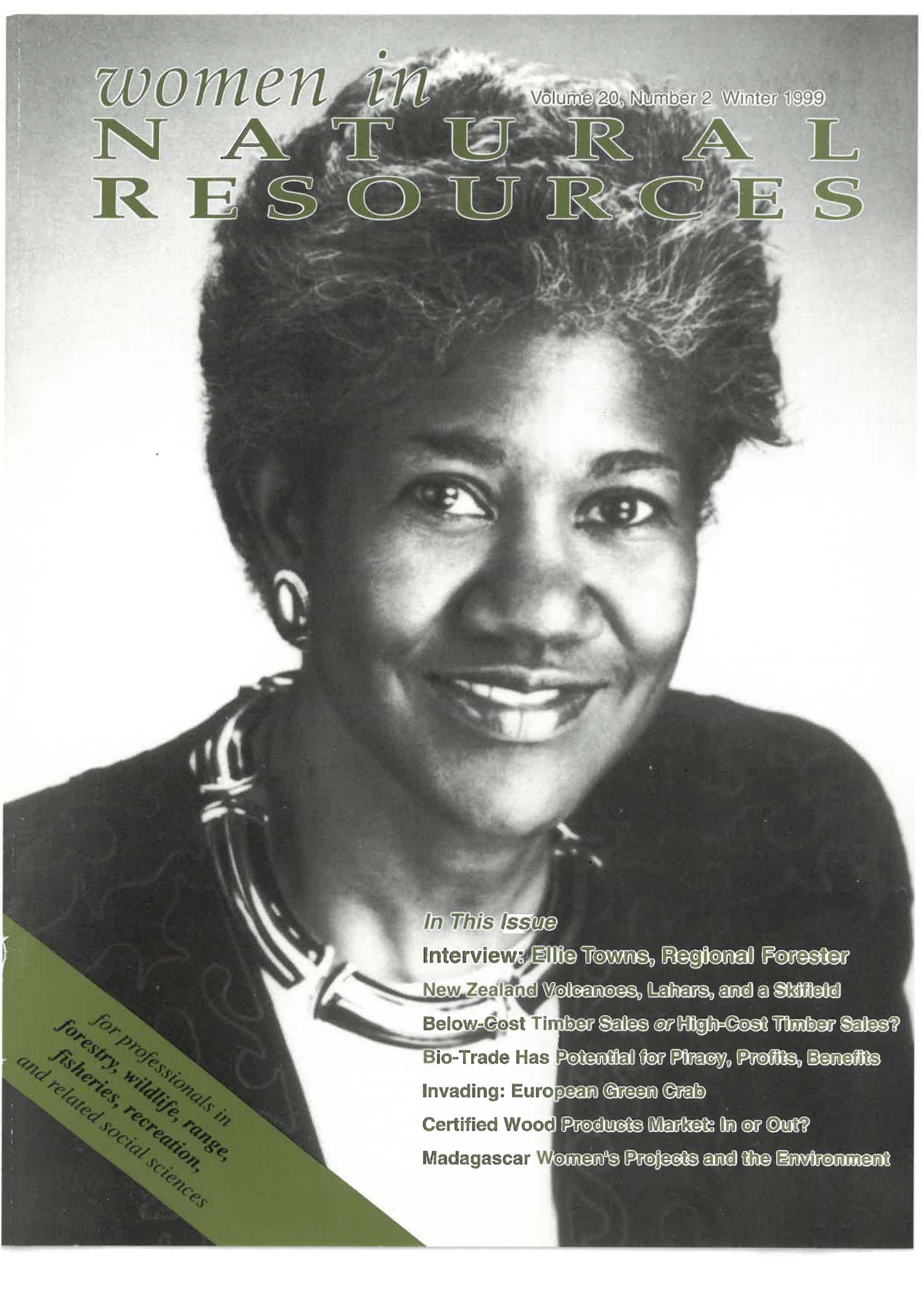
women in NATURAL RESOURCES

Volume 20, Number 2 Winter 1999



In This Issue

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

Editorial
Elaine Zieroth

Recovery plans for the ESA should be prepared for ecosystems, looking at the *entire* landscape and the *interaction* of species in a dynamic environment.

I work in north Idaho, which is one of those areas that has a wealth of rare species. California, Florida, and Hawaii also have areas with many rare species, but in most cases, it is because they have unique habitats that have been decimated by development, exotic species invasion, or habitat changes. In north Idaho, we have one of the few intact sets of all the major carnivores (including grizzly bear, Canada lynx, wolverine, and wolf), in addition to woodland caribou, bald eagles, bull trout, white sturgeon, and a host of other rare plants, animals, and fish. We feel that this is due, not to development and change, but to having relatively undeveloped mountain chains that run north into Canada. Being responsible for the future of so many species, I can tell you, makes it difficult being a manager on "Noah's Ark."

When the Endangered Species Act (ESA) was passed by Congress in 1973, it was earthshattering legislation. It took a tremendous amount of vision and political savvy to convince Congress that it was important to protect all the pieces in the earth's puzzle for future generations. Twenty some years later, it has not been possible for Congress to decide to reauthorize the ESA. The general feeling is that people still want rare species protection, but feel that the ESA needs to be fine-tuned. However, everyone is afraid to open Pandora's Box, especially in an election year.

When the ESA was crafted, I think the creators were thinking of having a manageable list of species, such as the snail darter and California condor, that had limited habitats and localized impacts. I doubt that Congress or even the creators of the legislation envisioned a waiting list of hundreds of species, numerous lawsuits, habitat areas that covered several states, or major impacts to the economies of entire regions. Nor did they envision the rare species, like spotted owl, red-cockaded woodpecker, grizzly bear, or salmon, becoming the scapegoats and political footballs that they have become in the national debate over how to manage public land and control development.

As someone who works with the ESA on a daily basis, I support it, but see a few things that should be adjusted. The purpose is described as

a means whereby the ecosystems upon which endangered and threatened species depend may be conserved.

Ecosystem management was only an emerging scientific principle in 1973, so the Act had foresight. However, the application of the ESA has been on one species at a time, rather than on an ecosystem basis. Recovery plans are prepared for each individual species, often looking at an isolated habitat area, at one point in successional time. We probably haven't scratched the surface of knowledge about ecosystems yet, but we do know that you need to look at the interactions of all species, with their environment, on a large scale, over time. In many areas, we have several threatened or endangered species in the same area; some with conflicting needs.

On my district, we are currently planning a timber sale and watershed restoration project in an area that has woodland caribou, grizzly bear, Canada lynx, bald eagle, and bull trout. We would like to obliterate 100 miles of old roads to protect bull trout habitat and increase grizzly bear security. However, we have to use heavy equipment to close the roads, which may be a short-term impact to bear security. We plan to use helicopters to log one area to avoid building new roads, but we have to avoid the airspace for bald eagles. We could also improve lynx foraging habitat by regenerating decadent lodgepole pine, and reduce the fire danger next to old growth alpine fir forests, but that might impact marginal caribou winter range. As we look at the needs of each species in isolation, it seems impossible to improve the habitat for one without impacting another.

Recovery plans should be prepared for ecosystems, looking at the entire landscape and the interaction of species in a dynamic environment. Another concern with the current application of ESA is that there is no mechanism to weigh short-term losses in habitat against greater long-term gains. Ecosystems are not static and we know that many of our current ecosystems have changed because we have prevented fires from their role in shaping ecosystems, and

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WOMEN IN NATURAL RESOURCES

Winter 1999

Our 20th Year!!

Volume 20, Number 2

FEATURES

DEPARTMENTS

The cover photo is of
Eleanor Towns
Regional Forester for Region 3, USDA Forest Service.
See page 16

FEATURES

Coordinator of Undergraduate Programs
Penn State School of Forest Resources

The position is a twelve month, full-time continuing academic appointment as Instructor. Provide coordination and advising in support of the School's three undergraduate programs (Forest Science, Wood Products, and Wildlife Fisheries Science) under the direction of the Assistant director for Academic Programs. Specific duties include student advising, summer and permanent job placement, student recruiting and orientation, routine and special administrative tasks in support of undergraduate and other programs. May be asked to teach a course suitable with his/her interests and background. Available July 1, 1999. Requires Master's degree (or equivalent education/experience) with at least one degree in a natural resource discipline. Preference to candidates with a demonstrated interest in natural resources education and professional affairs. Submit resume, academic transcripts, and three letters of recommendation to Dr. Kim C. Steiner, 213B Ferguson Building, University Park, PA 16802, telephone 814-856-4237, fax 814-865-3752, email kcs@psu.edu. **Review of applications begins April 15, 1999.** Applications will be considered until the position is filled. *An AA/EO employer. Women and minorities encouraged to apply.*

Wildlife Ecologist Position
Michigan State University

The Department of Fisheries and Wildlife at invites applications for a 12-month, tenure track wildlife ecologist position at the assistant professor level (AG-38). A Ph.D. is required, and preference will be given to applicants with strong quantitative skills and interest in the impact of habitat management on wildlife species to communities on private lands or urban landscapes. The candidate is expected to develop strong extension and research that interacts closely with state and federal agencies and conservation organizations. Additionally, the candidate is expected to teach courses at the undergraduate and graduate levels, obtain research grants and publish findings. The candidate will also advise undergraduate and graduate students and serve on university, college, and department committees.

Application deadline is March 31, 1999 or until suitable candidate is found. Salary is competitive and commensurate with education, experience, and demonstrated ability. Interested persons should submit letter of application stating professional goals and objectives, statements of teaching, research and extension interests and philosophy, a curriculum vitae with supporting materials including transcripts, and three letters of recommendation to: Dr. Harold Prince, Search Committee Chairperson, Department of Fisheries and Wildlife, Michigan State University, 13 Natural Resources Building, East Lansing, MI 48824-1222. Telephone 517-355-3697, fax 517-432-1699, email HHPrince@pilot.msu.edu *An EOE*

EXECUTIVE DIRECTOR The Forest Stewardship Council - US

The FSC-US branch is responsible for developing regional forest certification standards throughout the United States, addressing certification policy issues, servicing the needs of FSC members, promoting certification to a wide range of stakeholders including consumers, foresters, landowners, retailers, and supporting the FSC international accreditation and monitoring program for certification organizations. Responsibilities: Organizational management, outreach, fund raising.
Qualifications: A proven record in successfully managing a dynamic organization to achieve its goals. A pragmatic and clearly demonstrated commitment to environmentally and socially responsible use of natural resources. An advanced degree or its equivalent in some combination of natural resources, business and management. Minimum of 10 years of relevant professional experience. Contact: Mr. Patrick Shields, phone: 203-899-0499, fax: 1-800-814-7554 e-mail: grs.shields@home.com, web: http://members.home.net/grs.shields or visit http://www.fscoax.org.

Letters & Stuff

CORRECTIONS

The list of USDA Forest Service Supervisors and Deputy Forest Supervisors on page 28 in WiNR Volume 20, No. 1, has been maintained and updated for many years by Roberta Moltzen. Moltzen is currently Region 5 Deputy Regional Forester, and formerly was Forest Supervisor of Mt. Hood National Forest (NF) and BlackHills NF.

In addition, there are two names that were inadvertently omitted from Region 8, under the heading of Deputy Forest Supervisors. They are:

Kathleen Atkinson, National Forests in Florida;

Ann Christensen, George Washington and Jefferson National Forest.

What is going on in California with the Forest Service? Is there another class action suit brewing or is it just a continuation of the old one?

Clarice McNaughton, Aurora, Colorado

Editor's note: In News & Notes we carry some information from a regional newspaper.

You know, I kind of hate to see the 20th century end. For women, opportunities have improved immeasurably in this country in these 100 years. We owe big time to women (and men) who stepped up to microphones, voted in legislatures, wrote books and articles, appeared on TV or in court, gave employment to women in jobs men usually held, and talked endlessly about fairness for women facing bigotry. And we need to keep doing it even if we are sick of doing it. Every time we turn around, someone is attacking feminist gains, wanting to turn the clock back. The 21st century requires our vigilance so the Talibans of our country don't gain momentum.

Ann Woods, Providence, Rhode Island

EDITORIAL

Continued from inside front cover

we have favored species and harvest practices in some areas that differ from historic patterns. The result is that we may be trying to perpetuate habitat for rare species that cannot be maintained without some management. A good example is the spotted owl habitat in old growth fir forests on the east slope of the Cascade Mountains in the states of Washington and Oregon. This habitat type would not have been as common under historic fire regimes; we cannot expect it to resist fire forever, especially if we let dead wood and young understory vegetation continue to build up without management intervention.

The recovery plans for some species need to have better international coordination as well. There are several species (grizzly bear, Canada lynx, gray and Mexican wolf, woodland caribou, neotropical birds, and bald eagles, to name a few) that move back and forth across our borders with Canada and Mexico. If we only look at the species range and populations on the U.S. side of the border, we will see false patterns. Even though we have no control over recovery efforts in other countries, we still should not manage populations without looking at the entire range of the species. There are times that the limited funds we have to recover species would be better spent funding research or improving habitat in another country. Helping Central America and Mexico regulate pesticides that decimate neotropical birds is a good example.

Finally, the recovery process does not include enough analysis of the social and economic implications of recovery. I am sure that no one envisioned the far-ranging social upheaval caused by the spotted owl. Entire communities, families, industries, and land management plans were drastically changed by protecting the habitat for one species.

If we are to recover rare species, we need public support. Most species and their habitat are too vulnerable to sabotage if people are angry about the impacts of recovery. Education is needed to help gain public awareness and support. More incentives are needed for private landowners and public land users who contribute to recovery efforts.

All the enforcement efforts that have occurred to protect wetlands have probably not been as effective as the various wetlands conservation programs that pay landowners to protect and improve wetland habitat.

The ESA needs to be remodelled to increase incentives, tax credits and better payment in lieu of taxes, for communities dependent on natural resource extraction. If communities saw that they were not penalized in taxes and jobs because local lands were dedicated to growing rare species instead of livestock or timber, they might be more supportive of recovery. The full cost and benefits of recovery need to be *publicly displayed* so society as a whole can decide what path we take in the future in the management of public lands and in the development of private lands.

We are running out of frontier to shift these species to. Do we want to strive for Noah's Ark? Or is the cost too high to find room on the Ark for every species?

Elaine Zieroth is a District Ranger for the USDA Forest Service and a WiNR Editor.

Missouri Department of Conservation
Two positions

•Biometrician, located in Columbia, closes March 31, 1999. Designs, analyzes, and interprets statistically-related questions and objectives in Research, Management, Stream Unit, Environmental Services, and Hatchery Studies. Requires Master's in Statistics, Biostatistics or Fisheries Biology plus programming experience. Salary: $30,864 to $56,148.

•Natural History Regional Biologist, located in West Plains, closes April 16, 1999. Reviews status of natural history lands to ensure management to benefit special features for which land was purchased. Requires Master's in Biology, Botany, Zoology, Wildlife, Forestry or equivalent combination of field experience and education. Salary: 27,924 to $49,824.

To apply for either position, submit a standard application for employment with complete education & experience to Human Resources Section, PO Box 180, Jefferson City, MO 65102 (phone 573-751-4115: fax 573-751-9099: or visit www.conservation.state.mo.us/about/jobs)

An EOE

Professor & Department Chair
Fisheries & Aquatic Sciences
University of Florida

The department of 17 faculty offers M.S., non-thesis Master's, and Ph.D. degrees, plus an undergraduate minor, and has research and extension programs in Freshwater Systems, Coastal Marine Systems, and Aquaculture. Program strengths exist in water quality, the ecology of exploited species, reproduction of aquatic animals, and aquatic animal health. Candidates must (1) have an earned doctorate in an appropriate discipline and be eligible for tenure at the rank of Professor; (2) demonstrate an exceptional record of scholastic and leadership abilities; (3) possess a strong commitment to administrative duties and responsibilities; and (4) demonstrate keen interest in synergistic collaborative relationships in support of the missions of a land-grant university. **Applications close May 1, 1999.** Nominations are requested by April 16, 1999. Include a letter of application with a statement of appropriate professional interests, a professional resume, and the names, addresses, telephone numbers, and email addresses for five references to be contacted. Applications, nominations, and inquiries should be directed to: Dr. William J. Lindberg, Search and Screen Committee Chair, Department of Fisheries and Aquatic Sciences, 7922 NW 71st Street, Gainesville FL 32653-3071; phone 352-392-9617 ext 239; email wjl@ufl.edu. *An EEO/AA employer. The "government in the sunshine" laws of Florida require all documents relating to the search process, including letters of application/nomination and reference, be available for public inspection.*

WiNRtime

The only source of information for deciphering the history of volcanoes is in the deposits of old events.

Volcanoes, Lahars, and a Skifield

Beth Palmer

Fig. 1. Mount Ruapehu and Whakapapaiti Stream valley photographed from a ridge along the Whakapapaiti Stream (see Fig. 2, the location is near the place where the 1100 m contour line intersects the Whakapapaiti Stream). Crater Lake is tucked down behind the summit ridge. The high ridge at the right of the summit with snow cover is Pare Ridge, and the highest point on the ridge is Paretetaitonga (love these Maori place names), at an elevation of 2751 m. The rugged bare-rock slopes are typical of the upper flanks of the volcano. The nearly parallel ridge that forms the left (south) side of the Whakapapaiti valley is lava rock. The ridge on the right (north) side of the valley is probably a glacial moraine. This photograph provides a hint of the sprawling shape of Ruapehu. The volcano is not a simple symmetrical cone like Mount Rainier.

I remember quite clearly a summer day in March 1989. I was in New Zealand to study volcanic debris flows (lahars) at Mount Ruapehu. On that particular day, I was wading through the Whakapapaiti Stream (Fig. 1). Wading because the stream was flowing through a small ravine and the only way to get upstream was to wade. I remember the day because the Whakapapaiti is a major flow path for lahars during eruptions. The headwaters of the stream are near the active vent on Ruapehu, which at that time was also a lake. Eruptions at Crater Lake eject the lake water onto the volcano flanks, forming powerful floods that erode rock and soil as they move downstream. The floods quickly pick up enough material to become lahars.

To return to my story, I was in a ravine, acutely aware of the danger should an eruption occur, because I was involved in assessing lahar hazards on the volcano. I am a geologist, and my area of expertise is volcaniclastic sedimentation. For the past 15 years, I have studied modern and ancient volcanic deposits in order to improve our understanding of how landscapes react to and recover from eruptions.

The work is important for two reasons. First, the sedimentary deposits related to eruptions are an important source of information for hazard

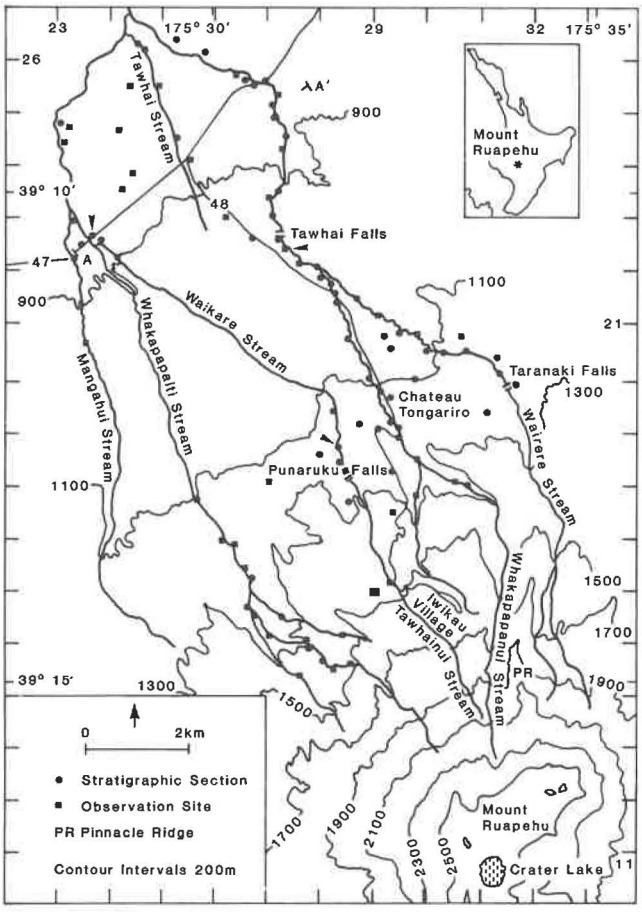


Fig. 2. Location map of the Whakapapa catchment on the northwestern flanks and ring plain of Mount Ruapehu. Tongariro Park facilities are near the Chateau Tongariro, which is a posh hotel (I wore formal evening wear when dining, but the lounge bar is more informal). Whakapapa Skifield is on the slopes above the Iwakau Village. Section locations show the areas I visited for my first study in the area. The work I describe involved visiting many other locations not on the diagram, but were concentrated upstream of the 1100 m contour line and between Highway 47 and the 900 m contour line. Parts of the stream between these areas are nearly inaccessible. An astonishing number of trees were blown down during Cyclone Bola in 1988 making it difficult to bushwack through.

Fig. 3. Part of a lahar section exposed under a terrace along the Whakapapanui Stream. This photo was taken just upstream of the highway 47 bridge. The striped stick is a homemade Jacob's staff with the tape at 0.1 m intervals, 1.5 m total length. The bottom of the staff is sitting at the base of a lahar deposit, which is marked by a sand bed that is weathering out as a small ledge. The top of the lahar bed is at the top of the Jacob's staff, where a small remnant of another sand bed occurs. Largest clast size in this bed is about 0.5 m in length. Note the even larger 1+m boulders in the overlying bed.

assessment. Volcanoes have much longer life spans than our memory, and can be active for hundreds of thousands to millions of years.

We see the activity of the volcano through only a small window of time, but we need to know the full range of behavior that characterizes a particular volcano so that our hazard assessments are as complete as possible. For example, Mount Ruapehu is about 250,000 years old. Most of our knowledge of modern eruption activity is less than 100 years old, with the described eruptions occurring in 1969, 1975, and the 1995 eruption episode that is still onging.

Oral history from indigenous people can be helpful in reconstructing eruption history, but the Maori came to New Zealand less than 2000 years ago. Our total human history in New Zealand accounts for less than one percent of Ruapehu's lifetime. The only source of information for deciphering the history of Mount Ruapehu is in the deposits of old events.

A second application of my work is deciphering earth history. Volcanoes may have long life spans on our time scale, but on the scale of earth time, they are very short-lived features. Over millions of years, volcanoes grow and are then eroded away. The only way to investigate ancient volcanic history is to look at the deposit record. I have worked on ancient volcanic accumulations in southwestern Utah, and south central Idaho—areas not exactly famous for volcanic activity. Between 27-23 million years ago, some large volcanoes developed in the area just south of Circleville, Utah. These were stratovolcanoes, similar to those in the Cascades Range in Washington, Oregon, and northern California. Imagine high-standing, symmetrical cones the size of Mount Rainier or Mount Shasta on the southwestern Utah landscape.

The Idaho deposits are equally striking. The area around Challis was the site of major volcanic activity 51-45 million years ago. In the Challis area, stratovolcanoes were rare. Instead, lava eruptions built plateaus and blocked ancient streams. Large lakes formed upstream of the lava dams. Explosive eruptive activity in the Challis area was from calderas, such as at Yellowstone National Park. Pyroclastic flows from the Challis caldera eruptions buried landscapes under nearly 100 feet of material, filling the old lakes. The importance of studying ancient deposits such as those in Utah and Idaho is that they remind us that the earth we live on today differs in important ways from earth in the past. We can't think of modern earth behavior as "normal" or "average."

Geologists like me spend large amounts of time describing deposits. By reading the history of the deposits at each location, we are able to build a picture of the volcanic history of particular areas. The purpose of this article is to describe some of my work at Mount Ruapehu, in order to explain how we read the sedimentary record of volcanism.

Mount Ruapehu is part of Tongariro National Park, one of the most popular parks in New Zealand. Park facilities and other tourist operations are mostly in the Whakapapa catchment, which drains the northwestern flanks of the volcano (Fig. 2). Whakapapa Village, along the Whakapapanui Stream is home to the Park Visitor Centre. The Whakapapa Skifield is high up on the volcano, near the headwaters of the Whakapapaiti Stream and Crater Lake. All of them are on lahar routes. Tourist dollars are an important part of the economy in the Ruapehu area.

Fig. 4. The Whakapapanui Stream near Whakapapa Village. The boulders that line the stream bank are from old lahar deposits. During floods, the stream erodes much of the the sand and silt from old lahar deposits, leaving a lag of extremely large boulders. Even in flood, the stream rarely has the power needed to move the large boulders. These boulders are a nice reminder of how powerful lahars can be, and why it is important to decipher the lahar history of the Whakapapanui Stream. The tall, tufted grass is called Toi Toi, which is apparently a relative of the pampas grass. The forest out of the picture is mountain beech.

The skifield is the ony major ski resort on North Island because it is the only mountain on North Island tall enough to develop a consistent snowpack during winter. North Island is also home to most New Zealanders, and as many as 8000 people ski on the volcano each day. Relocating the skifield is not an option, and moving Whakapapa Village would be very expensive.

New Zealanders, however, are well aware of the danger posed by lahars. On December 24, 1953, a lahar from Ruapehu roared down the eastern flank of the volcano, following the Whangaehu River. The lahar destroyed the rail bridge at Tangiwai moments before a train was due to cross. The lahar swept train cars and bridge piers downstream, killing 151 people.

The best compromise between the economic needs of the people living in the area and safety concerns, is to study the hazards and develop the best warning system possible. The first step in assessing lahar hazards is detailed description of the deposits of old lahars. In theory, the process of describing lahar deposits is quite simple. One lahar will deposit a layer of sediment called a bed. I start at the bottom of an outcrop and count up the number of beds in that section (Fig. 3). I work from bottom to top because the oldest deposits are at the bottom and I can think about history of events at that particular location while I'm working. The number of beds in a section tells me how many lahars have been down the stream. I also look for the largest boulder in the deposit because large boulders are a measure of the strength of a lahar (Figs. 3, 4). I've seen boulders in lahar deposits larger than 30 feet in length. In practical terms, the largest boulders are a measure of the destructive capability of a lahar.

As in any field science, however, obtaining a good data set is not easy. A major problem in the study of sedimentary deposits, such as lahars, is that the deposits rarely contain a complete record of all the events that have occurred in a particular area. Most lahars do not deposit sediment along their entire flow paths. Thus, some locations will simply be missing the record of a particular event. Additionally, younger floods and lahars can erode the deposits of older events, or deposits can be eroded away by lateral migration of streams (Fig. 5). The best place for deposits to be pre-

Fig. 5. Lahar deposits underlying a terrace along the upper reaches of the Whakapapaiti Stream. This outcrop is a good example of cut-and-fill type bedding that results from stream migration. A close look will reveal a nice sequence of lahar deposits at the left of the photo. Scan across the photo to the right, where a very thick deposit fills a channel cut into the older deposits at the left. The history of this site can be read as follows. At least five lahars flow through the area, leaving the deposits at the left of the photograph. Sand layers between the beds record brief periods of reworking and deposition by normal stream processes. The Whakapapaiti was undergoing aggradation during deposition of the lahars, raising the level of the flood plain by several meters. At some point, lahar deposition slowed, and the Whakapapaiti Stream cut back down through the lahar deposits leaving the channel. This cycle of aggradation and erosion was probably the result of an eruptive episode at Crater Lake, with aggradation following eruption and erosion representing landscape recovery when lahar frequency decreased. A second period of aggradation is recorded by the deposits that fill the old channel and form the terrace in this photograph. Once that aggradational period ended, then the Whakapapaiti eroded down to the present stream level.

served is up on the flood plain where the chance of erosion is less. But only the very large lahars are big enough to overtop the river channels and flow across the flood plains. Thus, the preservation potential (the odds of a deposit being preserved) is not good for the small lahars. Certainly the big events are of major concern because they do the most damage to our structures. But that is small consolation to the person who happens to be crossing a stream when a small event occurs. It is helpful to know how often we can expect the small events, as well as the big events.

Another major problem in geological studies concerns access to the deposits in the first place. Alas, bulldozing trenches is not an option for most geologists. It is simply too expensive and the ecological concerns are a bit overwhelming. We depend on cliffs, cut banks in streams, and our road-building activity to expose deposits enough for description. In my experience, roads are never in the right places, cliffs are almost always too steep, and the current at stream banks often precludes effective deposit description. I climb the cliffs, when possible, ignoring my fear of heights. And I've fallen into my share of streams and rivers, trying to get to deposits exposed in stream banks. We do what it takes to collect data.

At Ruapehu, my study of lahars in the Whakapapa catchment involved the four major streams in the drainage system: the Whakapapanui, Wairere, Waikare, and Whakapapaiti streams (Fig. 2). I walked the streams from the lower flanks of the volcano and out onto what New Zealanders call the ring plain, which is the apron of sediment deposited around the volcano by lahars, avalanches, and normal stream processes. This approach allowed me to describe as much of the deposit record as possible, but introduced the third major problem in sedimentologic studies, correlating deposits from place to place. One goal of the study was to identify how many lahars occurred in each stream at particular time intervals. Thus, I needed a good idea of how the sections matched from place to place, in order to avoid miscounting the deposits. Wherever possible, I correlated deposits directly by following a bed from section to section. This technique requires closely spaced sections to succeed. In places where access was impossible or vegetation covered the deposits, I had to rely on finding distinctive deposits to correlate. At Ruapehu, the distinctive deposits are a series of ash units from eruptions from Ruapehu and other volcanoes in the area. Happily, the ash units have also been dated so they gave me some idea of the timing of the events responsible for the deposits I was describing. I also had access to radiocarbon dates obtained from wood in the deposits I studied. Tree rings growing on terraces can also be a good source of information on the ages of events, but I did not use that technique in the Whakapapa study.

Correlation using ash units and information on timing allowed me to construct a record of lahars across the Whakapapa catchment. To make a long story short, the study showed that the Whakapapaiti Stream is the major route for lahars on the northwestern flank of Ruapehu. The Whakapapaiti Stream is not a major lahar route from eruptions at Crater Lake. Most of the lahar deposits along the stream are related to old, extinct vents north of Crater Lake. Facilities at Whakapapa Village are safe from all except the largest eruptions. Unfortunately, lahars travel through the Whakapapa Skifield to get to the Whakapapaiti Stream.

I finished my work on Ruapehu in 1990. In 1995, Ruapehu began an eruptive period that is still underway. Happily, my predictions of major flowpaths of eruption related lahars was spot on (to use a kiwism). My work is being used for very detailed hazard studies of lahar paths through the skifield. But the eruption taught us that lahars are also formed by slope failures on ash-covered volcano flanks. The hazards associated with these kinds of events were not recognized until the 1995 eruptions. Predicting the timing and distribution of lahars triggered by slope failure is very different from predicting the distribution of lahars triggered by eruptions through Crater Lake. The process of hazard assessment is never finished.

Beth Palmer's Bachelor's is from the University of Idaho. Her Master's in Geology is from the University of Kansas where her degree prepared her to work in the oil industry. The oil industry was in the bust part of the boom-bust cycle so her major professor asked her to stay on to work on an NSF grant (and her Ph.D.), researching ancient lahar deposits in Utah. Palmer is reported to have said "Love to, but what are lahars?" The next stop was Massey University for a post doc in Aotearoa, (Land of the Long While Cloud), New Zealand. After that she came back to the University of Idaho to teach Geology. At present, Palmer is ending her geology period and is beginning a career change.
Map courtesy *New Zealand Journal of Geology and Geophysics*, Vol. 32:(478).

News & Notes

Forest Service Women Claim Years of Harrassment

Female U.S. Forest Service employees tried to reach settlement Friday with the agency, on a lawsuit claiming years of sexual harassment, discrimination and reprisal. Forest Service employees Lesa Donnelly and Ginelle O'Connor claim thousands of women in California's 18 national forests suffered a backlash after the agency was ordered by a federal judge in the early 1990s to hire more women.

The order stemmed from a 1977 sexual discrimination lawsuit that brought a flood of new women into the Forest Service, leaving many male workers angry, creating a hostile and sometimes abusive work environment, Donnelly said. Female employees were raped, assaulted, threatened, called names, and thrown down stairs while on the job, the two women claim, and they experienced discrimination in promotions and raises. The lawsuit was filed in 1995 and certified as a class action in 1997. It asks the agency to correct the alleged abuses and seeks unspecified monetary damages. U.S. District Court Judge D. Lowell Jensen ordered mediation last year and is scheduled to decide in March whether to send the case to trial.

Sexual discrimination legal battles started in 1977 when Forest Service employee Gene Bernardi sued the Secretary of Agriculture on behalf of female workers in California. She claimed the agency discriminated against women in hiring and promotion decisions, according to court papers. The parties entered into a consent decree in 1979 which the district court approved in 1981. But by 1986, the female employees said the agency had ignored the decree, and filed a motion for contempt of court. The district court agreed and ordered the Forest Service to bring its female employee level to 43 percen. The order remained in effect until 1991. The parties reached a new settlement which expired in 1994, court papers show.

"New positions, many not even needed, were created to hire and promote women in underrepresented job series," Donnelly said. "Many women in Region 5 were overlooked for promotion because it would not increase the overall numbers. It was truly a numbers game, with no intention of institutional diversity." The result was a workforce polarized by gender, she said. And men at all levels joined in the reprisal against these female workers who they viewed as unqualified, she added. The lawsuit claims officials have knowingly perpetuated this intolerable work environment by failing to initiate and implement effective measures.

Faced with the allegations, Forest Service and Department of Agriculture officials ignored the complaints and sometimes even promoted the offenders, Donnelly said.

Martha Bellisle, Associated Press, *Napa Valley Register*, February 6, 1999

There are 35,000 Unemployed University Graduates in Sri Lanka

Even in the early 1970s, when I was a student at the University of Sri Lanka, liberal-arts graduates, most of whom were from poor, rural backgrounds, faced unemployement. During a recent trip back, I learned that job prospects have worsened over the past 20 years, affecting the Sinhalese majority as well as the Tamil and other minority groups. Unrest from the continuing civil war has not helped matters. During the 1960s and 1970s, many liberal-arts graduates educated in Sinhala, the language of the majority, found white-collar jobs with the Sri Lankan government. But privatization and economic liberalization since 1977 have curtailed state enterprises and thus employment in the state sector. The expanding private sector, especially foreign banks and other companies, prefers to hire English speaking youths from the wealthy urban classes.

Jobs in the sciences and in technical and commercial fields also are often closed to rural youth, who, besides having few opportunities to learn English, face inadequate science and computer facilities in their high schools and colleges. Graduating with liberal-arts degrees, and without the family connections that wealthier urban students enjoy, rural students are increasingly left out of the economy. Rural youth and their families, feel utterly betrayed after making great sacrifices to get a university education.

The competition for higher education and white-collar employment in Sri Lanka is commonly depicted in international academic and media discourses as an ethnic issue. Under British rule (which lasted until 1948), ethnic minorities, especially Sri Lankan Tamils, had access to university education, professional jobs, and administrative work in the state sector far beyond their proportion in the general population. Post-independence governments, claiming to redress the wrongs done to the majority Sinhalese population, introduced language and university-admissions policies favorable to rural Sinhalese youth. Although these policies—which precipitated the Tamil struggle against the Sinhalese-dominated government—have now been abandoned, the civil war continues.

Asoka Bandarage, *Chronicle of Higher Education,* December 18, 1998

A Report on the **Bio-Trade Initiative**

Sheila Fay Helgath

Bio-trade has the potential to affect all of our lives, generate billions of dollars of profits and encourage actual trade. It also has the potential to create international incidents stemming from bio-piracy. As resource managers, bio-trade is an issue we can not afford to ignore.

The well publicized 1992 Rio de Janeiro Environmental Conference ("Earth Summit") resulted in many initiatives and followup conferences which are now beginning to show results. Two of the initiatives which should interest natural resource professionals were the Partners for Development and the Bio-trade Initiative.

During November 1998, more than 2,000 people attended one of the initiative's events, the United Nations sponsored "Partners for Development Conference" in Lyon, France. Participants came to discuss economic and social development based on forming strategic private-public partnerships in the following areas:

* Technological Information and Commerce
* Transportation
* High Level Learning
* Commodities
* Regional Development
* Sustainable Development
* Finances
* Health Care
* Bio-Trade

The Bio-trade meeting was a small part of the conference. But it brought together an eclectic mix of people—indigenous Andean activists, Daimler Benz A.G. executives, Nigerian bio-resource development specialists, Walter Reed medical researchers, Yellowstone Park managers, bankers, and patent and intellectual-rights lawyers. All are actively involved in bio-trade issues. They came together because bio-trade has the potential to affect all of our lives, generate billions of dollars of profits and encourage actual trade. It also has the potential to create international incidents stemming from bio-piracy. As resource managers, bio-trade is an issue we can not afford to ignore; it affects humans in diverse ways: our health, the food supply, cosmetics, our jobs, and the resources we manage.

BIO-TRADE DEFINITION

One of the weakest points in an otherwise very informative conference was that no one tried to define bio-trade. Generally speaking, it encompasses a range of activities from artisanal to sophisticated biochemistry processing. For example, indigenous groups gathering herbs, medicinal plants, food plants and mushrooms for subsistence use or local marketing, and small village based enterprises, are participating in bio-trade. Sophisticated medical and pharmaceutical laboratories looking for a cancer or malaria cure, or cosmetic houses looking for aromatic ethers for the development of internationally sold products, are also participating in bio-trade. The mix of people interested in bio-trade is equally broad: activist economic development specialists working with the very poor, pharmaceutical companies looking for new and/or alternative medicines, the military, food companies looking for transferable genetic materials, and industrialists, such as car manufacturers and cosmetics companies, committed to replacing plastics or other oil based materials with more natural materials. This broad range of activities and objectives creates a dynamic, stimulating, and sometimes confusing situation when discussing bio-trade.

BIO-TRADE ISSUES

The issues surrounding bio-trade are complex—involving both traditional and non traditional resource management activities such as biodiversity management, development of non-timber forest products, and deriving new products from nature. Discussing bio-trade means considering topics such as international economic treaties, cultural/social/legal traditions, poverty, and the environment. There is considerable posturing between the industrialized northern countries who desire to use the rich genetic resources of the less developed southern countries. However, central to the conference was the idea that public and private partnerships are driven by market based economics to create solutions.

Billions of dollars of profit, and potentially, the health and feeding of nations, are at stake. So it should be no surprise that the equitable distribution of benefits (both technology and profits) among private companies, industrialized countries, developing countries, and traditional indigenous cultures is contentious and at present unclear. When Dr. Alan Harvey of the Strathclyde Institute for Drug Research in Glasgow, United Kingdom, spoke, he estimated that 10 of the top 20 medicines sold in the world today are natural products with $15 billion in annual sales that are expected to grow to $30 billion by 2002.

Yellowstone National Park (YNP) provides a clear negative example and positive model of what can happen with bio-prospecting. In a joint presentation, Preston Scott, Executive Director of the World Foundation for Environment and Development, and John D. Varley of the Yellowstone Center for Resources, said that in 1966, *Thermus aquaticus*, a heat tolerant bacteria, was found in the hot springs of YNP. This bacteria was utilized in the development of a bio-technology process needing high temperatures. The scientists, who discovered the bacteria and developed the process, subsequently sold the process for hundreds of millions of dollars to a Swiss pharmaceutical firm.

Scott and Varley projected that early in the next century the annual trade resulting from this process and using the bacteria from the park will be in the magnitude of billions of dollars. *Thermus aquaticus* has resulted in great profits for the scientists who isolated and developed the process involving the bacteria and the companies who now own the patent. Yet, there has been no return or benefits generated for Yellowstone National Park and indirectly to U.S. citizens for protecting the resources that provided the bacteria.

The controversy as a result of this situation led to the development of a foundation and a strategy to treat bio-prospecting in Yellowstone as a concession which returns benefits through the foundation to the park. Since then, applications for bio-prospecting have been growing at a rate of 15 percent a year in Yellowstone—it is estimated that less than one percent of the thermophilic bacteria have been identified there.

Another aspect in the difficulty of capturing bio-technology based benefits comes from the Pacific Northwest where the Pacific Yew (*Taxus brevifolia*), was the source of the original breast cancer drug, taxol, which has now been synthesized by pharmaceutical companies. Until the chemical was synthesized, managers were worried that the harvest of yew trees would endanger the species. Should some compensation, for the original use of the yew to identify this chemical, be paid and if yes to whom or what entity?

The international concern about benefit sharing is magnified in developing countries. For example, Dr. Frederico Arruda, of the Universidade do Amazonas, estimates that over 20,000 samples or biological extracts leave the Amazon jungle every year, to be studied and developed in foreign laboratories. Part of the concern has to do with legal systems the countries use. Industrialized countries generally have English based Common Law which allows clearly defined property rights and patents that can include patents on genetic materials. On the other hand, many of the biodiversity rich developing countries' legal systems are based on the Napoleonic Code (or Roman Code). The Napoleonic Code tends to view genetic materials as public properties which are not patentable. In addition, developing countries are becoming very proactive in passing legislation which explicitly makes genetic resources the property of the state.

Private companies desiring to develop products from biologic materials are caught in a dilemma. They need access to the resources, a stable regulatory environment and assurances that if they spend the millions of dollars to develop a bio-product they will be able to patent the product based on these genetic resources. The companies are also aware of the growing public sentiment to share development benefits with the resource supplying countries and groups as well as international treaties and conventions such as the Convention on Biologic Diversity (CBD) requiring sharing of benefits and technology. Some 167 countries are now signatories of the CBD which requires economic and benefit sharing from the utilization of genetic resources. The World Trade Organization is also encouraging greater benefit sharing through its bio-trade and intellectual property agreements.

BIO-TRADE STRATEGIES IN DEVELOPMENT

Conference participants discussed strategies to resolve the above issues. For example, a major U.S. chemical company, Montsanto, described the development of a contractual partnership with indigenous groups in Peru to screen traditionally used plant materials. POEMA (Pobreza a Meio Ambiente na Amazonia) or Poverty and Environment in the Amazon, is another partnership between the Federal University of Pará in Brazil and Daimler Benz A.G to promote an integrated social, economic and environmental approach to resolving poverty. In the process, they have become involved in municipal planning, alternative energy, agro-forestry, pharmaceuticals, and re-processing coconut husks into head and backrests for automobiles. Small village enterprises in India are developing "geojute" where fast growing sisal plant materials are woven into erosion control blankets for stabilizing slopes.

At the conference, the United Nations Conference on Trade and Development Bio-Trade Initiative signed agreements with Rutgers University (U.S.) for training and technology transfer and with Banco Axial (Brazil) to develop a permanent investment fund to be capitalized with biodiversity prospecting concessions and patents. Each of these development strategies stresses working with locally available plant materials and marketing them to a larger industrial based economy.

CONCLUSION

Bio-prospecting is controversial. Because of the large sums of money involved, environmental implications (bio-engineering and/or extraction that potentially endangers species) and the international consequences, it is likely to become an even greater issue in resource management in the future. Managers involved in bio-prospecting issues will be required to integrate social, economic, and natural sciences; women resource managers may be uniquely positioned to respond since they often deal with

these issues and tend to view the world less linearly.

Learning more about the issues is vital. Networking with international colleagues, who have tremendous and surprising insights on these issues, is a good place to start. Second, natural resource managers should realize that the resources under a given jurisdiction may need additional definition—it is possible that the most valuable resources are an insect, a small flower, a reptile, and/or a bacteria rather than the traditional commodity products and recreation experiences such as timber, fish, minerals, and hiking. Yellowstone National Park is a classic example of why rethinking the models are necessary.

BIO-TRADE READINGS and WEBSITES

The conference papers were published in 1998 by the U.N. under the title Partners for Development. The Partners for Development initiative can also be accessed through the internet at http://www.mairie-lyon.fr or http://www.unctad.org.

An excellent paper on the legal issues was written by Manuel Ruiz Muller, Sociedad Peruana de Derecho Ambientel, and is titled The legal Framework on Access to Genetic Resources in the Americas (1998). Mr. Muller can be contacted by email at manolo@spda2.org.pe or through the Royal Botanical Gardens at Kew m.ruiz@lion.rbgkew.org.uk. This paper also has a good reading list.

There are several United Nations publications relevant to these issues. Intellectual Property Rights and Foreign Direct Investment E.93.IIA10 and Issues in the Sharing of Benefits Arising Out of the Utilization of Genetic Resources by the Organization for Economic Co-operation and Development and Convention on Biological Diversity "Access to Genetic Resources and Benefit Sharing; Legislative, Administrative and Policy Information" UNEP/CBD/COP/2/13 October 1996.

Time International's November 9, 1998 issue featured bio-piracy on its cover. The article can be accessed at http://pathfinder.com/time/asia/magazine/1998/981109/cover1.html

For the Yellowstone story, see Charles Chester. "Controversy over Biological Yellowstone Resources: People, Property and Bioprospecting" Environment, Vol. 38. No. 8

Global Frontiers
An Introduction to a new column in Women in Natural Resources

This edition of Women in Natural Resources begins a new column. Named Global Frontiers, the focus is to create a perspective on how international resource management issues affect the activities of women managing natural resources. I hope the report will help expand the international network of women working as resource managers, promote greater awareness of women and international issues that affect them, and provide basic information and tools about how to be more informed.

Global Frontiers is a play on words. "Frontiers" in Spanish is *frontera* and in Portugese is *fronteira*—both mean boundaries or limits (implying national borders and limits). Resource management is increasingly becoming international in perspective. Often, influences from outside our immediate community and nation, affect how resources are managed nearby.

I would like to hear from you about the types of articles and reports you would like to read in the Global Frontiers column of the journal. And I urge you to contact me if you have a topic in mind that you want to write about or that someone you know is writing about. The easiest way to contact me will be through email: shelgath@nwlink.com. Future articles on finding international jobs, financing, the internet, networking, and sources of information are planned.
Sheila Helgath

My background will influence the report—so you should be familiar with my biases. I began as a botanist and then went on to receive a Masters and Ph.D. in Forest Management from Washington State University, and the University of Washington, respectively. I have worked as a National Park Service and state ranger, in research with the U.S. Forest Service, and as a legislative analyst for the Alaska State Senate. After serving in the Peace Corps in Chile, I worked with a private start-up forestry and manufacturing firm developing sustainable forestry projects in Chile and Argentina. Recently, I accepted a "virtual" job with Banco Axial in Brazil as the Special Projects Advisor on Environment and Sustainable Development. I will be working with a team of people (from and/ or located in) Europe, North America, and South America from my home in Seattle, Washington, by computer and telephone.

Below-Cost Timber Sales *or* High-Cost Timber Sales?

Mike Welling

Critics of the Forest Service's timber program are the first to shine the spotlight on the agency's failings, but are nowhere to be found when discussions begin about how to streamline federal management, or amend the agency's mission statement to include a profit objective.

Mid-year in 1998, the Forest Service released the agency's latest profitability report —information which has predictably refueled the debate over "below-cost" timber sales on public lands. Critics of the Forest Service's timber program are quick to criticize money-losing forests, stating that logging on public lands should stop. I'd like to offer some thoughts on the age-old debate over so-called below-cost timber sales, but my main objection to these annual reports is that they keep changing the rules within the report. And the changes they make almost always make the timber sale program look worse.

First, let me say that public, state, and privately owned forestlands in the Intermountain West are extremely valuable. Idaho Forest Industries (IFI) owns 90,000 acres of forestland across North Idaho, much of it intermingled with state and federal lands. We value our lands based upon the merchantable timber that is on them. An acre of land containing an average of 20 MBF per acre can be worth as much as $6000-$7000 per acre. This is very high land value and is something that needs to be managed to maintain its value. The desire to manage, in many cases, is what separates the private and state landowner from the Forest Service.

Responsible forest stewardship and profitability are completely compatible. So why can't the Forest Service, which owns land very similar to state and the privately owned land I described above, operate in the black? IFI meets all state and federal environmental laws at substantially less cost than our federal counterparts. Our lands also provide homes for fish and wildlife; we are committed to sustaining partnerships with state and federal wildlife agencies in order to do more. Many industry forest lands are access friendly to the public. Most restrict access for motorized vehicles due to costs for road maintenance, vandalism, or theft, but we do not discourage walk-in entry to these lands to hunt, fish, or for other outdoor activities. Yet we do all this while providing sustainable supplies of timber to regional sawmills and remaining profitable. Idaho's state lands are also managed to the highest environmental standards while providing consistent funding for Idaho's public schools.

The answer, then, as to why the Forest Service doesn't generate surpluses lies with the fact that the agency has a confused and often conflicting mission statement which does not include generating a profit. Additionally, some of the cost challenges the agency faces come from seemingly endless planning, public involvement, and legal appeals which the agency must deal with. Private companies meet the very same laws and regulations that the Forest Service does. IFI knows what the standards are and is dedicated to adhering to them. The main difference is that we do not have to write an EA or EIS explaining how we are going to meet all these rules and regulations. These EA's and EIS's can cost as high as $500-$600,000 to write, and then they are still subject to appeal and court cases. The actual work is not subjected to these appeals—the document itself is. I doubt any forest landowner could process multi-million dollar studies, contend with endless lawsuits, and still make a profit. The resulting below-cost sales are more aptly named "high-cost."

A study (1995) conducted by the Political Economy Research Center (PERC) based in Bozeman, Montana, revealed that the federal agency's costs to plan and administer a timber sale were two to four times higher than they were on state land due primarily to the necessary work on the public statements. This fact is one of the reasons that the State of Idaho was looking into the possibility of administering some of the Forest Service's lands.

Another urgent reason is that the current regional Douglas Fir Bark Beetle epidemic requires quick action. The Forest Service is trying to get moving on the beetles, but the appeal periods keep pushing the starting dates far into the future, and that is assuming there are no appeals or court cases (which seem to be materializing already). IFI has salvaged most of these areas on our land, and the State is moving very quickly also. The already dead timber is deteriorating rapidly, and the beetles will again fly in March and April and infest more trees—increasing affected timber perhaps by at least 50 percent. With the dire need for forest products within the state and the poor health of our forests, we need more active and efficent management on federal lands to meet this and the next problem down the road.

Granted, federal bureaucracy brings with it high cost, some of which is demanded by the many masters the Forest Service serves. There is also confusion. A recent General Accounting Office report showed

that the agency cannot account for $215 million of its FY 1996 operating budget. That's shameful. But there is much that can and should be done to improve the agency's financial accountability regarding timber sales.

The major problem is that the Timber Budget, as passed by Congress, doesn't necessarily go for timber projects. Individual District Rangers and Forest Supervisors seem to have discretionary powers to spend the money on projects other than timber. These expenditures, however, are then charged against the timber sale with no revenues showing for the program. For example, they are spending millions of dollars on environmental statements, which by their regulations they have to do, but should that really be a cost when considering whether or not the timber sold will generate surplus revenue? Of course not.

Another example is the Forest Service's overzealous desire to use helicopters on many of these sales. They are so paranoid about environmentalists trying to stop a sale that they are increasing helicopter logging to lessen potential impact on the ground. With the cost of EA's, and when helicopter logging costs two to three times more than logging with the most expensive mechanical sides, the chance of returning dollars is substantially decreased. Further, by using helicopters, they are not developing the necessary access for future management of this property. When they need to enter it again, often because of a salvage situation, their only options again are expensive helicopters. You cannot actively, efficiently, and properly manage a stand of timber with the only access being by helicopter. So there is another lost opportunity for the Forest Service.

The Forest Service is not getting support for changes in its mission from some who know these facts well. Critics of the Forest Service's timber program are the first to shine the spotlight on the agency's failings, but are nowhere to be found when discussions begin about how to streamline federal management, or amend the agency's mission statement to include a profit objective. This suggests that the debate over below-cost sales becomes a means for those who would end logging on public lands to cloak their agenda in fiscal terms. This agenda ignores the tremendous progress forestry professionals have made toward providing all that we want from our forest lands such as clean water, places to play, homes for our fish and wildlife, and the products we use every day. As state and private forest management demonstrates, today's forestry provides all of these values in a profitable manner. There is no reason to believe that the Forest Service could not do the same.

Mike Welling is Vice President-Resources for Idaho Forest Industries, Inc., headquartered in Coeur d'Alene, Idaho where he has worked for 27 years. He started as a Forester after graduating from the University of Washington in Forest Management. He has chaired the national committee of Federal Timber Purchasers for eight years. This group meets semi-annually with the Forest Service to discuss a variety of issues. Below-Cost Sales are one of the key ones.

How the Newspapers Are Reporting the "Below-Cost Sales" Controversy

The Wilderness Society said commercial timber sales programs lost $45 million in 1997, with 83 of the Forest Service's 104 forests losing money. Profitable forests earned $65.8 million, while losing forests posted $111.2 million in losses. The group has annually released its financial assessment of the commercial logging program since 1986. "From New England to Alaska, taxpayers are taking a bath," said William H. Meadows, the group's president.

But the Forest Service contends the commercial timber program actually turned a $7.2 million profit. The difference is that the Forest Service *does not* calculate the 25 percent share of timber proceeds it gives counties as part of its costs in the program. Counties spend the money on roads and schools. The Wilderness Society *does* include many of those payments in its estimate. The Forest Service doesn't earn more on its commercial timber sales program because it does less clear-cutting, harvests trees more selectively, and takes other steps aimed at helping the environment, officials said.

However, the Forest Service said that all types of timber sales—not just the commercial program mentioned above—resulted in a combined net loss of more than $88 million in 1997. The agency said the loss was due to an accounting change in which it calculated road-building costs as part of the logging program. Doug Gochnour, forest planning and administration staff officer on the Clearwater National Forest in Idaho (listed as the seventh highest money loser), said: "The thing they don't realize is the projects have multiple benefits. Revenue is only one of them. We're attempting to restore ecosystem problems and forest health problems." According to the Wilderness Society analysis, the Clearwater lost $2.47 million, but Gochnour said the forest made a $584,792 profit. In addition, the timber program provided 1,520 local jobs and generated $6.88 million in federal taxes.

The Wilderness Society's regional associate in Boise, Idaho, Lahsha Johnston said: "We don't think National Forests should be managed to make money but at the same time the taxpayers shouldn't be subsidizing the timber program. The costs of the commercial timber program tend to be more than fiscal; they tend to have a lot of environmental degradation costs."

Other forests the Wilderness Society ranks as the top 10 money losers include: the Tongass in Alaska as number one by losing more than 42 million, the Kootenai in Montana by losing $7.4 million, and the North Carolina National Forest by losing $2.1 million.
Associated Press and *Lewiston Morning Tribune* (Idaho), February 9, 1999.

Driving and Parking

Karen Lyman

Today's youth have no appreciation for history. And, they are constantly disrespectful of the traditions of their elders. I was expected, at the hands of my parents and other tribal elders, to learn and carry on our authentic customs. There was a time when all such education occurred in the home. Now we allow our schools to undermine our most cherished institutions by teaching them in public.

I don't care about sex education—teach it on the corner if you want—but driving should not be allowed to remain in the hands of football coaches and history teachers. Does anyone think that our children's driving lives—and correct me if I'm wrong, but they'll be driving a lot more than they will be having sex—should be taken so lightly? Driving is properly taught only by a parent.

I learned everything I needed to know about cars at home. My parents taught me to drive because their parents taught them. They taught me to back up and park in the real world. Oh, I can hardly discuss "reverse" without breaking down. It is the most misunderstood gear in the lexicon. There was a time when our youth were routinely taught to drive backwards. I learned reverse inside and out under the strict tutelage of my father, who believed, as I do, that even girls should be taught to drive like they mean it. By the time he was finished with me, I could have gone directly into long-haul trucking. Remember the old television ads? "Learn how to spot 'em, park 'em and wheeeel 'em down the highway." That's the way to teach driving and parking.

And driving done right means that you never stop learning. From my first seasonal job to my permanent forester's position, I finally understood what my father had been trying to say. Confidence is half the battle. I also discovered the Forester's Maxim which states that the further you motor to your site, the less you have to walk. It's no small thing to shave off a few yards when you are staring a 12-mile day in the face. But it isn't just driving that the Forester's Maxim addresses. Try parking. Try parking in front of 10 hostile loggers on a remote one-lane logging road sporting a 15 percent grade. Trust me when I say, the less you fuss, the better you look.

It took me years to get it just right. Young people today have no clue about how to park. They do not understand that parking is a learned skill, not just some boring ending to a car trip in which the major excitement is turning off the ignition. Friends, parking is much more than that. As late as the 1970s, parking a car required practice at the knees of great teachers. Today, kids think that finding an empty slot in a parking lot is all there is to it. No, no, a thousand times, no. True masters of the art understand that much more is required of the driver. In my day, parking required keen observation combined with the deft touch of a surgeon. I don't like to brag, but I made it all the way through college without ever buying a parking sticker. And never, not once, did I receive a ticket for illegal parking. And hold on to your socks! I did not have power steering. Only another of my generation could appreciate the nerve and cunning it took to find the free street-side parallel parking, late for class, driving a car only slightly smaller than your average cruise ship, finessing the craft into a slot meant for a Volkswagen, using only my wits and powerful biceps. I amazed my friends and neighbors, but I did it, because, well, it was there.

Those were the glorious sunset days of parking, I know, but the great ones will still remember. They will remember squeezing into grocery store parking lots that weren't designed for comfort. Those were the days when opening your car door was a great hazard since you would undoubtedly find yourself less than a foot from the adjacent vehicle. Today, such tight parking is but a memory. We've become lazy, opting for diagonal lots, we can't even seem to park anywhere without painted lines, as though we haven't got the brains to figure out where to turn our vehicles without Big Brother pointing the way. We decline to parallel park unless there is no one around to observe our pitiful attempts. We buy cars that celebrate lazy, no sweat driving. We want valet parking so that the question is out of our hands entirely. We have become a nation of wimps.

Does anyone under the age of 30 even know what those mirrors hanging on the side of their cars are for? What about the rear-view mirrors, which are not meant only for checking lipstick or seeing if anything is hanging out of your nose. Neither are they designed solely to monitor the activities of law enforcement officers. They're tools, people! Those mirrors are supposed to help you know where you are in relation to everyone and everything else. They are for parking. They are supposed to show you where to back up. I learned, without any assistance whatsoever, to back a pick-up with a loaded snowmobile trailer into a spot the size of a bathroom stall, using only mirrors. I didn't have to turn around. Turning around is like giving up, admitting you're a weenie. "Oh, I can't figure the mirrors out. I guess I better turn around and *look* because I never learned the *right* way to do it."

The other day, I was squeezing into a tight spot at a baseball game. We were parking in the grand old tradition. No lines, parallel all the way. An old man ambled over to help spot me, thinking, I suppose, that I was of the new generation of good-for-nothing drivers. But he quickly saw that this was not the case. Our eyes met—we nodded—two master parkers, silently acknowledging the sad reality. We're nothing but a couple of relics left over from a time gone by.

Karen Lyman is Associate Editor and has been an editor at Women in Natural Resources for 16 years.

Book Review by Jonne Hower

Shadows in the Sun

Wade Davis

Shearwater Books, Island Press, 1998

The Edges of the Civilized World

Alison Hawthorne Deming

Picador USA, 1998

Shadows in the Sun: Travel to Landscapes of Spirit and Desire is a book of essays, each focused on an indigenous culture. But the essays are less about those cultures' interaction with the natural world than about increasing global pressure on them or their home environment..

In the essay, Dreams of a Jade Forest, Davis writes about Bruno Manser, a former Swiss shepherd, "whose vision of a world without greed collapsed in the face of the most rapine deforestation known on earth." He cites a frenzy of Malaysian logging which is twice that of the Amazon and the highest in the world; in 1985, three acres of forest were cut every minute of every day.

Manser enters the world of the Penan, a nomadic people in the remote highlands of Baram. "In the air was a fluid heaviness, a weight of centuries... Thousands of years ago the ancestors of the Penan had entered this forest... To stay alive, the Penan had invented a way of life; lacking the technology to transform the forest, they had chosen instead to understand it."

In Hunters of the Northern Ice, Davis travels north of Ottawa to Lancaster Sound.

There are places and moments on Earth where natural phenomena occur of such stunning magnitude and beauty that they shatter all notions of a world of human scales. It is such an event that draws [me] to Cape Crauford. Following the bitter cold arctic winter, the animals return. In the long hours of the midnight sun, brown algae bloom beneath the ice, billions of shrimp...flourish, and millions of arctic cod thrive... A quarter of a million harp, bearded, and ring seals feed on the fish, as do thousands of belugas and narwhals.... [A] third of the belugas in North America gather here, and three of every four narwhals on Earth.

Journeying with a group of eco-tourists, Wade has come to "travel along the floe edge, where the ice meets the sea, and listen as the breath of whales mingles with the wind. Staying in an Inuit camp where snowmobiles have replaced sled dogs, Wade and the others are eventually rewarded.

A hush falls upon the group as we hear the first sighs of the belugas as they breach and see the vapor of their breath. There are hundreds of the beautiful creatures, white as pearls, moving in small groups, ebbing and flowing with the current. The narwhals swim among them diving in unison to great depths, driving schools of cod to the surface at such a rate that the fish lose consciousness and lie stunned upon the surface of the water. A feeding frenzy in under way, although it occurs in slow motion as each massive animal rises and falls with astonishing agility and grace.

In another essay, Wade visits Haiti and explores Vodoun, which he claims is not a black-magic cult, but a system of profound religious beliefs concerning the relationships among man, nature, and the supernatural forces of the universe. In several essays, Wade samples the local drug of choice.

In Smoking Toad, Wade does indeed smoke a toad. And, in the Cactus of the Four Winds, he samples an Andean cactus, in search of truth, he says, and to experience the mysteries of the locals.

Wade closes his book of essays with In the Shadow of the Red Cedar, a stinging indictment of forestry as it is practiced in the Pacific Northwest. Confessing—and then describing—his one experience of working in a logging camp, Wade concludes: forestry as traditionally practiced in the Pacific Northwest is less a science than an ideology, a set of ideas reflecting not empirical truths, but the social needs and aspirations of a closed group of professionals with a vested interest in validating its practices and existence.

Although I had difficulty in finding the promised "landscapes of spirit and desire" in all of the essays, each was powerful and thought-provoking. This book is well worth reading just to place in a global perspective some of the work we do each day.

Poet Alison Deming opens her book of 11 essays, *The Edges of the Civilized World: A Journey in Nature and Culture*, with a prologue written while staying on the coast of Oregon. She writes:

I have come to this quiet spot...to feed on a question, or constellation of questions, that has troubled me. What is civilization? Where and how is it being formed? On what assumptions is it founded? What should we hope for the future of humanity and our world? To what extent can our ideas, hopes and will shape the future? What has civilization blurred and rejected that we might clarify and call back into our shepherding intelligence? What lessons did our ancestors learn that we should not forget? What of their practices would we be better off in leaving behind?

Like a poet, Deming reveals her own thoughts and emotions while describing her journeys to some of the last wild places, saying "the virtue of travel to such places is that one can experience a renewal of the sense of belonging in and to the natural world."

In another essay, Deming writes:

A traveler is not an archaeologist or historian... [A] traveler sets out uncertain what she will find and enlivened by that uncertainty... The world is new to her, is true to her senses and imaginations, and she lays her mind open to it.

Deming reflects on her travel through the uninhabited islands in the Sea of Cortes. The skipper of their charter yacht liked to play the song, Sgt. Pepper's Lonely Hearts Club Band with his morning coffee as she and landscape photographer, George Huey, "gain[ed] a sense of the flora and fauna of the islands and understanding what was unique to the natural history and local customs."

These islands are among the driest places on earth, and she writes how she has come to love their "nakedness" and how the forms and patterns are written on the land.

In grappling with the relationship between the natural world and tourism, Deming tells us about a group of eco-tourist professionals. As a group, they take a tour bus on the Peak to Peak Scenic Byway and discuss questions such as "selling the product (the natural world experience)," the resulting millions of visitors, and the increase in land

continued to page 43

ELEANOR (ELLIE) TOWNS

INTERVIEW

AN INTERVIEW BY DAINA DRAVNIEKS APPLE

WiNR: Would you describe your current title and your management responsibilities?

Towns: My current title is Regional Forester of Region 3 for the USDA Forest Service. The geographic area we manage from Albuquerque is Arizona, New Mexico, and grasslands in Oklahoma and Texas. The Forest Service is a complex land management agency, but most of the hands-on management work is done by line officers at the field level: forest supervisors and district rangers. My job is to bring some consistency and vision and coordination to their efforts, particularly within the context of the Southwest.

WiNR: In your geographical area, what are some of the emphases you are working on?

Towns: The Southwest is the fastest growing region in the country. Folks are coming from both coasts and settling in the generally warm weather year round, and we're finding that that's causing tremendous stresses on natural resources. First of all, the folks who are coming are settling adjacent to federally managed land. Second, water has always been scarce in this part of the world. Riparian areas are scarce, but people and critters all want to be near the water. The adjacent residency urban interface calls for careful management strategies. Arizona, for example, is working on a Smart Growth Initiative. Forest Service line officers have adopted a customer-driven work emphasis strategy called Company's Coming. There are three parts to that. One is a focus on recreation, another is a focus on improvement of riparian areas, and the third is the interface between the two. It fits and dovetails very nicely with the Forest Service Natural Resource Agenda announced by the Chief of the Forest Service in March 1998. Recreation is a common component of both. An emphasis on riparian areas is our adaptation of restoring watersheds. And urban interface could fit into the notion of sustainable ecosystems. We think the work that we've begun fits very nicely with the Forest Service Natural Resource Agenda, and we're proceeding along those lines.

WiNR: What about the fourth component of the Natural Resource Agenda, specifically roads?

Towns: We don't have many of the roads that were covered in the Roads Initiative at all, because we have had little timber harvesting, either historically or currently.

WiNR: Do you work closely with other federal agencies?

Towns: Interestingly, in natural resources management in the Southwest, women are taking quite a leadership role at the regional level among the federal agencies. Nancy Kaufman is regional director of the U.S. Fish and Wildlife Service for the States of Arizona, New Mexico, Oklahoma, and Texas, which are the same states in our region; I'm with the Forest Service; Michelle Chavez, is the state director of the Bureau of Land Management (BLM) in New Mexico; and Denise Meridith is the state director for the BLM for the State of Arizona. Jane Hull is the Governor of Arizona, and many of her Cabinet members and key people in leadership positions are women. All of us are also involved in something called the Southwest Strategy, which is an effort on the part of the federal agencies to begin to focus as one government on common issues, such as grazing, tourism, and endangered species.

WiNR: Can you tell us a little about that, some of the positive things that are coming out, and some of the problems that still persist with it?

Towns: I don't think there are many problems. The effort is pretty simple: federal agencies will get to know one another's missions, and the leaders will get to know one another. We will coordinate and collaborate with one another. We were doing that to greater and lesser degrees over time, anyway. It has been endorsed by USDAs Secretary Glickman, USDIs Secretary Babbitt, House officials, and the Department of Defense. Overall, it's been a very rewarding effort.

One of the tangible products is a streamlined process for endangered species consultation. That came about as a result of litigation that so many of us were involved in. We then started to look around at other efforts where we needed to talk with one another. A number of us then went to the Western Governors' Conference, where the governors endorsed a set of principles of collaboration called "In Libra." It is encouraging that western governors recognize as well the need to collaborate. We intend to increase some of that momentum in working with them.

WiNR: In the Forest Service, as in other agencies, we have been on the receiving end of a lot of very destructive litigation that doesn't seem to serve positively anyone's purposes. So it seems that the leaders, political and federal, are looking to accomplish goals instead of litigating?

Towns: That's absolutely correct. Never will any government agency at any level be fully funded to do all it's mandated to do. If we can work together to reduce duplication and share skills and resources in order to show that we are all making diligent efforts to comply with the law, I think we'll be in as defensible a position as anyone should expect.

WiNR: What are some of the other major issues the Southwest Strategy is addressing?

Towns: We have focused our attention on things related to grazing. We are now coming together to look at our computer systems and our GIS data to find some common monitoring commitments; they would be key in terms of follow-up for all litigation and for resource efforts. One of the others is to coordinate efforts with the tribes by combining services and dollars, where that's appropriate, so we can get the most efficiency.

WiNR: I have a question regarding the sharing of databases, GIS, and others. We have been trying to standardize within the Forest Service a lot of information that varied between regions; we couldn't aggregate data or they were inconsistent in some way. We've come a long way in that. How far are we along in terms of integrating with other federal departments?

Towns: We're not far along at all. We recognize the need to do it and know that it's going to be tedious. Some of the other agencies have the same problems we have, particularly the somewhat decentralized land management agencies. What is encouraging is the recognition of the need and trying to determine who has what right now.

WiNR: Region 3 is kind of a hot seat, isn't it? It has been known for some time to be a region with a great number of personnel conflicts, e.g., different racial groups, protected class conflicts, and it was considered a difficult region to handle.

Towns: I probably would have questioned going to other regions before I would have hesitated about going to Region 3. Resolution of the many different controversies relies on people skills I think I have. I was not at all intimidated by the fact that there were personnel issues. They're tough issues, and it's going to require some tough action. And it may get rocky in some quarters before it gets better. But I think it's doable.

WiNR: Elaborate to the extent that you are able and share your views on where you are going with personnel issues?

Towns: Let me say first that you would be pleasantly surprised at the workforce make-up of Region 3, especially in the total workforce numbers

Ellie Towns' counterparts: from left, Michelle Chavez, New Mexico State Director, Bureau of Land Management (BLM); center, Nancy Kaufmann, Regional Director of U.S. Fish & Wildlife Service; and right, Eleanor Towns, Regional Forester, Region 3, USDA Forest Service. Inset is a file photo of Denise Meridith, Arizona State Director, BLM.

Southwestern Region of the USDA Forest Service (AZ&NM)

Region 3 Permanent Workforce Profile 1992-1998

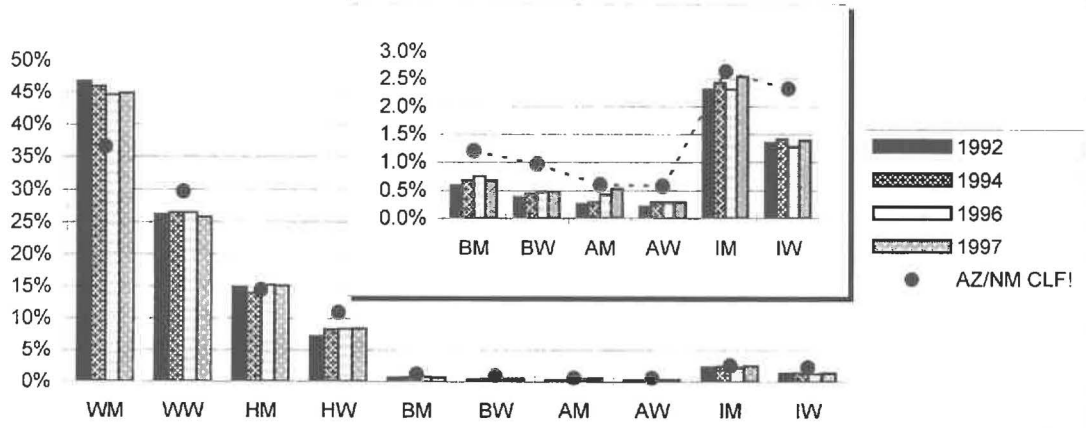
Number of Permanent Employees

Year	White		Hispanic		Black		Asian Am.		Am.Indian		Totals	Pw/TD
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women		
1992	1112	623	354	170	14	9	6	5	55	32	2380	
1994	946	545	287	169	14	9	6	6	50	29	2061	
1996	946	561	322	176	16	10	9	6	49	27	2122	
1997	936	538	315	175	14	10	11	6	53	29	2087	24
1998	925	519	321	175	15	10	10	7	51	29	2062	23

Percent of Total

Year	White		Hispanic		Black		Asian Am.		Am.Indian		Totals	Pw/TD
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women		
	WM	WW	HM	HW	BM	BW	AM	AW	IM	IW		
1992	47%	26%	15%	7.1%	0.6%	0.4%	0.3%	0.2%	2.3%	1.3%	100%	
1994	46%	26%	14%	8.2%	0.7%	0.4%	0.3%	0.3%	2.4%	1.4%	100%	
1996	45%	26%	15%	8.3%	0.8%	0.5%	0.4%	0.3%	2.3%	1.3%	100%	
1997	45%	26%	15%	8.4%	0.7%	0.5%	0.5%	0.3%	2.5%	1.4%	100%	1.1%
1998	45%	25%	16%	8%	0.7%	0.5%	0.5%	0.3%	2.5%	1.4%	100%	1.1%
AZ/NM CL	37%	30%	14%	11%	1.2%	1.0%	0.6%	0.6%	2.6%	2.3%	100%	1.5%

Region 3 Workforce Profile 1992-1997



! AZ/NM CLF = Average of AZ & NM Civilian Labor Force
Pw/TD = People with Targeted (severe) Disabilities

among Hispanics. Forty percent of our line officers are Hispanic. Where I have work to do is in attracting more Indians generally; we need more women line officers; we're under-represented in blacks. We, like almost every other federal agency, are under-represented with Hispanic women. Targeted disabilities also are among the under-represented groups and my commitment to the Pathfinders (the employee organization that represents people with disabilities) was two in the middle-or-higher grades. I've met one of those commitments already. I monitor every single selection above a GS-12, and we are working diligently to address our shortfalls. I'm very hands-on with personnel issues.

WiNR: How many women and minorities are in management positions in your region?

Towns: There are two women Forest Supervisors, one female Deputy Forest Supervisor, and one black male, and one white male in those ranks. I have some work to do there. I am addressing equity through our Deputy Ranger jobs as well, a developmental program which is probably unique to us.

WiNR: In terms of staffing, what kinds of people do you look for when

you look for deputies, supervisors, or staff directors?

Towns: I look for people who are extroverted, who have collaborative skills, who are good "people people." Obviously they need to have mastered one or more aspects of natural resources. Currently, most are foresters. One is an engineer. One is a geologist. They were in position when I got here. One's a wildlife biologist that I just selected. Most of us have credentials in one area or another. The *recency* of acquiring management skills is important.

WiNR: You mention skills. I'd like to ask about your personal history and how you acquired the skills to be where you are. Where was your family home, what is your educational background, some of your early influences and jobs?

Towns: I'm from Rockford, Illinois, which is near the Wisconsin border and about 75 miles northwest of Chicago. I grew up in integrated circumstances in the 50s, believe it or not. I was strongly influenced by my church which had an emphasis on education. I understand that a lot of fairly assertive women have a father influence in their background. I am an only child, and my dad probably wanted a boy. He was always very active in community affairs, so he would take me around, and eventually I would take minutes of those meetings and participate. He always encouraged that. I attribute a lot of my positive, self-esteem experiences to him as well as to the folks in our local church. I had a fine education in the public schools, with three or four years of Latin, for example. Public school education was very different then. It was an integrated experience, about 20 blacks in my class. There

Southwestern Region of the USDA Forest Service (AZ&NM)

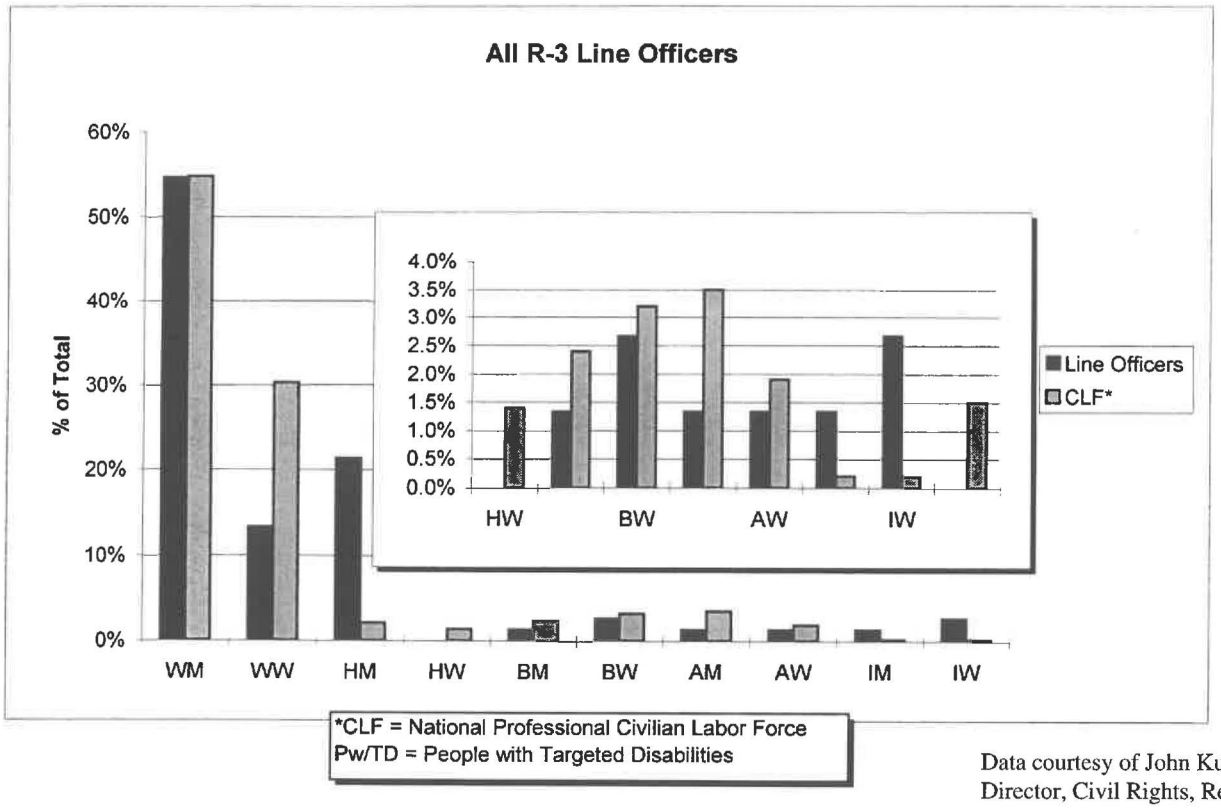
Key Leadership Positions

Line Officers
---R-3 as of 9/11/98

DR=District Ranger; FS=Forest Supervisor,
RF=Regional Forester and Deputies

Line	White		Hispanic		Black		Asian Am.		Am.Indian		Totals	Pw/TD
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women		
DR's	33	8	10	0	0	1	1	0	1	2	56	0
FS's	6	2	6	0	0	0	0	1	0	0	15	0
RF's	2	0	0	0	1	1	0	0	0	0	4	0
Total	41	10	16	0	1	2	1	1	1	2	75	0

	WM	WW	HM	HW	BM	BW	AM	AW	IM	IW	TOTAL	Pw/TD
Line Officers	54.7%	13.3%	21.3%	0.0%	1.3%	2.7%	1.3%	1.3%	1.3%	2.7%	100.0%	0.0%
CLF*	**54.8%**	**30.3%**	**2.1%**	**1.4%**	**2.4%**	**3.2%**	**3.5%**	**1.9%**	**0.2%**	**0.2%**	**100.0%**	**1.5%**



*CLF = National Professional Civilian Labor Force
Pw/TD = People with Targeted Disabilities

Data courtesy of John Kusano,
Director, Civil Rights, Region 3, USDAFS

were two high schools in the city, one on either side of the river; there were rich and poor on both sides, so there was a diverse bunch of folks in our high school. I graduated 12th out of a class of 600, long before any civil rights acts or affirmative action. To me it is proof that if you put the effort into a quality education for all children that you're going to see some differences.

WiNR: Did discrimination affect you at all?

Towns: Yes. My father was an extremely talented writer. He was offered a job with the local newspaper as a reporter, but because he was black, they wanted him to take on a *nom de plume*, and he refused to do that. So he started his own weekly newspaper, serving the black community. So, unpaid, I always helped out. I got to set type, type articles, fold, and deliver papers. Eventually I got to write a teen column. I was also an elevator operator at Rockford Dry Goods. You couldn't push the buttons yourself, you had to have an elevator operator do that. It was the most boring job in the whole world. I asked Mrs. Beardsley, the personnel officer, if I could be a salesperson. She told me I couldn't because I was black. I walked off that job. My high school girl's counselor had also told me I should go to trade school. Thank heaven for my dad and the church.

WiNR: Where did you get your undergraduate degree?

Towns: I went to the University of Illinois, majoring in teaching of speech and public speaking with a minor in drama.

WiNR: People say you're one of the most effective testifiers at hearings. Now I know why.

Towns: That I attribute more to high school than college. I was a state high school debate champion. The other developmental experience was that I was an exchange student in Norway for a summer with American Field Service as a junior at age 16. The kids there took English in school and spoke very fluently. I learned a little bit of Norwegian, but not a whole lot. My folks didn't have any extra money to be sending me around the world. The church and all of my relatives chipped in. I have a cousin who went a few years later. It was a wonderful experience!

WiNR: After college, did you use your degree in speech?

Towns: Yes and no. I went to work for the Job Corps in Charleston, West Virginia, at the Women's Center. I spent a year there. Packard-Bell, which didn't make computers at that time, but made entertainment centers, got the contract for a center in downtown Albuquerque, New Mexico, and I helped open and staff it. While I was in Albuquerque, I got my masters degree at the University of New Mexico in counseling and guidance. Then I went on to Denver to work with placement programs for the Job Corps that were being run by the YWCA. I ended up with the government at that point and did EEO jobs for different government agencies, including the BLM and Drug Enforcement Administration. I was with the BLM when I transferred to the Forest Service's Region 2 as Civil Rights Director in 1975-76.

WiNR: I joined the Forest Service in 1976 as an economist at Pacific Southwest. A couple of years later, I was assigned to do two-year confidential analyses of the Forest Service's civil rights program. I remember you being associated with the Civil Rights staff in Region

In the field with Chief of the Forest Service, Mike Dombeck, far left; Deputy Forest Supervisor of the Santa Fe National Forest, Bob Leverton, center; Ellie Towns, right; and almost out of the picture at far right is Paul Johnson, Deputy Regional Forester, Region 3

2. I met you during the course of my study. What happened then?

Towns: There have been several white males who made important contributions to my career. They were far enough along in their careers that they didn't need to worry about what people thought in those days. One of them was Doug Leisz, former Regional Forester in Region 5 and one of the Associate Chiefs under Chief Max Peterson. He came out on a review. He apparently told then Regional Forester Craig Rupp of Region 2 that we need to "find something different for her to do." I went to Craig on my own at about the same time. I told Craig that I would spend my own money to go to law school while I was still working. I knew he couldn't promise me anything, but I sure hoped that when I finished, he could find something that was closer to the mainstream of the mission of the Forest Service that I could do. He asked me what I thought that might be. I didn't have a clue what they did in Lands, but I said, "Those folks in Lands, it seems to me they don't teach it in college, so you must not have to be a forester to be in it. And I can learn it." He thought about it. When I was close to graduation from law school in 1980, he called me in and said, "We're going to reassign you to Lands." I went in as a group leader. When Elizabeth Estill, former Regional Forester in Region 2 came, we did some downsizing and combining, so I became Director of Lands, Minerals, Soils, and Water. I stayed for 18 months. Eventually I decided to go for the Senior Executive Service (SES) in order to keep momentum going. I had resisted going east, like so many people, but I did get certified for SES.

WiNR: So you did your Washington DC stint?

Towns: Washington office experience is extremely important in the career plans of anybody in the Forest Service who wants to ascend to leadership. The work that is done there is not done anywhere else in the country for any of the agencies. It is important to understand the interplay of the politicians and the bureaucrats at that level. It is important to know who the players are and what the flow of work is at any given time if the parts are to work together. I thoroughly enjoyed every minute that I was back there. I loved the testimony on the Hill.

WiNR: As you said earlier, a lot of people in the various federal agencies resist coming to Washington, for a lot of reasons, one of them being expense, especially for those individuals who live in less costly areas of the country. But the major reason that I hear when I talk to people is that they see Washington as a pressure cooker. You spend long hours under very stressful, fast-moving conditions, and then you can't get back out.

Towns: You do spend time in pretty stressful and long hours, but it's extremely rewarding. I came at a time when I didn't have small children, and my husband and I could make arrangements so that it could work for us. I moved into the Forest Service's Washington office when I had a son in high school but my husband stayed with him in Denver, and my husband is still in Colorado. We are at least now in the same time zone. It has worked for us. He's an ecologist with the Fish and Wildlife Service in Denver.

WiNR: How far are you from family now?

Towns: Four hundred forty-four miles. We get to see each other probably once a month now that my son has gone into the military. It's been kind of exciting, I might say. We meet in different places. When I was back east, we'd meet in different parts of the country. We'd get to date.

WiNR: In this mobile world that most dual-career couples find themselves in, do you see other women also having some challenging trade-offs to make? What do you advise them to do?

Towns: I don't attempt to advise them. I think that there is a certain level of the organization where people think the organization ought to accommodate them. It is probably always true that there is more accommodation possible than any organization actually does. But I think that when you do get to the upper echelons, you should not have those expectations. You need to be aware of what the culture is, and then you make informed choices based upon that. There is a reason, for example, why people need to go to Washington. And you can't assume that if the way the culture operates doesn't fit with your personal plans, then it must be wrong. But then, on the other hand, I don't think there is a career path that is typical any more.

WiNR: There are fewer certainties, or what used to be called guarantees, that if you go through all these chairs, you are 99 percent likely to end up at X destination.

Towns: Right. There are no promises, so you need to make yourself content and challenged. And while you always need to be conscious of whatever next step you're looking for, if you're looking for another step, remain flexible. Few people are going to move up and through this place anymore who have gotten a degree 30 years ago and haven't been back to college since. You may not have to go to college, but you are going to have to continue to broaden, to update knowledge and skills. It is admirable that agencies have derived certain developmental programs to try to better capitalize on people's skills in the workforce, but people should not assume that because you go through one of the developmental programs and come out the other end, you have done everything that you should have done while you were there. You are therefore

Southwestern Region FY 1999

Budget in millions of dollars

Technical & Community Assistance, $5
state & private forest land owners

Management of National Forests, $98
recreation, wildlife, range, forest mngt

Wildland Fire Management, $45
suppression, prevention, fuels mngt

Construction, $27
roads, trails, facilities

Trust Funds, $15
reforestation, fuels mngt trusts

Transfer funds from other agencies, $22
roads, watershed mngt, hazardous waste, flood control

- **Total Budget Region 3, $212 million**
- **Total Budget Forest Service $3.3 billion**
- **Region 3 covers 22 million acres and is one of the largest in terms of land**

not ready to do or become a something else, if, in the process, you have not looked around and begun to understand the culture of the organization and to observe what people who "really make it" in the organization do. How do they act and interact? If you have not consciously developed the ability to take a blank piece of paper and create an idea, a policy, or a solution, then you may be in for disappointment.

WiNR: Yet there may persist the sense of entitlement "I have done X, Y, and Z, therefore, why don't I get what I was expecting to get?"

Towns: Right, it's not like the old days when you had mostly white males who went through certain "chairs." Their experience was: "I was in a district, then I became a Forest Supervisor, and then a staff director. Now, why am I not a Regional Forester?" The answer today is that you haven't, somewhere along the way, learned the real skills you need. You learn that from using common sense, watching who gets ahead, what behavior gets rewarded. And you learn also by "reading" organizations. You should not expect to move in an organization if you don't read a newspaper or watch the national news, and have some sense of what the connection is between national events and what it is that you do. And the same applies at the state, business, or local level.

WiNR: What was it about the Forest Service that attracted you, since you have worked for—and presumably could still be working for—a number of different organizations and other federal agencies?

Towns: I wish I could say that it was a thoughtful decision, but the fact is that I knew someone who knew someone in the Forest Service at a time when I was ready to move. I was one of those folks who thought, "Look, for eight hours a day, I go to the highest bidder. I'm in this for my career and then I'll move on to where I want to go." But the Forest Service has been kinder and more attuned to me than any other organization I've ever worked for. In the beginning, however, I was always intimidated by the term "family meeting." When I'd go places, it seemed like everybody in the Forest Service knew everybody else but me for a while. Then something happened. People began to notice and care and invest in me, and I began to respond.

WiNR: Have you watched a major culture change in the agency?

Towns: Yes. I came at a time when we were not so kind and gentle. In the beginning, there were confrontations, challenges, very militaristic behaviors. I have seen tremendous change in that regard. I see managers who are a lot more considerate of one another even with the stresses that they work with. The word "team" is not something trendy, but real. People are working together to support one another. I see us talking about things in leadership team meeting that folks probably wouldn't have even thought about at some point in time, like the stress of the job and people's concerns and fears—that sort of thing.

WiNR: Do you work with students?

Towns: Yes. I'm on the Natural Resources Advisory Board to the University of Arizona. And I've also been asked to do the same for the University of Colorado. I try once or twice a year to talk with student groups somewhere, fairly recently at Colorado State University and Florida A&M. I talk to natural resource majors to try to get them to understand, at least for federal land management agencies, that they are coming into a multiple-use setting, what the implications of that are, and what I believe to be the role of science.

WiNR: Do you think the students appreciate the political nature of natural resource work?

Towns: No, I don't. I think that a lot of them have stars in their eyes or believe that truth is a point on a line or a specific number, and that science is absolute. They don't recognize that science is evolving, that we know more than we knew yesterday, that science informs options, but that we work in a complex social, scientific, political, and legal world. Sometimes our answers are within a range, and the range is moving in a generally forward direction; that may be as good as it gets.

WiNR: Your long, diverse experience must be very comforting to employees, because it puts into perspective all the pressures and conflicts that the Forest Service and an individual employee faces in his or her daily jobs. To have a manager say "Let's not oversimplify this. Let's roll with the punches, but let's also keep generally moving forward" is reassuring. What was the reaction of your immediate staff and your regional staff when you first took over as Regional Forester?

Towns: I feel well received. About six months before I came, I had the privilege of addressing, as keynote speaker, a large number of folks who were in a region-wide meeting kicking off something that was coming. So I'd say maybe a third to half had seen me before, which helped. I have not encountered any negative reaction. In some quarters of the outside community, I think there is a wait-and-see attitude, for example, among cattlemen. But I don't take that personally. They should not worry about my experience with grazing because as Lands Director, I was probably closer to it than many others.

WiNR: Earlier you touched on the Region's pressing problems. Where do you see successes? Where do you see a need for focus?

Towns: Where we need to be focusing is on recreation. We need to be addressing the urban interface. We need to be looking at riparian issues. But where are we spending a lot of our time? On litigation associated with grazing. The hook there concerns the effect of grazing on riparian lands. Interestingly, and I think this is a plus, we seem to be spending a lot of time on Lands issues, things that cause us to look at the patterns of ownership in the region. There is a wonderful, five-year-long, collaborative effort going on in northern Arizona, with communities, Park Service, and Forest Service together trying to make a gate-

continued on page 37

A Management Column
by
Barb Springer Beck

GIVE A LITTLE GET A LOT

Are you good at organizing, generating enthusiasm for something, or working with your hands? If yes, have you ever thought about making your talents available to a nonprofit organization, professional society, or local government as a volunteer? If not, it's time to think seriously about doing this because you can reap some great rewards.

So you're asking, with all of the other demands on me and my time, Why would I want to take on something else? To which, I'd answer, there are many reasons! First, you have an opportunity to help an organization which makes a contribution to your community or to a cause you believe in. There are tremendous rewards in terms of personal satisfaction from doing this. Second, you'll undoubtedly learn and develop new skills. Third, you'll gain new insights by seeing things from a different perspective. Fourth, you'll broaden your contacts and network, meeting other people involved in good works that you have something in common with. And, finally, you can seek out opportunities to develop abilities that will be helpful in your professional career. Let me give you a few examples to illustrate some of these benefits.

Opportunities to help out are limitless, even if you live in a small community. And, now more than ever before in the face of government cutbacks, non-profits are in need of the time and talents of dedicated volunteers. You might contribute physical labor to erect a home for someone else, clean cages at the animal shelter, build sets for the community play, or serve food to the homeless. Or, you might prefer offering ideas and professional skills. This could include participating in the development of a community plan, fund raising, coaching kids, serving on the search committee for a new pastor, designing habitats for zoo animals, serving on the local museum or zoning board, or writing a newsletter.

A natural resources professional I know was asked to judge a speech contest at her local high school. Although she had no experience in this specifically, the organizers provided her and the other judges with criteria against which to judge the participants. The judges also worked in teams. As a result of agreeing to participate as a judge, Ann was able to provide a valuable service for the kids involved, and learned some new skills. She may very well be able to use her new knowledge about how to organize one's thoughts and persuade another person, in her work.

In my small community, we are served by a mayor and city council. One of the alderman representing my ward resigned mid-term and I was asked to serve out the remainder of his 2-year term. Although I had worked in government before, I had never served in local government. After considerable thought, I accepted the nomination, and subsequently ran for office and was re-elected. The time commitment has been significant, but the rewards have been commensurate. I have gained an increased understanding of politics at the local level, the ability to serve my community, additional skills, and contacts. My experience as an elected official has also led directly to an increased, more diversified client base for my consulting firm. It's been a challenge and also a win-win situation for me.

A Forest Service law enforcement officer in Montana volunteered to serve on the police commission for his city. He was able to bring his knowledge of training, equipment, investigations, and staffing to benefit the city department. He in turn, learned about operating a small department on limited financial resources, and the accountability of the officers to the community and elected officials. He also gained experience in addressing officer performance problems which fell under the responsibility of the commission.

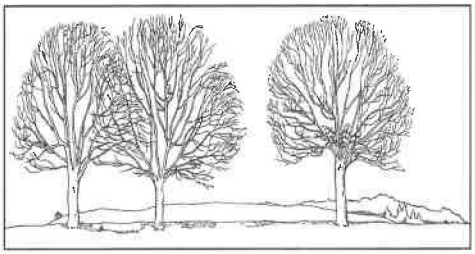
Those of us working in natural resource management have additional opportunities to serve in long-standing professional organizations such as the Society of Range Management, Society of American Foresters, and many others. Helping to develop programs, organizing conferences, hosting field trips or writing articles can be a good way to increase your exposure to other professionals in your field, have access to the latest science, make a contribution and have some fun. Your agency or company is likely to view your activities in a positive light, and may even allow

you to work on society activities on the job.

Selecting the right volunteer opportunity is all-important in terms of your satisfaction and the assistance you can offer. After all, one of the most valuable commodities you have is your time. Most of us can spare a little time, if we feel it's well spent. Not all volunteering experiences need be time consuming. If you have an hour, you can donate a pint of blood!

You'll need to decide what you want to get out of your volunteer experience and how much time you're willing to spend. Do you want to learn how to serve as a Board member, or do you want an escape doing something radically different from your day to day work? You'll find the best fit by choosing an organization that gets things done, knows how to best utilize the time and skills of its volunteers, and one whose mission fits with your personal values. Because people who volunteer their time are valuable, you'll need to learn to say "no" when the opportunities are not right for you, for whatever reason. You don't want to resent the time you are donating when it should be rewarding.

When deciding whether to say yes, make a conscious choice about whether to contribute by doing something you are already skilled at, or doing tasks different from or complementary to your existing skills. For example, if you spend a good deal of your time at work dealing with budgets, you might consider serving as the treasurer for an organization. On the other hand, you may choose not to serve as a treasurer so that you can broaden your skills into a new area. The plus to volunteering at something you know well is that your contribution will be at a high skill level. The drawback may be that you'll miss out on a chance to learn something new. You may also increase the possibility of burnout at work by doing more of the same in your free time.



Maybe you have skills or training that you aren't able to use in your work. If you have a teaching degree, but are working as a fisheries technician, you might feel rewarded by tutoring kids or helping adults learn to read. Volunteering can be a good way to keep current in those skills and contribute in a way that recognizes your existing skills. A range conservationist I know, who is an accomplished carpenter, doesn't get to do much work with his hands in his present position, so he volunteers for Habitat for Humanity. He explains that he enjoys wood working and feels fortunate to have his own home. His contribution to Habitat helps others to have their own home as well.

"Volunteering" for assignments within your agency or organization can offer some of the same benefits. Accepting a request to facilitate a regional recreation meeting resulted in a job offer for a Forest Service employee. Her performance and exposure during the regional meeting allowed a Forest Supervisor attending the meeting to see her in action. After the meeting he offered her a District Ranger position on his Forest. Managers seek out employees who are willing to accept new challenges, solve real problems, and take risks.

Personal rewards for the right volunteer experience can be great for you, for your career, and even for your agency or company along with the community. Rest assured that you do have something valuable to offer.

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European Green Crab Invasions

The green crab is the ideal invader species. It can tolerate a wide range of temperatures and salinities. They grow quickly and can produce up to approximately 200,000 eggs

Zasha Bassett

For hundreds of years, humans have carried species from one ecosystem or country to another, often with significant biological and economic effects. Currently, another invasion is occurring on the west coast of the U.S. as the European Green Crab, *Carcinus maenas*, colonizes coastal areas. A native of Europe, the green crab has been widely introduced to Australia, South Africa, and much of the Atlantic seaboard of the U.S. The green crab was discovered in San Francisco Bay in 1989, and has rapidly expanded northwards. After invading several bays in northern California, it reached Coos Bay, Oregon in 1996. In 1998, the crab was discovered in several major estuaries on the Oregon coast and in Willapa Bay, Washington. At this stage, the populations appear small, but their numbers may increase dramatically if the crab become established.

The original method of introduction is unknown and remains controversial. Larval transport via ballast water in ships from the Atlantic coast or foreign countries is one possibility. Packaging materials and transfer of aquaculture spat from infected areas have also been suggested. Spat are imported young oysters used in aquaculture that have settled onto empty shells (called cultch). These shells are strung out from racks or floats, or, depending on the suitability of the location, from muddy tidal flats. Commercial growers use it to restock aquaculture beds. Some of the crab's subsequent spread northward is probably also the result of larvae riding on ocean currents or from additional ballast water introductions.

The green crab is the ideal invader species. It can tolerate a wide range of temperatures and salinities. They grow quickly and can produce up to approximately 200,000 eggs. Larvae can travel up to 400 miles per generation on the Pacific Ocean currents. *Carcinus maenas* is commonly found in marine and estuarine habitats, but is scarce in high-energy outer-coast environments. It can occupy a range of intertidal habitats including rocky, muddy, and sandy substrates, and is also found in cordgrass marshes. The crabs are voracious predators that feed on 104 biological families and 18 genera, including both plant and animals, preying especially on mussels, oysters, and other crab species.

The introduction of this species on the east coast of the U.S. and in South Africa has been correlated with significant negative impacts on bivalve populations. Furthermore, there is some evidence that green crab predation has acted as a selective force in the evolution of shell shape and size of dog whelks (a marine mollusk like a large predatory snail) in the eastern U.S. Researchers compared the shell shapes and sizes before and after the introduction of the green crab. After the arrival, shells of the dog whelks had increased thickening. There is concern that the green crab may have detrimental effects on young Dungeness crab. In Bodega Bay, California, in the last two years, there were significant declines in shore crab, *Hemigrapsus oregonensis* populations as well as declines in two small clam species. The invader grows to larger sizes than existing shore crabs and may compete for food with them. California shellfish growers have already experienced losses as high as 50 percent for Manilla Clams, and there are concerns in the multi-million dollar industry in Oregon and Washington. Despite the alarm, we still have a relatively poor understanding of how the invasion is likely to affect communities.

One essential step in developing a response to this invasion is to gather basic scientific information to understand the likely consequences of the invasion. Developing management techniques should follow before the species becomes well established.

As part of this effort, I am conducting a study to assess the impacts of green crab predation on commercially important shellfish in Oregon and Washington. The study will include experiments to determine the preferred prey species and sizes as well as quantifying the biota of the communities that are likely to be affected so that changes may be detected and mitigation measures developed. Current mitigation measures available include trapping, timing the placement of aquaculture bags to avoid green crab larval settlement (it has been observed that the crabs often settle out into the bag while they are small enough to pass through the mesh and then they consume shellfish in the bag), mechanical exclusion like

fences, and biocontrol. Crab parasites would be one form of biocontrol, but presently, no biocontrols are being used in the U.S. There are also studies being conducted by researchers in Bodega Bay to examine the interaction of the green crab with native crab species, which may limit populations.

The spread of the green crab is believed to have other regions of the world concerned as well. In South Africa, the crab was first found near Cape Town in 1983 and has spread north to Saldanha Bay and south to Camps Bay as recently as 1992. The crabs' rate of spread appears to have been slower in South Africa than on the west coast of north America, although information about the *rate* of spread is limited. It's commonly found in South Africa in protected embayments on both soft and hard substrates. The ecological impacts of the green crab in South Africa are somewhat speculative due to the lack of scientific studies, but the crab shows a diet preference in South Africa similar to diet preferences found in other areas.

What efforts are in place to address the potential impacts of the green crab? Currently, there is no regionally coordinated effort to control their spread. In California, Oregon, and Washington, there are scattered trapping efforts in place to monitor and slow the crabs' spread. Additionally, Washington State has incorporated the green crab into their aquatic nuisance species state plan and has also received emergency funding from the Governor to develop a response to the problem. The funding will be used for a variety of activities including education and outreach, research, monitoring, and management and control (mainly trapping) projects. However, there is concern that these efforts will have limited effectiveness unless other states in the region undertake similar efforts. The National Task Force on Aquatic Nuisance Species (see box) is convening a committee to consider implementing a regional control plan, which if put into place, may prove beneficial.

n some areas where the species has invaded, the impacts were not observed for three to five years after the crab had been discovered. Given the potential for serious economic and ecological damage, we cannot afford to adopt a "wait and see" strategy. It will be more difficult to launch effective mitigation campaigns and our scientific information may be too late to provide useful advice to industry representatives, managers, and decision-makers. It will be far less costly, both ecologically and monetarily to take action minimizing the impacts now rather than waiting until the crab becomes well-established. It is far more difficult to restore an ecological community once the damage has occurred than it is to take a proactive approach.

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The National Task Force on Aquatic Nuisance Species (ANS)

The ANS Task Force is an intergovernmental organization dedicated to preventing and controlling aquatic nuisance species, and implementing the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. ANS, co-chaired by the U.S. Fish and Wildlife Service (F&WS) and National Oceanic and Atmospheric Administration (NOAA), was established to coordinate governmental efforts related to nonindigenous aquatic species in the U.S. with those of the private sector and other North American interests.

The Task Force consists of seven Federal agency representatives and 10 ex officio members. The U.S. agencies (in addition to F&WS and NOAA) are EPA, Coast Guard, Assistant Secretary of the Army for Civil Works, USDA, and Department of State.

In response to the rapidly spreading zebra mussel infestation and other concerns about nonindigenous aquatic species introductions, the Nonindigenous Aquatic Nuisance Prevention and Control Act (Act, 16 USC 4701-4741) was enacted in 1990 and amended by the National Invasive Species Act of 1996. It provides an intergovernmental mechanism for the development of a cooperative national program to:

- **reduce the risk of or prevent the unintentional introduction and dispersal of nonindigenous aquatic species that may be nuisances**
- **ensure prompt detection of the presence of and monitor changes in the distribution of nonindigenous aquatic species**
- **control established aquatic nuisance species in a cost-effective, environmentally sound manner**

For information visit the website at www.ANSTaskForce.gov

Why are Pacific Northwest Businesses Participating in the Certified Wood Products Market?

Elizabeth A. Ellis

Certification as an Option for Sustainable Forest Management

During the 20th Century, many forest managers have come to realize that certain types of silvicultural prescriptions associated with past forest management decisions may have to change. An increasing concern for sustainability of resources related to the forest ecosystem has led to the practice of "sustainable forest management" (SFM), or sustainability of timber, the ecosystem properties and associations (Johnson 1997). It should be noted that "sustainable forest management" might be defined in different ways, depending on management goals. Protecting and monitoring habitat, water quality, soil productivity, and biodiversity are often included in management goals (Nussbasum 1998). Timber certification is an option private and public forest managers might consider when working towards the goal of sustainable forest management.

Private efforts to manage forest resources have developed the practices of timber certification. Certification in general is an economic market-based instrument that aims to raise awareness and provide incentives for both producers and consumers to be more responsible in the use of a given resource (Upton and Bass 1996). Environmental certification began with the Blue Angel Program in West Germany in 1977, with the ultimate goal being to reduce consumer anxiety regarding the environmental impact of the products they purchase. This program now certifies over 3,000 products in 57 countries. It was designed to allow independent third party judgement on environmental performance of products and packages, rather than leave the judgement up to the manufacturers (Ozanne and Vlosky 1995).

Another example of certification involves the organic food industry. The US Department of Agriculture is currently implementing the certification of organic food. The USDA is developing national standards which all organic products must meet or exceed if they are going to be labeled "organic." The USDA will act as the accrediting body of state and private certifying organizations. All organic products will be labeled with the USDA certified organic label and the certifying organization's eco-label (United States Department of Agriculture 1998).

Timber certification is a type of environmental certification, with the ultimate goal being to generally support sustainable forest management by providing market-based incentives as a reward for practicing sustainable forest management. Most organizations involved in timber certification encourage environmental sustainability, social sustainability, and economic sustainability in forest management practices. How organizations involved in sustainable forest management and certification define these terms and set criteria to meet these objectives varies. The certifying organizations that participated in this study are referred to as practicing "third-party" certification.

Third-Party Certification: AF&PA, ISO, and FSC

Third-party certification is a term that has caused confusion for individuals, organizations, and companies. Confusion resulted from the assumption that the American Forest & Paper Association (AF&PA), with the issuance of the Sustainable Forestry Initiative in 1995 – 96, had decided to get involved in certification. Further confusion resulted from the assumption that the International Organization for Standardization (ISO), which developed environmental management standards involving forest management, was also directly certifying companies who abided by these standards (known as ISO 9000, ISO 14000 or ISO 140001). The terms "first-party," "second-party," and "third-party" certification were used to help explain differences between how these companies were "certifying" practices and/or wood products as compared to the Forest Stewardship Council and their accredited certifying organizations, such as SmartWood and Scientific Certification Systems.

The confusion needs to end for the consumer's sake. Neither the AF&PA nor the ISO "certify" anything. The American Forest & Paper Association, the International Organization for Standardization, and Richard Donovan, Director of SmartWood have all issued statements clearly defining what type of certification (if any) their individual companies/organizations conduct or allow. To summarize, the AF&PA does not "certify"— it prefers the term "verification" (Donovan 1998).

The International Organization for Standardization also does not practice direct certification. Companies who obtain certification are not accredited or certified by the ISO. The company practicing ISO management or other regulating bodies hire an independent organization authorized to assess and certify ISO standards. The ISO does not accredit these certifying organizations, like the Forest Stewardship Council accredits their certifying organizations.

Any certificate resulting from this certification process must clarify that the operation was not "ISO-certified" because this is misleading. Instead, all certification will read as either "ISO-9000 certified" or ISO-14000 certified," for example, depending on which set of standards were used (International Organization for Standardization 1998).

The Forest Stewardship Council (FSC) works to promote environmentally appropriate management of the world's forests by encouraging management practices that are also socially beneficial and economically viable. The FSC works to promote timber certification and to eliminate false and confusing claims of "green products" by accrediting certifiers according to internationally

agreed upon Principles and Criteria and Forest Stewardship Council Guidelines for Certifiers (Lamport 1995). The certifying organization needs to ensure companies are abiding by these standards, but also has the freedom to develop more focused national and regional standards, as long as they comply with the overall Principles and Criteria (Upton and Bass 1996).

In short, the FSC can be seen as "certifying the certifiers," and it acts as a monitoring body for those organizations who wish to follow Forest Stewardship Council Principles and Criteria. However, accreditation is only approved after specific documentation and evaluation procedures are followed. SmartWood and Scientific Certification Systems are two examples of independent bodies that certify management practices of an individual or company. Both companies are Forest Stewardship Council-accredited certifying organizations and are represented in the Pacific Northwest.

There may never come a time when all interested parties agree upon how to best "certify" or "verify" timber management practices. As John P. McMahon, Weyerhaeuser's Vice President of Timberlands External and Regulatory Affairs states below, perhaps multiple pathways to sustainable forestry are acceptable:

The route to sustainable forestry is much less important than is working together to promote the shared objective. Recognition and acceptance that multiple solutions are needed, that are compatible with country-specific land ownership, forest, and institutional conditions, would benefit everyone. Our energy and scarce resources need to be focused on having sustainable forestry practices accepted and implemented by more forest owners in more countries. No single solution will accomplish this (McMahon, 1997).

Potential Economic Benefits of Certification

Third-party certification is aimed at providing economic benefits along with ecological and social benefits. The benefits are market-share oriented and price oriented. Improved ability to increase market share, maintenance of market share, ability to access new markets, and ability to command a price premium are the four main potential economic oriented benefits associated with certification.

The ability to access new markets, increase and maintain market share are based upon possible consumer preference for certified over non-certified wood products and access to international buyers groups, such as those located in the United Kingdom. One such group is the World Wide Fund 1995 Plus Group, set up in 1991. Members of the group are committed to buying substantial volumes of wood and wood products from well-managed forests, united in their view that only the FSC provides an independent system of forest certification which is globally applicable. This group accounts for a quarter of the United Kingdom's consumption of forest products (FSC-WWF 95+ Group 1998). Other proponents of timber certification point out indirect benefits. These include economic benefits which may result from improved forest management; higher sales revenue because of larger market share and possibly higher prices; and improved efficiency in forest harvesting, industrial processing, and distribution and marketing (Simula 1996).

The potential for a price premium in some areas, depending on the ability to locate consumer target markets, is also a benefit some businesses may enjoy. The most likely consumer to seek out and purchase certified wood products are female, generally a Democrat, politically liberal, a member of an environmental organization, and possibly well educated (Ozanne and Vlosky 1997). This category would most likely pay a premium for certified wood products. Those who are least likely to seek out and purchase certified wood products are members of the Republican Party, are politically conservative, are not members of an environmental organization, and are most likely male. This segment consists of about 5.8 million Americans and is least likely to pay a premium. It is recommended that environmental organizations handle the certification process, as women appear statistically more trusting in these organizations when compared to men (ibid. 1998). However, in general, price premiums are not being obtained currently for certified wood products (UN/ECE 1998).

The Study

Intent and Goals

The intent of this study was to describe various components of the Pacific Northwest certified wood products market. To date, no primary market research has been done on the Pacific Northwest's growing market and very little market research exists on the potential or existing markets for certified wood products. The entire study focused on six objectives. The focus of this article, however, is limited to Objective B: Why Participate in the Market? The research involved in this objective examined motivating factors for entering the certified wood products market.

The most efficient and effective way to collect this data across three states while ensuring a high response rate was to survey by phone instead of mail.

Research Methodology and Instrument

To provide the most accurate description of motivating factors, two questions were asked to research this area of the study. The first was an open-ended question: Please describe why your company decided to participate in a certification program. Businesses were free to provide numerous reasons for participation and all answers were consolidated according to common themes.

The second question was close-ended, and businesses were asked to rate four statements using a Likert-type scale. This strategy examined the strength of various views that may be valid in relation to the company's decision to participate in a certification program. The statements were compiled from a presentation given by Catherine Mater of Mater Engineering in 1997, entitled Economics of Sustainable Forestry and Forest Certification (Western Forestry Conference, Portland, Oregon) and from Oregon State University Professor Eric Hansen's journal article, Forest Certification and Its Role in Marketing Strategy (1997). These statements represent valid viewpoints a business could take when deciding to participate in the certified wood products market.

The statements are as follows:

1) "I see selling certified wood products as a marketing strategy to attract customers and/or increase market share"

2) "I see selling certified wood products as a way to help the environment."

3) "I see a possible economic incentive involved in selling certified wood."

4) "I see a definite economic incentive involved in selling certified wood."

(Abbreviated forms of these statements will be found in the charts)

The answers to both questions were then compared in order to provide the most accurate results possible.

The Respondents

Before the survey was administered to the respondents, it was pilot tested on three owners of businesses in the certified wood products market; one was in Washington, two in California. After completion of survey construction, the process of selecting respondents began. This was not a random selection process as this survey was designed for a specific group of respondents — businesses who participated in the certified wood products market.

The respondent list was developed for this survey by researching organizations and talking to private individuals within the certified wood products market. Lists of businesses selling certified wood products were used to locate respondents for this survey.

A total of 31 businesses in Washington, Oregon and Northern California agreed to participate. Of these 31 businesses, five were from Washington, nine were from Oregon, and 17 were from Northern California. The business was certified in accordance with SmartWood or Scientific Certification Systems, or the business was listed as a recognized non-certified distributor by a certification organization, or by the GoodWood Directory. All businesses surveyed participated in the certified wood products market. Businesses may also sell "Certified Rediscovered Wood Products;" rediscovered wood is simply recycled and reclaimed wood.

Using the lists and conducting research of all eligible businesses, this survey covered 71% of eligible Washington businesses, 91% of Oregon businesses, and 94% of Northern California businesses. The high percentage of participating businesses in this survey guarantees that this survey is a representative sample of the overall population. Businesses were next classified by state and by distribution type, wholesaler and retailer.

The results received from these surveys are considered reliable. For every survey, the business representative interviewed was a marketing representative, vice-president, or owner. These representatives are considered knowledgeable about their business, and therefore, their answers may be considered reliable.

It should be noted that SmartWood and Scientific Certification Systems are the two certification companies involved in this study not by choice, but because they were the only two third-party certifiers operating in the Pacific Northwest at the time of this research.

Results

A section of this study investigated the demographics of certified wood product markets by state. The results indicated that the largest and oldest markets are in Northern California. It may be assumed Northern California businesses have been in this market for a long enough period of time to understand the association between economic incentives associated with selling certified wood products. The results indicated Washington State as a recently emerging market. Using this same logic, it may be assumed that Washington has the least amount of experience and knowledge concerning economic incentives and investment returns.

It should also be noted that the SmartWood organization has been working in California since at least 1991, in Oregon since 1993, and in Washington since 1996. Scientific Certification Systems (SCS) was not accredited by the Forest Stewardship Council until 1995 and has been extending its efforts throughout the Pacific Northwest region since that time. However, as of the time of this survey, no businesses had been certified by SCS in Washington State. Given these facts, it is safe to hypothesize that the amount of experience businesses in a given state have had with the economic incentives associated with certified wood products and immediate investment returns will be reflected in their answers to the questions asked in this section.

Results from open-ended question

These questions were to be read over the telephone, so emphasis was placed on brevity and clarity in question design. During the process of designing the survey, this author made alterations in order to reduce the possible interpretation of bias, improve upon brevity, and decrease response choice to certain questions to make it easier upon the respondent to comprehend and remember questions. It was also important to schedule interviews at the convenience of the respondent, and to provide an opening explanation of this survey and an informed consent affidavit.

When asked why they decided to enter the certified wood products market, Pacific Northwest businesses had more than one reason. The 31 businesses surveyed gave 54 answers. Because each business provided multiple responses, answers were classified into five categories, as follows:

- To Sustain Forests for the Future (either for the business, which may rely on wood, or simply for the next generation)
- It was an Environmentally Sensitive Choice
- Because of a Future/Potential Market Incentive
- Because of a Present Market Incentive
- Other

As shown in Table 1, the most common response (65%) to this open-ended question was To Sustain Forests for the Future with a combined total of 20 responses. The next most popular category was It was an Environmentally Sensitive Choice, with 37 percent. Two categories tied with 32% each – Present Market Incentive and Possible Future Market. There were two responses under the category Other. One respondent wanted to expand his inventory, and the other respondent mentioned that the quality of wood was interesting to the customer.

Table 1
Why Participate in the Certified Wood Products Market?

REASON	Number of BUSINESSES	PERCENT
Sustain Forests	20	65%
Environmentally Sensitive Choice	12	37%
Future Market	10	32%
Present Market	10	32%
Other	2	7%

Table 4: Results from Two-sample t-test analysis of state mean responses to Statement Four

States Compared	Means compared		Df	t	Significance at a =
WA & N. CA	WA: +1.00	N. CA: +.24	8	1.43	.10
OR & WA	OR: +.89	WA: +1.00	5	.2286	NS at a =.05
OR & N. CA	OR: +.89	N. CA: +.24	8	1.862	.05

State Comparisons

In Washington, the leading response was It was an Environmentally Sensitive Choice, mentioned 60% of the time. The presence of Future Market Incentives was mentioned 40% of the time as a motivating factor. These responses may indicate Washington businesses did not see the establishment of a market—or at least a stable one—yet.

In Oregon, the leading response (40%) was To Sustain Forests, but market incentive categories were also mentioned by 33% of the businesses, with an equal number of these respondents choosing incentives for both the present and the future.

In Northern California, the leading response was To Sustain Forests, mentioned 39% of the time. When combining answers about both present and future market incentives, Northern California showed the strongest support for both, with 76% or 13/17 businesses. Eight Northern California businesses mentioned a Present Market Incentive and five mentioned a Future Market Incentive. Of the three states, the Northern California area businesses expressed the strongest interest in market-related incentives.

Results from Second Question

The following scale was used for rating the statements:

+2 = Strongly Agree, +1 = Agree, 0 = Neutral, -1 = Disagree, -2 = Strongly Disagree.

Table 2
Results of Rating Statements: Retailers &Wholesalers

Statement	Retailers	Wholesale	Total
1) Help Environment	+1.53	+1.50	+1.52
2) Attract Customers/ Market Share	+1.22	+1.57	+1.38
3) Possible Economic Incentive	+1.29	+1.14	+1.23
4) Definite Economic Incentive	+.59	+.50	+.55

Table 3
Results of Rating Statements: State Comparison

Statement	N. California	Oregon	Washington
1) Help the Environment	+1.24	+1.78	+2.00
2) Attract Customers/ Market Share	+1.28	+1.56	+1.60
3) Possible Economic Incentive	+1.06	+1.44	+1.40
2) Definite Economic Incentive	+.24	+.89	+1.00

Whether examining these businesses as retailers versus wholesalers or by state, it appeared that businesses Strongly Agreed to Agreed that certification could be used as a way to help the environment. Businesses also showed agreement that certification can be used as a marketing strategy to attract customers and/or increase market share with an associated possible economic incentive. What is not agreed upon, however, is the presence of a definite economic incentive, as shown by the responses to statement four. Among the states, Washington rated the presence of a definite economic incentive as Agree to Strongly Agree as a reason for participating in the market. Oregon and Northern California rated the presence of a definite economic incentive associated with selling certified wood products between Neutral and Agree. It should be noted that Northern California's score ranks closest to Neutral, possibly contrary to this area's market-motivated response to the open-ended question.

A two-sample t procedure was used to test for significant differences between the mean responses provided for statement four. Given the small population for Washington State, the degrees of freedom were statistically adjusted to better approximate the t distribution (Moore and McCabe 1993).

There are significant differences at the a = .05 level between Northern California and Oregon, and at the a = .10 level between Washington and Northern California. There were no significant differences of opinion found between Washington and Oregon. It can be concluded that there are significant differences in attitude between Northern California and the rest of the Pacific Northwest towards the presence of a definite economic incentive associated with certified wood products.

Northern California presented interesting responses to the two questions, which still need to be addressed. This business area showed the highest support for market incentives in the first question and the lowest support for possible or definite economic incentives in the second question. Therefore, the market incentives Northern California businesses support were most likely market access, market share, and maintenance. Northern California businesses may also have been interested in indirect incentives associated with selling certified wood products, such as improving company morale, attracting new customers, promoting improved forest management, and improved harvesting efficiency.

Summary

Pacific Northwest businesses agreed they entered the certified wood products market primarily to encourage the sustainability of forests and/or because it was an environmentally sensitive choice. Pacific Northwest businesses agreed that they entered the market as a way to help the environment, and as a marketing strategy to attract customers and increase market share. There was little disagreement between wholesalers or retailers or among the states.

The difference lay in the extent to which certification may provide an economic incentive. All three states agreed on the possibility of an economic incentive and were less sure about a certainty of a definite economic incentive. The older and larger the

market, the smaller the role economic incentives played as a motivator to participate in the certified wood products market. However, market-related and indirect incentives, such as market access and selling certified wood products to improve company image, was a popular reason for the larger and older markets to participate.

An article by Julio Cesar Centero in the European Forest Institute News (1998) sheds some light on the varying attitudes. Centero concluded there are two types of attitudes emerging towards certification. The first attitude clearly matches that of the Pacific Northwest. This group favors certification of sustainable forest management and forest products. This group participates for marketing reasons, generally to distinguish their products as being environmentally friendly, and to increase market share. They do not expect higher prices from their products, and they do see certification as a tool to improve forest management.

The second attitude is generally more reluctant towards or clearly against certification based on the expected cost/benefit ratio associated with participation. This group is simply afraid of losing money. One example of this second attitude was found during an interview with Doug Stinson, owner of the Cowlitz Ridge Tree Farm in Washington State. Mr. Stinson had considered certification and explained he had found there were no accessible mills in Washington willing to pay a premium for someone who is certified. Mr. Stinson could see no economic return in this area and chose not to participate in the certification process. Mr. Stinson did believe the concept of third-party certification has merit, but certain areas, such as the Chain-of-Custody requirements (which may be costly for some smaller mills), may need modification (Stinson 1998).

Finally, although a majority of the Pacific Northwest businesses can be described as not necessarily expecting a price premium for certified wood products, results from this study also showed at least 55% required a profit from certified wood products of some type if they are to remain in this market. Somehow, certified wood products must provide direct or indirect economic benefits for over half of the businesses participating in this study. Profit has not been completely removed from the picture.

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Elizabeth Ellis, right, and Jean Shaffer, owner of SmartWood-Certified Tree Shepard Woods, located outside Olympia, Washington. They are holding a FSC-SmartWood issued Certified Operation Certificate.

WOMEN'S WORK: A POSITIVE FORCE FOR THE ENVIRONMENT IN MADAGASCAR

Kimberly E. Medley

The author (at left) is with her French teacher, Micheline Ravelonanahary, and two of her daughters.

Madagascar- A Megadiversity Country

Scientists and environmentalists recognize Madagascar as a megadiversity country. It has roughly as many species of orchids and significantly more species of palms and other major plant groups than all of continental Africa. Over 50% of the world's chameleons occur on the island. Madagascar is also recognized globally as a biodiversity hot spot. Over 80% of the species are endemic, evolving in essential isolation on the island during the past 50-60 million years prior to the arrival of humans. A high number of plant and animal species, and a large number of species restricted to small localities within the country mean that one hectare of forest lost in Madagascar is possibly a very great loss to the earth's biodiversity. The global environmental community is very concerned about the protection of biodiversity in Madagascar.

The close relationships between humans and their environment can not be ignored when projecting trends for biodiversity. In Madagascar, 88% of the labor and 35% of the Gross Domestic Product (GDP) is based on agriculture. Current economic growth is mostly in the agricultural sector, and positive changes in GDP, at only 1.4% between 1983-1993, is central to alleviating low incomes (<$200 per capita) and poverty conditions.

A 1996 World Bank Poverty Assessment report showed that by 1993 just over 70% of Madagascar's population was below the poverty line with funds insufficient to purchase a nutritionally adequate diet, and about 59% were extremely poor, with funds only sufficient to meet most basic food requirements. A Demographic Health survey in 1992 reported that 51% of children under five years showed signs of stunting due to poor early nutrition. Poverty was greater in rural areas and female-headed households were among the poorest. School enrollment rates, once the highest in Subsaharan Africa, are now comparable with low averages for the continent.

When coupled with high rates of population growth (2.9% between 1990-1994), these socio-economic trends substantiate a potential threat by the Malagasy on local natural resources as they struggle to meet basic needs. The global environmental community must recognize their livelihoods and the importance of participation by the Malagasy in the protection of biodiversity in Madagascar.

Madagascar's National Environmental Action Plan

In response to the global concern, the Government of Madagascar invited the participation of a large group of international donors and prepared in 1988 a fifteen-year National Environmental Action Plan (NEAP). At that time, more than 70% of the primary vegetation was gone, per-capita incomes and rice consumption were declining, and satellite images showed a red island of eroding soils and seasonal fires. Recognizing a necessary link between environmental protection and economic development, the overall goal of the NEAP is to assist the Malagasy people to protect and improve their environment, while concurrently working for sustainable national development and economic growth. The first five-year phase from 1991-1996 (EP1) focused on institutional and policy development for protected areas, and the role of integrated conservation and development projects (ICDPs) in biodiversity protection.

Building on lessons learned, the second phase (EP2; 1997-2001) expands conservation activities over the broader landscape and recognizes the importance of decentralized planning for biodiversity protection and regional economic development.

The Office of the National Environment (ONE) is assigned the responsibility of reporting on the state of the national environment and monitoring performance under the National Environmental Action Plan (NEAP). "Participation of Women" is listed as one of nine global indicators by which ONE will monitor overall performance. Certainly the positioning of this indicator at the global level, by the Government of Madagascar and the respective donors, supports the hypothesis that woman play an important role in ensuring the effective management of natural resources. Moreover, performance monitoring for the indicator provides an opportunity to reflect on the question:

How are women contributing to the overall success of Madagascar's Program for the National Environment?

Success can be broadly defined. At one level, development projects can document gender roles in conserva-

Alphabetical **LIST OF ACRONYMS**

CAP. Commercial Agriculture Promotion. A project funded under a contract with USAID-Madagascar and managed by Chemonics International, a U.S.-based development firm.

CI. Conservation International. An international non-governmental organization (NGO) based in the United States and with environmental projects at locations throughout the tropics.

EP1 and EP2. First (1991-1996) and second (1997-2001) phase of the environmental program in Madagascar under the NEAP. The term also refers to a first and second phase of funding for development support by USAID.

FJKM-SAF. A Malagasy non-governmental agency, based in the Protestant (former London Missionary) church and focused on development work.

GDP. Gross Domestic Product. Value of all goods and services produced by and in a country.

ICDP. Integrated Conservation and Development Project. These projects were supported by international donors in many tropical countries as a way of linking the protection of natural areas with conservation-based incentives in the periphery zones. The paper focuses on data compiled from five ICDPs supported by USAID-Madagascar during EP1 and in five regions designated for development activities during EP2: Andasibe/Mantadia, Amber Mountain complex, Andohahela, Zahamena, and Ranomafana.

IRRI. International Rice Research Institute. An international research agency that is based in the Philippines and focused on rice propagation, diversity, and production. USAID-Madagascar provides continued support for research by IRRI in the country, particularly in the areas of varietal trials, improved technology, and extension.

NEAP. National Environmental Action Plan-Document prepared by the Malagasy government in partnership with international donors that guides protection of the environment through a 15-year period (1991-2006). My fellowship period coincided with the transition between the close of EP1 and the beginning of EP2.

NGO. Non-governmental development agency.

OFAMA. Orinosa Fanamaina Manga is the name of the mango-drying project managed by the women's group Vehivay Vonona at Ankarafansika.

ONE. Office of the National Environment is a donor-supported quasi-governmental agency that was established under the NEAP and is responsible for its management and performance monitoring.

USAID. United States Agency for International Development. A federal agency responsible for the management of oversees development funding; USAID-Madagascar refers to the mission in Madagascar, based in the capital city of Antananarivo.

VITA. Volunteers in Technical Assistance. U.S. based non-governmental development agency (NGO) that was responsible for the management of the ICDP at Andasibe/Mantadia during EP1.

tion-based activities and the consequent impact of these projects on resource protection. At a second level, environmental programs may show that women's participation results in positive behavioral changes on their use of natural resources and support how they receive, act upon, and communicate environmental messages. Outcomes at this second level, however difficult to measure, are very important to environmental protection over the long term.

Project Activities and Performance Monitoring at USAID

The United States donates funds for projects in other nations principally through the U.S. Agency for International Development (USAID). USAID-Madagascar acts as one international partner in the design and implementation of the NEAP. Their Strategic Objective for the second phase (EP2), "Biologically-Diverse Ecosystems Conserved in Priority Conservation Zones," complements biodiversity protection in parks through community-based development initiatives in five target regions. The activities supported by USAID provide opportunities for female participation under initiatives that promote the adoption of sustainable agricultural practices and a diversification of incomes through conservation-based enterprises.

Between September 1997- May 1998, I worked as an ecological monitoring specialist at USAID-Madagascar under the Worldwide Women-in-Development (WorldWID) Fellows program. My fellowship corresponded with the transition between EP1 and EP2. Working in the Natural Resource Office (NRO), I collaborated with the Results Team on the development and monitoring of performance indicators in sustainable agriculture and community participation. I compiled baseline data from a review of final project reports submitted during EP1 (1991-1996), an email survey sent to project operators still active during the transition period (1997), and field observations during the fellowship period (1997-1998). Much of these data were incorporated into the annual "Results Review and Resource Request" submitted by USAID-Madagascar to USAID-Washington in February 1998. For this paper, I describe some of the reported project activities we monitored and show how they exemplify, at the local level, the potential contributions of women to the environment in Madagascar.

Fig. 1. Participation by women as they work around their homes to meet basic needs, is an important indicator of Madagascar's performance in the NEAP

Training and the Adoption of Sustainable Agricultural Practices

Humans, despite the damage so often attributable to their activities in Madagascar, can manage land resources for positive change. Sustainable agricultural practices may include environmentally-sensitive approaches to: (1) intensifying rice cultivation, by far the most important resource to the Malagasy people (e.g., greater yields of rice/land area); and (2) diversifying farming systems toward different crops and animals that can obtain high prices in the market (incomes/land area). The goals are to reduce forest clearing and maintain protected habitats, while improving conditions for human livelihoods.

USAID-Madagascar supports agricultural development programs in rice and commercial products. Nonformal training programs represent a consistent contribution of USAID-Madagascar to sustainable agriculture and they can lead directly to the adoption of improved practices. For results reporting, USAID-Madagascar assumed conservatively that 50% of individuals trained adopt the practices. In 1997, for a total of 27 training sessions (233 persons adopting sustainable practices) sponsored in partnership with the International Rice Research Institute (IRRI) and Commercial Agricultural Promotion (CAP) project, I compiled gender-disaggregated data for 18 training sessions (136 persons adopting sustainable practices). Of that group, 70% were men (95) and 30% (41) were women. The mission projects 500 total adoptions for EP2, or an approximate annual increase of 20% through the five year period.

In October 1997, I traveled to the dry-tropical Mahajanga region of northwest Madagascar, where Vehivavy Vonona, the "decided women" association, directly benefited from the training and technical support provided under the USAID-funded CAP project. I found from CAP's project reports that 29 association members attended two intensive training sessions on the marketing of an export product and the operation of a gas-powered dryer. They received financial support from Conservation International (CI) to purchase a gas-powered dryer and establish Orinasa Fanamainana Manga (O.FA.MA.), a mango-drying project in their village of Andranofasika. USAID also provides support for Peace Corps volunteer Oliver Pierson. He lives in the community and works as a liaison between the women's group and CI. Oliver introduced me to the women's group and translated from Malagasy to French and English during the tour of their facilities.

CAP provides capacity training for private-initiatives in agriculture and CI supports income-generating activities that might relieve pressures on natural resources under the Ankarafansika Integrated Conservation and Development Project (ICDP). CI first attended a CAP seminar on drying fruits and vegetables, and then offered support and encouraged participation by the women's association. Peace Corps volunteer Oliver Pierson provides technical assistance and serves as an important communication link between OFAMA and the donor agencies.

Why was this group targeted? Location:association members live in the periphery of Ankarafansika, a 135,000 ha reserve with some of the largest tracts of dry, deciduous forest left in Madagascar. Vehivavy Vonona formed in 1993 and has since been involved in income-generating activities (e.g., community granery, jam-production enterprise) and financial/social support (e.g., nursery school) for women members.

What is the impact? From my brief visit, I could see that these women are helping the community make efficient use of a seasonally abundant fruit, and they should increase their incomes from the international export of packaged organically-dried mangoes. As a

World Wide Women-In-Development Fellows Program: USAID

As part of a second group of WorldWID Fellows, I attended six weeks of intensive training in Florida and Washington, D. C. from mid June to August 1997 in gender analysis, international development, and the organizational structure and activities of USAID. I was posted for eight months (September 1997-May 1998) at USAID-Madagascar in the capital city of Antananarivo. Because of my expertise in ecology and biodiversity conservation, I was assigned into the Natural Resources Office as an ecological monitoring specialist. My work focused on: a) the development of biodiversity and community-participation indicators for performance monitoring; b) ways in which the mission might support an ecological monitoring program under their proposed landscape approach for the next five years (1997-2001); and c) the role of women in USAID-supported environmental projects.

The WorldWID Fellows provide technical support to missions in program development or in one of the USAID strategic areas, including Economic Growth, Democracy and Governance, Human Capacity Development, Population and Health, and Environment. The program emphasizes training and application. First, the Fellows integrate gender analyses into the work they complete during their placement with a USAID Mission or partner organization. Second, they incorporate the new learning into long-term professional contributions upon return from the field placement. The program has provided a total of 24 fellowships (four in Environment) in 19 different countries.

The WorldWID Fellows Program (1995-1999) was designed to provide mid-career professionals an opportunity to incorporate a focus on gender in development planning in their area of technical expertise. At the same time, it has helped develop an expanded pool of professionals skilled in gender analysis and planning to organizations working in the development field.

USAID, Global Bureau, Women-in-Development Office funded the Fellowship program under a five-year cooperative agreement with the University of Florida International Center. The Women's Leadership Institute at Bennett College, DATEX, Inc. and the Center for Private Voluntary Organizations/University Collaboration at Western Carolina University were partners that actively participated in the recruitment, selection, and training of participants.

result, their families may reduce their expansion of upland crop fields and change their behavior toward greater resource protection. By example, Vehivavy Vonona communicates a positive message about an environmentally-sustainable activity to outside communities and associations.

By May 1998, after its first six months of operation, the women processed one season's harvest of mangoes, identified three potential international markets, and diversified their operations to include the production of paprika and dried bananas when mangoes are not in season. Cooperation, dependability, and joint decision-making are critical to their business association. They must manage three teams through a process that requires speed and accurate timing— from collection to final packaging. Through time, they will help guide the development plan for the peripheral zone of the Ankarafansika Reserve.

Community Participation and Natural Resource Conservation

Participatory development with local communities is strategically important when working for conservation objectives. USAID-Madagascar supported Integrated Conservation and Development projects (ICDPs) as a way of strengthening relationships between communities and park management during the first phase of the Environmental Program (EP1: 1991-1996). Funds were available for development activities under three mechanisms: a) ICDP operators introduced development projects to a community; b) Malagasy development agencies, funded by an ICDP operator, worked with communities on prioritizing needs and requests for development projects; and c) communities or associations solicited requests for particular development projects that were supported by redistributed park fees or ICDP funds. Empowering communities to eventually lead environmentally-sound development programs in villages was the goal.

By 1996, I documented from the project reports of five USAID-supported ICDPs that 129, or about 50% of the periphery villages were participating in community-based activities in environmental capacity building (e.g., technical training, interpretative centers, community groups for decision making), protected-area management (e.g., ecotourism, park infrastructure), multi-purpose forestry (e.g., tree nurseries, non-timber resources, conservation enterprises), and sustainable agriculture (e.g., intensive rice, diverse markets). Women's associations were active in 25% of the villages, and they worked on market gardens, tree nurseries, handicrafts (embroidery, weaving, basketry), and export products. Together, these ICDP activities represent a range of community mobilization efforts that can promote positive ecological and economic changes.

In January 1998, I surveyed several development projects and women's groups working in the periphery of Andasibe/Mantadia National Park. Together with my monitoring counterpart, Adele Rahelimihajandralambo, the IRRI Project Director Dr. Mimi Gaudreau, WorldWID coordinator Dr. Sandra Russo, two agents from the Malagasy development agency FJKM-SAF, and the monitoring specialist at the National Park, we traveled in a one-car train through the narrow corridor between the two park sectors on the Antananarivo-Toamasina rail line. We stopped at villages on the line or within an hour hike from the line. Later, I sent a survey to project managers of the five ICDPs in order to get the location and types of community-based activities for 1997. Our field trip provided an excellent opportunity for me to match the quantitative data from project reports with qualitative field observations. I was particularly interested in how the agencies do work with the local communities in the peripheral zones and the relative stability of associations through time.

Of particular interest was how communities decided on so many different activities, through their collaboration with park officials, international NGOs, and local development agencies, and how these activities might change through time. I recorded at least 30 different types of projects from five ICDPs supported by USAID in the target regions, and many changes in group activities between 1996 to 1997.

Some project managers noted that women's associations were particularly targeted for community mobilization because of their receptivity and important role in strengthening participation by the respective village. ICDP operators worked with existing groups and also encouraged the formation of new associations for particular initiatives.

My field survey of three women's groups in the periphery of Andasibe/Mantadia National Parks showed continued activity with the Malagasy development agency FJKM-SAF since the ICDP operator (VITA-Volunteers in Technical Assistance) ended their development activities. I found that

Fig. 2. *Vehivavy Vonona, the "decided women" association, manages three teams that work on processing and drying mangoes for international export.*

these groups often formed for one reason, but soon explored through time a range of different options for increased incomes. For example, the group we visited at Fanovana, changed from embroidery to the production of beans, ginger, and other off-season crops for market sales; one women's group at Volove is now cultivating raffia palms for long-term production; the women's group at Vohibazaha is a strong participant in the community-management plan now under development. Women's groups formed under the first phase of the environmental program continue to be receptive participants in the implementation of conservation-based enterprises, promoting the formation of other groups and choosing activities more pro-actively.

These women-led projects provide an informal platform for the introduction and discussion of resource conservation issues around protected areas. They should promote involvement by other community members (women and men) during the second phase (EP2), and demonstrate how collaborations with conservation agencies can promote development for human livelihoods. My field observations substantiate strongly the need for communities to work together, over the long term, on documenting important relationships between conservation-based economic growth, positive behavioral change toward resource use, and the restoration of degraded lands. USAID-Madagascar supports this collaboration and predicts that development activities through EP2 should increase the number of participating villages to 400 by 2001 in the five target regions. Accordingly, I predict an increasingly greater number of participating women's groups in conservation-based activities.

Development and Change

The case examples I describe come from USAID-funded projects, working in partnership with the Government of Madagascar under the National Environmental Action Plan (NEAP). They provide lessons learned that can help guide Madagascar as it enters Phase 2 (EP2). Of worldwide applicability, they show how development initiatives may promote resource conservation for women, and also by women in a variety of settings. I worked in performance monitoring, and through the compilation of data from project reports and field visits, my findings support the following summary observations:

Nonformal training in sustainable agriculture and conservation-based enterprises can improve livelihoods for rural women in Madagascar and decrease their reliance on protected natural resources. Approximately 18% of all households were headed by women in 1997, and these women manage less land, labor, and capital. While constitutionally women hold many equal rights in Madagascar, they do show some traditional disadvantages in their access to land and disproportionate responsibility for the family, with an average of five-to-seven children. At Andasibe/ Mantadia, I learned that women's groups provide an important outlet for single mothers to supplement their household incomes. The women participating in the associations I described are gaining access to environmentally-sensitive information that positively influences their livelihoods.

Women seem particularly keen to take on initiatives that require community groups to organize, decide on, and implement a project for development. Women in Madagascar are willing to form associations, a needed advantage in a culture that is traditionally more attached to trust and support at the family level. Women's groups are receptive to new ideas, especially when they can identify achievable positive outcomes.

Women show an important potential to promote resource conservation. Women rely on natural resources to meet basic needs and will accordingly consider activities, exploitative or sustainable, which improve their ability to satisfy basic needs. They represent a group that will critically examine a resource conservation strategy, but also a very important sector of the rural population that needs to be rallied in support of any local-national environmental movement. By increasing the purchasing power of women, the projects I described can decrease their reliance on natural resources and gain their support for conservation initiatives.

Women's associations can encourage environmental education and communication through the diffusion of new approaches to resource management. In Madagascar, women traditionally play a very important role in the education of young children—they are the principal family educators. It is also known that some technologies, such as the selection of seed varieties, may be best transferred through women. When women gain support for environmental messages, they will incorporate those messages in the education they provide.

Conclusion

I conclude that women are positioning themselves, through their involvement in associations, to receive, act upon, and communicate valuable environmental messages within their communities. The National Environmental Action Plan (NEAP) recognizes that contribution and will support female participation during the second phase (EP2- 1997-2001). USAID, with support provided by the WorldWID Fellows program, continues to strengthen its technical expertise in gender analyses as it may be effectively incorporated into their environmental programs. My experiences as a WorldWID Fellow and ecological monitoring specialist clearly showed that women's work can be a very positive force for the environment in Madagascar.

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Park Service, a produce farm, Nature Conservancy/Michigan Natural Features Inventory, Wildlife Conservation Society/ National Museums of Kenya, Kenya Wildlife Service, International Expeditions, and most recently with USAID-Madagascar. Her research examines human and environmental influences on the distribution and ecology of forests, and how the results from this research may be best applied to resource conservation in temperate and tropical localities. She focuses on applied work in natural resources management and is interested in the opportunities and constraints for women in this field.

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way to the Grand Canyon a world-class experience. As they deal with each other they find Indian aspects, water, and potential land ownership adjustment aspects. In addition, it involves looking at finding affordable housing for federal and other workers in a high priced resort community like the Grand Canyon.

WiNR: Are there a lot of in-holding concerns around the Region?

Towns: There are some, yes, and each geographic area has variations. Phoenix is a fast growing metropolitan area. Land and open space are scarce, and our federal land interface is critical for that city. Northern New Mexico is a wonderful and unique part of the world, where the land ownership pattern is divided up among pueblos and Spanish land grant communities, where some land is owned in common, and resource interaction has been traditional. There are tribal cultural needs for parts of animals that may be considered endangered. This Region adds a very rich, fascinating part of our nation's resource tapestry.

WiNR: So you need a light hand in dealing with problems. Is there a general rule of thumb that you like to see applied in dealings with people?

Towns: I don't want to preach, but let me just say a couple of things that I think are important. Nobody likes to be around negative energy. And it doesn't mean that you have to run around thinking the world is happy, happy, happy. But you do need to be able to come up with solutions. Nobody likes to be around anybody who hasn't figured out how to disagree without being disagreeable. In my view, if you can handle public speaking, if you can write, if you have mastered one aspect of some technical area that an organization values, and if you can figure out what to say to whom when appropriate, you've gotten a long way ahead in this world.

WiNR: This job is very demanding. Do you do it at a reasonable energy level, or is it an exhausting experience?

Towns: I don't know if I'm handling it very well right now. I'm eating sensibly, but I'm not currently exercising. I think the hardest thing is to find downtime. Somebody always wants my view for some purpose. Though I share my phone number with the staff and the supervisors or anybody who really needs to talk to me, my phone number is unlisted. I maintain personal e-mail. With the very little time I have, I'm pretty active in my church in Albuquerque. Most people there don't know what I do. It's a place where I don't

ELLIE TOWNS INTERVIEW

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have to be "on" professionally. I'm becoming active with a social sorority, so I do some community type things that are not job related. In the neighborhood, I value my privacy and I'm fairly successful in protecting it. My handyman used to call me Kiddo; he said once: "Kiddo, I never knew you had a job!"

WiNR: Was becoming a Regional Forester in your long range plans when you went into the SES?

Towns: No. When I went east, my career plans were to be Director of Lands for some period of time and then retire; although when the possibility was presented to me, I thought, "I could do that!" Let me hasten to say that I'm not sure yet that I can since I've been here only since April, 1998. But I think that I am about as well prepared to do it in this day and age as anyone. On the issues that I face, while they are complex resource issues, resolution depends far less on technical resource information than it does on the ability to get people talking to one another in order to find compromises. Those are some of the things I believe are my strengths.

Daina Dravnieks Apple is a natural resource economist on the U.S. Forest Service Policy Analysis Staff, Washington, D.C. She has served as a strategic planner for the National Forest System; as an Assistant Regulatory Officer in the Washington Office; as Regional Land Use Appeals Coordinator; and on the Engineering Staff in Region 5, San Francisco. She began her Forest Service career as an Economist at Pacific Southwest Research Station, Berkeley.

Apple is active in the Society of American Foresters and is Chair-elect of the National Capital Chapter. She is a member of Sigma Xi Scientific Research Society and was elected President of Phi Beta Kappa Northern California Association, and National Secretary. She is a graduate of the University of California at Berkeley, where she earned a B.Sc. in the Political Economy of Natural Resources and an M.A. in Geography, and is currently in the Environmental Science and Public Policy Ph.D. program at George Mason University.

Research in Progress

Edited by Jessie A. Micales

Focus on the Badger Army Ammunition Plant (BAAP), in Central Wisconsin

Overview of the Biological Inventory

Jessie A. Micales

The Badger Army Ammunition Plant is a huge facility nestled in the heart of central Wisconsin farmland. Its 7300 acres borders Devil's Lake State Park and the Wisconsin River. The land was originally composed of high- and low-grass prairie and oak-savannah vegetation. It now contains more than 1400 buildings and bunkers, a major power plant, railroad lines, and large areas of contaminated soil and holding ponds, as well as relatively untouched areas of farmland and forest.

Since its construction in 1942, BAAP has been one of the largest manufacturers of military munitions and propellants in the U.S., providing arms for all of our major conflicts for the past 50 years. In 1997, the Army decided to close the facility and is currently decontaminating the soil and water on the base, a process that will take many years. The fate of this large parcel of land is now hotly contested. Federal and state agencies, the Ho Chunk Nation, and private industry all have conflicting proposals for its final disposition.

The Wisconsin Department of Natural Resources would like to restore the 7300 acres to its original prairie and oak-savannah vegetation types. The property would be managed as a State Recreation Area and would be open to the public. As part of the efforts to obtain this goal, a rapid biological inventory of the area during the summer of 1998 was sponsored by the Aldo Leopold Chapter of the Society for Conservation Biology. Dr. Janine Clemmons, from the Department of Zoology at the University of Wisconsin - Madison, coordinated the project. Experts in soils, geology, and assorted biological taxa were asked to participate in monthly surveys in which they would try to inventory the large array of geological features and living organisms that are found on the site.

Unfortunately there were no research funds dedicated to this project, so this work was done on a purely voluntary basis using as much student help as possible. At the end of the season, many of the scientists and their students met together early on a Saturday morning and discussed their research findings.

I was involved with coordinating the mushroom/lichen survey with mycologists and lichenologists from the University of Wisconsin and the USDA-Forest Service Forest Products Laboratory. We started with the best of intentions and decided what type of surveys to make, where to set out the plots, and when we wanted to collect. We were then greeted with an incredible stretch of dry weather that prevented mushroom formation throughout south central Wisconsin for most of the summer. The dry weather lasted well into September when the survey was halted because of the beginning of hunting season. We will try again this summer and assume the weather will be more conducive to mushrooming.

Other people had much more success with their projects since their specialties were not so weather-dependent. Dr. Eunice Padley, an ecologist and soil scientist with the University of Wisconsin - Madison and the U.S. Forest Service did a one-day survey of the soils at BAAP. She reported that the natural soil in the area is greatly influenced by the terminal moraine of the glaciers that were present in the area during the various Ice Ages. The resultant soil varies in texture from sand to silt loam. Although topsoil is still present in some areas, much of the natural soil was disturbed by bulldozing or replaced with fill for railroad lines. Such severe disturbance could limit or delay the restoration of natural vegetation.

Drs. Patricia Sandford and Marge Winkler of the Pollen Lab in the Center for Climatic Research at the University of Wisconsin - Madison study climate change by examining long core samples of pond sediments for the remains of small crustaceans and Daphnia-like organisms. They sampled several ponds in the plant acreage and are currently analyzing the crustacean populations and their positions in the core samples. This is slow, painstaking work, but they have already located one genus that is usually associated with more southern climates, thus greatly extending the range of that organism.

Lisa Hartmann and Mike Mossman of the Wisconsin Department of Natural Resources conducted auditory surveys of the frog and toad populations of BAAP. They also recorded other natural sounds including stridulating insects, the calls of mammals such as coyotes, and counted the number of fireflies signaling in selected areas for certain periods of time. Their largest effort, however, went into a bird survey. Thirteen transects spaced 50m apart were set up across the grounds of BAAP. Numerous volunteers assisted in this effort and counted more than 101 species of birds, 62 of which showed evidence of breeding. Twenty-two of these species are considered threatened or endangered or are species that are undergoing dramatic population declines in the rest of

the state. These species include peregrine falcon, osprey, eastern and western meadowlark, bald eagle, cooper hawk, eastern bluebird, orchard oriole, bobolink, and red-headed woodpecker.

The BAAP is an excellent habitat for birds—it includes forest, prairie, and savannah vegetation types with transitional zones in between. The proximity of the plant to the Baraboo Hills, the largest stand of forest in the Midwestern United States, certainly contributes to this abundance. Human-built structures were also important for the birds. The large numbers of utility poles throughout the plant provided nesting platforms and perch sites for many species. These poles will be removed during the restoration process, which may have a negative impact on some bird populations. Similarly many bird species built their nests near the abandoned buildings of the plant. Since the buildings were empty, the birds were not disturbed and were able to nest successfully. A more intensive bird survey is planned for next year. The organizers will try to involve local teachers and schoolchildren in both the bird survey and initial prairie restoration efforts.

Information from the survey is being taken into consideration during deliberations on the ultimate fate of BAAP. Lawmakers, such as U.S. House Representative Tammy Baldwin, are becoming aware of the value that this land would have in its natural condition as opposed to the commercial value of yet another industrial park. It will probably be several years before a final decision is made on the property. During this time we will continue to collect data and catalog the species found on the grounds of this unusual facility.

Jessie Micales is the Project Leader for the Center for Forest Mycology Research at the Forest Products Laboratory in Madison, Wisconsin. She has edited this column since 1990.

Sampling Zooplankton

Ericka Scarpace

During the summer of 1998, four undergraduate students from the University of Wisconsin-Madison surveyed several of the ponds within the Badger Army Ammunition Plant to determine their pH levels, conductivity levels and zooplankton makeup. I was part of this team. We were supervised by Dr. Stanley Dodson from the Department of Zoology.

We sampled eight ponds within the boundaries of the plant and four ponds outside the plant. We found that the pH levels of the ponds ranged from 6.10 to 8.21 which is standard for eutrophic hard lakes. The lowest pH level lake was surrounded on one side by pine trees, which tend to contribute to soil acidity, and thus may play a role in the low pH of the lake. The conductivity of the lakes ranged from 55 to 550, which is fairly typical for this type of lake. We encountered a total of 13 different zooplankton species within these ponds. These species were Acanthocyclops, Bosmina, Ceriodaphnia, Chydorus, Chydorid, Cyclops, Cyclopoid, Daphnia, Diaphanasoma, Diaptomus, Eucyclops and Mesocyclops.

Most of the ponds had several different species in them, but one lake, which was inundated with cow feces, had many small daphnia but no other zooplankton species. In general, the ponds outside of BAAP seemed to have a more diverse zooplankton population. A more detailed toxicology analysis may explain the differences in zooplankton population among ponds within and outside of BAAP.

The actual sampling and area measurements of the ponds proved to be quite difficult. The only maps of the area are vague. There are no road names or exact coordinate locations of the ponds. Several of the ponds that were located on the map could not be found, perhaps because they had dried up or the location was incorrect. Some of the ponds were difficult to reach as they were surrounded by tall, untrampled grasses and weeds, and were in deep depressions. At the other extreme, some ponds were small and located on flat land in grazed grasses just feet from the road. Some of the ponds were covered with duckweed and/or surrounded by marshy soil, which made them hard to sample. Other ponds were relatively clear and/or were surrounded by more solid ground.

This research, while limited by our knowledge of lakes and zooplankton and our limited access to high-tech equipment, provides baseline data upon which to build future surveys. This experience also gave undergraduates the chance to get involved in hands-on field sampling and current issues in land use.

The goal of many of the scientists involved in similar research of the Badger Army Ammunition Plant is to obtain a general assessment of the overall quality and health of the soil and water. With this information available, policymakers can make a more informed decision on how to best use this land in the future.

Ericka Scarpace is a senior, majoring in zoology, at the University of Wisconsin - Madison.

Are you doing, or overseeing, an interesting piece of research? Women in Natural Resources welcomes contributions to this column. Describe the research or process, what is being done currently, the expected outcomes, and your (or the researcher's) part in it.

For more information, contact the editor, Dr. Jessie Micales, at jmicales@facstaff.wisc.edu

Publications

The journal *Revista Agroforestria en Las Americas* is a quarterly journal compiled by the Tropical Agricultural Research and Higher Education Centre (CATIE) in collaboration with the International Centre for Research in Agroforestry (ICRAF). With a wide readership throughout Latin America, the journal supports the mission of CATIE to improve human welfare through application of scientific investigation and post-graduate education for conservation development and sustainable use of natural resources in Tropical America. Contributed articles come from professionals in the field, regional institutions, and distinguished scientists. For additional information or questions contact Sarah Workman at 01-402-437-5178, fax 01-402-437-5712, email sworkman@unl.edu or sworkman/rmrs_lincolin@fs.fed.us. The secretariat in Costa Rica can be reached through Vicza Salazar at agrofor@catie.ac.cr. The journal is currently accepting contributions for a special edition on gender and social issues in agroforestry.

The 1999 Archaeological Fieldwork Opportunities Bulletin in now available through the Archaeological Institute of America. This comprehensive guide to excavations, field schools, and special programs lists openings for volunteers, students, and staff throughout the world. Cost is $10.00 for members or $12.00 for non-members, plus $4 for shipping and handling. Send orders and make checks payable to Kendall/Hunt Publishing Company, Order Department, 4050 Westmark Drive, Dubuque, IA 52002. To order by creditcard call 800-228-0810 or 319-589-1000. For questions or comments contact Margo Muhl Davis, email aiapub@bu.edu.

Forest Pharmacy: Medicinal Plants in American Forests, by Steven Foster, traces the history of North American plant medicines, anchoring the discussion in a European and Asian context. The publication examines native groups and colonial use of forest based medicines. The 57-page booklet identifies 120 herbs, herbaceous plants and shrubs listed for medicinal values. Another 14 plants are discussed in more detail with photos: ginseng, goldenseal, Passionflower, mayapple, bloodroot, Pacific and English yews, foxglove, lobelia, evening primrose, echinacea, Morman tea, sassafras, and saw palmetto. The booklet concludes with a discussion regarding the regulation of medicinals, patent laws, dietary supplements and challenges for the future. Send check for $9.95, payable to Forest History Society, 701 Vickers Ave., Durham, NC, 27701 (919-682-9319).

The Dictionary of Forestry, (1998)published by the Society of American Foresters, is the essential reference to 4,500 terms used today in the broad field of forest science, management, and conservation. Concise yet comprehensive, its authoritative definitions cover all disciplines that forestry comprises, including agroforestry, forest ecology, forest recreation and wilderness management, forest soils, international forestry, range ecology and management, remote sensing, photogrammetry, GIS, silviculture, regeneration and stand dynamics, urban and community forestry, watershed management, and wildlife and fish ecology. John A. Helms, editor, is professor emeritus, Department of Environmental Science, Policy, and Management, University of California -Berkeley. As chair of the Forest Science and Technology Board of the SAF, he directed the work of 50 leading specialists who contributed their expertise to this 208-page volume. For further information contact Lori Gardner at 301-897-8720 or email gardner@safnet.org.

Profit Centers in Industrial Ecology: The Business Executive's Approach to the Environment is by Ronald S. Smith, Jr. Smith shows that compliance with environmental protection laws can be profitable. He provides corporate executives with easily accessed data and analyses of the theory of environmental management systems (EMS), and in doing so covers the major environmental concerns worrying corporate America. The result is a practical guide to the tools of environmental management and how they can be used to enhance a corporation's profitability while at the same time reducing its impact on the environment and consequent financial liabilities. Readers will find ways to tailor an appropriate strategy to their specific business needs, justify that strategy financially, and integrate the EMS into an existing business plan. See http://www.greenwood.com for further information.

The Organic Trade Association's, *The Organic Pages* contains 270 pages of processors, certifiers, growers, farmer associations, farm input suppliers, brokers, consultants, importers, exporters, restaurants, manufacturers, distributors, retailers, ingredient suppliers, and others involved in producing or selling organic products. Vital industry information is arranged by industry sectors for quick, easy reference. Detailed indexes, including web sites and email addresses provide easy access to specific organic products and services. To order write, Organic Trade Association, PO Box 1078, Greenfield, MA 01302 (413-774-7511, fax 413-774 6432).

As a woman, do you ever feel that your ideas are not taken seriously by your boss and colleagues, just because you are a woman? A new resource entitled *A Woman's Guide to the Language of Success* will allow you to transform the way you express yourself. Phyllis Mindell, Ed.D, author, is the founder and president of Well-Read, international communication consultants. Packed with real-life success stories, proven how-to techniques, and practical advice, this comprehensive guide helps you acquire the assertiveness, poise, and confidence. Write Prentice Hall, Order Processing Department, PO Box 10871, Des Moines, IA 50381-0871.

News & Notes

Community Colleges are Hiring More Ph. D.'s

Increasing numbers of Ph. D.'s are applying for positions at community colleges in response to the slow academic job market. Some institutions are taking full advantage of the trend to boost the credentials of its faculty, while others question the value of doctorates on campuses.

In an attempt to bolster its reputation in the region, Raritan Valley Community College in New Jersey is actively recruiting Ph. D.'s. The Board of Trustees at the college feel that the terminal degree is an indicator of excellence. Not only is Raritan recruiting doctorates, they are encouraging their senior faculty to complete their doctoral training. One motive behind the new hiring agenda is to entice four-year colleges in the area to offer junior and senior-level courses on Raritan's campus, using their own faculty to teach the courses. According to Raritan's president, Cary Israel, "The idea is that we will become a resource for the universities. It will also give our professors a respite from teaching the same freshman psychology course for 20 years."

Not all community colleges agree with the new practice. With the main objective of community colleges being teaching, some believe that professors with master's level degrees bring a more practical set of skills to the community college classroom. Many feel that Ph. D.'s have difficulty succeeding in the community college environment because they simply are not trained to teach four or five classes a semester, including some at remedial or introductory level.

Burlington Community College, also in New Jersey, has taken a different approach. "We're very interested in Ph.D.'s," said their vice-president for academic affairs. "If someone comes to us with a research agenda, that's great, but that's not why we hire people here. Teaching and advising are our main objectives." Both Raritan and Burlington say that the main qualification they look for in hiring faculty members is teaching experience, and in the end that will win the job.

Karla Haworth, *The Chronicle of Higher Education,* January 8, 1999

Don't Let Changing Jobs Jeopardize Your Retirement Savings

"People are so enticed by a bigger salary that they forget to look at the total picture," says Ron Roge, a financial planner in Bohemia, New York. "Ultimately, a heftier salary can get eaten away by lost benefits and retirement savings."

There are five simple mistakes to avoid to ensure that job changes don't torpedo your financial plans. Mistake No. 1: Cashing out early. Spending their retirement money is the biggest mistake people make when changing jobs. Not realizing how small amounts can accumulate over time, many people figure that if they have less than $10,000 saved its not worth rolling it over. Mistake No. 2: forfeiting hard-earned benefits. If you leave a company before you qualify for a pension or for employer contributions to a 401(k) plan, make sure your new employer can make up the money that your old company would have set aside for you. Mistake No. 3: Staying put. If the circumstance allow, it may be the wisest, and the simplest, move to keep your money in the former employer's plan. Mistake No. 4: Not knowing the rules. If you decide to take your money to your next employer, you can typically transfer that payout directly to your new plan. If there is a waiting period before you can enroll in their plan, you can transfer the money into an IRA. Beware, don't transfer your money into an existing IRA or you won't be able to shift your money into your new employer's plan later on. Mistake No. 5: Not planning for timeouts. If your new employer makes you wait six months to a year before you can enroll in its retirement plan, you should be disciplined about saving money from each paycheck. If you qualify, open a tax-deferred or Roth IRA.

Kerry Hannon, *Working Woman*, February, 1999

Cultural Heritage, Repatriation, and Kennewick Man

Elizabeth L. Dick of the Illini Indians, the Peoria tribe of Oklahoma, and anpiring physical anthropologist, was the first recipient of the Peoria Indian Heritage Collection internship at the Illinois State Museum. The position was designed to allow a tribal member to spend a summer working with the funerary objects found in association with native human remains that are culturally affiliated with modern tribes. With the passing of the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990, institutions must inventory human remains and associated grave goods in order to return them to the tribes for reburial.

In a trip home to Pittsburgh, the author found herself in a heated discussion about NAGPRA and the controversy surrounding the proposed 9,000 year old remains of Kennewick man. Representing one of the oldest sets of human remains found in North America, and reportedly possessing Caucasoid features, Kennewick man has caused scientists to reevaluate the commonly held theory that only persons of Asian descent inhabited the new world before 8,000 years ago. Supported by their history, the tribes of Washington State and surrounding

areas claim that their ancestors have been in North America since the beginning of time. According to their beliefs, there is no doubt that Kennewick man is a native ancestor. The scientific community is eager to study Kennewick man while native tribes wish to rebury the remains of what they consider to be their ancestor. Under NAGPRA, it appears as if the native tribes should have the rights to ownership.

As both a tribal member and an aspiring anthropologist, the author has conflicting impulses regarding this issue. She does not hesitate in supporting the repatriation and reburial of her own ancestors. At the same time, she finds herself distressed by the possibility that a potentially rich source of information as that contained in the bones of Kennewick man could be lost forever. The rights of the scientific community, versus the rights of a native culture, are at stake. Confronting this matter became the most compelling component part of her internship. The outcome of the battle over these remains may have a great influence on the next stage of American archaeological research. It may also have ramifications for the future relationship between native tribes and governmental institutions.

Elizabeth L. Dick, *The Living Museum*, Winter 1998-1999

The Silent Friendships of Men: An Essay

The push for men to express their feelings presumes that we have feelings, and we do have a few, but they remain submerged, and the airing of them often violates their authenticity. We are, as a gender, as dull as we seem. Contrary to the claptrap of the men's movement, men gain power through not talking. One can make us talk counter to our genetic makeup, but it's like training kangaroos to box. It's mildly entertaining but pointless. There's a deep, basically serene well of silence in most men, which, for better or for worse, is where we live.

The silence of men in general is overtalked about and overcriticized. To be sure, men never open up as much as women want them to, but there is a wordless understanding in which we function fairly well—especially in friendships. There are a dozen guys whom I count as friends and who do the same with me, yet months pass without our speaking, and even when we do, we don't.

Silence in male friendships is our way of being alone with each other. Once men have established a friendship, that itself is the word. The affection is obvious, at least to us. A main component of our silence is an appreciation of the obvious.

Roger Rosenblatt, *Time*, December 7, 1998

Human Alarm Clocks

Some people are equipped with a built-in alarm clock that gives them the eerie ability to decide, when they go to bed, what time they want to wake up the next morning. In the late stages of sleep, glands release more and more of the hormones cortisol and adrenocorticotropin into your blood, a study in the journal Nature reported. The levels of these hormones peak just when you naturally awaken. Adrenocorticotropin, seem to be the key to the wake-up signal. A group of 15 volunteers in Germany were told that they would be awakened in either six or nine hours. In those anticipating a 6 a.m. wake up call, blood levels of adrenocorticotropin started surging at 5 a.m.; in those expecting more Z's the levels stayed low. The next step: figuring out how they do it, and whether the rest of us can learn.

Newsweek, January 18, 1999

Animal Rights Groups vs. Environmental Groups

People and disease almost wiped out the Sierra Nevada bighorn sheep before it began making a dramatic comeback about a decade ago. But now, some scientists say that mountain lions are killing and eating the endangered sheep at an increasing pace— and a 1990 ballot initiative means there is little that can be done to stop them. By 1991 the bighorn sheep population stood at about 400 animals, up from 250 in the 1970's, and was expanding. Once the Proposition 117 was passed, the mountain lion population climbed quickly. Experts say that there are now some 5,000 animals, and the bighorn sheep are paying the price. There are now fewer than 100 Sierra Nevada bighorn sheep.

The Mountain Lion Foundation, which helped get Proposition 117 passed, claims that there is no firm link between mountain lions and the decline of bighorn sheep. Wildlife biologist John Wehausen claims that the Foundation is an animal rights group that is concerned about the life of a particular animal in a particular place, not with habitat preservation and maintaining rich biodiversity.

Leslie Chow, a biologist with the U.S. Geologic Service, says that mountain lion populations are at an all-time high. She claims that the situation at present is not "natural" The State Department of Fish and Game agrees, and backed a bill in the State Assembly last year that would allow a limited take of mountain lions in order to reduce the impact on the bighorn sheep. The bill died when the Mountain Lion Foundation opposed it. The foundation claims that they are not opposed to studying possible solutions to the bighorn problem, nor are they opposed to relocating problem lions. However, the people of California have made it plain that they do not want the mountain lions hunted and killed.

Associated Press, September, 1998

An Open Letter to My Dear Sisters

The millennium approaches and, unlike Jerry Falwell, I have yet to find a way to exploit fear of the Y2K bug for my own monetary gain. In fact, I expect that Y2K will be a bigger yawn than the impeachment trial. Call me foolish, but on December 31st, I will not be locking myself in a cellar with food and ammunition. Forget about gloom, doom, and blood in the streets: my only concern is that Dick Clark will age like the Portrait of Dorian Gray before I get to see the ball drop on Times Square.

No, sisters, what concerns me as we sally forth into a new century is what we'll do with the many and varied accomplishment of the old one. In this century, American women achieved suffrage; African Americans marched on Washington and brought an end to Jim Crow; gay and lesbian Americans forced an ongoing national debate about equality before the law and about the right to respect, to difference, and to love; and the Americans with Disabilities Act, one of the greatest legislative coups in living memory, has begun at last to rectify a long and shameful history of discrimination against the disabled. What will we do with these gifts of the 20th century? Will we forget what life was like before we had them? Worse yet, will we fake up a golden age of prosperity, peace, and innocence, and pretend that the struggle for universal enfranchisement has destroyed this Shangri La?

On sunny days, I think I know the answers to these questions. I note with approval the electoral interest in both Hillary Clinton and Elizabeth Dole—and many Americans now seem able at least to imagine a president who is something other than white and male. And how many of us still use descriptives like "lady doctor" or "woman professor" because we expect those professions to be universally male? The obligatory gender designation is fading from common usage. And yet on darker days, when I hear young women say that they're not feminists, or that feminism has done nothing for them, I fear that we are in serious danger of forgetting the dramatic and positive changes that feminism has wrought in our lives. I read books like Wendy Shalit's *A Return to Modesty* and Danielle Crittenden's *What Our Mothers Didn't Tell Us*, and feel as if I've been caught in some horrific pre-feminist time warp. To paraphrase a certain short, yappy Texan, *do y'all hear that big sucking sound? That's 1952, honey.* The *Feminine Mystique* hasn't been written yet, and Phyllis Schlafly has a girdle with your name on it.

The year 2,000 is creeping up on us, ladies. Sure, it's just a number, but we've invested it with such drama and trauma. Our hopes are high, and we need another backlash like we need a hole in the head. To put it in a nutshell, are we going to be up on the barricades with the lovers and the fighters, or down in the basement with the Reverend Jerry?

Meet me in the Latin Quarter, girls. I'll be the one in the beret and fatigues, selling my own Y2K video at substantially discounted prices. I've found a way to milk this thing after all. And I'd like to suggest that those of us who have a few extra dollars, and a taste for practical jokes, buy Tinky Winky dolls and mail them to the Reverend Jerry with our compliments. So, everyone knows that the color purple is the gay-pride color? Won't they be surprised to hear that at the Vatican?

Aunty Establishment, UI Women's Center, March 1999

BOOK REVIEW
Continued from page 13

values as wealthy visitors build unbelievably large trophy houses.

Exploring the question of changing economic times—and offering no alternatives—Deming writes:

It is easy for people to anticipate the economic benefits of tourism development, but hard for them to factor in the cost to local nature and culture. Certainly it is a gain if ancient trees are worth more standing in the forest than cut for the pulpmill. But when a place becomes a playground, long-standing equations written between the land and the people are rewritten, and the richness of a local lifeway based on intimate working knowledge of the land is heavily taxed.

While offering no solutions, Deming allows the reader to explore some questions central to natural resource policy in the late 20th century. Taken together, these two books provide two different views on civilization and our relationship with our natural environment .

Jonne Hower, is Public Affairs Specialist, Bureau of Reclamation, Pacific Northwest Region, Boise, Idaho. She previously worked for the Bureau of Land Management in eastern Oregon. She is a long time WiNR Editor.

Michigan State University

CHAIRPERSON

Department of Crop and Soils Sciences

Responsibilities: The Chairperson of Crop and Soil Sciences serves as the chief administrative officer of the department and provides leadership in developing, budgeting and administering all teaching, research, extension, outreach and international activities; in developing and administering positions and resources; in communicating effectively with faculty, students, staff and administration; in maintaining effective liaison with industry leaders, clientele groups, professional organizations, and the public; and in providing vision and leadership in long-range planning.
Qualifications: Applicants must have an earned doctorate in plant or soil sciences, or related fields, and show evidence of excellence in teaching, research, extension/outreach and/or international activities in accord with their appointed duties. Applicants must possess a vision for the future of crop and soil science disciplines, demonstrated leadership ability, aptitude for administration and have established a national/international reputation in their professional discipline.
Department: Recently completed office, laboratory and field facilities support 43 faculty positions, 4 professional staff, 38 support staff, 20 postdoctoral/research associates, 89 graduate students and 150 undergraduate students. Graduate degree programs are offered at both the M.S. and Ph.D. levels. The department is home to the NSF funded Center for Microbial Ecology and includes three endowed chairs: C. S. Mott Chair in Sustainable Agriculture, the John A. Hannah Chair in Microbial Ecology and the Homer Nowlin Chair in Water in Agriculture. The annual department budget is approximately $9.5 million with $4.8 million of that total being in extramural funding.
Application Procedure: Qualified persons are requested to submit the following: a letter of application, a statement of administrative philosophy and vision emphasizing their ability to foster faculty/staff/student development and program direction and growth into the 21st century; complete curriculum vitae, including names, addresses, and telephone numbers of five references. **Applications will be accepted until March 29, 1999**, or until a suitable candidate is selected. The position is available after August 1, 1999, and is open to candidates who meet the requirements for tenure at the rank of full professor. Applications, nominations, and inquiries should be addressed to: Dr. Bernard D. Knezek, Search Committee Chairperson, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824-1325. Telephone: 517-355-2383, Fax: 517-353-4551, E-mail: knezek@pilot.msu.edu Additional information on the University, Department or Position may be obtained from: http://www.css.msu.edu or by contacting Ms. Darlene Johnson, Administrative Assistant, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824-1325. Telephone: 517-353-2919, Fax: 517-353-5174, E-mail: johns146@pilot.msu.edu . *An EOE*

Aquaculture/Fish Health Management

University of Idaho

Assistant Professor, Department of Fish and Wildlife Resources, College of Forestry, Wildlife and Range Sciences, academic-year appointment. Qualifications: The appointee must possess a Ph.D. or DVM degree in aquaculture/fish diseases or closely related field. A commitment to teaching excellence is required. Desired qualifications include post-doctoral or agency experience and demonstrated research productivity. The successful applicant will teach the undergraduate courses in aquaculture, fish diseases and a graduate course in his/her area of interest and will establish a productive research program. Salary commensurate with experience. Starting date is November 1999. **Closing date for application is April 1, 1999** or until suitable candidate is selected. Send letter of application, curriculum vitae and three letters of recommendation to: Aquaculture Search, Department of Fish and Wildlife Resources, College of Forestry, Wildlife and Range Sciences, University of Idaho, Moscow, Idaho 83844-1136, Fax: 208-885-9080, or visit http://www.uidaho.edu/~corn2742/aqua.position. The Department of Fish and Wildlife Resources has one of the largest enrollments of undergraduate and graduate students at the University of Idaho. The department has an international reputation for teaching and research in the natural resources-based College of Forestry, Wildlife and Range Sciences. *AA/EO employer and educational institution.*

Urban Riparian Buffer Conference, April 21-22, 1999, Hartford/Springfield, Connecticut. Sponsored by the Southern New England Chapter of the Soil and Water Conservation Society. For information, contact SWCS, PO Box 262, Storrs, CT 06268, (401-822-8829, email jpashnik @prodigy.net).

Society of American Foresters National Convention, will be held September 11-15, 1999, in Portland, Oregon. For information, contact SAF, phone 301-897-8720, fax 301-897-3690, email safweb@safnet.org, or visit http://www.saf.net.org/calender/natcon.htm.

National Park Service Reservations On-Line at http://reservations.nps.gov. Camping or tour reservations at 26 National Parks sites can be made on-line. The secure website provides valuable park information including cost and directions. Reservations can be made from 10:00 am to 10:00 pm (EST).

The 72nd Annual Meeting of the **Northwest Scientific Association** will be held at the Washington State Historical Museum and the University of Washington, Tacoma, on March 24-27, 1999. The theme of the meeting will be A Century of Resource Stewardship and Beyond: Mount Rainier National Park 100th Anniversary Symposium. For information write Northwest Scientific Association U W CFR Continuing Education, PO Box 352100, Seattle, WA 98195-2100.

New Course: Integrated Biological Control. Washington State University and the University of Idaho will inaugurate a one calendar year, non-thesis Master of Science degree in Entomology in the fall of 1999. The degree will educate students in, and practical strategies of, biological control in a cost- and time-efficient manner. For complete information contact the Department of Entomology, PO Box 646382, Pullman, WA 99164-6382 (509-335-5504, email entom@wsu.edu, or visit http://biocontrol.entom.wsu.edu).

The **American Philosophical Society** makes grants towards the cost of scholarly research in all areas of knowledge except those where support by government or corporate enterprise is more appropriate. The grants cover travel to the objects of study, purchase of photorepreductions of documents, and consumable professional supplies not available at the applicant's institution. For questions of eligibility of a project or an applicant, call 215-440-3429 or email eroach@amphilsoc.org. To request forms write Committee for Research, American Philosophical Society, Independence Mall East, 104 S. 5th St., Philadelphia, PA 19106-3387, or visit http://www.amphilsoc.org.

For those interested in **British Columbia forestry** information, check out Bruce Bressette's site at www.brucebressette.com

Natural Resource Conflicts in the 21st Century is the theme for the Borah Outlawry of War Foundation conference. Proposals for mini-courses are invited for the Spring 2000 event at the University of Idaho. Contact Dennis Scarnecchia at scar@uidaho.edu for information.

Wilderness Science in a Time of Change will **be held May 23-27 1999**, in Missoula, Montana. Organized by the Aldo Leopold Wilderness Research Institute, USDAFS and the University of Montana. Information can be found at http://www.umt.edu/wildscience or Cole_David/rmrs_missoula@fs.fed.us

BLM now has a bookstore online at http://store.ca.blm.gov. It features USGS, USDAFS, and NPS maps, gold prospecting and rockhound guides, mineral kits, plant and animal guides, parks and recreation books, and "stuff." They accept credit cards.

The American Fisheries Society annual conference will be held August 29-September 2, 1999 in Charlotte, North Carolina. The theme is Integrating Fisheries Principles from Mountain to Marine Habitats. For information contact Andy Doloff at 540-231-4864 or email afs99@vt.edu.

If you need information about Asia, you can search the database of resources in print, on video, or on the web through the new outreach service of the Center for East Asian and Pacific Studies at the University of Illinois at http://www.aems.uiuc.edu.

The Pocono Environmental Education Center in NPS' Delaware Water Gap National Recreation Area runs a number of programs in a residential setting. They are searching for interns and instructors with degrees in one of the natural resources. Various starting dates, stipends, and durations. For details send letter to Florence R. Mauro, Director, PEEC, RR2, Box 1010, Dingmans Ferry PA 18328 or visit http://www.peec.org

A listing of institutional agroforestry activities nationwide is available on the web at http://www.unl.edu/nac/. These feature teaching, research, extension, and international activities at over 60 institutions in the U.S.

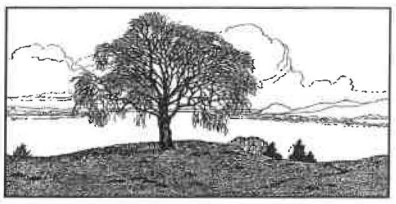
The Wildlife Society meets September 7-11, 1999 in Austin, Texas. The theme is Conservation Challenges for the 21st Century: Are Wildlife Biologists Ready? For more information, contact Lorraine LeSchack at 301-897-9770 or email tws@wildlife.org.

The 6th Agroforestry Conference will be in Hot Springs Arkansas on June 12-16, 1999. The theme is Sustainable Land-Use Management for the 21st Century. For information on papers, contact Terry R. Clason at TCLASON @agctr.lsu.edu or Catalino A. Blanche at cblance@yell.com.

The NSF Professional Opportunities for Women in Research and Education (POWRE) program has a new announcement, NSF 98-160. This new announcement replaces NSF 97-91 and can be obtained on the POWRE web page. Starting at home page http://www.nsf.gov, select "Crosscutting Programs," then "POWRE." It is important to pay attention to the changes in the new program announcement. Applicants who do not adhere to the new guidelines may be disadvantaged in the review process.

The International Conference of the Society for Ecological Restoration will be held September 23-25, 1999 in San Francisco, California. The theme is Reweaving the World: Restoration, Community, Culture. For registration materials, send name, address, daytime phone and email to Society for Ecological Restoration, 1207 Seminole Highway, Suite B, Madison, WI 53711, call 608-262-9547, fax 608-265-8557, or email ser@vms2.macc.wisc.edu. For submission and guidance of talks and posters, see http:\\www.sercal.org/ser99.htm.

Get that Grant: Grantwriting from Conception to Completion. Sponsored by Community Systems of Bozeman, this comprehensive grantwriting-training program will be held April 12-15, 1999 in Bozeman, Montana. The workshop addresses all aspects of successful grantseeking with special attention to writing the technical components of grant proposals. Government, foundation, corporate, and other grant funding sources



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are identified, as well as instruction for conducting a productive funding search. For further information and registration, contact MSU Women's Center, 15 Hamilton Hall, Montana State University, Bozeman, Montana 59717, or call 406-994-3836.

We Shall Overcome - Historic Places of the Civil Rights Movement is a new online National Register of Historic Places Travel Itinerary produced in a joint project by the National Park Service, the Department of Transportation's Federal Highway Administration, and the National Conference of State historic Preservation Officers. The "virtual tour" focuses on 41 historic places in 21 states associated with varied aspects of the civil rights movement. The web site includes descriptions of each location's significance, interactive maps, photographs, information on public accessibility, and links to other sites associated with the civil rights movement. The site also highlights essays, issues of the movement, the Civil Rights Act of 1964, and the Voting Rights Act of 1965. Visit the web site at http://www.cr.nps.gov/nr.

Do you have a job, conference, journal, or book to advertise? Call 208-885-6754 for flyer mailing dates.

TO SUBMIT A MANUSCRIPT to Women in Natural Resources journal, send to the editorial office a single spaced preliminary draft by FAX (208-885-5878) for consideration to Dr. Dixie L. Ehrenreich, Editor. To discuss a topic, please call 208-885-6754 or email dixie@uidaho.edu.

TO ADVERTISE A POSITION OR PRODUCT in a flyer or journal, send text by FAX (number above) for an estimate of cost. WiNR sends out job announcement flyers about every three weeks. The journal is quarterly. Price for a full page (8 1/2 x 11) in the journal or the flyer is $1100; half page is $550; one-third page is $366; quarter page is $275; one-sixth is $183; the smallest is one-eighth at $140. We format at no extra charge, or accept camera ready copy sent to our address (see below).

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