected the above mentioned parameters as compared to the smaller trees with 16-24.9 cm diameter.

As would be expected, Shisham intercepted the light resulting in decreased photosynthetic activities of the wheat. With reduced photosynthesis, less energy is trapped, resulting in reduced growth and yield. The intensity and duration of light are of great importance for photosynthesis. Similar damage due to shade is reported by Shekhawat (1988).

Yield damage was generally more with larger trees and less with small trees. It is assumed that the reason for reduced yield is tree root competition with wheat for moisture, nutrients and space. In competition, hard and aggressive species are benefitted; therefore the Shisham exhausted the resources of wheat. These results agree with those found by Atta-Krah (1988), Khan (1975), Khan and Khan (1988) and Singh (1989). Yield increase beyond six meters may be due to addition of nutrients from dead tree biomass. Ghuman (1990) and Singh (1986) have reported similar results.

As for the economic implications for the the farmers, the losses in yield within six meters may be compensated, fully or partially, by increased yields beyond these limits. However, because there was

no observation beyond 11.0 meters in this study, it is difficult to demonstrate this. It is also likely that income from wood and other tree products may more than compensate the farmer for decreased yield within 6 meters.

The farmers in this study were quite satisfied with the performance of the trees and crop system. They acknowledged the benefits of the year round supply of fuel for domestic, farm, and commercial uses. They believed the trees were working as an investment or future "bank account."

Conclusions

On the basis of the overall influence of *D. sissoo* on wheat production, indications are that with increasing distances from trees, crop parameters showed progressive growth trends in the following order 1.0 meter < 3.5 meters < 6.0 meters < control (30 meters) < 8.5 meters < 11.0 meters. The damage was maximum at 1.0 meter, decreasing until 6.0 meters. Beyond that there were no damaging effects from trees on wheat. The total affected area was 600 m²/ha or 6.0 percent. This loss is partially or fully compensated for by an increase in yield beyond 6.0 meters plus the value of the wood and tree byproducts.

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KATHY JOHNSON

AN INTERVIEW BY DAINA DRAVNIKS APPLE

INTERVIEW

WiNR: This is an unusual interview for us because our interviews are usually with natural resource professionals or women who work in natural resources agencies.

Johnson: This is unusual for me as well. Generally, those of us who are staffers on the congressional appropriations committees are not identified by name. We can give information or answer questions about programs we are working on, but it is always for background. So, for me to be interviewed and identified with whatever comments I make is quite unusual.

WiNR: What is the name of the congressional committee you staff?

Johnson: Subcommittee on the Interior and Related Agencies of the House Committee on Appropriations, chaired by Representative Sidney R. Yates, of Illinois. It is one of 13 House Appropriations Subcommittees.

WiNR: For those of us who know little about how the subcommittees work, could you give us some background about where you fit?

Johnson: I work for the full Committee chairman, who is Jamie Whitten, from Mississippi, but I work under the direction of the Committee Staff Director who is Fred Mohrman. There are four professional staff assistants and one administrative assistant (who does mostly clerical and administrative tasks) working for the Subcommittee. The four of us divide up the programs that we handle for the Subcommittee. I am responsible for the Forest Service (except for land acquisition), the Bureau of Indian Affairs, the Office of Territorial and International Affairs, the Smithsonian and National Gallery of Art, and several other smaller agencies. Over the years, I've handled the Bureau of Land Management, but I passed that on to someone else and took over other programs. Neal Sigmon, the Subcommittee Staff Director, for another example, handles the USDI Park Service, the Fish and Wildlife Service, and some others, plus the overall responsibility of being the staff director and keeping track of what's going on with all of us. He has most of the liaison with the staff director on the full Committee. He also has more direct contact with Chairman Yates' office.

WiNR: That seems like quite a variety.

Johnson: Yes, it is, and that's one of the things I like best about it. It's being able to go from one to

another that makes it quite interesting to be here. This is my 12th budget season.

WiNR: Can you describe your work?

Johnson: We staff the hearings the Subcommittee holds each year. These tend to be oversight hearings—to see what the agencies are doing, how they've used the money that Congress appropriated for them, and what policies they have been pursuing. Policy issues gather the most attention and focus of the Members of Congress as well as the public. They spend a lot of time in hearings talking about policy direction. We also get into the specific budgetary issues of whether the proposed budget is going to be adequate, what the problems are going to be if we do or do not agree to certain levels for certain programs. Outside witnesses come in and talk to us at the hearings about their views. The Members are interested in their comments on what policy directions should the agency be going in, what are they doing wrong, what are they doing right, what are the appropriate dollar amounts for given programs. There are lots of comments about what are the appropriate dollar amounts for given programs; if witnesses disagree with the amounts, they comment on what they would like to see. So the yearly hearings are important.

WiNR: In general, do you think the agencies follow what the intent is of the Appropriations Committee? Do you ask agencies for an accounting of past activities at the hearings?

Johnson: Yes, to both questions. The Subcommittee utilizes a variety of sources, including the GAO reports and our own report direction to the agency as we review past activities.

WiNR: What do you mean by report?

Johnson: The two most important terms here are bill and report. We provide our legislative history on how to spend the money via the Committee's *report* that accompanies our appropriations *bill* each year. The bill just has gross numbers, for example, for the entire National Forest System, or one amount for the construction budget. The report, on the other hand, is the document that says in much finer detail—this is how we intend the money to be spent. The report, however is not a legal document, whereas the bill is. If the Committee feels strongly that we're telling an agency the way the money should be allocated or the particular uses or the policy direction for the agency to follow, then that kind of language can go right into the bill. Then it's the law, and then it has to be done. The agency has no wiggle room,

no flexibility. In general, however, we try to be sympathetic to what we recognize are needs for flexibility. That's why we don't try to micromanage an agency through the bill itself.

WiNR: When is the report written and who writes it?

Johnson: The report accompanies the bill. After the hearings, we compile and analyze the information gathered, then the nine members of the Subcommittee will meet in a mark-up session and will decide what will go into that bill in terms of dollar amounts and any particular directives that might actually be put into legislative language. At that time they decide other details for the report. The draft bill and draft report then go to the full Appropriations Committee for a final mark-up where they can be amended by the 59 Members of the full Committee. Then, once they vote on it in the full Appropriations Committee, the next action is called "reporting out" a bill. What that means is the bill is reported to the full House, accompanied by the report which explains what the \$2 billion the Forest Service is getting can be used for. The report is where that detail is all laid out. The report is the Committee's report and can't be changed until we get into conference with the Senate. The bill, however, goes to the floor, then, to be passed by the full House and can be further amended under whatever rules accompany it from the House Rules Committee.

WiNR: When does the Senate become involved?

Johnson: The Senate passes its own version of the bill, and has its own report after the bill passes the House. When we go to conference to reconcile the differences between the House and Senate versions, there will be a statement from the managers accompanying the conference report on the bill.

WiNR: Who are the managers?

Johnson: The managers are the Members of the House and Senate who are appointed to be members of the Conference Committee. In the case of the appropriations bills, they are the Members of the House and Senate Subcommittees involved, in this case, the Interior Subcommittees. In the case of authorizing legislation, Members from several different Committees and multiple Subcommittees might be involved in a conference on a particular bill.

WiNR: It sounds complicated.

Johnson: It is. The Conference Committee meets and must resolve every difference in the House and Senate versions of the bill, both in terms of dollar amounts and language included in the bill by either the House or Senate. To work out a final dollar amount for a large account like the National Forest System might involve a hundred or more individual items, each of which has to be dealt with by the Conference Committee in order to reach a conclusion on the single number in the bill.

WiNR: So the managers make the final decisions about the compromises and write it as a statement?

Johnson: Yes. That statement will then make any changes in either the House or the Senate reports that either body has not been able to agree to. For example, if the House told the Forest Service to do something in a certain way and the Senate told them to do it in a different way, we will have to have some statement from the managers telling the Forest Service what the final decision is: do it the way the House said, the way the Senate said, or some compromise version.

WiNR: Can you give us an example of how all this would work if you thought that an agency had not followed the intent of a previous year's appropriation?

Johnson: One problem that caused great concern among the Members here, and the Chairman, had to do with the Forest Service and the way that Wilderness money has or has not been spent as desired by Congress. We put in a certain amount for the overall Wilderness Management Program—based on testimony and what the Forest Service indicated were their needs—but the funding lost its identity at some point. People at the ground level, who were using the money, didn't know it was to be used for Wilderness and it got used for other purposes. At the hearing, the Forest Service did agree that it needed correction. At other times, on other issues, another agency might not agree with the allegation that something wasn't done the way Congress intended.

WiNR: How do you deal with that?

Johnson: We can tie things down more tightly in the bill itself, but agencies don't like to see that happen. And some Members feel that very specific directions shouldn't be put in because it could be considered micromanagement by Congress. The agency, of course, can raise that issue if it believes that that's what is happening.

WiNR: Isn't it important to allow the agencies the freedom to move monies around as crises or needs arise?

Johnson: We recognize that need. The budget process obviously is a long process. It starts several years before the money ever gets out and is supposed to be spent. We do provide for what we call the reprogramming process, which are certain guidelines we printed in our report several years ago, which we refer to as still being in effect each year. They are not laws, but

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we expect the agencies to follow them. The language provides that if agencies find that in fact they are not going to be able to live with their appropriation the way it came to them, they can come back to us. By coming back, asking for relief to move things around, it gives them flexibility, and yet it recognizes that Congress needs to know if the original reason they gave money isn't needed any more; it's needed for something else. It's the kind of information we feel we need to know and when we don't get it, it becomes an object of concern. For example, in the Wilderness case, reprogramming could have solved some of the problems that were identified. The Forest Service should have come back and told us, "We need this money for Recreation Management, not for Wilderness."

WiNR: Why didn't they come back, do you think?

Johnson: It's not entirely clear to me. I think it's partially a function of the way the Forest Service is structured. With so many sites, the money is ultimately divided up into many small pieces. By the time it gets out to where it's actually spent, the line item is hard to keep track of in the big picture. There are Members here who are very concerned about the way this has played out. They have come to our Subcommittee and asked that we, at the very least, pull Wilderness out of the Recreation Program and make it a program of its own, to give it the visibility it needs.

WiNR: Could you do that in a hearing?

Johnson: Yes, or in staff-level discussions. We would ask to get a response as to how organizationally that might affect the Wilderness program. We might make recommendations; but again, that's rare.

WiNR: If we turned that same kind of thinking—in reverse—on a very strong program, such as Forest Service Engineering, and the roads budget, which has had a solid funding for a long time, could Congress make the Forest Service change its road policies?

Johnson: Let me first say that I don't think there would be an effort to get at the agency by pulling it apart and destabilizing it just to see less emphasis in a program area. What we do is look at the program and if we don't agree that the funding is justified at that level, then we would bring it down. Then it would be up to the agency, perhaps at Congress' request, to figure out how to reduce the program level and reduce the organization because the agency can't afford it any more.

WiNR: In one of the hearings I was following, the Chairman explicitly asked for

some accounting from a Forest Service manager and the manager agreed to provide it. The Chairman had questions having to do with numbers of below-cost timber sales in his state and there was a clear impression that he or his constituents were angry about the accounting they were given and wanted something done about it. Is this micromanagement?

Johnson: No. What may look like micromanagement on the surface, I think, is just one more effort to get some information. This is a very large and difficult problem. There have been a lot of proposals over the last few years as to how to get at timber sale costs. Sometimes it's better to go back and look at some of the old ways of collecting information. You can't just keep adding more and more levels of information, different kinds of information, and never stop collecting the kinds that don't work for you. Everybody's just going to be standing around gathering information all day, every day, for each other.

WiNR: How do you handle the information flow yourself?

Johnson: We had a new and better computer system set up this year and the House has a training branch with courses ongoing constantly. You just have to identify the time and get yourself over there. I've gotten instruction on WordPerfect and Lotus—the two that are most useful to me right now. Papers, reports, documents flood us constantly, and we don't really have the room to store and save them, yet we need the information. How to process all that is a problem, but we're beginning to get the tools to do it, I think.

WiNR: Do you have support staff to help?

Johnson: No, not really. We do have one detail person assigned for our six-month crunch period. The crunch starts in February when the budget comes up and the hearings begin, through July, which is when we hope to have our bill passed in the House. When the hearings end in May, we amass all the data and information, then come up with a mark-up proposal for the Chairman to go



over. He makes his changes and presents it as his recommendation to his Subcommittee members sometime in early June. Then we proceed through the House Committee and the House Floor, hoping to finish by the end of June. Adjournment is usually scheduled for October. So we select someone from one of the agencies we work with for that period to help us. We try to rotate it around. Their main role is to help us get through the hearings, but it's an excellent opportunity for them to learn how different people testify and all that goes on throughout the process.

WiNR: Do they have specific responsibilities?

Johnson: Yes, their main job is to process all the hearing material for us. It eventually gets printed in up to 14 volumes of hearings per year. They edit the material and work with our editorial staff. Our small staff would be swamped if we had to do that in addition to our usual tasks.

WiNR: Do you have to travel around to visit sites for the agencies you are responsible for?

Johnson: In August, when Congress is in recess, we have time to travel. We think it is important for staff here to get out of Washington and see the programs. I like to get an overview, so I pick a site and I say "You show me what's happening in your area. You explain to me what the problems are and what needs to be done to address them. Do you have the resources to do everything?" Interestingly, after doing this for a number of years, I find that there is very little whitewashing. People in the field are forthcoming about what's working, what isn't working, where the problems are, what things really need correcting and attention.

WiNR: Do they see you as someone who can help?

Johnson: I think so. They see me as someone who will bring back information that the Committee can use to try to improve a given situation. Very few people appear to be disgruntled or want to cause problems, but they do want to identify areas that need help.

WiNR: Is that useful?

Johnson: Yes. I don't have to wade through and look for them. They're just out there. But you should also be asking, I think, if we hear enough from a wide cross-section of people in this country about what goes on

in the agencies. Any individual who wants to meet with me can—to tell me about something that they're not happy about. We listen, take their materials, and try to sort it out. So if there's something going on out there, we often seem to find out about it from these people.

WiNR: Groups or individuals?

Johnson: Both. There are lots of organized groups on all sides of the issues.

WiNR: Do they call you up? Send you a report? This transfer of inside information seems mysterious to a lot of people.

Johnson: Most people who come to Washington know that they should have something in writing: a report, a request, or background on a situation. They then spend a short time explaining it to me, maybe as little as five to twenty minutes. I don't gain a lot by spending a lot of time with them in meetings. I'd rather have something in writing because then later, when I'm working on that particular issue, I'll pull that out and I'll think Aha! this is something that we really need to get more information on or ask the agency about because this raises some real concerns. As long as the material is to the point and organized, I don't even need the personal meeting. But if I get one of those accordion file folders full of documents, I don't know how to define the problem and I won't have the time to wade through it. So, in that case, a meeting for five minutes with these people to give me an outline definitely would have helped.

WiNR: Would an executive summary have sufficed or been better than a meeting?

Johnson: Yes, and it would have been there if we wanted it in the hearing. Instead of me leaning over to the Chairman and whispering a summary of the accordion file in the middle of a hearing while he is trying to listen to a witness at the same time, I could have said, "Here's something someone gave me." He can glance at it, read it quickly, and think, "I'm going to ask about this."

WiNR: What else is whispered about in the hearings?

Johnson: It's always on whatever is being discussed. It may be that the witness has responded to a question that reminds me of something I heard or read. Or I think it might be helpful to the Chairman to remind him of something he heard from the previous hearing. Sometimes it has to do with an issue we talked about last week.

WiNR: Do you ever prompt questions or answers?

Johnson: Yes, in the sense that the written questions the Chairman uses often flow from the ones that we, the staff, have prepared for him based on our analysis of the budget and the materials that people have sent to us. We help with follow-on questions and reminders. He's been Chairman since 1975 and knows these programs in amazing detail. Even so, he's still a Member of Congress representing a District in Chicago, and he has to vote on everything from defense to nutrition programs. He's just immersed, as any Member is, in thousands of issues. That's why I'm here—to remember the specific little things about the Forest Service and the Bureau of Indian Affairs and to just remind him that we talked about it, or that it came up last year, or whatever. That's a big part of my function, to just keep track of the details of those issues.

WiNR: In addition to those you've already mentioned, who else do you interact with?

Johnson: Other staffers of Members who have an interest or concern about something in the bill or something we may or may not be doing right. And agency people who can assist me with information or clarification. The Chairman calls and says, "I see something in the paper. There's an article about the Forest Service. Can you find out more?" and I do. And in addition to people coming directly to us as individuals or as representatives of organizations, there are all the Washington lobbyists and the lawyers who represent various clients who have an interest in the bill.

WiNR: Someone once said that natural resources do not have a large constituency. There is not a lot of political power wielded by these constituents for natural resources funding. True?

Johnson: There are two answers to that. First, in the time I have been here, the interest in the programs has at least quadrupled. Our Subcommittee is often singled out as having the most contentious issues to deal with, from the spotted owl to offshore drilling. Last year, we had 370 Members of the 435 come to us and ask us to do something on what is considered to be a relatively small appropriations bill. That's just an incredible number. And they asked for over 3,200 different things to be done. So I would say the attention and interest is high



and is growing—and there is support out there. But second, on the other hand, you find that in the budget process, we're not faring well as a Subcommittee and as a group of programs. In the President's Budget, we were one of the few of those 13 appropriations Subcommittees that had an actual decrease proposed. By the time you add inflation and what you need just to keep up with pay raises, we're down even further. The Congressional budget process seemed to focus on areas to cut back a little in order to increase education and health, for example, and they went to natural resources and reduced it. I think the rationale is, if we don't fund them as much as we'd like to for a year or two, things surely won't be too bad until we get a handle on these priority needs.

WiNR: So even though there is a support group out there for natural resources, it doesn't translate into money?



Johnson: It's very hard for us in the Subcommittee. We see the public and agencies demanding to do things that really can't wait much longer. Some areas are in very bad shape. Yes, natural resources work is long-term, and sure, we can put this stuff off for yet another year or two, but we've been doing that really for the last 10 years I've been here. We don't seem to get the support in budgetary resources.

WiNR: It's not a very proactive way to manage, is it?

Johnson: No. The budget situation we all find ourselves in seems to be leading to that kind of decision making—focus on where the crisis is. But that means you don't take care of something else before it becomes another crisis. So when it becomes a crisis, you shift your attention there.

WiNR: When you look at the lower levels of support some years, do you think of that in terms of a failure on the part of the Subcommittee to get the needed money?

Johnson: We don't really think in terms of success or failure. That may seem kind of funny, in a way. We think of ourselves in a process here. That process goes on. It has a distinct annual nature to it, but in the Appropriations Committee, it is the one place where things kind of build from year to year and go on. Most of these issues are too important to say, "We're just going to make this one work. We're going to win on it, and that's it. We'll never have to deal with it again." It doesn't work that way. It takes time to really understand these issues and to understand all the ramifications of what's behind it. And you have to remember that our Members represent all different points of view on any given issue.

WiNR: Does the staff represent all the views, too?

Johnson: Our role here is to work with all the Members of the Subcommittee, and that includes both sides. We are on the Majority staff, but on Appropriations, we are considered non-partisan (or bi-partisan) and we consider ourselves that way. The idea is that we are here to help develop as much information as possible, to make sure that everybody is aware of the information. We're not giving the information only to "our" friends that we see on "our" side of the issue. The Chairman looks to us, as the staff, to help him develop a point of view, to give him the information he needs to reach a decision. I suppose, from a certain perspective, we might therefore be identified with whatever side of a given issue he comes down on, particularly if he ends up opposing other Members of the Subcommittee.

WiNR: The Chairman has been here a long time. Is that true of other Members on Appropriations?

Johnson: Yes. It is a committee assignment that is much sought after, and once Members get on it—they stay. It's very rare that someone would choose to leave.

WiNR: Is that true for staffers, too?

Johnson: It's a fascinating place to work. It's incredible to be able to be involved in so many issues, so directly, working with the Members to get the information that they need to try to decide how to handle issues. I'm in my 12th season. Out of the four of us, two of the others have been here longer. A lot of people have been here 20 years or more. I was, by the way, the first professional woman—other than one short-termer—hired on an Appropriations Subcommittee in the Committee's 127 year history. I was pretty much alone for a time, but many of the new hires now are women.

WiNR: I'm shocked that women weren't hired until the 1980s.

Johnson: They didn't even hire female secretaries until the 1960s. We have one male in the front office now who is the office manager who started out as a secretary. Several others have retired in my time who had been here for years.

WiNR: What brought you to Washington?

Johnson: I came here during my senior year at Michigan State University to do a kind of internship which was part of my French and Spanish major and minor. I had applied to 12 embassies and the Mexican embassy offered me a job. It was an exciting and interesting time to be at the embassy since this was the period of the rioting in Mexico City in the late 1960s. At the end of the year, I went back to school, then I came back after I finished my Bachelor's and ended up with my first job at the Library of Congress. I was in the Copyright Office and worked on books in Hebrew, Russian, Polish—which I can't read—and nothing, of course, in French or Spanish, which I can read.

WiNR: How long were you there?

Johnson: Just a year. It became clear to me that it was essentially going to be the same job over time. So then, for one year, I ended up at the George Washington University School of Law. I was working part time in a stock brokerage firm, an investment banking firm. I worked for the first woman member of the Board of Governors of the American Stock Exchange, the first woman to have gone through the Advanced Management Program at Harvard, and a series of other firsts. A fascinating role model. She got interested in the stock market, but the firm wouldn't hire her at first since they had never hired a woman, but they let her sit at a desk to learn the business. She started out by going to women's groups because she knew it was an untapped market. When the company saw that she had all these women who wanted to invest, they took her on and within 10 years, she built up one of the largest collective number of clients and became senior vice president. I stayed as one of her assistants for a couple of years, then moved to research where I did things like investment portfolio analysis. I had an interest in and an aptitude for financial management and analysis which had never occurred to me as a liberal arts major interested in international work.

WiNR: When did you get back into government work?

Johnson: I got a position on the bottom rung as a budget analyst/intern in the Atomic Energy Commission. Then when the AEC was broken up, I moved to the Energy Re-



search and Development Administration as a GS-7 budget analyst in the Controller's office. In order to help focus myself, I went to George Washington University part-time and got a Master's in Public Administration in the mid-70s with a concentration in budget and finance. I stayed with ERDA four years, then ERDA became part of the Department of Energy and the work wasn't as interesting at that level. I had contact with the Hill and with the Committees, though, and I attended meetings with program people or met with staff myself to talk about budget issues. Then I was selected for a Congressional Fellowship Program after a lengthy interview process and then moved directly into a sort of try-out position with the Subcommittee at the same time in a complicated arrangement. I'm not sure interviewing is my strong point, but when you go through a whole series of them like that, I think you hone your skills very quickly. And, of course, those skills are used on the Subcommittee, too.

WiNR: Who actually hired you for this work?

Johnson: I was interviewed by people from the whole Committee staff. The staff Director makes the final decision on who to hire.

WiNR: Has it ever been a problem for you that you don't have a standard natural resource background?

Johnson: No, because we're really talking about policy and how much or how little money is going to go to any one function. You have to understand what the program is doing, of course, in order to make some judgments. The Forest Service and the Bureau of Indian Affairs are the two largest agencies in the Subcommittee's bill. They take a majority of my time, and they are complex and complicated because of their size and their scope. But I had the Forest Service and BIA right from the beginning, so I've certainly learned a lot about how they function—or should function—over the years. Program and policy analysis can be done whether you know the technical aspects of the program or not. I think a broadly based education is the best education for whatever you do. Most of the staffers here are generalists.

WiNR: What are some of the qualities that make for a successful, long-term staff person?

Johnson: The obvious ones. Willingness to put in long hours and not complain, willingness to be here whenever demanded. We have to really enjoy digging into issues and problems and be somewhat self-directed.

The Members are going to set the general direction that we're going in, but in terms of getting into certain issues and not others, we have that freedom to decide among the issues and programs that we want to spend a lot of time on. I would also say, that a truly free spirit probably would not be happy in this kind of position because you can't flit from one thing to another. We need the ability to persevere, to analyze, to take masses of material and focus on what's important before moving on.

WiNR: Is Washington a good place for a professional woman in one of the natural resources agencies to come?

Johnson: Yes. Coming here for even a relatively short stint is going to give insights that people just won't get from hearing about it. She'll learn, for example, why an issue just hangs out there forever and ties itself in knots. It all at least becomes clear, even if it doesn't solve any of the problems, to come here and see how it is laid out. That is good to know as a career advances.

WiNR: As your career has advanced, has your private life prospered, too?

Johnson: In the beginning, in my first few years here, it was all a learning process, and it took up literally almost all of my time with no time for other things. But over the years, I made time for other aspects of my life that were important. I was the kind of young person who was physically inept and didn't do sports. Now outdoors is where I prefer to be. I bicycle and sail and ski and hike. I play on the Committee softball team and I'm an assistant girl scout leader. I take classes whenever I can—Italian, right now. So I am comfortable with the balance in my life. I can't say that I know I would have been married if I hadn't taken this job, but I think it would have been difficult for me to maintain a home and family life and do this job as completely as possible. Most of the people here are married, however, and have home and family lives.

WiNR: Women, too?

Johnson: That's an interesting question. On reflection, I'd have to say that more, proportionally, are unmarried. Most of them are a bit younger than I, so that may change over time.

WiNR: If there is a change in Chairman, would your job be in jeopardy?

Johnson: It's possible, but not likely, because the staff is classified as professional staff, working with all the Members on the Committee. We might be transferred to

another Subcommittee. But we're not political appointees, with all that that implies.

WiNR: What's next for you?

Johnson: I honestly do not know what's next for me. As far as I can tell, I'm here for the time being and for the time to come. A few people from here have gone on to some sort of lobbying or consulting work, staying in Washington. I suppose if I were to do that—although I don't see myself as a lobbyist—I'd probably continue to be involved in natural resources and environmental issues, or perhaps represent some Indian tribes and their interests. International work, too, is still something that lingers in the back of my mind. I've kept my languages up to a certain extent, and it seems appealing to pull together everything and do that again someday.

WiNR: It sounds like you have a multitude of options, should you ever choose to exercise them.

Johnson: The problem may be to figure out how to narrow them down. But this job is unique. It would be hard to leave it.

Interviewer Daina Dravnieks Apple is Directives Analyst and Alternate Regulatory Officer for the Forest Service, Information Systems Staff, Washington D.C. Her previous positions include serving as Program Analyst (1988-1990) for the Regional Engineering Staff, Region 5, San Francisco; Regional Appeals Coordinator (1986-1988) in Region 5, San Francisco; Economist (1976-1985), Pacific Southwest Research Station, Berkeley, where she published studies on public involvement in planning, designed administrative systems, did organization analyses, and strategic workforce planning. Her Bachelor's is in Political Economy of Natural Resources, and her Master's is in Geography, both from the University of California, Berkeley. She was President of Phi Beta Kappa for Northern California and served as National Secretary (1985-88).

Photos of Kathy Johnson: on page 20, preparing for a horseback ride into the Pecos Wilderness, with Santa Fe National Forest personnel; page 21 top, with representatives of Navajo Community College, Navajo Nation, Tsaile, Arizona; page 21 bottom, sailing on Chesapeake Bay; page 22, touring a new hospital in the Republic of Palau with Palau's President Etpison and other officials.

PRESIDENT PATSY SAMPSON OF STEPHENS COLLEGE, A WOMAN'S COLLEGE, TRAVELS THE WORLD. SHE TAKES RISKS—TO HER REPUTATION AND HER PERSONAL SAFETY—IN AN EFFORT TO EXPAND HER OWN KNOWLEDGE AND THAT OF HER STUDENTS.

VISITING THE PANDAS

DIANE CALABRESE

The Nepalese gave it the name “panda;” the Chinese call it *beishung*, which means white bear. Most of us have seen giant pandas in captivity. Even confined to zoos, the round creatures draw us in with their playful spirit and endearing exterior.

Patsy Sampson has had the good fortune to see the endangered mammal in its native habitat. Trekking across the world to photograph species that might fade from the living mix: that is what Patsy Sampson does in her “spare” time. Dr. Sampson, who earned a Ph.D. in physiological psychology at Cornell University, is known most widely as the President of Stephens College, a prestigious residential four-year college for women in Columbia, Missouri.

More than a year before Sampson embarked on her 1991 trip to China that put her face-to-face with a giant panda, she was exhibiting her own collection of photographs of endangered species in Columbia. A provincial Chinese government official—not a member of the Communist party—was visiting; he got a guided tour of the show from her. She detailed the story behind each photograph, and at the end of the series, she pointed to a space on the wall, “This is reserved for my photo of the giant panda.”

She was dreaming. But he was serious when he said, “I want to see the giant panda, too. I will arrange a trip.” The official was President Sun Tianyi of the Xi’an Foreign Language University with which Stephens College collaborates in an international program. The institutions exchange a faculty member each year.

Taking the initiative, President Sun was confronted with getting a permit for Dr. Sampson. She was going to visit as a layperson and photographer, which compounded the difficulties: only scientists had been admitted to the preserve they planned to visit in ShaanXi Province. Fortunately for her, a

group of panda researchers at Fuoping (Fuoping Administration Bureau for the Protection of Wildlife) wanted to have a foreign visitor because they wanted the world to know the work they are doing. President Sun succeeded in getting the permit. He did not stop there. He enlisted a physician, a cook, an interpreter for President Sampson, two security police, and two scientists. The interpreter was a woman and President Sun already spoke fluent English. The presence of the policemen was explained as protection from poachers. (The penalty for poaching pandas in China is death; in Hong Kong, panda skins sell for \$100,000.)



Dr. Sun even encouraged the Fuoping research group to indicate when the pandas were likely to be at the elevation of the preserve. The biologists determined that the bamboo flowers and shoots would be tender and juicy and most attractive to pandas in early May. Dr. Sun told Dr. Sampson that she must travel to China at the beginning of May. But she responded as any college president would. “Commencement is May 13. I’ll leave on May 14,” she said.

Patsy Sampson’s feelings about traveling to China in 1991, when the country was still under sanctions for human rights violations, were mixed, but her intentions were clear. She said, “I don’t think anyone should ever make the mistake of confusing a government with its people. The Chinese people share so many of our values—our love for joking and being casual—that one responds to the openness and optimism in kind.”

The entire staff at the preserve at Fuoping works on endangered species: the golden monkey, the lesser panda, the takin (similar to the musk ox), and of course, the giant panda. More than 30 endangered species are recorded from the preserve. Historical precedence allows a few Chinese families still to live on the land that comprises the preserve, and pandas wandering to their homes is something the residents take for granted. In fact, the docile giant pandas can be touched and petted. Regrettably, they are often fed, thereby losing some of their motivation for chewing on the bamboo.

To get to the preserve at Fuoping, the group had to walk for five and a half hours along the Tibetan Plateau in the QinLing Mountains. The conditions at the camp were austere but pleasant. A cot, a charcoal fire for comfort from the rain and cold, and the luxury of generated electricity made for a stay much more comfortable than Dr. Sampson had anticipated. Each day from sun-up to sun-down, the party of college presidents, scientists, police, and interpreter walked along the mountain trails that were most likely to put them in the company of a giant panda.

On the first day, one policeman took Dr. Sampson to the grave of a young man—a researcher—who had lost his footing on the mountain. There were suspension bridges with no hand-rails. More amazed than fortified by seeing residents cross the bridges on bicycles, Dr. Sampson negotiated the structures. To her, walking along a less-than-secure path was just another way to grow by taking a risk. Patsy Sampson walked across suspension bridges and kept her footing on slippery slopes, but she did not encounter a giant panda on the trail.

She did, however, see a panda. Three of the Fuoping pandas under study wear radio transmitters, and Fang Fang is one of them. At seven years old, Fang Fang weighs more than 300 pounds. Named for the gully where she was found, and her name doubled for affection, Fang Fang was scheduled for a teeth, parasite, and feces check. It was a scheduled monitoring of the animal, and Patsy Sampson happened to be there.

When Sampson left Fuoping to return to the United States via Beijing, she was asked by the biologists to carry two messages. She would see Professor Pan Wen Shi in Beijing and she had a personal message for him; she was also asked to contact George Schaller, the renowned chronicler of the lives of endangered mammals, including the panda. Above all else, the Fuoping group hoped that Dr. Schaller would visit the preserve. While in Beijing, Sampson lectured about the nature of women's colleges in the United States. Students attended her lecture in such great numbers they could not fit into the room. (The most interesting question Dr. Sampson remembered was: What happens if a student marries, is she thrown out of the institution?) She was to continue also to help arrange for radio transmitters to be transported to preserve researchers from a manufacturer in Mesa, Arizona.

As it turned out, Dr. Schaller was the guest of Professor Pan Wen Shi, and Dr.

Sampson could give him the message in person. Dr. Schaller had stopped in Beijing, too, to give a lecture following travels in Mongolia, where he had been studying the snow leopard. The response from Dr. Schaller was somewhat surprising; he expressed consternation that the first visitor to the reserve was a woman, and in his mind "a tourist." Nonplused by the criticism, Dr. Sampson nevertheless encouraged him to get involved with researchers at the reserve. They are dedicated scientists working with limited support from the Chinese government who are eager to connect their work to the work of Dr. Schaller at Woolong.

On returning home to Columbia, Dr. Sampson described the tranquilizing of Fang Fang to a local reporter and again incurred some criticism. The reporter suggested the panda had been needlessly anesthetized so that she could photograph it. That was simply not the case, but President Sampson, by this time, was used to such questions. She has participated in wilderness expeditions to Borneo (studying orangutans, which ignited her interest in endangered species), Rwanda (mountain gorillas) and the Galapagos. She has travelled with Earth Watch to Peru (Inca ruins) and Chile (mummies rescued). Each time she has returned from her travels, she has made a connection—not to reporters or rival scientists—but to the students at Stephens.

In 1833, six years before the University of Missouri at Columbia—the oldest public institution west of the Mississippi River—opened its doors, Stephens College was founded. The Stephens tradition of educating women is one of encouraging students to "see the joy and the rewards of taking risks." The College Without Walls program at Stephens reaches out to non-traditional students in the community, and incorporates day-care into the learning plan.

All Stephens students benefit from a Freshman Studies Seminar that builds cultural



sensitivity and global awareness. Recent speakers included former President Carter and former Senator Thomas Eagleton. Students study abroad at Oxford, Cambridge, and in Madrid, Mexico, and Italy. Typically, the students live with families in their host countries.

What role does a woman's college play in the contemporary world? Stephens with an enrollment of over 1,000 women seems strong and stable. But is it endangered? When one considers that graduates of women's colleges represent more than 40 percent of the female members of the United States Congress and more than 30 percent of the female members of Fortune 500 companies, the success of the institutions is measureable. There's more to a college education than numbers though, and Stephens College prepares women for "real life," where risk is everywhere.

The college, in the words of Dr. Sampson, "has a tradition of changing with time." The sense of adventure is everywhere on campus—in the plays the drama students produce and in the spirit of the riders on the equestrian fields. And, it's also reflected in the college's president of nine years: Dr. Sampson says "there is rarely a day" when she does not think of the strength that experiences like Outward Bound provides. They are the experiences she is trying to provide to her students: a day to day, minute to minute series of "opportunities for self-enrichment."

Sampson hopes that bridges like the one the Stephens College China program built to Fuoping might help to recruit the human and financial resources necessary to secure the place of the giant panda. In November 1991, President Sun visited the campus, and brought news of four pregnant pandas at Woolong. There is hope, but there is also uncertainty.

The survival of Stephens College seems very likely. The survival of the giant panda is much more doubtful. Even at the largest panda preserve in China, Woolong, there are only about 90 giant pandas. George Schaller told Patsy Sampson that he believes the giant panda is doomed to extinction. Dr. Sampson reacts cautiously to that prediction. In a moderate tone she said, "After all that I have read and heard and seen, I think the giant panda *might* be doomed without a miracle."

Diane Calabrese is an entomologist and writer who lives in Columbia, Missouri. She is an editor for Women in Natural Resources.

President Sampson is pictured at left. Photo courtesy Stephens College, Columbia, Missouri.

THIS AUTHOR HAS SPECIALIZED IN RECENT YEARS ON WRITING NOVELS ABOUT OUR NATIONAL PARKS. WHY DID SHE WRITE ABOUT ACADIA? WHO ARE THE MODELS FOR THE PEOPLE SHE CREATED?

THE NATIONAL PARK AS BACKGROUND AND CHARACTER

KATHLEEN SNOW

True, I was writing a novel set in a national park. But the plot started when I too, like thousands of other Americans, set out to find my ancestral home. I was hoping for the kind pictured on the book covers of family sagas—the gray shingle and stone summer estates endemic to the rockbound islands of Maine. You may have seen one on television: the ancestral Maine home of President George and Barbara Bush (and Millie).

Given the peasant attributes of the Snows and their forebears, however, fact had first to be weeded from fiction. My ancestral home would probably not resemble that of President George Herbert Walker Bush. It would be...uh...plain. So I began to write:



The windowpanes of Perley's House were opaque with frost. Two feet of dirt had been shoveled all around to the beginning row of shingles, two-horse wagonloads of evergreen brush cut and piled up to the first-story windows. The old two-chimneyed cape looked huddled and bulky, like a man wearing two overcoats.

Now I had the setting for the novel. But someone had to live there.

From my family, I was able to gather that great-grandfather, Ernest Henry Snow (fleeing a scandal) had run away from what the family believes to be Metinic Island, Maine. He ran into (and created) another scandal. He settled as a hired hand on an elderly German immigrant's Wisconsin farm. And he was happy just as he was, until the farmer sent to Germany for a wife. The bride was 15, the farmer 63.

Problems developed, of a romantic nature. Helen Anna Caroline became pregnant. When the little boy (my grandfather) was born, Helen Anna Caroline took him with her and ran off with Ernest Snow, the hired hand (pictured left). And they lived happily—or a state approximating this, but at least together—in Colorado until they died.

Historical research next. The Maine Historical Society's sparse records for the 1800s listed no Ernest Henry among the Snows of Metinic. Had Ernie the Scandalous changed his name?

So I looked to other islands for my novel, the ones that make up Acadia National Park, one of the most beautiful, most popular of national parks in the country: 800,000 visited Acadia in 1948; nearly four million today. There are 30,000 acres on well-known Mount Desert Island, and 3,000 acres on lesser known Isle au Haut, a wild and spectacular island that tore into my imagination.

I found a photographic biography of an island which coyly refused to name the place, but did name those who live there—and pictured their lives and faces. After some deduction, I realized the island was Isle au Haut, "the high island," most of which is now Acadia National Park.

I had so committed the photographic biography and its pictured inhabitants to my heart that when I went there for the first time, stepping off the mailboat, it was *deja vu*. I felt that I was returning—like my heroine Kezia Beal—coming home. I even recognized certain individuals from their photographs: at the dock, the post office, the village store. Here were their homesteads, and there their lobster boats at restless mooring. But I said nothing to disturb their privacy.

I held Isle au Haut soil in my fingers, washed them in its sea, and went on a forced march of the 14 mile road which circled the island, in time to make the last departing boat.

I had always had a special love for national parks. In 1963 and 1964, I was what we called a “savage,” working summers at Yellowstone Park’s Old Faithful Lodge. For six days a week, I was a dining room hostess, maid, and glass machine operator. On the seventh day I didn’t rest, but roamed the park and the west. I fell in love with wildness.

And now, in Maine, I fell in love with Isle au Haut. And I wasn’t alone. It seemed that all who ever saw Isle au Haut had wanted it. Passion, pain, triumph, and tragedy ensued as the working island it once was became what it is today: a national park. In my novel, I renamed it Norumbega National Park, and the island Aguahega, an Abnaki Indian word meaning “the landing place.”

Every national park, I discovered, comes from somewhere and someone—those whose home it once was, who love it as much as future visitors. One way of life has to end so that another can begin: the law of nature. Conflict enough here for a dozen novels, said Snow the Great-Granddaughter. I wrote:

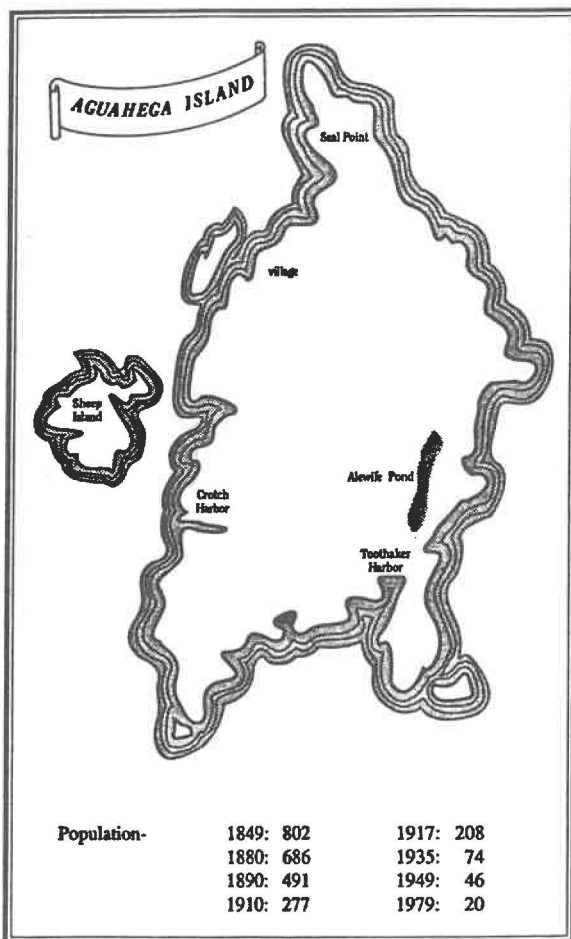
“You see that, Keezie?” Gran’sir Beal pointed at the huge growth that bent, distorted a tree. “The park’s like that, killing off the island, maybe it’s already dead. Don’t you never let me catch you fooling around up there.” So of course Kezia did. What did it mean when park visitors called her a “native”? Why did it hurt so much?

I embarked on my version of the author’s tour: what you do before you finish the book. I explored Maine’s coastline by sailboat, its major river networks by canoe, its roads large and small by car, and its islands by mailboat and ferry and foot.

In used bookstores I found personal visions of Maine islanders and summer people and those who had bought land for and fought for Acadia National Park.

I read what the people I wrote about might read. I subscribed to Maine and New England magazines and a local weekly newspaper in Stonington, just north of Isle au Haut (which printed the week’s menus for lunch at the local school). I joined the Maine Writers and Publishers Alliance, attended their conference on the Maine novel. I subscribed to *Ranger* magazine and to *Women in Natural Resources*.

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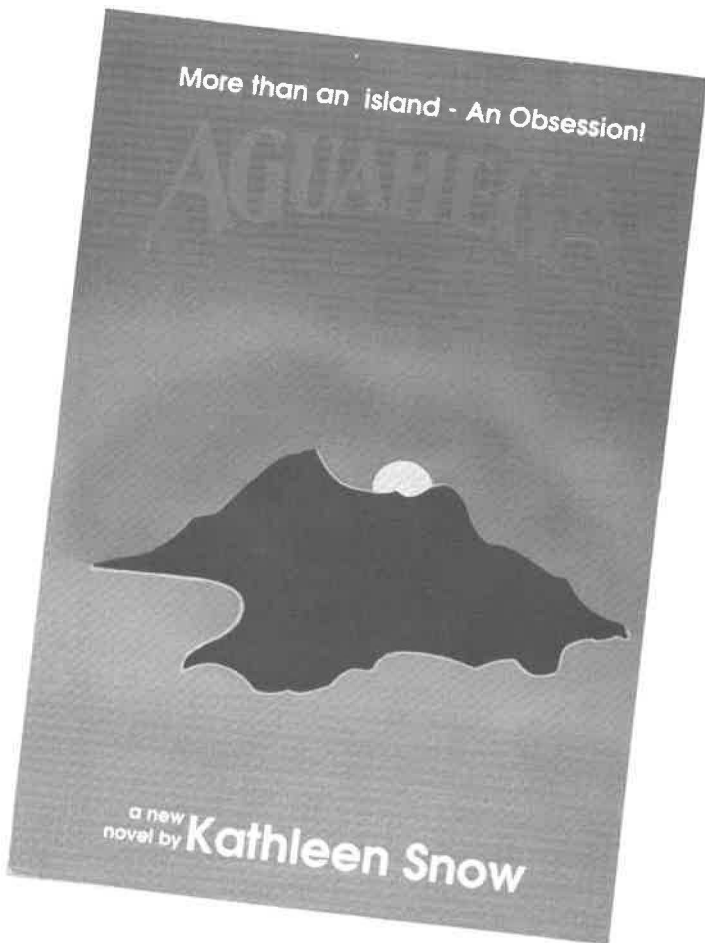
Ten filled wastepaper baskets later, my friends ask, “How’s the novel coming?” “Getting there,” I said. I wrote a plot summary:

Kezia Beal, the last of the lobstering Beals to be born on Aguahega, is not the first to see it changed. Her father’s murder in a Lobster War exiles her from family and birthplace. She returns to marry a park ranger and battle to save the Beal homestead from replacement by a park visitor center.

I began to do much research into the business and way of life of lobstering, circa 1952. Lobsters are like gold, some say. They get into your mind, poison it, never let go. Buried treasure, walking dollars, free for all, lobsters fight lobsters in the lost “ghost” trap until only the largest is left. While overhead, 5,000 Maine fishermen in 4,200 powerboats with half a million aquatic mousetraps do combat for eight million dollars worth of lobsters—and that’s a lot of gold. But it takes more and more traps, these days, to catch fewer and fewer lobsters. The many compete harder for the few. The few get fewer and the many get meaner. Soon there’s a Lobster War.

“How’s the novel coming?” the friends keep asking.

“I am fretting, scratching,” Gustave Flaubert, the French novelist, told his friends. “What a heavy oar the pen is, and what a strong current ideas are to row in!”



At the conclusion of the novel, an official park sign stands where the Beal homestead used to be:

HERE LIVED PERLEY BEAL
AND HIS WIFE SARAH
WHO RAISED A FAMILY OF EIGHT,
SIX MILES BY TOTE TRAIL TO THE VILLAGE,
AND ANOTHER SIXTEEN, SOMETIMES ICEBOUND,
TO THE MAIN.

Yet I had found my ancestral home after all. Before the Beals, before the Native Americans, home was still there. I wrote:

Aguahega was a mountain that had drowned, the island highest in a frigid blue bay, outermost. Its pink granite spine arched bare above forests of green. Lichens spun bullseyes of yellow across its cliffs. In its mossy depths, seventeen species of orchid hid, the shyest with a tiger striped lip, lavender pink petals, and three rows of golden hairs. At its root, lobsters five feet long swarmed leopard-spotted blue, green, and orange. Its mud flats spouted clams, its coves shrilled with seabirds.

Aguahega is now the ancestral home of all Americans. It is now Acadia National Park.

I wrote:

Kezia Beal walked around to face the sign whose incised letters in the shine of moonlight read:

IN HONOR OF
FAIRFIELD C. CHANCELLOR
FATHER OF NORUMBEGA NATIONAL PARK
WHO LABORED HALF A CENTURY TO
PROTECT AND PRESERVE THE WONDERS
OF THIS UNIQUE GEOLOGICAL AREA FOR ALL TIME.
Dedicated September 4, 1952

The weight of the hatchet lifted, suddenly soared high past her head. Shocked, Kezia saw the chipped blade buried deep in the sign's round wood base. She lugged it back out and began chopping, widening the pale triangular gash.

Maybe hundreds of filled wastepaper baskets later (with the worry that too many trees are being cut down to justify this waste), my typing neared its end.

Author Kathleen Snow grew up near the sorghum fields of Gnaw Bone, Indiana on a rural route not too far from Stoney Lonesome. She remembers the Persimmon Festival, the Year of the Locusts, Winning the Blue at 4-H, Mother Digging Post Holes, and the Night The Horse Ran Away. She lives in New York City, but considers Maine her second birth state. Snow has been writing and publishing novels since 1978 and has been a freelance editor for Ballantine Books, an editor (Where Magazine), and an advertising copywriter. Her Bachelor's is in English from Grinnell College, Grinnell, Iowa.



At their recent annual meeting, two women were elected to high office in the Society of American Foresters. **Jane A. Difley**, (pictured right), assumes the presidency for 1993. She is currently northern regional manager with the American Forest Council in Troy, New York, and has been a SAF Vice President in 1992. Among the new members of the SAF council who will take office in January 1993 is **Lisa B. Stocker** of Canton, Mississippi who has worked with the International Paper Company since 1980 as manager of Morton Logging and Fiber Supply. She will represent Louisiana, Mississippi, and Texas on the Council.



because of the important part insects play in the ecosystem. The Smithsonian will run the renovated facility, newly renamed for the company's founder, **Otto Orkin**, who died in 1968.

Kristen Culler is the highest-ranking member of the senior class at the U.S. Naval Academy in Annapolis, Maryland. She is an honors math major, and is the school's highest ranking student—Brigade Commander—chosen from among 43 finalists nominated by various officers.

The last time feminist writer **Robin Morgan** spoke (1972) at the University of Kansas, women seized a campus building to demand better treatment and forced the creation of a Women's Studies Department. Returning recently, Morgan, who is now editor of *Ms. Magazine*, pronounced the feminist movement alive and well with plenty of work to do. She noted that two-thirds of the world's non-literates are female, that the vast majority of the poor and starving are, and some 90 percent of refugees are women and children. Females are impacted first and most severely by every calamity and yet females are seldom consulted about remedies. In her view, women need to gain power to help themselves and each other.

E. Kay Davis, the Executive Director of Atlanta's brand-new Fernbank Museum of Natural History, is one of only 10 women to head a major natural-history museum. She raised \$43 million from the private sector to fund the museum's construction which

is expected to generate \$100 million tourist dollars per year for Atlanta. It has an Imax theater, children's interactive rooms, and a collection which is second only to the Smithsonian in the south.

Laura A. Pressley was awarded a Promethium Chapter (of Iota Sigma Pi, National Honor Society for Women in Chemistry) Scholarship of \$1,000 to be used in finishing her doctorate at the University of Texas at Austin. Her research emphasis is the reaction kinetics and dynamics of environmentally hazardous molecules on transition metal surfaces stimulated thermally, along with low energy electrons and ultraviolet irradiation. She uses various surface science techniques to study ways in which different biohazardous molecules such SO₂, hydrofluorocarbons (CF₃I) and alkyl nitrites (CH₃ONO) may be decomposed to less toxic substances using the energy sources cited above.

Fran Blanchard is the Plains Conservation Center Co-Director, located in Aurora, Colorado, adjacent to Denver. Situated on 1,900 acres of land, it is run by the West Arapahoe Soil Conservation District which received the 1991 National Association of Conservation District's Southwest Regional Conservation District of the Year award. The Center's educational programs explain the dynamics of the High Plains grasslands and, more broadly, help visitors—especially youth—develop a personal conservation ethic. This outdoor center exemplifies the no-mountain/prairie side of Colorado—the rapidly vanishing mixed-grass prairie that once covered almost 40 percent of the state.

Wendy Herrett is the new Director of the Recreation Management Staff in the Pacific Northwest

Regional Office (Portland) of the Forest Service. Before coming to the position, Herrett was Forest Supervisor of the Siuslaw National Forest in Corvallis. She has been with the Forest Service since 1970, beginning as a landscape architect. Other assignments include: the Mt. Hood (Oregon), the Routt (Colorado), the Black Hills (South Dakota), and the White River (Colorado) National Forests. In 1984, she served in Washington on the legislative affairs staff where she had primary responsibility for recreation issues.

Patricia Kennedy, assistant professor of fishery and wildlife biology at Colorado State University, received a research grant from the Forest Service to study northern goshawk offspring.

Pat Korp had two reasons for attending the recent Pacific yew conference at Oregon State University. She is the associate District Manager for the Bureau of Land Management's Bakersfield District (California) and she also has advanced ovarian cancer. In the September 1992 issue of *BLM News* she said: "I came to the conference (BLM was one of several sponsors) to get more information on Pacific yew and taxol to learn all I could about my alternatives for cancer treatment. And I wanted to remind all those involved in taxol production that people like me need it right now. How much time do I have left? The fact that BLM-managed lands have produced nearly ten times more yew bark this year than planned, shows that the agency is really committed to providing taxol for medical research."

The Southwest Regional Office of the National Park Service announced that **Anna Marie Fender** was named Superintendent of the Navajo National Monument.

Naming an insect zoo in Washington DC for the founder of Orkin Pest Control did not seem unusual for Orkin official **Judy Donner**. She said that her company donated \$500,000 to renovate the Insect Zoo at the National Museum of Natural History

OLDER WOMEN USE MORE VITAMINS AND MINERALS THAN OTHER POPULATION GROUPS. THIS STUDY LOOKS AT WHAT INFLUENCES THE DECISION TO TAKE THEM AND HOW THAT RELATES TO HEALTH AND THE SENSE OF CONTROL OVER ONE'S OWN LIFE.

WOMEN WHO USE FOOD SUPPLEMENTS

DORIS K. WILLIAMS

Maintaining a healthy body has become a serious preoccupation in this country, rising perhaps to the status of a consumer good. In the 1980s particularly, women and men increasingly began to take measures to reverse the undesirable effects of aging in order to retain the vigor of youth. Among those measures was self-prescribing food supplements. Today it is estimated that over 40 percent of the general population take vitamin and mineral supplements despite the fact that doing so may offer no additional benefits if a well balanced diet is maintained (Medeiros, et al., 1989; Read and Craney, 1982; Hendricks, 1990).

Regular users appear to believe strongly that the decision to use supplements should be a personal matter. Health professionals in the American Dietetic Association and the American Medical Association, however, are concerned that a reliance on self-prescribed supplementation may be based on the wrong information (Read and Craney, 1982; Hendricks, 1990; Warren, Hillers, and Jennings, 1990; Jester, 1989; and Oakland et al., 1990).

While data indicate increasing usage of supplements, women in general use more of them than men. Researchers believe that this may be due to the fact that women do the purchasing and cooking of food and handle or direct most health-related

tasks for a family. Post menopausal women may listen to media campaigns about osteoporosis and use more calcium and vitamin D (Davis, Hibbard, and Kime, 1989). Other reasons include the fact that men tend to eat more than women because of their body size, and in so doing men may believe they have balanced their diets and do not need supplements (Cotugna, 1989; Swenerton, et al., 1985). In addition, related research indicates that women accepted nutrition misinformation as fact, which men often did not. On the other hand, women with school-aged children appeared least likely to buy or use food supplements for themselves or their children.

Researchers have studied other groups whose health practices are embedded in a complex network of cognitive, behavioral, and social phenomena. For example, teenagers had a set of reasons for taking supplements which included the belief that they were good for a diet, prevented colds, cured fatigue, helped prevent skin cancer, and they were "just in case" health insurance (Harrill and Bowsky, 1981).

Nutrition and the aging process

While one's need for almost every nutrient changes to some extent as a person ages, there is no critical age at which nutrient needs suddenly change. Rather, it is a gradual change. Some nutritional problems are due to the simple fact that fewer calories are needed as one ages. It follows that unless people improve the *quality* of the food they



eat in order to get more nutrients per calorie, health suffers.

In the aging process, humans undergo physical changes—less lean body mass, less physical activity, slowed basal metabolic rate—that actually alters the amount of nutrients their bodies are able to utilize. These changes can increase or decrease the amount of a vitamin or mineral absorbed, improve or worsen the body's utilization of what is absorbed, or increase or decrease excretion of a nutrient from the body (Parham, 1980; Smith, 1989).

Current studies

Data from studies attempting to establish a relationship of age to supplement use are conflicting, but do show supplementation to be more common among older persons (Medeiros, et al., 1989; Cotugna, 1989; Parham, 1980; Ranno, Wardlaw, and Geiger, 1988; American Council on Health, 1989; Antocuccim, Akiyaman, and Adelman, 1990). Researchers focused on several aspects:

- Increasing age is accompanied by bodily discomfort and minor ailments, hence older persons increased use of supplements or other products which claim to offer relief.

- Older women with health problems who live alone, are characteristic of the "at risk" group for over-dependence on food supplements.

- As the older person's body ages, individuals respond with supplements: to increase energy levels (both sexes), mitigate for lower levels of iron needed (after menopause), increase calcium (to offset

osteoporosis), to reverse the aging process.

•Strong associations between high-potency vitamin use and the belief that food and supplements can be used as "medicine."

•Women and men differ in quantities of food ingested which affects nutrients ingested, and they differ in risk-taking health behaviors: women tend to follow a doctor's specific directions, for example, whereas men do not.

From the literature, we know that remaining independent is a vitally important construct as one ages. The constructivism theory suggests that to a large extent the control people sense over their own lives—including their health—depends on the psychological framework by which they view themselves in the world. On the other hand, aging alone is not the critical factor when determining whether or not people hold negative beliefs and attitudes toward their health because, eating, aging, and psychosocial well-being are intimately interrelated. And we know that food behaviors are very resistant to change.

The study questions

The surveyors wanted to measure beliefs regarding an individual's state of health, change in health, and decisions about use of vitamin and mineral supplements. The survey also compared participant responses on a series of locus of control and health belief questions. Specifically, this developmental study of women wanted to know if increased age does, in fact, influence beliefs and decisions about the use of food supplements.

Methods

Data for this research were obtained from information collected as part of a western region USDA-sponsored 153 project titled Economic and Behavioral Factors Associated with Food Supplement Usage. Participants included 843 women: 358 were 20 to 39 years of age, 238 were 40 to 59 years of age and 247 were 60 years of age or older. A combination of mail ques-

tionnaires and telephone interviews patterned after the Tilling (1978) method was used and a random subset of respondents were selected for follow-up telephone interviews at nine and 18 months after the original survey.

Survey and Questions

The locus of Control and Health Beliefs Model served as the theoretical bases for developing the questions (Wanton and Wanton, 1978). The survey design and mailing techniques closely followed the recommendations of Tilling (18 = 978) for improved response rate and quality of responses.

A pilot test was conducted. The major survey was conducted in the states of Arizona, California, Idaho, Nevada, New Mexico, Oregon, and Wyoming.

Data from the seven states were pooled and Chi-square analyses conducted on frequency data. Locus of Control indices were formed and the age group means were compared with a t-test.

In addition to measuring beliefs regarding state of health, change in health, and decisions about use of vitamin and mineral supplements, the survey also compared participant responses on a series of locus of control and health belief questions. The Locus of Control Scales developed by Wallston and Wallston (1978) and Eden, Kamath, Kohrs, and Losing (1984) were derived from clinical observations claiming that individuals learn to perceive the attainment of a particular goal, outcome, or situation as being predominantly within their control rather than outside their control—in this case, health. The three orientations with the theory are:

•Internal, where control is within oneself or a result of one's own actions

•External, where control is in the power of significant others

•External by chance, where goal attainment outcome is a result of change, fate, or luck.

Internal locus of control was measured through the questions

1. If I get sick, it is my own behavior which determines how soon I will get well
2. I am in control of my health
3. When I am sick, I am to blame
4. The main thing that affects my health is what I do myself
5. If I take care of myself, I can avoid illness
6. If I take the right actions, I can stay healthy

External locus of control was measured through the questions

1. Having regular contact with my physician is the best way for me to avoid illness

Conclusion and significance

This study clearly showed that there is a significant relationship between age and the belief that one should have medical advice before taking food supplements. The younger the woman, the more likely

2. Whenever I don't feel well, I should consult a medically trained professional
3. My family has a lot to do with my becoming sick or staying healthy
4. Health professionals control my health
5. When I recover from an illness, it's because other people have been taking care of me
6. For my health, I can only do what my doctor tells me to do.

External by chance locus of control questions included:

1. If I am going to get sick, I will get sick no matter what I do
2. Most things that affect my health happen to me by accident
3. Luck plays a big part in determining how soon I will recover from an illness
4. My good health is largely a matter of good fortune
5. No matter what I do, I am likely to get sick.

Results of the t-test revealed significant differences ($p < .05$) in internal locus of control between younger and older women. Younger women (20-39 years of age) have higher mean scores on the internal locus of control scale indicating stronger feelings of internal control as compared with older women. The differences were greatest between women who were 60+ as compared with those aged 20-39. In the older age group, the belief that one's health is within one's control or as a result of one's own actions decreased (Table 1).

T-test result using the external locus of control measure also showed significant differences ($p = .05$) between the age groups. Women aged 60+ showed higher mean scores on the external locus of control scale than younger women. The differences were greatest between the oldest and youngest groups of women. There was less difference between the 60+ group and the 40-59 year-olds, and still less for the 40-59 age group and the 20-39 age group. As age increased, therefore, the belief that one's health is in the control of significant others increased (Table 1).

Results of t-test comparisons using the external by chance locus of control scale revealed significant differences $p = .05$ between women in the 20-39 and the 60+ age groups. Differences between the other groups were not significant. Women in the 60+ age group were most likely to believe one's health is a result of chance, fate, or luck (Table 1).

Table 1. Difference Between for Locus of Control questions: Comparison of women in age groups of 20-39, 40-59, and 60+.

Variable	Mean Score
Internal Locus of Control	
60+ - 20-39	-0.16013*
60+ - 40-59	-0.14044*
40-59 - 20-39	-0.01970*
External Locus of Control	
60+ - 20-39	0.54328*
60+ - 40-59	0.42835*
40-59 - 20-39	0.11493*
Chance Locus of Control	
60+ - 20-39	0.18697*
60+ - 40-59	0.22978*
40-59 - 20-39	-0.04281*

*Significant at .05 level

they disagreed that medical advice was needed—they relied on their own judgments. The older women became, the more likely they were to agree that “nutrient needs could not be filled by food alone.” The data measured the extent to which respondents felt in control of their health, and found that the older women become, the less they believe that they themselves have control. Older age groups also believed that significant others and chance factors had the biggest influence over their state of well-being. Taking food supplements, however, was in their control and older women wanted to exercise that option.

Discussion

Our respondents to the survey told us that using vitamin and mineral food supplements is generally an acceptable health-related behavior. Consumers indicated to the surveyors that using food supplements is one of the ways that (1) serious health problems can be reversed, (2) that undesirable effects of aging can be reversed, (3) that vigor of youth can be retained, and (4) the span of life extended. The uses of supplements for these purposes continue despite information that food supplements offer no additional benefits if a normally balanced food intake is maintained.

Researchers involved in the project suggest the need for further work. When sampling over the age of 50, the study group could be divided into sub-groups of 51-66, 74-84, and 85+ as is suggested by Weg (1980). In addition to research questions

related to aging, other factors appear to be significant and should be studied: are supplementers more extroverted as Worsley and Crawford (1985) declare? Do the social values of users and non-users differ? And finally, in what specific ways do gender or role activities and aspirations of users differ?

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This paper derives from a USDA W-153 project concerned with the Economic and Health Aspects of Food Supplements Usage. Other W-153 team members included: Ann Bock, New Mexico State University; Denis Medeiros, University of Wyoming; Mel Ortiz, University of New Mexico; Carolyn Raab, Oregon State University; Marsha Read, University of Nevada; Howard Schutz, University of California; and Edward Sheehan, University of Arizona.

wishes of their husbands or the whims of male-dominated courts and community councils. In one region of Kenya, where women cannot own land, they also are restricted from planting trees. These women have learned ecologically sustainable methods of forestry, and have extensive knowledge about genetic diversity, yet are denied partnership in development.

It is an axiom of the environmental movement that population growth is a big obstacle to preserving the environment; but few development experts consider that when a woman's basic resources are taken away, she is actually likely to want more children to help her shoulder the increased workload—even when the region where she lives is already home to more people than the land can realistically support.

Often, mothers are forced by circumstance to keep their daughters out of school so that they might help with the household—ensuring that another generation of females will grow up with fewer prospects than their brothers.

....Jodie L. Jacobson, *World Watch*, November-December 1992

Anger: How can it be transformed into a positive force?

First, when you are angry—admit it. Then, ask yourself, Why now? Is my anger going to help my current situation? If angry behavior isn't helpful—and that's usually the case—then you need to modify your behavior to improve the situation you are angry about. Sometimes if you just think for a minute you'll realize the anger you feel is obviously unjust. When you find yourself stuck in traffic, there's obviously no point in being angry. If you look for a villain to blame and there isn't one, you'll just create a new problem for yourself.

Sit down, and think through how best to extricate yourself. Cultivate patience for situations you can't do anything about. It's not always easy to do that. You may find it easier to handle an anger-provoking situation if you imagine watching someone else throwing a tantrum under the same circumstances. You'd certainly be able to offer the other person some good advice...just do the same for yourself.

Sometimes anger is justified. If someone whom you trust suddenly betrays you, most people would agree then that the situation gives you a "right" to be angry. Handling anger rationally rather than vengefully or forcefully is important. Thinking the situation through in a calm way

before speaking or acting will increase the possibility that you can go on to a better future. Think through anger-provoking situations and visualize how you don't want to behave—show others you want a positive outcome.

....Rebecca Luhn, *Bottom Line*, December 30, 1992.

Colorado State University firsts

The College of Natural Resources at Colorado State University, Ft. Collins, is comprised of five departments: Earth Resources, Fishery and Wildlife Biology, Forest Sciences, Range Science, and Recreation Resources. They administer nine undergraduate majors. In the last two years, College enrollment has soared to nearly 1400 students. The College has a number of firsts among natural resources colleges: 1) more minority and women student enrollments, 2) most degrees granted, 3) highest in international students receiving degrees, 4) best in placement of professional employees in public natural resource agencies. Restoration Ecology and Risk Assessment is one of the upcoming areas of emphasis, focusing on teaching students to deal with damaged lands due to over-use, pollution, natural disasters.

In 1993, out of 70 regular faculty and 15 temporary, there are seven women on the faculty, two of whom are temporary. The women and their departments: Sherry Oaks, Earth Resources; Ellen Wohl, Earth Resources; Sally Sutton, Earth Resources; Maureen Donnelly, Recreation Resources; Ingrid C. Burke, Forest Sciences; Patricia Kennedy, Fishery and Wildlife Biology; Joyce Berry, Forest Sciences. Al Dyer, who has been at CSU since 1971 is the new Dean, succeeding Jay Hughes.

....Colleen Yaklin, *Hi Lites*, Fall 1992

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Q U E R Y

Question: Is there a specific communication or leadership style that you use?

These essays derive from a panel discussion held at the annual Society for Range Management Meeting Spokane, Washington February 1992

Linda Hardesty
Assistant Professor
Department of Natural
Resources

Washington State University
When I say I am a professor, most people envision the teacher role, but I am also a scientist, technical advisor, colleague, and supervisor—sometimes all of these within a single day. Each of these roles has different responsibilities and communication objec-

tives. In the classroom I may present a series of facts or observations and challenge students to construct relationships between the ideas. If I did this in a presentation to my scientific peers, it would be viewed as flaky and unprofessional. The scientific community demands precise, formalized communication. When I am teaching, my role is not so prescribed. The goal is to stimulate independent efforts to find, interpret, and apply knowledge. Each student starts in a unique place and so each must be assisted in different ways to achieve this. I adopt whatever role will be most effective in relation to each student, providing very close and precise direction for some students while encouraging others to experiment with carving out their own modes of inquiry. My teaching style may appear inconsistent, but is not because it is always in pursuit of the same outcome, always driven by the same basic values.

We tend to think of communication as a verbal phenomenon, but listening is at least as critical as speaking. When I was doing wildlife enforcement work, one of my partners advised me to scowl silently at a person's fishing license for a prolonged period until they became so uncomfortable that they started to babble—perhaps confessing something. That worked, and although I prefer less aggressive listening, I did learn that a pause can draw people out.

Non-verbal communication is also important. A speaker can close a talk with "Any questions?" and challenging body language that guarantees there will be

none, or with gestures and expressions showing that discussion is welcomed. One stance may be appropriate when presenting an unpopular, but necessary policy at a staff meeting, and the other for describing the academic honesty policy in a class. When I speak to a group, I scan their expressions and body language for feedback: can they hear me, is a technical term unfamiliar, is there a question, are they with me? Even clothing communicates. I would not wear a cotton sweater to a Woolgrower's meeting.

Example is a powerful form of non-verbal communication. Being a skeptic about "role modeling" I was surprised when women students said that just my being on the faculty offered them encouragement because they could actually see a woman Ph.D. in a professional role. If I have a class on a field trip in ugly weather and continue the agenda regardless, this tells them better than any lecture that they are expected to get the job done, period, even in difficult conditions. I have been the first woman every place I have worked and had to set an example of how men can relate to women colleagues. For example swearing at work: many men in my field do, but realize that I might be offended by it. Out of courtesy, and because they may be uneasy with me in case something objectionable slips out, I go first. My few cuss words demonstrates that I will not be outraged if they happen to let fly.

Another aspect of communication style that changes with different roles is how directly you communicate. I am very direct when

supervising staff and technicians: "This is what needs to be done, here's how it should be done, and it should be completed by such and such a date."

Although I am open to their input, I do not present the task as I would to graduate students. I want students to make these decisions and use questions to help them do that: "What is the next step in your data analysis, how exactly will you do that, how long will it take, what will you do if...?" In the first case, the goal is to get the job done, in the second, the goal is helping the student learn to do it.

The degree of certainty you reflect also changes with your role. Scientists all recognize that we speak within given ranges of confidence governed by statistical theory. But if I told a rancher that I am 75 percent certain, give or take 10 percent, that a particular practice would be successful, that would not inspire great confidence. I would instead say "in most cases we would expect that...." or "chances could be improved by planting in the fall, irrigating...."

No one wants more certainty than undergraduate students, many of whom do not have the intellectual maturity to deal with uncertainty. They want *the answer*, and range management has very few such concrete answers to give. With them I emphasize the principles that define an acceptable solution, and try to help them develop problem solving skills rather than memorize the answer. In each case, I communicate differently about the same topic because the person I want to communicate with is different and has different

needs and expectations. That other person determines if you have communicated or led successfully by how they respond. Effective leadership and communication are measured less by style than by results. Results depend on who you are and what you want to achieve, but also on who the other person is and what their goal is. Clarifying roles and the expectations associated with them will naturally define the appropriate style of communication.

Nora Taylor
Bureau of Land
Management
Burns District

Effective communication is important for everyone, whether they're in a leadership role or not, but it is especially important for managers and supervisors if they are going to convince their employees to do their best work.

I direct a grazing management program which has five other people working in it, but I am not their supervisor. I have had only limited experience in supervising seasonals. I have been responsible, however, for the grazing permits for approximately 40 permittees and the program I direct has about 135 permittees.

My direct experience with people in leadership roles has been limited to male managers and supervisors. I have worked with few women. In the BLM offices I have worked in, there are rarely more than two women on the range staff. This usually works out to about 20 percent or less of the range conservationists in the District.

One of the biggest complaints—and greatest compliments—that I have received from the grazing permittees is that I “go by the book.” The implication from the complainers is that I am inflexible and unyielding. The compliment is that I am fair and even-handed in my dealings with permittees. Naturally, I side with the folks that consider it a compliment, but it shows how differently people can perceive the same behavior.

Leadership styles can be generally classed along a continuum from the autocratic leader as absolute ruler, to democratic where the motto is “We’re all in this together—so what do you think?” Generally, and I admit that this is a gross generalization, range managers are a pretty independent group. We like the freedom and flexibility to try out new ideas on the ground, and are willing to take the responsibility for our failures. Given that, it’s amazing that so many of the managers and supervisors I have had experience with seem to be on the autocratic end of the scale. The autocratic “I am the boss, no matter what” leadership style is not very effective with independent subordinates. There is a constant power struggle even though the subordinates know who really has the power.

I worked at one time for a manager who was very aware that he had the power, and he made sure all of his subordinates knew it, too. One of the ways he exhibited his authority was to demand that employees be prompt to any meeting he called. He would then arrive late. He also refused to wait more than 10

minutes if any meeting which he had not called began late. He walked out saying that his time was too important. He spent a great deal of time on the telephone and never turned down a call, no matter who was in his office. One day he called a staff meeting and we all got there on time. When we arrived, he was on the phone. He talked, eight of us waited. Since it appeared that he was in no hurry to conclude his conversation, after about 10 minutes we all got up and left. Needless to say, he was furious, and when he got off the phone, he made us all come back to his office for the meeting. From my limited experience with individuals like him, I would say that there isn’t any difference between the way men and women react to the autocratic type of leadership. Neither one likes it.

On the other end of the scale is the democratic leader. Men and women react differently to this leadership style. Women almost always seem to like it, but men are more mixed in their reactions. Some men like the autonomy just fine—some men don’t because it seems to blur the line between boss and subordinate and implies there is no clear leadership.

The most effective supervisor I have had was on the democratic end of the scale. What he did that was so effective is hard to define. I guess that a lot of it just had to do with his individual style and personality. He always expected the highest quality work from his staff, and usually got it. One of his other strengths was the ability to read the needs of his various staffers. The

employees who needed or wanted close supervision or support got it, and the ones who wanted to be left alone got that. He also was able to draw us out and make us grow in our jobs. That style was beneficial to him, too: because we respected him as a leader, we gave him our personal loyalty and worked harder for the team, making him look good.

Most people, of course, fall somewhere in the middle of the continuum and slide back and forth depending on the circumstance. The best leaders, regardless of gender, are honest, and have the ability to adapt to the individuality of whomever they are trying to lead.

There are lessons to be learned about leadership for those of us who work for public agencies. Our bosses, the citizens, are becoming more interested in *their* leadership roles and they become restless when we respond as if we were autocratic supervisors. Let me illustrate. In 1979, the Drewsey Final Grazing Environmental Impact Statement was published. It called for some reductions in grazing permits, some major changes in grazing systems, and was in general a big change in the way the grazing management program was handled. In response to the draft EIS, there were 10 comments from hearings and 28 letters containing approximately 150 comments. In contrast, twelve years later, the final EIS published with the proposed Three Rivers RMP (Burns District BLM Oregon) in September 1991—which did not call for any grazing reductions—contained 225 letters with over 1200 comments.

The public is apparently telling us that they want a more democratic exchange of ideas, that we aren't the autocrats in charge as of decades past. Just as between supervisors and subordinates, communications between agency representatives and interested publics need to be sensitive to the needs of individual segments of that public.

Dixie L. Ehrenreich

Editor

Women in Natural Resources

When one discusses the quality of leaders, inevitably it is a lopsided discussion, because a discussion about the quality of *followers* is usually missing. If you ask the basic question: what makes a leader?—you should logically say “followers do.”

Being a follower is risky business. You have to invest a lot of yourself—so you should choose a leader carefully. When choosing, a follower will make choices depending upon the chances of success in the leader's enterprise. A follower has to look at the attributes of leaders and compare them. In many cases, women will not measure up in a follower's eyes because while women may have brains, drive, and education, another male candidate may have brains, drive, education and be 6'2" and talk in a booming, commanding voice. The cluster of attributes, in other words, may be at a better comfort level for the follower to risk investing in. There are many variations on this theme: we have seen women succeed as leaders who seem to not have much going for them except a higher degree, a family name or money, but they may be leading an enterprise where followers seek those attributes because the security of the degree, money, or a high visibility family name minimizes the followers' risk.

Followers crave clear communication, so potential leaders must also consider followers in their discussion styles, both everyday and in command positions. Women often think out loud and arrive at conclusions in front of everybody. Men tend to think within themselves with no talking out.

While some consider this to be a failing in men, consider also what thinking out loud conveys to followers who are impatient for the last word and who mentally leave before it arrives. It conveys incompleteness and stumbling even though the process arrives at the same place as the male process does. Followers like crisp ideas, assurance that the leader has been there before and that the thought process has familiar and successful grooves to spin around in. In fact, however, thinking out loud is very healthy and invites additions and corrections to the process under consideration—but it makes followers nervous.

Sometimes followers have no choices about leaders and are thrust into a situation they did not choose. If subordinate followers think that the cluster of attributes don't measure up and the leaders are weak, their tendency is to undermine the authority of the weak leader. Women who are being undermined, tend to think of it as a male undermining the female scenario, but there are ample examples of weak males being undermined by both males and females. In these cases, the followers think the disruptions in the workplace are preferable to being seen by their peers as followers of a weak leader.

Followers want to be productive, secure, respected, and not fight the same battles over and over. Women have had a very short history as leaders in non-traditional fields, but a very long history as followers. The old girl follower network is as venerable as the old boy leader network, and the common-sense wisdom says: look for attributes in your leader or employer which indicate that women are valued; look for evidence of successful and non-combative women in all levels of the organization.

Try not to be the first woman in the workplace unit unless you know you can handle it. There are plenty of places now where women are welcome as leaders—or as followers.

BOOK REVIEW, continued from page 13

aimed originally at Montanans, but if adopted throughout the west, would ensure quality-of-life. The title, of course, refers to the realities of Western resource-based economies: boom times of get-the-cut-out and build houses and dig the mineral ore transitioning inevitably to economically depressed times when the trucks and the mills sit in silence. Wilkinson says to the citizens of Montana, that he hopes they reply to developers this way:

We want you here, but it must be on our terms.

•*There are many places where you can mine but others where you cannot...*

•*The severance tax will be set at 30 percent...*

•*You must stagger your production to remain for at least 30 years; we will penalize you if it is shorter and reward you if it is longer.*

•*You must protect—protect absolutely—our water...our air...and our land...*

Noting that companies might answer that this is impossible and would announce their intention to go elsewhere, he hopes they would discover the same answer in each place they inquire. He concludes “then the last best place will finally have begun to fulfill its high and lasting destiny.”

I enjoyed this book. It belongs on the bookshelves of policy-makers and those of us who love the spirit of the land. As a westerner, I'd like to see the philosophy expanded from Montana to the great American west. It is “the last best place” and we do have a destiny.

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. A life-long westerner, she currently lives and works in Baker City, Oregon and explores the mountains and canyon country of northeastern Oregon. She is a WINR editor.

A welcome addition to the ethics bookshelf is *Business Ethics: Profiles in Civic Virtue*, by James Liebig. There is a variety and richness among the case examples that makes reading the book a satisfying experience. Many of the examples of ethical companies are well known: Nucor, and the Hanover Insurance Company, for example. One of the lesser known examples, however, is CAPSCO Sales, a business dealing in electronics and components which is woman-owned.

There is a Relocation Tax Guide available which is useful if a move to a new state is contemplated for a new job or retirement. It is free from AARP, EEO375, Box 22796, Long Beach, California 90801. Ask for stock # D13400.

Oppenheimer Funds is offering a free pamphlet on Women and Investing. There are sections on the financial needs of women at different ages, worksheets for determining personal net worth, cash flow, a child's college costs, and retirement. Write them at Two World Trade Center, New York 10048 or call 800-525-7048.

Rita Schoeneman and Zanetta Doyle wrote *Trees in the community: managing the urban forest* (1992) covering new policies. Funding, wildfire risk, new federal regs are among the topics. Write to Rita Schoeneman at the Forest Service, PO Box 96090, Washington DC 20090 for further ordering information.

There is a collection of 19 essays, edited and with an introduction by Toni Morrison, entitled *Race-ing Justice, Engendering Power: Essays on Anita Hill, Clarence Thomas, and the Construction of Social Reality*. Morrison is a Pulitzer Prize winning novelist. She wanted to explore and decipher the dynamics of race and gender at work during the hearings. Why, she asks, do black women feel so torn between the sometimes conflicting poles of being loyal to the race (and black males) at the expense of advancement and

joining with other women to fight common battles? The contributors to the book are mostly academic women.

J. P. Kilbourne edited *The Book for Working Women: Is There Any Other Kind?* (Aha Publishing 1991). It is designed to offer words of encouragement and advice for women who are considering, entering, or continuing well-established professional careers. There are many contributors and some of them offer solutions to particular problems encountered along the way: mentors, child care, cracking the glass ceiling are among them.

On the Surface is a 40 minute video discussion with three marine biologists who have been involved in deep sea research and the submersible Alvin program. Ruth Turner, Colleen Cavanaugh and Cindy Van Dover are academics from Harvard and Woods Hole Oceanographic Institute. They talk about their careers and the road they traveled to get to where they are. The video would be useful for high school kids, mentoring programs in college, and as an introduction to a life in science. Write Prairie Starfish Productions, 573 Lakeshore West, Lake Quivira, Kansas 66106 (800-395-9397). The cost is \$39.95.

One Square Mile: An Artist's Journal of America's Heartland, text and illustration by Cathy Johnson, is about one square mile of Missouri woods, meadows, and ponds that surrounds the author's cabin. This book is part of the 4-book *America in Microcosm Series* published by Walker and Company, New York.

Bill Mullins, a wildlife biologist whose photos appear in many books, magazines, and calendars, suggested several books which would be useful for photographers who want to sell their work professionally. Writing in the Fall 1992 *Idaho Wildlife*, Mullins noted that two newsletters, Guilfoyle Report or Photosource International, published "want lists" for photos from photo editors of magazines and other publications. Also useful

were the books *Negotiating Stock Photo Prices* by Jim Pickerell, the *ASMP Stock Photography Handbook* (American Society of Magazine Photographers) and Rohn Engh's *Sell and Re-Sell Your Photos*.

Women Who Run With the Wolves by Clarissa Pinkola Estes (Ballantine Books 1992)

is not a book just for the environmental-minded individual. Any person who makes a commitment to the earth is already on the path. The author tries to explain through myths and tales how women are indoctrinated to lose the connection to the power, confidence, and contentment available by living as the wild and natural creature that is within us and is part of all creatures at birth. Estes uses myths as analogy and parable. These explain why we react as we do to commitments, intimacy, fear, and giving.

If knowledge creates enlightenment, then this book will help to get us over the barriers society erects to hinder personal fulfillment. I had to find my connection to the "wild and natural creature" by trial, error, and pain of failure.

I have been lucky enough to meet a few people who never lost the connection throughout their life. But most people who are functioning at that level needed to go through tragic loss or events that created an enlightenment—a recognition that something was lacking.

An interesting side effect of this is that after meeting a woman (or man) who has that connection, all others seem shallow and desperate, searching for something they cannot grasp because they are unable to recognize it. To observe a couple where both "run with the wolves" is to see something glorious, the image portrayed by poets.

This book is engrossing. It is thought provoking and provides a way to make order out of one's introspective jumble. It should be required reading for every person doing natural resources work.

James S. Smith

There is a new *Complete Guide to Environmental Careers*, revised from 1989's *Complete Guide*, both of which were produced by the Environmental Careers Organization and published by Island Press (1993). The new Guide was written by environmental journalist Bill Sharp, Kevin Doyle of *EarthWork*, and others.

To subscribe to *Women in Natural Resources*, send \$19 for a personal subscription, \$35 for a government agency, library, university, or business. For a student subscription, send \$15. For all non-US subscriptions, add \$5 for postage costs. **The subscription price includes the twice-monthly job flyers.**

Back copies of *Women in Natural Resources* cost \$6—which includes the postage.

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To sue or not to sue

It's hard to decide whether or not to sue. The professional consequences of filing a discrimination suit can be devastating, since future employers are likely to see the lawsuit as a stigma. Women who choose to sue their employers and continue working at the same job while pursuing legal justice can find themselves in a special kind of purgatory. But to women who are fired and cannot line up a similarly high-ranking job, a lawsuit is often the only way to regain professional standing. In addition, then, to the emotional costs, seeking justice can be extraordinarily expensive. These are not class-action suits usually, but individual grievances, in which the plaintiff usually must pick up all the legal fees. While a few lawyers will take cases on a contingency basis, most want their billable hours paid monthly.

Working in the midst of a recession has complicated the issue. As companies and agencies have reorganized and laid off employees, some women have found that when the game of musical chairs is over, they're out on the street, while their male colleagues have either been rotated to other units or given hefty severance packages. Sexual discrimination at the top is not all that different from discrimination at entry level: women earn less, have less presti-

gious job titles, and are given fewer opportunities to succeed. Women who for years have played by what they thought were the rules and have succeeded in working their way up the career ladder are often reluctant to acknowledge that discrimination is now stalling their careers. And when they do, it is an excruciating moment of reckoning. "People who are discriminated against on the basis of age or race are angry that they've been treated shabbily," says Jeffrey Liddle, a lawyer. "But the women who come into my office with a case of sex discrimination are often embarrassed. They feel they should have been able to handle it on their own."

The *National Law Journal* surveyed and found that women with 10 or more years' experience were far more likely to complain about pay inequity than younger women. The more experienced the woman, the more she recognized the two sets of standards for rewards in the workplace.

...Meryl Gordon, *Working Woman*, September 1992

Ordinary folks love non-game wildlife. Ordinary folks hate paying for non-game wildlife

During the past 15 years or so, as America's interest in and appreciation for birds and beasts has grown, state conservation agencies have tried to make general citizens pay for managing those critters. By and large they have failed. They've sold non-game wildlife posters. They've offered non-game income tax check-offs. They've tried passing legislation taxing binoculars, bird seed, and recreational boaters. They've experimented with charging gate fees at wildlife refuges and selling voluntary non-game conservation stamps. And the cash registers sit and rust. In state after state, funding pleas for so-called non-game wildlife have roared in and whimpered out. Only hunters and anglers have ever shown any long-term interest in forking over money to perpetuate wildlife.

...Ron Spomer, *Lewiston Morning Tribune*, November 26, 1992

Do's and don'ts for helping kids master fear

Do acknowledge the fear. Tell kids you were afraid of similar things when a child. Your description of it will help your child put their fears into words. *Don't discount it.* Saying that's silly or big kids aren't afraid, etc. makes a child feel that his or her fear is bad. The resulting shame might drive the fear inside where it feeds upon itself. *Do respond with confidence.* Even if your child is panicked, it's important to communicate calm control over it. Noth-

ing heightens a child's fear more than the feeling that adults are at a loss about what to do. *Don't ask a lot of questions.* And don't go into lengthy explanations. Just say, It's all right. I'm here, and nothing can happen to you. Too many questions and long-winded explanations will confuse, then elevate anxiety. *Don't try to track down the fear.* Oftentimes, a child is ambiguous about a fear. If so, asking suggestive questions, such as "Are you afraid of the birds?" only implies that there may be something about birds that should be feared. *Keep in mind that preschool-age children have difficulty comprehending that a word can exist for something that does not.* Saying there are no such things as monsters doesn't make sense to a young child, who can't reconcile the contradiction. *Do distract your child.* Select something comforting and familiar—a book, toys. *Don't let your child's fear control the family.* Provide comfort, reassurance, and support, but don't respond to your child's fears by rearranging the environment or altering your lifestyle in artificial ways. They make matters worse in the long run. And, letting your child's fears hold the family hostage gives him or her a tool with which to manipulate future issues. *Expect the unexpected.* The onset of strange and inexplicable fears is not unusual in little kids. But they need to feel confident in adults' ability to control a world that once seemed completely safe.

...John Rosemond, *Better Homes and Gardens*, October 1992

Your money or your claim

For the fiscal year 1993, the Department of the Interior will require a new rental fee of \$100 per mining claim for holders of unpatented claims. The new fee supersedes a requirement for performance of a minimum of \$100 of assessment work per claim per year. Claims are defined as lode claims, placer claims, mill sites, and tunnel sites. There are more than one million mining claims of record on federal lands. The new fee is expected to reduce unnecessary surface disturbance that had been carried out in the past solely to maintain a mining claim—and to discourage nuisance mining claims.

...Carol A. MacDonald, *BLM News* (Oregon) November 18, 1992

Another glass ceiling broken?

The most riveting show on British television last week was, of all things, a live, one-hour religious broadcast from inside the Church of England's debating hall. The climax came when the Archbishop of Canterbury, Dr. George Carey, dryly announced that each of the church's govern-

ing houses—bishops, clergy, and laity—had voted to ordain women to the Anglican priesthood. Although the church's decision will not take effect until 1994 (the action must be ratified by Parliament and the Queen), its impact on Christian ecumenism was immediate. In England, where there are now more active Roman Catholics than Anglicans, Cardinal Basil Hume said he was disappointed. Representatives of the two churches have been trying since 1966 to reconcile their differences. Msgr. Kevin McDonald, the Vatican's liaison to the Anglicans, said "that goal is out of sight." The Church of England already has 1,350 women deacons, and they are prime candidates for promotion to the priesthood. But one group of 3,000 conservative clergymen, called Cost of Conscience, claims that at least one third of them will bolt from the church because they do not want women in the priesthood.

....Kenneth L. Woodward, Daniel Pedersen, *Newsweek*, November 23, 1992

Mintzmyer sues

The Bush administration rewrote a Yellowstone National Park management plan to benefit the mining and timber industries at the expense of the environment, a former National Park Service official charged. Lorraine Mintzmyer, former regional director of the NPS in Denver, filed a federal age and sex discrimination lawsuit in October 1992 against Interior Secretary Manuel Lujan and James Ridenour, director of the National Park Service. Mintzmyer said she was transferred to Philadelphia last year and forced to retire in April. She is asking for reinstatement. At a news conference, Mintzmyer said the Bush administration favored business interests over the environment in national parks decisions.

....*The Morning Herald*, October 22, 1992

Will commercial clam businesses thrive in North Dakota?

More than a dozen different species of clams occur in the state's rivers, lakes, and streams. Clams live on the bottom, filtering out food particles and oxygen from the water. By their very nature, clams are extremely sensitive to increased stream sedimentation, pesticide runoff, heavy metals, and other pollution. They stabilize the river beds, filter sediments, provide food for mink, muskrats, raccoons, great blue herons, and other wildlife. The Department of Game and Fish has already collected data on 2,500 individual clams and will continue through 1993 with their studies to determine whether or not a com-

mercial harvest would be detrimental in North Dakota.

....*North Dakota Outdoors*, November 1992

Fifteen million people on the forest's doorstep: Happy 100th birthday and lots of luck

One hundred years ago, the first 50,000 acres of the Trabuco Forest Preserve were set aside to protect watersheds in California's Santa Ana mountains, and land was added over the next 15 years (by President Grover Cleveland—for whom it is named—and by President Theodore Roosevelt) to establish the 421,457 acre Cleveland National Forest. Surely the people who made those visionary decisions had no idea that the Santa Ana mountains would be a backdrop to Orange County homes and businesses and that 15 million people would be living within an hour's drive of the forest. The Cleveland National Forest is increasingly important to our quality of life in San Diego, Orange, and Riverside counties.

....Anne Fege, Cleveland NF Accomplishment Report

If you don't give women in developing countries rights in forested lands, the forests and the people suffer

For cash-poor women, healthy forests are a savings bank from which they draw the interest—in the form of fuel, food, fodder, and countless other goods—that their families depend on to survive. As these lands become debased, the principal in the account declines, and women are forced to borrow against the future. For example, they compensate for the scarcity of fuel by, among other things, cutting live trees instead of dead ones, and cooking fewer meals. And because women are largely responsible for feeding their families, they are forced to work longer hours to make ends meet, a situation that further compromises their health and well-being and that of their children.

Given women's vast potential for helping to reverse the loss of forests, it's hard to imagine why most development programs are actually reducing women's access to and ownership of land. The prominent role women play in using and maintaining forests makes it not only logical, but critical, that they be included in managing forest ecosystems. But throughout Africa, Asia, and Latin America, women are being muscled out of forests—and off croplands and grasslands—by governments and private interests looking to make a quick buck through the development of "cash crops."

In many areas, it is the job of women to protect and manage trees. Indonesian women harvest bananas, mangos, guavas, and avocados from 37 species of trees growing around their homes. Women often use these and other forest goods to make money for their families. In Senegal, for example, shea-nut butter made from the fruit of local trees is one of many marketable goods women produce to earn cash. Muslim women in the Middle East living in purdah (seclusion) often cultivate trees within the confines of their gardens, sending their children out to sell the fruit.

But because they are not considered major cash crops, these foods women gather and the lands that produce them often are overlooked and undervalued by development experts. A study by the United Nations Food and Agriculture Organization in northeast Zambia found that what was officially cataloged as "useless" forest land was actually a major source of leafy wild vegetables and mushrooms, as well as caterpillars, eaten by local families.

And while logging is usually considered the big-money forest industry, products that contain no wood at all often play an even bigger part in local and national economies throughout the Third World. World Bank researchers Augusta Molnar and Gotz Schreiber estimate that in India, 40 percent of revenue from forests—and 75 percent of the net export earnings from forestry products—come from so-called non-wood resources. The same is true in Thailand, Indonesia, and Burma.

Poor rural women can make a large chunk of their income, for instance, by collecting raw materials and using them to make saleable items of bamboo, rattan, and rope. In one province in Egypt, 48 percent of the women make their living through such "minor" forest products industries. In hard times, women who don't own land and can't make enough as field workers often fall back on collecting these resources. In India, for example, about 600,000 women harvest tendu leaves in the wild for use as wrappings for domestic cigarettes.

Women won't benefit from changes in land use, either, because privatization favors male landholders. Legal and cultural obstacles prevent women from obtaining titles to land, and without these titles, they can't be included in the cash crop schemes affecting forests and other lands. (Land titles are invariably given to men because governments and international agencies routinely identify them as heads of their households, regardless of whether or not they actually support their families. Women's rights to land are subject to the

Continued on page 33

K I O S K

There are several series of cassette tapes which describe the history and folklore of the countryside, towns, and states for travelers who use them in their cars to make trips enjoyable and informative for the whole family. Ride with Me (call 800-752-3195 for information) covers eastern highways and CCI Inc. Auto Tape Tours (201-236-1666) covers regions all over America. The tapes cost between \$10 and \$25 each.

If you are lacking an up-to-date will, and want to write it yourself, you can get free worksheets from CARE, Planned Giving, 660 First Ave., New York NY 10016 (212-686-3100) or for \$10.95 you can get more comprehensive information in the book *Wills: A Do-it-yourself Guide* from HALT, 1319 F St. NW # 300, Washington DC 20004.

The 8th annual Women in Horticulture Conference, sponsored by the Association for Women in Landscaping, will be held at the Bellevue Washington Conference Center on March 6, 1993. The focus will be on urban forestry

issues. For more information, contact Deb Powers at 206-524-1672 or write WIH Conference Committee, PO Box 22562, Seattle, Washington 98122.

For those of us who are alarmed at the thought that MTV and similar programs produce most of the "art" our children see want to do something to assure ourselves that art will remain an education staple. The arts stimulate children's creativity, assist in problem solving, contribute to improved self esteem and productivity. And some of it is just plain, omigosh, fun. The National Endowment for the Arts has a booklet—Three R's—with tips on how to introduce kids to art. Send 50 cents to Consumer Information Service Dept. 467Y, Pueblo CO 81009.

The American Running and Fitness Association has launched its Running Trail Maps Network, which already includes maps of running routes in more than 100 cities across the nation. The maps include streets and landmarks, hotels, mileage. Call 800-776-ARFA to find out if the city you are interested in has been mapped.

American Women in Science (AWIS) plans to hold a western regional conference in the San Francisco area in the summer, 1993. They welcome program participation. For more information, call or write Sherrie Wilkins, International Research Group, 1900 Embarcadero Road, Suite 205, Palo Alto, California 94303 (415-856-4790).

Western EcoSystems Technology holds a Statistics for Field Ecology workshop on January 18-22, 1993 and Resource Selection Studies January 25-28, 1993. The courses—which include relevant statistical theory and designs for sampling natural populations—will

be taught near the Federal Center in Lakewood, Colorado. For costs and information call 307-634-1756.

Fire in Wilderness and Park Management is a Symposium sponsored by several federal agencies and the University of Montana to be held at the university March 30 to April 1, 1993. For information on registration contact Conferences and Institutes at 406-243-4623 or write them: C&I, Center for Continuing Education, U of M, Missoula, Montana 59812.

Forest Vegetation Management, a three day workshop sponsored by Oregon State University, will be held February 24-26, 1993. Call or write Conference Assistant, College of Forestry, Peavy Hall 202, Corvallis, Oregon 97331-5707 (503-737-2329).

Shared Responsibility for Shared Resources is the theme for the annual meeting of the American Fisheries Society, Portland, Oregon, August 28-September 3, 1993. For information: contact Jerry Bouck, AFS, 5410 Grosvenor Lane, Suite 110, Bethesda, Maryland 20814-2199 (503-230-5213).

Clemson University's College of Forest and Recreation Resources offers a list of their continuing education programs which qualify for SAF's CFE credits. For the list, call Jacqueline L. Haymond at 803-656-4831.

Health and the Environment: Meeting the Challenge for Human Development will be held June 20-23, 1993 in Arlington, Virginia. The focus will be on the links between the physical environment and disease. For more information contact the National Council for International Health, 1701 K St NW, Suite 600, Washington DC 20006.

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The National Association for Women in Education (NAWE) will hold their conference in Seattle, March 3-6 1993. The theme is Visionary Women: Challenging Assumptions, Inspiring Change. For information contact Bekki Lee, NAWE Program Chair, Associate Dean of Students, Amherst College, Box 2206, Amherst Massachusetts 01002 (413-542-2336). NAWE also has an awards program (\$750) for two categories, graduate student and open competition. For guidelines write NAWE, Attn: Dr. Martha Guenin, Assistant to the Provost, University of Michigan-Flint, 229 University Pavilion, Flint, MI 48502-2186 (313-762-3176). The deadline each year is October 1st.

In its Great Women catalog, the Organization for Equal Education of the Sexes, Inc. offers 97 posters in support of multicultural education, featuring women of many races and ethnic groups, and women with disabilities. Free from: OEES/WHM, PO Box 438, Blue Hill Maine 04614 (207-374-2489).

Sin, Stigma, and Risk is the theme for the California and the Rocky Mountain American Studies Associations meeting to be held at the University of Nevada, Reno. They are asking for papers to be submitted on a variety of topics, one of which is "excoriated places" such as waste dumps, the desert, mines and others. For

information contact Elizabeth Raymond, Dept. of History, Room 308, University of Nevada, Reno, Nevada 89557.

The Southwest Institute for Research on Women (SIROW) will have a conference in October 1993 on the theoretical development of the concept of "context" as it is addressed in contemporary feminist scholarship. There will be papers that explore the use of spatial metaphors, such as borders, colony, location, territory, and maps to produce a geographical construction of diversity and difference. For information contact Janice Monk, SIROW, 102 Douglass Bldg., University of Arizona 85721 (602-621-9424).

The American Association of University Women sponsors Gender Issues in the Classroom and on the Campus on June 18, 1993 in Minneapolis. For information contact Joyce Lynn Garrett, Department of Education, Galludet University, 800 Florida Avenue, Washington DC 20008-3695.

"Making Everybody Count: Transforming the Middle School Mathematics Classroom" won a \$749,000 grant from the National Science Foundation for David Gay and Deborah Yoklic of the University of Arizona. Different groups of 30 teachers will come to the UA campus for summer Institutes to help improve students' math confidence and skills with emphasis on minorities and women.

Women in Natural Resources is seeking manuscripts which focus on the National Park Service.

If you have a research or field project, a solution to an administrative problem, or a personal viewpoint about your work in which you think our readers would be interested, call the editor, Dixie Ehrenreich, at 208-885-6754, Pacific Time. Or FAX a draft to 208-885-5878. *The deadline is January 25, 1993*

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