

women in

Volume 17, Number 1 September 1995

# N A T U R A L R E S O U R C E S



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

***In this issue***

**Interview: Elaine Zielinski**

**New England Landscapes**

**Rural America:**

**Social Fabric**

**Women's Jobs**

**New Logging Equipment,**

**New Philosophy**

## Hypocrites Are Us

I grew up in a household where responsibility was held in very high regard. As a family, we had responsibilities in the form of chores and the requirement that we treat one another with respect. As students, my brother and I had responsibilities at school with homework and our extra-curricular activities. And on top of that we had a responsibility as members of society to do what used to be called "giving back."

To my parents, that meant we assumed our obligation for community service. Whether we fulfilled this duty through church, civic groups or even politics wasn't as important as acquiring the habit. We were, as my father was fond of reminding us kids—especially when we acted sullen or lazy (which is to say quite often)—we were privileged people. To live in this country with what we take for granted, like plentiful food, affordable housing and universal education, but which are unknown to many of the world's people was a privilege, my parents would say. And with this precious privilege comes responsibility.

Most of you are privileged people, too. You wouldn't be reading this if you weren't. But if you are anything like the privileged folks in my community, you're blowing it big time. Our local privileged "elite" are shirking their responsibilities in ever increasing numbers and in a systematic, deliberate manner. They don't want to be *bothered* anymore. Too busy, not interested. And besides which, they now say, "Since we have been assuming this horrible burden for so long we aren't so privileged anymore."

What it boils down to is this: In our town, the folks who have the "stuff"—cars, houses, jobs, college educations—aren't going to share anymore. They scuff their toes in the dirt and mumble their pitiful excuses, but the message has been received loud and clear. Disadvantaged folks are on their own. Make no mistake, the message does not convey some kind of *passive* rejection—this is war. It's Us vs. Them. The Haves against the Have-nots. Forget Mike Tyson and the next boxer he beats up. This is The Fight of the Century.

I have an example for you. Nowhere are the battle lines more clearly drawn than in our school district (and possibly yours). I cover school board business for our local newspaper, so I've had the dubious honor of a front row seat in this sorry little conflict. And I'll tell you what, it makes me sick to my stomach. It sickens me to listen to an elected board member (the deputy county prosecutor), who

just bought a \$20,000 lot to build his new \$300,000 house, gripe on public record, about a measly \$70,000 grant to help "those special ed kids" learn some marketable skills. He concludes these shameful remarks by suggesting that the school district reject the grant unless regular and gifted students also be allowed to participate since to do otherwise would be "discrimination."

This is the same pompous bloater who regularly votes against any program, any activity aimed at girls or minorities, bleating Reverse Discrimination, Reverse Discrimination. It disgusts me to hear the wife of a local physician testify before the board that gifted children deserve the precisely the same amount of money devoted to special needs children. She says this even though she knows better, having been employed by the school district for many years. What she won't admit, because it fatally wounds her argument, is that mainstream and gifted children are served by basic education while most kids with developmental, emotional, or physical problems are not. It offends me to see the chairman of the board purse her lips and shake her head in disapproval when she eyeballs the amount of money designated for special ed programs. She makes these gestures even though this money she disdains is but a minuscule percentage of the total budget and in spite of the fact that the special ed budget was cut by 33 percent this year.

It galls me to watch these well-fed, well-clothed folks—each one a privileged person by anyone's definition—work to protect their personal fortunes, their own children, and their interests at the expense of the town's children who have no voice. This same school board will try to float a special levy again this year, which the district needs, but I can just about guarantee that it will fail. The board will single-handedly sink their own levy because of their narrow, self-serving agenda and, unless I can't stop myself from telling them, they won't know what went wrong.

These hypocrites were elected to the school board because, they told voters, they wanted to help children get good educations. But that's not what they are doing. Some kids don't deserve to be helped, they seem to be saying.

The school board members, like a lot of other idiots, think that if they educate the folks about what *they* think is important then the folks will see the light. Jean Mater of Mater Engineering (whom I interviewed in the last issue of WiNR), had something wise to say on this subject. She was speaking about the forest industry but her logic applies here too. She said that you can put the facts out in front of the public. Folks can absorb those facts and understand what your point is. But people can understand very well and still not agree with you.

As the privileged people on this planet we've somehow gotten off the track. Unless you are incredibly short-sighted and deficient in the morals department you can't possibly accept the idea that doing nothing to help the disadvantaged folks in the world is okay. We can all disagree on what exactly it is we should be doing. After all, there are long lists of worthy causes. That kind of debate is fine with me. But I won't agree that None of the Above is an option.

Helping your children choose to look outward also is important for them. Mary Pipher author of the best-selling book, *Reviving Ophelia*, makes the point that the adolescent years are especially treacherous for young females but that the anguish can be partially eased by, among other things, encouraging girls to engage in activities that directly help less fortunate people. She recommends that girls volunteer at homeless shelters or soup kitchens to take girls' minds off their own problems, helping these adolescents put some perspective in their lives. I'm no adolescent but my thirty-something self benefits from that perspective, too.

I also get a mental charge out of making a good, efficient list. So permit me, please, this one last thrust: Accept your responsibility to give back and share some of what you have received as a privileged member of society and you just might: A) Be happier and healthier; B) Set a good example in your community; C) Actually change someone's life for the better; D) Avoid looking like the biggest hypocrite since Bob Packwood.

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Photo: At the dedication of the Oregon Trail Interpretive Center in Baker City, Oregon. From left, *Gloria Brown*, BLM Area Manager, Baker Resource Area, Vale District; *Barbara Stiff*, President of Trail Tenders (1994); *Elaine Zielinski*; and *Mike Dombeck*, Acting Director, USDI Bureau of Land Management

Some sobering stuff in the June 1995 issue of WINR. It's too hard for those of us who don't live in the west to understand the controversy over logging unless we read articles like MaryAlice Stoner's or Barbara Ott's piece. Is Ott right when she says Ashland, Montana's per capita income is \$3,808? And 72 percent of the residents are below the poverty level? Depressing.

Barbara Norton, Huntsville, Alabama

As usual, the interviews you did in June's issue rank with the best in the business. John Joseph Daigle's Q & A with Theresa Hoffman was wonderful regarding the Maine Indian Basketmakers Alliance. And Karen Lyman caught the essence of the Mater Engineering philosophy in her interview with Jean and Kathleen Mater. Your covers are also a Who's Who of movers and shakers.

Tedra Washington, Minneapolis, Minnesota

*Editor's note: On behalf of all of the interviewees and interviewees, I want to say, Thanks, mom.*

**— Assistant Research Scientist, University of Arizona.**

A non-tenure-track, 100 percent research, year-to-year, fiscal year faculty appointment with primary assignment to the USDA-Agricultural Research Service, Southwest Watershed Research Center, Tucson, Arizona. Requires Ph.D. Watershed Hydrology or closely related discipline, and strong background in soil erosion and ground water flow modeling, hydraulics, and hydrology. Applicants should have interests and capabilities both in field research and hydrology theory, and the ability to work productively in an interdisciplinary environment and in Mexico. Proficiency in Spanish highly desirable.

Contact Dr. Richard H. Hawkins, School of Renewable Natural Resources, 325 Biological Sciences East, University of Arizona, Tucson AZ 85721 (520-621-7273; e-mail rhawkins@ag.arizona.edu). **Review begins November 1, 1995 with applications accepted until the position is filled.** Starts January 1, 1996. An EEO/AA/ADA.

I saw myself in some of those photos that Jane Hunt included in her article on the Arkansas girl scout camp reconstruction. Camp provided my first prolonged smell of piney woods, stinging insects in my hair and clothes, loathsome outhouses, no privacy, quarrelsome campmates, intolerable food, and cold, cold lake swimming. It was wonderful.

Jill Staunton, Lubbock, Texas

I am glad to report that the State of Washington's school coffers have been replenished somewhat by a successful year of timber sales auctioned from trust lands. It was the second highest dollar value (not volume) in history, and the highest in 15 years according to the Washington Department of Natural Resource News. As to timber prices, the 1995 average price to DNR was \$470 per thousand board feet, a drop from last year's peak of \$574 per thousand. By adopting new methods for surveying for spotted owls, the Board received special assurances from the F & WS that minimized the legal risk to the state and timber purchasers. Due to this, the state was able to sell 71 percent more timber (for a total of 607.3 million board feet) than in 1994. So some loggers are or will be working in the State of Washington.

Tiffany Rogers, Seattle, Washington

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The above topics will be subjects of natural resource focus issues in upcoming WINR journals. If you have manuscripts underway or ideas for one, call the Editor at 208-885-6754 or fax text to 208-885-5878.

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Rank and salary of the position will be commensurate with the applicant's teaching and research experience. Applicants should submit a curriculum vitae and list of three references to Dr. H. Lee Allen, Professor, Department of Forestry, North Carolina State University, PO Box 8008, Jordan Hall, Raleigh, North Carolina 27695-8008. Inquiries may be made at telephone number 919-515-3500; fax 919-515-6193; or email AllenL@CFR.CFR.NCSU.EDU.

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13 Natural Resources Building  
Michigan State University  
East Lansing, MI 48824.  
Telephone: 517-353-3373  
Fax: 517-432-1699  
e-mail COONTG@msu.edu.

*Michigan State University is an EO/AE. Minority and women candidates are encouraged to apply. Handicapped have the right to request and receive reasonable accommodation.*

AS RESOURCES DRY UP, SOME SEE THE ANSWER TO CHANGE IN EVER STRONGER HIERARCHIES. BUT MANY WOMEN PRACTITIONERS ARE LEADING THE WAY TO WORKING TOGETHER—IN THEIR COMMUNITIES.

# STRENGTHENING THE SOCIAL FABRIC OF RURAL AMERICA

SUSAN ODELL

Rural communities throughout the country are facing many changes; the people who live in these communities are struggling to make sense of them and maintain or recreate a "sense of community." They talk about changing events, attitudes, and behaviors as threats to the "social fabric" of their communities—and they mean more than just the economic or environmental threats to their quality of life.

Women are playing key roles in the effort to build the capacity of communities to deal with change and, thereby, strengthen rural America. Using a few specific women as examples, along with current community-based social concepts, I plan to show why the work of these women is so effective in weaving the threads of community life into an enduring and ever-changing tapestry—repairing, strengthening, or creating new and resilient "social fabric" in rural communities. This fabric depends upon and supports the human, environmental, physical, economic, and social threads. It is of a whole piece which nurtures healthy relationships, encourages the development of common goals, enables shared leadership, and sustains both the community and the environment for current and future generations.

## Definitions and a model

In trying to address some of the problems, questions, and concerns in rural communities, conventional wisdom and government rural development programs have placed a great deal of emphasis on improvements: (1) telecommunications, (2) traditional infrastructures, (3) increasing attention on economic development and fiscal resources, (4) acquiring raw materials or new industries, and (5) developing the leadership/other human resources in rural communities. In addition, the traditional role of natural resource management agencies in the rural development arena has been to focus on the commodity and amenity resources available to communities, particularly in regard to at-

tempts to support local businesses and job markets, indirectly, through management of federal or state forests or rangelands.

Today, in the Forest Service's efforts to change the way it provides assistance to rural communities, the concept of "community sustainability" has become important. Increasing the understanding of the dynamics between the biophysical elements and the human/community elements is essential to making sustainability a reality. Based on the work of Cornelia and Jan Flora and others, we have found that attention to (1) physical and financial, (2) human, and (3) natural resource/environmental components of community development is still not enough to build or sustain vital communities. Another component—the social one, the societal fabric—is the dynamic link, enhancing the other components. These components are the four types of capital a community needs to invest in itself.

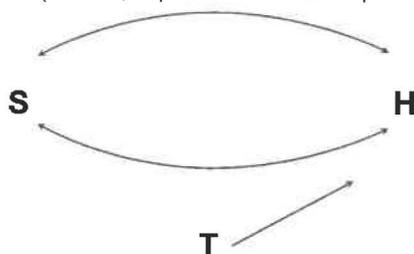
In her work on rural development and tourism, Deborah Carr, a Forest Service Researcher, is using a structural functionalism model of the dynamics between the capital available to communities, the community itself in a sustainable mode, and the external tensions placed on the community and its capital. The generic (structural functionalism) model on which she bases her current work is shown in Figure A, wherein 'H' stands for "...the condition a system is designed to maintain..."; 'S' is the structure "...targeted at achieving the maintenance of 'H'..."; and 'T' indicates the various tensions in the system "...forces working to destabilize 'H'" (D. Carr, unpublished manuscript 1995).

Individuals and groups usually have multiple choices for behaviors or actions ('S') when they want to maintain a condition in a system. The desired consequences of these behaviors is the maintenance of 'H'.

By integrating the above structural functionalism model (based on her work with material by A. Stincomb, 1968) and more recent work in rural sociology, Carr has added value to the work of others and initiated new thinking by describing community dynamics in the following way (see Figure B):

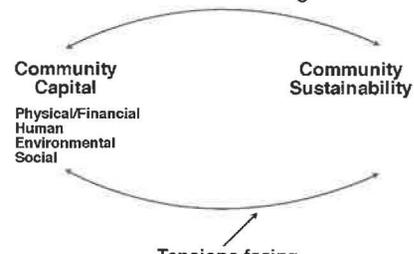
- 'H' = Community Sustainability
- 'S' = Community Capital
- 'T' = Tensions facing the Community

If we examine this model, starting with 'H,' we can assume that the desired consequence of actions/behaviors of people/groups in a community is community sustainability. In defining sustainability, Carr (1995) quotes Elizabeth Kline: "a holistic vision of sustainability" is the "ability of a community to utilize its resources to ensure that present and future members of that community, as well as those in adjacent communities, can attain a high degree of health and well-being, economic security, and a say in shaping their future while maintaining the integrity of the ecological systems on which all life and production depends." Although Carr has used the model to look at tourism as a rural development strategy, her willingness to share her ideas prior to having published them has enabled me to build on the model beyond the single issue of tourism—expanding the application to the overarching concern of



From unpublished manuscript by D. Carr

Figure A



Tensions facing the Community

Figure B



"sustainability." Debbie and other researchers, who are actively sharing their thoughts and findings with others working in or with rural communities, are role models for the type of action-oriented and adaptive research we so desperately need.

Is Kline's definition of sustainability quoted above useful? Carr lists three good reasons it is: "First, it links community sustainability to ecological sustainability...to eliminate the false dichotomy between what benefits people and what benefits the land (i.e., represented by the 'jobs versus the environment' characterization of the situation in the Pacific Northwest). Second, the definition goes well beyond the typical description of economic sustainability to incorporate quality of life issues such as well-being, control over one's future, and economic security (seemingly a more meaningful concept than simply having a job). Third, the definition incorporates issues of equity across temporal and geographic scales."

Cornelia Butler Flora (Director, North Central Regional Rural Development Center) and her husband, Jan Flora (Professor, Iowa State University), have worked extensively toward a better understanding of community sustainability—particularly the "Community Capital" (the 'S') side of the community dynamic model. In this context, "Capital" is what a community must have to develop resources for current and future use in maintaining community sustainability. Carr summarizes the Flora's four categories of community capital:

- Physical/Financial/Manufacturing. *The private and public goods and assets available to a community. This is what is typically thought of when the word capital is used.*

- Human. *Traditionally thought of as labor, but defined more broadly by Flora and Flora to include individual capacity, training, human health, values, indigenous knowledge, and leadership.*

- Environmental. *Incorporates the community's natural assets including air, water, soil, biodiversity, and landscape itself.*

- Social. *Incorporates the human interactions within a community that build mutual trust and reciprocity.*

As the lines between 'H' and 'S' in the model indicate, "[e]ach of these forms of

capital, to the extent they are available to a community, can be used to maintain and/or enhance sustainability. They form the basis by which a community can respond to tensions targeted at upsetting sustainability. Because of this a careful evaluation of the capital available to a community—where its surpluses and shortages occur—is critical to understanding how resilient the community is in its current state of sustainability as well as what its possible options are for reacting to current and future tensions" (D.Carr, 1995).

To provide a complete description of the structural model (Figure B), Carr lists some of the many 'T's (tensions) which are "working to upset the sustainability of rural communities. Among these are persistent poverty, outmigration of young people, encroaching urban areas and urban values, loss of jobs, loss of community cohesion, changing government policies, etc." (cited from Reeder, et al, 1990). Natural resource management agencies, special interest groups, government programs, and changing laws have frequently been part of the tensions acting upon community sustainability, even when the intent was to enhance sustainability.

Cornelia Flora (1994) has expressed the relationship between community sustainability and external tensions in a different, yet similar way: "Community sustainability is based in part on the resiliency of that community to respond to changes in conditions in the larger environment." In that same paper, she notes that technology has made it possible for us to interact across the world, "forming and reforming a vast number of overlapping communities of interest or affinity... Yet the interactions based on locality are still critical for locality survival, particularly community resiliency." So when we talk about the sustainability of natural resource-based or resource-dependent communities, we must acknowledge the importance of "place," and the people of that place, when we address issues, interests, problem-solving processes, or any other tensions related to that community of place.

Economic development strategies have also tended to place tensions on the community even though the objectives included community capital building. The conven-



tional approach to community development has frequently increased the stress on the social capital that communities depend upon to make all the other components effective.

### The Forest Service's Rural Community Assistance

With this model as a reference, I have begun to understand why communities are responding so positively to the work of Forest Service line officers and field coordinators who are implementing the Rural Community Assistance (RCA) effort. Where the RCA effort is most effective, it is being used to develop new relationships between the Agency and communities, and is clearly more than a program to be delivered from "outside" the community. The overall strategy is community-centered and community led; it is changing the position of the Agency from placing tension ('T') on the community to becoming part of the community capital ('S') thus enabling the local natural resource managers, community members, and others to work together to choose actions and structures for improving community sustainability ('H').

Forest Service employees, without the benefit of knowledge about the structural functionalism model, have responded passionately to the RCA approach to working with communities and believe it is "the right thing to do." Many employees believe perhaps it is the only hope for real solutions to the increasing conflicts in which the Agency is involved. The Forest Service can credit Ruth McWilliams (Cooperative Forestry, Washington Office), a leader with a vision for rural America, for her work with the team of people who, in 1990, rewrote the Agency's rural development policy and developed the national strategy, Working Together for Rural America, which began this change from "tension" to "capital" possible.

### Capital

When citizens talk about the threats to the social fabric of their community (loss of community cohesion), what they are really talking about are the changes in the configuration of the social capital in those communities—which is directly related to community sustainability. Social capital can be configured in three ways: horizontal, hierarchical, or nonexistence. When horizontal social

capital exists, not only is each community member "expected to give (and gains status and pleasure from doing so), but each is expected to receive as well... Contributions to collective projects...is defined as a 'gift' to all." (C. Flora, 1994). Stark contrasts exist between horizontal and hierarchical social capital, even though both social structures are built on norms of reciprocity and mutual trust. With hierarchical social capital, in communities "receivers (have-nots) are much more numerous than givers (haves), and, as a result, the receivers owe incredible loyalty to their 'patron'... Horizontal networks, par-

ticularly outside the sphere of influence of the patron, are actively discouraged. Dependency is created and mistrust of outsiders is generated. This type of social capital is prevalent in persistent poverty communities" (C.B.Flora citing C.M.Duncan, 1992).

Building on and contrasting with the work of Putnam, which looks at how social capital enhances a community's investment in physical and human capital (Putnam, 1993), Cornelia Flora has found that the way "physical capital is enhanced can either help or hurt social capital development" (C.Flora, 1994). This supports the work of Allen and others in

the late 1980's which emphasizes that focusing on one form of capital to the exclusion of others does not provide for sustainability, meaning that when decisions or programs are delivered "top down," social capital decreases and dependency increases. However, community-generated solutions and collaborative efforts involving diverse community sectors can build social capital—based on the horizontal nature of these efforts.

In her own work with rural communities, Cornelia has helped citizens sort out their goals, select meaningful indicators to monitor achievements, and develop the skills to do the data collection, documentation, and evaluation themselves. She shares her knowledge and experience, making it available to the layperson as well as the research/academic world. She participates in the creation of horizontal social capital rather than holding herself separate in a vertical system of people who have the knowledge.

### **NORTH FORK, CALIFORNIA: Chronology of Accomplishments**

July 1989 Sierra Vista National Scenic Byway designated by the Forest Service. The Byway begins in North Fork and one of the goals is to stimulate the economy of rural communities, such as North Fork.

April 1990 The Sierra Vista Scenic Byway Association is formed—a diverse group of local members with a common goal to promote and develop the Byway.

March 1991 The North Fork Town Restoration Committee is formed with a goal to restore and beautify the business district of North Fork so that tourists enroute on the Byway will be enticed to "stop and shop."

Nov. 1991 The entire community hosts a R/UDAT (Regional/Urban Design Assistance Team)—a team of architectural students and professors who assist North Fork residents in designing a new downtown area that will attract and accommodate the new tourism business. A pivotal point for many people—establishing strong community pride and a confidence in North Fork's ability to deal with change.

June 1992 Community hires a consultant to help write a vision for the future and an action plan to realize their goals (Forest Service "Economic Recovery" program).

July 1992 Through community efforts, the sewer system is doubled and the moratorium on new construction and expansion is lifted.

Sept. 1992 The North Fork Community Action Plan is complete—made possible through broad-based involvement; it is widely accepted and supported by the community.

Oct. 1992 The North Fork Community Development Council is formed as a nonprofit corporation to implement the Action Plan. The Board of Directors represents all major community organizations.

Feb. 1993 Community receives \$30,000 from the Forest Service and \$10,000 from Madera County to study value-added wood manufacturing and special forest products.

March 1993 Mater Engineering hired for value-added/special forest products study.

July 1993 Phase I of the study is complete.

Oct. 1993 North Fork holds its first annual Autumn Festival and Grizzly Century Bicycle Rally (along the 100-mile Scenic Byway).

Nov. 1993 Community receives the Forest Service's National Rural Community Assistance (RCA) "SPIRIT" Award.

June 1994 Phase II of the value-added study begins, as does implementation of the study's Phase I recommendations.

Summer 1994 The "Summer of '94 Project" begins—designed to improve the infrastructure of the business district and make the town more inviting. The project was funded by seven agencies and numerous donations (a total of \$1.5 million) in order to install a new water system, underground all utilities, reconstruct a dangerous and unsightly intersection, plant trees and other vegetation throughout town, repave the main road, install "theme" street light fixtures, and install signs on State Highway 41 to advertise the Scenic Byway and North Fork.

July 1994 The community receives \$190,000 from the Farmers Home Administration to hire a full-time Executive Director for the Community Development Council.

Sept. 1994 Outreach begins for an Executive Director of the Community Development Council.

Oct. 1994 Second Autumn Festival and Grizzly Century Bicycle Rally.

### **Forest Service and capital: tension between horizontal and hierarchical**

The hierarchical configuration of social capital in the Forest Service and its traditional partners (State Foresters) for delivering State & Private Forestry (S&PF) programs has had an impact on its approach to rural development. In addition to helping to shape the vision and lead new national programs aimed at providing direct assistance to rural communities, Ruth McWilliams, myself, and others around the country have had to expend energy in an effort to convert the hierarchical configuration to a horizontal system of social capital.

The struggle continues although many examples exist of successful transitions to horizontal configurations at the local Forest/District/Community level. Where the change has occurred, community members and leaders remark that the money coming through the programs is not that important; it's having the Forest Service at the table—working with them on common ground. In these communities, people are not focusing on county supremacy or home rule, but instead on their community and what they can do to make a difference. They see the Forest Service as an equal partner in the effort—part of the community capital, not part of the tensions.

On some Forests, and in higher levels in the Forest Service, the hierarchical configuration of social capital continues to reign, obscuring the value of the horizontally-based efforts. This inability to recognize the significance of the RCA effort is puzzling because there is tremendous interest in and support for RCA shown by other USDA agencies, the Department of Interior's Bureau of Land Management, GAO, numerous communi-

ties, universities, and several significant NGOs. The allegiance to the hierarchical configuration of social capital is quite strong—even though the ultimate goal of sustainable organizations and communities may be quite similar.

This attitude causes problems for rural Americans. For communities in which social capital is absent, little trust and very little interaction exists. Extreme isolation and high levels of conflict characterize such communities. I believe one of the reasons rural people cling to hierarchical structures and systems is an overwhelming fear that, without the hierarchical social capital, all social capital will vanish. When these same people, however, talk about what makes them proud of their rural heritage, they give examples of horizontal configurations—neighbors helping neighbors, people chipping in for the good of the whole, and finding empowerment in the effort; they don't refer to hierarchical capital, not the haves giving to the have-nots, not special interests fighting for a position, not power being exercised by the few.

To an interested observer, it would appear that the home rule, county supremacy, and militia movements work against horizontal systems, by rationalizing hierarchical structures (formal and informal) under the belief that their actions will prevent the total loss of social capital, thus ensuring community sustainability. Based on the structuralism model, their actions and behaviors are to be expected. The mistrust of others and the limited interaction with people who think or believe differently than they do means that people in such "communities of interest" are feeling impoverished—and not just in an economic sense. In rural areas, individuals and groups have been dependent on local natural resources for jobs and businesses. When more stringent environmental laws took away their power to influence local and national natural resource policy, some rural people began looking for ways to reduce dependency on single resources or industries and work collaboratively toward common goals. Others exhibited behavior which emphasized and emulated hierarchies while, at the same time, sought to eliminate or compete with other hierarchies (the western



county supremacy movement, for example, which seeks to seize federal lands and turn them over to state, county, or private control). This antagonistic behavior looks at the environmental and physical capital almost to the exclusion of all other facets of change in communities today. A collaborative focus would look at all four forms of community capital—working to enhance and increase them as parts of a whole. As much as the disaffected rural residents distrust government programs and employees, efforts such as the Forest Service's RCA and the BLM's Sustainable Communities initiative may provide the real grassroots, sustainable solutions the "home rule" people seek.

#### **Women who have been working with the social capital concept**

Christine Nota, Minarets District Ranger, Forest Service, is an experienced practitioner of the new approach to assisting rural communities and working on joint solutions to community and natural resource issues. She started working with the community of North Fork, California in 1989, before the Forest Service had written its "new" national strategy. She didn't have new policy or new authorities to guide her; she hadn't been sent any new funds. She did have conviction and vision—she knew someone had to make the first move to help North Fork find its future. She didn't know it at the time, but she was starting on a journey with the people of North Fork to build upon skills and dreams, giving them back their sense of pride while strengthening the social infrastructure (see chronology).

When Chris first focused on a new approach to working with the community of North Fork, many factions (ranchers, loggers, Forest Service, environmentalists, hydropower developers, Rancheria Indians, wilderness advocates, and others) tended to threaten individual and community relationships. Her efforts focused on including all interests, groups and individuals in the community who were interested in the survival of the town. Over time, the number of people personally involved in and committed to the focus on "community" increased (from 6 to 25 to 60 to nearly the whole population) and the existence of factions has greatly declined. Inclusiveness, collaboration, increased pride in North Fork, and renewed faith in their own ability to deal with change have gone hand-in-hand, even though the local sawmill went from a three- to two- to one-shift operation, and finally closed (at least partially due to the changes in timber management on the Sierra National Forest).

Not all communities wait for a crisis to mobilize resources and that's the approach Chris Nota and North Fork took. A big change was on the horizon, but they started

building a vision of a future which did not include a crisis. Instead, they sought out surplus resources other than money and took the risk of trusting former adversaries to work from the base of common concerns for "community" towards a shared vision.

They, like so many others, found that the definition of "resources" needs to be broadened—to include, not only money, but also space, expertise and skills, equipment, positions, reputations, and communication. Nota started with the basics: providing a meeting room, markers and easel paper, and facilitation/meeting organization skills; she helped the community progress from needing her to be a key spokesperson at the county board of supervisors' meetings to coaching them to do the presentations. She stepped out of the picture as the community's reputation and people's skills significantly improved. Through her networks, she found a program which provided landscape architecture students from Cal Poly, San Luis Obispo to conduct a community involvement effort which resulted in a design plan and increased community pride. Eventually the volunteer efforts and local resources were stretched about as far as they could go and North Fork needed someone full-time to help the community achieve its vision. They were able to leverage their past efforts to get funds for community personnel when the State of California created a new program. They had shown their commitment to action and willingness to take responsibility for their future, one of the program's criteria. North Fork was one of—if not the first—to qualify.

"Miss Anna" (Mrs. Henry) Neal, Outreach Coordinator for the Clifton Choctaw tribe in Gardner, Louisiana, is a natural leader who understands her people and her neighbors, is willing to start with whatever "surplus" resources she can find in order to build a stronger community, and knows how to grow more leaders in the process. Miss Anna (a title of respect and love used by many) spent most of her adult life in places other than Gardner, but she decided to move back home after she retired to try to help change the poor conditions in which people lived. Most had no water, no plumbing, raw sewage running in ditches, no vehicle for



work transportation, and not enough family income to pay for electricity and heat throughout the winter. Children struggled in school and many dropped out before completing high school. Adults who found jobs outside the community were forced to leave families behind and frequently quit earning incomes to return home due to the stress of the separation. The Clifton Choctaw are not a federally-recognized tribe and are not eligible for federal assistance. The community was in desperate need for leadership and other resources.

When Miss Anna returned she devoted her time to writing grant proposals and organizing community action: successful grants paid for water and sewage systems; organized community trash pickup started; and an after-school mentoring and tutoring program were first steps in her campaign for better education. She used programs available through the Catholic Diocese to build the education initiative. To house the after-school program, Miss Anna asked a local service club to donate a small building they were replacing as their meeting facility. Then Miss Anna talked them into moving the building to a small parcel of land closer to her people. As all this was happening, her husband Henry Neal was elected chief and added responsibilities came Miss Anna's way. She worked to get a grant to construct a small commercial building for native craft sales and a restaurant featuring traditional fry bread and other specialties.

At this point (1992), the local Forest Service District contacted Miss Anna about the community's eligibility for the new Economic Recovery program. Through the development and implementation of a Local Action Plan, the tribe was able to build on the skills, knowledge, and interests of its people and the locally available resources and markets: (1) a pine straw raking and baling business, (2) a small commercial greenhouse, which led to the idea of starting (3) a containerized-seedling nursery, which progressed into (4) the training of a planting crew. The nursery and crew compete for business on the National Forest lands and on others. Through one \$15,000 seed money grant from the Agency, Miss Anna has created year around, local jobs for 50 to 75 tribal members.

During a 1993 review of Forest Service RCA efforts in the southern United States, Miss Anna succinctly stated what her basic definition of "success" was for the tribe: she wants every household to have enough income to be able to afford heat and light all through the winter. She's come a long way to achieving that simple, but significant goal. And in the process, she has taken individual tribe members under her wing, coaching them and helping them see how their skills

and abilities fit into the big picture, and showing how to be caring, serving leaders. Her leadership abilities are recognized beyond the Clifton Choctaw community; people from neighboring communities come to her, saying, "Miss Anna, can you teach us to do what you are doing in your community?" And Miss Anna never says "No".

Miss Anna is committed to seeing the rest of her vision become a reality for herself and her people: a viable rural health clinic; home health care; an expanded seedling plantation which can supply a million seedlings annually; a Head Start program; federal recognition for the Clifton Choctaw; and she wants to appear on the Today show. With her talent for building social capital, her inclusive nature, ability to mobilize resources, and her successful networks, no one doubts Miss Anna's ability to achieve that vision.

### **The women's examples and the practitioners**

The Floras (1993) specifically identify three major dimensions of what they call "entrepreneurial social infrastructure." The three are—symbolic diversity, resource mobilization, and quality of linkages. Research and work with communities by the Floras, Chris Nota, Debbie Carr, Miss Anna, and field-level practitioners, indicate these three basic dimensions of social infrastructure are not static within communities, but are changeable and can be enhanced or depleted.

*Symbolic diversity* is an orientation by the whole community to work towards inclusiveness rather than exclusiveness and to work through conflict or controversy with constructive processes. When this component is present in a community, politics are depersonalized and public debate occurs which does not threaten personal or business relationships. People and institutions in the community focus on the current and future health of the community, not on winning or losing and not on who "we" and "they" are.

*Resource Mobilization* is the dimension of social infrastructure which relates to a community's ability to depend on its own resources to develop and to do so in a collaborative mode. In today's world, resource mobilization may mean innovative approaches rearranging resources or changing allocations of resources. But communities most in need of innovative approaches may see change as too risky since they have limited or overextended resources. They need at least some minimal *surplus* resources in order to take even small risks. Frequently traditional organizational structures prevent access to existing *surplus*, and restructuring of community systems is too threatening to individuals without the support of entrepreneurial social infrastructure. The Floras

(1993) found that much less entrepreneurial activity exists "in communities where resources are relatively concentrated in a few hands, either internal or external to the community, such as in mining or mill towns..." They have also noted that the ability to mobilize resources and create surplus in a rural community is directly tied to the ability to "risk collectively" instead of placing the risk and responsibility of change on a few. Perhaps this is why many people believe a community-level crisis is almost a requirement before a community will take the risks necessary to achieve real change? Perhaps such a crisis is a pivotal point when a community, knowingly or unknowingly, must choose a course of action. The community can (1) build horizontal structures to increase their access to limited resources or (2) seek to retain hierarchical social capital and maintain the concentration of resources in the hands of the few.

Part of resource mobilization, say the Floras, includes a "willingness to invest private resources locally. Enterprises in entrepreneurial communities are able to obtain both debt and equity capital locally." For example, the design plan for North Fork included undergrounding of all utility lines; the local utilities contributed their people and equipment to this effort and many others donated funds to match the contributions by seven agencies for a \$1.5 million multifaceted project. This investment didn't occur the first year the community started working on the idea of redesigning their downtown, but the competence and confidence led to larger accomplishments. In communities with entrepreneurial social infrastructure, non-monetary capital is also available from individuals to assist enterprises which are expected to benefit the whole community. For the Autumn Festival in North Fork, the school district supplies space for activities, the community center holds an art show, many people devote hours of planning and preparation time, and the employees of the Minarets Ranger District prepare and serve a community-wide barbecue.

All types of resources can become capital which can be leveraged, but more importantly, the ability to initiate self-investment provides increased local control and flexibility.

*Quality of Linkages* or networks form the third dimension of social infrastructure and are critical to enabling resources to flow within and outside the community. The Floras (1993) believe that networks need to exhibit diversity so that "[v]oices are heard that are different from traditional elites. The process of decision making is opened up. Leadership is spread broadly, including both men and women, different ethnic groups, different races, different classes, and differ-

ent clientele. Network diversity allows communities to be more innovative in setting the development agenda."

Communities need horizontal and vertical networks. Horizontal networks facilitate "lateral learning" since people, like Miss Anna's neighbors, tend to learn more from people who are like themselves. Vertical networks with two-way information channels are essential for communities to link to resources above or beyond themselves and to link to specific groups within the community. The community of North Fork has substantially increased the diversity of people who are active network participants as well as the number of horizontal and vertical networks in which the community is linked to learning—and then teaching others. Several other small foothill communities at the interface of the Sierra National Forest and the San Juaquin Valley have turned to North Fork for advice, expertise, and moral support. Some of these communities had given up hope in finding solutions they could live with until they saw the changes in North Fork—changes which were not tied to a particular industry or external forces, rather changes created and sustained by the people and a practical vision of what is possible and desirable. Based on this new energy and momentum, several of these communities are working together to address regional issues and opportunities, thus using their new network to increase their ability to find surplus resources and build even more community capital.

I believe the importance of networks also applies to the "community of interest" that has formed around professionals and practitioners who are building sustainable rural communities. In this community of interest, we are working very hard to expand networks in all directions, to include as many different views and voices as possible, and to leverage scarce resources to benefit the greater good. People like Cornelia Butler Flora, Deborah Carr, and Ruth McWilliams are devoting their life's work to rural communities, and they are significant nodes in the ever-enlarging horizontal and vertical networks relevant to building sustainable communities.

Becoming part of the capital available to a group or community is also a strategy we can apply within our agencies/organizations. Researchers like Carr have decided it is more important to help people (build capital) than it is to conform to conventional behavior which often discourages researchers from sharing and collaborating with each other or

with practitioners, thus risking that someone might steal their ideas and negatively impact their opportunities for promotion. Carr and other action-oriented researchers have decided to not only take information from, but also contribute knowledge and experience directly to, the communities they study and to the community of professionals who are working intently towards the common goal of sustainable rural communities. This type of give and take provides a good example of how researchers can contribute to the social capital in a community (i.e. building trust and reciprocity).

With strong beliefs in the importance of community-based and community-led rural development efforts, McWilliams not only led the Forest Service strategic planning process, but has also challenged us to expand our efforts beyond traditional partners and conventional processes. The number and diversity of Forest Service employees and partners now involved in community assistance work is directly related to the vision and active implementation of that vision by Ruth and others who believe sustainable solutions can be found to many of the natural resource problems and home rule issues in this country through collaborative, broad-based efforts with communities of place and communities of interest (McWilliams and Patten, 1995).

The social concepts covered in this paper identify a community as a "system" and require us to look at the overall system—the interaction of the parts, as well as the parts themselves. These concepts also give us some clues about the relationships between communities and the ecosystems of which they are a part. A great deal of credit goes to leaders in the rural development arena who can keep the parts and the whole in perspective; they challenge us to build social capital and, thus, sustainable communities.

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Photos these pages: page 5, upper left—Debbie Carr, middle column—Cornelia Butler Flora, upper right—Ruth McWilliams; page 7, lower left—Christine Nota, lower right—Miss Anna Neal

# Silicon Snake Oil

A book by Clifford Stoll

Doubleday, New York. 1995.

Reviewed by  
Jonne Hower

I'm not what you would call computer literate. Sure, I use Word Perfect, but, I think, only because I learned to type at an early age. (Since high school, I've drafted almost everything I've ever written with a keyboard. Two reasons: I type faster than I can handwrite and I, at least, can easily read what I've typed. Friends often ask me, however, to translate any notes I write to them.) So, I use a computer at work but I don't have one at home. I figure I've lived a long time without 'em and life is okay.

However, my office, and the rest of the agency are going electronic, big time. We are all getting computer work stations which will connect not only within the office, but across the country. So, I was intrigued by the title of this book when I was book browsing at the book store.

From the first, I thought I really liked this book. Stoll uses short paragraphs with great sound bites (bytes?) which played to my sense of humor and my biases.

*Being online conveys a strange type of prestige. Those with modems display their network addresses on business cards and letterheads. What was once as geeky as a pocket protector has become a status symbol. It's the ultimate revenge of the nerds.*

Alas, however, (or as Stoll is wont to write: *Yousa!*), Stoll made me think. In chapters titles as long as some short stories (such as *Comparing the Digital Tools of Computing, Such as Image Manipulation, with the Physical Tools We're Leaving Behind; This Chapter is Heavily Biased by the Author's Astronomical Bent*), Stoll questions where we as a society are really going with computers.

*Fancy backgrounds and multicolor borders .... [S]pecial fonts and classy paper emphasize the designer's message. Pullout quotes and insert headlines flash the editor's point of view....Such eye candy gets in the way of the author's message. It prevents me from searching out fallacies in logic. The typography dilutes the presentation.*

*Copying and modifying—that's the computer's strong suit. As a result I find draw-*

*ings made from replicated graphics....simple montages...[s]tick people instead of hand-drawn illustration. Repetition rather than creativity.*

Popular business and management thinking indicates that computers will increase the efficiency and productivity of American business. Stoll wonders if that is so?

*Electronic mail is said to give cheap, immediate communications.... I find e-mail to be often undependable and annoying to access.*

Or,

*Since the networks rely on the written word, you'd expect a rebirth of reading and writing. The internet should be a garden for literate, well-trained users ....but instead ....mediocre writing and poorly-thought out arguments roll into my modem.*

But, most compelling is a brief story Stoll relates as an exchange professor to Nanjing, China. Using broken Mandarin and a desktop computer, Stoll thought to impress a Chinese astronomer who was using 12 abacus to run analyses on observational (and therefore unreliable) star data from the Sung and Ming dynasties. But, spitting out data and graphs isn't really the critical part, as Stoll learned, when the astronomer indicated he had developed a complex method of analyzing data that took into account the accuracy of different observers and ambiguities in the historical record. Stoll writes:

*Having a computer, I had naturally cast the problem as simple data analysis....but the real challenge was understanding the data and finding a way to use it (emphasis added).*

In a chapter titled *An Inquiry into Mail, an Experiment with the Post Office, and a Comment on Cryptography*, Stoll describes his personal experiment of having his brother mail postcards to him over a two month period. He contrasts this to an equal number of e-mail letters which he sent to himself from five different remote accounts. Most e-mail letters arrived within three hours; however, five letters never made it; three bounced back from

crashed computers, and two disappeared into computer never-never land, never to be either recovered or identified as non-delivered. His conclusion: use the US Postal Service. The rest of the chapter deals with the ease with which one can read another's e-mail. Encryption, scrambling the words into code is one solution. Of course, the receiver needs to know how to unscramble them. Sent over the network, the code could just as easily be read. Stoll's solution: use the US Postal Service.

And finally, Stoll addresses the question of libraries-on-line. Project Gutenberg, at the Illinois Benedictine College, has a goal to have 10,000 books scanned into the system by 2001. Since 1971, this entirely volunteer project has scanned in 200 volumes. But, contrast this with the 40,000 books published yearly. Those of us who like books might be wise to keep our libraries well-used and to support their funding.

Finally, the section which strikes fear into my heart: his description of the Unix, the very system being installed in my agency. He quotes Bill Cheswick of AT&T Bell Laboratories:

*"Unix was designed as a power tool for the professional user. It's more like a locomotive or an aircraft than a car. It's a bear to set up and a nightmare to administer. It wasn't meant for Granny."*

Now, I'm not sure I like being referred to as Granny. I still think of myself as young. But, I have the sinking feeling that his reference to "professional" doesn't refer to natural resource professional.

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REALLY SKILLFUL LOGGING IS OFTEN HARD TO DETECT IN A UNIT.

## NEW EQUIPMENT & NEW FLEXIBILITY MARK THE *SUCCESSFUL* LOGGER

RUTH CARAPPELLA

If you don't log, your view of logging and the logging industry may be shaped by the pictures you see in the news and by what you see in the woods. Be careful. The logging units you don't see may better reflect current industry practices.

It's not that the new units are hidden. For instance, in my part of Idaho, Bob Danielson, owner of Danielson Logging of St. Maries, Idaho, recently logged an area next to and in view of the St. Maries golf course. Mike Reynolds Logging of Priest River has been working in an area surrounded by private homes near the resort town of Sandpoint. The simple fact is, changes in logging equipment and a growing awareness in the timber industry of the value of protecting all resources have changed the face of logging today.

If you aren't convinced that logging has changed, consider Ken Miller, pictured top right, who manages Ken Miller Logging, Inc. of Orofino, Idaho. If you were to ask Miller what makes his logging company successful, he would say with a laugh, "We're not successful yet." Walking a unit the company was hired to log last year for the Potlatch Corporation and talking with the Potlatch managers responsible for the ground Miller logged suggests otherwise. Miller's approach—always seeking better ways to do things—keeps Ken Miller Logging, Inc. competitively logging about 13 million board feet a year.

Many of the jobs Miller handles are for Potlatch Corporation on their ground. The Potlatch Corporation, with national headquarters in San Francisco, is one of Idaho's largest timber industry companies. From their Lewiston, Idaho site on the Clearwater River where it joins the Snake River, Potlatch manages land, manufactures dimensional lumber, makes plywood, oriented strand board, wafer board, and other similar products; at the Lewiston

plant, the company produces several types of paper, and chips wood for energy production. Potlatch hires contractors and loggers, like Miller, for specific jobs.

Miller's father started his logging company in the late 1950's, and Ken always figured that one day he would assume leadership of the operation. To prepare, he attended the University of Idaho, and was one of the first to graduate with a new degree in operations management. Miller will tell you though, that knowledge gained in the woods outweighs classroom learning. He knows. He started running the company about six years ago after his father's unexpected death. "Some crews stayed on, but a lot of the guys left. The first couple of years were pretty rough. It wasn't any fun. But, a person learns from hardships."

Now, Miller Logging employs about 30 people handling a variety of operations including road construction, conventional logging, and mechanized logging. It's the mechanized side of Miller's operation that highlights the changes in the industry. On the mechanized side, Miller runs a Timbco 445 feller buncher, a Cat 518 grapple skidder, and a Timberline ST 3550 Processor.

Timbco feller bunchers are very maneuverable in spite of the fact that they are about as big as a full-sized UPS van. These track-mounted machines can climb fairly steep slopes. The operator sits in a small cab with large windows. The cab remains level even on slopes because of a 4-way hydraulic leveling system. A large boom mounted behind the cab extends up over the top of the machine and then down, placing the cutting and gripping head in direct view of the operator. The operator maneuvers the cutting head to each tree, grips it, and then saws it off with a bar saw similar to a chainsaw bar.



Finally, the operator drives the machine, with the tree still held in a vertical position, to a spot near a skid trail. Then he carefully places the tree with a bunch of others.

The Timbco, and feller bunchers in general, have played a key role in changing the timber industry. First, the Timbco does not tear up the ground, even on slopes. Trees are never dragged on the ground like they are with skidders and tractors. Also, the Timbco has a more even weight distribution over its tracks than does a loaded skidder. This helps reduce ground pressure. If needed, the operator can place slash in the trail to help cushion it's way. But most important, a feller buncher controls the fall of the tree as well as the placement of it on the ground after it has been cut—even in dense stands. Not only are there no "hangups," when a tree gets caught among the branches of surrounding trees, there are fewer scrapes and broken tops in neighboring trees. In comparison to hand falling, mechanized falling is safer, faster, and less damaging. Areas that were not easily logged by hand falling, can be logged with a Timbco. As Miller puts it, with hand falling in small dense timber,

The Timbco operator left "rub stumps" along the trail to protect the "leave trees." This picture shows how well the technique worked—no scarring at all on the leave tree.



"you could spend all day beating the limbs off the trees and still not get any work done." In years gone by, these stands were not thinned because it took too long and fallers damaged standing trees. With the Timbco, the grapple skidders, and the Timberline processor, he feels he can do a good job of thinning tightly spaced, limby stands. He expects to see areas harvested in the 50's and 60's coming on line now for commercial thinnings.

#### **The McGary Creek experiment: Reduced road spacing**

Dwaine Johnson, area manager for Potlatch's Bovill team, hired Miller to log a 180-acre unit in the McGary Creek area northwest of Orofino, Idaho. Johnson and others on his team wanted to evaluate the costs and consequences of increased road spacing. In the past, roads were often constructed at 1000 foot intervals. Here on McGary Creek, roads were spaced an average of 2000 to 2500 feet apart. On this unit, that translated into some very long skids of over a half mile long with 20 minute turn times.

Managers like Johnson and others on his team are searching for new standards. As Johnson puts it, "The philosophy on road layout and spacing is a moving target." In the future, harvest designs will incorporate greater spacing between roads to reduce logging costs and to reduce the impacts of logging. Potlatch was interested in testing Miller's equipment trio under these conditions.

#### **Building roads and falling trees**

Miller encouraged his employees to try new approaches to make logging under these conditions both profitable for his company and easy on the ground. For instance, we watched as the Timbco operator worked his way to the back of this

grand fir, Douglas fir, and cedar unit; to start falling he built trails using an interesting construction technique. He pulled the trees in the trail up by the roots and placed them alongside the trail. Later, as he worked his way back toward the road, he cut the roots free and bunched those trees with others. This construction method produced surprisingly little ground disturbance. Miller used no other machinery to shape the trails. On many trails the duff and forest litter remained in place and little soil showed through even after the unit was completely logged; however, trails did show significantly higher impacts closer to the landing.

An unusually hot and dry summer created both opportunities and problems for Miller. Each afternoon, the Timbco operator took advantage of his fire watch to walk the unit and to figure out where he needed to go for his next day's work with the capability of the skidder in mind.



Looking down through the unit to the road. This area had a little higher removal percentage (note large number of stumps) but no residual damage.

#### **Skidding whole trees to the landing**

The skidder backs up to each pile of trees laid down by the Timbco operator, closes the grapple arms around the bunch, and heads down the trail with them into the landing. If the skidder can back up to the trees easily, he maneuvers less, and does less damage to the ground. Miller says, "We tried to make the least impact on the ground. It might have increased the feller buncher production to have closer trails, but we tried to put the trails where the skidder could operate the best. Closer trail spacing would have helped production, but it would have also defeated the purpose of what we are trying to do out here. Standing trees would have had greater exposure to skidding damage."

The hot dry weather had its downside. Miller says, "Usually weather related logging problems are caused by wet conditions." But this time he found himself wishing for no more clear, sunny days. He faced three problems: excessive dust, decreased maneuverability, and equipment overheating. Dust causes trails to rut up almost like mud. Dry soils lack cohesion—consequently, the skidder had a harder time climbing slopes. To combat the maneuverability problem, Miller could have run chains on the skidder, but, he chose not to because running chains would have compounded the dust problem.

A second weather factor was heat. Slopes averaging close to 35 percent across the unit and long turn times would have created a serious overheating problem for the skidder at high temperatures. The skidder operator compensated and took the long skids in the cooler mornings, saving the shorter skids for later in the day.

#### **Processing trees into logs**

Bringing 600 thousand board feet (MBF) to a single road with skid distances of up to 2500 feet produced a different set of problems for the Timberline processor: mountains of slash. Because the Timbco maneuvers the trees to the ground, very few tops break out—almost all come into the landing. Compounding the problem, in submerchantable thickets, the Timbco needed to fell and skid small stems to meet the 20 foot spacing requirements.

With no large landing areas available, the Timberline—which removes branches, measures lengths, and then cuts logs to the most favorable length—had to set logs in the middle of the road. When a landing area got too congested, the Timberline moved to a new location, allowing time for the area to be cleaned up before resuming

work there. For some spots, the process was repeated four times.

More sophisticated logging systems rely on feller bunchers that can process the trees into logs in the woods. Although these refined systems help eliminate the problem of giant slash piles, they have another drawback. When coupled with a forwarder—a cross between a log truck and an oversize all-terrain vehicle—these systems are expensive. A complete harvester/forwarder setup can cost about \$750,000. Miller's system cost far less, but exactly how much less he didn't say. He says that costs and expenses are subjects he prefers not to talk, or think, too much about. With a grin he quipped that if he won the then-current Idaho state lottery (\$30 million), he "could log for another year" without any problems!

### Increased road spacing solves some problems and increases others

After using the grapple skidder and Timberline processor, towering piles of slash loom along the road. Johnson says next time Potlatch takes on a thinning like this, the company will look at other ways to deal with slash. Otherwise he thinks this experiment paid off. He says that he and the other land managers on his team would not have harvested in this area in the past. But now, the team will propose more units like this. The company will now go on to fertilize this stand, encouraging rapid diameter growth. Additionally, he thinks the area has plenty of thickets for wildlife, but now that it's more open, he thinks it will get more wildlife use. Recreationists will have easier access to an area that received little use before. Miller's operators exercised care near all streams and drainages so Johnson sees little or no effect upon water quality because of the harvest work.

After logging was completed, Johnson and other Potlatch managers flew over the harvested area in a helicopter. They noted with favor that edges were vague. They could clearly see small openings, but for the most part, the unit was not distinct enough to spot easily from the air.

It was hard for me to see the edges of the unit as we drove into and out of the harvested area. Even within the unit, many areas were virtually untouched. Johnson says that often, when harvesting an area like this, hand crews come in afterward to fall the largest trees. Here, they left those trees. The result was a

Looking at the unit in the background, it is hard to believe they pulled 3-4 MBF per acre out of it. In the foreground, note towering piles of slash and the road.



variety of size and age classes with lots of variation in stand density. Main skid trails will be visible for many years, but signs of logging will be hard to spot in just a few years in most of the area. In fact, signs of logging were hard to spot in some portions of the unit even as logging work was being completed along the road.

### The future for loggers

From Johnson and Miller's perspective, this type of harvest will boost the image of logging in the eyes of the public. The question is, will the public see it?

Miller believes increased technology will help push logging toward a new future. But he says, technology alone won't make it work. Loggers need to be adaptable in order to achieve flexibility in a changing marketplace. To achieve this flexibility, Miller and many other loggers attend yearly classes to learn about new issues. In the last three years, Miller says, water quality has gone from something that he didn't talk about to an issue he considers every day. He believes that clearcutting has taken its place as an occasional forestry tool, not a standard treatment. And if the logging industry keeps making progress forward with new technology and innovative ideas, logging units will probably still dot the landscape—even if you can't see them.

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**Pruning red tape in the urban forest**

The City of New York Department of Parks and Recreation receives thousands of requests for trees each year. Someone has to set priorities, and that someone is the local community board. New York City has 59 community boards that decide on complaints and requests for services, including who receives funds for tree planting.... Officials say the waiting period is one or two years, and they admit the process can be frustrating... Even if you have the money to plant a tree yourself, you may still have to obtain several permits before you can put shovel to dirt. First, there's the "street-tree planting permit" from your borough forestry office. Then you may also need a "utility-line clearance and pavement-breaking permit" from the city's Department of Transportation. You'll have to shell out \$135 for that one—the fee for pavement removal. And if your neighborhood is a designated landmark district, you may not be able to plant a tree at all. You'll need to call the Landmarks Preservation Commission to find out....

Apartment dwellers may not have trees in front of their building and may not be able to plant any because of utilities or a subway beneath the street. Many of those individuals develop a feeling of ownership toward trees in a nearby park. For those who want to plant park trees or help care for them, New York, like a number of other cities, offers various volunteer opportunities. One is to become a volunteer helping to restore Central Park's 843 acres of wildlife habitat, which includes a patch of black cherry and black locust famous among birdwatchers for its seasonal warbler migration.

The Department of Parks and Recreation is barely able to replant enough to keep up with the 10,000 that die each year. The city's 6,300 miles of streets have room for more than one million additional trees. With a total of 2.8 million trees, the city has a long way to go to have one tree for each of its 7.7 million human residents.

The Parks Department's 64 foresters spend much of their time removing dead trees and pruning hazardous limbs. Volunteer citizen pruners trained by *Trees New York* take care of newly planted trees. But they cannot replace the 144 professional pruners and climbers on staff a decade ago.

Norah Deakin Davis, *American Forests*, July/August 1995

**Humans merely confuse what moral philosophers call "natural" with what biologists call "natural." Direct experimental manipulation of all relevant variables is rarely possible**

Ecologists and policymakers often enjoin their colleagues to preserve or conserve "natural systems." Likewise, landscape and community ecologists often presuppose concepts of "natural places" "natural divisions," "natural experiments," and "natural laboratories." Such concepts of what is natural and what is not natural are problematic for at least four reasons:

1. Defining ecological phenomena as "natural" if they are not subject to human intervention is counterfactual because human intervention is virtually ubiquitous. Moreover, as the Yellowstone fires showed, defining human intervention as "unnatural" begs a number of questions about ecological disturbances.
2. Allegedly "natural" phenomena in ecology often must be defined in highly stipulative ways because ecological communities, ecosystems, landscapes, and so on, are continually changing.
3. Seeking to preserve or conserve "natural systems" or "natural communities" is difficult because the ecosystem and community concepts have been used in inconsistent/ambiguous ways throughout this century, with no clear consensus on a precise definition of either term.
4. The goal of preserving natural systems or landscapes presupposes a number of value judgments, especially about the ends and goals of ecological activity.

Therefore, preserving natural systems and natural communities will require ethical and methodological analyses as well as increased rigor and precision in ecological studies. At least part of this rigor should focus on making explicit our implicit value judgments: inferences that beg the question, stipulative definitions, and ambiguous accounts of what is natural and valuable.

Kristin S. Shrader-Frechette and Earl D. McCoy, *Forest & Conservation History*, July 1995.

**These girls should consider enrolling at the Citadel**

Fifteen year-old Cassie Clark of Savannah, Georgia, hoisted a total lift of 297.5 pounds when competing in the National Junior Weightlifting Championships. That met the qualifying standards for men as well as women, making her the first female on the men's national junior squad. But she's not alone: her best friend, 16-year-old Stephanie Bodie, qualified a month and a half later.

*Ms (Magazine)*, Vol. 5 No 4.

**The Exxon Valdez was a potent political symbol**

Environmentalists seized upon this oily black eye to lobby for passage of the Oil Pollution Act of 1990, tighter rules for tanker traffic, and much better navigation systems. Congress even voted for the oil shipping industry to switch to double-hulled tankers over the next 20 years, although it more recently voted for regulatory "reforms" under the Contract With America that could delay this change forever. Conservatives, on the other hand, waited for the oily mess to clear and then branded environmentalists as alarmists. In 1992 in *The Way Things Ought To Be*, Rush Limbaugh claimed that Prince William Sound had taken care of itself, a giant version of a cat licking itself clean with waves, proof of the "incredibly resilient power of the planet. . .would you believe that more fish were caught last year than ever before in Prince William Sound?"

In truth, six years after the disaster, we now know that the Exxon Valdez should be a symbol, if anything, of the complexity of an ecosystem, Prince William Sound, where nature has proven to be both more resilient and more vulnerable than scientists expected. At first driven by lawyers fighting over billions of dollars in potential damages and now supported by a \$900 million restoration and research fund, hundreds of experts from universities and government agencies have studied the impact of the black tides on everything from killer whales to periwinkles, salmon runs to archaeological sites. They've discovered many things, such as the first nests of reclusive harlequin ducks ever found outside of Iceland, and learned a few big lessons.

And they've found that the industrial-strength cleanup that cost Exxon \$2.5 billion was a mistake. "The bottom line is that it didn't make any difference," says Alan Mearns, head of a NOAA team still watching the return of marine life to the intertidal zone along the shore. "The assumption was that if it's oiled it must be

dead," he says. "The assumption was wrong." Work crews sprayed the rocky beaches with scalding water that melted the oil, but they inadvertently killed all of the creatures and plants that still thrived under the black glop. "The washed sites had to start from zero," he says, "while the oiled sites were recovering rapidly by the end of the first year."

Some animals, like humpback whales, basically dodged the disaster. Others swam right into it, even the harbor seals that scientists had assumed would choose clean water and clean rocks for coming out on land. Perhaps 300 died, drowned in some cases, after suffering brain lesions that may have been caused by breathing the oily fumes. Perhaps the worst-hit creatures were the common murre, a sea bird that fills the niche of penguins along this coastline.

Bald eagles on the other hand, have already recovered after losing 200 to 900 birds. Obviously, not all animals are alike. Rush Limbaugh's fishing forecast proved to be dead wrong. The salmon and herring runs collapsed in 1993 and still suffer in Prince William Sound, while the rest of Alaska prospers.

James Ayers, former executive director of the Trustee Council set up to administer the \$900 million restoration and research fund, predicts that his agency's work will take 20 to 50 years. "The Exxon Valdez oil spill was undoubtedly one of the most significant environmental disasters ever to hit North America," he says.

Will Nixon, *E, The Environmental Magazine*, October 1995

### Firefighting: Decision-making under stress

Dr. Curt Braun, a psychologist at the University of Idaho, points out concerning accidents that "the largest limiting factor on a large fire will be the people you send there." He cited air-crash studies that used to focus on mechanical failure, but now look at human error—due to the excellence of modern airplanes' mechanical components.

Fire-fighting equipment, from nozzles to Nomex, has also made great technological improvements. So great, in fact, that, like aircraft, the probability of failure is now most likely a human factor rather than an equipment-related problem. But even more worrisome is Braun's observation that the quality of today's fire-fighting equipment may be encouraging firefighters to take even greater risks.

Environmental risk is one constant in wildland fire fighting. The only factor that influences accidents is human behavior, and the severity of the accident is a

function of the degree of environmental risk and hazardous behavior. By changing behavior, accidents and injuries can be reduced. And training can be used to change behavior. "Risky behaviors are known by employees and managers," said Braun, "they're obvious."

Safety is also tied to good decision-making which is difficult when one stirs in stress, multiple pieces of information to process, and emotional factors such as the potential loss of property and lives—factors which firefighters often deal with. People tend to assign hierarchy to information; hence, the order in which information is received influences decision-making. People also tend to focus on what they believe are the most salient pieces of information. Errors also occur if all information is treated equally—without bias or attention to the quality of the source. Add stress, and decision-making becomes more difficult, encouraging a shift from deliberate analysis to snap judgement. One may fail to consider alternatives, finding it difficult to retrieve information from long-term memory.

The situation may actually worsen when a group tackles decision-making in a stressful environment. In general, individuals participating in a group decision-making process do not participate to the same degree as if they were formulating an independent decision. In these situations, it is important to promote vigorous discussion. This will help to draw forth important information and viable options.

Discussion is vital because groups of people faced with impossible odds tend to take greater risks. Individuals within the group want to believe the group will produce a better-quality decision than can be reached individually. But the quality of the group decision can be no better than the decision-making capabilities of the group and people making decisions in situations where losses are involved tend to take risks. Decisions made without feedback may reflect individual biases,

and individuals may forget or discount important decision-making factors. In such situations, an individual may believe that he or she has control over random events. It is also likely that the quality of the information received will not be questioned, and less time will be spent seeking new information or exploring alternatives. Thus, without feedback, decision-makers tend to seek only confirmation. Fatigue is another factor that contributes to poor decision-making. The speed and accuracy of mental processes, and vigilant behavior, are compromised.

Clearly, fire managers need to further explore and understand firefighters' physical and mental needs if safety is to be of paramount importance. Training must be maintained at high levels, and be continuous throughout a firefighter's career. And a fire assignment must not exceed the knowledge and experience level of the least-experienced member of a fire crew. "The fire will go out regardless of suppression efforts, said Braun. "There must be another goal for suppression."

Bria Ballou, Oregon Department of Forestry *Forest Log*, May-June 1995

### Tip-toeing through the goose poo

Giant Canada geese, one of 11 subspecies of Canada geese found in North America, were once considered extinct. Luckily, they were not. From a few hundred birds, identified near Rochester, Minnesota, the successful restoration of giant Canadas to much of the United States and Canada has delighted millions of people. However, the characteristics of the geese that allowed wildlife managers to repopulate the countryside with geese are the same characteristics that lead to these birds populating cities.

They are more sedentary than their smaller cousins and don't always migrate. The geese breed when they reach two

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## Research

In

## Progress

Focus on:

In search of the

monster

dry rot fungus.

Field notes from

Scotland.

by Carol Clausen

As a microbiologist at the USDA's Forest Products Laboratory for the past 10 years, I have made friends with a number of foreign scientists who have visited the lab. In 1994, a long time friend and colleague invited me for a reciprocal visit to his lab at the University of Abertay, Dundee, Scotland. I was elated at the opportunity to visit the United Kingdom for four weeks on a scientific exchange program.

The goal of this trip was to exchange techniques for the early detection of fungal decay in wood. Antibodies made in response to enzymes of the wood decay fungus are used to detect the fungus before the wood is permanently damaged. The research group in Scotland has their own technique, as does our research group, and we each secretly think that "ours" is better than "theirs." Friendly rivalry among colleagues adds an element of enthusiasm to research!

I had just developed a new method similar, in style only, to the early pregnancy tests that one sees in the drugstore. The Scots were eager to see how well it worked and to compare it to their best method of detection.

From the day of my arrival, there were hints of a field trip to a castle. I had proposed obtaining field samples during my visit, but I had envisioned sampling telephone poles, not a castle! I wondered how I could ever take samples of wood from the beautiful rooms of a castle without leaving signs of drill holes. (A coworker from the Forest Products Lab joked via E-mail that she thought castles were made of stone, not wood.) Castles dot the countryside in Scotland, and their existence seems to be taken for granted by the Scots.

My hosts were delighted to see how intrigued I was with every one of them.

One of the graduate students from the University of Abertay, Dundee, was trying to control dry rot in one room of a particular castle. The dry rot organism infecting this room was the most common wood-rotting fungus in the United Kingdom. It grows aggressively under cool, moist conditions. Therefore, a castle was a perfect incubator.

The first two weeks of my stay passed with no word of the field trip. The caretaker of the castle was either on vacation or could not be reached. The trip was eventually postponed until the final week of my stay. Just when I was certain there would be no trip, the plan was finalized.

Taymouth Castle is located at the mouth of the River Tay near Kenmore, Scotland. Taymouth has about 130 rooms and was built in 1801. Like other Scottish castles constructed in the 19th century, Taymouth was a lavish residence rather than a military stronghold. Taymouth was built for the Earls of Breadalbane, and it is historically important to the Scots as Queen Victoria's honeymoon residence. An entire wing was built onto the castle in honor of her marriage.

Taymouth Castle was inherited by its current owner, along with the surrounding golf course and trout stream. The owner also inherited just enough money to pay the death tax or inheritance tax. Unfortunately there was no money left for the upkeep of the property. The trout stream and greens fees were by far the most profitable assets.

In the west wing of the castle, there were numerous rooms of elaborately carved wooden trim, gold leaf paint,

crystal chandeliers, stained glass, and massive wooden furnishings. Selected rooms in this wing were rented for conferences. I was told that a conference at Taymouth in the dead of winter is not a pleasurable experience no matter how beautiful the surroundings or how many clothes you have on. It cannot be heated to a comfortable temperature!

The condition of the east wing was a severe contrast to the west wing. It was estimated that the rooms in the east wing had been infected and reinfected with the dry rot fungus for nearly 50 years due to roof drainage problems. To enter this wing, we had to tip-toe around the edges of plywood and metal sheets that covered the hole where the floor used to be. The decay had spread from the floor to the wainscoting in the hall. A glass roof in what used to be a kitchen leaked, as did many other sections of the roof.

There was evidence of extensive and repeated remedial treatments with chemicals. One room had literally been painted with creosote in an effort to halt decay. Large sections of wall had been removed in other rooms to stop decay. The efforts seemed to be in vain—the damage was so widespread! The experimental room was selected because it initially contained only one small fruiting body of the decay fungus. The crawl space beneath the floor could easily be monitored by removing a few floor boards. The potential to arrest decay in this room was real when the project began.

The experiment being conducted in this room involved spraying spores of a biological control fungus under the floor boards. The biocontrol fungus is a natural

enemy of the decay fungus when it colonizes adjacent wood. The graduate student hoped to colonize the floor joists with the biocontrol fungus and control the spread of the decay organism.

After the damp, unheated room was sprayed with spores of the biocontrol fungus, the room was monitored monthly for moisture, spread of the decay fungus, and colonization of the biocontrol fungus. Wood samples were obtained for testing with the early decay detection techniques. Removing the floor boards for evaluation was never a problem. Within a few months, the floor surrounding the original fruiting body had collapsed under its own weight!

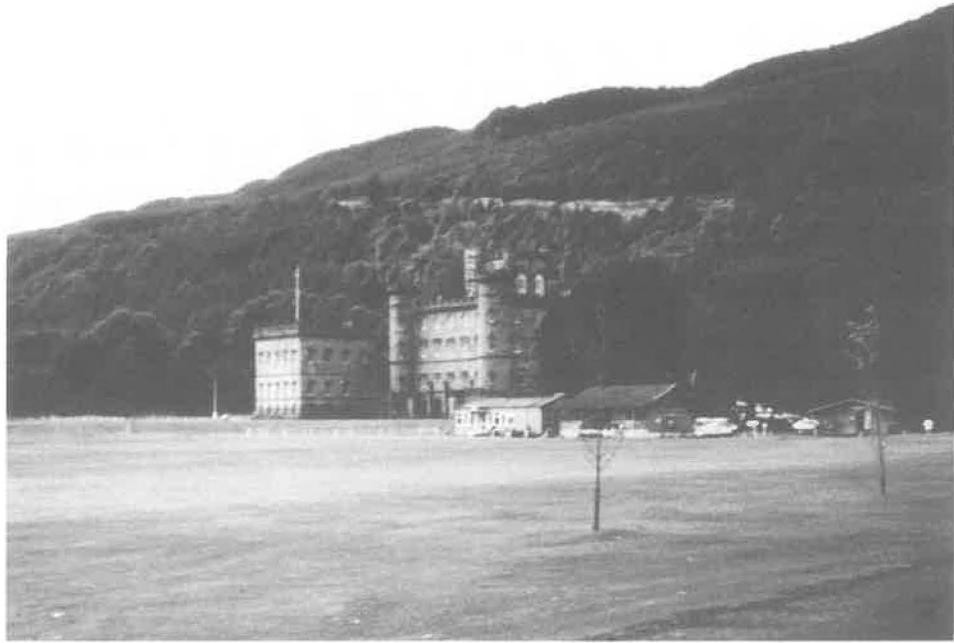
By the day of my visit, 10 months after the test began, the fruiting body had grown to approximately 16' X 16'! I was astonished by the size of the organism. It was obvious that the decay fungus had won the battle. The poor biocontrol fungus never had a chance, and the graduate student had to report negative results.

My original concerns about leaving drill holes from my samples now turned to worries about finding enough intact wood to test. The decay detection tests were quite useful, despite the obvious destruction. Using both the Forest Products Lab method and the Scottish test revealed that the two tests had different requirements for success. I thought, secretly, that my test was quicker and more sensitive.

The castle project is now concluding, and we are currently analyzing the final samples in our respective labs. I will never forget my peculiar field trip to Taymouth Castle. A final note: the friendly rivalry continues.

*Carol Clausen is a Microbiologist at the Forest Products Laboratory. She has a B.S. in Biology from Western Illinois University and a M.S. in Bacteriology from the University of Wisconsin - Madison.*

**Photos:** Taymouth Castle from a distance; and the dry-rot fungus growing in the experimental room in Taymouth Castle.



# CRACKS IN YOUR CRYSTAL BALL? Scenario Planning to the Rescue

**Barb Springer Beck**

How good are you at predicting the future? If you're like most natural resource managers, you're frustrated. Past ways of doing business aren't working, past assumptions aren't proving true. So, how are you to chart a course for the future? Let me suggest a tool I believe can be effective for you, scenario planning. It can increase your level of confidence and help you think long term in an uncertain world.

The art of scenario planning is based on the premise that we can *no longer* predict the future with any certainty. What a relief to be able to admit that! Scenario planning isn't about predicting the future. It's about developing stories and hypotheses about different possible futures. Scenario planning leads to choices with an understanding of how they *might* turn out. The end result will be better decisions, because scenarios allow you to be prepared for whatever lies ahead. The bottom line is that scenarios help structure uncertainty.

Scenario planning was first tried by the military after World War II. The Air Force used scenarios to prepare alternative strategies in anticipation of opponent's actions. It doesn't take a military strategist to appreciate both the importance and the amount of uncertainty associated with military planning. In the 1960's, Herman Kahn, building on his Air Force experience, pioneered the application of scenarios to the business world.

The concept was picked up by a farsighted planner named Pierre Wack who worked for Royal Dutch Shell, the huge oil company. Wack perceived a volatile situation. The trends upon which planning in the oil industry had been based—increasing consumption and steady supply—suddenly appeared uncertain. Royal Dutch Shell took a hard look at their assumptions, the major forces shaping their industry and prepared for a future no one else saw. As a result, Shell alone in the oil industry, was well positioned for the world energy crises of the 70's and 80's. The scenario approach has served Shell well and their track record is regarded with high esteem around the globe.

So you ask, what does this have to do with me and my day to day resource

management work? Maybe nothing; if you can predict the future, read no further. If you are willing to admit that your crystal ball has a few cracks, and if you are interested in looking at your assumptions, researching the factors and trends that will influence resource management, and spinning scenarios to make better decisions, read on.

Scenario planning starts by looking at assumptions as they relate to a decision that must be made. Because this concept is so important, let me give you some background. Each of us operates with mental models or maps, deeply ingrained assumptions and generalizations which influence how we perceive the world around us. People just can't navigate life without them.

Mental models exist below the surface. Very often, we're not aware of the effect they have on our behavior. For example, when confronted with a member of the public who opposes our habitat improvement project we say to ourselves, "She must not understand, I need to educate her about the project." Her opposition may be the result of different values, not a lack of knowledge. She may in fact understand the project perfectly. If we assume she doesn't understand, and we force information on her, she may oppose the project even more strongly. We then feel we've tried our best and failed, whereas not examining our assumptions was where we failed.

Operating with incorrect mental models can be ineffective, and it can be really confusing and frustrating. We all act based on our mental models, so it follows that we are best served by accurate ones. Author Peter Drucker has said, "The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic." Inaccurate models lead to inappropriate actions and poor decisions. Think about your underlying assumptions when you tackle any important problem, and do a reality check. Questioning assumptions and constantly updating mental models is habit for effective people.

Ok, you've accurately defined the decision to be made, and to the best of your ability you are aware of your filters

and assumptions. The next step is to identify factors which can influence the success or failure of the decision, and the driving forces affecting it. This is the research stage of the process. By studying current events and looking for patterns, you can frame your decision in context.

Here are some *subject* areas that apply to many decisions. They are outlined by Peter Schwartz in *The Art of the Long View*:

- Science and technology: what new developments could affect the outcome of this decision?
- Perception-shaping events: people base their behavior on their perceptions. What perceptions do people hold? The general public? Special groups?
- Popular music: what emotions and values are being expressed in music?
- Fringes of society: what are the ideas outside of mainstream thinking?

During the research, you'll want to move back and forth between the hypothetical big picture I pose here: "How will the timber supply in South America, and demands in Russia affect markets in the U.S.— and your immediate decision, "Should we invest a significant amount of capital to retool the mill in Idaho?"

Your next step will be to distill the most important trends and uncertain factors. These could be biological, social, economic or even political, such as the situation faced by Shell with the Iran-Iraq war, or Congress' Contract with America. These will be the basis for the differences between the scenarios or stories.

For example an important trend for most natural resource decisions, is the increased public concern about eco-stresses. Uncertainty exists surrounding attitudes about pollution, social equity, or perceived trade-offs between environmental quality and economic prosperity. Throw in an unpredictable event such as the contamination of a major municipal drinking water supply. The concern about eco-stresses combined with this event could suddenly rivet national attention on water quality. Your task is to be ready for different possible outcomes.

After examining assumptions, and doing the research, it's time to develop

scenarios. Your goal will be to have a set of scenarios, no more than four (overload is counter-productive), that build on these driving forces, their interrelationships, and the major uncertainties. You are *not* seeking to produce one scenario "that gets it right." The scenarios will describe how the driving forces might behave in the future, and the future will likely be some combination of elements from several scenarios.

Schwartz in *The Art of the Long View*, suggests three plot lines that continually show up, and recommends they be considered in any scenario building exercise. The first is "Winners and Losers." For example, "If we are to save the chinook salmon from extinction, the water in the Columbia River must spill over the dams to aid migration without generating power." Parties to the conflict may believe that only one interest or group of interests can win on this issue. If the power industry believes saving the salmon will doom hydropower generation, they may press for changes to the Endangered Species Act. Salmon advocates on the other hand might blame the dams for the salmon's plight and seek their removal. Each side perceives that the other must lose in order for them to win, and acts accordingly.

The second common plot is titled "Challenge and Response." The development of wildfire suppression tactics and technology illustrates challenge and response in the field of natural resource management. As western lands were settled and wildfire came to be seen as a threat, agencies responded with advancements in technology. These technological advancements include better communications, predictive capability, aerial detection and suppression, fire fighting equipment, and training. These advances have allowed us to fight fire more effectively, and have directly led to new challenges such as heavy fuel loading and structures

in the wildland urban interface. Responses to this situation include the use of prescribed fire to address fuel loads, and fire resistant structure design.

The third plot is "Evolution." Evolution involves slow directional change, usually either growth or decline. Land use patterns, subdivision and development of agricultural lands in the rural west is an example of the evolutionary kind of change. This plot of gradual change often looks attractive compared to other scenarios. Beware of the trap of assuming that the future will be just "more of the same." While this may be the most comfortable future to contemplate, and it may be consistent with our experience, don't forget to critically evaluate the likelihood that it will actually come to pass.

Sometimes you will want to use the status quo for a plot, but this is not a given. Schwartz suggests several other plot lines, such as cycles or even revolution. Funding and staffing levels in resource managing agencies have in the past been cyclical. Even today, facing the immense national deficit, it's common to hear a federal employee—based on an outdated mental model—say, "I've seen these budget and staffing cuts come and go before. Things will be back to normal in a few years." Do you think the assumptions this person is basing their judgement on are still accurate?

Once a set of scenarios has been developed, you can analyze courses of action in relation to them. Although you don't know which scenarios or elements of the scenarios will come to pass, you can use them as a screen to identify actions which make sense under a number of situations or conditions. Scenario planning won't provide you with "the answer" but you will be making your decision with your eyes open, and an understanding of a variety of possible outcomes. In this way, you can be fully aware of the potential

consequences of your decisions, and make them based on the best available information and critical thinking.

If by now you're feeling that scenario planning is more art than science, I'd concur. The good news is once you are comfortable with the idea of scenarios, using them gets easier. Liberate yourself by admitting it's ok that you can't predict the future. Reflect on the benefits of not having all your eggs in one basket, not being tied to only one future. Regardless of whether you decide to embrace scenario planning as a tool, learn to critically examine your assumptions and update your mental maps. You'll see marked improvements in your results!

#### Readings

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*Barb Springer Beck is President of Beck Consulting which provides services to natural resource managing agencies in facilitation, conflict management, work force diversity and teambuilding.*

*Prior to this, Beck worked for the USDA Forest Service in several positions, including District Ranger in Montana and Idaho. She is a Women in Natural Resources editor.*

*Entitled to Power: Farm Women and Technology, 1913-1963* was written by Katherine Jellison (1993, University of North Carolina Press). The book was reviewed in *Forest & Conservation History* (July 1995) by Anne B.W. Effland, an historian with USDA's Economic Research Service. Effland says few historians of rural America examined the effect new technologies had on farm women and the running of the farm household. Effland comments that Jellison's research shows that "government and business leaders advocated adopting domestic technology on farms to ease women's burdens and allow them to concentrate on their roles as homemakers. Women, on the other hand, often desired technologies that would assist their productive roles on the farm. Moreover, farm women, particularly during the difficult depression years, recognized the importance of purchasing technology to improve farm production first; domestic technology could not save a failing farm. Finally, when postwar prosperity allowed widespread adoption of domestic machinery, women used their 'free' time and conveniences such as automobiles to take jobs in town rather than to adopt the urban model of full-time homemaking."

*Hues (Hear Us Emerging Sisters) Magazine* is a daring new

multicultural publication for young women. The magazine's staff is in its second year of publishing, mainly on campuses. For information call 800-HUES-4U2.

*A Moment on Earth: The Coming Age of Environmental Optimism* by Gregg Easterbrook (Viking) has something for everyone in it. Easterbrook's thesis is that American environmentalists have relied too heavily on doomsday, worst-case scenarios instead of acknowledging the good news about better water, cleaner air, and less polluting industries. Easterbrook cites numerous statistics and believes there are satisfying government regulatory successes. Industry gets some kicks in the pants, so does the media, and so do zealous environmental groups.

In the September issue of *Working Woman*, Nancy K. Austin's column focused on storytelling as a way for managers to get complex points across simply and memorably. She listed popular books with collections of motivational tales: *Chicken Soup for the Soul* by Jack Canfield and Mark Victor Hansen and its inevitable sequel, *A 2nd Helping of Chicken Soup for the Soul*. Another is Peg Neuhauser's *Corporate Legends and Lore*. David Armstrong presents anecdotes based on events at his family's manufacturing company in *Managing by Storying Around*. There is a three film video set that features story poems by Texas cowboy-philosopher Red Steagall called *Code of the West*. Using the stories in the books and videos is appropriate when a manager faces certain events: new beginnings, ushering in changes, calming the ranks during crises, and buttressing a key priority.

Author Sally Helgesen, who is often a speaker at seminars on diversity at large companies, wrote *The Female Advantage* and *The Web of Inclusion* (about a successful diversity program, a long-term one, at the *Miami Herald*). The newspaper used a large, diverse task force to search out abuses, then followed their recommendations for removing them. After you read the books, you may want to hire her. She does not advocate the off-the-shelf model of diversity training: three days of sitting, hearing speeches, and maybe seeing films of people discriminating against one another. She believes that kind of offering makes people cynical about all of it because there is no realness to it.

Terry Savage wrote *Terry Savage's New Money Strategies* for the '90s to assist working people to start assessing their income and spending habits. Small changes in habits can make a big difference in the money picture. Two other books on investing and money creation are Ann Diamond's *Fear of Finance* and Ruth Hayden's *How To Turn Your Money Life Around*. Women's financial preferences are much different than men's and need to be examined.

Kathleen Hall Jamison wrote *Beyond the Double Bind* as a counter to Susan Faludi's assertion that women have not moved fast or far. Jamison contends that Faludi is inaccurate: women have moved forward, we are not victims, we are doing well. She also contends that there is little backlash and when liberals engage in political correctness debates, liberals should listen carefully to what non-liberals have to say.

Matthew Carroll's book *Community and the Northwestern Logger: Continuities and Changes in the Era of the Spotted Owl* looks at the consequences of political, economic, and sociological changes which have dramatically affected Pacific northwest forest workers. Harvesting patterns on public lands changed, but they were not inevitable. What has happened are national, fundamental, political, and economic shifts which play out in local settings—and which portray the forest workers as villains—a role they deeply resent.

*Ms Magazine* lists some reference books for the referral shelf. The first is *500 Great Books by Women: A Reader's Guide*, edited by Erica Bauermeister, Jesse Larsen, and Holly Smith (Penguin, \$12.95). Next is *From Pocahontas to Power Suits: Everything You Need to Know About Women's History in America* by Kay Mills (Plume; \$10.95). A dictionary of 117 mystery writers is *Great Women Mystery Writers: Classic to Contemporary*, edited by Kathleen Gregory Klein (Greenwood Press, \$49.95). Next is *Great Women Writers*, edited by Frank N. Magill (Henry Holt, \$40) which has profiles and critiques of 135 women. Another writer's book is *The Oxford Companion to Women's Writing in the United States*, edited by Cathy N. Davidson and Linda Wagner-Martin (Oxford University Press, \$45). Last, *The Women's Chronology: A Year-by-Year Record, from Prehistory to the Present* by James Trager (Henry Holt, \$40) has 800 pages.

The market for environmental books changed considerably since the huge surge of green book sales that followed the water-  
continued on page 37

## Restoration & Management Notes

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NEW ENGLANDERS MOURN THE PASSING OF THEIR UNIQUE CHARACTER INTO A NATIONAL SAMENESS. BUT WHERE DID THE ORIGINAL IDENTITY COME FROM?

# NEW ENGLAND LANDSCAPE: A DEVELOPMENTAL HISTORY

AMY KLIPPENSTEIN

In the modern era, the forces of the global market, profit, and a desire for security have brought a new face to the regional landscape. Traditional distributions of built and open space are being rapidly consumed by cities and sprawling suburbs marked only by a dreary nationwide sameness. This homogenization of the American landscape is not welcomed by all, and many urban and suburban dwellers feel an unidentified longing for an identity, a sense of place, a distinctive home.

As a result, people are spilling out from urban areas, looking for solutions to the "spiritual and cultural impoverishment" (Jackson, 1984) evident in their environments. Rural New England, with its white churches, connected farm buildings, stone walls, and town commons presents a particularly alluring postcard, offering memory-stirring vestiges of the simpler and more rooted lifestyle of the past. As with many formerly distinct regions, the development boom which has followed this image has brought suburban sameness with it, threatening to unravel the fabric of traditional land use patterns that originally intrigued the seekers. What was once New England's exclusive regional identity is fading.

What are the forces and processes that formed New England? While the field of humanities has documented many of the political, economic, and historic cultural patterns in New England, these writings have been under used, and perhaps even ignored by ecological restorationists. This omission is a serious error. Modern New England subdivisions do not resemble old farmhouses despite telescoping gables, dormers, and clapboards; a restored landscape will also seem false if the original human element is ignored. It is the relationship between humans and landscape that brought the New England landscape to both its modern and vanish-

ing traditional forms. As Kevin Lynch (1976) says, regional identity is "usually the consequence of slow development, which occurred within sharp constraints of natural conditions and cultural limitation and since then have been enriched by continuous habitation and reformation." This article will examine the period in New England from the 15th to the 17th centuries and scrutinize the relationship between the changing regional landscape and human attitudes toward the land.

## **Pre-colonial Settlement: The Native Americans**

Long before European colonists arrived, the local Native American tribes had evolved a subsistence lifestyle that was tied closely to the land. Communities were divided into villages which held the rights to use the animals, plants, rocks, and water within a certain area on a seasonal basis. There was no system of "ownership" as we now understand it, but a system of usufruct rights (meaning the right to use and the yield coming from that use). Because their survival depended on use of a wide variety of resources that came to be available at different times of the year, these villages were mobile. Even the southern tribes, more dependent on agriculture than the northern hunters, moved every few years to escape infertile soil (Cronon, 1983).

The Native Americans understood that plants and animals evolve to adapt to seasonal cycles of temperature and light, concentrating energy in certain crucial parts in the appropriate seasons. Animals, including humans, eat plants and other animals, and therefore are dependent on the times that their food sources concentrate their energy in leaves, in fruit, or in reproduction. "Just as the fox's summer diet of fruit and insects shifts to rodents and birds during the winter, so too did the New England Indians seek to obtain their

food wherever it was seasonally most concentrated in the New England ecosystem" (Cronon, 1983). This intimate understanding of the local ecology manifested itself in two tangible forms: (1) The northern tribes did not kill more animals than they needed to eat, knowing that overkilling would affect future food supply. In regulating their take, they (2) also regulated their own numbers, and thus their impact on the environment, through self-imposed winter food shortages. These practices encouraged the diversity and large populations of plants and animals that the colonists found on their arrival. The southern tribes also shaped the landscape—by clearing fields for agriculture, by heavily harvesting trees for firewood around their camps, and by burning off forest undergrowth to facilitate hunting. The annual fires kept down thickets and diseases, increased nutrient recycling, and encouraged an open forest with low undergrowth of grasses and berries (Cronon, 1983). Thus we find that while the Native American legacy cannot be measured in terms of an architectural style their influence on the landscape was profound.

## **Pre-colonial Settlement: The Europeans**

Coming from a Europe where dwindling forests severely limited the availability of lumber, firewood, and edible wild plant and animal species and where famine periodically swept the country, the colonists instantly saw the region as a breadbasket of merchantable commodities, and a potential utopia for groups seeking a new start in a land of religious tolerance. An enthusiast, writing in 1635, noted

*There is ... growing all manner of herbs for meat and medicine, and that not only in planted gardens but in the woods, without either the art or the help of man, as sweet*

*marjoram, purslane, sorrell, penerial, yarrow, myrtle, sarsaparilla, bays ... likewise strawberries in abundance, very large ones, some being two inches about; one may gather half a bushel in a forenoon ... The timber of the country grows straight and tall, some trees being twenty, some thirty foot high before they spread forth their branches ... whereas it is generally conceived that the woods grow so thick that there is no more clear ground than is hewed out by labor of man, it is nothing so, in many places diverse acres being clear so that one may ride ahunting ... (in Wood, 1977)*

Their response to this incredible diversity and abundance was to clear the land, divide it into portions suitable for European-style agriculture, introduce weeds that outcompeted local plant species, and hunt the clams "as big as a penny white loaf," fish "in multitudes as is almost incredible," and pigeon flocks with "neither beginning nor ending" (Wood, 1977) to near extinction.

Why did this happen? The answer to that question involves in part an examination of the different economic theories understood and practiced by the Europeans and the natives. But much of the answer lies in the cultural traditions that the Europeans carried with them—traditions so old and ingrained that it is likely that the colonists were not even aware of them.

### Background

Until the Middle Ages, many of western and northern European peasants were pagans. Under the Old Religion, they worshiped trees and groves of trees, believing that trees had souls, were human ancestors, or housed magical beings such as elves and sprites. When missionaries carried Christianity into the forests of Europe, they encountered a great deal of resistance. According to John Stilgoe (1982), the "more conservative subjects retreated into the forests to worship holly." However, as society shifted to a more agriculture- and market-dependent economy, the wilderness began to be cleared. The realm of human domain became the fields and villages. Once separated from, and less dependent on the products of the wilderness, it is possible that the bond between peasants and the forest weakened, and Christianity found its niche. Christianity promised the peasant mastery of nature by placing one all-powerful God—a God of humans and humans only—in control of a formerly mysterious web of unpredictable harvests, hunts, and weather patterns.

Essentially, Christianity destroyed the ancient ties between humans and their environment. In order to assert its control, Christianity turned the old tree-deities into demons, thereby establishing the wilderness as a place of fear and terror. Within the wilderness, a peasant was sure to find Satan and his cohorts, "pursuing with a terrible roaring and baying all the wild creatures and any humans unlucky enough to stumble in their way" (Stilgoe, 1982). As belief in God and Satan became accepted, the peasant became less at ease in the forest, and only ventured into the fringes if absolutely necessary. Entering the forest meant "confronting the fragmented former oneness of man and nature, and it meant knowing the true fragility of civilized order." (Stilgoe, 1982) Those who still roamed the woods, huntsmen, wood-cutters, and hermits, were people to be feared, for they were wild, unpredictable, and perhaps relied on demons to sustain them away from the safe structures of village life.

Villages were often organized as *landschafts*—small agricultural communities where land was tended in common. The land itself was held by a noble or feudal lord, to whom the peasants owed rent and labor, but within the community, all land was considered public. Peasants were allotted their own strips of land, but crops were chosen, and the tilling was done in common. A householder could buy or rent the rights to another peasant's strip, but could not sell or even fence the strip itself. Inside the ring of cultivated land stood the peasants' homes, and outside that ring stood the wilderness (Stilgoe, 1982).

Within this communal system, a peasant could gain status by owning a *stead*—a rectangle of buildings and fences that enclosed a yard. Each *stead* came with a set of rights that were inseparable from that *stead*, usually rights to timber, fields, and pasture. In return, the *stead* had to fulfill certain tasks that the noble demanded of the *landschaft*, for which householders would hire the "cottagers"—peasants of the *landschaft* who did not hold *steads*, and therefore occupied a much more tenuous position in the community. Eventually, the *landschaft* came to objectify order and good character in peasant society. Stilgoe (1982) discusses some consequences:

*Folktales detailing the wilderness adventures of landschaft inhabitants stress that the adventurers discover good or evil according to their natures. Helpful, obedient, self-sacrificing children, those who have internalized the group values*

*that ensure landschaft order, discover piles of silver, magic herbs, or other treasure after triumphing over witches and dwarfs, and return home wiser and richer. Selfish, misbehaved children and beautiful but self-centered maidens ... find ashes, dragons, or sex fiends. They are punished and destroyed, or else converted by evildoers of the wild.*

These values were absorbed into the general culture, and became accepted ideals for behavior in an increasingly Christian society.

In the late 16th century, nobles began what came to be known as "Enclosure," a process of reclaiming common fields and fencing them for sheep pasture. The leases that permitted the existence of the *landschafts* were terminated. Cottagers were left without land or means of survival, and many householders were forced into poverty because their yards were not large enough to support their families. Thus, as Europe moved into the age of colonization, peasants were forced to place increased importance on ownership of a sufficiently large *stead* (Stilgoe, 1982).

### Colonization: The Puritans

Clearly, the colonists came to New England with a very different understanding of land use from that of the resident tribes. In many cases, they were seeking freedom from religious persecution, but that was coupled with a search for freedom from many other evils of European society. They wanted to own land—enough land to support their families. They wanted freedom from any new authority figures that might emerge to assert control over them, and pull their land out from under them. They wanted to be able to found communities that echoed both the values established in the *landschaft*, and those insisted upon by their Christianity. The colonists were ready to impose a new order on this land, one with all of the good and none of the bad from the European society they were leaving (Worster, 1993). They had no interest in adopting the successful system of the tribes—it stirred too many deep-seated memories and stories of the horrors of the wilderness.

While many different groups of colonists came to New England, each with their own reason and agenda, it was the Puritans who defined New England's current relationship to the landscape. As the champions of Reformation thought, Puritans were challenged with a mission to liberate the church from "centuries of superstition and error" (Simpson, 1955). They, however, were in reality a group directed by many of the peasant traditions

from the days of the landschaft. In the town of Dedham, Massachusetts, Puritans established a "Christian Utopian Closed Corporate Community," a social structure that strongly resembled the landschaft in that it restricted its membership, maintained final authority over land distribution, guaranteed its members equal access to resources, and kept internal order by establishing an unbreakable code of behavior. Members were required to pay taxes to maintain public buildings and provide for the education of the community's children. In addition, each member had to donate their time and labor on roads, clearing of brush, and rotating service as constable, assessor, clerk, surveyor, fenceviewer, poundkeeper, woodreeve, and hogreeve. Kenneth Lockridge (1970) describes the Corporate Community as "the dichotomy of mutual devotion within and hostility without" — a relationship that echoed the tight community within the landschaft village, and the frightening wilderness at the field's edge.

These Puritan communities also physically resembled the landschaft in their division of land uses. In 1635, an anonymous New England author proposed a plan for the ideal organization of a town in "The Ordering of Towns." The proposed system was based on a system of six concentric zones within a six square mile area. At the center was the meetinghouse. A zone of houses surrounded this center, and they in turn were surrounded by a ring of common fields. Outside the fields were common pasture. The fourth and fifth rings included space for wealthy freeholders, common swamps, clay pits, timber, and firewood gathering areas. Beyond that ring was the fearsome forest.

Even with their desire for land, and the abundance of unclaimed territory in their new environment, they turned their focus inwards by allotting to each community member tiny strips of houselots, arable, meadow, and woodland that were all contained within the community rings (Lockridge, 1970). No citizen was ever required to enter the surrounding wilderness to attend to the duties of survival. As time passed, and towns expanded towards their boundaries, areas of vestigial border wilderness still remained, unfrequented by townspeople. Roads ran parallel to these strips of wilderness, rarely crossing them, hampering travel between towns, but protecting the traveller from the dangers of the pathless forest (Stilgoe, 1982).

This fear was reinforced by Puritan preachers, "who used the forest as the chief symbol of the infernal chaos latent in all men ... restrained only by reason and society" (Stilgoe, 1982). Influential figures

such as Timothy Dwight praised the cultivated landscape, remarking that "In almost every part of the country... handsome spires and cupolas, almost universally white, add an exquisite beauty to the landscape" (Stilgoe, 1982). By 1796, Dwight would say that "a perfect neatness and brilliancy is everywhere diffused, without a neglected spot to tarnish the lustre or excite a wish in the mind for a higher finish. When the eye marks the sprightly towns which rise upon the river's banks, and the numerous churches which gem the whole landscape ... it will be difficult not to say that with these exquisite varieties of beauty and grandeur the relish for landscape is filled" (Jackson, 1984). Thus, the values of the landschaft, the fear of wilderness, and the desire to populate and tame the landscape become cemented in the cultural history of the region.

### The Modern Community

Eventually, the communal system was to break down in many ways. The money to be made from selling products raised on a larger farm tempted many to overcome their fear of isolation in the forest and claim freeholds on the edge of the community. Farmers discovered their individual innovation was worth money in the marketplace, and conforming to communal principles proved unprofitable. Accepted separatism within the sect encouraged community members to break free of social structures that did not serve them, condoning the assertion of individual sets of values. The principles upon which this original society was based, however, left deep marks on the New England landscape of today—quaint villages with a white church on the hill, farmland only now abandoned to return to wilderness, town commons drawing local festivals and fairs. A communal system still exists within the rigid private property system. Until very recently, landowners granted free passage and hunting rights on their land without fear of vandalism. A tradition of respect between landowners established in the days of the landschaft-derived values of common good served to keep gates open and No Trespassing signs down.

Even in its crumbling, this society left marks. Vestiges of the separatism within the Puritan church can be seen even today, in New Hampshire's state motto of "Live Free or Die," in the free discussion of issues at town meeting, and in the strong ties to private property prevalent in the modern New England community.

### Understanding the Relationship: An Imperative for Restoration

Designers and others interested in

restoration of whole regions like New England are presented with a problem unique to the modern era. We must re-create the vernacular—a contradiction in terms, in that the vernacular is a slow process of the mutual adaptation of the human and environmental elements of a region. At stake are the regional differences that give people a sense of pride and belonging, and therefore encourage them to explore and refine their relationship with their surroundings. There are lessons to be learned about the impact of religion, about fear, also about how to live off the earth in a way much less destructive than our own. The key to preservation and restoration of regional character lies not only in the emulation of cultural artifacts like the white church spires and connected farmsteads, but in understanding the principles and the relationships that allowed humans to survive on the land.

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100 years ago, 80 percent of the state's land had been cleared and fenced for crops and pasture. Now all you see are trees.

## Vermont's stone wall history

Virginia Barlow

Almost anyone who has walked in Vermont's woods must have paused more than once to puzzle over the stone walls that run like stitching through most of the state's wooded land. Even in dense forest, a mile from the nearest habitation, the stone walls speak of a tamed landscape: a farmer, his team of oxen, a stone boat, sheep, and cropland.

Though thousands of miles of these walls were built in New England in the 18th and 19th century, very little is known about their origins. Giovanna Peebles, Vermont's state archaeologist, attributes the lack of written materials to the fact that stone walls were such a common part of every day life. Mention of them in diaries or newspaper stories "was about as likely as writing about the fact that you reheated last night's supper in the microwave."

It is difficult to tell, for instance, when a stone wall was built because construction styles changed very little over time. You can sometimes tell the footprint of a particular mason. "I think you can probably identify certain very brilliant stone masons as to their particular work. It's like looking at a work of art and knowing Picasso did this," said Peebles. Still, we don't know how many masons were responsible for the walls we see today, or how many farmers built their own.

We do know something, however, about what stone walls were designed to accomplish. Little more than 100 years ago, 80 percent of Vermont's land had been cleared, either for farming or to sustain the potash industry that flourished in New England into the 19th century. Many of us have heard this figure before, but still find it difficult to absorb. All we see now are trees—but in 1880, wherever you looked, there was open land, being used either for crops or for grazing animals.

Fences were needed to separate the two. As far back as 1642 a court decreed that

"every man must secure his corne and meadowe against great cattell," though at that time fences were made of stumps or split rails and were replaced by stone fences as wood became scarcer.

Jane Dorney, a geographer who does consulting work for the state and for private landowners who are interested in knowing more about the history of their land, uses Vermont's stone walls to determine how land was used in the past. The links between the 19th century farming landscape and the 20th century forested landscape are so strong, she explains, as to challenge the traditional separation of humans and nature. We think of the forest as nature, and the field as human, but in fact we can't make that distinction. Much of the forest is the way it is because of past human activity.

"The process of figuring out how an area was used is like solving a multidimensional problem," Dorney said. "People who like to solve puzzles like this kind of work."

Dorney believes, as do most archaeologists, that the tumbling down walls we now see once kept large and/or nimble animals where they belonged. Old photographs and lithographs show that stubby stone walls were extended with "stakes and riders" or with a thicket of posts stuck into the wall. Many old walls now have a strand or two of barbed wire running along the top, an indication that these walls were functional at some time after the late 19th century, when barbed wire came into general use.

Although stone walls were occasionally built as boundaries between one farmer's pasture and another's, Dorney believes that the most important role of a fence was to separate pasture from non-pasture.

### Separating the sheep from the oats

One thing Dorney looks for is a row of large, old trees, older than the surrounding forest, growing out of one side of a stone

wall. "These trees, most often sugar maple, white ash, or black cherry, are on the side of the fence that once was cropland. On the pasture side, such palatable species would have been eaten by grazing animals, but plows and harrows do not approach a stone wall as closely as an animal does," Dorney said.

The kinds of trees you find on each side of the wall also tell a story. When cropland is abandoned, the bare earth offers an ideal seedbed and trees, usually hardwoods, will colonize it within a few years. Gray birch is often the pioneer, but sugar maple can be quite aggressive and may form pure stands in which the trees are almost exactly the same age. Other factors, such as the soil type and depth, the depth to water table, and the amount of slope may influence which tree species become established. On the other hand, pasture, being grass covered, presents a problem for many tree seeds and is recaptured only slowly over many years by members of the woody clan. Uneven-aged softwoods are strongly correlated with abandoned pasture. Peter Marchand, author of *North Woods*, believes that the relatively heavy, wind-disseminated seeds of conifers "work down to the soil surface and provide enough stored energy to develop a seedling large enough to compete successfully with grass." If cropland was used as pasture before being abandoned altogether, the forest might look similar on both sides of the stone wall. In these cases you will need to look for other clues.

Land which has never been plowed is often hummocky, a result of generations of trees toppling over and raising big mounds of soil with their roots. These pits and mounds persist for hundreds of years and are only erased by plowing and harrowing.

Along with the bumps, you may well find more rocks than on the cropland side of the wall. Some large rocks may have been removed or piled on top of one another when land was used as pasture, but most are likely to have been left—right where the last glacier deposited them.

Hawthorn and barberry are two sun-loving plants that grow up in old pastures. Their thorns and prickles protect them from grazing animals and they may have gotten a headstart before a pasture was abandoned. Black locust is valuable for fence posts because of its resistance to decay, and though not native to Vermont, a patch of the trees was often kept in a convenient, out of the way place. Sprouts grow from the roots of older trees and a supply of fenceposts may still be growing on a long-deserted farm.

### There's rocks in them there hills

Stone walls that march up steep hillsides indicate that even steep terrain was cleared and used for grazing. This evidence corroborates the view that the earliest settlers in Vermont were strongly attracted to slopes rather than to valleys for their farm sites. In particular they preferred south-facing slopes; early maps often show roads and houses on the south-facing sides of brooks, separated by an expanse of uninhabited north-facing slope. This pattern is repeated over much of the state: the spine of the Green Mountains runs north and south and most brooks run east or west, draining into the Connecticut River Valley or to the Champlain Valley.

Early settlers also showed a preference for the highest elevations at which farming was possible—roughly up to 1800 feet. At these elevations the soil warms in the spring sun and cool air drains to the valleys, where malaria was thought to linger. Because early farms were largely self-sufficient, the distance to market was not a significant factor. Some high elevation farms remained in use for a long time, which would explain why Dorney has found some of the most well tended stone walls at higher elevations.

On the other hand, there are few stone walls to be found at the state's lowest elevations—along the Connecticut River Valley and the Champlain Valley. Here, the stones that were distributed by glaciers over the hills of Vermont were buried in a deep, fine sediment at the bottom of post-glacial lakes.

### Harvesting the crop of stones

Some fields produced abundant crops of stone and it was necessary to get rid of them. Most of the stones in a wall came from one side—the side that was cultivated, where they posed a hazard to farm equipment. Before spring plowing, removing the annual crop of stones that had been heaved up into the plow zone by frost action was an annual ritual.

The size of the stones in a wall may even help identify the crops that were raised, according to some writers. The presence of very small stones suggests that the adjacent field may have been grown to root crops, for which even small stones are a hindrance. If you raise potatoes you are always digging in the ground; when early farmers did this they threw the stones they found aside, later adding them to the wall.

These appear as part of the rubble or small stone filling inside a double wall. Depending on the soil type, finding a really large number of small stones built into a wall may indicate that the field was

cultivated over a long period of time. On the cultivated side, the surface of the ground will be far smoother than on the pasture side, and perhaps you can find a "dead furrow," the last, usually downhill, ridge that tends to grow in size each time a field is plowed because the smoothing effect of the harrow does not quite reach to the edge of the soil that the plow has turned over. If soil has piled up against the inside of a wall at the lower side of a field this, too, suggests a period of plowing which causes more erosion than turf-covered grazing land.

The walls nearest the house and barn, according to Dorney, are often the finest. Perhaps this is because they were the first built and longest tended, but they were also the ones most likely to be seen by the neighbors. There was a time when, as one historian has said, "the quality of enclosures was not uncommonly taken as a measure of a farmer's competence."

The tumbling walls bordering abandoned fields today seem ineffectual and

puzzling without a house and barn to give meaning to their shapes and patterns. There was a time, however, when the ways the land was divided was crucial to the whole economy and workings of a rural society.

### Readings

*Stonewalls and Cellarholes*, by Rob Sanford, Don Huffer, Nina Huffer, Tom Neumann, Giovanna Peebles, Mary Butera, and Dave Laced. Vermont Department of Forests, Parks and Recreation.

*Sermons in Stone: The Stone Walls of New England and New York*, by Susan Allport.

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John Douglas/Flying Squirrel

Though stone walls in the woods no longer serve their original purpose, Jane Dorney points out that mice, voles, shrews and chipmunks make good use of them. Bobcats often travel along the tops of walls.

# ELAINE ZIELINSKI

AN INTERVIEW BY ELAINE ZIEROTH

# INTERVIEW

WiNR: You have been the U.S. Department of Interior's Bureau of Land Management (BLM) State Director for the combined states of Oregon and Washington since March 1994. Do you feel comfortable in the position now?

Zielinski: I'm still meeting people, both in the agency and externally. I took over Oregon/Washington BLM in the midst of reorganization, buyout of federal employees, and while we were physically moving our staff from one office into another. We also started into an implementation phase of a major project with the Northwest Forest Plan. I'm not new here, however—I've been in Oregon for about eight years, in Portland for five, and I've acted in the State Director's position off and on. I don't know if I'll ever be comfortable—and maybe that's a good thing. There is always opportunity for growth and learning in the position. It is always changing.

WiNR: Is the position what you expected?

Zielinski: I think so. My previous position in BLM Oregon/Washington was as Deputy for Resources so I had a good feel for the programs and the issues that I would be dealing with. We are the largest state office in the BLM so it isn't surprising when I say that the work has been very demanding and doesn't leave nearly enough time for what I want to accomplish. There are a lot of expectations out there, both internally and externally. It has been overwhelming how much paperwork I have to deal with.

WiNR: Given your career path, did you feel prepared for this position?

Zielinski: I've had a lot of different experiences in BLM that I think have prepared me. I worked in land use planning which is good exposure to all the programs that the BLM deals with. I worked in Washington, D.C., did a couple of assignments on Capitol Hill while I was there, and was in some long-term training programs. Over the years, I have worked for two federal agencies and also

outside the federal government. I also had the opportunity to work on several major initiatives, to develop the procedures for programs, and then make them work. I've worked on initiatives like oil shale and coal leasing in Colorado, for example, and then more recently in the Pacific Northwest, the Northwest Forest Plan. I also worked in a district field office doing more of the day-to-day work that we are all about.

WiNR: Tell me about your background and education.

Zielinski: I was born in Illinois into an Air Force family and lived in Japan, England, and the Philippines growing up. I went to a small college in Illinois—Blackburn College—with only about 500 students. It is really a neat place because all the students, to keep tuition down, have to live on campus and work 15 hours a week. They run everything from the library to the cafeteria, to building the infrastructure with a construction crew. That was really a good experience. With my degree in mathematics I got a job in the budget department of a private company in Chicago. I worked there for a little over a year and then I went into federal government in an intern program when the company I was working for moved to Boston. I have worked for the federal government for 21 years in two agencies. I started with BLM in 1977. Since then, I got a Master's in Business Administration from the University of Colorado—where I was working for the BLM—because I wanted to get a better understanding of private industry and how the profit-making sector operates. I wanted to see how those principles applied to the public sector.

WiNR: Is your business management degree more useful in an administrative position than more traditional natural resource degree work?

Zielinski: I don't know if it is more useful. It certainly gives me a different perspective. Depending on the clientele that you are working with, whether they are timber, recreation, oil and gas, or coal companies, I can relate to

the business end of things. They sometimes assume that someone in the federal government isn't at all conversant in, or understanding of, their bottom-line and profit motivations. There are 16.5 million acres of public land with 10 district and 30 resource area offices in the two states. In addition to the lands directly administered by the BLM, the agency manages minerals (subsurface) on lands administered by other Federal agencies plus Indian lands. With these additions, the BLM is responsible for 23.4 million acres of subsurface minerals in Oregon and 16.5 million acres in Washington. We have a sizeable jobs training program and construction projects. Our budget for all this is almost \$150 million for FY95, so it pays to have some business and management background.

WiNR: As you mentioned earlier, you came into your position at a time when there were many challenging natural resource issues—spotted owl protection, salmon recovery, resource dependent communities, rangeland reform, and local control. These are all very contentious issues which BLM grapples with. Do you feel that you are getting out in front of the challenges?

Zielinski: Yes I do. We are working better, both internally and externally. We are moving into a true interdisciplinary mode and working better with other agencies and with the public. The process includes trying to come to a consensus on what our goals are. We may take different paths to reach those goals but if we can agree on the goals we will make progress. It is not as fast as I would like it to be because when you are working in an interagency mode it just takes more time. When you are calling the shots by yourself, decisions get made faster, but the decisions may not be as good.

WiNR: What are your thoughts on the so-called Wise Use or Local Control movements that are common in the west? How will these movements affect Congress or the agencies?

Zielinski: These aren't really new but they are getting more visible again. It is a resurgence of some groups from the Sagebrush rebellion we had several years ago. In addition, there is more questioning of what the role of the federal government is or should be so the issues are more newsworthy right now. I do believe that in the counties that have passed some of the local control ordinances that there are concerns about the well-being of federal employees. There have been threats to arrest employees who are doing their jobs on federal lands, because these counties assert that the federal gov-

ernment doesn't have the authority to own those lands. Recently the Department of Justice has filed suit in Nevada to raise the issue to the courts for, hopefully, a fairly quick resolution of the issues. I hope this will serve to calm things down. Let's get this into the courts and have the judges validate or invalidate these initiatives once and for all. Employees are doing their jobs. We are trying to be as sensitive as we can to some of the people's concerns but we do have a job to do, to manage the land and protect the resources and that is what we are continuing to do.

WiNR: Regardless of how the court case comes out, we are hearing a message from some segments of the public about how they view federal lands and agencies.

Zielinski: Yes. There is a general frustration in people who either feel that they are not involved in the decisions being made on public lands or that they aren't being heard. It is having a big impact on all the federal agencies. We are asking ourselves, "Are we not listening, not responding to the public concerns? Have we been making decisions which take those concerns into account and being as sensitive as we can?"

WiNR: BLM traditionally has had a political appointee as its national Director. Given some of the recent changes in Congress, do you see changes in direction?

Zielinski: Right now we have Acting Director Mike Dombek who is a career person. Mike has been acting for about a year and came up through the career ranks. As you mentioned, however, we have had a political appointee as director in the past. As for some of the Congressional initiatives, there are some real tough questions being asked—like what the role of the federal government really is. In many ways they are redefining the role. There is more focus on local control issues and rights. I certainly see more scrutiny of our declining budgets, and declining number of federal employees. We have been living with that for some time now and I certainly see that continuing. And yet, right now, the expectations on our workforce are still the same and that is causing a level of frustration within the agencies. After a certain point, you can't do more with less. I think one of the changes you refer to is that we now have to do less with less and decide what that less is. We have to decide what things we aren't going to be doing anymore. Federal employees are struggling.

WiNR: Do you think that employees will be able to adapt to so many changes in such a short period of time?

Zielinski: It depends on the individual because some people seem to thrive on change, are flexible, and

*Elaine Zielinski is the State Director for the Bureau of Land Management's Oregon/Washington Office. It is BLM's largest.*



go with the flow. Others are having a lot of trouble with the uncertainties: "Do I have a job, do I have to move, will I be doing something that I feel confident in doing?" These are tough questions. Right now we have been able to avoid laying off permanent employees. But we are being cautious about filling permanent positions. We are trying to position ourselves with some flexibility in case we need to reduce our workforce more later on. We are authorized 1592 permanent employees and 2010 total full time equivalents, but are much lower than that. A lot of staff are reassessing their skills and trying to match what they are doing with the needs of the organization in the future.

WiNR: I have been very impressed with the skills and talents of the BLM people I am working with on the Columbia Basin Project. But the BLM has a low-profile image and not quite the national visibility of some of the bigger agencies. Do you see that changing? How has size affected your employees?

Zielinski: We have been catapulted, like it or not, into these high-profile contentious resource conflicts. We are a lot smaller organization than our sister agencies like the Forest Service and have sometimes gotten less attention. That can be good or bad, you know. But I do think that by being in a smaller agency, each BLMer has a wider range of experiences. Because we are so much smaller, we haven't been as specialized. Our folks may do three or four different tasks while a Forest Service person, since the agency is so much larger, may be able to specialize on one task. In the current environment, it has been an advantage to our employees because they have a broad experience base to draw from and a big picture orientation.

WiNR: That should be especially important now with the emphasis on ecosystem management and planning at a variety of scales. The BLM is involved in several ecosystem management projects, especially in Oregon/Washington. How do you feel about the direction the agency is taking and the progress being made?

Zielinski: I can't say that I am totally happy with the speed with which we are changing. Working in a bureaucratic organization, it takes a lot of time to change direction, but we are heading in the right direction with ecosystem management. The projects we have going in the Pacific northwest are pilot projects for the rest of the nation—and

that is exciting. We have broken new ground on the westside—between the Cascade mountain range and the Pacific ocean in Oregon and Washington—with the Northwest Forest Plan. On the eastside of the Cascade Mountains in both states, the Columbia Basin Project, now working as an interagency project in Walla Walla, Washington, is very exciting, partly because we have more time to devote to this process and really involve people. Part of the process is to bring as many of the people together as we can so that they aren't afraid of what ecosystem management is. It is not the federal government trying to take over and dictate what should be done on private land at all. We are taking the broader look at things in a very open, involved environment and I am very pleased with the direction that project is going.



Zielinski with, left, John Nagle, Ducks Unlimited and Boyd Gibbons, North American Wetlands Conservation Council.

WiNR: The BLM and Forest Service have been jointly working on national management and policy changes in range, known as Healthy Rangelands. Does it fit in with the emphasis on ecosystem management?

Zielinski: I think it fits very well. The Healthy Rangelands Initiative, introduced in 1993 as Rangeland Reform, is a BLM effort for all western states spearheaded by the Secretary of the Interior Bruce Babbitt. The initiative, which now includes the Forest Service, calls for the development of Resource Advisory Councils to provide guidance to line officers on the management of public lands and outline grazing standards and guidelines for everyone. Initially, this initiative also proposed an increase in the grazing fees on public lands, but that part of the proposal was later rescinded and taken out. Rangelands on public lands are in better condition than they were at the turn-of-the-century, but there is a recognition that the rate of change is too

slow to restore native fish habitat, improve water quality, improve riparian vegetation, reduce erosion, and protect biological diversity. The changes embodied in the initiative will help us practice good stewardship and look at the big picture. The goal is to improve the condition of the land so that we have sustainable systems. Another goal is to balance the use of the resource with its protection. The Healthy Rangelands program will also help us work better across agency lines; it is making the BLM and Forest Service a lot more alike in how we approach the rangelands management. This will help prevent conflicting guidelines for the local people who don't know the difference between the agencies—and shouldn't have to know the difference. To me, ecosystem management in general is working toward common goals and improving the conditions on the land.

WiNR: Do you think the federal agencies have the mix of skills in our workforces to make the change to working in an ecosystem context?

Zielinski: With ecosystem management, one of the things that I mentioned before is that we are looking at a different skill mix within the agency. We need people who can help us work together toward common goals; work with the public, and work in more complex environments. It requires top notch communications skills, negotiation skills, and a service attitude toward the public. It also requires working across organizational and political boundaries.

WiNR: Can you think of any other organizational or structural changes needed to implement ecosystem management?

Zielinski: I suppose the team concept of management at all levels stands out in that regard. We have always worked in teams, but this is institutionalizing that concept and making it more the norm. We are intentionally mixing people from different backgrounds into these groups—that facilitates working together across disciplinary lines. The person whose desk is next to yours or with whom you have coffee will not necessarily be trained in whatever your own discipline is, and that may take some adjustments in attitude. I see this team concept as a real plus in helping us implement ecosystem management more quickly.

WiNR: The Forest Service, for whom I work, and many federal agencies have been directed to downsize their organizations, especially in the national and regional offices. How are you handling that in the BLM?

Zielinski: For a year and a half we have been under the same guidelines as far as across-the-board federal cuts. The BLM has not taken as many cuts within Oregon and Washington as the Forest Service's timber people have. We took quite a reduction this year in our Washington, D.C. office which followed reductions in that office about two and one half years ago. My State Office is reducing size. There is supposed to be a 12 percent staffing cut across the federal government by 1998. We have said that our field levels, however, such as our resource area offices, won't see as many cuts as at the state and national levels. We need to retain as many folks on the ground as possible.

WiNR: Are employees dealing fairly well with these reductions?

Zielinski: We are very concerned about morale. We went through some useful exercises to see what kind of future skills we will need in our organization and tried to match our current workforce with those skills. We have asked our folks to identify whether they are interested in changing careers or acquiring new skills. They are letting us know, we are encouraging them, and at the same time, we are trying to get some dollars to send people back to school. Some of the areas where we will need more skills include computers, GIS, fisheries, and hydrology. One of the trends I see is a significant increase in the supervisor-to-employee ratio. This will result in fewer middle managers in the long-term, but an increase in what I'll call "senior technical specialists" or people who are really experts in their own technical field, whether it is fisheries or wildlife or contracting. These specialists are going to be getting some good pay and can be located at any level of the organization, from Washington, D.C. to the field level. I see a real opportunity for people who want to stay in their profession as super-techs; they'll get more responsibility and higher pay without having to go into managerial positions, which was the main career path upward in the past.

WiNR: This change should help people move up without having to physically move or change careers. And it looks like it would save managerial positions for those who really want them and have an aptitude for them. How has downsizing impacted some hard-won affirmative action goals?

Zielinski: In an organization which is shrinking rather than expanding, it is more difficult to achieve diversity goals. I believe that we have to be even more proactive in our recruiting efforts for those few positions that we do fill—seasonal or permanent. We are continuing to use our Cooperative Education

Program, although at a reduced rate, to bring students into our organization in those skills we think we'll need in the future. But it is going to be more difficult to achieve the goals; a reality of dealing with a shrinking organization.

WiNR: Are there other women in some of the 12 State Director positions?

Zielinski: Idaho is led by Martha Hahn, and Ann Morgan is in Nevada. Martha has been in the BLM for some time, but Ann came recently from the State of Washington from a fisheries background.

WiNR: So you have a support group of three now after starting as the only female State Director.

Zielinski: Yes!

WiNR: Who are the other higher ranking women in BLM?

Zielinski: In Washington D.C., there are Denise Meridith who is a Deputy Director, Nancy Keir Hayes who is Chief of Staff and Counselor, Nina Rose Hatfield, Assistant Director for Business and Fiscal Affairs, and Marilyn Johnson who is Director of Human Resources. I've already mentioned that three of the 12 State Directors (I'm counting the Service Center, too) are women. Elena Daly, Jean Rivers-Council, Sally Wisely, and Linda Colville (acting) are the female Associate Directors. Idaho and Nevada have women in both positions. Most of the women bring about 20 or more years of government experience

to the job, compared to their male counterparts who average around 30 years.

WiNR: Your position includes a lot of travel, crisis management and stress. You have already had more than your share of lingering court cases, wildfires, floods, fire crews fatalities and other incidents to deal with. How do you handle it?

Zielinski: I tend to be a pretty high energy, optimistic person. I like what I'm doing very much but I don't do BLM 24 hours a day, seven days a week. I need time to get away and think. I try to allocate so many hours a day to BLM and so many Saturdays and Sundays—and the rest I try to spend with my family and friends. I have a husband and an eleven-year-old son who are great. Frankly I get re-energized by spending time with them. Particularly my son helps me look at things from a different perspective and helps me sort out what is important in life. You know how kids have a tendency to cut through things and get to the bottom line. I think the other thing that I have to do, is be pretty organized and plan my time more than I would like to. Sometimes I can't be as spontaneous as I would like because of a hectic travel schedule. With my husband's job, my job, and a son in school, we plan things out in advance and stick to some simple rules. Communication is an absolute necessity.

WiNR: What does your husband do?

Zielinski: He's an accountant, a CPA. When we moved from Washington, D.C.

#### **Oregon/Washington Office of the Bureau of Land Management**

The Oregon/Washington Office administered by Elaine Zielinski, is authorized to have about double the number of employees of any other BLM area, with 1,592 permanent employees and 2,010 total full time equivalents. Actual employment is usually lower, due to budget constraints, attrition and seasonal employment. The State Office oversees 16.5 million acres of public lands with 10 district and 30 resource area offices in the two states. In addition to the lands directly administered by the BLM, the agency manages minerals (subsurface) on lands administered by other Federal agencies plus Indian lands. With these additions, the BLM is responsible for 23.4 million acres of subsurface minerals in Oregon and 16.5 million acres in Washington.

Most people associate the BLM with western rangelands, but the Oregon/Washington Office includes more than two million acres of highly productive forest land in western Oregon that was involved in the Northwest Forest Plan for protection of spotted owls, watersheds, and old-growth forests.

Elaine Zielinski's budget is \$149,448,000 (FY95 appropriation). This includes operation funds and funds for contracting and construction. For example, \$10,771,000 was appropriated for the Jobs in the Woods program which provides employment through contracting to economically impacted communities in western Oregon. Zielinski reports directly to the Director of the BLM. Her immediate staff include an Associate State Director, a Special Assistant, a Staff Assistant, and an Associate's Staff Assistant. There are also two Deputy State Directors, and two Staff Chiefs in the State Office, with District Managers for each of the nine field units in Oregon and one in Washington who report to her. **Public Lands Statistics, 1993**

back to the Eugene area, he took classes at the University of Oregon so that he could sit for the CPA exam. He thought that might give him more options if he were going to continue changing jobs as I moved. He works for a small accounting firm right now. My husband is an extremely flexible person and he has always taken on more responsibility for running the household on a day-to-day basis than I have. That helps a lot.

WiNR: From your comments about your own family life, it sounds like you might also see a commitment to employees' similar needs.

Zienlinski: I believe that it is important that people have a personal life outside of BLM. One small example is our policy here in the Oregon/Washington BLM not to schedule meetings and training—that we have control over—during spring breaks or the two weeks around Christmas. Those are times when most people want to spend time with their families or have time to themselves. We encourage the attitude that it is healthy every now and then to do something different that's totally unrelated to work.

WiNR: There have been several stories and surveys in the media about women in high profile positions having to sacrifice family and/or make hard choices between family life or career advancement.

Zielinski: I have to say that I have felt very good support for myself from within the BLM and highest level support for the family policy I have. They walk the talk; their actions support it.

WiNR: What interests do you have away from work?



Zielinski and Sally Wisely, Associate State Director, Alaska BLM, and Liv Guangjin, Director, Department of Land Use Planning, State Land Administration, China, meeting with Chinese delegation on land use planning.

Fire consultation: From left, John Lowe, Regional Forester, Region 6; Elaine Zielinski; Jim Webb, Forest Supervisor, Monte Vista San Juan NF, Region 2



Zielinski: I love to travel. I have always loved it, partly because I was raised as an Air Force kid and I spent a lot of time moving around. We went to England for our 20th wedding anniversary last summer. That was a wonderful experience. I had lived there when I was small and revisited some friends that I hadn't seen in a long time. I read a lot. I read what I consider serious books about management but also for fun I read English murder mysteries. I also like to cook. I have always been a walker and love to walk. I try to be sure that I can build that into my schedule. And I enjoy spending as much time as I can doing whatever comes up with my family. Our son plays basketball, soccer, and baseball, so I spend a lot of time going from one event to the other—but I enjoy it.

WiNR: What do you think are the most important characteristics or experiences you have had that have helped you in your career?

Zielinski: I have been thinking about this lately because my father recently passed away. I have two sisters and when we were growing up, my parents always supported and encouraged all three of us. They sent a strong message that we could do or be whatever we wanted in life. Regardless of anyone else's opinion they believed we were smart enough or had the facts or skills to be a doctor or a lawyer or an accountant or a teacher or whatever—there was never any question in their minds that we could do it. That gave me such a solid grounding to start with. It is a real advantage that a lot of women never had in the 1960's. The other characteristics include flexibility. I think I'm very adaptable. I have lived in a lot of different environments and cultures, and when I say that, I include a culture like the BLM which has been traditionally a white male organization. I think I have had the ability to be pretty adaptable and work within the organization without losing my own identity. The other

characteristic is that I really do like people. As I mentioned before I try to be an optimist and assume the best in people. I have found that people rise to your expectations most of the time. I genuinely like people and expect them to do their best. I am usually not disappointed.

WiNR: I gather that you will welcome the changes in the BLM and continue to find the job fulfilling?

Zielinski: I feel quite pleased that the BLM now has three female State Directors out of 12 possible. But with those and other turnovers, we had hundreds of years of experience suddenly leave and that takes some getting used to. On the other hand we have great opportunities right now to make some changes and to build on that experience and react to some of the concerns that we hear from the general public. One thing that I can say with certainty is that ever since I have been with the BLM, I have never been bored one single day. That is more than true for the job I have right now. It is wonderful to have a job I believe in and that makes a difference. Natural resource decisions that we are involved in here will have some really long-term impacts for ourselves and our children.

*Elaine Zieroth is just completing a 20 month assignment as a wildlife biologist for the Interior Columbia Basin Ecosystem Management Project in Walla Walla, Washington. From 1988-94 she was District Ranger of the Tonasket Ranger District in northern Washington. Prior to this, she worked for the Forest Service, and BLM in Colorado and California in wildlife, recreation and public involvement. She has a Master's in biology from California State University at Fresno. Her husband Steve is a silviculturist for the Forest Service. Zieroth is a WiNR editor.*

Some facts and figures are hard to come by due to downsizing. Still, this overview indicates where the Department is in its hiring practices.

## AFFIRMATIVE EMPLOYMENT in the U.S. DEPARTMENT OF THE INTERIOR

ELAINE ZIEROTH

According to the recently released Affirmative Employment Plan Report for 1994, the U.S. Department of Interior—which includes among others, the Bureau of Land Management, Park Service, and Bureau of Indian Affairs—has 63,815 permanent employees and 18,064 temporary and intermittent employees. Of the permanent employees, 38 percent are women (of all races), 26 percent are minorities (male and female), and 49 percent are white males. Permanent employees stratify into 18,836 professional, 15,694 administrative, 11,604 technical, 7,128 clerical, 8,379 blue collar and 2,174 other.

As discussed in Elaine Zielinski's interview (preceding pages in this issue), President Clinton announced in January, 1994 his plans to decrease the federal workforce by 252,000 employees over a five-year period. During 1994, the Department of the Interior used early retirement buy-outs and normal attrition to reduce the total number of permanent employees by more than 4,700—or 6.88 percent. Further reductions are planned for 1995 and a hiring freeze is currently in effect.

The Department of the Interior increased by 11 percent from 60,512 permanent employees in 1987 to a high of 67,433 in 1993. During these six years the Department made substantive net increases in numbers of women and minorities, showing that the agency can recruit and retain highly qualified women and minorities.

During the same time however, there was an increase in the number of white male employees, so the proportion of women and minorities stayed about the same while the actual numbers increased. During the 1994 downsizing, the losses to the workforce again stayed fairly constant across different job categories, races, and sexes. The report concluded that:

*The fact that representation of women and minorities has remained essentially constant during growth and downsizing suggested that the methods used to increase representation have simply not been strong enough to bring about significant net change.*

One of the statistics that the federal agencies track is under-representation. It is the comparison of sexes and races in the agency, by occupation, compared to the civilian labor force. The comparison is usually made with the total workforce in the professional, administrative, clerical, technical and blue collar occupations. This can be

misleading—especially for professional occupations—where the agency natural resources professional jobs that tend to attract fewer women and minorities are compared to all professionals, including teachers, social workers, artists and business professionals. For the 1994 report, the Department was given a waiver by the Equal Opportunity Employment Commission which allowed it to compare jobs in the same occupation. Agency biologists were compared to all biologists in the civilian workforce, foresters compared to foresters, and so on.

The Department of Interior has hundreds of individual occupations, as one would expect. But of the 151 most common occupations, only one, cartographic technicians, did not show under-representation for some group, compared to the civilian labor force. Although white women tend to be less severely under-represented than other groups, they are such a large group in the civilian labor force that they show by far the largest portion of the total under-representation. For example, one percent under-representation of Asian-American/Pacific Islanders may be only a few individuals but one percent of white women can be several hundred in number. African-Americans were the next most under-represented group followed by Asians, Hispanics, and a very slight under-representation of American Indians/Alaskan Natives. The Bureau of Indian Affairs (BIA) has an Indian preference hiring requirement and has been successful in keeping American Indians in the Department workforce; but even if the BIA is taken out of the equation, there is almost no under-representation of American Indian/Alaskan Natives.

Of the hundreds of occupations in the Department, 12 specific jobs account for half of the under-representation problems. These 12 jobs are so severely under-represented that the Department estimates that it could take decades to correct the problems at the current rate of recruitment and selection.

The very surprising thing is that these 12 occupations do not include engineering or other specialty natural scientists, as expected. They are fairly general occupations with no shortage of diverse candidates in the job market. The 12 occupations are, in order of most under-represented to least, park ranger, general biologist, general administration, hydrological technician, wildlife biologist, fisheries biologist, engineering technician, management analyst, range technician, auditor, general physical scientist, and inspector/investigator.

Information on grade (salary level) also needs some explanation. Although white males are 56.5 percent of the Department workforce, they received 47 percent of the promotions. White males hold higher grade levels than

women and minorities on the average, but women and minorities are receiving promotions at a higher rate than white males. This does not suggest that white males are not being promoted, only that they were promoted earlier in their careers and now tend to hold the higher grades from which there is less promotion potential. The data reflect this: in 1994, the average grade for white males was 11.0 compared to 9.8 for women.

The Department of the Interior provides for a Family Friendly Work Place Program which allows for flexible hours, work locations to help meet family needs, and encouragement by the Department to participate in child care programs. The report listed 15 locations, mostly bigger cities, where the agency participates in child care centers.

There have also been some improvements in training and career development courses targeted for women. There is an improved methodology for counselling and disposition of discrimination and harassment complaints. It should be noted that it takes an average of 1.4 - 1.7 years to settle these complaints. About 1,500 complaints are filed with the Department each year. Some 38 percent are settled without a hearing, 20 percent are dismissed or withdrawn, 42 percent are found to have no discrimination and only one percent is found to have discrimination. Age discrimination cases doubled in 1993 while other complaint categories stayed fairly constant.

#### BUREAU of LAND MANAGEMENT

The Bureau of Land Management is second only in the Department to the Park Service in number of employees, at 9,650 after recent downsizing. The bureau has its roots in the General Land Office whose mission was to dispose of federal lands through sale and homesteading to finance the federal budget and settle the west. As a result, the agency historically has had many small, scattered tracts of land with poor access.

Today the BLM is a major land and resource management agency that administers most of the public rangelands and some lower elevation forests and woodlands. The agency administers 268 million acres of public lands and 570 million acres of subsurface acres for minerals. The bureau has responsibility for the subsurface minerals (including gas and oil) on other federal lands and also administers the minerals claims, claim validation, and patenting programs for all

federal lands. There are 12 State offices, 59 district office and 140 resource area offices with a total annual budget of \$1,101,344,000.

#### FISH and WILDLIFE SERVICE

Federal involvement with fish and wildlife conservation started in 1871 when it was obvious that uncontrolled market hunting and fishing were decimating native species. Today the U.S. Fish and Wildlife Service manages 92 million acres throughout a 503 unit National Wildlife Refuge System, 108 Waterfowl Production Areas, and 77 National Fish Hatcheries. In 1994, there were 7,700 in the workforce. Of the 401 general biologists, 283 are women; fishery biologists number 482, with 84 of them women; refuge management employees total 485, with 86 women; and wildlife management employees number 642, of whom 126 are women. In addition, there are 1,330 women in the series which includes administration, EEO, personnel, computer, management and program analysis, and clerical (the largest at 1,013).

There are 73 Ecological Services field offices where biologists administer the Endangered Species Act. The law enforcement branch has a network of agents that inspect and enforce Federal laws to protect fish and wildlife resources. In 1993, the National Biological Service was formed with research biologists from several bureaus, with the mission of providing reliable, coordinated information on the Nation's biological resources. Now on the chopping block for Congressional budget reductions, their future is in question.

The Director reports directly to the Secretary, with a total budget in 1995 of \$674 million, down from \$1.2 billion in 1994.

#### NATIONAL PARK SERVICE

The National Park Service was created by Congress in 1916 to manage and preserve the natural, historic and recreational treasures of the United States. The service has grown to 80 million acres of land, in 368 parks, in 49 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and the Northern Mariana Islands. The agency also provides assistance to other agencies on registration, evaluation, and protection of historic and archaeological resources. The Director is responsible to the Secretary, with a budget of \$1.4 billion and a reduced and restructured workforce of 19,697 full time equivalents. It is noteworthy that the

National Park Service used 80,742 volunteers in 1994 for 3.5 million hours, giving a return of \$23 worth of service for every dollar spent supporting the volunteers. Of the 276 middle management park superintendent positions, 43 (16 percent) are currently women, an increase of four percent since 1990. The percentage of women since 1989 in the Albright Ranger Training course, however, is at 40 percent, indicating slow upward mobility in the Park Service for women.

#### BUREAU of INDIAN AFFAIRS

The Bureau of Indian Affairs was created in the War Department in 1824 and moved to the Department of the Interior in 1849. The bureau has a government-to-government relationship and trust responsibility emanating from treaties and other agreements with 550 tribes. The BIA has a mission to enhance the quality of life, promote economic opportunity, assist in the management of natural and agricultural resources, provide law enforcement, education, and courts for one million Indians, Eskimos, and Aleuts in 31 states.

The bureau administers 42 million acres of tribally-owned lands, 10.2 million acres of individually-owned lands held in trust status, and 443 thousand acres of federally-own land. The Assistant Secretary for Indian Affairs as a Deputy Commissioner reports to the Secretary and administers a \$1.7 billion budget with 13,695 employees. In 1994 the bureau downsized by 873 employees in a continuing effort to help tribes assume programs and become more self-reliant.

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*Elaine Zieroth is a WiNR editor.*

THERE ARE SOME SURPRISING DATA ON EARNING STRATEGIES FOUND IN THIS STUDY. ONE SURPRISE IS THAT THE FARM ITSELF ALLOWS MORE CHOICES FOR WOMEN EARNERS.

# CONTRIBUTIONS OF FARM & NON-FARM RURAL WOMEN TO FAMILY INCOME

JUDITH I. STALLMANN

Research on part-time farming in the United States has focused on the agricultural economy for explanations of changing farm family participation in the off-farm labor force (Sumner, 1991). In fact, we cannot know for sure if part-time farming has a unique agricultural explanation if we focus only on the farm family and do not compare it with the non-farm family. For example, the increase in the number of farm women working off the farm, or doing factory piecework in the home, has been attributed to the farm economy. Women throughout the economy, however, have increased their workforce participation. Perhaps the changes by farm women are in response to larger economic factors that all women are responding to, rather than just to the farm economy.

This analysis is part of a larger project that grew out of a concern that rural areas in Virginia were in recession throughout the early and mid 1980s (Stoevener, 1989). It soon became clear that the needed information on income levels and strategies of rural families were not documented or understood; the public and policy makers were working with outdated data about farming and about rural people. As Ahearn and Lee (1991) point out, it is not uncommon for perceptions about a sector to lag reality. As a result, policies will also lag reality, reducing their effectiveness and increasing the likelihood of unintended and perverse effects. In order to understand the phenomenon, this study compares farm and non-farm rural women and their contributions to family income. While this paper does not address the causes of increased labor force participation by women, it is a first step in addressing the issue of whether farm women are "different" in their labor supply than non-farm women.

## Data

Non-farm rural women were chosen as the comparison group because they share the general economic environment of farm women—limited job options, low pay, commuting distance, etc. For the comparison, the study draws on two data sets:

- 1) a random survey of 785 Virginia farm operator families for 1988.
- 2) a random survey of 600 Virginia non-farm rural families for 1989.

A random sample of farms was drawn from the farm sampling frame maintained by the Virginia Agricultural Statistics Service. The families were contacted by telephone. Three hundred ninety-four families were screened-out because they no longer met the Census definition of a farm (Bureau of the Census, 1989). One hundred twenty-five families (14 percent) declined to participate in the survey. The interview lasted 15 to 20 minutes.

Non-farm families were contacted by telephone also. The three-digit telephone exchanges of non-metropolitan counties were selected and the last four digits were randomly dialed. Because exchanges cross county boundaries, respondents were screened to ensure that they resided in a non-metropolitan county and did not operate a farm. Nine hundred fifty-six families were contacted. Three hundred fifty-six were screened-out or declined to participate.

The reader should be aware of two points about this comparison:

- 1) Farm operator families, by definition, have at least one person in the labor force. This is not true of non-farm families.
- 2) The women in farm households tend to be the spouses of farm operators; that is, the families have two adult heads. Therefore, to maintain comparability between the farm and non-farm samples, only families with two heads are used in the comparison. This eliminates a larger number and percentage of the non-farm sample (206 or 34 percent) than of the farm sample (178 or 23 percent). In the

farm sample, the majority of households eliminated are headed by a single male, while in the non-farm sample they are headed by a single female.

The analysis begins with a comparison of the demographic characteristics of the two samples to determine if their personal characteristics might lead to any observed differences in employment behavior. This is followed by a description of women's working patterns and finally by a discussion of women's contributions to family income.

## Demographic characteristics

Personal factors that affect labor market participation include age, education, job experience, and dependent children. Non-farm women, on average, are seven years younger than farm women (Table 1). This is not surprising—the aging of the farm population has been well documented. Non-farm women, on average, also have more children under the age of eighteen in the home. Again this result is not surprising given that non-farm women are younger. The younger non-farm women have significantly more years of wage-work experience than the older farm women. (Only wage experience was used for the comparison because the farm questionnaire did not include a question on farm experience.) Although their average

Table 1: Characteristics of Virginia Rural Women

	Farm	Non-Farm	t-score
Age	53.5	46.3	11.7*
Children under 19	.6	.7	3.6*
Education	12.5	12.3	1.6
Years of wage job experience	12.0	16.4	8.5*
Number	607	394	

\*Statistically significant,  $p \leq .05$  |  $t(\infty) = 1.96$

Table 2: Employment of Virginia Rural Women

	Farm		Non-Farm	
	Number	%	Number	%
All Women*				
Employed	474	78	241	61
Not Employed	92	15	81	21
Retired	41	7	72	18
Women Who Are Not Retired**				
Employed	474	83	241	75
Not Employed	92	16	81	25

\* $\chi^2 = 41.6945$ , Statistically significant,  
 $p \leq .05$   $\chi^2_{(2)} = 5.99147$

\*\* $\chi^2 = 10.3676$ , Statistically significant,  
 $p \leq .05$   $\chi^2_{(1)} = 3.8415$

ages are significantly different, there is no difference in the educational level of the two groups.

Past research suggests that women with children at home (the non-farm women) are less likely to work outside the home. It also suggests that younger women (the non-farm women), and women with more employment experience (the non-farm women), are more likely to work outside the home. Higher education generally leads to a greater likelihood of employment. Because the two groups have similar education, this should not explain any differences in employment that might be found between the two groups. Thus, of the three factors on which the two groups of women differ—age, experience, and children—two factors would be expected to increase the likelihood that non-farm women work outside the home more than farm women and one factor would lead them to work less outside the home. Because each of the three factors—age, experience, and children—may not have equal weight in their decision, whether non-farm women are employed at a higher rate than farm women needs to be investigated further.

**Employment**

Even though farm women, because they are older and have less wage experience, might be expected to work less outside the home than non-farm women, a higher percentage of farm women (78 percent) than non-farm women (61 percent) are employed (Table 2). Part of this difference can be attributed to a lower retirement rate among the non-farm women (seven percent versus 18 percent)

The lower retirement rate of farm women is in part an artifact of the sample. A farm family, by definition, has at least one member in the workforce. Those who have completely retired and no longer operate a farm, by definition, are not

Table 3: Class of Employment of Employed Virginia Rural Women

Class of Employment	Farm	Non-Farm
	%	
Self-employed*	46.0	9.1
Wage-employed	25.5	85.9
Both wage-and self-employed*	28.5	5.0

\*Includes farm self-employment  
 $\chi^2 = 234.5088$ , Statistically significant,  
 $p \leq .05$   $\chi^2_{(2)} = 5.9914$

included in the sample. In addition, some farm operators may, for all practical purposes, be retired. Many farmers retire, but continue to operate a farm so that it falls within the Social Security guidelines for outside income. At age 70 these outside income guidelines do not apply; they may farm and receive Social Security. A farm woman (or a farm man) was defined as retired if both members of the couple were 65 or older and did not work off the farm. This definition may include some people who do not define themselves as retired, but it still results in a much lower retirement rate than for non-farm families.

Because of difficulties in defining retirement for farm women, it is more accurate to look at the employment status of women who are not retired (Table 2).

Table 4: Average Working Hours of Virginia Rural Women

	Farm	Non-Farm	t-score
All Women			
Annual Employment Hours	1258	1013	199.05*
Daily Housework Hours	4.3	6.0	8.37*
Women Who Are Employed			
Annual Employment Hours	1686	1690	.09
Daily Housework Hours	4.20	5.20	4.32*

\*Statistically significant,  $p \leq .05$  |  $t(\infty)$  | = 1.96

Even among the women who are not retired, the farm women are employed at a significantly higher rate (83 percent) than the non-farm women (75 percent). Part of the explanation for the higher employment rate of farm women is found in Table 3.

Among rural Virginia women who are employed, farm women are more likely to be self-employed (self-employment includes farming) or to be both wage- and self-employed, while non-farm women are more likely to be wage-employed (Table 3). Thus, the self-employment opportunity provided by the farm appears to be the factor contributing to the higher employment rate of farm women (Table 2).

Farming is a type of self-employment. Approximately 28 percent of persons who hold two or more jobs are self-employed and self-employment is usually the second job (Small Business Administration, 1986; Bureau of Labor Statistics, 1989). The farm permits older women to work a few hours a day or a younger woman to combine childcare with hours of farm work. In addition, farm women are more likely than non-farm women to combine their self-employment with wage employment (28.5 percent versus 5.0 percent).

When employment hours are averaged over all for women in each group, the average for farm women is higher than for non-farm women (Table 4). Intuitively, this can be thought of as the "average woman" because it is based on all the women in each group, including those who are not employed. Because farm women are employed at a higher rate—fewer report

Table 5: Employment Hours for Rural Virginia Women Employed in Each Class

	Farm	Non-Farm	t-score
Wage Hours	1725	1646	1.85
Self-Employment and Farm Hours	1102	1291	1.70
t-score	13.90*	3.26*	

\*Statistically significant,  $p \leq .05$  |  $t(\infty)$  | = 1.96

Table 6: Employed Rural Women's Contribution to Family Income

	Farm	Non-Farm	t-score
Women's Income	\$11,130	\$12,872	2.57*
Women's Percentage of Family Income	31%	39%	4.08*

\*Statistically significant,  $p \leq .05$  |  $t(\infty)$  | = 1.96

zero hours of employment—their average is likely to be higher.

While this average is an accurate reflection for the two samples, it is lower than the hours of those who actually are employed. When average employment hours are calculated only for employed women, there is no significant difference in the annual hours that farm and non-farm women are employed. The average annual hours suggest that most of the employed women are working full time.

In addition to working full time, the women of both groups work approximately half a day in the home. The non-farm women spend significantly more time at housework than do farm women. The explanation may be that non-farm women have significantly more children.

When total employment hours for those who are employed were compared, there were no differences between the two groups. The same finding holds when employment hours are compared within each class of employment (Table 5). For wage-employed women, there are no significant differences in wage hours for farm and non-farm women. The same is true for farm and non-farm women who are self-employed.

There are significant differences, however, in hours worked by women who are wage- and self-employed (Table 5, reading down the columns). Both farm and non-farm self-employed women work fewer hours than the wage-employed. This finding reinforces the prior literature that suggests self-employment allows more control over the hours worked and that self-employment may be combined with other activities (Small Business Administration, 1986).

The similarity in hours of the two groups of women is due in part to the fact that the majority of them work full time. Even among the self-employed, who work fewer hours, total hours are still over half-time. When combined with a half-day of housework, or with a wage job in the case of 28 percent of the farm women, both groups of women carry very full loads.

### Income

Even though farm women are more likely to be employed than non-farm women, and there are no significant differences in the hours that the two groups of women work, the non-farm women earn approximately \$1700 more per year than the farm women (Table 6). Perhaps the difference in income is due to the greater years of job experience of the non-farm women. It may also be due to occupational differences. A much higher percentage of farm women are self-

Table 7: Family Incomes of Virginia Rural Families

	Farm	Non-Farm	t-score
Families With Two Adult Heads	\$36,270	\$32,500	3.72*
Families With An Employed Woman	\$40,364	\$37,440	2.40*

\*Statistically significant,  $p \leq .05$  |  $t(\infty) = 1.96$

employed, mainly on the farm. In addition, a much higher percentage of farm women moonlight (hold two jobs, Table 3), suggesting they hold part-time jobs that do not pay as well.

Non-farm rural women also contribute significantly more to their family income than do farm women. One reason is that they earn more, but a second reason is that their families have significantly lower incomes (Table 7). Even if non-farm women earned the same as farm women, it would still be a larger percentage of family income.

For rural families with two adult heads, non-farm families receive approximately \$4,000 less income than farm families. When the woman is employed, that difference in income falls to approximately \$3,000, but remains statistically significant.

Income distribution show that there are no significant differences in poverty rates among farm and non-farm families (Table 8). A more detailed income distribution, which includes the percentage of high-income families (over \$80,000), indicates that farm families are more likely to be in

Table 8: Poverty Status of Virginia Rural Families With Two Adult Heads

	Farm	Non-Farm %
In Poverty*	7.3	9.0
Above Poverty	92.7	91.0
In Poverty**	7.3	9.0
Above Poverty	85.1	88.5
Above \$80,000	7.6	2.5

\* $\chi^2 = .859$

\*\* $\chi^2 = 10.446$ , Statistically significant,  $p \leq .05$ ,  $\chi^2_{(1)} = 5.991$

the high income category than are non-farm families.

To further investigate the contribution of rural women to family income, income distributions were calculated for those families in which the woman is employed. When the woman is employed, the income distribution of farm and non-farm families is significantly different. Non-farm families in which the woman is employed are less likely to be in poverty than are farm families (Table 9). The poverty rate for non-farm families falls from 9.0 percent to 2.9 percent when the woman is employed. For farm families the poverty rate increases from 7.3 percent to 12.5 percent when the woman is employed. Clearly the farm woman's employment does not cause poverty, rather the woman may be employed as a result of the economic circumstances of the family. At the same time, farm families with an employed woman also have a higher percentage of families in the upper income category than do non-farm families.

The higher incomes of farm families and the differences in income distributions

Table 9: Poverty Status of Virginia Rural Families With An Employed Female

	Farm	Non-Farm
In Poverty*	12.5	2.9
Above Poverty	87.5	97.1
In Poverty**	12.5	2.9
Above Poverty	78.7	93.8
Above \$80,000	8.8	3.3

\* $\chi^2 = 15.485$ , Statistically significant,  $p \leq \chi^2_{(1)} = 3.8414$

\*\* $\chi^2 = 23.187$ , Statistically significant,  $p \leq \chi^2_{(1)} = 5.9914$

Table 10: Family Income Strategies

	Farm	Non-Farm %
No earners		20.3
1 earner	14.9	20.3
1 earner, moonlights	6.7	1.0
2 earners	31.7	40.1
2 earners, 1 moonlights	29.9	8.9
2 earners, 2 moonlights	15.4	1.0
3 earners	.2	5.8
3 earners, 1 moonlights	.7	2.5

\* $\chi^2$  calculated without this category because of sample definition.

$\chi^2 = 158.54$ , statistically significant,  $p \leq .05$ ,  $\chi^2_{(10)} = 12.5916$

might be explained by the different income strategies that the families pursue (Table 10). The two groups are different, but for both, the most common strategy is to have two-earners. Nearly as common for farm families as the strategy of two earners, is that one of the two earners moonlights. Apparently the farm makes this strategy feasible. The majority of farm operators in Virginia have a primary occupation other than farming and farm as a second or "moonlight" occupation (Stallmann and Alwang, 1992; Bureau of the Census). In addition, as seen in Table 3, 28 percent of farm women hold at least two jobs. This finding is not unique to Virginia, nor is it unique to recent times. Ahearn and Lee (1991) noted that the "full-time family farm norm was never the predominant situation in the South, Southwest, West Coast, or the Mountain States.

The occupations of farm operators and their spouses are distributed similarly to the occupations of other rural residents (Nelson, 1992). Nationally, farm operators and their spouses also hold a wide variety of occupations (Ahearn and Lee, 1991).

The traditional one-earner family still exists, but it is clearly a minority. It is less common among farm families because, as noted above, farm women are more likely to be employed than non-farm women. Forty-six percent of farm families and 18 percent of non-farm families have three or more jobs in the family. Twenty percent of non-farm families have no income earners. As pointed out in the data section, farm families, by definition, have one employed member. For this reason the no-earner category was omitted when calculating the statistical test. Including it would have increased the magnitude of the test statistic.

### Conclusions

Non-farm women are younger and have more years of wage-job experience than farm women. They also have more children in the home than do farm women. While farm women are more likely to be employed than non-farm women, the employed women in both groups work similar hours. Although they work similar hours, the non-farm women earn more than the farm women. This may be due to the greater years of wage experience of the non-farm women. It may also be due to occupational differences between the two groups—farm women are more likely to be self-employed or both self- and wage-employed than non-farm women.

The existence of the farm makes it possible for the farm family to pursue different income strategies than the non-farm family. Farm families are more likely

to moonlight than non-farm families. The farm may also make possible the higher employment rate of farm women. The availability of a wider array of income strategies may be the factor that provides farm families with higher incomes than non-farm families.

Both groups of women contribute an important share of family income. Non-farm women contribute a larger percentage of family income than do farm women, both because they earn more and because their families earn less. Non-farm families with an employed woman have a lower poverty rate than other non-farm families. On the other hand, a higher poverty rate exists in farm families when the woman is employed. While the data cannot explain this, it may be that in some situations the woman is working because the farm is losing money. Although the contribution of the woman does not raise the family out of poverty, their employment raises family income above what it otherwise would have been.

The two groups of women do not supply different amounts of labor, but they do supply labor to different activities. Non-farm women pursue mainly wage work. Farm women pursue self-employment, wage-employment, or both. The existence of the farm provides the farm woman, and the farm family, with more income-earning alternatives and with higher incomes.

Changes in the farm economy may affect some aspects of the labor supply of farm women. Because a very high percentage of farm women are employed and work full time, a decline in the farm economy is unlikely to increase employment rates or hours, but it could affect the allocation of labor. Farm women could allocate more labor to wage-employment and away from self/farm-employment. An improvement in the farm economy could cause a decrease in the employment rate, a decrease in employment hours, or a switch from wage-employment to self/farm-employment.

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## Publications

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shed of Earth Day 1990. While the large New York trade book companies are disappointed and have withdrawn from what they see as a glutted market, specialty houses are thriving by filling a niche that has branched into a diverse array. Environmental publishers listed in the Literary Marketplace jumped from 100 to 250. Some of the more active publishers are Chelsea Green Publishing (802-295-6300); Island Press (202-232-7933); Sierra Club Books (415-923-5600); Worldwatch Institute (202-452-1999).

In their new book, *When Elephants Weep: The Emotional Lives of Animals*, Jeffrey Moussaieff Masson and Susan McCarthy examine a compelling notion—that animals have rich, complex inner experiences. To buttress their theory, they draw on research and anecdotal evidence from scientists who have studied chimpanzees, gorillas, parrots, and a variety of other creatures.

The new *International Journal of Wilderness* is a compilation of wilderness research, planning, management, and education articles, with essays on wilderness philosophy, policy, and international perspectives. Contact is John Hendee, Managing Editor at 208-885-2267.

*A Guide to Women's Studies in the Outdoors: Review of Research with Annotated Bibliography* compiled and edited by Nina S. Roberts, pertains to women's experiences in outdoor adventure activities. The 45-page guide lists over 100 studies and research papers. Categories include leadership, feminist perspectives, group dynamics, gender, constraints to participation, and safety. Proceeds assist adventure program development in Washington DC. Cost is \$10.50 plus \$2.50 shipping. Send a check to Nina Roberts, 9703 47th Place, College Park MD 20740-1470.

*Who Benefits, Who Decides. An Agenda for Improving Philanthropy: The Case for Women and Girls* is edited by Mary Ellen S. Capek and Susan A. Hallgarth. According to Foundation Center figures, the leading 1020 private foundations in the United States designated a paltry 5.2 percent of their 1993 dollars to support programs for women and girls. This short book (74 pages) looks at the perspectives of funders, donors, researchers, women's organizations, and suggests alternative philanthropic models designed to meet the needs of girls. Contact Jae Mattern, National Council for Research on Women at 212-274-0730 for costs.

The Conservation Career Development Program (CCDP) founded in 1990 by the Student Conservation Association (SCA), is striving to increase minority representation. Their aim is to develop a diverse group of environmental and outdoor educators, botanists, engineers and others by recruiting and training young people of color and women for careers in natural resources and allied fields. On June 26th, the SCAs first all-female crew began their month long tenure at the Concord Naval Weapons Station (a site with a rich African American history) in Concord, California. The goal for this crew and the two others being formed is to increase self-esteem, provide career opportunities and provide guidance and mentorship. They will work on tidal and wetlands cleanup and restoration, tree planting, bird nesting boxes. For a brochure about this program or others contact SCA's Nina Roberts (703-524-2441) or Brenda Cercone (510-832-1966).

### La Mer Bleue

Like walking on dead calm,  
We heed the silence, and the bog  
Responds with pensive wariness.  
The Labrador tea gives timid glances;  
The alder trees blink.

Time settles,  
Stillness grows into weightlessness.  
Perception turns to presence—  
Sinking and rising—heaving in and out—  
The exhalation of foggy breath.  
Our awareness thickens;

A knowledge of prescient form—  
The enormous respiration of vapor rising;  
Everything is molecular, absorbing,  
Shifting in a reconstituting dance,  
Slipping between the interstices  
Of foregone and present tissue.

Patience—a millennium—is the requisite  
Reaction time—all time; held suspended  
In the porous squelch  
Of atmosphere and ground water,  
Meeting and exchanging gray/blue respiration,  
Full and heavy like Hebrides wool  
Buoying everything into being and belonging.

To become the indehiscent cotton-grass,  
Joining the ancients in the inner life  
Of composting peat, combustible, fertile;  
Or the Algonquin tamaracks,  
Feathering plumes rising from the spongy sea,  
Reworking into semicarbon,  
The fibrous creation of sphagnum moss.

The Cenozoic Elk feels the tremble of our steps,  
Alar antler poised, turning  
A possessive gaze from eons out,  
The seductive pull—to evanesce,  
Join the conspiracy of eyes;  
Be inhaled, slide between  
The atomized elements and become the bog.

*Maureen Buchanan Jones, June 1995*

THE FOREST SERVICE'S FOREST PRODUCTS LAB IN MADISON RESEARCHES WAYS TO TAKE ADVANTAGE OF THE COUNTRY'S WILLINGNESS TO KEEP PAPER OUT OF LANDFILLS.

## RECYCLING PAPER: NEW TECHNOLOGIES

MARGUERITE SYKES



Every American uses more than 700 pounds of paper a year—almost twice the per capita consumption of the next largest paper consumer, Japan, and about 25 times the average Chinese consumption. Most of the paper we use in the United States ends up in a landfill. Wastepaper comprises approximately 40 percent of all the landfilled municipal waste; that percentage has been increasing annually. Although much of the landfilled wastepaper is packaging and newsprint, more than 20 million tons/year is bleached, high quality printing and writing paper that is generated in offices. Many offices pay to have this potentially valuable resource hauled to landfills.

Less than a decade ago, most deinking mills in the United States were geared to processing newsprint back into newsprint. Water-dispersible inks used in printing newspapers contain very small ink particles that are readily removed by washing. However, when office papers were investigated for recycling, it was found that the presence of toner inks used in photocopiers and laser printers required new deinking technology. Toners contain thermoplastic polymers that virtually fuse onto paper fibers during printing. Toners are detached as large rigid flakes that are difficult to separate from pulp fibers during recycling.

As recent as five years ago, it was less expensive to landfill office paper than to recycle it into high grade printing and writing paper because the presence of the residual toner inks in recycled office paper downgraded the end use to a less valuable paper stock. Therefore, it was not economical to reprocess mixed office paper. Small-scale recycling of quality papers—done mostly by active environmentalists—was costly and had a limited market.

Today, office wastepaper recycling is no longer just politically correct; it soon will be the fate of all paper. Driven by the escalating cost of virgin fiber and legislation increasing the amount of recycled content, papermakers are focusing on recycling as a necessity. New deinking mills

established in response to the projected demand are competing for the cleanest, most homogeneous waste paper source—sorted white ledger. Quality office wastepaper can demand as much as \$400/ton, which necessarily forces the paper recycler to dig deeper into the wastepaper stream to remain competitive.

Environmental problems are often created when conventional technologies are used to reprocess paper printed with advanced technology inks and printing techniques. Paper recycling generates large quantities of sludge and effluents that are high in oxygen-demanding material. Considerable electrical energy is required to upgrade wastepaper. Current deinking technology is being stretched to accommodate both the hard-to-remove toner inks, stickies, and the colored, dyed, and unbleached fibers present in unsorted office wastepaper. The sequence of adding chemicals, multiple flotation steps, and dispersion alleviates some limitations of a heterogeneous paper stock. Although pulp cleanliness resulting from this sequence is often excellent, the process is capital and energy intensive.

The USDA Forest Products Laboratory (FPL) works cooperatively through partnerships with industry and academia to develop technologies that promote forest conservation, mitigate adverse environmental impacts, and improve the competitive position of the U.S. pulp and paper industry. The research approach at the FPL is multidisciplinary, with scientists in chemical and mechanical engineering, chemistry and biochemistry, forestry, microbiology, economics and statistics. Recycling of wastepaper and wood waste continues to be a priority emphasis area for both Forest Service Research and the FPL. Currently, we are studying two complementary methods developed at the FPL to recycle office wastepaper: (1) enzyme-enhanced deinking and (2) fiber loading. These new methods are environmentally sound, affordable, and use equipment typically available in deinking mills.

•Enzyme-enhanced deinking improves toner removal that will enable low quality office waste-

paper with a high laser-ink content to be upgraded. Commercial enzyme preparations can replace conventional deinking chemicals to remove toner inks. In addition to producing a cleaner pulp, enzymes improve pulp drainage during papermaking and reduce deinking effluent toxicity and oxygen-demand load.

•The fiber-loading process precipitates calcium carbonate within the lumen, cell walls, and exterior surfaces of pulp fibers. In this process, carbon dioxide can be captured from mill stack gases and reacted with calcium hydroxide to precipitate calcium carbonate. Partial internal incorporation of this common papermaking filler results in increased filler retention during recycling, which reduces the quantity of sludge generated. Preliminary experiments demonstrate that recycled pulp can be fiber loaded, resulting in increased pulp brightness, improved color, and substantially reduced residual ink and contaminants.

### Enzyme-Enhanced Deinking

Use of laser and photocopier printed paper, the major component of office wastepaper, is increasing annually. These printing techniques are based on thermoplastic toners that fuse onto fiber surfaces during high temperature noncontact printing. Nondispersible inks require special chemical, thermal, and mechanical actions to detach inks from fibers so that they can be removed by flotation. Flotation is a deinking process that separates hydrophobic ink particles from the hydrophilic pulp fibers. We have found that commercial cellulase preparations, or products with a combination of cellulase and hemicellulases, can replace conventional deinking chemicals to release toners from wastepaper. Enzyme preparations, when combined with inter-fiber friction of medium-consistency (14 percent) pulping, help to separate detached ink particles from the pulp slurry by clipping and smoothing pulp fibrils from fiber surfaces. Although the activity of most cellulases is optimum in an acidic to neutral pH range, we have observed only



writing paper requirements for dirt count or color could be improved enough to be incorporated with virgin fiber for printing and writing paper.

### Outlook

The wastepaper recycling scenario is rapidly changing. The high premium being offered for wastepaper in all categories is an incentive for recyclers from households as well as offices. Many U.S. cities have good recycling programs already in place for newspapers, magazines, and office wastepaper. Some states, like Wisconsin, have taken the next step of mandating recycling of certain categories of paper products. Most industrialized nations, primarily as a result of limited timber resources, have recycled high percentages of wastepaper products for years. Developing countries with limited timber resources also import U.S. wastepaper for reprocessing.

Another component of successful recycling is to have a guaranteed market for the end product. Again, legislation may be the initial incentive. Our government's decision to require an increasing level of recycled content in all paper purchased for government use is a good start. Public pressure and individual practice can also make a significant difference. Perhaps the United States should go the next step, as in Europe, and accept lower brightness standards in their paper supply and use unbleached paper for many of their paper products.

As more recycled fiber enters the printing and writing paper supply, it is inevitable that more mechanical and unbleached fibers will be a part of the office waste stream. Although these specific fibers will create new problems for processing, increased levels of recycled fiber in all new paper products should continue to be encouraged. Technology can adapt to the change in fiber content, just as it adapted to accommodate nonimpact inks.

*Marguerite Sykes is a Forest Products Technologist at USDA's Forest Service Forest Products Laboratory in Madison, Wisconsin. She has worked there for 25 years and currently is a member of several interdisciplinary teams that apply biotechnology to solve problems in the pulp and paper industry. Her Bachelor's is in Chemistry from Denison University.*

slightly reduced ink removal at the ambient pH of the repulped stock, approximately pH 8.5.

Printing and writing grade papers require a high level of brightness (80 percent–85 percent on a scale of 100) and less than 10 ppm (parts per million) residual ink specks. To meet these brightness and cleanliness specifications, a dispersion unit is typically added at the end of the deinking process. In this process, residual ink particles are ground small enough either to be washed or floated out of the pulp slurry or left in the pulp as invisible particles.

Pulp color is another parameter of special concern in recycled fiber. Some paper dyes are difficult to remove and contribute undesirable color to recycled fiber intended for printing and writing paper. Color stripping is best achieved by reductive bleach chemicals that alter pulp color as well as brightness. Sodium hydrosulfite or formamidine sulfinic acid (FAS) are frequently used in a bleach step that is added before, after, or with the dispersion unit to meet brightness and color targets.

### Fiber Loading

Alkaline papermaking has made it possible to incorporate calcium carbonate into pulp. Calcium carbonate is used as a filler to extend fiber as well as to increase the brightness of resulting paper. Because calcium carbonate is less expensive than fiber and has excellent optical properties, it is advantageous to add as much filler as possible. However, the benefit of increasing the amount of carbonate filler is offset by a corresponding decrease in inter-fiber bonding and ultimately lower paper strength. When pulp is fiber loaded, more calcium carbonate can be incorporated into the fibers before bonding decreases. For comparable strength paper, more carbonate filler can be incorporated by fiber loading than with the conventional direct addition method. The increased amount of calcium carbonate that can be used depends on the amount of carbonate precipitated within the fibers. Increased carbonate retention is an additional advantage of incorporating calcium carbonate within fiber lumens and cell walls. This attribute is especially important during recycling when greater retention levels translate into less sludge and lower suspended solids in the effluent load.

Fiber loading is a two-step process. Calcium hydroxide is mixed into pulp (either virgin or recycled) fibers at high consistency levels and subsequently is reacted with carbon dioxide in a pressurized refiner. The result is complete conversion of calcium hydroxide to calcium carbonate. The amount of carbonate formed increases with both the amount of calcium hydroxide added and pulp consistency. Twenty to thirty percent of the calcium carbonate precipitated during fiber loading is deposited within pulp fibers. As more carbonate is precipitated in the pulp mixture, proportionately more calcium carbonate can be incorporated within fiber lumens and cell walls. An unexpected advantage of fiber loading is that mill stack gas can be used as the source of reactant carbon dioxide.

The most important initial application of fiber loading may be in processing secondary fibers. Fiber loading has the potential to upgrade deinked pulp by increasing brightness, improving color, and masking residual ink and other contaminants. Color is measured in L,a,b values, which indicate whiteness, red-green content, and yellow-blue content, respectively. As more papers entering the mixed office wastestream contain recycled fibers, this furnish will become even more problematic to deink and upgrade. Fiber loading could be the process that enables upgrading of mixed office wastepaper containing mechanical and unbleached fibers by providing the alkaline reservoir necessary to stabilize these pulps. Because fiber loading can replace the dispersion step now used in deinking mills, deinked pulps that fall short of the printing and



**Photos:** Preceding page, Kathy Arnold, technician, loading waste paper into high consistency pulper for the Pilot Plant Recycling studies; this page above, Freya Tan, chemical engineer, working at a pressurized refiner on fiber loading; and the author, Marguerite Sykes, at the flotation cell used in deinking.

STILL HAVE GRANDPA'S FISHING TACKLE? IF SO, YOU MAY HAVE A COLLECTION READYMADE.

# ANTIQUÉ FISHING LURES HOOK ANGLERS & COLLECTORS

ANNETTE C. SANDERS

If the names Fluted Wobbler, Feathered Fidget, Surface Dingbat, Crab Wiggler and Luny Frog are as familiar to you as your name and telephone number, then you must be a collector of antique fishing tackle. The interest in antique and collectible lures, rods, reels and related tackle items has grown tremendously across the country since the mid-1970's. At that time a small group of Springfield, Missouri, fishermen were meeting informally to identify old tackle and swap lures. They started what has become a national organization of collectors with 4000 members today. The NFLCC (National Fishing Lure Collector's Club) will celebrate its 20th anniversary with a national meeting in July 1996, in Little Rock, Arkansas.

I will be among the attendees. I did not fish while growing up in southwest Louisiana, however. I earned an undergraduate degree in biology, a master's in botany and one in science education, then met my future husband, Charles, while co-teaching a freshman biology lab.

I wanted to learn to hunt and fish, and Charles was a great teacher. We have been avid anglers for 24 years, and shared our love of the outdoors (he has a master's in wildlife conservation and works with the City of Columbia, Missouri Health Department as an environmental specialist). Our interest in collecting was a natural outgrowth of our angling hobby. We began seriously collecting about five years ago and are both Life Members of the NFLCC. Members are dedicated to identifying and preserving old fishing lures and accessories, as well as sharing our knowledge. We hold regional swap meets plus a national meeting. Several members have published histories and identification guides. In the midwest, we even have a mid-summer antique tackle fishing tournament. Rules require that we fish with tackle that was in manufacture prior to 1940.

Some collectors are fascinated by the craftsmanship and engineering genius that often went into lure designs. Others enjoy the

history associated with the people who designed and fished with various lures.

Beginning lure collectors face a bewildering assortment of lure types, sizes, styles, colors and years of manufacture from which to choose. Some early wooden plugs are popular among collectors. However, certain early metal, glass and plastic lures are also highly desirable. The most important factors determining collectibility are rarity and condition. Lures from certain companies may become more popular for a period, and then less popular later on.

Thousands of lures have been made over the years, plus newer versions of early models may be re-issued. Therefore, collectors must be able to recognize different types of hook attachments, propeller designs, the number and placement of hooks and the type of eyes on the lure, if any. The combinations of these lure parts were often characteristic of the company which made them and can offer a good indication of the year of manufacture. Without an in-depth knowledge of the many company designs, color patterns and unique features, a collector may end up with a very inexpensive lure, mistaken for one that is highly collectible.

I advise any collector of lures, movie memorabilia, glassware, baseball cards, or anything else, to arm themselves with knowledge. Read books, talk to other collectors and better yet, join a club of collectors who share your interests. With today's nostalgia craze, many collectibles have increased in value, and the best way to enjoy collecting is to learn as much as possible. Avoid the temptation to buy or trade for anything but good pieces. Beginners often are anxious to acquire any piece which looks old, even if badly damaged. You can waste a lot of money on poor pieces whose value will always remain low. Decide what you really like, and concentrate on building that part of your collection with good pieces that will maintain or increase in collectibility.

Karl White, author of one of the common guide books to lure identification, recommends that new lure collectors first learn the

basic hardware configuration of the "big six" lure manufacturers. White indicates that the shape of propellers, the metal hook attachments, and metal lips or diving bills were distinctive between the major producers of wooden plugs—Pfleuger, Shakespeare, Heddon, Moonlight (Paw Paw), South Bend and Creek Chub Bait Company.

The age and source of some lures is determined by eye type. White said, "Some baits had no eyes, others had tack eyes, glass eyes or painted eyes. On others, decal eyes were used." South Bend baits, for example, had a progression of different eye types, depending on the year of manufacture. Heddon baits, by contrast, are more easily identified and dated by the type of hook fasteners and color patterns.

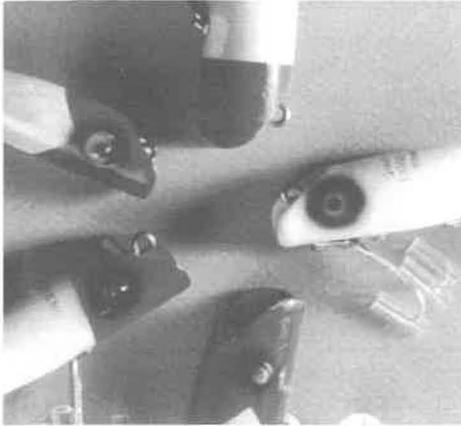
From simply elegant to wonderfully elaborate, fishing lures have been made from wood, metal, rubber, various plastics and combinations of these materials. Anglers and lure manufacturers were very much aware of the food chain, and fashioned lures to imitate minnows, frogs, insects, lizards, and even small birds and mice—all of which are common food sources for game fish.

Lures were made more attractive to fish by the addition of feathers or dyed deer hair, metal spinners and even materials which gave off scents. The turn-of-the-century Detroit Glass Minnow Tube, for example, was a



This wooden, glass-eyed, 3-hooked "100" lure was made in the 1930's by Heddon and Sons of Dowagiac, Michigan.

Below: These similar South Bend lures illustrate the various eye types which collectors use as one means of identification and dating. The earliest is the no-eye Bass-Oreno (top center); going clockwise, the other lures are: Midge-Oreno with a painted eye; Bass-Oreno with a tack eye; Bass-Oreno with a glass eye; and another Midge-Oreno with a carved eye.



see-through glass cylinder with hooks wired around the glass. The angler placed a live minnow inside to attract gamefish. Holes through each end allowed water to flow through, keeping the minnow alive.

One enterprising lure company in Florida (Eger Bait Mfg. Company) in the 1940's, made the Frog Pappy and Froggie Junior. They were wooden cylindrical baits with real frog skin stretched over them. Others had compartments for dye tablets, which dissolved in the water to imitate a wounded, bleeding minnow.

Plastic and rubber baits were made as early as pre-World War II. Many of these early plastic baits became brittle with age or underwent chemical deterioration. For that reason, those in excellent condition are not found in large numbers and are therefore highly collectible. Although metal baits were generally more hardy, they were subject to wear and corrosion.

Larger lure companies often had internal documentation and catalogs, and there is sometimes patent information available. However, information about lures made by smaller companies is much more difficult to find. For that reason, collectors look for lure boxes, company advertisements, catalogs or promotional pieces which came with the lures.

Because a few books have been published with insurance replacement values, some people think that they have a gold mine in Granddad's tackle box. What they do not realize is that so-called "book" values are only for lures in mint condition (unused), in the original box complete with advertising papers.

In general, each separate flaw on a lure (scratches, cracks, melted paint, missing eyes, etc.) can take the value down from 10 to 20 percent. Experienced collectors soon learn that there will always be a better lure around the corner and to walk away from over-priced and badly damaged pieces.

One of the biggest threats to the preservation of old lures and fishing tackle concerns where they are stored. People often keep tackle boxes in damp basements, outdoor storage sheds, barns or garages, or the attic where both weather and humidity change drastically. These conditions can take a wonderful collectible to an almost worthless curiosity in a fairly short time. Old tackle should be taken inside to a cool dry area of the house. Then have an experienced collector identify and appraise it. Most NFLCC members will gladly provide this service at no charge, and show you how to protect and preserve it.

Part of the charm of old lures is not just their design or mechanics. It is in the stories that surround the men and women who designed, manufactured or fished with them. Antique lures, rods and reels represent an important part of our outdoor heritage in this country—one which should be preserved and shared. That is one of the motivating factors for collectors like us. If the wonderful designs and colors don't get you, surely the names will. With what other hobby can you have a serious conversation about Fluted Wobblers, Feathered Fidgets, Surface Dingbats and Luny Frogs?



Annette Sanders, above, preparing display of her antiques, is president of Sanders Public Relations and Training in Columbia, Missouri. Her career includes over 24 years of communications and public relations work with the University of Missouri and in private industry. Her Bachelor's in biology is from McNeese State College in Lake Charles, Louisiana, a Masters degree in botany (1970) is from the University of Massachusetts (Amherst). A masters in science education (1972) and a Ph.D. in education (1986) are from the University of Missouri-Columbia. She is an amateur nature photographer and outdoors free-lance writer and has won numerous amateur angling awards. She is a graduate of two American Bass Fishing Institutes (Indiana State University). Sanders is a volunteer instructor for Missouri's "Becoming an Outdoorswoman" program (sponsored by the Missouri Department of Conservation), teaching canoeing plus basic and advanced fishing (baitcasting).



Left: A typical metal tackle box, rod and reel of the early 1900's. The lure with the stripes is a 1910 Charmer Minnow, manufactured in Springfield, Missouri. The lure (top center) hooked on the tree stump is a 1904 Jamison Convertible Coaxer. It won what is believed to be the first bass tournament—a challenge match from another lure maker named Decker. The Coaxer outfished the Decker almost 10 to 1.

## News & Notes

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years of age and live up to 20 years or more. Females return to the area where they learned to fly to begin nesting. They are very traditional. The wildlife refuge aspect of an urban situation means the mortality is low, leading to a rapid population buildup.

Canada geese are a grazing animal. They like their grass short, so they can feed with an unobstructed view. Lawns and golf courses provide a perfect feeding situation. While the grass the geese eat may or may not be noticeable, the droppings they leave behind are.

The Minneapolis-St. Paul goose population has grown from about 5,000 birds in 1980 to 24,000 in 1994. That, despite annual transplants of up to 4,000 birds since 1982 and several years of special September and December goose hunts aimed at reducing the population. The people of the twin cities enjoy seeing Canada geese. But they don't enjoy walking through loads of goose droppings at parks, beaches, and golf courses. They don't enjoy being hissed at by a 13-pound gander trying to protect his goslings from innocent passersby. The Minnesota Department of Natural Resources has filled up available goose habitat in the state, so the agency is having trouble finding a place to put the birds it captures each year.

The prospect of rounding up Canada geese and butchering them, like chickens from a barnyard, is distasteful to agency wildlife managers as well as people who like geese. Yet it is perhaps the most reliable and least costly method of controlling population growth. There are also concerns about geese creating traffic hazards by standing in the middle of highways. It is ironic that these majestic birds, that still warrant an upward glance as they pass overhead in spring and fall, now have people honking at them to get out of the way.

Craig Bihrlle, *North Dakota Outdoors*, August 1995.

### **A new body of case law indicates companies are vulnerable even if a site has been remediated**

The trend had its beginnings in a 1993 case, Bixby Ranch Co. v. Spectrol Electronics Corp., involving an electronics maker that had leased a parcel of industrial property from 1965 to 1990. In 1988, the Los Angeles Regional Water Quality

Control Board found that Spectrol had caused soil and groundwater contamination at the property to the tune of three million dollars. At trial, Bixby Ranch, the owners, claimed that even if Spectrol cleaned up the site, it would not be properly compensated because of the future stigma associated with the contaminated property. Bixby Ranch claimed damages including a diminished value in terms of its future use, rental or sale. It also contended that a governmental agency could order further cleanup in the future if standards for environmental control were heightened. The jury agreed, finding that the "stigma" would reduce the property's value by 18 percent and awarded the plaintiff \$826,500 in damages. This decision is currently on appeal.

Bradford D. Roth & Neville M. Bili-moria, *Environmental Protection*, June 1995

### **SAVING: The five most expensive financial mistakes women make**

The mistakes you really need to focus on are much more insidious and expensive than simple rotten timing or a single bad judgment call. They are errors that spring from a way of thinking about money that is so common and seemingly logical that you probably don't even realize they are mistakes. Women need to stop working against themselves. The mistakes are:

1. *Assuming that your current financial status is permanent.* Many women say their biggest concern is that they live from paycheck to paycheck; as a result, they can't save. But can you really afford not to? What if you or your spouse is laid off? If either one of you becomes ill? If you divorce? What if you want to change careers or scale back hours or go back to school? Sherri Goss, director of education at Consumer Credit Counseling, a non-profit group in Atlanta that helps people cope with debt says "They spent right up to their limits because they thought that major life changes—particularly changes for the worse—would never happen to them." They were wrong as massive restructuring, divorces for half of women who married in the last 20 years, will attest to. The *solution* is to resist the temptation to ratchet your living standard higher every time you get a promotion or a raise. Instead, earmark a part of every raise and bonus for savings. That will set a limit on spending, make it easier to retrench in an emergency, and will help build a bigger cushion of savings.

2. *Paying too much for convenience.* For women who are constantly juggling work and family responsibilities, time is usually the scarcest commodity. As a result, they're willing to spend large sums in

exchange for convenience—buying prepared foods or eating out instead of cooking a meal, not using public transportation, buying clothes and household goods at the nearest store instead of shopping around. The costs are justified, they believe, because labor-saving products and services free up time for family and personal chores. But such trade-offs are often miscalculated. "After taxes and child care, a working mother might be bringing home only \$5 an hour from a job that pays \$15," says Amy Dacyczyn, publisher of the *Tightwad Gazette*, a monthly newsletter. "Picking up dinner on the way home might mean the equivalent of working two or three hours for one hour of the convenience." Even the smallest convenience can cost you dearly over time. "One woman who came to me was spending \$30 a week buying cups of coffee because it was easier than making it herself at work," says Goss. "That's more than enough to start funding a retirement account." The *solution* is to identify those that are really worth the expense—either because they are truly cheap or because they make life so much easier—and then live without the rest. Track your everyday expenses for a week or two, then consider how many hours you have to work to support your coffee or takeout-pizza habit. Finally, list other things you could do with that money.

3. *Misusing a budget—or not using one at all.* Few people actually use a budget. And many of those who do fail in the end primarily because they tend to set excessively rigid guidelines that are impossible to meet, says San Diego financial planner Ginita Wall, author of *The Way to Invest*. The *solution* is to establish specific goals, such as making the down payment on a house or taking a vacation or paying for kids to go to college. If the whole idea of budgeting is anathema to you, consider targeting a specific area for savings. "Some people who try to budget every expenditure find the burden so great that they give up," says Wall. "They'd be better off finding one area where they overspend and creating a budget in that area. Mine is clothing."

4. *Waiting for the right time to save.* You figure you'll sign up for your 401(k) or put some money into mutual funds after you get your next raise, pay off your college loans... "Women still earn only about 72 cents for every dollar that men earn," says Diamond, "so it makes sense that they have a harder time putting money aside. The *solution* is to *just do it*, even if that means saving only one or two percent of your salary. You'll be surprised how quickly even small amounts of money

grow into a tidy sum, and that realization will likely encourage you to save even more. If you can contribute to a 401(k) or other company savings plan, you'll get a big tax break.

5. *Fearing the wrong risk.* You must invest at least some of your savings in growth investments such as stocks and stock mutual funds if you hope to stay ahead of inflation. Unfortunately, too few women heed that advice. A 1994 *Working Woman* survey found that 72 percent of women invest primarily in cash investment, which they considered safer, such as CDs and money-market accounts. That's bad news—especially since most women are likely to outlive their male peers and will need even more inflation protection. "Women have less faith than men that they'll be able to replace their money if it's lost," says Ruth Hayden, author of *How to Turn Your Money Life Around*. The solution is to consider the facts that over five-year periods, stocks have outpaced inflation roughly 82 percent of the time, versus only 54 percent for income investments such as bonds and CDs.

That doesn't mean you should invest all your money in stocks. Divide your assets among different investments, including stocks, bonds and cash investments. Include some international holdings, too.

Clint Willis, *Working Woman*, September 1995

### **Bella, an original, is still hustling**

"The world is suffering a global nervous breakdown," Bella Abzug barks. You may remember Abzug as the human bullhorn of the 1960s and 70s: congresswoman, feminist at the barricades, and living symbol of the brassiness and bravado of her native New York. Now, at 75, she has traded in the bullhorn for a fax machine and has gone international. As cofounder of the Women's Environment & Development Organization (WEDO), Abzug organizes women around such global issues as economic development and access to political power. When she went to the Fourth World Conference on Women, in Beijing, she planned to hold the world's feet to the fire on pretty much every issue you can think of.

Though not quite the volcanic force she once was, Abzug is still a seriously blunt instrument. On a recent afternoon, she was sitting in her crowded midtown office wearing a three-piece purple silk suit, purple platform shoes, and a straw hat—the signature Abzug accessory—with a parrot-green brim and a purple crown. A purple crystal dangled from a chain around her neck. "It's supposed to have

calming qualities," she said with a derisive laugh. Serenity is not in her repertoire.

At the moment, Abzug was exercised over suggestions that Hillary Clinton ought not to attend the Beijing conference, because the Administration was at odds with China over human-rights issues. (The Chinese had not yet released Harry Wu.) "It's political!" she rasped, throwing out her hands in the classic New York go-soak-your-head gesture. "She's not there on a diplomatic mission. She's there to join women and their government delegations to see what they can do to improve the conditions of women and children, which she's been working on all her life."

Abzug's faith that nations will make serious efforts to eradicate poverty or restrain "corporate greed" or cut defense spending just because they've pledged to do so seems almost touching, but she insists that words publicly uttered take on a real moral force. And women, she says, "are being mobilized by these meetings like crazy, all over the world."

Bella Abzug has been Bella Abzug for so many years now that she has apparently become not only an icon but an international brand name. At a recent meeting, she reports, "this young woman came in and said, 'Hi, I'm the Bella Abzug of Mongolia.'" WEDO itself represents a convening of such Bellas-in-training.

After she finished talking, Abzug heaved herself to her feet and proudly introduced her colleagues, who included young women from Louisiana, Tanzania, Bangladesh, India, Korea, and Turkey. They represented the future: but Abzug also carries her past with her. WEDO's other co-founder is Mim Kelber, a friend from Hunter College days; one of the volunteers is Eva Lederman, who was Abzug's high-school gym teacher, now 79.

The Talk of the Town, *The New Yorker*, September 4, 1995.

### **Naked at 40,000 feet**

In the next life, I am going to have a terrific job. I am going to be a dress-code enforcer for the airlines. I won't be the only one of course. It will take thousands of us stationed at departure gates all over the country. Do you doubt that it's a job that needs doing? Have you been on an airplane lately? Was the person next to you wearing anything? Does he have nice toes? (I should tell you that I am also going to double as an enforcer of the new law that will eventually be enacted concerning the definition of "carry-on" luggage. People are not going to be allowed to try to stuff pianos and boat-trailers into the overhead bin anymore.)

People anxious about missing the plane didn't use to call out to the family, as one must presume they now do, "Come on everybody, hurry up and get naked: we've got to leave for the airport in 14 minutes." In fact, they actually used to get dressed up to travel, on the quaint theory that it mattered what they looked like to the other travelers. And even when this custom bit the dust, there was a long period of time when they at least wore the same kinds of clothes they might wear to work. And then—the trend was gaining force—they would wear the kinds of clothes they might wear to mow the lawn in. That might not have been a look that would get you in *Vanity Fair* or *GQ*, but say this for it: it was still clothes.

It will be argued that given the new, fun intimacy of cabin design in the age of deregulation, which so far as I can tell, goes by a standard of one passenger per cubic foot of space, travelers are well within their rights to get comfortable and dress casually. But I would respond that the new up-close-and-personal seating arrangement on planes are precisely what makes the ever-expanding vistas of flesh more oppressive.

You and I have both flown across the country in the very close company of that 89-year-old woman in cutoffs and her 300-pound husband in a tank top (both shod in flip-flops, most probably). But the minute you get into distinctions based on age or weight, or for that matter, a variety of depilatory issues I would rather not get into, you are into discrimination plain and simple, or at least it will be so said. So I say go for the outright ban on offending items of clothing, and establish some universal rules about what may or may not be exposed and exactly how much of it. These details, like the actual surface space of an individual required to be fully covered under the dress code, can be worked out.

Meg Greenfield, *Newsweek*, September 11, 1995.

### **Bog breath: sleeper factor in global warming?**

In the cold, waterlogged belly of a bog, plant decay—a job for living microbes—proceeds very slowly. That's good news for the atmosphere. The bog snatches carbon from the air, traps it in green plants, and then buries it for a long, long time.

The bad news is that these cold, wet conditions spell paradise for microbes that emit methane, an even more serious greenhouse gas. Methane, aka swampgas, is a compound to be reckoned with. Like carbon dioxide, it traps heat and reflects it

back to earth's surface, acting like the sealed panes of a greenhouse. Methane makes a mightier seal than carbon dioxide, however, trapping 25 times more heat. In fact, although methane occurs in the atmosphere at 1/200th the quantities of carbon dioxide, scientists estimate that this more virulent gas may have caused 12 percent of the global warming over the last decade. And what is suspected to be the single largest source of methane? None other than the world's wetlands and their methane-breathing microbes.

Though you don't hear much about it, methane in the atmosphere is increasing at a rate of one percent a year, double the increase in carbon dioxide. Human sources of methane are partly to blame, as is the fact that the atmospheric defuser of methane—the hydroxyl radical—is in short supply because of ozone depletion. Activities that release methane include rice-paddy agriculture, waste treatment, biomass burning, venting during coal and natural gas exploration, and most especially, livestock production. Each and every cow belching contentedly in a field launches more methane into the air each day, the waste product of bacteria that live in the cow's gut, breaking down the cellulose.

Strangely enough, though scientists have studied the methane emission of cows, we can't yet quote a figure for bogs. Part of the problem is the enormous variability in methane production from site to site, season to season, even day to day. In fact, when global-climate-change models were being developed in the late 1980s, peatlands were not factored in because of this lack of consensus.

Elton "Sandy" Verry, (lead scientist at the Forest Service's North Central Water Quality Research Project) is determined to change that. "We're now soliciting representative peatland hydrology data from 15 sites around the world," he says, "and hopefully we'll be able to create models that will estimate average methane

loss from bogs. Once we get a handle on methane emission, we can ask what effect it might have on global warming." The next question Verry poses is even more ominous. As the world becomes wetter or drier, hotter or cooler, might the amount of methane emitted by peatlands change? Might warming or cooling cause wetlands to release even more methane than normal? Is there a chance the process is already feeding on itself?

"Most people don't realize how extensive northern peatlands are," says Verry. "We're talking about 500 million hectares (one hectare equals 2.4 acres) of the globe, a wide band that stretches through Siberia, Alaska, Canada, and across the Scandinavian countries. Peatlands represent up to half of the land base in northern latitudes, and *contain up to a third of all the soil carbon* in the world. There's no doubt bogs will play a part in the greenhouse effect—the question is, will they alleviate or aggravate global warming? That's what we want to find out."

Janine M. Benyus, *American Forests*, March/April 1995

#### Hunting: a slow fade

Hunting is a declining "sport" in America, involving just seven percent of the population. Still, using rifles, shotguns, handguns, and bows and arrows, hunters kill 250 million animals a year (including 10 million ducks, 50 million mourning doves, 250,000 coyotes, and 20,000 black bears).

Jim Motavalli, *E Magazine*, September/October 1995

#### Educators reevaluate the university system in Japan

One problem is the decline in the proportion of young people in the population. The number of 18-year-olds entering university is dropping, from a peak of 2.05 million in 1992 to an estimated 1.51 million in 2000. Without broad changes, many of

Japan's 1,000 plus institutions of higher education, particularly junior colleges and smaller regional schools, will face financial hardship and closure.

The second factor is that the Japanese population is getting older and the idea of lifetime education is catching on: more university graduates, working people, and retirees are expressing interest in returning to school to pick up specialized knowledge or additional real-world skills. However, Japanese higher education is geared almost exclusively to people 18-22 so the schools have little expertise in adult education. The new and coming information technologies are stimulating, but adult students must learn that medium.

Money is also a critical factor for universities. A private university derives 60 percent of its income from tuition and the remaining 40 percent from university funds, government subsidies, and university-supported businesses. Traditionally, classrooms, laboratories, and athletic facilities have been relatively durable, leaving the lion's share of school budgets for personnel expenses. The initial cost of building and keeping up with the technology requires system upgrades at least every four years. Tuition and subsidies will no longer be enough: universities will have to find other sources of income. A broad expansion may be necessary of for-profit business, as in joint research with national and local governments and companies or information-related concerns like publishing and broadcasting.

Junjiro Takahashi, *Look Japan*, September 1995

#### REPORT: State of Washington affirmative action shows white vets, disabled, and white women benefit

Most of those hired by the State of Washington through affirmative action in 1993-94 were either white men who were physically disabled, Vietnam veterans or disabled veterans, or white women. Further, in 1994, a tiny 6.9 percent of the 3,011 workers hired by the state were employed through affirmative action. In 1993, the figure was about 9.9 percent. "The numbers are so small for minority groups, we don't understand how one can believe the program is at the detriment of whites," said James Kelly, executive director of the state Commission on African American Affairs.

Associated Press, June 28, 1995

#### Beyond the glass ceiling, another set of problems

Numbers suggest the higher women go, the lonelier it gets. Although it represents an increase over two or three

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decades ago, women still hold only five percent of senior-level management jobs in the thousand largest U.S. companies, according to the Department of Labor. Of the 11,715 seats on the boards of Fortune 500 and Service 500 companies, 6.2 percent are held by women, according to Catalyst, a nonprofit research and advisory organization based in New York that works for the corporate advancement of women. Catalyst president Sheila Wellington says "Increasingly, men and women are becoming comfortable as colleagues," but for women executives, there are few peers with whom they can hang out."

Soon after she was appointed the first woman president of the University of Colorado in 1991, Judith Albino discovered her leadership style—emphasizing shared responsibility and collaboration—was viewed with skepticism by her mostly male colleagues. "Why is she asking us? She's the president, isn't she?" was the response. Speaking at a one-day conference held by The Women's Foundation of Colorado in Denver, where 3,000 businesswomen compared notes on leadership, Albino raised the issue. This audience understood. "What people are saying about leadership today is that we need more teamwork, less hierarchy, more collaboration," she says. "Those are the styles that women bring into the workplace quite naturally. "But an interesting thing happens when they do. When men use those styles, it seems a refreshing and humane way of leading and working. When women use those styles, they get the reaction, 'She doesn't know what to do.' It's seen as a weakness."

Albino prefers the term isolated to lonely. At that level, she says, "it is lonely, but probably not lonely for the reason most people think. It is lonely because you become such a symbol, and people don't relate to you as a human being. It is difficult to get full and honest input and the kind of direct communication that you can have in other situations."

One way women executives have reached beyond the isolated confines of their offices to find shared experience and support is through the proliferation of professional societies for women. Catalyst's Wellington says corporations also are starting to catch on to their female executive's need for support and to network among other women. "Catalyst knows of over 150 companies that have women's workplace networks," and "over 50 percent of them were started by senior women within the corporation."

Don Oldenburg, *Washington Post*, August 1, 1995

There is a fax source for hot political news, marching orders for direct action, pithy quotes, and valuable resource lists from the Washington, DC-based Feminist Faxnet, established in 1994. To sign on, call 202-797-0606.

The Western Forestry and Conservation Association is sponsoring the Personal Computers in Forestry conference on the applications, advantages, and advances in forest computer technology, to be held March 19-20, 1996, at the Portland, Oregon Convention Center. For more information contact Richard Zabel, 4033 SW Canyon Rd, Portland OR 97221-2760 (503-226-4562).

Women in Livestock Development is a program of Heifer Project International which brings together individuals interested in identifying and addressing women's needs in sustainable animal agriculture around the world. For the newsletter, contact Beth Miller at Heifer Project International, 1015 S Louisiana, PO Box 808, Little Rock AK 72203 (501-376-8906).

New Forests News is the newsletter of the New Forests Project for community reforestation and sustainable rural development. The project works abroad to develop nurseries, locally acceptable reforestation programs, and improved stoves to conserve resources. Contact them at 731 Eighth Street, SE, Washington DC 20003.

If you want to find out what really went on in Beijing at the women's conference, contact the International Women's Tribune Center, since 1975, an organization providing con-

cise reporting and information for future action. Write them at IWTC, 777 United Nations Plaza, New York NY 10017 and ask for a subscription to *The Tribune: A Women and Development Quarterly*.

The objective of the 7th American Forest Congress is to reach agreement on a clear and inspiring vision for the future of America's forests, guiding principles that support this vision, and the next steps that must be taken in order to achieve it. These goals will be accomplished through a process of citizen involvement through local roundtables and will be based on the cultural, economic, and ecological values of the American people. For roundtable dates and locations all over the country, contact them at 205 Prospect St., New Haven CT 06511 (phone 203-432-5117; fax 203-432-5942).

The Western Section of The Wildlife Society is sponsoring, for the 25th time, a natural resources communication workshop to be held at California State University, Chico, January 16-19, 1996. Contact Jon K. Hooper, Dept. Recreation & Parks Management, CSU, Chico CA 95929-0560 (916-898-5811).

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