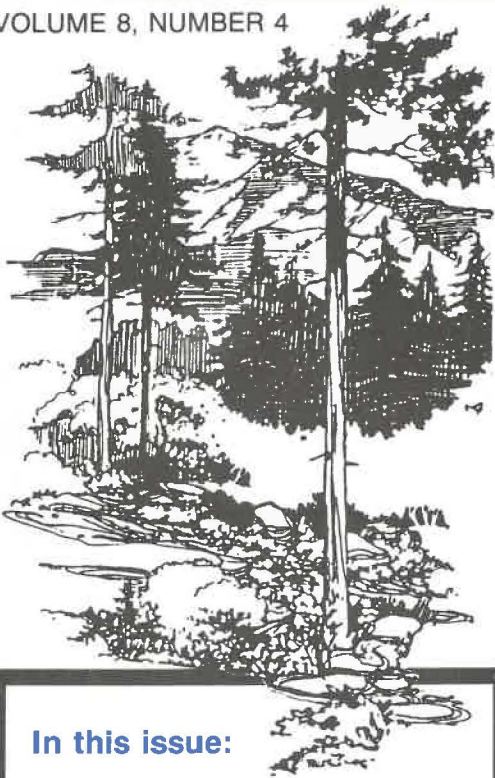


women in **NATURAL RESOURCES** **FORESTRY**

for professionals in forestry, wildlife, range, fisheries, recreation, and related fields

VOLUME 8, NUMBER 4

WINTER-SPRING 1987



In this issue:

- Six pages of Photo Winners
- Women in the Forest Planning Process
- Max Peterson Worries About Effects of Federal Budget Cuts
- Non Verbal Cues
- Subsistence Foresters Are Women
- Forest Science Could Be More Humane
- Financial Planning for Resource Managers



Fon Robberecht photo

Janice Dobson studies autoecology of aquatic arctic grass on the North Slope in Alaska. See photo contest winners for details.

WE'VE GOT TO SUPPORT EACH OTHER

What? You forgot? Well, allow me to speak as the voice of your social responsibilities. It is not now (and never has been) enough to be a shining example of a woman as the efficient, competent, natural resource professional. We must not pretend that our achievements in white-male-dominated natural resource fields came without struggle or sacrifice. We, as citizens of our world, as parents of future citizens, and as the beneficiaries of efforts of citizens who preceded us, owe our support to the laws and organizations that support us now and will support our children later. I'm talking about EEO, about Affirmative Action, about laws that provide protection against sexual harassment, about women's committees in our various professional societies, and the folks (women and men) who stick their necks out in front for us all. We definitely must not say that those things and those people do not matter to us. We obviously belong to that large group of women for whose benefit those laws were intended (and the Supreme Court recently affirmed that the laws are necessary). We definitely need to participate in activities which assist some or all of us to achieve equality even if we ourselves do not think we need it.

I sat next to a couple of men at a women's breakfast at the last Society for Range Management (SRM) national convention. By their presence, these men were interested in supporting their female colleagues. Yet when presented with the idea of an official women's committee within the SRM, they were hurt ("We don't need that!") and their colleagues quickly concurred. They missed the point. I'm very glad that such a congenial working group exists in those men's offices, but for every one office like that, there are five out there that are perfect little hell holes. What about the women trapped in those places? Let's not pretend that we don't know they're out there. Remember them the next time you are asked to contribute time and your name to such an organizing effort.

At the last national Society of American Foresters convention, a young woman stopped by the journal's booth. She had just been offered a nice state forestry job but was feeling guilty about accepting. She felt (read: had been told) that she wasn't the most "qualified" for the job and that she'd been offered it because she's a woman. It certainly is too bad that most of us buy into such ideas when we first hear them. The truth is that affirmative action and equal employment are more or less devoted to ridding hiring systems of certain bad, old, habits. Habits that may include judging job candidates with archaic methods that were created for and by men.

If guilt still persists, look at it another way. Every time someone gets a good job like the one my friend was contemplating, it somehow makes up for the opportunities that I (or your mother) missed. There is a mob of us who came a bit before these "better new days." Never forget that someone before you had to break that ground on which you walk.

As women professionals, we have a long way to go still. Take a look at Margot Garcia's study in this issue on the numbers of women in the national forest planning process. Garcia shows us where we stand in both numbers and status--I guarantee that it will depress you. I suspect that other agencies and the planning groups in private industry have a worse record. Next issue, Anne Fege will finish her compilation of women faculty in natural resource colleges around the nation. Incredibly few! In the interview in this issue, Max Peterson (former Chief of the Forest Service) warns that even with consent decrees (as in Region 5) the progress is slow, resentment builds, and future budget allocations will jeopardize upward mobility.

So, in your struggle to stay afloat--or move ahead--try to remember that if you need them, the laws and organizations are there. Support them so that they will remain strong and healthy.

And don't forget to practice a little sisterhood. I like that word "sisterhood;" it makes me feel that there are legions of us out there--sharing goals and concerns. It's important to know that one day all of this will benefit our daughters *and* sons.

-Karen Lyman

WOMEN IN FORESTRY

WOMEN IN NATURAL RESOURCES

VOLUME 8 NUMBER 4

WINTER-SPRING 1987

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LETTERS AND OPINIONS

▷I'd like to take this opportunity to express my appreciation for this publication. I treasure every issue. I feel very isolated at times, and it helps me feel that I am still in touch. I especially enjoy career articles, information on seminars, and international opportunities. Keep up the great work.

Frances Schmechel
Ozark, Arkansas

▷We are still getting inquiries about the Archaeological Resource Protection Act (ARPA) enforcement from other parks and organizations such as the National Trust for Historic Preservation. Locally, however, the problem is practically nonexistent. So, we really appreciate your continuing interest and coverage of ARPA (Vol. 8, #3). In other news, we're in the early stages of developing with North Carolina State University's School of Forestry, Department of Recreation Resources, a park-based microcomputer Geographic Information system, a tremendous plus for our resource management program. We are also doing early testing and training for a newly prepared earthwork vegetation management manual prepared by Andropogen Ecological Associates for the four NPS central Virginia battlefield parks.

Charles D. Rafkind
Chief Ranger
Richmond National Battlefield Park,
Virginia

▷ Although we read in the journal and elsewhere of the difficulties encountered by women seeking career parity and acceptance in natural resources professions, that is not true of students at the University of Idaho College of Forestry, Wildlife and Range Sciences--ranked in a recent Cooperative State Research Service review as being among the top 5 percent of natural resources institutions in the U.S.

Each year faculty from each of the college's 5 departments elect an outstanding departmental senior for that year and an outstanding senior for the college as a whole. At the college's award banquet in April, 6 students stepped forward to receive awards and congratulations; 5 of them were women.

They were, with their hometowns: for Fish and Wildlife Resources, Judith Ann McDonough, St. Bernard, Ohio; for Forest Products, Rachel Anne Vandenburg, Grangeville, Idaho; for Forest Resources, Jeanne Higgins, Newcastle, California; for Wildland Recreation Management, Bonnie Jean Lambers, Seattle; for Range Resources, Jan Marie Pence, Dillon, Montana. Jan Pence was also elected outstanding senior for the college. The lone man was Bruce Higgins, also Forest Resources, from Rough and Ready, California.

They'll have another chance to stand and be recognized--at the college's commencement in May, where

the student commencement speaker, chosen by her peers, will be Christine Vetter, Elkhart, Indiana. Chris, by the way, was the first woman on the college's student logging crew and is well acquainted with the business end of a chain saw.

These 6 young women may or may not find the college's supportive atmosphere when they move into their professional careers. If they don't, I'd be much surprised if they don't help create it, in the most convincing way--through ability, intelligence, and energy.

George Savage
University of Idaho
College of Forestry, Wildlife
and Range Sciences

▷I was omitted from the list of the Forest Service's women district rangers in your Vol. 8, #3 issue. I have been a ranger on the Warner Mountain Ranger District, Modoc National Forest in Cedarville, California since July, 1986. I do enjoy reading the magazine.

Karen Shimamoto
District Ranger
Alturas, California

▷I just had to send along this issue of the Louisiana Department of Agriculture and Forestry bi-monthly publication as an example of how discouraging our attempt to "humanize" the profession can seem. I was reading this publication, as I do many state's forestry publications, and came across this very unprofessional article regarding an all male 'beauty contest' and drawing to go with it. The Louisiana Office of Forestry is certainly fortunate that I am not a Louisiana taxpayer! As an editor of a state forestry agency, I found the article not only unprofessional but inappropriate and in poor taste. I am curious whether other incidents such as this have appeared in other forestry publications, or if this kind of article is an isolated case.

Shawn Morford
Salem, Oregon



ANNOUNCEMENT

As you can see by the shadowed title *WOMEN IN NATURAL RESOURCES* looming over the title *WOMEN IN FORESTRY*, we are signalling the beginning of a new era. We did not make this decision easily. The successful name we have used was handed on to us by those pioneers who established (in 1979) the first newsletter. The name *WOMEN IN FORESTRY* has strength and resiliency. It is short. The new name is a bit more lyrical, but it is longer; a bit vague, yet all encompassing. The acronym is wonderful--*WINR*.

The point which convinced us to change is this: the new name does address the wide diversity of our constituency--who you are. Not precisely, of course, but closer. It was the one name that most of you liked.

The changeover will be gradual--we will answer to both names for some time to come. There will be some confusion for those of you in libraries (as you bind two titles together) and government agencies (as you try to track down billings). We will try to help you with those problems as they arise, and we hope you will bear with us.

The subtitle will also change and we will name some of the disciplines such as forestry, wildlife, fisheries, range, recreation and others. The blending of professions on teams to address single natural resource problems has accelerated, it seems to us, just in the years we have been publishing the journal. Several of those blends include social scientists who are archaeologists, economists, sociologists, historians, and others. We will try to include such related social scientists in the sub-title.

We are pleased: we hope you are. Welcome to *WOMEN IN NATURAL RESOURCES!!!*

Dixie Ehrenreich

OMISSION

Sally Fairfax was interviewed for *WOMEN IN FORESTRY* (last issue) by Daina Dravnieks Apple of the U.S. Forest Service, Pacific Southwest Region, San Francisco. Dravnieks Apple is with the Planning and Budgeting Staff where she is the Regional Administrative Appeals Coordinator, does organization analysis and design, and manages the Region's Performance Tracking and Management Review Process. She says, "I basically design and manage administrative systems that help us most effectively get our Forest Service work done." Dravnieks Apple earned her B.S. and M.A. from U.C. Berkeley in Natural Resource Economics and Geography in 1977 and 1980. Before taking her current position, she was an Economist, Management Analyst, U.S. Forest Service, Management Sciences Staff, Berkeley. Her publications and research areas include development of public involvement models in natural resource planning; analyses of the management of policy and direction in the Forest Service; organization sensing and design; analysis of civil rights practices in the Forest Service. She is currently serving as National Secretary of Phi Beta Kappa Associations. Dravnieks Apple last appeared in *WOMEN IN FORESTRY* with her interview of Geri Larson (Vol. 7, #2).

AUTOBIOGRAPHY IN FIVE SHORT CHAPTERS

by Portia Nelson

I

I walk, down the street.
There is a deep hole in the sidewalk.
I fall in
I am lost . . . I am helpless
It isn't my fault.
It takes forever to find a way out.

II

I walk down the same street.
There is a deep hole in the sidewalk.
I pretend I don't see it.
I fall in again.
I can't believe I am in the same place.
but, it isn't my fault.
It still takes a long time to get out.

III

I walk down the same street
There is a deep hole in the sidewalk.
I see it is there.
I still fall in . . . it's a habit.
my eyes are open.
I know where I am.
It is my fault.
I get out immediately.

IV

I walk down the same street.
There is a deep hole in the sidewalk.
I walk around it.

V

I walk down another street.

TOWARDS A HUMANIST STRUCTURE FOR FOREST SCIENCE

Sharon Friedman

People who work in natural resource fields are by training and inclination, scientists. We are anthropologists, foresters, engineers, range managers, wildlife biologists, recreation specialists -- a mixture that crosses social, physical, and biological sciences. Today it often seems, however, that opportunities for technological innovation are concentrated in the hands of those with research positions. If the scientific process were expanded to include all natural resource workers, the skills of each person would be used more effectively and the result would be a more "humanistic" system. I propose that this could be achieved by two changes, providing everyone training in the scientific method and utilizing new communications technology. These proposed changes will be discussed by using the field of silviculture as an example.

TRAINING IN THE SCIENTIFIC METHOD

The biology Nobel prize winner P.B. Medwar, points out in his book, *Advice to a Young Scientist*, that a scientist is as a scientist does. Therefore, being a scientist does not necessarily involve obtaining specific advanced degrees, nor employment in a particular kind of position. Each of us has the responsibility to act as a scientist rather than as a hired hand. We have all seen technicians who act as scientists, and "professionals" who act as hired hands. But to divide workers into groups based only on academic background is a serious oversight.

With the state of the forest industry as it is, particularly in the Pacific Northwest, we cannot afford to adhere to an outmoded organizational structure. Innovation must be encouraged at every level in order to make our organizations capable of change, of being able to respond to changes in the market and/or making changes in management that are mandated by law. I propose that everyone in the field of silviculture should receive training in the scientific method including a certain amount of experimental design and statistics. The product of this training would be a study plan to address a problem in silviculture. This is more or less accomplished now as part of silvicultural certification courses, but certification's primary goal is that of writing prescriptions, and these tools are being put into the hands of a relatively small number of people -- those with forestry degrees. If everyone working on the ground were more aware of the tools available for innovation, and encouraged to innovate, then a groundswell of new techniques might be developed, and ineffective old techniques might be discarded.

NEW COMMUNICATION TECHNOLOGY

The second aspect of increasing innovation is to utilize the new communications technology in order to communicate results in a timely manner, to conduct training, and to reduce instances of "reinventing the wheel." There could be a statewide or nationwide network (call it Silvinet) on which people at all levels could exchange information. There could be four sections: reports, ongoing work, ideas and notes on meetings. Ideas could be put on the system the day they were generated. The priority of an idea would be determined by the time of its appearance on Silvinet. From the day it appeared, there would be no

barrier to the use of an idea or report. Ongoing work would be the equivalent of a project proposal and would alert people to others working on a specific problem without knowledge of others engaged in similar projects.

Reports, the equivalent of today's scientific papers, would include material found in theses, negative results, and respective studies (e.g., trying a technique on a different species or in a different environment). These three categories of scientific work consist of information which is difficult or impossible to obtain under the present system. People who submit reports would be encouraged to add two sections to those included in standard scientific papers. One would be a section describing problems encountered, solutions, and explanations as to why those solutions were tried. A second section would be devoted to feelings about the work for which statistical validation was lacking. This "right brain" section and its purpose would be to produce ideas for future scientific testing.

People would be able to comment, through the network, on one another's ideas, proposals and reports. These comments could be accessible only by the author, or kept in a public file. Sabini and Silver (1985) once commented that "whether it be in science, law, or the humanities, scholarship is and must be a public, social process. To train subjects to think critically is to train them to expose their thinking to others, to open themselves to criticism, from their peers as well as from authority." In natural resource sciences, there is often only one scientist in a university who has knowledge about a specialty field such as forest entomology. In these cases, it is difficult to have an atmosphere where ideas are tested and challenged.

Natural resource workers at all levels could learn to examine a report critically. Although criticism has negative implications in daily life, it is crucial to science because "criticism is the most powerful weapon in any methodology of science; it is the scientist's only assurance that he (sic) need not persist in error. All experimentation is criticism" (Medwar 1979). It would appear that the standard sample of reviewers used for scientific journals may not be as efficient in promoting good science as an entire electronic community of interested people.

Electronic discussion has several advantages over the traditional variety. One has time to think before replying thus developing more coherent arguments. Personality, status, and other individual characteristics are less important than when discussion is face to face. Similarly, the sex, race or class of the participants may not be known which would encourage people to respond to ideas rather than to stereotypes. Foreign languages are easier to understand when written, allowing discourse between two or more people who possibly could not otherwise communicate. In contrast to phone calls, written electronic discussions could include equations, tables, diagrams and possibly, in the not too distant future, photographs.

If such a network would be desirable, the next issue would be implementation. A network could certainly be developed by each forestry organization but information transfer is generally good within an organization. The true value of a network would be to link people who do not get a chance to meet. Therefore, the most logical place for such a network would be through a state or state university -- places which generally already have technology transfer responsibilities for all natural resource organizations within the state. At some point the states could connect so that the system could become national, and ultimately, international. The states could provide the

scientific method training previously mentioned and provide biometric services for those natural resource organizations which do not have their own.

ARGUMENTS AGAINST

There are four basic arguments against the implementation of such a network. One would be that people below a certain level are not interested or capable of learning the procedures and thinking processes of science. It's possible that some might not be interested and/or capable but many people are now frustrated by not being able to obtain these skills. These people have ideas but need to convince someone else to do an experiment to test the ideas. Researchers are generally few, busy and underfunded, so their ideas are often never explored.

The second argument is that people who do not have official research duties do not have time to involve themselves in studies. Management may not see the value of innovation, but these values are changing in many natural resource organizations. Books like A Search for Excellence and A Passion for Excellence describe the utility and necessity of fostering a climate for innovation. To produce such a climate, management needs to provide a certain period of time for each employee to work on improvement of the existing way of doing business. This could be through teams which address specific administrative or technical issues, or by individual efforts. The most important consideration is that the worker is in complete control to choose, in the time available for innovation, in what to participate and how to participate. Interest in a problem makes for the best efforts and management cannot mandate interest.

The third argument is that the computer part of the network would be too expensive. Expense could be kept to a minimum by careful design and it must be compared to costs of travel to libraries and meetings, plus the cost of journals and copying articles from various sources. High costs under the present system are due to duplication of efforts and to the time lag for information to get to the field.

The final argument is one of quality control. Who will guarantee that what goes on the system is scientifically valid? If all workers have been trained to review work critically and if there are open files of critiqued ongoing and accomplished work -- then workers would be able to judge for themselves rather than relying on a small number of reviewers to do their thinking for them.

IMPLEMENTATION AND SUMMARY

Ultimately, it would be desirable for the network to expand worldwide, with the industrial countries paying the costs of the third world countries. Through opening a technical network to such countries, the expertise of the scientists of the world would be available at the touch of a keyboard. This network, combined with training in the scientific method, would enable the developers to truly "teach people to fish" instead of "giving them a fish" which in this case would be a piece of technical information. Weiskopf commented that

Scientists understand each other immediately when they talk about their scientific problems, and it is thus easier for them to speak to each other on political or cultural questions and problems about which they may have divergent opinion. The scientific community serves as a bridge across boundaries, as a spearhead of international understanding.

The increased innovation enabled by these types of networks could also lead to greater economic stability. The world could become an interdependent electronic village of people with similar interests. These changes, if extended beyond natural resource science to other fields, could increase the likelihood of world peace.

Changing the structure of forest science in these ways may seem like a radical proposal. But the word "radical" is derived from the Latin word "radix" meaning root. What could be more appropriate than for foresters and other natural resource workers to lead the world back to the roots of the scientific process, removing the detritus of elitism which has developed throughout the centuries?

In the future, natural resource workers are likely to be less mobile due to the constraints of two-career families. Positions will have to be designed for a person to be able to develop his or her skills in place. What better situation for such development than to have ongoing experimentation controlled by the worker? And in whatever isolated place a natural resource worker happens to be, she or he will be a member of an electronic community of people with similar interests.

Regional foresters are not generally known for their extremist views. Yet Zane Smith, the Regional Forester for the Southwest Region of the U.S.D.A. Forest Service said in "Vision for the Future-1995" that

There will be less differentiation between the present Research, National Forest Administration, and State and Private activities of the Service. These missions will integrate over time as will the missions of different agencies doing similar jobs Through new technology, the organization will process information much more quickly and efficiently in all directions. This will allow new ways of doing business that result from research being transferred quickly for ground-truthing and once tested, assimilated more quickly into daily business.

We in the Forest Service can already see the capabilities of electronic communications among units and how the ease of information transfer affects the way we work. We need to increase our information base beyond our own organization and we need to start working on sharing information and the power which comes with it. Zane Smith saw these changes for 1995; we are less than 10 years away from that time.

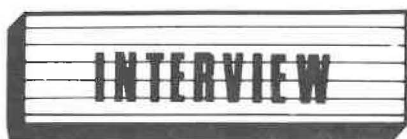
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SHARON FRIEDMAN has been an Area Geneticist with the USDA Forest Service in Oregon for seven years with responsibilities for tree improvement on various national forests. In the fall and winter of 1984/85 she was a visiting scientist in the Genetics Department at North Carolina State University. She received a BS in Forestry from U.C. Berkeley, a MFS in Forest Science from Yale and a Ph.D in Genetics from the University of New Hampshire. Her recent publications investigate estimates of mating system parameters and gene flow in seed orchards.

R. Max Peterson

Retiring Chief Sees Budget as Serious Restraint for the Forest Service in Years Ahead



WIF: Now that you have stepped into the role of Chief emeritus, we think you are in a perfect place to answer our questions with greater latitude and with the perspectives of hindsight and experience. We wish you well in your new role. Our first question has to do with politics--something you no doubt spent a lot of time considering. It is: Now that the Democrats have gained a majority in Congress, how will that affect the Forest Service?

PETERSON: In the short run with Senator Bumpers of Arkansas (the senate subcommittee chairman) and Senator Johnston of Louisiana (the full committee chairman) there will be some regional as well as some party shifts. You will probably see some increased interest in both research and State and Private Forestry because both are important in that part of the country. Senator Bumpers is quite interested in recreation and wildlife so I expect he will be scrutinizing the level of funding and staffing for those activities compared to others. The House might be more difficult to predict even though it didn't change parties. Congressman Seiberling and Congressman Weaver (who were very interested in natural resources) have retired as well as Congressman Whitley from North Carolina who was the agriculture subcommittee chairman. The committee structure has been redone, and I'm not quite sure how it all was settled, but I understand that Congressman Udall is going

to handle some aspects of public lands in Alaska. He has a substantial background on Alaskan issues having been there in 1980 when the Alaska land act passed. I think you may see as much change on the House side as you see on the Senate side just because there are new players, but no change in party.

WIF: Do you think Udall's environmentalism will impact the Forest Service?

PETERSON: Probably in the minerals area. Even though Congressman Udall is environmentally oriented he is also fairly pragmatic, particularly on things that relate to the west. He knows considerably more about the west than Congressman Vento (Minnesota) does, for example. That may make it easier to solve some problems.

WIF: The new governor of Idaho, Cecil Andrus, is an environmentalist. How much impact on natural resources does a governor have?

PETERSON: One thing you can predict about governors is that once they become governor they become fairly pragmatic--they have to look at the state as a whole. One of the more notable examples of that was Governor Lamb of Colorado who had one bent before he was governor but once he became governor he had to deal with the realities of both the economic and environmental health of the state. I'm not predicting what

Governor Andrus will do, but I suggest that he will have to look at both sides of the equation. In doing so he may help solve the long-standing question of which of Idaho's roadless areas should be wilderness.

WIF: Each year there is difficulty in passing a continuing resolution on the budget. Do you think this will be corrected someday?

PETERSON: Not anytime soon, I'm afraid. Congress seems to have to create a crisis in order to act on the budget. There is simply too much disagreement in Congress about how the money resources of the country ought to be spent. They are unable to resolve it until they are faced with a crisis which comes to the very point of closing down the government--people would not get social security checks, for example. It's going to take some time for Congress to reform its procedures. I think Congress should go to a two-year budget so they wouldn't have to spend so much time on it.

WIF: You mentioned consensus arising depending on whatever crisis is coming up. Has there recently been one in the Forest Service that you would see as an example of this?

PETERSON: No, except in places where we've had major adverse court decisions. Most crises we've dealt with in the last 15 years were court-imposed crises, not ours. The

Monangahela and the Rare II adverse court decisions were those kinds of crises.

WIF: Do you consider the Region 5 consent decree (to achieve gender balance) a court-imposed crisis?

PETERSON: No, not really a crisis, but a significant problem. At the time we entered the consent decree, we had certain visions of the future--we felt we were going to continue to expand programs and expand staff. It appeared, therefore, that we would be able to deal with at least some of the aspects of the consent decree without undo hardship. We were under considerable pressure to settle that rather than have it go to court. Unfortunately, immediately after the consent decree we began a reduction in staff and a reduction in budget. We were required to make a 25% budget reduction in staff in that period that had nothing to do with the consent decree. Therefore, making the kind of progress people thought could be made became very difficult if not impossible.

WIF: What other problems did the consent decree hand you?

PETERSON: Many women are very concerned about what they see as long-term devisiveness. Women in Region 5 will have to contend with the snide remarks that they got their job because of the consent decree not because they deserved it. This is a disservice to the many high quality people who would have gotten their jobs without it. Now, of course, the consent decree overlays everything. We also have a very large population of male hispanics and blacks in Region 5. Some of them (hispanics and blacks) could also consider the consent decree a subtle form of discrimination against them.

WIF: But there has been some movement for women in Region 5. Why hasn't the concept spread to other Regions?

PETERSON: Interestingly enough, we've made substantial progress in other regions without a consent decree and with considerably less stress and strain.

WIF: Why was there stress and strain only in Region 5?

PETERSON: I think there are several reasons. For example, Region 5 had very high numbers in fire staffs as compared to other regions. Fire staff is mostly technician staff and a job that, proportionally, not as many women aspire to. That prevented Region 5 from making as much progress percentage-wise. Regions that have a well-distributed work force can do better than regions with a large fire force.

WIF: Earlier, you mentioned budget reduction. Do you think that any future budgets will have substantially increased funding for non-commodity resources such as recreation, archaeology, tourism, hunting?

PETERSON: Not unless some means is provided to pay for them. Take recreation as an example. We find ourselves in a curious spot where everybody says, "I agree that recreation is extremely important--it's important to the health of people, and it's important to understand natural resources." But they don't feel that they should pay for it. Some people feel if they pay for it they cheapen it. We have a 200 year history in this country of recreation being relatively free so we have a very idealistic view of recreation. I believe it is very important to secure a better balance in financing for national forest's activities.

WIF: Archaeology is something separate isn't it?

PETERSON: One of our dilemmas now is that most agencies are inventorying lots of archaeological items on public lands. We really don't have much of a sense of what we are going to do with it once we complete the inventory! In some places, if you make known the existence of something very old, it will be carried off. We need to know how to incorporate these things into people's enjoyment of the land without risking the cultural artifacts. Another dilemma, of course, is that people who are part of an ancient civilization may or may not want the public to be involved with their ceremonial grounds. We have some spectacular things like cliff dwellings that can be interpreted as part of the heritage, but those are one percent or less of the archaeological items that are out there.

WIF: Wouldn't some people prefer less inventorying in favor of more in-depth studies on the sites?

PETERSON: Well, an ounce of prevention is worth a pound of cure. One of the reasons we inventory is so that we don't destroy things. That takes a high priority--just being sure that whatever we do isn't damaging. We have to rely on universities and others who are interested in archaeology to help conduct in-depth studies. I don't see the public agencies being provided the funding to do that in the near future. If you look at the Federal budget today, 85% of it is fixed (14% national debt, 29% goes to defense, and 42% is payment to individuals). Another 10% goes to states for things like the Clean Water Act. That leaves 5% for all the natural resource agencies, for the Departments of Education, Commerce, Interior. All the other activities of government are in that 5% and it's being squeezed by those others because the debt is going up, defense is going up, and payments to individuals are going up. People do not want to increase taxes. The striking thing about this is that you could zero out that 15% and you still would not eliminate the present deficit.

WIF: So unless these other activities are local, state or user supported, they will remain at their present level of funding?

PETERSON: It's going to be a great victory to keep many of them at their present level because Gramm-Rudman requires a reduction in the deficit every year. It's pinching and pinching that 15%. It's not enough to be good anymore to get money; one has to be better and have problems more urgent than the competition. In fact urgency is probably the primary thing.

WIF: How does hunting fit into the funding scenario?

PETERSON: Historically hunters have carried more of a percentage of their costs than any other group. Many hunters like to contribute to habitat work because they recognize that protection and management of habitat is essential to game. Several states have stamps for hunting on the national forest.



A 31 lb. King Salmon, Juneau, Alaska, 1986

WIF: The Fiscal Year 1988 budget contains a proposal by President Reagan to change the formula by which forested counties are paid from Forest Service timber sales. In effect, the revenue to the counties would be drastically reduced. What ramifications do you see as a result of this?

PETERSON: I doubt there will be a great change--it's been a matter of concern for 15 years. There are probably some counties that are being over-compensated because they contain national forest land and some that are under-compensated. The formula to provide funding to counties is based on 25% of the receipts, primarily from the sale of national forest timber and grazing fees. If a county has a lot of high value old growth it may receive a lot of money, but that may not mean the county has to provide that many services for the area. There may be other areas where either a lot of land has been put into wilderness (resulting in reduced county income) or it may be a young forest. The income generated isn't very great and that doesn't completely pay for the costs to the counties because they're national forests. Unfortunately, all of the alternatives, including the current one that's before Congress can be shot full of holes too. No one has hit upon the perfect formula. I don't see Congress making any great changes until there is a better consensus. There is some abuse by states that Congress may change. For

example, two states have reduced their ad valorem tax on private forest land and now charge primarily a yield tax or severance tax when the timber is cut. One of those states charges that severance tax for national forest timber and also collects the 25%. That's double taxation--the national forests in that case are carrying far more than the private land.

WIF: How do you think tax reform will affect forest lands?

PETERSON: It is difficult to fully evaluate at this time. On the one hand, Congress, by taking away tax shelters and lengthening the depreciation period for certain kinds of investments, may cause some money to flow into private forest land, particularly from pension funds--they are looking at long-term gains. The loss of being able to treat timber as a long-term capital asset is a definite adverse effect. But certain things are still allowed to be expensed. The substantial drop in interest rates is going to encourage investment in forest land. When all of these are added and subtracted, the experts say there is some adverse effect. But I'm not sure how much. I think it's going to be played out in competition for money.

WIF: What do you mean?

PETERSON: When people look at investing in forests many are not likely to want to make forests their major investment because investors consider it too risky. If the forest burns down, your money and your trees are gone. There is virtually no insurance for fire, nor for insect and disease damage. Most insurance companies don't have an actuarial base for forestland; therefore they don't know what kind of premium they should charge. A few years ago we attempted (unsuccessfully) to get some kind of insurance for forest landowners. One of the things we were attempting to do was to finance the development of the actuarial base and then try to get private insurance companies to offer insurance with that firm actuarial base. It is a tough problem because fire risk is different in different states and species, and it's different depending on the fire protection provided. If you insure a house, insurance companies can go through a risk analysis to determine your premium. But when you consider a piece of forest land--every piece is different. You can't simply count fire hydrants and the nature of the construction. The main

problem is the probability factor--what is the probability of the forest burning and what damage would be incurred.

WIF: Is everyone pleased with the Forest Plan process?

PETERSON: No, and realistically we should not expect everyone to be pleased given the wide diversity of opinion about forest management. I think everyone would agree that the new plans are the best we've ever had. They have been done with a lot more interdisciplinary analysis and with much better public involvement. That's the positive side. It's a much more complicated procedure than anyone used before and part of that is because the scientists who helped develop the procedures really wanted us to do a "state of the art" process. And it's been subject to more changes in direction than we foresaw. Some groups used it to either delay action or to bring up peripheral issues. A few groups would never support them simply because they don't consider it in their best interests.

The public generally supports the plans on line even though everybody is maneuvering for position and supporting their favorite alternative. Some people are disturbed by that. They thought if we went through a logical planning process and had all kinds of information somehow everybody would come together and say hallelujah we've arrived. That was never realistic. However, I think we have 80%-90% support for the plans completed thus far.

WIF: Has acceptance and use of the Data General Systems (DG) met your expectations?

PETERSON: The DG has generally met or exceeded our expectations. We felt there would be some resistance to it. We didn't find that at all. We underestimated the degree of computer literacy, particularly of our young employees. And neither were we prepared for the fact that older people were eager to learn especially on user friendly equipment. So many people found ways to use the DG that the use picked up more rapidly than predicted so we ran low on capacity in some places. Consequently we have increased capacity and have also instituted some monitoring.

WIF: How does DG work for the research branch of the Forest Service?

PETERSON: The DG is designed to handle word processing, internal communication, access to major computers and simple computations. Originally, we didn't predict any workload for research except for information handling and word processing because most research installations have access to university computers or computers with single purpose designs for their application. At Research's request they were left out of the original analysis for DG, but once we got DG and Research found out it could do some things for them, many began using it. It now is widely used throughout our research organization.

WIF: When we interviewed Eleanor Schwartz, chief legal officer of the Bureau of Land Management, she indicated that the proposed FS/BLM Interchange would soon be a reality. Please update us on the status of this proposal.

PETERSON: It's being processed to go back to the new Congress. I don't know whether it's actually gone. I believe if you talk to members of Congress most of them think there should be an interchange. Most members complimented Bob Burford and me for bringing it forward. They were in agreement with the aims of it even if they might be in disagreement on some specifics. There are two things that are likely to be problems to the interchange. When you say you are going to save money through lower staffing, a community that already has economic problems may not think that saving money is as high a priority as having those jobs. Another problem is that other questions may be interjected into the interchange debate. Last year, Nevada, which looked like it was going to go, floundered on the question of water rights because of the Colorado decision. There are some individuals inside the Forest Service and the BLM who oppose the interchange because they have a great personal attachment to some land. Some oppose it on the basis that they don't think the lines drawn in a certain state are exactly right. Most Forest Service people support the concept even if they don't support the specifics. I give it a 50-50 chance.

WIF: We are aware of instances of Forest Service employees on temporary limited appointments (one year appointments which can be extended up to a maximum of four years). The only benefits they receive are annual and sick leave. They do not receive any health insurance, life insurance or retirement benefits. Why hasn't the Forest Service made any allowance for such "temporary" employees to receive some sort of health insurance coverage?

PETERSON: We provide all the benefits we are allowed to by law. It may be these people could get benefits if their type of appointment was changed, but such appointments may require competition, too. Those concerned need to talk to their local personnel office to find out their options.

WIF: Why does the Forest Service discriminate against males in the kind of leave that can be taken at the time of the birth of a child? Women are allowed to take sick leave, annual leave, or leave without pay (LWOP), but men are allowed to take only annual leave or leave without pay.

PETERSON: Again, we are absolutely bound by law and Office of Personnel Management regulations. Making LWOP available is probably not as major a hurdle as allowing men to take sick leave. Sick leave is for an individual who is sick and as such is very much restricted.

WIF: How do you personally feel about it? Do you think it would be a sensible thing for the government to allow?

PETERSON: I would favor granting leave without pay, annual leave, advanced annual leave, or allowing an exchange of annual leave (couples could switch it from one to the other, depending on who is the primary child caregiver). Some other considerations being seriously studied involve donating leave to one's colleague for such matters. Leave as now provided by the Government is very generous. If we started providing sick leave for things other than illness you would find great abuse of it. I think it would be much better to provide some kind of discretionary leave. Another important consideration is the fact that the Forest Service is under increasing pressure to contract services. The more benefits we provide to Federal employees, the more our costs increase and the fewer

Federal jobs there will be because it will be more economical to contract them. Therefore, it's not a good idea to get benefits too far out of kilter with the private sector. Perhaps in the future, with the increasing availability of data processing, it may be possible for people to do some of their work at home.

WIF: How would you describe the Forest Service employee hierarchy? By that we mean: what discipline does the Forest Service favor in the higher ranks as opposed to the lower; and what background does management of the system usually have--forestry, business, engineering, social science, or some other? Do you see that continuing?

PETERSON: We have more different professions in the Forest Service than any other federal agency--some 60 different professions and specialties. Many times we have work titles that don't match academic background. We have people in district ranger jobs, for example, that may have range management, forestry, landscape architecture, or wildlife biology backgrounds. At least in the lower levels of the organization where we are dealing primarily with land and resources, we have to have somebody who understands the land and its resources. If you want to lose credibility in a hurry, send a group out with a district ranger who doesn't know the vegetation, animals, or soils. I don't think you are going to see many business managers or social scientists as district rangers. As you move up the line, you can argue the person's ability to manage different disciplines is more important than which discipline one is from. We have a wide range of disciplines at upper levels and we still have a fair range of backgrounds, but still 90% of the forest supervisors are foresters, and 95% of the regional foresters are foresters. In theory the percentage of people in those jobs will relate to percentages of people at the lower levels in those disciplines.

WIF: What sort of backgrounds have the most recent Chiefs had?

PETERSON: The last four Chiefs came from very different backgrounds. Dr. McArdle was a dean at the University of Idaho and had a long background in research. Then he became deputy Chief for State and Private Forestry and then Chief. Ed Cliff came from

Utah, with a range and forestry background. He came through a conventional series of chairs--district ranger, staff, forest supervisor, regional staff, regional forester. John McGuire came entirely out of research until he became deputy Chief for programs and legislation.

Also George Leonard who is the associate Chief was never a district ranger, forest supervisor or regional forester. He missed all those line chairs. He worked in different staff positions his entire career until he became an associate deputy Chief.

I was born inside of a national forest and have walked around a national forest as long as I can remember. The career opportunities for engineers were better than for foresters, so my first degree after the Navy was in engineering. Then, I went to work in California. My graduate degree from Harvard was in a lot of things--economics, natural resources, government, political science--but I got the degree in public administration. After other assignments I went to the part of the Washington Office that deals with management improvement. Then after another tour I become deputy regional forester in Region 8; then I moved to handling the programs and legislation part of the Forest Service which deals with Congressional legislation, budget, environmental coordination. Then I went to the Chief's job.

Dale Robertson is from Arkansas--he worked in the Chief's office as a very young person. He has a forestry degree from Arkansas and an advanced degree in public administration. He was supervisor of two different national forests in Oregon--the Siuslaw and Mt. Hood. He came to the Washington Office and worked in programs and legislation and has been associate Chief for four and a half years. He was not a regional forester. So there is no predictable background.

WIF: Many women in universities (and other agencies) believe, and many studies by both men and women, show that the Forest Service has done a better job in integrating it's women staff than universities have. We are all aware of the array of regulations, lawsuits, class actions, and other methods which have enabled this to come about. Would you recommend such a path to others who see slowness and inaction in promoting and hiring women?

PETERSON: Those are constitutional rights, certainly, but people ought to use those rights only if they have exhausted all the other avenues. You have to think of the long term consequences. We have some young men in California who are absolutely convinced that they had been discriminated against by the consent decree and I'm afraid that's going to be with them the rest of their lives. At some point they are going to be in a leadership position and they are going to carry that feeling of discrimination just as women have carried that feeling of discrimination, and that's not a very good feeling. I think it's important to try to resolve affirmative action issues without resorting to class action whenever it is feasible to do so.

WIF: What have you seen work in other places?

PETERSON: My suggestion would be to create a committee of both men and women. There is an innate sense of fairness in most Americans, so some of the best advocates for opening up the system may well be men. And that gives some legitimacy to it--it's not just the women choosing up against the men. From the standpoint of building a constituency for change, it's better not to make the committee's charge too narrow. We should start asking such questions as: what is preventing movement? Also ask: is it lack of qualified people--where do we find qualified people? If it's because we are not attracting the right people, why aren't we? You start in a pragmatic way and I feel you will get more results. Some of the regions that have moved ahead without the consent decree have made just as much progress with less potential long term negative feeling.

WIF: How many women did you have on your own personal staff?

PETERSON: I didn't have a personal staff. Of the 800 plus people in the Washington Office the people who handle the majority of press contacts and speech writing are women. Washington assignments tend to come toward the middle of people's careers not the front end and, since women of that level are a recent phenomenon, proportionally, there aren't as many as I would like to see. There is also some real trouble getting women to move to Washington because it's a high cost area.

WIF: Do you find that women add a different viewpoint even in the same profession?

PETERSON: Yes, they do, but you can't categorize women or men that neatly. Maybe as a group they are more people oriented, and more sensitive. However that is not necessarily true for individuals. They usually are more adept at discussing dual career families, the impact of moving on families, or how to handle training needs. They are more likely to bring that, but you can't stereotype them.

WIF: What do you feel will be the biggest challenge for your successor, Dale Robertson?

PETERSON: Completing the balance of the forest land management plans is the biggest immediate challenge. I don't expect dramatic changes since Dale was associate Chief for four and a half years and participated in a lot of decision making. On the other hand, every Chief has a different management style, and a different management background. The last thing you would want a new chief to do is continue everything that's been done. Dale has a very good feel for the Forest Service as a whole. It would be difficult for any Chief to make dramatic changes because he doesn't have that kind of discretion. John McGuire once said he thought before he became Chief that the Chief could do almost anything. The closer he got to the Chief's job the less he thought that was true. When he got there he knew it wasn't true.

WIF: It seems that you have had one of the more difficult and dramatic tenures than any of the recent Chiefs.

PETERSON: It was certainly interesting and challenging albeit topsy turvy at times. Right after I became Chief we had the adverse Rare II decision. Also Mt. St. Helens blew up, we had three severe fire seasons, a change in administration, five different assistant secretaries, and substantial reductions in staff. I haven't had a lot of time to sit around. One of the things I always tried to keep in mind is that there are basic jobs which must go on, such as serving the public, fire protection, insect and disease prevention. I tried to keep that work going strong, and at the same time remove paperwork from staff where possible.

Another thing that has helped the Forest Service in the long term is placing as much discretion as possible with field staff. This discretion allows them to serve local people better. In a period of stress I believe in letting the people involved determine their own destiny. The "early out," for example, was an attempt to allow people to retire who wanted to retire, without the heavy handed tactics that a reduction in force would have brought about. That would also have tossed out a lot of

people just beginning their career who wanted to work, and would have left some people who would just as soon retire. So we adopted strategies that transferred these decisions to the field staff.

WIF: What do you think Women in Forestry can do to assist any of these processes?

PETERSON: I would like to see from your authors some candid stories of

how to deal successfully with the problems generated by a mixture of women, men, and minorities--similar to the difficulties being encountered in Region 5 discussed earlier. One thing we didn't have early on was role models, and there are still women who feel they are lonely pioneers. The communication network you provide is important for them and for those of us who are still learning.



On a trip with Roundup Riders of the Rockies, Colorado, 1984

R. Max Peterson became the 11th Chief of the Forest Service in 1979 after serving as Deputy Chief for Programs and Legislation for five years. He is a native of Missouri, and his first degree is from the University of Missouri. During his long career, he has amassed many awards (among them, a Rockefeller Foundation Fellowship to Harvard), publications, and memberships in prestigious organizations.

Since retiring, Peterson traveled to China where he represented the U.S. on a combined technical and trade tour. He traveled to

Algiers as well, inaugurating a friendship forest which will be supported in part by the Forest Service. The forest is adjacent to a nearby amusement park (which will be incorporated) and will feature experimental species and research specimens to combat desertification.

For several more months, Peterson will complete projects, but he plans to continue to travel and represent the Forest Service in many capacities. He and his wife Jan have four grown children and make their home in Fairfax, Virginia.

WOMEN IN SUBSISTENCE FORESTRY

Cultural Myths Form a Stumbling Block

Louise P. Fortmann



The concept of forestry as the large-scale production of fiber for commercial use is outdated. In the United States, most professional foresters still support the concept, and when professionals go traveling, they take their professional baggage along. Thus, despite advances in multiple-use and social forestry, most forestry practiced by professionals in the developing world (including donor-funded projects) focuses on commercial timber production, often for export.

Forestry is not synonymous with timber production. In developing countries, commercial forestry is distinguishable from the subsistence forestry practiced by a vast majority of people. In subsistence forestry, trees and tree products are used for fuel, food, medicine, dyes, fodder, house and fence poles, agricultural implements, and raw materials for crafts. Both nondisruptive uses (gathering fallen produce) and consumptive uses (felling and burning trees to clear agricultural land) are included.

The land areas and economic values represented by subsistence forestry and the populations dependent on it often exceed those related to commercial forestry. Swidden agriculture--rotations of slash-and-burn and fallow use of forestland--is practiced by 300 million people on nearly half the land in the tropics. In parts of Indonesia, Dove (1983) estimates that swiddening can support 23 people per square kilometer in contrast to commercial logging, which supports only 9.4.

"WHATEVER THE PRODUCT AND WHATEVER THE USE, SUBSISTENCE FORESTRY IS PRACTICED PRIMARILY BY WOMEN."

In India in the early 1970's, minor forest products, despite low prices, constituted 25 percent of the total value of forest production (Chambers 1983). From 1974 to 1977, Indian wood production averaged 9.8 million cubic meters per year of roundwood and 16.7 million cubic meters per year of fuelwood (Burley 1982). The figures may underestimate fuelwood use and production, because much fuelwood never enters the formal sector. In Nigeria, the annual gross income per hectare for teak and gmelina plantations intercropped with agricultural crops exceed that for pure commercial plantations of the same species (Finol-U 1978).

Whatever the product and whatever the use, subsistence forestry is practiced primarily by women. In a profession where masculine images predominate, this may be a startling fact. In the developing world, women are local forest experts, managers, and laborers. Consultation with local people, men and women, is essential before designing or undertaking forestry projects in developing countries.

INTERNATIONAL

Forest Users

Almost without exception, women are the primary collectors of fuelwood. In Nepal, women collect 78 percent of the fuel; women and girls combined account for 84 percent (Bennett 1981). In Tanzania, 90 percent of fuelwood is collected by women (Wood et al. 1979). The exceptions to this rule occur when fuelwood becomes a commercial commodity, in which men generally collect and sell it, or when fuelwood is gathered from a great distance by animal-drawn carts or tractors. Men usually do the driving. Even then the bulk of the work may be done by women, who collect and pile the fuelwood to be picked up later by the men on tractors.

Women are also the prime users of fuelwood. Cooking, cleaning, and child care require fuel for heating water. In many parts of India and Africa, women are also responsible for gathering tree fodder for livestock. Responsibility for family food and health makes women the prime users of minor forest products. Wild foods are collected from trees (fruit, nuts, leaves, roots, bark) or tree surfaces (snails, honey, caterpillars, bird's nests).

Women contribute to family incomes by selling minor forest products, by using them to produce crafts for sale, or by using fuelwood to cook foods sold in the market. In the mountains of the Dominican Republic, women weave and sell containers and chair backs from palm fibers. In the Egyptian governorate of Fayoum, women comprise 48 percent of the labor force in small wood product enterprises (Davies et al. 1984).

Forest Experts

Why do forestry experts fail in developing countries? Some projects are destroyed by local people and others are ignored. When foresters fail to consult with local forest experts, projects are designed with an inadequate information base. Because of extensive contact with the forest, local women may have a more detailed understanding of forest resources than local men or than foresters from other localities. Women in Sierra Leone could name 31 products that they gathered or made from the nearby bush, while men named only 8 (Hoskins 1984).

Local women on a field trip with Rocheleau (1985) in Kenya identified more than 20 species of useful woody shrubs and herbaceous plants with which foresters and agricultural extension agents were unfamiliar. Foresters who fail to consult women, the major users of wild plants, may inadvertently destroy an economically productive area that appears to be useless bush. In such cases, villagers have been known to return the favor by uprooting or burning down the forester's plantation.

Women's knowledge about tree qualities can be helpful in designing fuelwood plantations. Foresters are often partial to fast-growing exotics, but such species may not meet local requirements for fuelwood. Hoskins reports that at least one eucalyptus species was found to impart a "Vicks-Vapo-Rub" taste to food. Local women can tell which species provides a long-lasting low heat, which provides a quick high heat, which smoke, and so on. With fuelwood used for cooking and lighting, such characteristics can be decisive. Without the right information, foresters could produce a plantation of quick-growing wood that does not meet local needs.

By equating management with professional training, foresters may overlook the managerial function of women in subsistence forestry. Women assume these functions because misuse or mismanagement of forests affect them directly. When deforestation occurs, women must walk longer distances to collect fuelwood and fodder. It is often the fields of women that are damaged by landslides. It is the women who must search out new, more distant water sources as springs go dry. The alternative is to cook and clean with silt-laden water. Third World women bear the results of poor forest management in the form of a longer and more arduous work day.

Foresters have found women in developing countries practicing forms of forest management on their own. In many places, women have rules about fuel collection that expressly prohibit the cutting of green living trees. Dead or downed wood is preferred. In addition, certain species may be protected by custom or religious sanction. In parts of India, women water the peepul tree as an act of piety.

In Mali, a forester wanting to control erosion proposed building berms along a hillside and planting trees. When the site was inspected, little erosion was found. Local women, whom the forester had neglected to consult, had already terraced the area with stone walls, which they monitored after every rain to identify areas that were beginning to wash. The forester's project would have destroyed the existing soil-conservation works and the gardens that the women were farming.

Women are often the ones who turn out for conservation projects. The Chipko (Embrace-a-Tree) movement in India depends on their support. Women have been at the forefront of the movement, confronting loggers to prevent deforestation and themselves undertaking reforestation. Also in India, female forest guards have been found effective in controlling women's use of forest products. The Greenbelt movement and many village soil-and water-conservation projects in Kenya are based almost entirely on women laborers.

Essential Laborers

In three projects in India, Commander (1984) found that 70 percent of the plantation and nursery work was performed by women. Women laborers are crucial in village forestry because new seedlings require water. In most parts of the world, water is collected and carried by women. Men are generally unwilling to take on this work. Much of the food in developing countries is grown by women; in Africa, almost all of it. If tree planting coincides with the normal cropping season, women may not be receptive to diverting their time from food production to watering trees. This is especially the case where they are not going to benefit from the trees. Projects are best designed after consultations with local women on work schedules.

Frequently in developing countries, women and women's organizations are recruited as voluntary workers in projects from which they receive little benefit. If forestry projects are to succeed, participants must be beneficiaries. What can foresters do? The following factors need attention.

Attitudes - The cultural values and myths held by American foresters are a stumbling block to the integration of women in subsistence forestry. Fairfax and Vaux (1985) analyzed the failure of the American forestry profession to accept women in the profession in an equal and respected status. The issue needs

addressing both here at home and in other parts of the world. The majority of professional foresters working in developing countries on donor-funded forestry projects are male. If these foresters feel that female professional colleagues do not belong in the woods at home, they are likely to devalue the competence of women in a different cultural setting.

Local cultural values and myths also impede the integration of women in forestry. These myths often fly in the face of readily observable fact. In Africa, forestry, including tree-planting, is often considered an activity unfit for women, yet boys and girls participate together in school tree-planting projects. Women who are considered too weak to plant or water a seedling put in hours hoeing the fields. Women who are considered the intellectual inferiors of men and unable to participate in decisions about village forestry provide the know-how in agriculture and forestry to feed their families. Women who are thought to have no interest in trees and no contact with trees plant them in their compounds.

Cultural impediments are not insurmountable, but myths need to be identified and ways found to work around them. School experiences are socializing a new generation of girls with new role models and expectations. In parts of Kenya, while women are forbidden to plant trees, certain species--including some used for fuelwood--are not considered trees and thus escape the prohibition.

Property rights - Forestry involves the right to use and plant trees. A person who has no right to land has nowhere to plant a tree. A person who does not have the right to use a tree has no incentive to plant it. A person who is forbidden to plant trees cannot participate in a forestry or agroforestry project. Women in developing countries commonly lack one or more of these rights.

In many places, women do not own or hold land. They obtain rights to land either through their fathers or through male partners who may or may not be their husbands. In parts of Latin America, women who have common-law husbands are explicitly forbidden by law from inheriting the man's land. Even a woman who has legally married generally retains that status only at the will of her husband and in many places can lose her right to land should he decide to divorce or desert her, in some cases, when he dies. In Peru, widows of cooperative members lose their right to gather fuel on cooperative land when their husbands die (Skar et al. 1982).

Even where statutory law grants equal rights to women, as in Kenya and Botswana, women are less likely than men to own land in their own right, in part because the land rights of women are often extinguished in the process of formal registration of title. Those women who do own land tend to have smaller acreages than men.

The answer for forestry may lie in "women's niches", land to which women have access even if they may not own it--the commons, the compound around the house, home gardens. In developing countries, women's land rights are likely to differ from men's. Women also have different rights to trees than men. Because of the household division of labor, women and men may use different parts of the same tree or different trees altogether. In many places, customary law recognizes these differing rights to trees or their parts. Thus certain fruit-bearing trees that grow only in the wild may be children's trees. Other food-bearing trees may be women's trees, while timber trees are men's trees.

Among the Ibo of Nigeria, a woman traditionally had rights over certain trees that were marketable or bore marketable products and belonged to her husband. Depending on the ethnic group, she might have special rights to breadfruit or to the kernel but not the oil of the palm. Timber trees belonged to the husband, while the wife had the right to use food trees (Obi 1963). Such customary rights may affect the enthusiasm with which either gender views a given species. In Jamaica, soil-erosion projects failed because women exerted their influence to plant annual crops that they could market rather than tree crops that belonged to the men (Blaut et al. 1973).

In some places, planting a tree gives the planter rights to the land on which it is growing. For this reason, particularly in places where women are not allowed to own land, women may be forbidden to plant or inherit trees. Since women may be the only source of labor, this prohibition can pose a serious problem to the forester.

Credit - While forestry projects require credit for buying seedlings or other inputs, women are again at a disadvantage. In countries such as Botswana, women are rural minors and cannot receive credit. Or they may lack the necessary collateral, most notably right to real property. Or they may simply not be given credit no matter the law. Foresters cannot base projects on the assumption that existing modes of credit will serve women.

Professional Foresters

In no country are anywhere near half the professional foresters women. It is not uncommon to hear a director or minister of forestry speak with pride of "our three women" or some similar low figure. The lack of women foresters in developing countries is especially serious because of the problems involved in forestry extension.

"THE FATE OF FORESTRY PROJECTS IN DEVELOPING COUNTRIES IS DECIDED . . . IN HOT, DUSTY VILLAGES . . . BY LOCAL PEOPLE AND OFTEN BY WOMEN."

Women are the most effective communicators of new forestry information to other women. In many countries, this principle is enforced by cultural prohibitions or restrictions between men and women other than spouses. In parts of rural Nepal, women speak primarily with other women and will not speak to men from outside their own community (Stewart 1984). Beliefs that women are technically incompetent impeded communication between male extension workers and women.

Some projects have proceeded on the belief that male extension workers and foresters can simply talk to the men and all will be well. The literature is replete with examples of failed projects based on this notion. It doesn't work because the men may never pass the information on to the women, or they may pass on the wrong information. Also, between a quarter and a third of rural households in the developing nations are headed by women. These households are even less likely to be reached by male extension agents.

Forestry is no longer limited to big trees and chain saws wielded by men. It is also small crooked trees; those standing alone in fields as well as in forests and plantations; indigenous species as well as

exotics. Forestry is women picking up dead wood to cook the meals or lopping off branches to feed the goats. The fate of forestry projects in developing countries is decided not in air-conditioned offices in capital cities but in hot, dusty villages and not by bureaucrats but by local people and often by women. Subsistence forestry projects are failing at a time when the need for success is visible to the world. Our ability to respect the expertise of local people and to recognize their problems will signal the coming of age of our profession.

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AMERICAN FOREST COUNCIL HONORS UNUSUAL TEAM

Christina Petersen

The Massachusetts Outstanding Tree Farmer of the Year in 1986 is a special and unique woman--so is her forester! This is the first time an all-woman team has achieved this recognition from the American Forest Council.

Molly Scott is a singer, poet and composer with a strong spiritual bond to the land. She moved from New York City to rural Charlemont, Massachusetts in 1967, leaving behind a budding career in children's programming and TV commercials. Remember that wholesome Ivory Snow woman? Income from those commercials enabled Scott to put down a payment on her 200 acres of open mowings and northern hardwood forests located high in the Berkshire foothills.

She describes her inner journey to Charlemont as a literal "grounding". After leaving Manhattan, she was anxious to return to the roots of her childhood in rural New York State. With great enthusiasm she commenced to planting thousands of Christmas trees, plowing large parcels of her mowings for gardens, and starting a maple sugaring business. Old friends from New York City helped with this subsistence farming in a commune-style arrangement.

Scott did not get involved in managing her forest right away, however. She says she was originally a "let it grow touch-it-not person who thought everything good would take place naturally". A "woodland owners" meeting held in her town in 1971 introduced Scott to forest management. She became intrigued with this idea of "gardening trees" and hired a forester from the New England Forestry Foundation (NEFF) to help her develop a management plan for her land. Since that time, she has had numerous firewood and timber harvests, all aimed at improving the growth rate and quality of the remaining oak, beech, ash and maple trees.

During the 1970's, Scott had several different foresters from NEFF work on her land. But, in 1980, she found a forester she particularly enjoyed working with--Mary Wigmore. Wigmore has been working with NEFF for six years managing about 7,000 acres of woodland owned by municipalities, private owners like Molly, and an atomic power plant! She is a woman who clearly loves her work and lifestyle, from the chain saw work on timber stand improvement jobs to the rural home she makes with her two-year-old son and husband, who is also a forester. She often



Molly Scott, left, and Mary Wigmore

brings son Kurt into the woods with her, carrying his 35 lbs. on her back, to the surprise of the logging crews she works with.

Both Scott and Wigmore are drawn to forestry because of its connection to the future. Scott is a peace activist, who travels and performs extensively, both nationally and internationally. She talks with her audiences about her Tree Farm, telling them that her management plan is the only document she owns which moves towards goals based in the year 2020! Wigmore feels that putting a mark on a tree affects it forever and is one way to achieve immortality. She often dreams of the forests that she manages and the way they will look in the future.

It is these shared dreams of the forests and of the future that make Molly and Mary's work together so enjoyable. They both regard the forest as a rejuvenating and life-giving force. Scott is convinced that her woods have been an important influence on her music. "My music deals a lot with ecology or other environmental questions. Much of my music reflects my feelings about the land. If I didn't have this land to come back to, I'm sure it would affect me as an artist", she says.

Scott listens to the sounds of her forest and tries to incorporate them into her life. She is also a fun-loving and optimistic woman who can lead even the stodgiest group of foresters in songs about peace, saving the planet, farm animals and Tree Farms. She treated the Massachusetts forestry community to one such sing-along after she received her Tree Farmer of the Year Award, when she and Mary Wigmore were saluted by Jane Difley, Regional Manager for the American Forest Council. Although they are unique individuals, Molly and Mary typify the contributions many women are making in forestry today.



Christina Petersen is an Extension Forestry Specialist at the University of Massachusetts. She contributes often to the journal.

LOOKING BEYOND

ACID RAIN HEADLINES

Rosemary Furfey

When the public hears the term "acid rain" it either thinks about severe environmental degradation affecting lakes and forests, or on the other extreme, dismisses its impact on natural resources altogether. Given these polarized views it is hard to find a middle ground on the issue of acid rain which allows state governments to examine the scientific facts and develop policies concerning environmental impacts, national emission control technologies, and new policy initiatives to implement acid rain and air pollution control strategies.

For several years I have been working on these issues for the Massachusetts Department of Environmental Quality Engineering (DEQE) in an effort to develop acid rain control policies and regulations, and to investigate the impacts of numerous air pollutants on forest resources through scientific research and air quality monitoring in our state, as well as regionally throughout New England. State environmental agencies in Massachusetts are very concerned about the impacts of these air pollutants on public health, forests and water, historic and material resources.

My current position, working for the state environmental regulatory agency, includes interpreting scientific studies for state policy makers so that regulations and state-funded research reflect current scientific understanding. I work with local forestry associations to keep foresters informed about relevant scientific research and its implications for forestry practices, and help them work within a large state bureaucracy. In most cases I find I am the individual fostering communication and providing information to air pollution specialists, foresters, and forest pathologists.

As a result of state legislation, DEQE's Division of Air Quality Control has recently taken steps to limit statewide sulfur dioxide emissions in Massachusetts, one of the acid rain precursors. Unfortunately, given the fact that air pollutants can be transported great distances due to meteorological conditions, our efforts can only control a small portion of the acid rain impacting Massachusetts. In addition, our state will begin a sulfur dioxide emissions reduction program if there is no natural control program in place by December 1987.

The Massachusetts legislature has appropriated funds for the past three years to the state's environmental agencies to initiate research and air quality monitoring to determine how air pollutants are affecting the state's forests. An aerial fly-over in 1984 and 1985 used color infrared (CIR) photography to locate and map stressed forest areas. Future research will focus on those stressed forest areas where no obvious stress mechanism can be readily determined. Interdisciplinary teams of scientists will conduct on-site field investigations to identify stress mechanisms and what role, if any, air pollutants may be playing in these areas. In coordination with these field investigations, rural air quality monitoring stations have been established in the central part of the state at the Quabbin Reservoir and in the Berkshire Mountains where the state's largest stand of red spruce is located.

Acid rain, more accurately termed acid deposition, is produced by the burning of fossil fuels such as coal, oil, diesel, and gasoline by industrial facilities and power plants. There are mobile sources such as automobiles, buses, trucks, and aircraft. Sulfur and nitrogen oxide byproducts of fossil fuel combustion form the basis for chemical reactions in the atmosphere that produce wet acidic deposition in the form of rain, snow, and fog as well as dry deposition of acidic particles. As meteorologic weather patterns carry pollutants away from their sources they can be transformed through complex chemical processes into secondary pollutants: ozone and airborne fine particles, such as sulfates and nitrates. Elevated levels of photochemical oxidants such as ozone are produced through the sunlight-driven chemical interaction of nitrogen oxides and hydrocarbons.

Until recently, air pollution was primarily considered a local problem. Today scientists are able to describe meteorological patterns which move air pollutants hundreds of miles from their points of origin. These transported pollutants are carried across state and national boundaries where they affect sensitive human population groups and natural resources in distant locations. Scientific emphasis is shifting from investigations of local impacts due to point-source air pollution to determining what role multiple pollutants on a regional scale may play in altering ecosystem processes and impacting human health.

Initial concern about the impact of acid deposition on aquatic resources has now expanded to include forest damages as well. Rapid, widespread and synchronous decline of numerous forest tree species has been documented in Germany and air pollution is being studied as a stress factor causing the current forest decline. In 1984, German forest inventories revealed that over 50 percent of the country's forests exhibited a range of decline symptoms. Germans use the term "Waldsterben" to describe this dramatic phenomena of dying forests. Germany has recently initiated new air pollution emission control standards, coupled with major research programs investigating the forest decline phenomena.

Regional forest declines are currently being documented in North America as well. High elevation stands of red spruce are experiencing growth declines throughout the Appalachian Mountains and regional air pollutants are being considered as a possible stress factor. Decline patterns have been documented in the past but the current phenomena cannot be attributed to a single stress mechanism. Scientists are studying the chemistry of high elevation fog and cloud moisture in an effort to better understand its potential impact on spruce-fir ecosystems. High concentration of acidic pollutants have been found in fog and cloud moisture which bathe mountaintop spruce-fir ecosystems. Conifer trees efficiently intercept cloudwater and may be adversely affected by the lower pH levels found in this moisture together with high concentrations of nitrogen compounds or heavy metals such as lead.

Forest ecologists and pathologists are just beginning to decipher the complex pathways of nutrient cycling, growth dynamics, and plant responses to stress within a forest ecosystem. In the forest, individual trees are exposed to many stress factors such as drought, insect outbreaks, fire, disease, and timber harvesting. During the first two-thirds of the twentieth century, air pollutants were only considered to be exerting localized acute effects on vegetation, primarily near point-sources of pollution. Sulfur dioxide, fluoride compounds, and numerous heavy metals (such as lead, copper, and zinc) were of primary concern. Forest areas within a

certain radius or downwind of the source were affected, in many cases resulting in the mortality of the sensitive trees.

Today's focus has shifted from local impacts to the subtle, less dramatic influences of regional-scale air pollutants which can alter forest processes hundreds of kilometers from the pollutant source. The regional air pollutants of greatest concern include: photochemical oxidants such as ozone, heavy metals (such as cadmium, cobalt, copper, and lead) and acid deposition, most importantly sulfuric and nitric acids. Ozone is formed in the presence of nitrogen oxides and hydrocarbons, and sulfuric and nitric acids have sulfur dioxide and nitrogen dioxide as precursors. Rural monitoring in remote forest areas reveals high levels of these pollutants which can influence forest ecosystems far from the pollutant source.

It has been fascinating to watch the acid rain issue evolve and to monitor state, regional, and national initiatives to control the transport of long-range pollutants. Unfortunately, there are very few women in the field of scientific acid deposition research, and I am usually one of the few women at the various scientific conferences held each year by the federal National Acid Precipitation Assessment Program. There are role models for me, however, within the state government and more women seem to be rising to key management positions each year. There have been many challenges during the past several years and I look forward to what lies ahead.

Rosemary Furfey is an environmental planner with the DEQE Division of Air Quality Control in Massachusetts and has been coordinating investigations of the impact of acid deposition and air pollution on terrestrial resources. She received her M.S. degree from the Yale School of Forestry in 1984 and has previously coordinated environmental programs in Maine and Atlantic Canada.



J. Frances Allen Scholarship

The American Fisheries Society is pleased to announce that applications are being accepted until 15 June 1987 for the J. Frances Allen Scholarship, a one-time award of \$2,500 (US), for a female doctoral student whose research emphasis is in the area of fisheries science. This scholarship was established in 1986 in honor of Dr. Allen, a pioneer of women's involvement in AFS and in the field of fisheries, with the intent of encouraging women to become fisheries professionals. The qualified applicant must be a female, advanced Ph.D. student (i.e., at least second year) and a current AFS member. For complete application information and instructions, write to:

J. Frances Allen Scholarship
Attn: Dr. Brenda L. Norcross
American Fisheries Society
5410 Grosvenor Lane
Bethesda, MD 20814

Has your library subscribed to WOMEN IN NATURAL RESOURCES yet? We will be happy to send a review copy to your serials librarian. Send requests to WOMEN IN NATURAL RESOURCES, Laboratory of Anthropology, University of Idaho, Moscow, Idaho 83843.

DIRECTOR, SCHOOL OF FOREST RESOURCES
THE PENNSYLVANIA STATE UNIVERSITY
CLOSING DATE: July 31, 1987

The Director has overall responsibility for instruction, research, extension, personnel, budgets, facilities, and public relations. The School has 31 faculty, 450 students and offers graduate and undergraduate programs in forest science, forest products, and wildlife and fisheries science. Candidates need a Ph.D. with experience in some aspect of forest resources, knowledge of university functions and administrative experience or potential. Applicants should send (1) complete resume with documentation of training and experience and (2) names, addresses and phone numbers of five persons who may be contacted as references. Submit to Dr. David R. DeWalle, Chairperson, Director Search Committee, 1011 Furguson Building, School of Forest Resources, The Pennsylvania State University, University Park, Pennsylvania 16802 (814-863-0291).

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NONVERBAL CUES: A CATALOGUE OF MOVING MESSAGES

Enid Portnoy



that each person knows the other fairly well or that each is sensitive to the other's nonverbal cues.

Another classification of limb movements is called gestures and includes those which help to control conversation. Beside the vocal sounds you make while listening to others ("uh, huh" or "mmhmm"), you move in different ways to let others know whether you or they are permitted to have control of the interaction. For example, when you initiate a conversation, you usually capture the person's eye contact. During the time you are speaking, you may allow your eyes to wander from the person's face, but as soon as you are ready to relinquish the speaking role, you seek your partner's eyes once more. This is the nonverbal way of saying "O.K. It's your turn now." The opposite message can be conveyed by keeping pauses short or not permitting them at all, continuing to keep our posture and gestures lively, and increasing the loudness of our voices. These cues signal the listener nonverbally what role is being enacted by the speaker. In contrast, you can also offer the listener a speaking turn by decreasing any of these body or vocal movements. By observing two or more individuals engaged in conversation you can detect these cues.

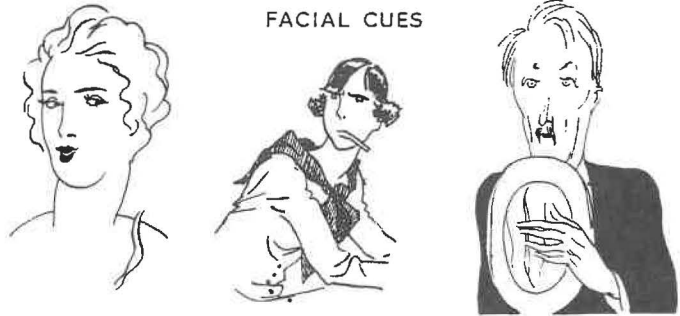
The hectic pace at which we live precludes our taking time to evaluate the impression we make on others. For the same reason, we seldom evaluate why we react either favorably or unfavorably to those we meet or with whom we work. Because our culture is so verbally oriented, however, we must be encouraged to pay attention also to subtle nonverbal cues, those which convey equally significant data, meaning in communication, and reveal information about us and our adjustment to our environment. Researchers (Albert Mehrabian 1967, and Haase and Tepper 1972) suggest that a significant portion of the meaning of message is posture, gesture, vocal tone and pausing, and facial expressiveness.

The body represents a catalogue of moving messages. For example, when you move as you speak, you highlight the verbal messages through large and small muscle movements. Some of the movements are learned or imitated from "liked others." Other movements seem to occur spontaneously as rhythmic accompaniment to spoken words. Think of the man who continually moves his head to one side whenever a word is to be emphasized, or the woman who drops her chin and lowers her eyes every fifth word. Their bodies are tapping out codes which are orchestrated messages all their own. Our job is to understand them.

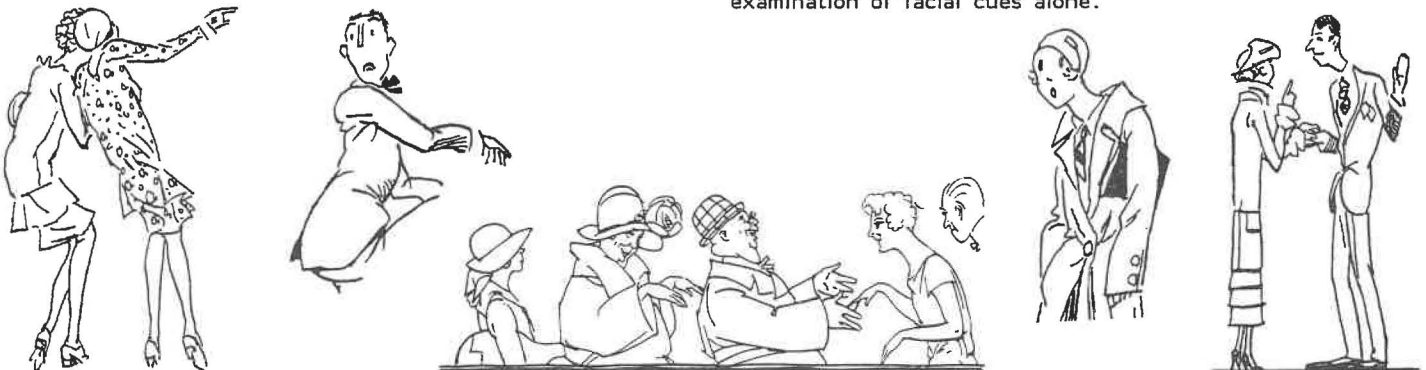
BODY MOVEMENTS

Ekman and Friesen (1969) describe body movements as either informative, interactive, or communicative. Informative moves are those which reveal easily understood meaning to others. An informative movement occurs, for example, when you frown in response to someone else's message or behavior, thus making the chances very good that the other person will realize you are making a negative response. The intent of your message is easily understood. Interactive movements are intended to influence or direct the other person toward a pre-determined behavior. Finally, communicative movements are those which have specific (rather than general) meaning for conversation partners, assuming

FACIAL CUES



Not only does the body give cues but the face as well gives cues. In fact, the face is a rich area for emotional cues. Whereas the body cannot lie in revealing feelings, the face is another story. For testing purposes, the face has been divided into three separate areas: the upper brows and forehead; the eye area and nose to upper lip (often referred to as the "Lone Ranger" area); and last the lower lip, lower cheeks, chin and jaw area. Of the three, the middle area seems to be the most revealing in terms of sending facial movement messages. Most of us forget that as a society we have learned too well how to manipulate our faces to convey or conceal messages to others. For example, to discover whether or not a person may be deceiving you, it is more effective to look at the legs and feet first, then the hands and arms, and lastly the face and eyes. Most of us have several different facial masks which we employ, depending upon the intent of our communication and unless you know a person well, it is difficult to gauge his or her total reaction to anything from an examination of facial cues alone.

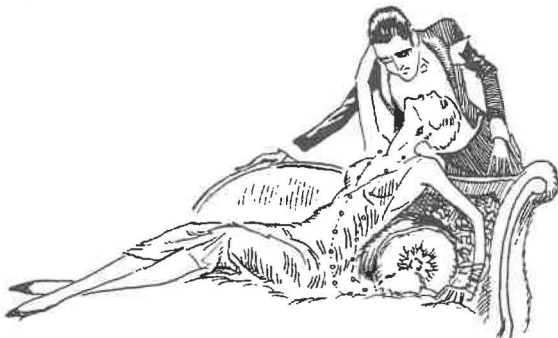


In order to effect attitude changes in other people or to be more persuasive, it is important to confront them face-to-face. In this way, both of you can have the full effect of each other's facial and body cues. It is in the direct visual confrontation with a listener that the message and the message creator become one.

ADAPTOR MOVEMENTS RELIEVE STRESS

Of course, while you are in another person's company, you may become aware of other gestural movements that seem to be contradictory to the nonverbal impressions being suggested. An example of that, perhaps, occurs while a speaker is under tension. When you are under stress or feel undue tension, you are likely to express your discomfort through adaptor movements. Rubbing the back of your neck, stroking the desk blotter, jingling pocket contents, or clicking a ball-point pen may all be nonverbal representations of learned movement habits previously rehearsed under stressful situations. Individuals, therefore, use themselves, their clothing, or objects to release the negative feelings they are experiencing. Because such movements are ingrained habits, they are seldom under our conscious control. If you carefully self-monitor your behavior for a few days you may be able to isolate some of these adaptor movements.

DISSIMILAR OR CONGRUENT POSTURE



When you are completely relaxed, your body takes on a tension-free appearance. Spreading out into space, leaning back rather than forward as you talk, using a warm tone quality, and smiling are nonverbal indicators of your feelings of ease. At the same time, the longer you speak with someone you like or toward whom you feel responsive, the more likely your posture and theirs will appear similar. It is not unusual to see two people with echoic positioning and gesture patterns, the adoption of which is a nonverbal form of flattery. Their posture and gestures are congruent with one another, suggesting that psychological linking may be part of their relationship. However, people with dissimilar or incongruent postures suggest nonverbally that they may have different status perceptions of each other or do not like one another. The closer we allow ourselves spatially to be to another person the more likely others will assume there is a positive relationship between us and the other person. By contrast, if you avoid close



proximity to another because of your negative feelings, you may give that person the "cold shoulder." A cold shoulder means literally that you avoid giving yourself to that person and indicate nonverbally that you have no wish to mirror any postural or gestural orientations.

THE OFFICE AS BACKDROP



In the office environment, Bruneau (1972) found that as the status of the office owner increases, the farther and more visible the distance barriers appear, separating that person from others in the same office. The desk or table can also remind others of intrusion on your privacy or indicate your attempt to protect yourself from close interaction with others. Colleagues may be forced to take extra time and space to get close enough to interact with the high status person. When you continue holding your position from behind a furniture barrier, you are further suggesting your unwillingness to interact, either directly or informally, with others. However, the work area can also be an interaction area (or the only interaction area) where communication takes place so when it is appropriate for social conversation to begin, many workers will consciously move from behind a furniture barrier, signalling a more informal conversational intent.

In Korda's book, (1955) entitled Power, the author describes ways in which spatial arrangement communicates the office holder's power. Objects which represent either the personal life of the worker or specific power symbols related to his or her role or background may be prominently displayed. From the size of the desk, the arrangement of certificates and memorabilia, or the labeled pen stand, each person sends significant nonverbal impressions to anyone entering the office. These cues suggest the type of interaction the office holder prefers and has come to expect. In addition, personality is revealed by the amount of space used by office visitors. If people stand or sit farther away from you than expected, or seem to prefer closer interactive distances, they may reveal their tendencies toward an extroverted or introverted personality. Space and distance as well as movement, then, can suggest psychological comfort and personality tendencies.

ELICITING RESPONSES THROUGH PROPER NONVERBAL CUES

It is quite possible to make others feel more responsive toward you by using nonverbal cues. Establishing direct eye contact, smiling without

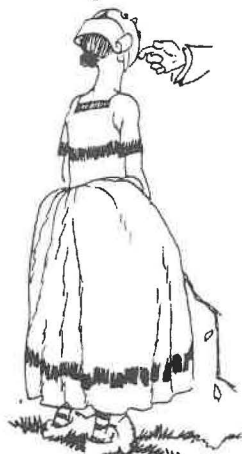
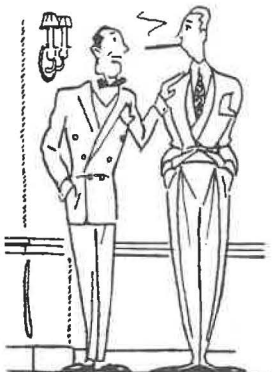


fidgiting during conversation, using head nods to reinforce listening responsiveness, and employing an enthusiastic tone of voice all demonstrate your interest in communicating. The feeling that the listener is genuinely interested is one of the most important forms of nonverbal communication behaviors and one which is appreciated. Feeling that you have someone's undivided attention, both verbally and nonverbally, suggests that your partner is willing to share a most important possession -- time. Spending time with others and centering your attention on them is highly valued in any communication context.

AMERICANS' USE OF TOUCH VERY PRESCRIBED

Finally, nonverbal research suggests that the use of touch is one of the most emotionally charged and self-confirming types of behavior. Under stressful conditions, it is common to observe examples of self touch or object stroking to dispel tension. Twirling a pen or pencil in the air, rocking back and forth, or hugging oneself are examples of this type of nonverbal cue.

Henley (1977) indicated that superiors tend to touch subordinates more than superiors expect to be touched by subordinates. Dominant and high status people have a "license" to touch others more frequently than those in low-status or submissive roles. Try to recall the last time someone used touch to convey a message in your office environment. What was the perceived difference in status between the individuals? If status was not an issue, were you able to read clearly the intent of the touch message?



Unlike other societies, ours uses touch in very prescribed ways and under specific conditions. Touch can convey control, support, and affiliation as well as responsiveness and emotional feelings toward another. You go out of your way, usually, to excuse yourself if you accidentally bump into someone in the hall or brush against someone in the elevator. Your

feelings may be that you have entered, uninvited, into someone's personal body space. In order to protect ourselves from such unwanted invasions, we often use our body parts to expand our physical boundaries. We cross our arms, lean against a wall, or thrust out one foot in the invader's direction. The nonverbal message is quite clear: stay out of my space unless invited to enter. In still other situations, we contract our invisible body space to make room for others to come closer, making the message's intent visible to those sensitive to nonverbal cues.

Therefore, in order to be effective "body readers", we must first become attuned to the presence of such cues in our everyday world; then we can get to know others well enough to be able to evaluate their nonverbal cues in order to compare and contrast them with our own. This new knowledge and understanding should help you become a more effective communicator.



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RESEARCH IN PROGRESS

THE ECOLOGY AND MANAGEMENT OF PONDEROSA PINE

Ponderosa pine is the widest ranging pine species of North America. It occurs with a variety of tree, shrub, and forb species from near sea level in the Puget Sound Basin to nearly 10,000 feet in the mountains of the southwestern United States. Ponderosa pine forests provide valuable habitat for a variety of wildlife species, forage for grazing cattle, watershed protection on many steep and rugged sites, and a variety of wood products. The often open, park-like stands are pleasant sites for recreation.

These multiple demands on a limited forest resource often conflict, requiring innovative and knowledgeable approaches to management. In Arizona and New Mexico, for instance, most of the flat, readily accessible sites on basalt soils have been logged several times. Wildlife biologists are concerned about habitat for "old-growth" species in the remaining stands, recreational pressure is increasing, and many people are looking to these forests as a source of additional water runoff. This last is particularly critical as nearby agricultural and growing metropolitan areas seek to meet water needs.

Researchers Jim Lotan (USDA Forest Service) and Penny Morgan (University of Idaho) are writing a silvicultural handbook based on a review of the extensive literature. In addition, the senior author has traveled throughout the western United States interviewing private, state, and federal resource managers, forest owners, researchers, and others. The results will be synthesized into a single volume covering the ecology and management of ponderosa pine over its range. The research is supported by the U.S. Forest Service.

In a related effort, a symposium, "Ponderosa Pine: The Species and Its Management", will be held in Spokane, Washington September 29 - October 2, 1987. The event is sponsored by Washington State University, University of Idaho, and the U.S. Forest Service. Resource managers, biologists, researchers, and others will present research results and discuss issues in managing this diverse and valuable species and the forests in which it grows.

Penny Morgan
Department of Forest Resources
University of Idaho
Moscow, Idaho



THE EFFECTS OF PRESCRIBED BURNING ON PONDEROSA PINE GROWTH

Prescribed burning is an increasingly common silvicultural tool used in conjunction with thinning and other stand management practices. Fire potentially affects both the survival and growth of trees in managed and unmanaged stands. This project considered the effects of the burning on the growth of ponderosa pine trees in thinned and unthinned stands in northern Arizona. The stands had been protected from fire for over 50 years. Data were collected on

dominant and co-dominant trees, ranging from 20 cm DBH to over 40 cm DBH, on control and burned plots. This account updates the research last reported here in the summer of 1985.

Yearly basal area increment since burning was analyzed with respect to site and treatment. Growth rates over the previous three years, crown ratio as a measure of tree vigor, and change in competition due to tree mortality since burning were included in the analysis as covariates. In the first 3 years after fire, growth was significantly less in burned plots than in control plots, and previous growth was the most important covariate; if trees grew well before the fire, they grew well after the fire. However, 4-8 years after the fire, burning no longer had a significant effect on tree growth. Instead, current growth rates were more closely related to previous growth rate and crown ratio. The results indicate that there was no difference in growth of individual trees due to thinning and that the negative effects of prescribed burning did not persist for more than 3 years. The vigor of the trees was the most important determinant of growth response to burning. Presently, I am modelling growth, on a yearly basis, using multiple regression to determine the shape of the "recovery" growth curve to see exactly when growth approaches that of the control trees.

Elaine K. Sutherland
Department of Biology
University of Utah
Salt Lake City, Utah



FIRE MANAGERS' RISK BEHAVIOR STUDY

In 1978, the USDA Forest Service revised its policies to reflect greater emphasis on fire management. While the policy still retains a suppression ethic, it also encourages the use of prescribed fire with both planned and unplanned ignitions, requires that fire management programs be cost effective, and calls for integration of fire management into the overall land management planning process.

Historic fire management policies traditionally encouraged fire managers to be risk averse. Revised policies, in contrast, require fire managers to balance the cost of fire suppression with the estimated probabilities of success and resource damage; this may change the way fire managers react to risk. We do not know what the risk attitudes and behavior of fire managers are, how different factors affect the decision process, and how risk and uncertainty are incorporated into fire management programs. For instance, risk aversion rather than risk neutrality or risk preference may still be the most prominent attitude among fire managers.

Researchers Hanna Cortner and Ed Carpenter (University of Arizona), Dave Cleaves (USDA Forest Service) and Jon Taylor (University of Wyoming) are using survey research to determine how fire managers' risk attitudes and behavior may differ when faced with

Continued on page 43



PEOPLE



THEO D. HUGS, park ranger at Bighorn Canyon National Recreation Area, was chosen "County Citizen of the Month". The selection, made by the Hardin, Montana, Chamber of Commerce, is intended to recognize citizens of Big Horn County for community and civic contributions. Theo, who is North District Interpreter at Bighorn Canyon, is an enrolled member of the Crow Tribe. Along with her other duties, she serves as Liaison Officer between the Crow Tribe and the Park Service. In this capacity she has been able to build bridges across cultural gaps; she has enabled the tribe to better understand the Service's role, and the Service to develop a greater awareness and sensitivity to tribal concerns.

The Rogue River National Forest's Federal Women's Program (FWP) Committee sponsored a superb seminar last fall at the Red Lion Motor Inn in Medford, Oregon. The seminar was presented to 170 women from the BLM (Medford office), Crater Lake National Park, the Soil Conservation Service, The Klamath NF, the Siskiyou NF, the Winema NF, and the Rogue River NF. The FWP committee (which consisted of PHYLLIS FENIMORE, LIZ JULE, PAT MCFARLIN, SUE FOLLE, and SHERRY WILKENSON) received requests from 250 women to attend the seminar. The agenda was developed to relate to all sections and agency levels of working women.

IRIS BELL, the Pacific Northwest's FWP Coordinator, was the first guest speaker, discussing Regional affirmative-action goals and various methods for obtaining those goals.

OLIVE STREIT, a private counselor, discussed Barriers to Women's Self-esteem/ Women and Depression--A Psychosocial Perspective. JUDY SCHAEFER, a private counselor, defined what assertiveness is and had participants practice assertive "lingo" and mannerisms.

The third private counselor that participated was BEA BERRY, who has been working with R-6 employees on wellness for some time. Her presentation at the FWP seminar was on achieving personal excellence by enhancing self-esteem.

Rogue River National Forest Supervisor, STEVE DIETEMEYER, talked about How to Make the System Work For You, which included twelve ingredients of his Success Recipe.

PHYLLIS FENIMORE, Personnel Management Specialist for the Siskiyou and Rogue River NF, gave two presentations--Presenting Yourself, and Career Decisions. She provided attendees with the book Take Charge

of Your Own Career, by Donna J. Mills, and talked them through a set of exercises which motivated future self-study. SUE ROLLE, Ashland RS, Rogue River NF, discussed Transitions noting that everybody goes through hard times.

The buffet luncheons provided attendees the opportunity to hear Oregon's State Representative NANCY PETERSON and Klamath National Forest's Deputy Forest Supervisor, BARBARA HOLDER, discuss their career experiences.

The session's cost was \$20.00 per employee including text. As one individual said, "It was the best \$20.00 the government has ever spent on me."

....Danella George, Soil Scientist
Rogue River National Forest

BERTA YOUTIE, photo editor for Women in Forestry, and Research Associate of the Wildlife Resources Department, University of Idaho, has moved to Portland, Oregon to accept a Land Steward position with The Nature Conservancy (TNC). TNC's goal is to preserve and protect rare species and seek out the best examples of threatened ecosystems. Youtie will help manage over 30 preserves in Oregon.

Women members of the Society for Range Management (SRM) attended a breakfast meeting at the 1987 annual meeting in Boise, Idaho in February. KATHERINE MITCHELL, a student from New Mexico State University, presented some of the results from her questionnaire "Women in Range Science." MARILYN SAMUELS, a member of the SRM Board of Directors, discussed the positive change in the Society's acceptance of women over the last 10 years. DIXIE EHRENREICH suggested some ways women might organize to increase their involvement in the Society. She also solicited issue-oriented articles for Women in Forestry, of which she is Managing Editor. There will be a luncheon and a program at next year's meeting in Corpus Christi, Texas announced BERTA YOUTIE, moderator and organizer of the meeting.

Three women scientists from Yugoslavia, India, and Ecuador joined women scientists at the November 4-6, 1986 meeting, "Current Topics in Forest Research," held in Gainesville, Florida. TOM GEARY, Training and Education Director for the International Forestry Support Program, USDA Forest Service, made possible that international participation. Geary broadcast an announcement of the meeting through the State Department telegram system, and arranged

for the travel and per diem to be covered for the woman scientists. Each brought a poster and spoke, offering meeting participants the opportunity to learn about their research as well as some scientific organizations in their country. Geary also attended the Gainesville meeting.

NADA GOGALA is Professor of Plant Physiology at the Department of Biology, University of Ljubljana, Yugoslavia. Gogala conducts research on mycorrhizae, particularly hormonal regulation, the use of tissue culture in the investigations, and the mycorrhizal uptake of ions under the influence of growth substances. She teaches plant physiology, symbiosis and parasitism, and growth and development of plants.

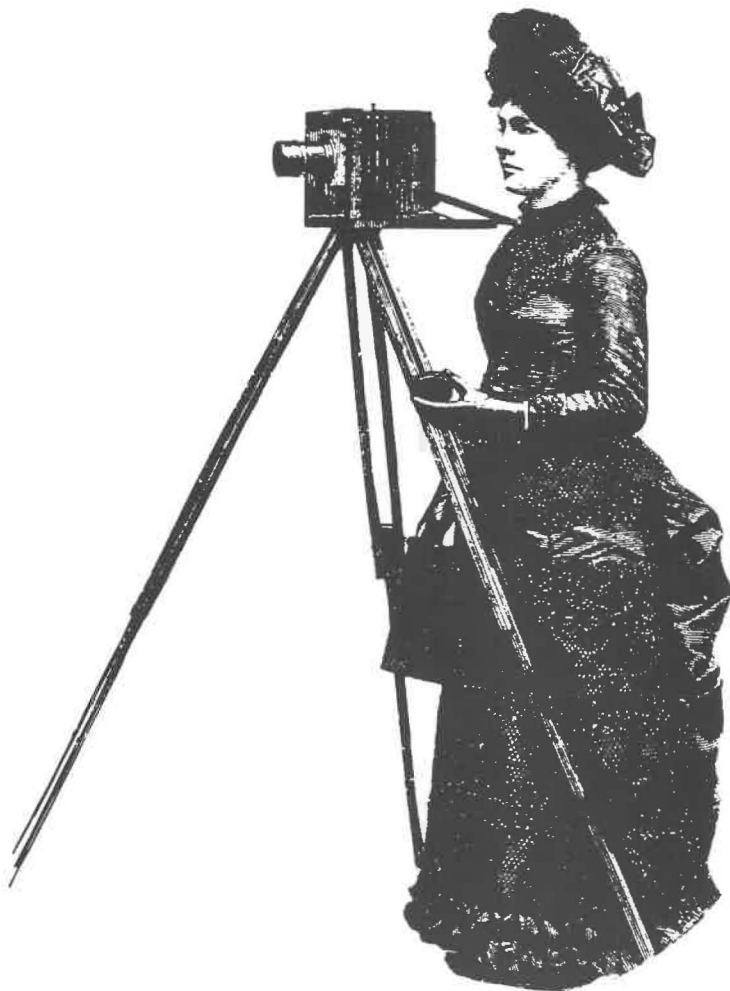
RADHA RANGANATHAN researches social science aspects of forestry at the Oxford Forestry Institute in England. Recently, she looked at land use patterns and village energy requirements to assess biomass needs and production potential. She is closely associated with the State Government of Andhra Pradesh's efforts to popularize forestry programs through the public schools. Ranganathan holds an M.Sc. in statistics from Bangalore University.

JOY WOOLFSON is a candidate for the "Licenciatura" degree (B.S.) at the Department of Biology, Catholic University of Quito. Woolfson is conducting research on the biology of "white moth," a pine pest in Ecuador. She has been working on a national project for forest protection with ROBERT GARA, a forest engineer at the U.S. Agency for International Development, and GIOVANNIA ONORE, her major advisor.

HESTER TURNER was elected to the Board of Directors of the Forest History Society at their annual meeting in Vancouver, British Columbia. Turner earned a law degree from the University of Arizona, Tucson, and a doctor of education degree from Oregon State University. Her work in higher education has been varied and included eighteen years teaching in the School of Education of Lewis and Clark College (Portland, Oregon) and five years as the dean of students at the same institution. She has been elected to many boards of directors, including those of the American Forestry Association, the National Wildlife Federation, and the Yosemite Institute. She served as president of the American Forestry Association from 1980 to 1982.

Women in Forestry
photo contest

1986 Award
Winners



We thank everyone who participated
for making the contest a success.



Grand Prize

First Prize "International"

Our Grand Prize winner, **Diane M. Calabrese**, photographed the wooden boat on the river in the Dumoga-Bone Reserve, Sulawesi, Indonesia while collecting field data on waterstriders (*Hemiptera: Gerridae*). She has contributed to *Women in Forestry* in the past and the article, "Balancing basic and interdisciplinary research", will be published next issue. Calabrese is an assistant professor of biology at Dickinson College in Carlisle, Pennsylvania. She received her M.S. and Ph.D. degrees at the University of Connecticut and joined the Dickinson faculty in 1981.



Honorable Mention "International"

Rosanne Tackaberry's photograph of the Red Crater of Mt. Tongariro was taken in Tongariro National Park, New Zealand. The volcano still emits steam and gas through vents located at one end of the crater.

Tackaberry is studying for a Master's Degree in Environmental Science at the University of Calgary. Her major interests include environmental management in developing countries and conservation of endangered species. After receiving a B.S. degree in Physical Geography from the University of Saskatchewan in 1982, she worked as a wildlife ecologist and environmental consultant.



First Prize “Women in Natural Resources”

Kate Willis's photograph was our first place winner in the category “Women in Natural Resources”. Willis is a surveying technician with the U.S. Forest Service on the Superior National Forest in northern Minnesota. She has worked with the Forest Service for six years. Last summer, while surveying federal property boundary lines, Willis photographed Jill Hebl, an engineering technician with the U.S.F.S. In the winning photograph, Hebl is operating an electronic distance measuring device (EDM).



Honorable Mention "Women in Natural Resources"

Ron Robberecht's photograph of Janice Dobson in her dry suit on the North Slope in Alaska was also selected as a winner in the category "Women in Natural Resources". Dobson is studying the autoecology of the aquatic arctic grass *Arctophila fulva* for her Ph.D. dissertation project.

Robberecht is an assistant professor in the Range Resources Department at the University of Idaho. He obtained his M.S. and Ph.D. degrees from Utah State University and his major research specialties are in the field of plant ecophysiology.



First Prize "The Natural World"

Deborah Hoback's photograph of Maroon Bells was selected as the first prize winner in the category "The Natural World". North and South Maroon Peaks are located in the Central Elk Range west of Aspen, Colorado. These 14,000 ft. summits with Maroon Lake in the foreground, are named for their rich color and contrast with the blue sky and aspen trees.

Hoback is currently employed as a Reality Specialist with the BLM in Battle Mountain, Nevada. She also serves as the District's Federal Women's Program Manager. Prior to her transfer to Battle Mountain in 1984, Hoback spent five years as a secretary with the BLM in Glenwood Springs, Colorado.



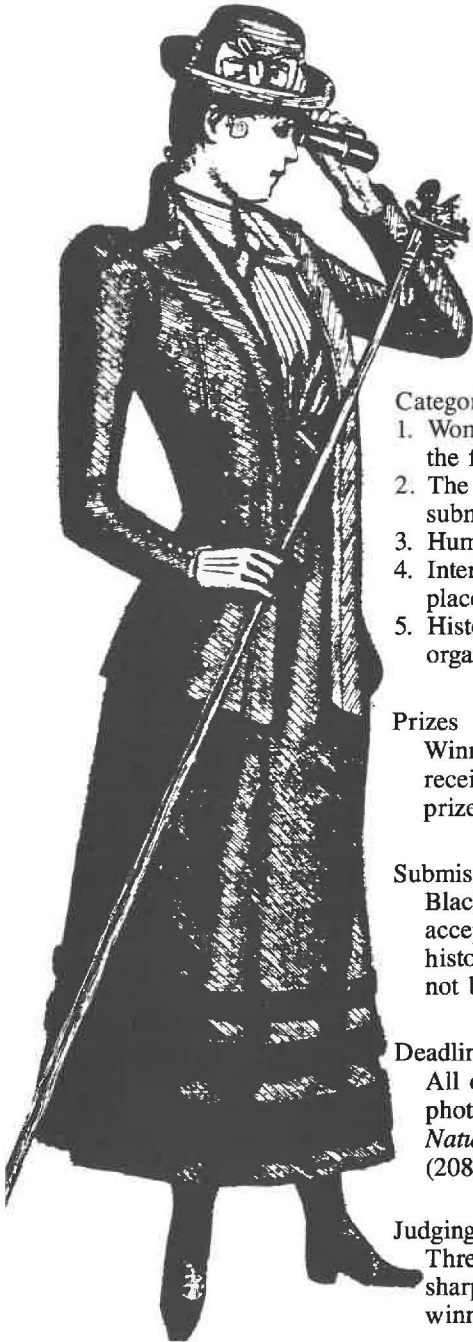
First Prize "Humor in Nature"

Linda Cayot took the blue-footed booby photo while collecting data for her Ph.D. research. Cayot is currently completing her Ph.D. in biology at Syracuse University. Her dissertation is entitled "Ecology of Giant Tortoises in the Galapagos Islands". She received her B.S. ('75) and M.S. ('78) in Wildlife Biology from Colorado State University. After completing her Masters, she worked for two seasons on the Interagency Grizzly Bear Study Team in Yellowstone National Park.

ANNOUNCING THE 1987

WOMEN IN NATURAL RESOURCES

PHOTOGRAPHY CONTEST



Time to take some new shots or send us your old favorites!

Categories

1. Women in Natural Resources — Women may be depicted working, recreating or relaxing in the field, office, etc.
2. The Natural World-Scenery — (landscape, waterscape) plant or animal photos may be submitted.
3. Humor in Nature — Be creative.
4. International — Photos taken outside the U.S. that communicate the exotic flavor of foreign places through the depiction of natural landscapes, people, flora and fauna found there.
5. Historical — In this category you need not be the original photographer, but you or your organization must own the picture and it should be at least 35 years old.

Prizes

Winning entries will be published in *Women in Natural Resources*. All prize winners will receive a one-year subscription to the Journal. A grand prize of \$75 will be awarded. First prize winner in each category will receive \$35.

Submissions

Black-and-white prints of a maximum size 5" x 7" are preferred. Color prints will be accepted, but entries will be published in B&W. Glossy paper preferred. No size limit on historical photos. Group or organization submissions are permitted. Negatives or slides will not be judged.

Deadline

All entries must be postmarked by Oct. 15, 1987. Winners will be notified by Dec. 1 and photographs will appear in the Winter '88 issue. Send entries to Berta Youtie, *Women in Natural Resources*, Laboratory of Anthropology, University of Idaho, Moscow, ID 83843. (208) 885-2096.

Judging

Three professional photographers will judge entries. Judging will be based on image sharpness, composition, imagination and artistic merit. Judges reserve the right not to select winners in a category if there are no entries that merit publication.

Contest Rules

Contestants may send as many as 10 entries. Please attach the category, photographer's name, address and phone number with each entry. All entries must be available for publication. If contestants would like prints returned, please specify and send a stamped, self-addressed envelope. You must know the name/address of each recognizable person in your photo.

WOMEN IN NATIONAL FOREST PLANNING

Margot W. Garcia

The national forests of the United States have been the focus over the last eight years of an intensive integrated land and resource planning effort. As required by the National Forest Management Act of 1976 (NFMA), every national forest has been going through a planning process to produce a Forest Plan along with a Draft Environmental Impact Statement. The national forests must be managed to provide adequate levels of resource, outputs, and services for current and future use. The Forest Plan sets directions for management over the next twenty years: in among them timber harvest levels, recommendations for wilderness, wildlife habitat management strategies, and development of recreation opportunities (Jameson et al. 1982, Wilkenson and Anderson 1985).

The planning process has generally been directed by the Land Management Planning Officer (LMP staff) following national and regional guidelines. Regulations (36 CFR 219) promulgated September 1982 for NFMA require an interdisciplinary team to prepare the plan and the Forest Supervisor to recommend the preferred alternative to the Regional Forester. This decision structure was created on most national forests by organizing three groups of people to work on the plan. The interdisciplinary team (ID team) was responsible for developing prescriptions for management of specific analysis areas, for developing the plan and alternatives, and for writing the Draft Environmental Impact Statement (DEIS). Described in the regulations, it was to "integrate knowledge of the physical, biological, economic, and social sciences and the environmental design arts . . . (and) consider problems collectively rather than separating them along disciplinary lines . . ." (36 CFR 219.5(a)). The core team cadre, in 69 percent of the national forests, was the group that administered the planning process and supported the ID team. Although generally smaller, it had some overlapping memberships with the ID team. The third group has been called the management team and is usually composed of the District Rangers, forest staff officers and the Forest Supervisor. Its job was to oversee the planning process and advise the Forest Supervisor on approval of management strategies and on recommending a preferred alternative to the Regional Forester.

Women have been present in varying numbers in each of these groups. The purpose of this paper is to document the presence of women in the planning process, to discover what positions they held, and to see if there are any regional differences in the number of women involved in the planning process.

METHODOLOGY

A survey instrument was mailed to each of the 154 National Forests and Grasslands¹ in August 1985

¹ Due to administrative combining of national forests and grasslands, 122 surveys were sent out.

using the Dillman method (Dillman 1978). The Dillman method consists of sending out a questionnaire with a cover letter and postage-paid return envelope to each national forest's Planning Officer. One week after the first mailing, a follow up postcard was sent both as a reminder and as an encouragement to respond. Each questionnaire was numerically coded so that a respondent's name could be removed from the mailing list immediately upon receipt of the returned questionnaire while retaining individual anonymity. Three weeks after the initial mailing, all non-respondents were sent a complete package identical to the first mailing, but with a slightly more insistent cover letter.

One hundred questionnaires were returned (82 percent), coded and entered into an IBM-XT microcomputer and analyzed using SPSS-PC. Frequencies and crosstabs were run. No statistical analysis of variance was made because of the small size of the cell frequencies regarding women. However, the cell frequencies being so small reaffirmed the conclusions being drawn. Content analysis (Holstein 1969) was used to synthesize the responses to the open-ended questions as well as the voluminous unsolicited comments about ID teams and planning.

RESULTS

The results are presented as an overall view of the presence of women in the planning process (at the time of or during Forest Plan and Draft EIS writing) as reported by the respondents. Regionally specific data is shown for ID, core and management teams. In addition, for ID teams, job specific data and job level (GS rating) data is displayed as an indicator of the position of the women in planning.

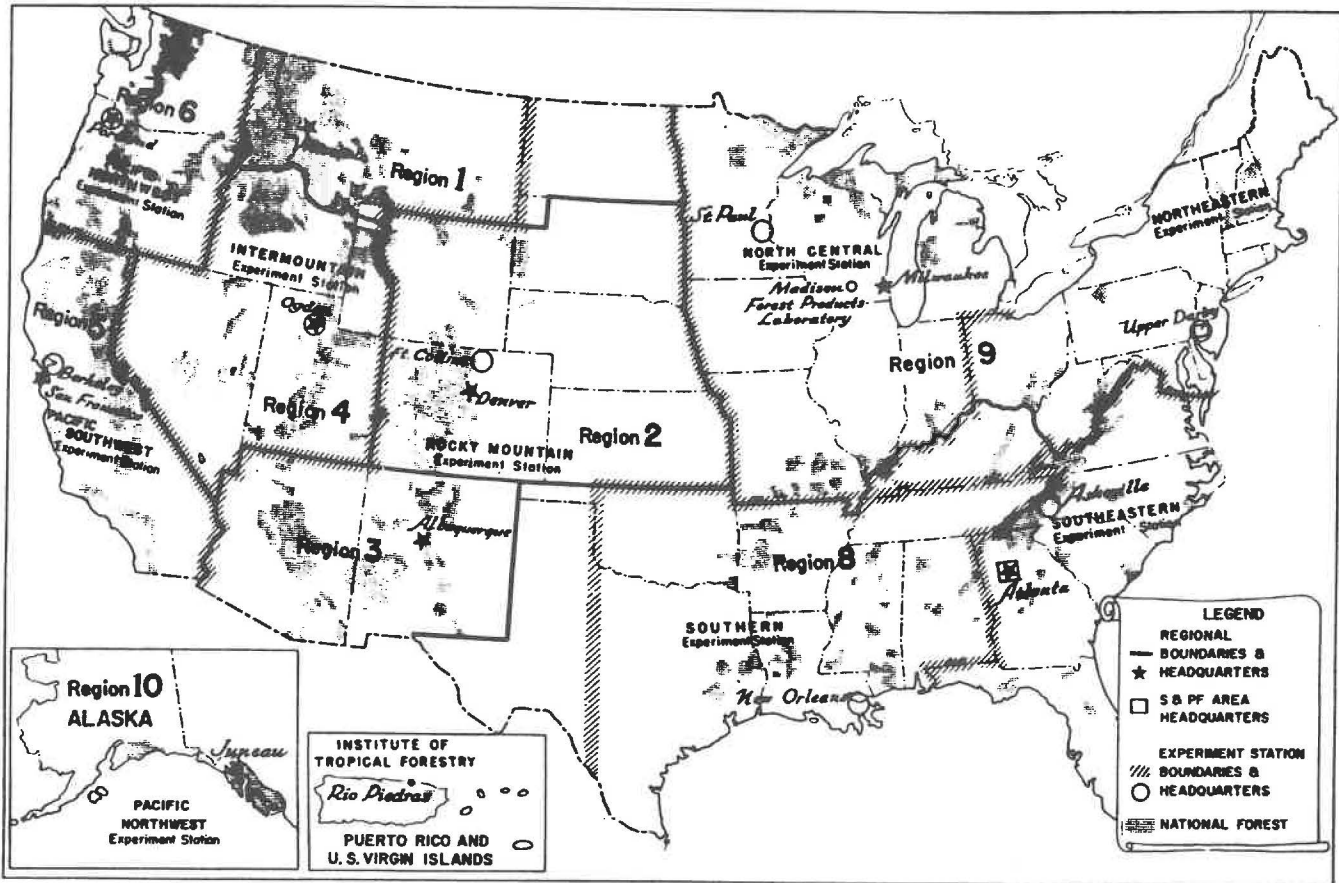
The presence of women on the three different teams varied (Table 1). There was a higher percent of women on core teams than on the ID team or management team. In looking at the percent of teams with women, ID and core teams were very similar; 65 percent and 60 percent respectively, but 60 percent of the management teams had no women on them (Table 2).

Table 1. Gender of members of national forest planning teams.

	Female	Male
ID teams (n=1040)	11%	89%
Core teams (n=337)	21%	79%
Mgmt. team (n=1156)	4%	96%

Table 2. Percent of national forest planning teams with women.

	No Women	1-2 Women	3 or more Women
ID teams (n=99)	35%	51%	14%
Core teams (n=83)	40%	48%	12%
Mgmt. team (n=89)	60%	37%	3%



Map 1. Administrative Regions and Experiment Stations.

ID TEAMS

The presence of women on the ID teams varied by region (See Map 1 for regional boundaries). Some regions (such as 1 and 6) had an average of 2 or more women on the ID team (Table 3). On the other hand, 71 percent of the ID teams in region 8 had no women present.

Table 3. Presence of women on ID teams by region.

Region	No Women	1-2 Women	3 or more Women	Average per team
1 (n = 11)	9%	73%	18%	2.0
2 (n = 11)	27%	64%	9%	1.18
3 (n = 11)	36%	64%	0%	.64
4 (n = 13)	38%	46%	15%	1.15
5 (n = 14)	29%	43%	29%	1.57
6 (n = 14)	21%	50%	29%	2.07
8 (n = 14)	71%	29%	0%	.43
9 (n = 9)	44%	44%	11%	.89
10	Sample too small!			

The presence of women on the ID team also varied. Traditionally female jobs such as writer and public information specialist had the highest percentage of women (Table 4).

Table 4. Gender differences on ID teams by position.

	% Female	% Male
Writer (n = 28)	61	39
Public Info. Specialist (n = 44)	41	59
Archeologist (n = 39)	38	62
Sociologist (n = 20)	35	65
Program Analyst (n = 56)	21	79
Economist (n = 56)	11	89
Landscape Architect (n = 72)	10	90
Hydrologist (n = 63)	9	91
Planner (n = 62)	8	92
Engineer (n = 72)	6	94
Timber Specialist (n = 88)	6	94
ID Team Leader (n = 72)	6	94
Wildlife Biologist (n = 90)	6	94
Soil Scientist (n = 63)	5	95
Lands Specialist (n = 39)	5	95
Recreation Specialist (n = 74)	4	96
Range Specialist (n = 50)	2	98
Fire Specialist (n = 51)	2	98

There are also differences in the GS ratings of women and men on the ID teams (Table 5). The female to male average GS ratio is a way to compare the relative positions, uninfluenced by the actual GS number. Ratios close to 1 mean equal rating, less than 1 means the woman has a lower rating, and larger than 1 means the man has a lower rating. Women writers had the lowest GS rating of 8.6 and male planners the highest at 13.1

Table 5. Gender differences in weighted average GS rating on ID team members.

Job	Female	Male	F/M Ratio
Rec. Specialist	9.0	11.5	.78
Pub. Info. Spcl.	9.6	11.3	.85
Lands Specialist	10.0	11.7	.85
Planner	11.4	13.1	.87
Writer	8.6	9.9	.87
Economist	9.7	10.7	.89
Wildfe. Biologist	11.3	12.5	.90
Engineer	10.5	11.7	.90
Sociologist	10.3	11.2	.92
Landscape arch.	10.4	11.3	.92
Soils Scientist	10.3	11.2	.92
ID Team Leader	11.3	12.1	.93
Program Analyst	10.1	10.9	.93
Range Specialist	11.0	11.7	.94
Timber Specialist	11.2	11.6	.97
Fire Specialist	11.0	11.1	.99
Hydrologist	11.2	11.3	.99
Archeologist	10.8	10.5	1.03

CORE TEAM

The core team worked to support the planning process and the ID team. It was usually a smaller group that worked closely together full-time. The presence of women in the core team also varied by region with Region 6 having the largest average number of women on a core team and Regions 4 and 8 having the lowest (Table 6).



Core Team on the Coronado National Forest leading a public meeting. (Photo courtesy Coronado National Forest)

Table 6. Presence of women on core teams by region.

Region	No Women	1-2 Women	3 or more Women	Average per team
1 (n = 10)	30%	50%	20%	1.5
2 (n = 9)	44%	56%	0%	.78
3 (n = 9)	44%	56%	0%	.56
4 (n = 10)	60%	40%	0%	.40
5 (n = 13)	8%	69%	23%	1.61
6 (n = 12)	25%	33%	42%	1.92
8 (n = 10)	60%	40%	0%	.40
9 (n = 10)	56%	46%	0%	.56
10	Sample too small			

MANAGEMENT TEAM

Management teams are where the decision-making occurs. They are usually made up of the senior members of the Forest Supervisor's staff and the District Rangers. This is where women have the least representation overall. Regional differences exist with Region 5 having the highest average number of women on a management team, and Region 4 having the lowest average (Table 7).



Briefing the Coronado National Forest ID and Management Teams in a joint meeting on planning process. (Photo courtesy Coronado National Forest)

Table 7. Presence of women on management teams by region.

Region	No Women	1-2 Women	3 or more Women	Average per team
1 (n = 10)	60%	40%	0%	.6
2 (n = 10)	70%	30%	0%	.4
3 (n = 11)	73%	27%	0%	.27
4 (n = 13)	77%	23%	0%	.23
5 (n = 14)	36%	50%	14%	1.75
6 (n = 11)	56%	36%	9%	.64
8 (n = 13)	69%	31%	0%	.31
9 (n = 8)	38%	63%	0%	.75
10	Sample too small			

Women on the management team are usually District Rangers, Land Management Planning Officers, Public Information Officers, or Administrative Officers (Table 8). There were no women in any of the resource staff positions. The absolute number is very small.

Table 8. Positions held by women on management teams by region.

Region	District Ranger	LMP Staff	Other Positions
1	2	1	3
2	1	1	2
3	1	0	2
4	2	0	2
5	2	1	9
6	3	0	4
8	1	0	3
9	3	0	4
10	Sample too small		

DISCUSSION

Women have played a role in the planning process at all levels, from support positions to decision-making roles. However, their numbers are very small relative to the total planning effort. Their position is reflected in lower GS ratings compared to men, and regional differences in the participation of women in the planning process.

Looking at Table 5, the data collected from the questionnaire shows a pattern of lower GS ratings for women doing the same kind of planning jobs on the ID team. There are a number of possible explanations. One is that women have not been promoted in GS rating though given more responsibility, compared to men. Another is that women have only joined the professional ranks of the Forest Service over the last 10 years, and that the more experienced (and higher paid) staff members, who are mostly men, were put on the ID teams. So, in order to get women involved in planning, an effort was made to bring junior women in as they are the only women present on the forest. However, what is striking is that the fields dominated by women, such as writing, have much lower GS ratings than other professional fields. Only the archeologist women have a higher average GS rating than the men, and then only by a very small amount. In all the rest, women have GS ratings up to nearly 25 percent lower than men.

There are regional differences in the number of women involved in planning. Since 1979, Region 5 has been under a court consent decree to promote women and bring about equality of opportunity for women (Winoker 1986). However, this region's record, as indicated in the survey, is not consistently higher in female participation than other regions not under court order. Region 5 does have more management teams with more than 3 women on a team (Table 7) and fewer teams that are all male. On the core teams, region 5 did not have the highest average, though it had the fewest core teams that were all male. Regarding ID teams, Region 5 had the fewest number of teams that were all male, but two other regions (Regions 1 and 6) had a higher average number of women on the ID team. Workshops have been held on the changing roles of men and women in the Forest Service in Region 6 (Warner 1986). Workshops have also been held in Regions 2, 4, 5, 9, and 10. Region 6 may be showing the results of their workshops but the reason for Region 1's strong showing is unknown. Region 5 is making an effort and certainly does a better job at including women in the planning process than Regions 3, 8 and 4, but Regions 6 and 1 are also doing a good job without direct court pressure.

Margot W. Garcia started working in forest planning on the Coronado National Forest doing public involvement and attempting to include ethnic minorities in forest planning. This work formed the basis of her Ph.D. from the University of Arizona in watershed management. After spending a year as part of the national training team for NFMA land management planning, teaching public involvement procedures and issue identification, she returned to the Coronado and developed and ran their FORPLAN model. Transferring to the San Bernardino National Forest, she worked with the core planning team, developing and running a FORPLAN model, as well as consulting about the planning process. Currently, Garcia teaches environmental planning, computers, public involvement, and planning theory in an urban planning program, and continues to do research on forest planning and water issues.

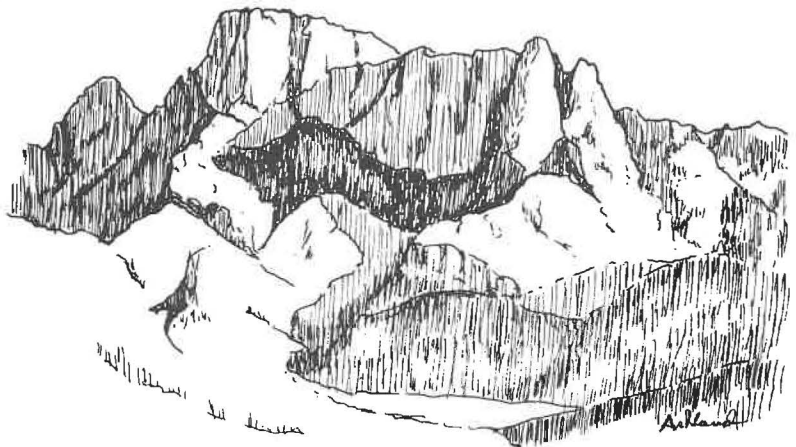
CONCLUSION

Women have much to offer the planning process, and can feel proud of those who have contributed. However, there is a long way to go to gain any kind of gender equity in the planning process. This study does show the lack of female role models (senior staff and District Rangers) for young women coming up the professional ladder. From personal experience I know of one all-woman core planning team composed of a land management planning staff, and ID team leader, two program analysts, a writer, and a sociologist that worked together for about two years until new assignments moved some of the women into other jobs. The survey shows, however, that women are still primarily in the traditional female jobs of writing, public information, and sociology, although the number of women in the program analyst position handling computer models was surprising. Perhaps here is a glimmer of the future, in which the new roles and new technologies that the Forest Service takes on will provide new opportunities for women, as well as opportunities for women to move up the professional ladder to decision-making roles, and positions of influence both in planning and other functions.

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This study was funded in part by a Faculty Grant-in Aid from Arizona State University.



NEWS AND NOTES

WASHINGTON STATE BOARD ADOPTS FEWER TREES RULE

Washington's Forest Practices Board has approved a regulation to reduce the number of trees which must be replanted after logging in Western Washington. The 11-member board adopted a regulation to reduce from 300 to 190 the minimum number of seedlings which must survive on each logged acre after one year in Western Washington.

Field experience indicated that the 300 stems per acre standard required too many trees to be planted, increasing the need to do expensive tree thinning in seven to fifteen years, according to Department of Natural Resources staff.

....Robert Harper
Washington DNR

LIVESTOCK FARMING PERILOUS IN AFRICA

Marginal land in arid zones is used as grazing land, particularly in Africa, for extensive livestock farming. The areas involved are immense and include a large population whose livelihood depends almost exclusively on livestock. The survival of the herds--the livestock farmer's sole source of income--is, on this highly degraded land, at the mercy of even minor changes in the weather. The range management expert's main concern, therefore, should be to ensure a constant fodder supply.

Unquestionably, the main constraint to development planning efforts is the world's shrinking arable land area. The solution, lies in resource identification and management so that the same amount of land can produce more.

For grazing lands, this requires land management techniques that take into account the carrying capacity of rangelands in terms of forage--which means preserving the original capital (the land) without causing erosion, without over-grazing and without deforestation.

Deferred grazing is one of the methods used, along with the improvement in quality of grazing land through afforestation with fodder trees, and range expansion through sowing and protecting perennial grasses.

Despite the climatic hazards, the pursuit best suited to the arid and semi-arid environments is livestock farming which in sub-Saharan Africa provides a livelihood for 40 percent of the population. The aim of livestock production systems is to meet the needs of a large and diverse

human population living in marginal areas and with a limited supply of natural resources, for as long as possible.

However, it is important to be aware of the substantial impact that the expansion of rangeland can have on the environment, in both physical and human terms. The more harmful effects: excessive trampling by livestock, which hastens erosion; clearing by fire; the increase of watering facilities, which often leads to the emergence or spread of water-borne diseases; and vast, mechanized re-sowing projects which exhaust the soil. A sound silvo-pastoral system must be based on improved, intensive, traditional production techniques that take natural resources into account and are self-sufficient. Seen in this light, range management is a first step toward resolving the land shortage problem and a genuine contribution to the New International Economic Order established by the UN General Assembly.

....UnasyIva
United Nations

DIETER'S BODY THINKS SHE'S IN ETHIOPIA

Body math is sneaky; the rules change in the middle of the game. Start a diet and the weight begins to fall off at a brisk clip. After a few weeks, though, that brisk clip turns into an amble, then a shuffle. Eventually, it can become walking-in-place. The invisible barrier is something called your basal metabolic rate, or BMR. That's the calories you have to burn just to stay alive--to breathe, think and fuel your body's internal maintenance program.

When the BRM wakes up one day and finds that you're dieting, it doesn't say, "Ho-ray," It says, "Oh-oh. Something's wrong!" It thinks you're in Ethiopia. And to help preserve you against this perception of impending starvation, it slows down.

Every hour, it burns fewer calories--instead of a typical 70 an hour, for instance, it might drop to 60, or even lower. Multiply that by 24 hours a day, and you discover that a couple of hundred calories you thought you were dieting away actually are locked away in a kind of trust fund. So the person whose only exercise consists of pushing away food finds herself the recipient of a double whammy: no real activity to burn calories, and a pinch-purse BMR that thinks it's saving your life.

The answer is simple: Spend less time and energy counting calories, and more time exercising. An especially vigorous walk will actually raise your BMR for some time after you cease walking. Weight lost with exercise is almost all fat, while dieting also tears away valuable body protein.

....Mark Bricklin
Prevention (October 1986)

SHEEPMEN SUE USDI

Three Montana sheepmen have decided enough is enough. The three have had sheep killed by bears and are suing the U.S. Department of Interior. Also named in the suit is Interior Secretary, Donald Hodel.

Richard Christy, Thomas Guthrie, and Ira Perkins allege their constitutional rights have been violated by the enforcement of the Endangered Species Act.

....National Wool Grower (April 1986)

IT PAYS TO HIRE PROFESSIONAL FORESTERS

Recent studies conducted by the University of Maryland's cooperative Extension Service indicate that landowners may receive up to 66 percent more for timber sales after getting assistance from registered professional foresters. In addition to receiving more money, landowners retain 250 percent more timber on their land and produce 100 percent more seedlings for regeneration when compared to landowners who market timber without professional advice.

....Forest Notes
(Society for the Protection of New Hampshire Forests)[Summer 1986].

ANTI-NUCLEAR MOVEMENT IN AUSTRALIA IMPEDES EFFORTS TO MINE MORE URANIUM IN NATIONAL PARK

Australia's uranium industry has long been dogged by protests. The country has an estimated 28% of the West's easily recoverable uranium resources, but it also has an influential anti-nuclear movement that has held back exploitation.

The uranium industry's critics argue that mining and exporting uranium contributes to increases in radioactive waste and the proliferation of nuclear weapons. What's more, many of Australia's richest uranium deposits lie in Kakadu, a major national park and an area of great cultural significance to the country's Aborigines.

NEWS AND NOTES

There are tensions in the ruling Australian Labor Party over the uranium issue, and the government's policy picks a careful path between the demands of the mining industry and the power of the conservation vote. Australia doesn't have any nuclear plants, so all of its uranium is mined for export. The government limits uranium mining to three sites.

The government has prevented the opening of new mines by refusing to grant export licenses for uranium produced at any additional sites. But with a trade deficit of \$2.1 billion in the year ended June 30, Canberra is coming under increasing pressure to allow additional mines. In August it even lifted a ban on sales of uranium to France that had been imposed two years earlier to protest French nuclear-weapons testing in the Pacific. Lifting the ban caused an uproar. Three Labor members walked out of Parliament, and Prime Minister Bob Hawke's chief political adviser resigned.

Several proposed uranium mines are in Kakadu National Park, near the existing Ranger mine, 140 miles east of Darwin, owned by Energy Resources Australia Ltd. But the government says no more mining will be permitted there. Peko-Wallsend Ltd., which owns more than 42% of Energy Resources, recently tried to pressure the government to allow more mining by moving an exploration drilling rig onto a site within Kakadu. The government has taken Peko-Wallsend to court to stop further work there. The case is still unresolved.

To underline the government's position, Mr. Hawke visited the disputed site this month and declared it would be "an obscenity" to mine an area of such national significance. Kakadu's scenic wetlands and abundant wildlife provided the backdrop for "Crocodile Dundee," an Australian film currently showing in the U.S.

Two mines, to which the Aborigines agreed, have gone ahead, bringing royalty payments that increased the wealth of a people who were among Australia's poorest. But the pace of change brought by mining towns, roads and technology has meant disruption for the Aborigines, many of whom still fish with spears and speak little English.

By closing off much of Kakadu to further mining, the government could be locking up minerals valued at between \$45 billion and \$64 billion, according to the Australian Mining Industry Council, though the council concedes exploration isn't sufficient to make an accurate estimate.

The miners' attempts to open more uranium mines have the full

support of the Northern Territory government, which wants the jobs and the revenue that Kakadu's resources can provide. But the federal government is standing firm.

"They're cowboys who would mine their grandmother's mouth if there was some gold in it," says Barry Cohen, federal minister for the environment.

...Geraldine Brooks *Wall Street Journal* (December 3, 1987)

SHOULD A WIFE KEEP HER NAME?

Despite the popular use of linked, merged or shared names, there is still a surprising amount of opposition to the idea. Family counselors point out that it triggers highly emotional reactions, not only between the couple but also among parents and in-laws. While such concerns may seem relatively trivial, there are others that raise significant issues.

- **Control and commitment.** "Names have always been symbols of power," says Constance Ahrons, a therapist at the University of Southern California. "To a modern woman, keeping her name is a symbol of her independence. But a man may feel that implies a lack of commitment to him and the marriage. Most men are more understanding. When Maureen Poon, a publicist, married Russell Fear, her English-Irish husband sympathized with his wife's desire to preserve her Chinese-Japanese heritage, especially since she was an only child. "We began married life as Poon-Fear," says Maureen. "I've since dropped the hyphen--it just confuses too many people--but Russell continues to use it when we're out together. He feels that we are 'Poon-Fear,' that we are one."
- **Cultural differences.** Men raised in a macho society find it hard to accept a wife who uses her own name.
- **What to name the children.** When couples began hyphenating surnames, it was amusing to consider the tongue-twisters that might plague the next generation. Psychologists point out that youngsters with complex names are often teased by classmates.
- **Technical troubles.** While there are no legal barriers in any state to a woman's keeping her maiden name--or resuming it in mid-marriage--technology can cause complications. Hyphenated names are often too long for

computers to handle; others are likely to be filed incorrectly. Given the difficulties of keeping one's maiden name in a society that has not yet fully adjusted to the idea, should a woman make the effort to do so?

"Clearly, yes, if the name has value to her in terms of personal, family or professional identity," says Alan Loy McGinnis, co-director of the Valley Counseling Center in Glendale, California. "But if keeping one's maiden name makes either spouse feel less secure about the relationship, perhaps the couple needs to find another way to symbolize mutual commitment. After all, marriage today needs all the reinforcement it can get."

...Norman Lobsenz
Parade Magazine (December 7, 1986)

IF EARTHQUAKES AND FLOODS ARE YOUR THING, READ THIS

A most compelling and worrying generalization is that natural disasters are increasing, both in number and people affected. A 1984 report by the Swedish Red Cross found that the average number of disasters per year was greater in the 1970s (81) than in the 1960s (54). Many more people died per year in disasters in the 1970s (142,820) than in the 1960s (22,570), a difference far too great to be explained by population growth alone. In terms of number of people affected, drought led the list, affecting 24.4 million a year in the 1970s, up from 18.5 million the previous decade. But floods showed the steepest increase from 5.2 million in the 1960s to 15.4 million in the 1970s.

Why are natural disasters now more frequent and more dangerous to people? There is no evidence that the "triggers"--wind, waves, rainfall, continental movements--are becoming more unruly. Instead, there appear to be three other major causes which dominate disaster processes: poverty and inequality, environmental degradation due to poor land use, and rapid population growth, especially among the poor.

Surveys have found that death tolls from disasters are highest in the poorest, least developed nations. Between 1960 and 1981, for example, Japan suffered 43 earthquakes and other disasters and lost 2,700 people. Peru suffered 31 disasters and 91,000 dead. "World population pressure and hunger for land are forcing more and more people to inhabit the Earth's hazardous zones," concluded Bindi V. Shah of

NEWS AND NOTES

the London School of Economics in a survey published in 1983.

People can alter their environment to cause more frequent and more deadly disasters. These ways fall into two broad categories. First, people can make their environment more prone to certain disaster triggers, mainly to flood and drought. Deforestation in Nepal, for example, makes both homes and elaborately terraced fields vulnerable to floods.

Second, people can live in dangerous structures on dangerous ground, making themselves more exposed and vulnerable. Both Tokyo and Managua, Nicaragua, for example, are prone to earthquakes. But the people of Tokyo are far less vulnerable to injury because Tokyo has strictly enforced building codes, zoning regulations, and earthquake training and communications systems. In Managua, many people still live in top-heavy, mud-brick houses on hill-sides. In other disasters, such as cyclones and tsunamis, humans can increase their vulnerability by removing bits of their natural environment which act as buffers to these extreme natural forces. Such acts include destroying reefs, cutting mangrove forests and clearing inland forests.

Yet experts and organizations concerned with disasters in the Third World continue to concentrate on climate monitoring, radar tracking of cyclones and the building of barriers against flooding. Does it make more sense for relief and aid agencies to invest some effort and funds in development before a disaster occurs, rather than putting all investments in relief efforts after the event? Are those responsible for development putting too much emphasis on "growth at any price," a policy which may leave more and more poor people dangerously exposed to disasters?

In fact the prevention of many Third World disasters is possible. Disasters can become "vehicles for

change" and involve development and relief agencies in long-term programs aimed both at development and at disaster prevention and mitigation. In Burkina-Faso (formerly called Upper Volta), OX-FAM, a British relief organization, taught people to build "microcatchment" systems to slow runoff on drought-hardened soils. These areas concentrate available water into an even smaller area where a few plants are grown. The farmers quickly adopted the system themselves, without advice, to grow rice, maize, sorghum, millet and groundnuts; and word has been slowly spreading from village to village. By July 1982, some 30 villages had adopted the practice. For floods, much of the disaster mitigation work involves housing, especially in the many big-city shantytowns which are built in flood-prone areas. This work, as in housing programs in earthquake regions, involves making houses disaster-resistant and building better houses after the disaster.

...Anders Wijkman and Lloyd Timberlake International Wildlife 15:5

NEW FIREFIGHTING SYSTEM DEMONSTRATED

Expanded foam, using soap skim, water, and compressed air, is doing wonders for the fire business. The system, formerly known as Texas Snow Job, but now dubbed with the acronym WEPS (Water Expansion Pumping System) expands water 10 times, providing a phenomenal amount of fire control with limited water for fighting both structural and wild fires. During a recent demonstration, an attic fire was put out with less than one gallon of water. BLM is using the system in fighting eastern Oregon rangefires where limited water sometimes is a problem. In western Oregon, slash-burners have found that the foam shortens mop-up time, a critical and

costly period for maintaining control.

...David Lentz, BLM News

MAN SHORTAGE: DEPENDS ON WHERE YOU LOOK

Who says there's a man shortage? The social critic Barbara Ehrenreich writes: "Everywhere I look, there seem to be a shocking man excess. Take the U.S. Senate, with 98 men and two women--a man excess of 96. Or try taking the 6 pm Eastern shuttle out of Washington, and you'll risk being trampled by 200 massed males in three-piece suits stampeding for aisle seats. Or there's the tenured faculty of Harvard: 853 men and 45 women, for a man excess of 808.

...Mother Jones (November 1986)

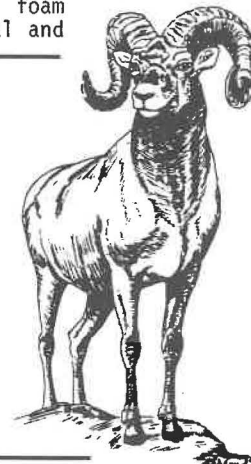
PREPARING FUTURE LEISURE PROFESSIONALS

Results reported during a Symposium on Leisure Research indicated that employers will be seeking individuals with management acumen as opposed to activity-oriented skills (Kaufman and Hultsman). An exception to this may be therapeutic recreation (TR) which is currently focused on programming.

A survey of leisure service professionals employed in various service areas found the most needed continuing education interests to be: innovative ideas in programming, public relations, program evaluation, supervising staff, programming for special populations, current issues in programming, evaluating personnel, leadership techniques, training staff and working with volunteers. A great increase over the past five years in the need for training in computer applications and marketing was noted.

...Robin Kunstler Parks & Recreation 21:1

FEATURE LENGTH MANUSCRIPTS
PERTAINING TO FISHERIES AND
WILDLIFE ARE SOLICITED FOR
UPCOMING ISSUES OF WOMEN IN
NATURAL RESOURCES. GUIDELINES
FOR CONTRIBUTORS CAN BE FOUND
ON THE INSIDE BACK COVER.
MANUSCRIPTS SHOULD BE MAILED
TO WOMEN IN NATURAL RESOURCES,
LABORATORY OF ANTHROPOLOGY,
UNIVERSITY OF IDAHO, MOSCOW,
IDAHO 83843 (208-885-6754).



NEWS AND NOTES

SO WHAT ELSE IS NEW?

What did not happen in the 99th (last) Congress is worth noting: The Nevada Wilderness bill did not pass, nor did the Nevada BLM-FS interchange bill. In fact, there was no action on the Interchange Issue in general beyond introduction of proposals. No Acid Rain bill passed, the revision of the Endangered Species Act didn't make it, and revision of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) fell short in the Senate after House passage. Time also ran out on the bill to create a Tall Grass Prairie Reserve in Oklahoma. Most of these will be around again.

...RangeLands (December 1986)

CATTLE PROTECT SHEEP WOULD WE LIE?

Cattle, not poisons or fences, may offer western sheep farmers the best way to protect their flocks from coyotes. Cows and sheep grazing on the same range normally keep their distance. But USDA researchers have found that when 45-day-old-lambs and yearling heifers were penned together for 30 days, the lambs form a strong social bond with the cows and develop a need to be close to them. When turned out to graze, the two species intermingle freely... a fortunate arrangement for the mild-mannered sheep, because cows distrust coyotes and unfamiliar dogs, and butt and kick at the predators to keep them away.

...Mother Earth News (Nov/Dec 1986)

WOMEN BOSSES REWARD PERFORMANCE

Women managers appear more objective in rewarding producers and penalizing loafers when it's time to decide employee pay raises. "High performing employees would be better off working for a woman, who is more likely than her male counterpart to base salary increases on actual performance," according to a management study by professors at the University of Utah and the University of Arizona.

The study was done in part by Vandra L. Huber, Utah assistant professor of management. "In making salary decisions, women managers were able to detect the many kinds of subtle differences in performance that went undetected by men," says Huber.

...University of Utah Review
(June/July 1986)

THIRTY-SIX MINUTES A WEEK???

Women still do more housework than their husbands. Working wives spend an average of 26 hours a week on housework, while their husbands contribute only 36 minutes a week. Most men feel they have done their share if they cook a meal or empty the garbage.

...Bottom Line (January 30, 1987)

CALIFORNIA KELP FOREST NATURE TRAIL: YES, YOU READ IT RIGHT

For the first time, several hundred visitors to Anacapa Island were able to follow a scuba diver via videocamera and ask questions about underwater surroundings. "What the visitor sees on the video monitor is close to an underwater nature walk without getting wet," said William H. Ehorn, superintendent. Ehorn explained that the concept simply involved one diver with a videocamera filming another diver underwater. The diver with the camera retains voice communication with the surface. Air supply, communications, and a link-up to the onshore video monitor are all connected by cable to the dock where park visitors are able to view the videotape as it is being filmed. Visitors can also address questions to the diver-naturalist examining features of the kelp forest and the ocean floor. The idea was a natural extension of underwater resource monitoring techniques established by the park's marine biologist, Gary Davis, whose census of kelp forest inhabitants relies heavily on photographic sample-taking. The week-to-week operation of the program is supervised by island ranger Jack Fitzgerald, and usually involves maintenance worker Al Yarrow and park technician Leslie Patterson. The interpretive equipment was purchased with a donation to the Friends of Channel Islands National Park by California Coastal Operators Group.

...Nicholas Whelan
Courier (January 1987)

FARMER FEEDS POT TO HIS STOCK OLD COWS FERTILE AGAIN

Louis Hruschak says his cows got better and his chickens started laying eggs after he fed them marijuana. And the stubborn 78-year-old Texada Island farmer says he'd rather go to jail than pay a \$2,000 fine after being convicted in county court of possessing 46 pounds of marijuana for the purpose of trafficking. The drug, with a street value of \$90,000, was found in jars, garbage bags, and the crisper in his refrigerator.

Hruschak said he found the marijuana growing in a field and only fed it to his sick animals on the advice of an herbalist.

...Associated Press

THREATS TO WOMEN'S GYMS: MEN TAKE THE OFFENSIVE

If three male softball players have their way, the Women's Training Center, a San Francisco gym, will be forced to open its doors to men. The plaintiffs, Guillermo Alcatraz, Nestor Lopez, and Eugene Jones, are suing over gender discrimination under the Unruh Civil Rights Act of California, which prohibits discrimination on the basis of gender, race, creed, or national origin. The suit, filed in superior court, asks for \$25,001. (Superior court suits must exceed \$25,000).

The men are members of a San Francisco softball team called The Ballbusters; other members of their team are suing five other all-women's gyms in the San Francisco Bay Area.

The Center's owner, Betty Doza, has refused to pay the men's out-of-court-settlement request of \$1,050, and she pledges to fight for her all-women's space. "From my perspective, the women who come in here are seeking empowerment, whether or not they know it," says Doza. "You can't do that if a man is sitting next to you, offering to assist you, telling you how to do it right."

...Women's Sports & Fitness
(March 1987)

NEWS & NOTES Continued on page 50

WOMEN IN NATURAL RESOURCES SOLICITS CONTRIBUTIONS FOR THE DEPARTMENTS OF NEWS AND NOTES, EVENTS, RESEARCH IN PROGRESS, PUBLICATIONS, AND PEOPLE. PHOTOCOPY THE ITEM, INCLUDE THE SOURCE AND DATE PUBLISHED, (WHERE APPLICABLE) BLACK AND WHITE PHOTOS (OFTEN AVAILABLE

FROM NEWSPAPERS AND MAGAZINES IF REQUESTED) AND MAIL TO WOMEN IN NATURAL RESOURCES, LABORATORY OF ANTHROPOLOGY, UNIVERSITY OF IDAHO, MOSCOW, IDAHO 83843. INCLUDE A SELF-ADDRESSED ENVELOPE IF THE MATERIAL IS TO BE RETURNED.

MANAGING FINANCIAL RESOURCES

Gene Bammel

Ignorance about financial management of personal income is not peculiar to natural resource professionals. Most people manage their finances poorly. Our academic system is not oriented to teaching people how to handle their finances, probably because it is like falling in love: you really only learn by doing.

Traditionally, men have had that fabled male network to help them out of difficulties: one old school friend is an auto salesman, another is a realtor, a third is a banker, a fourth a stockbroker, and among them, pooling all the advice, there are a few kernels of credible financial wisdom. Most women have not yet acquired that kind of network, and that may be an advantage. They may be able to avoid some of the poorly thought-out judgments that old buddies hand out.

Financial concerns and expenditures seem to be age-related. From age 21-29, our incomes go to pay off school debts, and to buy those basic consumer goods every American needs: backpack, tent, and a vehicle to get us to the backcountry--as well as other customary consumer articles.

By the thirties, however, bigger ticket items loom over our financial horizons: homes, child-rearing, and other symbols of domesticity. Paradoxically, while the debts accumulated at this stage of the life cycle are the largest ever, cash flow begins to assume sizable proportions. When reaching the forties, we are surprised at having something called "net worth," the total volume of all of our various assets. The hope is that by the time we are in our fifties, we will have substantial financial assets, and will need more time just to manage what we control. A comfortable retirement, unclouded by fears of no income would seem to be our well-deserved reward for an adulthood of astute financial management.

START WITH SAVINGS

For most of us, however, stumbling along from paycheck to paycheck is the way we operate. Financial planners claim that professional people, (particularly lawyers and doctors) are inept managers of their personal finances. But people involved in managing natural resources ought to be able to handle their own financial resources! What can a professional do to be able to make the personal resource picture progressively rosier? They can understand a few basic concepts, the most basic of which is: large amounts of money are accumulated very, very slowly. Unless there is some kind of savings plan, money is not accumulated at all. All wage-earners should put some percentage of income away in savings. Some of it should be for big-ticket items, like cars or homes, pregnancies, education, or businesses. And some should simply be conserved for the long term future.

The basic building blocks remain the same, and are not very sophisticated: (1) set aside a certain percentage of your monthly income-- 5%, 10%, whatever you determine you do not need for current expenditures; (2) choose someplace to put that money where it will grow and compound; (3) be patient, accept that wealth is not an overnight achievement.

Until the equivalent of three months income (for emergencies) is squirreled away in a readily available bank or money market account, no long range planning

is necessary. But once that emergency fund is established, investments in longer term accounts make sense. For most people, putting money into a no-load mutual fund is the most sensible way to begin investment. Some mutual funds accept very small opening amounts. Twentieth Century, for example, places no minimum, while others require a minimum opening amount of \$500 or \$1000. Even in the early years of working, placing \$250 into an Individual Retirement Account (IRA) is a good idea. (IRA accounts are the tax-advantaged system federal government supports to encourage workers to save for retirement.) For a person now in her twenties, a retirement account worth over a million dollars is not only quite possible, it is, of course, highly desirable. And the way to have that kind of money in retirement is to begin working on it now. Time, and compound interest, are remarkable allies in building a fortune.

Mutual Fund families, like Fidelity, Scudder or Price, are good for many people looking for IRA accounts. These families offer some funds that are both safe, and have high yields. The costs of investing with mutual funds are very small. People with lots of money may want the services of a broker or a brokerage house, but for most people, "Do-it-yourself" financial planning is satisfactory. Investing in a mutual fund requires very little effort or scrutiny on the part of the investor; by nature, these funds are oriented to long-term growth, so concerns about "trading" in and out of markets, or small changes in the market are eliminated.

\$1000 invested at three different rates

	8%	10%	15%
5 years	\$1468	\$1609	\$2010
10 years	\$2153	\$2590	\$4039
15 years	\$3161	\$4169	\$8121

In fifteen years at 8%, \$1000 becomes more than \$3000; but at 15%, a return obtained and exceeded by a number of mutual funds over the past 15 years, \$1000 becomes more than \$8000. The time will pass whether you want it to or not. When your money is working for you, time passes more profitably.

EDUCATE YOURSELF

Do something to foster your financial education, even it is only reading the financial section of U.S.A. Today. Find someone to talk to about managing your money. There are books that can help. And there are endless newsletters and magazines that offer advice. Perhaps Money magazine is a good place to begin. Money does not manage itself. It requires some help and study on our part. Professionals are often so engrossed with the development of their profession that the management of their money is neglected.

SHARE YOUR CONFUSION

Future columns in Women in Forestry will be devoted to discussing some of the particular problems that natural resource professionals face. Handling the monthly paycheck ought to be made easier for those with a professional career in resource management! I would be interested in hearing from those who want more information, and those who can pinpoint questions of general interest. Launching into a savings program, and attempting to get the best possible rate of return on your investments is a worthwhile venture.

Gene Bammel, is a professor and forest scientist in the Recreation and Parks Management program in West Virginia University's Division of Forestry. He has Bachelor and Master's degrees from the University of Toronto, and his doctorate from Syracuse University. He has been at West Virginia University for twelve years, and has offered a number of personal financial planning workshops.

THE FAMILY IN THE INFORMATION SOCIETY

Arland Thornton

INTRODUCTION

During recent years the American public has been overwhelmed with new information about the changing family: independent living amongst young adults and the elderly has skyrocketed; nearly one-half of all mothers with young children are now employed; nearly one-fifth of all children are now born out-of-wedlock; one fifth of all households with children are headed by a woman; on average, American women are now bearing less than two children; the marriage rate is declining; and the number of couples living together without marriage is growing rapidly.¹ However, while some of these changes represent real departures from the past, other dimensions are now very similar to earlier patterns despite recent fluctuations, and some recent changes incorporate both new developments and a return to old patterns.

As we search for understanding of this complex mosaic of change and continuity in American family life and try to imagine what the future will be like, it is important to recognize the roots of our family system and the ways our family structure is intertwined with other dimensions of society. Many important aspects of the family were changing during the years following the American revolution, and changes in family structure and relationships have been ubiquitous since then. During this same period the entire face of American society has been transformed by industrialization, urbanization, economic development, and the expansion of education, and these forces have had great influence on family life. In this paper I will briefly describe some of the central features of American society of the past, outline some of the crucial changes in society, and enumerate some of the effects of those changes on family life. I will try to show that many of today's most important family changes are rooted in these long-term historical processes and that American family structure is still adapting to the important social and economic innovations of the last two centuries.

SOCIETY AND FAMILY LIFE IN THE PAST

In the beginning of our country, the family was a basic organizational unit of society, with most activities, including production, consumption, reproduction, and socialization being conducted there. There were few economic enterprises outside the home, such as corporations, factories, or government bureaucracies to employ individual Americans. Instead, the traditional family household organized, directed, and managed its own resources to provide its needs. In this society each individual family member--husband, wife, and child--had a role in production.²

There was an important division of labor in the families of early America. The husband generally directed the economic activity of the family which was often, but not always, an agricultural enterprise.³ While the wife maintained a primary role in the caring of the home and children, she usually played an important part in the economic enterprise by taking care of gardens and farm animals, and when

necessary, helping with other important activities. Children were also actively involved in the productive activities of the family. However, while everyone in the family, including women and children, were actively involved in economic production, the earnings of the family were generally controlled by the head of the household.⁴

Educational institutions were not as important in early American society as they are now. School attendance was less widespread and was clearly subservient to the needs of the family's economic endeavors. Consequently, the educational attainments of American children were limited--certainly by the standards of today.⁵

Disease and death were omnipresent in early American families. Many children died in infancy, many mothers died in childbirth, many families with small children were disrupted by the death of one of the parents, and many persons did not live to see their grandchildren. In this situation, it was necessary for families to bear large numbers of children.

SOCIETAL AND FAMILY CHANGE

As everyone knows, industrialization, economic development, urbanization, and the expansion of schooling have thoroughly transformed American society during the last century and a half. Since the family was a central institution of traditional American society, these tremendous changes could not have occurred without impacting substantially on American family life. A central feature of these changes was the introduction and expansion of important non-family institutions including schools, factories, corporations, and governmental bureaucracies. Slowly but surely, and now almost completely, economic production has been transferred outside the family. Today, rather than almost everyone being active in family economic production, almost all workers are employed outside the family. Now, instead of children spending little time in school, school is the primary activity of most until they reach age 18 or so and many continue education well into their twenties. There have also been tremendous improvements in health and longevity, and we have now reached a standard of living that could hardly have been imagined a century ago.

The shift of the primary locus of employment from the family to the market place substantially reduced the opportunity for women to combine economic production with care of children and the home, thereby reducing the economic contributions of women to the family. Consequently, as recently as 1940 only 14 percent of married women were in the labor force. However, the recent influx of mothers into the labor force has reversed this pattern. Mothers are again combining economic production with the care of the home and children.⁶ But now there is the crucial difference that the economic production occurs outside rather than inside the family unit, which has very important implications for the ability of mothers to care for their children while working.

Now, instead of the family working together as a unit to meet its financial needs, individual family members sell their labor in the market place in exchange for money which is pooled together in the family. This means that the family deals with the outside world not as a single economic entity but as a set of individuals. It also means that individual family members--fathers, mothers, and children--have direct control over the fruits of their labor.⁷ This provides a source of independence and autonomy for individual family members that was unknown in the past, with

tremendous implications for husband-wife and parent-child relationships.

The tremendous increase in educational attendance has strongly modified the role of children in the family. Instead of children contributing to the family economic enterprise at an early age, they now require expenditures of family resources over an extended period. In addition, when they do work for money now, they seldom contribute those resources to the family's uses but maintain them for their own private consumption. In addition, education not only provides children with new skills and knowledge that are useful in the labor market but also with skills that increase their ability to deal with parents at home.

A number of other important changes in family life have accompanied these long-term transformations of American society.⁸ The fertility of American women has declined almost continuously from 1800 to the present, with average number of children born declining from about seven to about two. Contraception became widespread in the nineteenth century and today, as a result of new and very effective means of contraception, husbands and wives can effectively control their childbearing. Household size has declined continuously and tremendously since the first census in 1790. As part of this trend there has been an increase in independent living, an especially important phenomenon for the elderly and for young adult children. The divorce rate has increased almost continuously since 1860. Today, about one-half of all marriages will end in divorce if current rates continue as compared to about five percent of the marriages of the 1860s. The trend toward independence among young people is an important theme in writings about family change.⁹ This independence is probably reflected in the increase in the rate of out-of-wedlock births--an increase which has been fairly steady since 1940.

Of course, within these basic long-term family trends, there have been important, but relatively short, fluctuations. An example of such short-term fluctuations is the decline in both marriage and divorce rates which accompanied the great depression. Another example of fluctuations is the substantial increases in marriage, divorce, and childbearing following World War II. In this case the rise in divorce lasted only a few years, while the baby boom lasted for more than a decade and the marriage boom extended across two decades. Unfortunately, while several explanations of these fluctuations have been offered, there is, as yet, no clear consensus about the causes.¹⁰ These fluctuations, however, reinforce the need for caution when interpreting family trends; current trends can just as easily represent a return to past patterns as a departure from them, and current trends need not continue indefinitely into the future.

The power of the forces changing American family life can be further appreciated by understanding that family changes have not been unique to the United States. Virtually every country of Europe and those populations originating from European societies have experienced the same general trends. The specifics and details, of course, vary across countries, but the same basic trends observed in the United States also apply to these other countries.¹¹ Also, as I have studied non-European countries, I have been impressed by the many similarities that can be observed as these countries experience economic and social development.¹²

I have also been impressed by the extent to which the overall trends observed for our country as a whole also apply to specific subgroups within our society. While there are important variations within American society by ethnic origin, religious affiliation,

and religion, it appears that the basic patterns have applied to virtually all of the subgroups that have been studied.

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¹ For more details of these trends see Thornton and Freedman (1983).

² Two books describing the world of the past are Demos (1970) and Greven (1970). Also of interest are three books written primarily about historical European societies (Laslett 1965, Shorter 1975, Tilly and Scott 1978).

³ As recently as 1900, approximately forty percent of the American population resided on farms (U.S. Bureau of the Census 1975).

⁴ Discussions of family organization are provided by Demos (1970) and Greven (1970). Also see Kett (1977). Good examples of the persistence of these patterns into the late 19th and early 20th centuries are provided by Early (1982) and U.S. Department of Labor, Women's Bureau (1923).

⁵ As recently as 1940 only 36 percent of men and 40 percent of women aged 25-29 had completed four years of high school (U.S. Bureau of the Census 1980).

⁶ For further information concerning these trends see Oppenheimer (1970) and Bureau of Labor Statistics (1982).

⁷ See Bachman (1983) for a discussion of children's economic affluence and independence today.

⁸ For more details see Thornton and Freedman (1983).

⁹ See Thornton and Freedman (1982).

¹⁰ A particularly good discussion of these issues is provided by Cherlin (1981).

¹¹ Good discussions of European patterns are provided by Roussel and Festy (1979) and Chester (1977).

¹² See Thornton (1984).

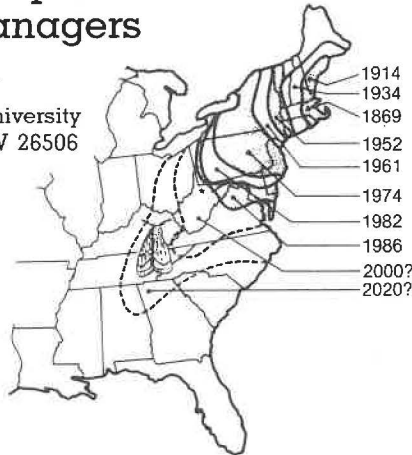
Arland Thornton is an Associate Professor in the Institute for Social Research, Department of Sociology and Population Studies Center, University of Michigan, Ann Arbor. This paper is a revised version of one presented to the symposium (1985) "Women's Lives in the Information Society."

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RESEARCH IN PROGRESS

Continued from page 21

management choices in three different fire situations (a prescribed fire, an escaped wildland fire, and a long-range fire planning situation). They seek to determine what factors Forest Service personnel consider when they make fire management decisions. Approximately 960 fire management personnel in the western regions of the forest Service have been contacted. The response rate is 85 percent. Already the study has generated interest among the fire management community, even though the data are currently being analyzed and results have not yet been released.

Hanna J. Cortner
School of Renewable
Natural Resources
University of Arizona
Tucson, Arizona



ECOLOGY OF GIANT TORTOISES IN THE GALAPAGOS ISLANDS

This research was conducted in Ecuador from June 1981 to July 1983, through both hot-dry periods and the very wet season of 1983. The results are described at length in the now completed dissertation.

Researchers observed the feeding ecology and associated behavioral adaptations of dome shaped and saddle-backed tortoises. These were described based on observations of feeding activity and food selection. Focal animals were watched for two days at a time to develop time budgets. I described diet and compared it with the abundance of species on harvested plots. Precipitation affected availability of both food and water and thus was the major factor affecting tortoise behavior in the arid environment of the Galapagos Islands. The tortoises were most active during periods of high rainfall and when food was abundant.

Tortoises were flexible in their food selection, as diet varied with environmental conditions and season. The tortoises ate some of all of the grasses, forbs, and seasonally available fruit such as cactus, but their diets were dominated by a few species. Available and highly selected foods were analyzed for water,

nitrogen, and carbohydrate content. Tortoises preferred foods with high water content, especially during dry periods, but carbohydrate and nitrogen content wasn't significantly higher in preferred foods.

Tortoise's activity patterns changed seasonally and related most to temperature and moisture. They concentrated in regions of high habitat diversity, such as where water flowed and collected. They were also more common where preferred foods were abundant. Preference for resting and traveling habitat was related to sun:shade patterns and seasonal changes in ambient temperatures.

Linda Jean Cayot
Syracuse University
Syracuse, New York

Eds. Note: Cayot's photo of Ecuador's Blue Footed boobie was a contest winner. See middle photo pages.



Located 600 miles off the coast of Ecuador, isolation from humanity helps to account for the magic of the Galapagos Islands . . . and for their continued existence as a natural museum of flora and fauna found nowhere else on earth. Covering an area of about 3,000 sq. miles, these scores of islets and 13 major islands are part of the Ecuadorian National Parks system. Tourism is restricted to 25,000 people per year.



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PUBLICATIONS

Oregon's Department of Forestry's Public Affairs Office will send you copies of meeting notices and news releases on decisions of the Board of Forestry and scheduled Board of Forestry meetings. Put your name on the mailing list by writing Oregon State Department of Forestry, Public Affairs Office, 2600 State Street, Salem, Oregon 97310 (503-378-2562). You can indicate topics, issues, or geographic areas that interest you.

You can also request a free subscription to the monthly FOREST LOG newsletter of the Department of Forestry, which reports activities of the Board and Department, and reports on forestry issues in the state.

Leguminous trees offer so much hope to many areas of the world that a Nitrogen-Fixing Tree Association now coordinates international trials for leguminous trees. For literature write the Association at Box 680, Waimanalo, Hawaii 96795.

Booklets on calliandra, leucaena, and mangium are now available from author Noel Vietmeyer at the National Academy of Sciences, 2101 Constitution Ave. N.W., Washington, DC 20418.

A project on women and stress focused on the family vs. workplace. From past studies on men, the workplace has been identified as the primary stressor while the home was seen as a sanctuary--a benign environment in which one can recuperate from problems at work. This male-based view includes the assumption that, for women, the roles associated with home are "natural" and free from undue stress. Paid work therefore, has been viewed as that which is the most likely catalyst for psychological distress leading to impaired health.

Studies not taking this androcentric view (involving only males and/or generalizing to both genders when only males were included) have reported that when the mental and physical health of employed vs. non-employed women were compared, positive effects of employment are typically found. In fact, for women, work may serve as a buffer against stress arising from other roles. Stress associated with the role of homemaker has been found more likely than the stress associated with the workplace to lead to "role disenchantment" and to depression.

Further investigation indicated, however, that paid work is not always beneficial to women. Jobs most likely to involve stressors that

impair health are low-level, low-paying jobs that combine high levels of demands with little autonomy.

WOMEN AND GENDER IN RESEARCH ON STRESS is available from the Center for Research on Women, Wellesley College, Wellesley, Massachusetts 02181 for \$4.

The Forest Resources Systems Institute (FORS) offers the second in a series of computer-oriented publications for the forestry sector. INTRODUCTION TO BASIC PROGRAMMING FOR FORESTERS by John R. Brooks of Glenville State College in West Virginia and Harry V. Wiant, Jr., of West Virginia University. The BASIC computer programming language was designed as an educational tool. It emphasizes easy learning with a language that is very similar to English. It has, however, acquired many versions since its development in 1965, and not all versions will run on all microcomputers. This text is based on MBASIC, one of the most common. Send \$8.95 to FORS, 201 N. Pine Street, Suite 24, Florence, Alabama 35630 (205-767-0250).

DESIGNS FOR DEVELOPMENT SERIES has programs on developing countries which include slides, narrative description of the slides, lecture text, and supplementary materials. The series titles include Fish Farming, Rural Extension Techniques, Irrigation, Agricultural Meteorology. Each set costs \$30 US. For information and series list write The Israel Association for International Cooperation, P.O. Box 13006, Jerusalem, Israel.

KILLING US SOFTLY: ADVERTISING'S IMAGE OF WOMEN, a film, presents hundreds of ads from magazines, newspapers, and window displays, reportedly analyzing how the \$50 billion advertising industry stereotypes women. For information about this and other offerings write to Cambridge Documentary Films, P.O. Box 385, Cambridge, Massachusetts 02139.

An 8-inch layer of 3-inch diameter stone costs about \$270 per 100 feet to surface a logging road. Next best bet is a 6-inch layer of crushed rock (at around \$180 per 100 feet). Covering a logging road with only 2 inches of crushed rock doesn't solve anything because traffic over it does more damage to the soil surface than the same traffic over bare soil. Grass roadbeds give

partial control of soil movement at far lower cost (around \$5.50 per 100 feet) but seeds can wash away in storms and need replacement.

These facts were revealed in a study of soil loss due to logging, conducted at the Coweeta Hydrological Laboratory in the southern Appalachians. The report is entitled GRAVEL AND GRASS SURFACING REDUCES SOIL LOSS FROM MOUNTAIN ROADS, and is available from Coweeta Hydrological Laboratory, 999 Coweeta Lab Road, Otto, North Carolina 28763.

THE COMPILER, a national magazine focusing on computers and their applications in forestry and related industries, recently went public by offering subscriptions to persons who are not members of the Forest Resources Systems Institute (FORS). The quarterly magazine may now be purchased by individuals for \$30 per year, and by institutions for \$40 per year. THE COMPILER offers in-depth feature articles focusing on new computer technologies and their relevance to forestry; extensive reviews of forestry software; profiles of foresters and their uses of computers; new product announcements; programming tips; research papers; editorials, and member viewpoints. Contact FORS, 201 N. Pine Street, Suite 24, Florence, Alabama 35630 (205-767-0250).

Now that the weather is improving everywhere, running and jogging constitute the exercise of choice for many. For a brush-up on do's and don'ts read one of physician Joan Ulyot's books THE NEW WOMEN'S RUNNING BOOK (The Stephen Greene Press) or RUNNING FREE: A BOOK FOR WOMEN RUNNERS AND THEIR FRIENDS (Putnam).

With the new emphasis on women's sports, the WOMEN'S SPORTS FOUNDATION, 342 Madison Avenue, New York, 10017 (1-800-227-3988) is offering publications designed to help young girls develop confidence, discipline, and a sense of competition. They also discuss general physical activity for young girls.

Lois Melina wrote RAISING ADOPTED CHILDREN (1986 Harper & Row) because she thought values in today's society are skewed when it comes to adoption. Today there is stigma attached to a woman who gives up her child. Because of that, wrong choices are made over the other

PUBLICATIONS

acceptable option of adoption. In the early 70s, 95% of pregnant unmarried girls gave up their babies and 100,000 babies were available for adoption. Today, just the opposite is true as 95% choose abortion or to raise the children themselves. Only 36,000 babies are available each year with two million infertile couples waiting for children.

Contributing to society's attitude is the belief a child belongs with its birth mother and that "bonding" immediately after birth can turn even an unprepared person into a good mother. Melina, an adopting parent, says that the "epoxy theory of bonding--that it must occur moments after birth, before the glue dries--is just not the way bonding happens." She stressed that being a mother is not a magical thing inherent in those who give birth--love is not enough to raise a child. Melina's book, already considered the classic in its field, is to be followed this year by her second, ADOPTION: AN ANNOTATED BIBLIOGRAPHY AND GUIDE.



Thomas Regan, philosophy professor at North Carolina State University at Raleigh, North Carolina, and president of the Culture and Animals Foundation, says pervasive exploitive uses of animals tend to harden human attitudes toward all life.

On the other hand, he said, "the way to grow morally and spiritually is to awaken conscience toward others, to the vulnerable and the weak, including animals. The two go hand in glove."

He estimated about 4000 groups in the country now are seeking greater consideration for animals, (mostly local but also state and national) including the International Network for Religion and Animals, based in Washington, D.C.

Regan is editor of a new book, ANIMAL SACRIFICES: RELIGIOUS PERSPECTIVES ON THE USE OF ANIMALS IN SCIENCE (Temple University Press) based on a 1984 conference he chaired of religious scholars on the subject. About 500 million animals are estimated to be killed annually in this country in laboratory experiments.



The Department of Forestry and Natural Resources at Purdue University has recently released the second edition of TIMBER TAX MANAGEMENT written by William Hoover, a faculty member. The guide covers a broad array of new timber tax issues, with sample forms to help explain the process. Copies cost \$3.00 from

Publications Mailing Room, 301 S. 2nd St., Lafayette, Indiana 47905. Request #FNR-80.



YOUR FRAGILE LEGACY is a beautifully illustrated brochure published by the Bureau of Land Management (BLM), Department of the Interior. It discusses various archaeological sites complete with spectacular photographs. For a copy write Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402. Ask for #1982-329-385.



A new Northeast Computer Institute (NECI) staff paper is now available which deals with the adoption of microcomputer technology by cooperative extension administrators. Copies will be distributed free to each land-grant institution and can be obtained upon request. In addition, the NECI Directory of Evaluated Software (\$5.00) was recently updated for the third time and is ready. Write NECI, 1315 S. Allen St., State College, Pennsylvania 16801 (814-863-4678).



If you are interested in a copy of a preliminary report containing results of a survey of land-grant universities regarding their current initiatives in expert systems development, contact the Department of Agricultural Economics at Texas A & M University, Bryan, Texas 77801. The report is entitled A SURVEY OF EXPERT SYSTEMS INITIATIVES IN EXTENSION.



The Society for Range Management (SRM) is selling a COWBOY COOKBOOK from their Denver headquarters office. Pete Jackson, the Executive Vice-President of SRM believes they are a good buy. Send your inquiries to SRM 2760 West 4th Avenue, Denver, Colorado 80204.



A Publication prepared with funding from the Office of Educational Research and Improvement, U.S. Department of Education discloses startling anti-woman bias: the average salary of women repaying student loans is \$17,407 while it is \$23,093 for males; more women default on loans, are more likely to declare bankruptcy; academic merit scholarships go far more to men although more women enter college; single women with children have the most critical unmet needs for student aid; working women have fewer opportunities for corporate support to go back

to school; men hold disproportionately more research assistantships; child-care allowances for women are not clear. Mary Moran wrote STUDENT FINANCIAL AID AND WOMEN: EQUITY DILEMMA and is available as a single issue (\$10.00) or as part of a series (\$60 for eight) from The Association for the Study of Higher Education, One Dupont Circle, Suite 630, Washington DC 20036 (202-296-2597).



HUNTING RANCH BUSINESS is a newsletter about managing hunters, wildlife, and making money at it in Texas. The subjects have broad applications, however, and should interest others who are contemplating the business. Twelve issues a year cost \$40. Send for information to Fred King, 4215 Storkridge, Houston, Texas 77035 (713-721-5919). Another two pamphlets written about similar topics can be had free from Texas A & M University. Write for DEVELOPING A HUNTING LEASE ENTERPRISE and LEASES FOR HUNTING by Charles W. Ramsey, Extension Wildlife Specialist.



WOMEN REMEMBERED; A GUIDE TO LANDMARKS OF WOMEN'S HISTORY IN THE UNITED STATES by Marion Tinning (1986, Greenwood Press, \$75) provides a geographical listing of sites associated with women in American history. The work lists homes, workplaces, monuments, memorials, markers, plaques, places named after women, and works of art by women in public places.

The guide is divided into five geographical regions. Each entry consists of descriptions and locations of sites and biographical information about the person memorialized. Entries are arranged within each region by state; within a state by city or town; and within the city or town in alphabetical order of the name of the woman. Cross-references help the reader find women who went under a particular name, such as a professional, pen, or other designation, or are commemorated in more than one city. Women represented in more than one region may be traced through the index. Where sites are difficult to find, the author has provided directions. For sites open to the public only at designated times, hours are given as accurately as possible. Sources of information, quotations, or suggestions for further reading are given in notes.



Diadromous fishes migrate between marine and fresh waters to feed or breed. They are biologically

PUBLICATIONS

fascinating and many of them support important sport or commercial fisheries. The phenomenon of diadromy was the focus of a major international symposium sponsored by the American Fisheries Society (AFS). Papers from authors (representing ten countries) have been edited by M.J. Dadswell, R.J. Klauda, C.M. Moffitt, and R.L. Saunders and are available from the society as the proceedings COMMON STRATEGIES OF ANADROMOUS AND CATADROMOUS FISHES (\$45, 570 pp. 1987). Write to AFS, 5410 Grosvenor Lane, Suite 110, Bethesda, Maryland 20814 and ask for #593.



A number of publications are available from North American Association for Environmental Education (NAEE), P.O. Box 400, Troy, Ohio 45373. One called TREES AND FORESTS, is a set of 11 diagrams describing the ecology of forests published by the Indian Environmental Society. Send \$1.00 for postage and handling and ask for a list.



The recent 3rd National Urban Forestry Conference (Orlando) presentations have been videotaped and a proceedings is available. For prices write American Forestry Association, 1319 18th Street NW, Washington DC 20036.



The Sierra Club's guide to natural foods for the trail is by Claudia Axcell, Diana Cooke, and Vikki Kinmont. There are 180 tested recipes. SIMPLE FOODS FOR THE PACK costs \$8.95 plus \$2.50 for handling from Sierra Club Store Orders, 730 Polk St., San Francisco, California 94109.

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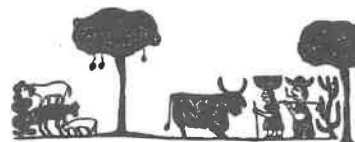
The Summer 1987 issue of Women in Natural Resources will focus on the rapidly developing field of agroforestry. Some of you have agroforestry experience, or know people who have through the Peace Corps, or other programs. We want to hear from you. If you have experience here in the U.S. which combines production of trees, agronomic crops, and/or livestock, we want to hear from

you. We are interested in all aspects of agroforestry: biology, economics, policy, extension, species selection, education, sociology, ecology, planning, land tenure, etc Articles from other sources are acceptable if permission to reprint can be obtained.

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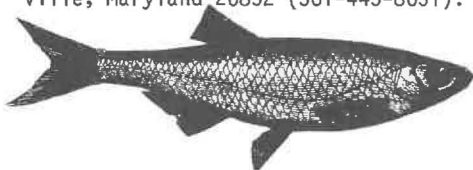
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For more information contact: Diana M. Perl, College of Forest Resources, AR-10, University of Washington, Seattle, Washington 98195 (206-543-0867).

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14 June-10 July
and
12 July -7 August 1987
University of Maine
The University of Maine is offering 12 summer courses, developed from areas of major strengths at the university, tailored to the needs of people in developing countries. The courses will be taught in two rotation periods, June 14-July 10, and July 12-August 7. Sample courses are: Forests, Rangelands, and Water Resources; Agricultural Research Methods with Microcomputer Applications; Management Skills for Third World Women; Harvesting, Processing, and Use of Wood; Governing Renewable Common Property Resources: Practical Emphasis on Management, Marketing, and Trade Decision Making; The Village Woodlot; Human Resource Planning in Developing Countries. For information, contact: John R. Benoit, Office of International Research and Educational Programs, 259 Aubert Hall, University of Maine, Orono, Maine 04469.

VARIABLE PROBABILITY SAMPLING: A SHORT COURSE FOR FORESTERS

15-19 June 1987
Paul Smith's College
The two instructors for the course are John F. Bell, an authority on variable probability sampling, and Kim Iles, Biometrician with MacMillan Bloedel Ltd. Registration fee is \$275, but does not include room and board. For more information contact

Deborah H. Wells, Continuing Education and Conferences, Paul Smith's College, Paul Smiths, New York 12970 (518-327-6249).

NINETEENTH SOUTHERN FOREST TREE IMPROVEMENT CONFERENCE

16-18 June 1987
College Station, Texas
For more information contact: Craig R. McKinley, Texas Forest Service, Room 318, Horticultural and Forestry Sciences Building, College Station, Texas 77843-2135 (409-845-1325).

PACIFIC BRANCH MEETING OF THE ENTOMOLOGICAL SOCIETY

23-25 June 1987
Portland, Oregon
For information contact: Joseph Capizzi, 5440 SW Skyview Avenue, Corvallis, Oregon 97333 (503-754-3151).

UTAH STATE UNIVERSITY WILDLAND SHRUB SYMPOSIUM

"Shrub Ecophysiology and Biotechnology"
30 June - 2 July 1987
Contact the Shrub Research Consortium, Utah State University, Logan, Utah 84321.

SUMMER INSTITUTE FOR WOMEN IN HIGHER EDUCATION ADMINISTRATION

5-31 July 1987
Bryn Mawr College
The Institute offers women faculty and administrators intensive training in educational administration and management skills. For information write HERS, Mid-America, Colorado Women's College Campus, University of Denver, Denver, Colorado 80220.

FORCES SHAPING RESOURCE MANAGEMENT SOIL CONSERVATION SOCIETY OF AMERICA (SCSA) ANNUAL MEETING

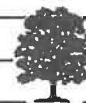
2-5 August 1987
Billings, Montana
Topics covered will be restructuring of agriculture and forestry; changing values in public land management; water quality and quantity; international issues; public policy initiatives in conservation programs; economic motivation versus stewardship; shift of program emphasis from the federal to the state level. For more information contact Dave Unger, SCSA, 7515 NE Ankeny Rd., Ankeny, Iowa 50021-9764.

NATIONAL MARINE EDUCATORS ASSOCIATION CONFERENCE

4-8 August 1987
The University of Rhode Island
Kingston, Rhode Island
"The Magic of the Northeast" is the theme being sponsored by the Northeast Marine Educational Council,



EVENTS



the Lloyd Center for Environmental Studies, and the University of Rhode Island Marine Advisory Service. For more information contact Sandra Ryack-Bell, 1987 NMEA Conference, Lloyd Center for Environmental Studies, 430 Potomska Road, South Dartmouth, Massachusetts 02748 (617-990-0505).

PAST, PRESENT, FUTURE OF
WORLD'S PARKWAYS
9-10 September 1987
Roanoke, Virginia

The Appalachian Consortium, the River Foundation, and the Blue Ridge Parkway will sponsor this conference examining parkways. For information contact Barry M. Buxton, Appalachian Consortium, ASU/University Hall, Boone, North Carolina 28608.

CALL FOR PAPERS
SOCIETY FOR RANGE MANAGEMENT
CONVENTION
14-19 February 1988
Corpus Christi, Texas

Titles are now being solicited for papers to be presented at the 41st Annual Meeting of the Society for Range Management. For information contact: F.C. Bryant or R.E. Sosebee, Department of Range and Wildlife Management, Texas Tech University, Lubbock, Texas 79409. Deadline for abstracts is August 1, 1987.

INTERNATIONAL SOCIETY OF
ARBORICULTURE NATIONAL MEETING
16-19 August 1987
Keystone, Colorado

For information contact the Society at P.O. Box 71, Urbana, Illinois 61801.

ECONOMIC AND SOCIAL DEVELOPMENT:
A ROLE FOR FORESTS AND
FORESTRY PROFESSIONALS
Society of American Foresters
18-21 October 1987
Minneapolis, Minnesota

For more information contact: Richard Zabel, 5400 Grosvenor Lane, Bethesda, Maryland 20814 (301-897-8720).

LAND CLASSIFICATIONS BASED
ON VEGETATION
17-19 November 1987
University of Idaho

For more information contact: Donna Germer, Conferences and Enrichment, University of Idaho, Moscow, Idaho 83843 (208-885-6486).

CALL FOR PAPERS
ENTOMOLOGICAL SOCIETY OF AMERICA
29 November - 3 December 1987
Boston, Massachusetts

For the various categories and requirements, contact program chair Kenneth V. Yeargan, Department of Entomology, University of Kentucky, Lexington, Kentucky 40546-0091. Complete submissions must be postmarked before 1 July 1987.

THE 117th ANNUAL MEETING OF
AMERICAN FISHERIES SOCIETY
11-17 September 1987

Winston-Salem, North Carolina
For information contact: Carl Sullivan, Executive Director, American Fisheries Society, 5410 Grosvenor Lane, Bethesda, Maryland 20814 (301-897-8616).

77th ANNUAL MEETING OF THE
INTERNATIONAL ASSOCIATION OF FISH
AND WILDLIFE AGENCIES
12-15 September 1987

Winston-Salem, North Carolina
For more information contact: Jack H. Berryman, 1412 Sixteenth Street, NW, Washington, D.C. 20036 (202-639-8200).

NORTH AMERICAN ASSOCIATION FOR
ENVIRONMENTAL EDUCATION
16TH ANNUAL CONFERENCE
16-21 October 1987

Le Chateau Frontenac
Quebec City, PQ, Canada
The theme is Showcase for Environmental Education Excellence: Gaining Momentum for the Challenge Ahead. For additional information, contact the NAAEE Headquarters, Joan C. Heidelberg, Executive V.P. P.O. Box 400, Troy, Ohio 45373 (513-698-6493).

SHOULD THERE BE A NATIONAL SOCIETY FOR WOMEN IN NATURAL RESOURCES?

In the last few years, the inquiries about starting a formal **WOMEN IN NATURAL RESOURCES SOCIETY** have increased. Currently there are a number of state or regional groups which have organized or are contemplating organizing. The number of "Women in Natural Resources" conferences being held all over the country under various auspices grows by leaps and bounds. Perhaps the time has come to capture this informal and regional grass roots movement into something national and formal, covering many professions. There are pluses and minuses to organizing, of course. What we propose to do now, is enter into conversations with those of you who have groups already formed, who have strong opinions, or who have ideas about such a society. Write to Dixie Ehrenreich, *WOMEN IN NATURAL RESOURCES*, Bowers Laboratory, University of Idaho, Moscow, Idaho 83843, or call 208-885-6754 during Pacific Time.



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Park.

LaBastille packed up an ax, pry bar, and tape measure, began clearing brush, and prying rocks for foundation posts, measuring cabin dimensions. Half-way through this she realized that the Adirondack Park Agency may not approve of her pioneering actions so she discreetly requested permission. She discovered that a permit was required and certain rules and regulations must be followed before, during, and after any construction. What makes this chapter "Big Brother is Watching," so interesting is that LaBastille, a champion of the environment, is forced to wear the other shoe in order to circumvent the park agency's regulations that protect the environment she so ardently loves! Eventually, of course, the author does get her small cabin-retreat built.

"Death from the Sky" is an excellent chapter. It is about acid rain and came about because National Geographic asked her to research and write about it's political ramifications and world-wide spread. The author graphically describes the subtle changes that have taken place around Black Bear Lake.

One-half of this book is very entertaining and informative. However, LaBastille spends too much time describing her dogs "Pitzi," "Condor," and "Chekika." Chapters on the lake adjacent to "West of the Wind" (and the ponds surrounding it) are tedious and slow reading. The last two chapters are philosophical monologues on the author's lifestyle and the environment that someday (not today) may become classics.

Author Anne LaBastille is a wildlife ecologist with a Ph.D. from Cornell University. She has written more than 100 popular and scientific articles. She is a Fellow of the Explorers Club and director-at-large of the National Wildlife Federation.

Reviewer Gus Bekker graduated from the College of Forestry, Wildlife and Range Sciences at the University of Idaho with a double major in Forest and Wildlife Resources. He traveled extensively in Central and South America and currently works with the Forest Service on the Olympic Peninsula.

FEMALE ROLES IN EVOLUTION

how females control the world

Females of the Species: Sex and Survival in the Animal Kingdom (Harvard University Press, 1986) is an enjoyable treatment of the role played by the female among a variety of animal species from spiders to elephant seals. Kevles traces the history of natural history and of the study of the role of the female in natural history. Darwin was the first to talk of sexual selection in 1871. There is still some resistance, however, to recognizing the powerful role of the female in the evolutionary process.

Chapter headings are divided into four categories: courtship, mating, motherhood, and sisterhood. In these sections, she traces the diversity of roles that females play. An array of photographs and original illustrations by Laszlo Meszoly add to the interest of the book. Kevles takes us from a discussion of reasons for the violent and aggressive behavior of male jewelfish in courting the female, to a discussion of the evolutionary reason for helpers or "aunties" among dolphins and many other social species.

The book is interesting reading for any lay reader with an interest in natural history and could be valuable as a supplement to a college level animal behavior course. Kevles' goal in writing the book appears to be that of putting animal behavior into a framework that human beings can relate to. In her Epilogue, she closes with the following: "Just as we are coming increasingly to appreciate the diversity of female roles in human society, so we are coming to understand the variety in the behavior of female animals and to recognize females as, at the very least, co-equal players in the evolutionary game."

Author Bettyann Kevles received a B.A. from Vassar College and earned an M.A. from Columbia University. She is also author of Watching the Wild Apes: the Primate Studies of Goodall, Fossey and Galdikas.

Reviewer Christine M. Moffitt is book review editor of WIF and adjunct assistant professor in the Department of Fish and Wildlife Resources at the University of Idaho.

DZ 3/87

ORGANIZED RAIDERS OF THE SACRED SITES

With some knowledge of locating ancient shrines gained from university courses in geology and archaeology and motivated by a black market that currently pays as much as \$150,000 for a pristine pre-Columbian basket, the looters came during the spring of 1984 for the graves of the Anasazi, the "Ancient Ones," to harvest artifacts unseen for almost 1,200 years. The artifacts from a single Anasazi cliff dwelling could bring up to \$1 million.

Along with ceremonial objects and ancient tools, the raiders took the mummified remains of Anasazi children. According to David L. Krouskop, lead ranger of the Bureau of Land Management's Moab district of Utah, the asking price for quality specimens starts at \$5,000. The best of these are said to have been preserved by casting them into acrylic blocks, an expensive high-tech procedure.

Archaeologists and art historians link the present wave of desecration to the first major auction of American Indian art at New York's Parke-Bernet Galleries, in 1971. The record prices received then for domestic relics stunned the international art world, which had virtually ignored them, and caused the raiders to turn their attention to treasures on American soil.

The concentrated looting began in an area of archaeological sites throughout the Four Corners area, where Utah, Colorado, Arizona and New Mexico meet, spawned a nationwide epidemic of the destruction of sacred sites, many of them on Federal lands, from Maine to Florida, Alaska to California, and in most of the states in between.

Civil War battlefields in Pennsylvania and West Virginia are, for example, now systematically being

plundered by organized armies employing sophisticated electronic metal detectors.

"College-trained ringleaders hire students to find burials, do the excavation, and take the risks," says Ted G. Birkdale, a National Park Service regional archaeologist now based in Anchorage. "When the students are done, a middleman markets the products. We know of one anthropologist who has made over \$1 million." The artifacts are sold to museums, galleries and private collectors, who frequently do not know, or question, how they were obtained.

"We're at war and we are losing," laments David B. Madsen, Utah State's archaeologist, based in Salt Lake City. "We're dealing with hardcore criminals, and those guys (in Washington) think we're talking about arrowhead collectors."

Although Congress passed the Archaeological Resources Protection Act (ARPA) in 1979 in an attempt to stop the pillage, agents in various Federal agencies say they have neither the budget nor the manpower for adequate enforcement. "When 80 to 90 percent of all archaeological sites in the Southwest have been looted, and you don't have thousands of prosecutions, you've got to say the record is poor," says Philip Speser, a Washington lawyer and Congressional watchdog associated with Foresight Science and Technology Inc., which assesses the extent of archaeological damage.

No transfer of title or deed comes with the purchase of fine American Indian art or historic antiquities discovered on public lands. Instead, dealers provide what is known as provenance, or information on the origin of the article. Sometimes it is issued in writing, more often not.

In the complex war against career grave robbers, the Federal arsenal currently consists of two

weapons, which are supposed to work in tandem. First is "Take Pride in America," an educational program aimed at potential weekend hobbyists. Second is ARPA which many law enforcement officers say is nearly impossible to enforce because it puts the burden on the government to prove materials have been taken from Federal lands, and show beyond a reasonable doubt that the diggers knew they were on Federal land.

Charles S. Allaire, a United States Forest Service special agent, who has probably been involved in more prosecutions of looters than any other Federal officer, believes that lawmakers in Washington do not understand what they are up against. He also feels that the general impression articulated by politicians, that most looters are family campers picking up a few arrowheads, only makes matters worse.

"Most hobbyists have quit (since the resource protection act was passed), but commercial looters are now more active than ever," Allaire says. "One group of 700 looters we've identified includes everybody from construction workers to prominent politicians and entertainers. If we had money and a real commitment, we could stop them."

Although ARPA was enacted to protect the estimated 700 million acres of Federal land, the potential penalties for each offense--\$10,000, 10 years in prison, or both--have not stemmed the tide. Enforcement efforts are almost nonexistent, or, at best, thinly spread in many of the hard-hit areas. "The area we work (eight Southwestern states), with a staff of 10, covers about one-fifth of the entire United States, and all the agencies are in the same boat," says Larry D. Banks of the Army Corps of Engineers. "How do you get a handle on it?"

...Derek V. Goodwin
New York Times Magazine



CAN YOU HELP



If you're one of the 3.3 million WOMEN WHO OWNS HER OWN BUSINESS, or if you are thinking of starting one, the American Woman's Economic Development (AWED) Corporation/Citicorp National Telephone Counseling Service can make your life easier. The service can answer such questions as: When do I apply for a license? Where should I advertise? How can I improve my profits?

Hotline sessions of up to 10 minutes are available for \$5, Monday through Friday, 10 am through 5 pm EST. For \$25, in-depth counseling with an expert in your problem field also is available. Both services may be charged to major credit cards. Call 1-800-222-AWED. (In New York City, Alaska, and Hawaii, dial 1-212-692-9100; in New York State, 1-800-442-AWED.)



The National Urban Tree Network, the information-sharing network between PEOPLE WITH URBAN FORESTRY PROBLEMS AND THOSE WITH ANSWERS, is running strong. This service is run by the Huntsville City Arborist's office, with publicity and other assistance from AFA's Urban Forestry program. As a result of responses, efforts must be limited to unusual consulting services where commercial participation is concerned. For more information contact: Chuck Weber, City Arborist, Calvary Hill Center, 2900 Fairbanks, Huntsville, Alabama 35805.



I can send to your readers INFORMATION ON THE FORESTRY SUPPORT PROGRAM (FSP), which gives technical assistance to the Agency for International Development (AID) and Peace Corps forestry development activities. This would open the opportunity to participate in these activities by enrolling in the FSP roster of expertise.

Page 3 of the information package, which describes the types of foresters and natural resource scientists normally requested by AID, might discourage some from applying. However, the needs are in constant flux. For example, we expect that technical expertise in the conservation of biological diversity will soon be in demand. Details to Washington are common, and there is a need for U.S.-based training expertise. In some cases, women are requested specifically. Moreover, our roster is being used in many new ways as a source of technical expertise. So I urge you to send for the information, decide if you have the interest, expertise, and

initiative to accept an international development assignment, and, if so, register with FSP. Write: Thomas F. Geary, Training and Education Coordinator, Forestry Support Program, 12th & Independence SW, P.O. Box 2417, Washington, D.C. 20013.



The COVERTS PROJECT, sponsored by the Ruffed Grouse Society and the University of Connecticut Cooperative Extension Service, is LOOKING FOR WOODLAND OWNERS who want to learn more about their forest in exchange for a commitment to share that knowledge with others in their communities. Selected volunteers attend in-depth seminars which combine indoor and outdoor training. All costs of the seminars, including travel, meals, lodging, and educational materials, are covered by the Ruffed Grouse Society, a national organization dedicated to improving the environment for forest wildlife. In exchange for receiving the training, participants are asked to return to their communities and share what they've learned with others. Anyone interested in next fall's program, or who would like more information, should contact Stephen Broderick, UCONN Cooperative Extension Service, Extension Center, RR 2, Box 1300, Brooklyn, Connecticut 06234 (203-774-9600).



The Biomass Energy Service Team (BEST), a non-profit technical assistance service located in Falmouth, Maine, is seeking your help in compiling a COMPREHENSIVE LIST OF INDUSTRIES, BUSINESSES, AND INSTITUTIONS USING WOOD OR WOOD WASTES FOR ENERGY in the Northeast.

The list will be used in developing the Northeast Directory of Biomass Facilities, to be published by BEST in 1987. The purpose of the directory is to identify the current market for woodfuels in the region, and to compile up-to-date information on the experiences of existing wood-fired facilities.

Please send the names and addresses of any wood energy facilities located from Maine to Maryland to BEST, 118 U.S. Route One, Falmouth, Maine 04105 (207-781-4229).



For those stout of heart and strong of limb, there are some wonderful BICYCLE TOURS available. Some of them have support vans which travel with the group, others are guided, some provide other services, or just maps and instructions.

International tours are offered by Bonnie Wong, Box 266F, Port Townsend, Washington 98368 (206-385-0667); by EUROPEDES, 883 Sinex, Pacific Grove, California 93950 (408-372-1173); by BIKECENTENNIAL, P.O. Box 8308-WC, Missoula, Montana 59807 (406-721-1776); by BICYCLE FRANCE, Box W, 2104 Glenarm Place, Denver, Colorado 80205 (303-296-6972). For tours of various parts of the U.S. try: BICYCLE ADVENTURES, Dept. F., P.O. Box 7537, Olympia, Washington 98507 (206-786-0989); or HEART CYCLE, P.O. Box 10743, Denver, Colorado 80210 (303-761-8397); or FOUR SEASONS CYCLING, Box 203, Williamsburg, Virginia 23187 (804-253-2985).



To activate our genetic program and provide support for cooperative breeding projects, the SEARCH IS NOW ON FOR SUPER EUCALYPTUS. We are looking for the early sprinters, the plus trees sometimes called "sports." Readers are asked to bird-dog the location of these super trees for the big genetic push.

To qualify, super trees must have good form and be reasonably good genotypes (true to their species). Geographically, they may be in California, Oregon, Nevada, Arizona, or Baja. They may be irrigated, sub-irrigated, or non-irrigated and, preferably, should be from 3 to 10 years old. Open-grown trees cannot be used; candidates must be in a grove or woodlot.

If selected for our breeding program, landowners may be asked to fell the tree or permit a half-girdle (which will not retard the tree) in order to obtain shoots for cloning. Also, if utilized, the tree will henceforth be known by the donor's name, in lieu of a bounty.

If reporting by mail, please include the species, location, the dbh, approximate height, age and pedigree (if known). Call or write: Ron Adams, PO Box 561, Davis, California 95617-0561, (916-753-2717). Send a photograph (if possible).



The Forest Sciences Laboratory, North Central Forest Experiment Station, USDA-Forest Service in Rhinelander, Wisconsin, as a result of recent success in obtaining grant funds, has the OPPORTUNITY TO HIRE THREE NEW STAFF MEMBERS in 1987. We are seeking:

1. Post-doctoral scientists (2 to 3 years). Modelling physiological processes in trees. Position to be located at Grand Rapids at our cooperating research



CAN YOU HELP



laboratory. Candidates should have background in micro-computing, programming, higher mathematics, geometry, and plant and/or tree physiology. Knowledge of topology and biophysics is desirable.

2. Post-doctoral position (2 years). Tree physiology, carbon allocation in oak seedlings. Candidates should have background in plant and/or tree physiology, analytical chemistry, and biochemical methods. A knowledge of microcomputers is desirable.
3. Biological Laboratory Technician (2 to 3 years). Candidates should have background in chemistry and laboratory analytical methods. A knowledge of microcomputers is desirable. This technician will work with Post-doctoral #2.

We anticipate having position announcements in the near future and would appreciate it if you could provide us with the names and addresses of individuals (especially women and minorities) who might be interested. Call Jud Isebrands, Thomas Crow, or Richard Dickson at 715-362-7474 in Rhinelander, or write to Forest Sciences Laboratory, P.O. Box 898, Rhinelander, Wisconsin 54501.



The National Science Foundation's mandate to ensure the vitality of the nation's scientific enterprise includes concern for the quality, distribution, and effectiveness of the human resource basin in science and engineering. Because women are under-represented in all disciplines, a number of activities are directed at INCREASING THE NUMBERS OF WOMEN AS FULL PARTICIPANTS IN THE MAINSTREAM OF THE NATION'S RESEARCH ENTERPRISE. U.S. Government employees are eligible.

- Standard Research Awards. Women scientists and engineers are eligible to apply for grants in all of the Foundations' programs, and are encouraged to do so.
- Research Initiation Awards, for women who have not previously received Federal research support or who are returning to research activities after a career interruption. These are one-time awards.
- Research Planning Grants, limited in amount and duration, to help women develop competitive research programs.

- Career Advancement Awards, to enable women to increase their research productivity.
- Visiting Professorships for Women Program, to enable experienced women scientists and engineers to undertake advanced research and teaching at host institutions where they can also provide guidance and encouragement to other women seeking to pursue careers.

For further information write: Research Opportunities for Women Coordinator, Room 1225, National Science Foundation, Washington, D.C. 20550 (202-357-7734).



The American Forestry Association (AFA) will make FAMOUS AND HISTORIC TREE GROVE packages available for plantings on public lands in select communities. Each package includes 10 seedlings from trees planted by historic figures or in historic places. The number of packages is limited, so write for rules to Famous and Historic Tree Grove c/o AFA, 1319 18th St. NW, Washington, D.C. 20036.



NEBRASKA IS CREATING A STATE FOREST SYSTEM AND A NEBRASKA MUNICIPAL FOREST SYSTEM. Most land has been donated by private individuals to the state system which is being managed by the Nebraska Forest Service for multiple use including recreation and wildlife. The Municipal Forest System will be used to reclaim abandoned gravel pits, develop woodlots and school forests. Criteria are now being developed for those who wish to donate their lands. Contact Community Forestry offices by calling 402-444-7804.



As a member of many arboriculture/horticulture organizations (and as President of Northwood Resource Systems) I couldn't help but notice the conspicuous lack of women in attendance at these meetings. Last August, I INCORPORATED A NON-PROFIT ORGANIZATION ENTITLED "THE ASSOCIATION FOR WOMEN IN ARBORICULTURE", also known as AWA. Even though this association uses the word "Arboriculture", its intent is to include individuals associated with all phases of horticulture.

Another goal of the AWA is to become a special interest group of the International Society of Arboriculture (ISA). This international link will let women everywhere know that they are not alone. I must

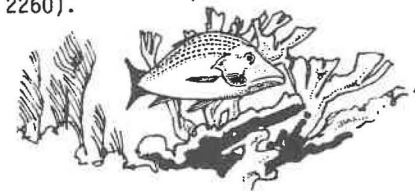
mention that at a recent Ohio Chapter ISA meeting I received tremendous support as members signed petitions in favor of having the AWA become a special interest group of the ISA. I would like to challenge other ISA Chapters to match this support.

Unfortunately, some people still see no need for such an organization. The numerous letters I have received from men and women all over the country and Canada speak for themselves. Over-whelmingly, the need is expressed and enthusiastically supported. The evidence for this need is further reinforced in Women in Forestry.

The AWA will hold its first formal meeting in Keystone, Colorado in August. This will occur at the same time and place as the convention for the International Society of Arboriculture. The constitution and by-laws will be reviewed and plans laid for organizational operations, membership and out-reach activities. We also hope to include key professionals to speak on topics of women in the arboriculture/horticulture industry and sciences. We wish to encourage interested individuals to actively participate. For more information contact J. Len Hall, 277-285 Martine Drive, Suite 100, Kent, Ohio 44240 (216 678-1912).



There are many OPPORTUNITIES IN AQUATIC SCIENCES for qualified applicants. Julie Schreck, for example, recently completed her masters' degree in Fishery Resources at the University of Idaho under the direction of Dr. Christine Moffitt and has taken a permanent job with the USFWS National Fishery Research Laboratory at La Crosse, Wisconsin. Schreck was supported as a cooperative education student with the FWS during her graduate program. She received more than ten job offers from different fishery agencies throughout the country. The USFWS is interested in obtaining cooperative education students for BS and MS degree programs in the Western and Southwestern regions. If you are interested in this program contact: Dianne Hoobler, Coop Education Program, USRWS Region 1, 500 NE Multnomah Street, Suite 1692, Portland, Oregon 97237 (503-231-2260).



WOMEN IN NATURAL RESOURCES

Information for Contributors

The journal *Women in Natural Resources* aims to provide information and ideas for, from, and about women on topics related to: the natural resource professions and associated social science fields; the use and conservation of natural and cultural resources; and issues of administration and personnel of special interest to women in natural resources. We want to serve as a source of ideas, contact, and support, to help women in natural resources reach their professional goals.

We seek contributions that will effectively integrate the factual, the personal, and the philosophical aspects of our profession. There is a place to express insights or experiences as brief as a few lines or paragraphs, as well as for articles several pages long. We want *Women in Natural Resources* to provide interesting, thought-provoking reading, and not to be merely a repository for factual data buried in esoteric technical jargon and statistics.

Look through this issue to get ideas of where and how *you* can contribute. Contributions in the following categories are especially welcome:

Letters and opinions	Announcements and awards
Articles and reports	Positions wanted and positions available
Interviews or suggestions for people to interview	Requests for specific types of information
Calendar events, conferences, meetings	Summaries of research in progress
Book reviews and announcements of new publications	Cartoons or other humor (original or clipped with source noted)
News and notes	Advertisements
Abstracts or clippings from other publications (please provide information on source)	Photographs or drawings

As you can see from this issue, our format is flexible. For material acceptable for publication in *Women in Natural Resources*, we will provide, as needed, help with editing, illustrations, and layout. Authors of feature articles will be sent a photocopy of the final version of their article for proofing and approval. All letters must include author's name and address, but names will be withheld from publication upon request.

With all contributions, please include your name, job title or specialty, full address, and phone numbers(s) where you can be contacted most easily. For longer letters, opinions, or articles, please also include a brief biographical sketch (approximately one paragraph) giving both professional and relevant personal information about yourself and your article that might interest readers of *Women in Natural Resources*.

Name _____ Phone _____

Address _____

Position or title (if student, name major) _____

Organization (if student, name school) _____

Amount enclosed (check one) _____

\$15/non-student \$10.00/student

\$30.00 gov't. agencies/libraries/foreign subscription

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University of Idaho
Moscow, Idaho 83843

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