

women in

Volume 19, Number 2 Winter 1998

NATURAL RESOURCES

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

Forest Products Focus

**Forest Products Perspectives in
New Zealand, Carpathia,
Chile, South Africa**

**Interview with Susan Regan, Exec. V.P.
of the Hardwood Manufacturers Assoc.
Washington Forest Protection Assoc.
A Value Added Processing Plant Dream**

Guest Editorial Jean Mater

Women and the Environment

Women and the environment have long engaged in a symbiotic relationship. Traditionally, women have accommodated to their environment and nurtured families to grow in whatever environment they were given. The Women's Movement, (or Feminist Movement or Eco-Feminism) that developed in the late 1960s and 1970s aimed to alter that role: women should not just placidly accept the social and physical environment in which fate placed them but should exercise a modicum of control over those environments.

While women were crafting this sea change in their place in the universe, another paradigm shift was making its way into the American consciousness. The nation's culture was moving from the buoyancy of "Progress is our most important product" in the 1950s and '60s to the notion that we must nurture and care for the fragile earth on which humans may be the intruders.

The new activist role for women has resonated with the new environmental role for humans on the earth. Women and the environment were made for each other.

The environmental paradigm began its shift in 1970, the year Congress passed 17 acts that fundamentally changed our vision of the environment, laying the groundwork for legislation on Endangered Species, the Forest and Rangeland Renewable Resources Planning Act, and the National Forest Management Act. The first *Earth Day* held in 1970 was the defining moment of the environmental strategy, successfully raising America's awareness about nurturing the environment. Nurturing is to women what macho is to men. Women took to heart this opportunity to nurture the earth. They found a home for their dynamic energy in the environmental movement and played a significant part in attracting and maintaining the public's endorsement of the environmental cause.

The new environmental movement encouraged women and students to directly engage in solving social and environmental ills, harnessing the creative energy of many educated and ambitious women who had found doors closed in industry and politics. The grass roots social and environmental

organizations in local communities rolled out the welcome mat for women.

Many of the issues highlighted by these grass roots groups related to the safety of their homes and families—problems dear to women's hearts. Activists like Lois Gibbs, who fought to make Love Canal a disaster area, and others, gained public visibility and leadership experience. Women were and still are prominent in NIMBY (Not in My Backyard) and NIABY (Not in Anyone's Backyard) educational and advocacy efforts—embroiling themselves in local problems such as hazardous waste abatement, pollution abatement, and other perceived threats. By the 1980s there were upwards of 7000 grassroots environmental groups, often led by women, struggling to protect their communities against various environmental hazards.

The success and visibility of these activists alerted the "Old Boys" network that women's brains, abilities, and leadership experience went far beyond apple pie. As a result, the early and mid 1970s became the era of "Firsts." My own experience testifies to the dynamics. I was the first woman elected President of our local Chamber of Commerce, one of the major Chambers in the State. I became the first woman in the State appointed to the Portland Branch of the Federal Reserve Board and the Oregon Small Business Administration Advisory Committee. The President of the United States appointed me to the Defense Advisory Committee on Women in the Services and I was on the Executive Committee that recommended that the military academies at West Point, Annapolis, and Eagle Springs admit women cadets. Shortly after, the military academies opened their doors to women for the first time. We successfully pushed to promote the "first" women Admirals and Generals.

I was even honored with a "first" Man of the Year Award from a Research Council. Meanwhile other women became "firsts"—directors on prestigious Boards, and winners of local and state elections to political offices. Women appeared on bank boards and other institutions with impenetrable glass ceilings. The "first" woman plant manager, the "first" woman chemist, and the "first" woman presi-

dent began to dot the industrial landscape. By the mid 1980s one had to scratch to find a place to become the "first" woman.

Female penetration into the ranks of the forest industry dragged behind other industries. Women were conspicuously absent at the meetings of the Forest Products Research Society, (FPRS) the Society of American Foresters, (SAF) and technical and trade organizations. I believe I was the only woman head of a Forest Products Society Committee for many years. Colleges of Forestry did not welcome women with open arms, therefore few women had the qualifications to assume executive positions in industry or in academia. To date, the Society of American Foresters has elected only five women as Fellows. The Forest Products Society Gottschalk Award has gone to only one woman (I was named as part of the team jointly with my husband, Milton H. Mater). The U.S. Forest Service had few women in the 1970s and early 1980s.

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Based in Pittsburgh, Pennsylvania

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Washington Forest Protection Association

Mike Munson

Creating a healthy political climate for profitably growing privately owned timber—in the State of Washington—is only one of the tasks WFPA sets for itself. The association has program areas in Forest Policy, Environmental Affairs, Eastside Forest Management, Governmental Relations, Forest Taxation and Economics, Public Information, Legal Affairs, Environmental Education, Tree Farm, and Animal Damage Control.

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A Value Added Wood Processing Plant ... For our Garden

Sheila Rush

A lack of jobs in south central Kentucky is a very big problem in this garden spot. The Kentucky Natural Resource Leadership Institute has provided impetus toward a goal of more forest-based economic development. A new plant perhaps?



Above, Razaina Taib working in the lab at Virginia Tech University, Blacksburg. See page 28.

Opinions & stuff

Texas A & M

Extension Fisheries Specialist for Texas

Position: Begins September 1, 1998 or later, non-tenure track, Assistant/Associate Professor and Extension Fisheries Specialist, at College Station.

Basic Qualifications: Doctorate in fisheries management/aquaculture or closely related field required. Two years experience in Extension preferred. Teaching and research experience, or equivalent work experience preferred.

Required: Knowledge and/or experience in the areas of pond and reservoir fisheries management, production aquaculture and aquatic vegetation management of private impoundments; computer competency; abilities to work with people, communicate effectively, cooperate as a team member in multi-disciplinary programming, implement and interpret applied and basic research, and use a variety of teaching methods.

Administrative Relationships: 100% appointment with the Texas Agricultural Extension Service. Academic affiliation with Texas A&M University's Dept. of Wildlife and Fisheries Sciences (WFSC), responsible to Extension Administration through the WFSC Department Head and Associate Department Head for Extension. Cooperates with district Extension directors, resident directors of research, county Extension agents and other specialists/researchers to plan, conduct and evaluate educational programs in fisheries management and aquaculture.

Major Job Responsibilities: Works with county Extension agents to plan, implement and evaluate educational programs in aquaculture, pond, reservoir and aquatic vegetation management. Assists trade associations in planning programs for current and potential aquaculture producers. Works with public agencies on programs to educate the general public on management. Serves as resource person for Extension program planning committees in water use, water quality and effluent treatment. Conducts in-service training for agents and specialists in aquaculture production, marketing and processing. Provides advisory assistance to clientele through basic water quality analysis and fish diagnostic service and through method and result demonstrations, field days, seminars, short courses and trade shows/conferences. Prepares fact sheets, handbooks, proceedings and electronic materials as needed. Prepares an individual Plan of Work and assists in preparation of a group Plan of Work. Maintains relationships with research scientists, Southern Regional Aquaculture Center (SRAC) and 4-H.

Salary commensurate with experience. **Closes April 17, 1998.** Applicants should submit: (1) Application letter reflecting interest in and qualifications for position. (2) Current curriculum vitae. (3) Copy of complete transcripts (photocopies of official transcript acceptable). (4) Names, addresses, and telephone number of four references.

Submit application materials to: Dr. Donny W. Steinbach, Assoc. Department Head, Professor and Extension Program Leader for Wildlife and Fisheries Sciences, Nagle Hall-111, College Station, Texas 77843-2258 (409-845-7471, email d-steinbach@tamu.edu, or visit <http://wfscnet.tamu.edu> An EOE

Forest Harvesting & Transport New Zealand

University of Canterbury

Applications are invited for the tenured position of Lecturer (US equivalent = Assistant Professor) in the School of Forestry in the subject area of Forest Harvesting and Transport. The minimum qualification on appointment is the Ph.D. degree or equivalent research experience. The appointee will be required to teach undergraduate and postgraduate courses in Forest Harvesting and Transport, supervise postgraduate research, and establish a research programme. The appointee will also be expected to maintain and enhance collaboration with organisations in the wider Forestry sector, and be committed to excellence in their own teaching and research. The salary for Lecturers is on a scale from NZ\$46,500 to NZ\$56,500 per annum. Further details airmailed on request to: staffing.acad.appts@regy.canterbury.ac.nz. Academic enquiries only may be directed to Professor R. Sands, Fax 64 3-364 2124, r.sands@fore.canterbury.ac.nz. Information about the University may be seen at: <http://www.canterbury.ac.nz> and about the School of Forestry on <http://www.fore.canterbury.ac.nz>.

Applications, quoting Position No. FO87, close on 31 March 1998, and must be addressed to: The Registrar, Attention Staffing Section, University of Canterbury, Bag 4800, Christchurch, New Zealand. *The University has a policy of equality of opportunity in employment.*

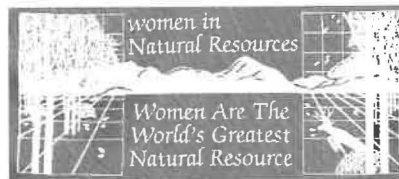
Did you know?

More than half the students at private universities and colleges around the state of Washington are women. In the Puget Sound area, Seattle Pacific University is 66 percent women, up from 60 percent a decade ago. At Pacific Lutheran in Tacoma and the University of Puget Sound, the figures are 61 percent. Some say it is because smaller schools tend to be safer with more individual attention. Others say the professors at private schools are encouraging to women. Even traditionally male-dominated programs such as electrical engineering are drawing significant numbers of women. The trend also reflects national rises in women in 4-year colleges: 54 percent in Washington and nationwide. One woman noted about the Washington State situation, "You can't get a date, yeah, but you probably can get into graduate school."

Associated Press, January 2, 1998

Women in Natural Resources T-Shirts and embroidered ball caps

Design A Shirt in denim blue, or coral
M, L, XL. Please state



Design B Shirt. M, L, XL in tan

Ball Cap embroidery says:
Women are the world's best natural resource. In tan and dark blue, or tan and dark green.

To order cap or shirt, send \$17—includes postage and handling—to WiNR, PO Box 3577, Moscow ID 83843

These "firsts" paved the way for the changes in the 1990s. Women are almost routinely assuming the helms of major organizations. Jan Wiedenbeck will become the first woman President of the Forest Products Research Society in 1999. The Society of American Foresters elected its' first woman President a few years ago. The American Chemical Society named its first woman president several years before. The number of women attending these professional meetings has increased markedly only recently.

In reading trade and technical journals I was struck recently by the number of journals, including those related to the forest industry, currently edited by women. Kathy Porter now is Editorial Director of *Wood Technology*; Nancy Gregg is managing editor of *Southern Lumberman*; Jane Smith is Editorial Director of *Logger and Lumberman*; Joyce Power is Managing Editor of *Building Components*. *Builder* and *Professional Builder* have women in major editorial positions. Women are filling editorial roles in *Power Transmission and Design*, *Chemical and Engineering News*, *American Demographics*, and *Timber Trades Journal* (Great Britain), among others. Opportunity appears to be not only knocking but breaking down doors for women with some technical knowledge and editorial skills!

That old advertisement "You've come a long way, Baby" has new meaning now—only don't call us "Baby" and skip the cigarettes! We've come so far we have gone full circle. Lester Craft, Jr., the male editor of *Furniture/Today*, a trade journal for furniture manufacturers, one of the very important users of hardwood, headlined his September 1, 1997 editorial with the following: "Women, We Need You To Fix Our Industry, So"

Craft suggests turning the management of the furniture industry over to women. "Let's put them in charge," he says, ".... the men who are controlling the furniture industry should step aside." He states that the furniture industry should involve women in all phases of the business and predicts that with women in leadership positions the industry will be much more profitable for everyone. He concludes "Women, we need you!"

So here we are, almost at the end of this century of amazing changes in the perception of women's role in the world, and, at last, men are recognizing that women are needed. We may think it is a pyrrhic victory when we are so successful that all the failures of men in the business world are dumped on us to solve!

Jean Mater, Ph.D., pictured below, is Vice President, Forest Products Marketing Services Division, Mater Engineering, Corvallis, Oregon.



About this issue. . .

Women in Natural Resources journal is very pleased to have two focus issues—back to back—on forest products starting with this one. As is the tradition with the journal, WiNR relies on specialists in each of the focus issue areas to define topics, identify authors, organize peer review where indicated, and provide general direction. Often our own editors supply the discipline knowledge, at other times, we go outside the journal to find a respected practitioner in the specialty. That is the case with these two issues. Jan Weidenbeck is the one we turned to to guide us.

The Forest Products Society (FPS), the premier international society supporting research, technology transfer, and education in forest products and wood science, celebrated the 50th anniversary of its existence in 1997. At its annual meeting in Vancouver in late June 1997, the FPS chose Jan Wiedenbeck, Associate Professor in the Department of Forestry at the University of Kentucky, to serve its membership as Vice President in 1997-1998, President-Elect in 1998-1999, and President in 1999-2000.

For Wiedenbeck, election to the highest offices in the Society does not reflect the breaking down of a "glass ceiling, rather it is the raising up and polishing of a glass foundation." Seeing in the new century with a female President is something Wiedenbeck says she would expect from the Forest Products Society—she just didn't expect it would be her. Several women have been active contributors and served on important committees for the Forest Products Society over the last 10-15 years. Also, a very large percentage of the key staff members at the FPS' international headquarters in Madison, Wisconsin are women.

Wiedenbeck joined the department of Forestry at the University of Kentucky in January, 1997, having formerly served as a Research Project Leader with the US Forest Service in Princeton, West Virginia. Her research and extension focus is on assessing and implementing strategies and technologies to improve raw material utilization and increase operating efficiency in hardwood lumber, furniture, cabinet, flooring, and related value-added manufacturing operations.

As focus issue editor for this edition of *Women in Natural Resources*, Wiedenbeck has been back in touch with many former colleagues from her graduate student days at Virginia Tech. She writes: "This reconnection with my good friends who are scattered throughout the world has made the hours spent on pulling authors together well worth the effort and the delays in my personal research. Thanks so much to all those whose names you see on these pages for your super contributions to specific requests for help. And to all of you who responded to my survey of women leaders in the forest products field (I had a return rate of over 50 percent) look for the results in an article that will appear in the next forest products focus issue later this year. You will find the results very interesting."

Dixie Ehrenreich, Editor

University of Arizona - Temporary Lecturer in Range Fall Semester, 1998, possible sabbatical opportunity.

The Rangeland and Forest Resources Program, School of Renewable Natural Resources, has a part-time, temporary position to teach two senior/graduate level courses, RAM 436/536 Grazing Ecology and Management, and RAM 456/556 Rangeland Inventory and Monitoring, Fall 1998. Qualifications include Ph.D., or Ph.D. candidate in Rangeland Science or closely related field, with teaching or other relevant experience in the course subject matter. Excellent opportunity for sabbatical leave, retirees, post-docs, Ph.D. candidates. Salary negotiable. Send letter of application and resume of experience to Dr. George Ruyle, Chair, Rangeland and Forest Resources Program, 301 BSE, The University of Arizona, Tucson, AZ 85721. **Applications accepted through August 7, 1998.**

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In New Zealand, forest harvest is expected to double by the year 2010. Environmental concerns and forest utilization are the big issues—like everywhere else.

New Zealand: a forestry and forest products perspective

Sandhya Samarasinghe

My professional life

I came to New Zealand in February 1991. While I was still working on my Ph.D. (wood engineering) at Virginia Tech, my husband was offered a position by Lincoln University in Christchurch in New Zealand. We quickly learned as much as we could about Christchurch and New Zealand. We were excited about the opportunity to visit this natural wonderland with green pastures, 70 million sheep, southern Alps, glaciers, and the beautiful garden city Christchurch, the capital city of the South Island of New Zealand.

I had four months to explore New Zealand before I was offered a postdoctoral position in Artificial Intelligence (AI) at the Centre for Computing and Biometrics at Lincoln University. This seemed like a far cry from wood science and engineering but proved to be a very promising opportunity that opened the door to a whole new research area for me. I now maintain an active postgraduate research program in AI. My job at that time was to develop an expert system for water resource management in collaboration with Transpower NZ Ltd., the electricity generating company in New Zealand. Later, Transpower asked us to develop an Intelligent System for analysis of faults in their power network with funding for a continuing research program. This solidified my commitment to Artificial Intelligence research.

My heart was still in engineering, however, and I always wanted to get back to it. One and a half years later I was employed by the Department of Natural

Resources Engineering where there was a strong emphasis on Land and Water. In 1990, the Department had changed their name from Agricultural Engineering to Natural Resources Engineering to better reflect the focus and deep concern for the environment and community. In New Zealand, the Department has been at the forefront in integrating technology with environmental concerns and cultural values of the community.

With the focus of the Department being on land and water, however, there were no adequate facilities for structural research so I had to build a research facility—which was accomplished through various grants. It was a challenging task requiring a lot of patience, perseverance, and university support (which was generously given to me on several occasions). Now there is a state-of-the-art material testing station and image processing facility for wood/materials research. I am the only female faculty member out of 14 in the Department and my male colleagues have been very supportive. Likewise, the university has treated me extremely well while recognizing my contribution as valuable to the university. In addition, the strongest support and encouragement I get is from my husband with whom I have several collaborative projects in computer modeling of natural systems.

Four years on the job, I am working on theoretical and experimental studies on various aspects of wood fracture, image processing applications to stress analysis, modeling drying deformation of wood, and other wood engineering projects. I

also get asked to be co-advisor for students conducting water resources research due to my work with Transpower. My image processing experience has drawn me into collaborations with researchers and students applying machine vision to improve value recovery from forestry operations. I am also actively involved in AI research. I teach computer analysis of structures in the BE (Natural Resources) program and also do service engineering teaching to commerce students specializing in property development and Forestry. My New Zealand experience has certainly broadened my horizons professionally.

Controversial aspects of New Zealand timber production

Earlier I noted that it was a challenging task to start a new research program and it was sometimes contentious in another aspect as well. About three years ago, one of my students proposed a research project on drying New Zealand beech. New Zealand native timber has provided beautiful wood for paneling, turning, and carving; and strong and durable timber for construction. Maori wood carvers and furniture manufacturers appreciate native timber. While beech is difficult to dry it has provided high quality furniture in the past. Most of these native trees are now in forest reserves so this research proposal aroused strong sentiments amongst staff who questioned the ethics of utilisation research on native timber. We had many debates and consultations to resolve the matter over a several month-long period. This highlights the sensitivity people have for the native forest issue in New Zealand.

Clearing of native forest in New Zealand has historical roots. Early settlers cleared vast areas of native forest for settlements and farming, but with the increase in population, clear felling increased to the point where it became a national issue. Many environmental groups applied pressure to the government to take action which led to the signing of The New Zealand Forest Accord between the New Zealand Forest Owners Association and environmental groups including the Royal Forest and Bird Protection Society, the Wild Life Fund, Friends of Earth, and the Environmental and Conservation organisation. Among other things, the accord "recognises the important heritage values of New Zealand's remaining natural indigenous forests and the need for their protection and conservation," and "acknowledges that the existing area of natural indigenous forest in New Zealand should be maintained and enhanced."

Today, natural forest cover is only 24 percent (6.4 million Ha) of the total land area which is 27 mil Ha. Some well known native hardwoods are beeches (mountain, red, silver, black, hard) and tawa; native softwoods are kahikatea (white pine), kauri, matai (black pine), and rimu (white pine). Some Kauri trees are more than 800 years old and native trees in general take over 100 years to mature. These trees were named by Maori who sailed to New Zealand in canoes from Polynesia about 600 years before the arrival of Europeans. Maoris are profoundly involved in the forestry and natural resource ownership and management issue through the Treaty of Waitangi signed by Maori Chiefs and the British government in 1840. The government is increasingly settling claims to land and natural resources owned by Maori tribes in the past through a Waitangi tribunal established for that purpose. The forest and natural resource debate will continue for many years to come in New Zealand under pressure from both environmental and Maori interest groups.

Forest Utilisation in New Zealand Today

Currently, most of the native forests are in reserves and only a very small area is designated for commercial production through sustainable management and harvest. Timberland West Coast Ltd. (the

former New Zealand Forest Service) is responsible for this task; environmental groups continue to express concern about Timberland operations. Removal from native forests is a mere one percent of the annual forest removal in New Zealand. To ease the pressure on natural forests, in 1921 the government adopted several "exotic" fast growing imported species, the main one being *Pinus radiata*, a native of California. Douglas-fir is the second most important species adopted by New Zealand forestry. *Pinus radiata* is the predominant structural wood species in New Zealand and represents 35 percent of the global radiata forest estate; Chile, Australia, South Africa, Spain, and Italy share this estate. Planted production forest cover is about six percent (1.5 mil Ha). Ninety percent of this is *Pinus radiata*.

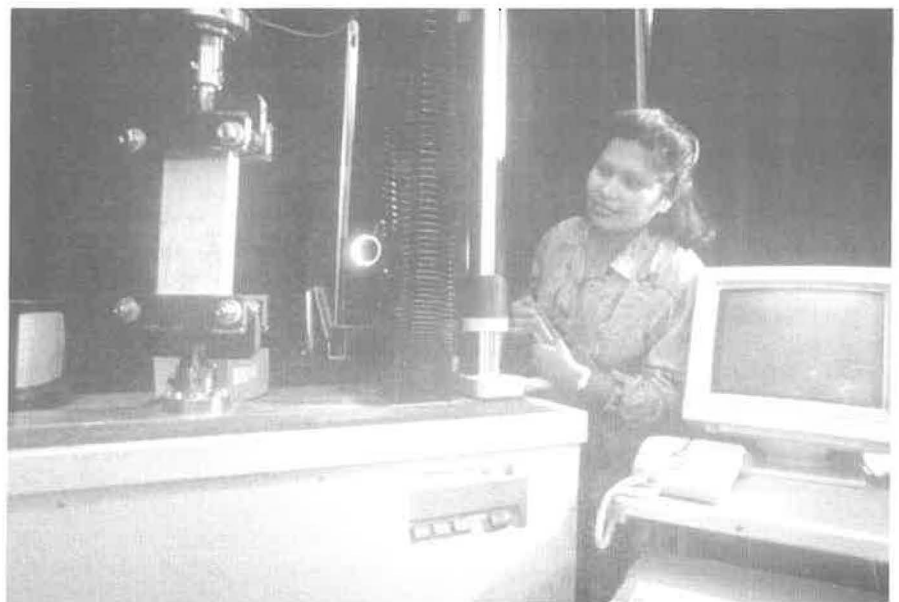
As a result of intense pressure to reduce clear felling and conserve natural forests, New Zealand has adopted effective silvicultural practices to grow *Pinus radiata* with a 20 year rotation. Timber is one of the major industries and one of the most valuable export products (\$3 billion in 1995) for New Zealand. Some of the key players in the industry are Carter Holt Harvey, Fletcher Challenge, Forestry Corp NZ, and Reyonier NZ who together own 55 percent of the planted production estate.

There are 35 major sawmills on the South Island and 50 on the North. There are panel board plants, paper, and pulp mills scattered in both islands—all privately owned. Total forest harvest is 17

mil cubic meters (in 1996) out of which 25 percent is used for pulping and 65 percent for saw and peeler logs. About 30 percent of harvested logs are exported, mainly to Japan and Korea. New Zealand also exports chips, pulp, paper, panel products, sawn timber, logs, and poles to many countries. Key markets are Japan, Australia, Korea, USA, Taiwan, Hong Kong and Indonesia. Forestry is a growing industry in New Zealand and forest harvest is expected to double by 2010.

Our university is now going through a major restructuring process and starting next year we will be part of a bigger resource studies group. There will be more opportunities for interdisciplinary research. Once again, I expect to broaden my horizons professionally by getting involved in research with a broader forestry/forest products focus that encompasses some of New Zealand's social, cultural, environmental, and international issues and needs.

Sandhya Samarasinghe, below, is a Lecturer at the Department of Natural Resources Engineering at Lincoln University in Christchurch, New Zealand. She was born and educated in Sri Lanka. Her Master's in Mechanical Engineering is from Patrice Lumumba University in Moscow, Russia; another Masters and Ph.D. in wood engineering are from the Department of Forest Products and Wood Science at Virginia Tech. Samarasinghe worked as Asst. Lecturer and Research Engineer in Sri Lanka for two years.



It has become clear that any major growth in the South African forest industry must come from increased yields and higher value crops on existing sites with emphasis perhaps on pruning and wood quality for pulp.

FOREST PRODUCTS RESEARCH IN SOUTH AFRICA

C. SUE PRICE
PHILIP TURNER

Introduction

The CSIR (Council for Scientific and Industrial Research) is a parastatal organisation whose head office is in Pretoria. It is structured into nine divisions, each of which focus on different areas, e.g., Water, Environment and Forestry Technology, Transport and Roads Technology, or Food Technology. Each Division comprises several programmes. In the Forest and Forest Products Programme, there are four main business areas: Forest Management, Tree Breeding, Forest Hydrology, and Resource Optimisation. The latter business area focuses on wood quality: knowing what the various end uses require, understanding the impacts of different tree breeding and silviculture, and putting these together to make best use of the forest resource. The Resource Optimisation members (50 percent women) come from varying backgrounds: wood science, botany, chemistry, computer science and operations research. The team's role is to integrate the more commonly found forestry disciplines with wood quality assessment and prediction. Our aim is to produce models which predict the quality of the wood from forest compartments so that the compartments can be optimally matched with possible end uses.

Issues facing the South African Industry

The commercial forest resource in South Africa is plantation based. Only a small proportion of South Africa's land mass is suitable for commercial forestation, the main constraint being inadequate rainfall. Plantation area is currently estimated at around 1.4 million Ha (two percent of land area). Any additional land suitable for forestation also is in heavy demand from agricultural industries. In addition, there are increasing pressures from conservation

bodies to maintain natural ecosystems and restrict the planting of trees in key catchment areas where water consumption could lead to shortages in neighbouring communities. Primarily as a consequence of environmental pressures, the potential growth of the forest industry due to increased forestation is predicted at no more than about 20 percent over the next decade. It has become clear that any major growth in the South African forest industry must come from increased yields and higher value crops on existing sites.

The main species for solid wood processing (sawmilling and veneer) are *Pinus patula*, *P. elliottii*, *P. taeda*, and *P. radiata*, although there is some processing of eucalypts. The majority of timber grown in South Africa is designated for pulp and paper, and this includes pines, eucalypts (species, hybrids and clones) and wattle. South African forestry holdings are characterised by a wide range of site types (soil, climate and topography), in combination with forest management standards of varying and often unknown quality. The result is a resource of varying quality and value.

Because of the varying sites, species, and forest management found in South Africa, the pruned log resource varies substantially. However, the pruned log price varies very little, irrespective of the quality of pruning and the potential clear material that can be extracted from pruned logs. This means that the forester is not being rewarded for good pruning, giving less incentive to produce good quality pruned logs. In addition, it has been found that on some (poorer) sites, pruning is not cost effective, as it produces too little clear material compared to the cost of pruning. The variability of wood quality from plantations earmarked for pulp also is an issue. There is a need to be able to predict

the pulp quality of a particular species coming from a particular site so that the overall quality of the pulp can be better managed—either to give a better overall pulp quality, or to give a more consistent pulp quality.

Solid wood quality

Pruning takes place in the plantations, partly to improve access (up to 2-3m), but mostly to produce clear timber on the outside of the tree. An underlying assumption is that the price for clear sawn timber or clear veneer is significantly higher than for knotty timber. To address this problem, a pruned log grading system was developed. With this system, the potential clear output of a log can be determined given the log's sweep, diameter, and defect core (knotty core) diameter.

This log grade system was developed by performing many runs of an adapted sawmill recovery program and then correlating the results using linear regression. The defect core was initially determined by adapting a Growth and Yield simulation model—the pruning ages were recorded, and allowance was made for the tree's growth to cover the branch stub. In reality, the simulation cannot be relied upon to produce accurate defect core predictions, because the silvicultural and pruning histories of stands is often inaccurate. In practice, the defect core is determined by performing a preharvest assessment, which means destructively crosscutting a sample of pruned stems to determine their pruning history, and measuring the knotty core. Using preharvest assessments, the overall log grade mix of the stand can be predicted.

Although this log grading system focuses specifically on clear and knotty timber, with the appropriate field work, we

believe that other quality issues could be predicted and incorporated into the grading system. With this method of assessing the quality of standing trees now established, it is possible to match timber quality to end-user needs and optimize the resource in a much more effective way.

Wood quality for pulp and paper processing

Because of the inherent variation in the timber resource, a research programme has been embarked upon that aims to understand and predict the impact of key issues such as site quality, genotype, management regime, and rotation age on wood, pulp and pulping properties. This research programme, which was initiated in 1996, is being undertaken in collaboration with the two major pulp and paper companies in South Africa. Initially, clonal material is being evaluated. However, once the major factors impacting variation have been identified, the research will be extended to evaluate the whole wood resource.

In order to assess the wood and pulp properties and be able to predict pulp quality as soon as possible, many different techniques are being used. These include studies on:

- density (wedges at four heights plus densitometry)
- fibre length
- extractive content
- pulp yield
- AA consumption
- pulp brightness
- pulp strength (tear, tensile, burst, bulk density)
- image analysis techniques for the evaluation of cell wall morphology
- near infra-red absorbance spectroscopy to predict chemical composition
- genetic markers to identify key fibre/wood characteristics/properties.

The findings to date indicate that there is a significant difference in pulp yield from different sites. Once more data has been gathered, a model to predict pulp quality can be developed. Eventually this will lead to harvest scheduling systems designed to manage the variation of the resource entering the mill.

The CSIR Resource Optimisation Team

Today, the team is made up of 50 percent women. Prior to recent restructuring, the staff at Forestry and Forest Products tended to consist of individuals, who were often competing for resources, and aiming at different goals. In forming a team, we recognise that what the team can achieve is much greater than the sum of the individual contributions made. In fact, often the discoveries that have been made have been as a result of integration—finding out how people in other fields would approach the problem and adjusting that to meet the current challenge. The team approach has shown that women make a good contribution as team players, and the fact that we *work* as a team is the major strength of the Resource Optimisation group.



Sue Price joined CSIR in 1988 and worked in the sawmilling section developing software and models. She now works in the Resource Optimisation Group designing software systems to integrate growers and processors in order to optimise the forestry resource. She has a degree in Applied Maths and Computer Science from the University of the Witwatersrand in Johannesburg and currently is working on an honours degree in Operations Research from the University of South Africa.

Philip Turner is business area manager of the Resource Optimisation Group. His degree in Forestry and Wood Science is from Bongor University in Wales, United Kingdom. His Master's in Timber Engineering and Wood Protection, a Ph.D., and post doctoral work, are from Imperial College, London. His research focus was vapour phased treatment of timber.

Photo below:

Jeff Hale, left, and Joan Retief, middle right, sampling Eucalyptus trees so that wood and pulp quality studies can be performed and wood quality prediction models can be developed.

Photo by P. Turner

Hungary and Her Neighbors

Ilona Peszlen

My home country, Hungary

Hungary is a small country, similar in size to the state of Virginia, situated in the center of the Carpathian basin in the heart of Europe. It has a resident population of 10 million with another five million Hungarian nationals spread all over the world. Latecomers in central Europe, the Hungarians migrated to their present homelands more than 1,100 years ago. Since that time the Hungarians have had to fight against conquerors many, many times. After the first World War, when the winners redrew the borders in Europe, Hungary lost two-thirds of its land, 85 percent of its forests, and most of its mineral resources. Despite hardships and the suffering, the nation has survived and managed to preserve its very unique Hungarian language, and its intellectual and cultural heritage.

Geographically, Hungary is in the middle of the Carpathian Basin bordered by the Alps, Carpathian, and Dinaric mountains. Its territory is approximately 93,000 km². Neighbors include: Slovakia to the north; the Ukraine and Romania to the east; Yugoslavia, Croatia and Slovenia to the south; and Austria to the west. The natural plant covers are grassy steppe and deciduous (broad-leaved) forests. Because of the favorable terrain and soil conditions, nearly 86 percent of the Hungarian land is considered arable.

In 1993, according to government records, the distribution of the productive land was as follows: plough-land - 50.7%, grasslands - 12.4%, forests - 18.4%, and other - 18.5%. In 1994, Hungary's population was 10,278,000 with a density of 110.5 people/km². Thirty-one percent of the population lives in cities.

Forestry and the timber industry in Hungary

The forested area of the country is 1,712,000 hectares, of which the felled area and lots under regeneration represent 113,000 hectares. Hungary is situated within the Belt of Moderate Deciduous (Broad-leaved) Forests. Of the total forested area 79% is productive, 18% protected, 2% is for recreation, and 1% other.

Tree species distribution of Hungarian forests.

| | |
|---|------|
| Oak (sessile - <i>Quercus petraea</i> , European - <i>Quercus robur</i>) | 22 % |
| Turkey oak (<i>Quercus cerris</i>) | 11 % |
| European beech (<i>Fagus sylvatica</i>) | 07 % |
| Black locust (<i>Robinia pseudoacacia</i>) | 20 % |
| Poplars (<i>Populus</i> spp.) | 10 % |
| Other hardwoods | 15 % |
| Softwoods | 15 % |

Black locust stands make up about one-sixth of the Hungarian forests. The species was introduced in the country several hundred years ago. Its wood is used for many purposes. It can be grown mostly on the sandy soils of the plain, but its potential productivity can be achieved only on soils which are rich in humus. Regarding black locust wood, many problems, such as drying, processing, machining, gluing, and finishing need industry attention. Due to environmental concerns, increasing its utilization potential is currently of major interest throughout Europe. It has high natural durability and its mechanical properties make it a substitute for certain tropical hardwoods.

The plantations of improved poplars are found both in flood-prone areas as well as on arable land in plantations and alleys. Poplars require rich soil, a certain amount of ground water within reach of the roots, or regular floods, to flourish.

Several species of evergreens occur naturally along the western borders of Hungary. As a result of some artificial planting in certain areas, the European beech and the oak-hornbeam stands have been replaced by Norway spruce (*Picea abies*) or Scots pine (*Pinus sylvestris*) stands. On the unforested sandy lands of the plain, as well as on the stony, bare, and steep slopes of the hilly and mountain regions where the productive soil layer has been eroded, the Austrian pine (*Pinus nigra*) can help with soil conservation.

During the last two decades the health of the Hungarian forests has declined considerably. Healthy individual trees have declined from 79% in 1988 to 42% in 1994. Defoliation affects oaks and black locust primarily. Beech, hornbeam, as well as the species of the so-called soft broad-leaved trees, have remained relatively healthy. The rate of tree mortality has increased recently going up to 3.1 percent from 2.0 percent. Studies have shown that the drought of the last 15 years seriously affected the vital processes. In addition, human activities which deplete ground water have also further reduced the water available for the plants.

Especially serious problems have emerged on land having only marginal site conditions for forest vegetation where the resistance of the forest stands has proved to be weaker than that of the average forest.

Despite the importance of the forest crop, forest users fail to meet the annual felling quota (allowable cut). In 1994, only 58 percent of the potential harvest was cut. Instead of 6.0 million m³, only 3.5 million m³ reached the timber markets. High demand and prices contributed to relatively high fulfillment of allowable cuts for conifers (86 percent) and poplars (72 percent). Clearcutting has been the most common way to harvest. Seventy-eight percent of harvest areas are in clearcuts (the regenerating cut for coppice is included in this category). Natural regeneration is carried out on 22 percent of the harvested area (seeding represents about half of this amount).

In 1994, 626 000 m³ of infected or dying wood was felled. This huge cut is equivalent to approximately 90 percent of the selective thinning and about six times higher than the usual amount. The largest sanitary cuts had to be done in coniferous (302 000 m³) and oak (201 000 m³) stands.

In 1961 state forestry and nature conservation were separated from each other organizationally and legally. Since 1990, central control of conservation is administered by the Ministry of Environment Protection and Rural Development through the state's Department of Conservation and its nine local directorates. Presently, 703 585 ha, 7.6 percent of the national territory, is subject to legal protection out of which 327,178 ha is covered by forests.

In 1994, 71 forests of 12,500 hectares were assigned to forest reserves. Of this, 4,025 hectares are designated as "core-areas" on which all forms of management are prohibited.

Wood processing and trade

Forest wood assortments can be divided into three groups: roundwood, wood of small dimension (for industrial use, e.g., pulpwood and wood for chip and fiberboard products), and fuelwood. According to this classification, in 1994 timber removals consisted of the following: 27 percent roundwood,

24 percent small dimension wood (for industrial use), and 49 percent fuelwood. Most of the domestic timber cut was deciduous hardwood.

The Hungarian sawmill industry was established and developed largely for processing domestic roundwood but during the last decades it has taken advantage of favorable conditions to import and process foreign logs. Both sources were affected unfavorably by a decline in domestic demand, loosening of import restrictions, and many irregularities in purchasing raw materials.

Veneer and plywood producers focus on domestic roundwood and try to limit their use of imported roundwood. The aggregate board industry produces wet process hard fiberboard, chipboard, laminated chipboard and cement bond chipboard. It appears that panel product production capacity will continue to expand. The use of wood as an industrial energy source needs modern machines; that will require capital investments by the Hungarian wood industry.

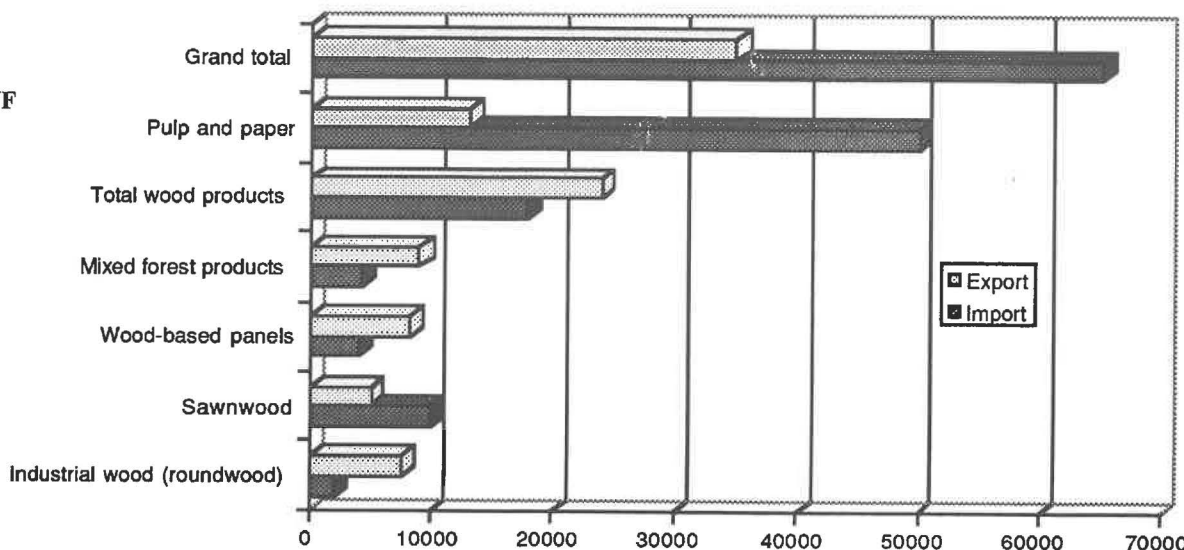
The Hungarian wood sector has been slow to gain a larger share of the bigger European market—partly because its wood processing technology is not always suitable for the forest wood assortments available and partly because domestic demand has declined.

Hungarian wood exports and imports

Exported on a regular basis are: sawlogs of improved poplars, oaks, beech, ash, alder and fruit trees; as well as wood for pulp and paper, and fuelwood. Exported processed products include: chipboard (bare and covered), hard fiberboard, press formed plywood, and parquet (tongued and grooved, as well as mosaic and band).

Soft saw-and veneer logs are the most common imported timber. Among the products of primary wood processing, the import of soft and hard sawnwood, as well as products of the veneer industry are on the rise. The overall balance in trade of forest wood assortments (i.e. roundwood) and processed primary wood products (export, import) is positive (Fig. 1). This is due to the vigor of chipboard and parquet exports. The

Fig. 1. Export & Import trade of forest products in Hungary. In million HUF (Hungarian Ft)



| | Hungary | Romania | Slovakia | Ukraine |
|---|---------|---------|----------|---------|
| Forest land (thousand ha) | 1,675 | 6,190 | 1,945 | 9,213 |
| Forest land in percent of land area | 18% | 27% | 40% | 16% |
| Forested land per capita (ha/capita) | 0.16 | 0.27 | 0.33 | 0.18 |
| Standing volume of trees (m ³ /ha) | 172 | 212 | 188 | 143 |

All data this page for Carpathian Region
Source, FAO 1993

principal export markets for Hungary's forest wood assortments are Austria, Italy and Germany. Wood products are sold to Austria, Great Britain, and Sweden. Russia, Austria, Slovakia, Sweden, Finland and Romania are the main sources of imported wood. It should be noted, however, that Hungary's trade balance is negative if foreign trade in pulp and paper is taken into account. This is a consequence of the lack of wood based pulp production for paper and because the domestic paper industry is just developing.

Enterprises engaged in the wood processing industry are being encouraged to move toward privatization. Plants producing agglomerated (composite) products, as well as the veneer and plywood industry are primarily affected. In order to stimulate and rationalize the use of wood in Hungary, further investment is needed.

Carpathian Region: Slovakia, Romania, Hungary, Ukraine
Rapidly escalating energy prices have led to an emphasis on economic cooperation among countries situated in the same geographical region. In the Carpathian region, a close cooperation is supported by the distribution of natural resources and also by the common history of its nations. Unfortunately, data are not readily available. General characteristics of the four Carpathian countries are given below.

In Slovakia and Romania a high percentage of the land is forested. In Hungary and the Ukraine the timber demand exceeds the availability of forest resources. In Hungary, the timberland area per capita is less than half that of Slovakia.

Fig. 2. Net harvest volume (all material) in thousand m³. No data from Ukraine. Russia: Softwoods = 107,000 th m³, Hardwoods = 59,000 th m³, Total = 166,000 th m³.

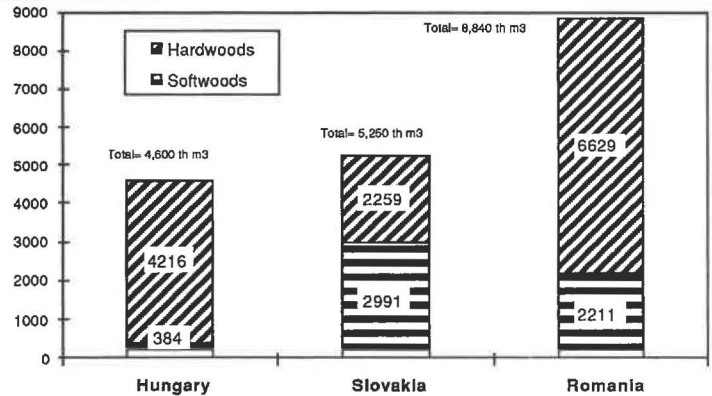


Fig 3. Industrial (round)wood production, utilization, and trade. No data from Ukraine. Russia: Production = 118,360 th m³, Import = 6 th m³, Export = 11,502 th m³, Utilization = 106,864 th m³.

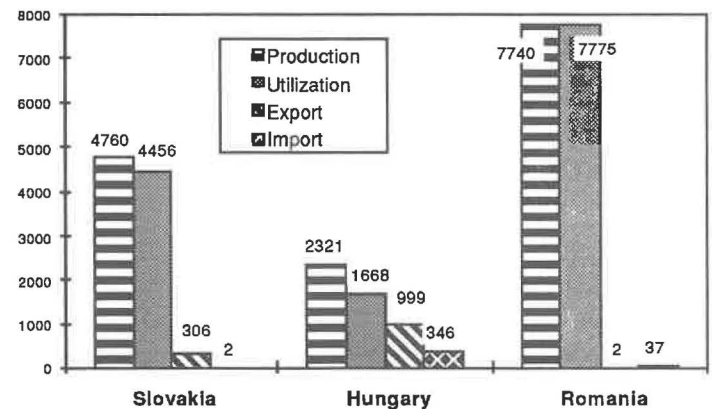


Fig 4. Lumber production, utilization, and trade. No data from Ukraine. Russia: Production = 40,000 th m³, Import = 16 th m³, Export = 5,464 th m³, Utilization = 34,552 th m³.

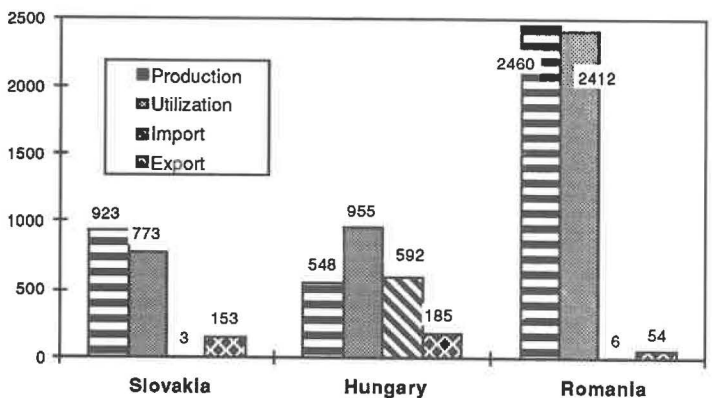
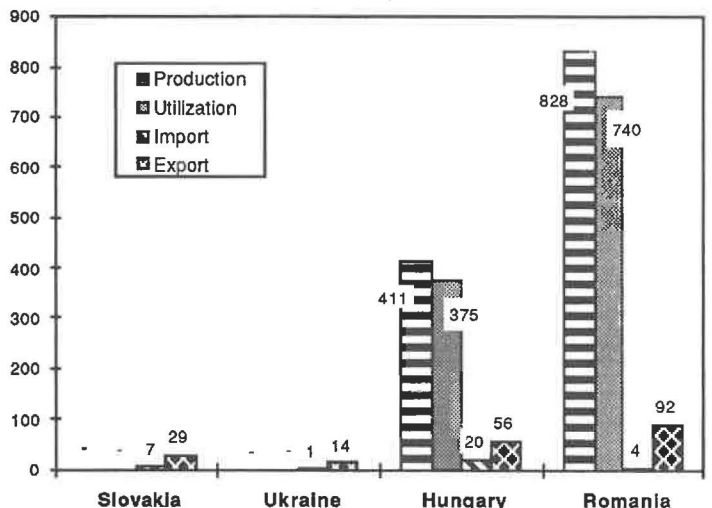


Fig. 5. Wood panels: production, utilization and trade.



Comparing harvests of hardwoods and softwoods, the fast growing poplars and black locust count for 50 percent of the harvested volume in Hungary; however, the need for softwoods is also very obvious (Fig. 2). A closer cooperation could develop between Slovakia and Hungary, if both the population and the forest resources are considered.

Trends of production, utilization, and trade of industrial wood (roundwood) (Fig. 3), lumber (Fig. 4), and panel products (Fig. 5) reflect the differences among countries of the region. In Slovakia and Romania the proportion of industrial wood is 85-95 percent, meanwhile in Hungary it is only 50 percent due to a high percentage of low quality fuelwood. Romania doesn't export any industrial wood and the Slovakian export is very limited. Neither country imports industrial wood. In contrast, in Hungary the export of industrial wood reaches 60 percent of the utilized volume. Hungarian imports of lumber products are 10 percent higher than the annual lumber production of the country.

Differences in resources, industry structure, and government policies among the countries of the region mean the problems faced by the Hungarian wood industry can only be partially resolved through regional coordination and trade. Besides certain direct trade contracts (e.g. black locust wood) within the region, a common representation in third countries could be beneficial for each country of the Carpathian region.

Forestry and forest products at the University of Sopron

The history of the University of Sopron, the only university for forestry and forest products education in Hungary, formerly the University of Forestry and Wood Sciences, goes back to 1735. Revolution in Hungary in 1849 continued in a long War of Independence against the Austrian Habsburg Authority. Many professors and students of the Academy joined the War of Independence. The First World War interrupted the development of the Academy in Selmečbánya. With the Treaty of Versailles, two-thirds of Hungary was annexed by neighboring states and the inhabitants of these lost territories could become citizens of another state or relocate to the now much smaller Hungary. Professors and students chose to relocate to Hungary. In March, 1919 they built again in the town of Sopron. The Academic year in 1923 opened here and the University has been here ever since.

Professors and students from Sopron joined the Hungarian Revolution against the USSR in 1956. After our defeat, some 70 percent of the professors and students emigrated to other countries when the Soviet Army occupied Hungary in November, 1956. Most of the fugitives were given shelter at the University of British Columbia (UBC) in Vancouver, British Columbia, Canada. They completed their studies as a separate, independent group. The engineers who graduated from UBC have been working all over the world and many of them, such as J. Bodig, J. Balatinecz, G. Ifju, L. Jozsa in forest products, and M. Gratzer, J. Kozak, L. Zsufa in forestry have earned high reputations in North America.

Today the University of Sopron is highly regarded for its unique ability to adjust the teaching materials and courses to meet the needs and expectations of the changing economy of the country. In a report in *The Forestry Source* after a recent educational review on the University organized by the Society of American Foresters, P. Gregory Smith (1995) noted, "the programs in Forest Engineering and Wood Sciences do meet the standards of accreditation established for institutions in the United States" and the academic programs of the School of Wood Sciences were "found compatible with SWST/SAF accreditation guidelines and comparable to the best wood science and technology programs in the United States" (Visiting Team Report, SAF, 1995). There are approximately 600-700 students involved in forestry and forest products education but the number of students is continuously increasing with the introduction of new programs, such as Environmental Science, Marketing and Management, Teacher Training, and Applied Art.

Women in forestry and forest products education and industry

The representation of female students enrolled in forestry (10-semester), wood engineering (10-semester), and wood technology (6-semester) programs is around 10 percent. There is no limitation on numbers of women and the ratio is similar to that of applicants and also among students graduated. The trend has not changed due to the change in the political system of Hungary.

The forestry professions are viewed as difficult for women. They often involve field work and living in rural environments, dealing with difficult, rude, uneducated people. Furthermore, the forestry and forest products community is a very closed society; there are certain expectations if someone wants to join the "club" such as hunting, field trips, and social gatherings, which are impossible for a woman with a family.

Women work instead in administration, management, and production design, but rarely in the production line. Most are employed in education, research, and government offices. Regarding the role they play in decision-making and leadership, it can be estimated that only 1-2 percent of women graduates will become a senior manager.

Before the privatization in Hungary, there were a few hundred forest products companies, but these days, there are about 10 times that many, so opportunities for women in leadership roles can be expected to increase too. Among those who received scientific degrees, representation from women is even lower than among the leaders in the industry.

For comparison, the following table shows the employment situation at the University of Sopron in 1988, just before the political change, and in 1997. Although there was a lay off directed by the government in 1994-95, the number of employees has not decreased dramatically. This is due to the fact that besides the traditional Forestry, Wood Engineering and Wood Technology programs, new programs in 1997, such as

Pulp and Paper, Environmental Science, Marketing and Management, Teacher Training, and Applied Art programs have been started with new employees.

Table 1. - Representation of women, University of Sopron

| | 1988 | % | 1997 | % |
|--|---------|------|---------|--------|
| Women / Total Employees | 186/367 | 51 % | 130/293 | 44 % |
| Women / Faculty Members | 21/131 | 16 % | 27/135 | 20 % |
| Senior Acad. (Profs. Assoc Profs.) | 1/40 | 3 % | 12/70 | 17 % |
| Women with Scientific Degrees | 0/42 | | 11/68 | 16 % |
| Doctor of Academy | 0/10 | | 1/10 | 10 % |
| Ph.D. | 0/32 | | 10/58 | 17.2 % |
| Women / Other Employees (management, clerical, technical) | 165/236 | 70 % | 103/158 | 65 % |
| College Graduates | 18/31 | 58 % | 24/43 | 56 % |
| Senior managers | 3/8 | 38 % | 5/9 | 56 % |

Apart from all the hardship, most of the women, including myself, are happy in their skins. Two years ago, a Gallup survey showed that only 21 percent of women wanted to be reborn as a man. It's not entirely clear though, what is behind the numbers. Is it a kind of satisfaction with our woman-lives or an indication that life in general is difficult for men and women in a newly born democratic country.

I have made a small survey among my male colleagues, and they all agreed that women have positive influences on the quality of both their private and professional lives, and it would be a tremendous loss, not having woman colleagues around the offices. It is my belief that men and women are not equal, not better or worse either, just different. The opportunity to have a certain quality of life has to be equal for men and women, but to achieve that, men and women should work together.

Women in Hungarian society

In Hungary, based on a recent survey (HVG 1997. November 14), from the beginning of the 90s, the employment of women decreased from 45 percent to 31 percent; meanwhile, the employment of men decreased only from 51 percent to 43 percent. It's true that during the communism area, there was an over-employment of women due to political-ideological pressure. Thus a decline, to a certain extent, in numbers of women employed is expected in the new society. Indeed, in the countries of the European Union, the employment rate of women is 32 percent, similar to that of Hungary. However, the trend is increasing in the EU countries, but the decreasing trend seems to be continuing in Hungary. Furthermore, in the EU countries, women stay home by choice, but in Hungary they stay home because they cannot find a job.

It's important to emphasize that during the last 50 years in Hungarian society everybody got the right to work which led to the "two-income family model." As a result, a family needs two incomes to manage an average life economically. For a woman, the chance to find a job has become more difficult than for a man. If a man becomes unemployed, it takes about 10 months to find a new job, but for an unemployed woman, it takes 27 months. The majority of women

feel that the ideal situation would be to have a part-time job—for income, and to fill a need to expand life experiences beyond the house and family.

The change of regime has decreased the salary gap between men and women contributing also to the difficulty of women entering the labor market. The gap between incomes of men and women decreased from 35 percent to 20 percent during the last 10 years, and in government offices women fair relatively better—their salaries average only 6 percent lower than their male counterparts.

Among those who have become leaders in the last few years, women comprise two-thirds of the new managers. This is partly explained by the fact that until recently male students typically enrolled in technical sciences and humanities, while female students studied economy, management and marketing. Thus today, the overall ratio of women to men in leadership positions is 1:2. There are only very few countries, such as the U.S., Canada, and France, where the representation of women in leadership is higher than in Hungary. Most of these positions are in secondline management positions, however, and in professions that are underpaid.

Men are supported by their families as they take on leadership responsibilities; 90 percent of men in management positions are married. In contrast, only 66 percent of women in leadership are married, close to 30 percent are divorced, and about 5-6 percent have never been married. Women, by choice or perhaps owing to the expectations of the social environment, traditionally prefer to look after their family rather than maintain their career. To maintain both their private life and career on professional levels is not impossible, but very difficult.

About the author. . .

I was born, brought up, educated, married, divorced, and still live in Sopron, (and probably I will be buried here, too). Sopron is one of Central Europe's oldest and most beautiful cities, with a nicely preserved old town at its heart. It is nestled in the forested foothills of the Alps in western Hungary, just south of Vienna.

When I was a child I never dreamed about being a wood scientist. I was always among the top students. I was good in many sports but best in basketball in which, at age 16, I was selected to the national team in my age group. At that time, I also took singing lessons and thought about becoming an opera singer. I started to date a forestry student and due to this relationship, after high school graduation, I didn't want to leave my hometown.

In those days there were only two colleges, Forestry and Wood Engineering in Sopron. I don't like insects and knew foresters encountered many in the field, so I enrolled in the Wood Engineering program. I was still a student when I got married and gave birth to my son. I graduated with honors and one year later I got divorced. Thus, I started my professional career in wood science and a new life as a single mother almost at the same time. It was not always easy.

I worked as a senior researcher during the days, served as a private tutor for middle school kids in the afternoons, taught math and physics classes in a high school in the evenings, and drew illustrations for technical textbooks during the nights to make enough money to support my family. Then I enrolled in an intensive English language course and a Master program in Higher Education to keep my mind busy and sharp.

Despite all those efforts my circumstances declined (paralleling the decline of the Hungarian economy). I saw three options: get married (no potential applicant); get a job in a restaurant, bar, or pension in neighboring Austria (earn money there and spend it in Sopron like many other Sopronians); or find another way to support my professional career development.

Encouraged by colleagues and friends, I applied for a Fulbright Scholarship. I was lucky enough to get a one-year visiting researcher grant. Due to the existence of the 'iron curtain' the information exchange was limited between Hungary and countries other than the former communist countries. Someone suggested to me that I consider going to Virginia Tech in Blacksburg, Virginia where one of the best wood science and forest product programs in the U.S. is located. When I contacted them, it was a great surprise for me to learn that the Department Head, Dr. Geza Ifju, is of Hungarian origin.

In August 1989, I got on an airplane to the U.S. with four pieces of luggage and my 11-year-old son. As a Junior Fulbrighter under 35, I was obliged to take courses (tuition was paid!). When I survived some of the most difficult courses, I received a research assistantship from the Department to stay in the Ph.D. program and completed it in 1993. During my studies in the U.S., I was on leave from the University. Coming back home, I resumed my position and based on my working experience and after the naturalization of my Ph.D., I was soon promoted. I now work as an Associate Professor at the Department of Wood Science. I am the only one at the University of Sopron who has received an American Ph.D. In fact, when a new system and set of criteria for scientific degrees was introduced in Hungary in 1993/94, I was responsible for setting up the Ph.D. requirements and programs for the University. I am now the coordinator of the Wood Science Program.

Besides teaching general courses on wood structure and on physical, mechanical, and technological properties of wood

at the undergraduate and graduate levels (which I love to do), my current research programs include major international and national research grants on improving wood quality and utilization potential of plantation wood pines and poplars, and investigating and promoting black locust for high value products. I have also been involved in organizing short courses and workshops for the manufacturing sector to disseminate research results. I am serving as the Hungarian delegate in the European Co-operation in the field of Science and Technical Research (COST), Action E10: Wood Properties for Industrial Use program of the European Commission.

In 1995, I was awarded two grants for post-doctoral studies by the Széchenyi István Post-Doctoral Fellowship and the Hungarian State Eötvös Award programs, respectively. These grants allowed me to conduct research on improving utilization potential of fast growing plantation species at the Department of Wood and Paper Science, North Carolina State University, Raleigh, North Carolina and at the Department of Plant and Microbial Sciences, University of Canterbury, New Zealand. The Hungarian edition of the *Three Dimensional Structure of Wood*, published in August 1997, is an unexpected outcome of these visits and collaborative research with B. Butterfield and B. Meylan from New Zealand. I was co-author of the new text and responsible for the translation and preparation of this English-Hungarian dual-language version which helps students understand the structure of wood while improving their English.

I am interested in developing general education programs and courses at both undergraduate and graduate level for students in Forestry, Wood Engineering, Pulp and Paper, Applied Art (interior designer, packaging designer, products designer), and applying new technologies, in particular increasing use of multimedia resources in University teaching to attract the students' attention in the computer age. I am currently writing a CD for use in the undergraduate wood anatomy courses.

Ilona Peszlen is an Associate Professor, Department of Wood Science, University of Sopron, Hungary.

FEEDBACK: *f*ood for thought

A Management Column
by Barb Springer Beck

How would you rate your own job performance and on what would you base that rating? If you believe as I do, that each of us can improve our performance no matter how good it currently is, I have some good news for you. There's help out there. It's as near as your supervisor, coworkers, mentor, and subordinates. But of course there's a trick to getting helped or maybe we should call it a skill. It has to do with cultivating your own ability to encourage and receive feedback.

So, what do I mean by feedback? If your definition of feedback is static or noise which is uncomfortable to listen to and needs to be turned off, you may need to adjust your scanner. Feedback in this case, is not a loud squeal or fuzzy screen. It does have something in common with these two things however. The feedback by which your performance can benefit is the return of information. Information, in the form of both positive comments and constructive criticism returned to you about a report you've written, a speech you've given or the accomplishment of a task can be very valuable. I like to think of feedback as a thoughtful gift from someone. When was the last time you refused a personalized gift?

Obviously, annual performance reviews are a good place to receive information about your performance if you're lucky enough to get a review. Unfortunately both supervisors and subordinates typically look forward to these sessions with all the excitement of attending a funeral. I believe this is the case for two reasons. The first is that people are generally uncomfortable giving and receiving feedback—they don't know how to do it skillfully. It's even tough for many to give positive feedback, much less constructive criticism. The second reason performance reviews are dreaded is that rather than addressing issues throughout the year, performance concerns are saved up and dumped on the employee during the review.

You can make these sessions easier on yourself, your subordinates, and your supervisor by improving your skills at giving and receiving constructive criticism, and seeking out information about your performance throughout the year. If you're like most people, you like to know where you stand.

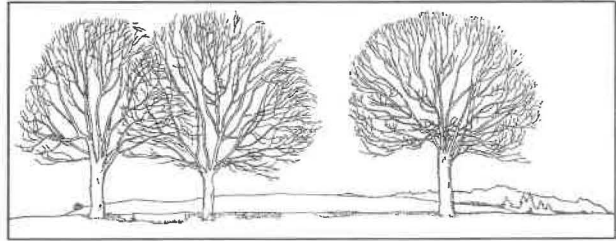
If you have an annual performance review, make the most of it. But don't settle for only an annual review. To best assess your performance, you'll need to constantly seek out feedback. The best way to do this, is to establish a track record as someone who welcomes suggestions and acts on them in a positive way. Once you've demonstrated by your behavior that it isn't risky for someone to offer you information, even constructive criticism, it will flow to you more readily. Will that be enough if you are a supervisor? Probably not! You'll still need to ask specifically for constructive feedback. Usually people are loathe to talk to another about what they view as negative.

Benefitting from feedback involves both the giving and receiving of information. How, when, where and why the information is given all contribute to the success or failure of the communication. First let's look at how to receive feedback. Understanding how it feels to be the recipient can also help you deliver information to another person in a way that they can hear it.

The first thing to keep in mind when receiving feedback, whether it's positive or negative, is that you are being presented with an opportunity to improve your performance. If you are able to maintain this attitude, it will be easier to keep an open mind and listen. We all have a tendency to become defensive when we perceive the message to be negative, and immediately react to the information. Your goal, however, should be to hear and understand what is being said. Ask questions to clarify and ask for examples which may illustrate. After the message has been delivered, it's appropriate to express appreciation to the person who has given you this feedback. You may or may not agree with what you have been told...but the reality is that's how that person perceives you. You owe the sender of the message credit for having the courage to level with you, and you owe it to yourself to hear the feedback and evaluate it as objectively as possible.

Now that you've received the feedback, you may feel surprised or even hurt. It's only natural! There are several things you can do with the information. You can of course discredit the giver, and/or completely dismiss the information and do nothing. It's always possible that the feedback was given based on a destructive rather than helpful motive. Look at your overall relationship with the giver to help you identify these instances. If the information lacks specifics, comes on the heels of some other negative situation, or appears to be without credibility, the feedback could be suspect. For the most part though, you won't want to just ignore feedback based upon your initial reaction. If you do, you've probably lost a valuable learning opportunity and discouraged future feedback from this person and others. A logical starting place may be to simply give it some thought and reflection. You can share the information with a friend or coworker who might be able to serve as a sounding board or reality check for you. You could also inquire of others to see whether they share the same perceptions expressed to you.

Once you have reflected on the comments and gathered more information, you are in a good position to make a decision about whether or not to do anything. You may choose to continue as you were or modify your behavior taking the comments into account. If you choose to change your behavior, you should seek additional feedback on your progress. Do this with the person who made you aware of the problem or someone else you trust. You'll find a tremendous sense of satisfaction in knowing that you are improving yourself in an area identified by the feedback.



Others will see that approaching you with their feedback will be appreciated and well received.

Let's turn the tables now and talk about being the giver of feedback. Sometimes this can be as hard or harder than being the recipient. You can practice doing this at any time and needn't wait until a formal appraisal. It's always appropriate to give input following completion of a project or a staff report for example, or after the person has shown some extra initiative. If you are giving positive feedback, be sure to comment on the specific act or behavior and the impact it has had. For example, you might praise one of your staff as follows, "Mark, I really appreciate that you've stayed within your budget so far this year because I know you have had several contingencies to deal with and very little flexibility. Your budgeting will allow the whole resource area to come in under budget." A little praise given in front of others can be a nice reward for hard work. This is especially appropriate for team successes. But be sensitive to those who may be shy or uncomfortable in front of others and respect that. Above all, be sincere in your compliments and chances are they will be received in the spirit they were intended.

When you are offering constructive criticism, your overriding goal will be to help the recipient obtain information about how he or she might alter their behavior. Three factors will guide the potential for a positive outcome. These are: the ability of the recipient to hear and understand the information; your approach; and the credibility of the feedback.

Constructive feedback should be given in private, when the recipient is in a calm state, and most able to hear it. Attempting to give feedback during a disagreement almost guarantees that the message will not be heard. Choose a location where the person will feel comfortable, maybe their office if it is private. Be clear and specific, and use language which is respectful. "Kim, even for me, a member of the interdisciplinary team, your analysis contains a great deal of technical language. I realize this is a complicated subject, but I think it will be better understood by the public if you use more common terms. For example, could you substitute the words timber sale for vegetative management if that's actually what you mean." Express your thoughts and feelings as just that, rather than absolute judgements. Listen to how differently the above feedback sounds in the form of a nonspecific judgement; "Kim, your writing is way too hard to understand." Which comment would you be more apt to respond positively to? Offering your thoughts to your coworker can also serve as an opening to invite her comments on your performance as well.

So, what if you have a supervisor that could benefit from your feedback? I believe that we all do.

I wish there was a recipe for this situation, but there isn't. Timing and your skill in delivering the message are probably the most critical factors in whether you'll be successful at being heard. You'll also want to pick a place that makes her feel comfortable, and prepare your thoughts, including specific examples ahead of time. It doesn't hurt to rehearse. Once you're ready, you'll have to watch for an opening or opportunity to offer the information. Your own performance rating is a logical place to give information back to your supervisor couched in terms of helping you do your own job better. You might also ask, following your evaluation if your supervisor would appreciate hearing feedback from you. Once again, it's best not to limit the give and take of information to formal reviews. Look for openings in your day to day contact, and take the risk to try helping your supervisor.

Regardless of who you are giving feedback to, your approach should be clear, be specific, and also be brief. Each of us has a limit to how much feedback we can absorb. Although no one wants to admit it, we've all probably had the experience of someone going on about how they'd like to see us change or do better. Remember, it takes tremendous effort to try and understand what is being communicated while fighting our almost automatic defensive reaction. When we feel embarrassed or ashamed, we don't hear what is said after that. If you tackle too much, your comments may be lost on someone who has the will to listen, but simply becomes overloaded. Pause frequently to allow them to ask questions, and to check for understanding and the comfort of the recipient.

Lastly, the credibility of the information you give will weigh heavily with respect to the potential for changing behavior. Keep your feedback focused on job-related issues of which you have personal knowledge. Don't rely on hearsay or second hand information. And finally, be timely with your input. If it's important, it shouldn't wait and time dulls our ability to be specific and accurate.

Each of us knows that we are capable of high performance. We try to the best of our abilities. Sometimes feedback from others is just the input we need to stay on track and achieve that next level of performance. By learning to give feedback to others, we can help them grow and hone our management skills. By learning to receive feedback we enhance our own performance and help ourselves. Make it your personal policy to seek out the gift of feedback, and be sure to thank those who are willing to give it for taking the risk and believing in you.

Barb Springer Beck is President of Beck Consulting, a firm that specializes in meeting facilitation, and managing personal and organizational change. Prior to starting her own business, she was a District Ranger for the USDA Forest Service.

SUSAN REGAN

AN INTERVIEW BY DAINA DRAVNIKS APPLE

INTERVIEW

WiNR: Tell us something about the Hardwood Manufacturers Association of which you are the Executive Vice President.

Regan: The Hardwood Manufacturers Association (HMA) is a non-profit trade association. We represent hardwood sawmills and hardwood concentration yards in the United States. We have 148 member companies in 31 states. As you know, hardwoods are found primarily east of the Mississippi, so most of our members are there. The big exception is Northwest Hardwoods, the hardwood division of Weyerhaeuser, which has significant alder lumber manufacturing operations in the Pacific Northwest along with their eastern hardwood facilities. For the most part, the members of the HMA are entrepreneurs, private companies. That has a dynamic effect on the trade association, because the men and few women who are active in the HMA are typically company owners; they have the authority to say "do it" or "don't do it," and "here's the money."

WiNR: You mentioned hardwood concentration yards. What are those?

Regan: A hardwood concentration yard buys green lumber; kiln dries it; does some further processing, and then resells that added value lumber.

WiNR: How many acres approximately are devoted to hardwood timber growing?

Regan: Around 270 million acres. The vast majority of it is in nonindustrial private ownership. The forest industry owns about 12 percent of the country's

hardwood forestland and federal, state, and local governments own about 16 percent.

WiNR: Who joins HMA?

Regan: We have a very sharp membership focus. We are unusual in that we do not have associate members. Most trade associations have associate members such as suppliers to the industry, equipment manufacturers, vendors, even customers. Not having that diversity gives us the ability to know who we are serving and what they need. It becomes more difficult when you have a variety of business interests in a trade association, because they have sometimes a divergence in their views about what the association should be doing. Despite the fact that members range from small to large and are scattered in 31 states, they all have one thing in common: They run sawmills and they run concentration yards. HMA represents about 25 percent of the total U.S. hardwood lumber production.

WiNR: Can you sketch a picture of the whole industry?

Regan: Hardwood lumber production in the United States is about 12 billion board feet annually. There are lots of very small producers. We are not really sure how many hardwood sawmills there are in the United States because some of them only seasonally operate. But there are probably 200-250 large, significant players who have made a major capital investment and who are in this for the long term. For the most part, however, the industry is made up of small, family-owned companies who

have been in the business for generations and who are looking forward to generations to come. It's nice. And that has a big impact on how they do business.

WiNR: On average, are the companies expanding, or are they shrinking? One of the problems with family farms is that they can't really compete with corporate farms. So they've given up a lot of land. Are there similarities here?

Regan: There is some consolidation occurring in the industry, mostly through one hardwood lumber company acquiring another. In several cases, one HMA member company has acquired another—which means one member instead of two. The majority of the members do not have significant timberland holdings and are not major landowners. There are a few exceptions to that, of course. But for the most part, an HMA member is working with hundreds of nonindustrial landowners to get logs.

WiNR: Is it expensive to join? And what is your budget?

Regan: As trade associations go, we are expensive. The dues to belong to the HMA range from \$3,000 annually to \$30,000. We are probably on the high end, but the fact that HMA members either are sawmills or concentration yards, and that everyone has the same interests, makes us valuable. Dues are based on a company's hardwood lumber production. Our combined budget for member services and for the promotion program is about \$1.3 million.

WiNR: As Executive Vice President, what are your main responsibilities?

Regan: The short answer is that I'm responsible for ensuring that everything that we set out to do in addressing the members' wants and needs gets done, and gets done well, and cost effectively. Our trademark is low overhead, high results, bang for the buck. At HMA, we have two major areas of activity: member services and promotion. We have a national conference focused on the technical issues in manufacturing, processing, marketing lumber, and managing

diversified companies like our members have. There are five regional meetings every year, where the focus is on plant tours. We have at least two plant tours at each meeting—always of sawmills, and sometimes also of a secondary manufacturing operation. We are drawing between 90 and 130 people to each regional meeting. The national conference last year drew 450 people. In just the last four years, we saw increases of 25 percent in attendance at our national conference and 60 percent at our regional meetings. The key reasons are the presentations made by the members of the HMA. They're the experts. We have help from the academic world and from machinery suppliers, but they are supplements to the first-hand experience of someone who's running a business. Our membership in general—the number of member companies—has grown 50 percent in the last four years.

WiNR: What is the reason for that? Is there more hardwood timber being harvested?

Regan: Not at all. That's pretty stable. The word, I think, is getting out, and our members are the ones getting the word out. Our members are the ones saying to their colleagues who are not members of the association, "Come and take a look and see what the value is." To them, the greatest value is an intangible, which is the ability to exchange ideas, share information and problems and solutions with one another from every part of the country. Often a member in Pennsylvania, say, will know all the other sawmill owners in Pennsylvania. But who would he know to visit in Alabama or who to call in Tennessee and say, "I'm having this trouble, how can you help me"?

And they're very open with each other: "Come and visit. Come and see how I address this." These are benefits the association offers: the tours, the meetings, the presentations, and the exchange of ideas.

WiNR: Is it a fairly low-tech or high-tech industry? I'm thinking in terms of protecting proprietary information.

Regan: We are seeing a trend toward computer-based optimization in the hardwood lumber manufacturing process. In many cases, the software on those optimizers is indeed proprietary. And, in some cases, individual hardwood lumber companies have developed proprietary grades with specific customers.

For the most part, however, what is proprietary is what's in your head. It's how you market your product or price your product. It's how you build the team of people who are working with you. Those are things we don't spend a lot of time sharing. We don't focus on people sharing their customer lists. When it comes to machinery, however, there really are no secrets. Even if you develop something semi-proprietary, someone helped you do it. And there are blueprints. Everybody has the same objective, which is to be profitable and efficient and productive, and however you arrive at that, good for you. And they all come from these meetings saying, "I learned some way to go back and apply it"—in a very different way, perhaps—in their own business.

As for technology itself, increasingly the hardwood industry is becoming much more technologically advanced. The way that always works is that the advances in technology happen first in



Susan Regan

is Executive

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the softwood industry, however, because it's so much larger.

WiNR: How would you compare the magnitude of the two?

Regan: Softwood lumber production in the U.S. is about 32 billion board feet annually, so that's about three times the size of the hardwood industry. And the individual companies themselves are much bigger. For the most part, they're public companies, have more resources for research and technology development. So what happens is a few leaders in the hardwood industry start to apply the softwood technology on hardwood. It's usually very expensive, but it's like anything else, as more people begin to use it, then the price comes down.

The most important advance is the use of computers to aid decision making. Hardwood lumber manufacturing is very difficult, because there are so many variables and permutations. There are a tremendous number of commercial species, and a variety of lengths, widths, thicknesses, and grades of lumber. You have to make decisions in a split second—to know that if you take x amount off the edge of that board, it increases to a higher grade and a higher value. We're seeing a combination of scanners, machine vision, and PCs—software expert systems, almost—to aid in the decision making. It has all fallen under the heading of optimization. Certain types of optimization are still very expensive, particularly in a hardwood setting, where the production is not very high. When you're not looking at paying it back over hundreds of millions of board-feet, it's expensive. But the theoretical payoff is increased yield and value for your product.

WiNR: What does the expert look for when he/she looks at stands of hardwoods?

Regan: There are about 20 hardwood species which the industry lumber market reports track each week. Oak is the most abundant species, but when you go to harvest a tract of timber, you can't just take the high value species. You have to take everything that's growing in that tract, but it may not be economical for you to manufacture, and you may

Susan Regan with attendees at the HMA National Conference



not have a market for it. Our promotion program tries to raise the value of all species, so that no one species is under the pressure of making all the money for an enterprise. The upper grades of any species are where the value is, but the lower grades are where the volume is. Where does this lower grade go? To making pallets or railroad ties. Most companies need strong markets in both the upper and lower grades of many species.

WiNR: Some other lower value species, like cottonwoods and tupelos, what are they used for?

Regan: Conventionally, there is a consumer-accepted look of grain patterns and colors. Tupelo, sap gum, basswood, and cottonwood are not typically accepted as "appearance woods" in furniture so those species are used in the nonvisible parts on the piece—the drawer sides, for example, or the drawer bottoms. Also it makes the piece more affordable, because those species cost less, and you reserve the appearance or visible surfaces for cherry, maple, oak, and ash.

WiNR: What would hickory be used for?

Regan: Some furniture, cabinetry, and flooring are made of hickory or pecan but they are very difficult to manufacture and deal with in a sawmill setting. Hickory makes good tool handles, because it is very hard and shock resistant. Not all hardwoods are of the same hardness so not all species are suitable for certain applications. You don't use every hardwood that exists for flooring,

because some of them just aren't hard enough. It becomes a very complicated business of hitting on the right mixture of species, markets, grades, and designs.

WiNR: It sounds like a very craft-oriented approach—artistic anticipation about what the individual species or lumber will look like as finished products. And what people will pay for.

Regan: One of my personal missions is to work with the design community and the design media to take oak, the most abundant species, from where it is now, somewhat linked to the country look, to greater use in contemporary styles. I think we have become accustomed to thinking that cherry is formal, because cherry is very close grained. It's academically interesting to me how these views become truisms. "Oak means country, because..." To me there's nothing inherent in oak, in its cell structure or anything else, that screams out, "I am casual." It's an interesting process of how cultural style and fashion shape things.

Our association is saying to furniture designers "Don't allow yourselves to be penned in by these preconceptions and by these stereotypes." It's probably too much to say "Let's make oak formal," because I think that preconception is too profound for everyone. But I don't think it's too much to say, "Oak can be contemporary." Right now the idiom for contemporary is maple, very close grained and light—a spare, simple appearance.

WiNR: Regarding import/export issues, do your members take a stand against importing knocked-down or ready-to-assemble furniture, say from Sweden or Asia?

Regan: American hardwood manufacturers export a lot of their lumber. They're participants in the global economy. Maybe domestic secondary manufacturers would be feeling foreign competition more.

WiNR: Your association looks strictly at utilization as opposed to growing hardwoods?

Regan: Yes. The whole world of utilization is exciting today. It's expensive machinery, complex operational issues, and marketing. There is tremendous career opportunity. Yet I'm sure the hardwood lumber manufacturing industry is not what young people think of first when they consider high technology, excitement, progressive thinking.

WiNR: What kinds of backgrounds are most appropriate? Forestry? Natural resources? MBAs? Computers?

Regan: It depends. There's certainly value to having the forestry/natural resource background. But the hardwood industry can be learned, and if you have an MBA or if you have a computer background, you'd be in demand. A management background in operations of any basic manufacturing or expertise in marketing is very valuable. Not just in the primary producing part of the business—the hardwood lumber manufacturing—but in the secondary manufacturing end as well. The lumber is sold to furniture manufacturers, cabinet manufacturers, for flooring or panel manufacturing, all of whom have the same challenges—making their manufacturing process as productive as possible, to make effective use of their raw material and to market a product that is successful in a market place full of competitive products.

WiNR: Is this industry labor intensive?

Regan: The lumber manufacturing industry is not what I would call labor intensive, and becoming less so. The most labor-intensive aspect is material handling, and that's becoming more automated. The secondary manufacturers, who actually make the finished goods, continue to be pretty labor intensive. It's hard to make a fine piece of

furniture without a lot of people actually putting their hands on it.

WiNR: I'd like to pursue the secondary manufacturing for a bit. Most purchases of furniture and flooring are made by women. Are women in positions of importance in this industry?

Regan: No, but that is changing, particularly in the last five years. In those secondary industries, there's been a much greater awareness of the consumer, and much more effort is being made to study the consumer and find out what she wants. I say "she" very deliberately, because even though men to a degree are involved in the shopping experience for home furnishings, and are involved in the payment for home furnishings, they're usually not the major decision maker—particularly of furniture—but also of cabinetry and flooring. There is no dispute that women are the chief decision makers when it comes to what home furnishing products to buy. Then, as we became more aware that women are our chief customers, we found we don't have women in our own companies making decisions about marketing or product development. These are conservative industries, and they're pretty tradition-bound—not quick to change. And when we spoke earlier about opportunities for people with backgrounds of one type or another, in the broader sense, there is certainly an opportunity for women particularly in the secondary manufacturing area.

WiNR: You mentioned earlier that in addition to member services like meetings and information sharing, HMA had promotional responsibilities. How do you go about that?

Regan: We spend \$650,000 a year on major, national, public relations and advertising efforts to stimulate consumer awareness of solid hardwood furniture, flooring, cabinetry, and millwork—and to build demand for that. By millwork, I mean trim: windows, doors, moldings,

Making a presentation on the HMA's Solid Hardwood Promotion Program



stair parts, mantles, paneling, wainscoting. We are familiar with the furniture and cabinet industries, and the flooring and millwork industries, and their products. HMA spends a tremendous amount of time talking to editors of home furnishings magazines, providing them with information and ideas, providing them with photography. We do the same with newspapers across the country for their home furnishing or lifestyle sections. It's an effort to keep the message out all the time about the benefits of hardwood products.

If you say women are the ones who make the decisions on what to buy for their homes, where do they get most of their ideas? A lot comes from home furnishings or decorating magazines, and from newspaper columns. Very, very influential. When women come in to buy, they bring pages ripped out of a magazine. Men used to edit those magazines. Right now, I'm sure there are more women in chief editorial positions in the home furnishings magazines than there are men, and that's a dramatic change from even five years ago.

WiNR: What prepared you to handle such a wide range of responsibilities at the association?

Regan: I have a bachelor's degree in journalism and French from Duquesne

University in Pittsburgh and a master's in public and international affairs from the University of Pittsburgh. My first job out of undergraduate school was to work at a newspaper about 30 miles from Pittsburgh, and I worked there for seven years as a reporter, feature writer, and as an editor. Then I moved to Ketchum Public Relations, which is a fairly large public relations, full-service communications agency; we gained the Hardwood Manufacturers Association account at a time when HMA was starting a consumer awareness effort to keep hardwood products on the minds of American consumers. I worked on the HMA account for a year, and then 11 years ago, went to work for them as the director of marketing communications.

WiNR: Where is the HMA's home office?

Regan: In Pittsburgh. HMA originally was the Southern Hardwood Lumber Manufacturers Association—founded in 1935 and based in Memphis. In 1985, SHLMA became the Hardwood Manufacturer's Association and opened its membership to companies from all hardwood producing regions in the U.S. We had two offices for awhile, one in Memphis and one in Pittsburgh, but since 1992, we've consolidated.

WiNR: How do you interact on a daily basis with the officers of HMA who must live in other states?

Regan: We all stay in touch through phone, fax, and email. Telephone conference calls are very effective and efficient. And of course, members of the HMA get together at the national conference and the five regional meetings.

WiNR: Should forest and wood products association executives start with a knowledge of forestry and wood products, or with industry experience. You've obviously picked up what you needed, but would this be unusual?

Regan: I believe it depends on the association's mission and purpose. If major activity relates directly to forest management issues, I think it would be tremendously helpful to have the forestry background. Those involved in legislative activity and lobbying and

public affairs very often are foresters or natural resources specialists—and well they should be—because they need a profoundly detailed knowledge of what it is that they're talking about. In trade associations, many have as their major missions communications and information for their members. In that sense, it seems to me that communication is more important. You do need to learn the industry you are serving, but it can be learned, and if you're smart and you listen hard, you can learn fairly quickly. I'm not saying I could run a sawmill profitably, but I've learned enough about the industry, what it wants to do, and the concerns of the people who work in it to serve them. Communication is my expertise. Because I came into the HMA from the consumer promotion side, they had no expectation that I would be a wood industry expert.

WiNR: So you didn't suffer any credibility problems?

Regan: That's right. And the members of the HMA were more than happy to help me learn and provided resources from their own companies to teach me to function effectively. I'm very careful not to be positioned as a forestry expert, because I'm not.

WiNR: The wood products industry is largely dominated by men, especially at the president and CEO levels. What approach or tactics worked best for you in establishing credibility and confidence among your members.

Regan: Assuming responsibility for the entire operation was very challenging—not something that overnight I developed the expertise for. It's a growth process, and it takes time to manage in a different way. The simplest answer to growing on the job would apply to anyone, woman or man, anywhere in any job, which is, do whatever you do with excellence. Do it better than you ever dreamed you could, or that those you are serving ever expected. Raise the bar, and then do it even better the next time. Every time we've done a brochure or a presentation or a meeting, it's the very best we can do. And the members of the HMA now expect that everything we do will be better than the last time.

The only way being a woman in this traditionally male position would have been a problem is if I didn't do my job. I think people make too much of all the reasons why potentially they don't have credibility. If they would focus their energy just on working extremely hard and being as smart as they can be while making a contribution, I honestly think that these things take care of themselves.

WiNR: I gather from other things you've said that most hardwood operations are run by men?

Regan: Yes. There are three women that I know of who own and operate hardwood lumber companies. We have only one woman mill manager out of 200-some companies. These are family businesses, though, and we're seeing more and more daughters involved in the business and coming to our meetings. Most of them are in the sales and management area, not in operations. I had been accustomed to seeing sons all along, so it's nice to see daughters and granddaughters becoming active.

WiNR: What kinds of skills do your staff people at HMA have?

Regan: We have a very small staff—only six people. They are either in public relations, general communications, or electronic communications. The last is becoming increasingly important: people with expertise in web sites, the internet, sophisticated office software for relational databases, or customized communications to our members. One person does almost nothing but that.

One new service that we've just started at the HMA is what we're calling the Technology Information Center. Our office and our database at HMA is the clearinghouse. We've surveyed all of our members about all of the equipment they have at their mills and their yards, whether it's high tech or low tech, brand new or old. If a member is thinking about optimization, for example, and thinking about buying a piece of optimizing equipment, he/she could call us, and we would list everybody in the HMA who has that equipment. Those people on that list can be called for more information.

WiNR: Do you have any kind of legislative affairs or lobbying function?

Regan: HMA does pay attention to the major national issues of the day in the forest products industry and forestry. We report on them in our newsletter and we might have speakers about them at our meetings. In general, the only funds we have to allocate are voluntary contributions from a number of our members to what we call the Forest Resource Fund. In general, that money—it's not much, \$40,000 a year—goes to support groups in Washington D.C. that are very involved in (1) private property rights protection and (2) reform of the Endangered Species Act to ensure that it does what it's supposed to do, which is protect the species. These groups know what they're doing.

The fact that we have members in 31 states means that we have to focus on national issues, because it's impossible to address the tremendous complexity of issues that arise regionally or locally related to forestry, forest management, and forest products. We urge all of our members to be very active in their state forestry associations. We wish we could support the state associations more, but it's beyond our reach.

WiNR: And the ESA and property rights are the only national-level issues?

Regan: We also become involved with certain OSHA, EPA, or family business issues such as Wood Dust.

WiNR: The ESA amendments would require a greater emphasis on economic impact than the past one, which was totally focused on species and habitat. This is a major turnaround from the dominant focus on preserving a species, habitat, and environment to the impacts on people—who will be paying, and how much? How do the mom-and-pop forest owners deal with these and other complex issues as they sell their trees to your association members?

Regan: In the absence of any expertise of their own, they rely on a consulting forester, or perhaps state forestry or natural resource extension personnel. Certainly the lumber company that wants to buy the timber has a forester who

could talk about a plan. But it's the landowner's decision on how they want to do things.

WiNR: There has been a lot of discussion about the need to educate the public concerning successes that the wood industry has forged in developing environmentally sound forest management and processing systems. Similarly, many feel the environmental impacts of wood use, compared to other competing materials such as steel, cement, plastics, and so forth, are misunderstood and misinterpreted in our media. What efforts has your association undertaken related to public awareness and education, and what do you think will be required to impact our public?

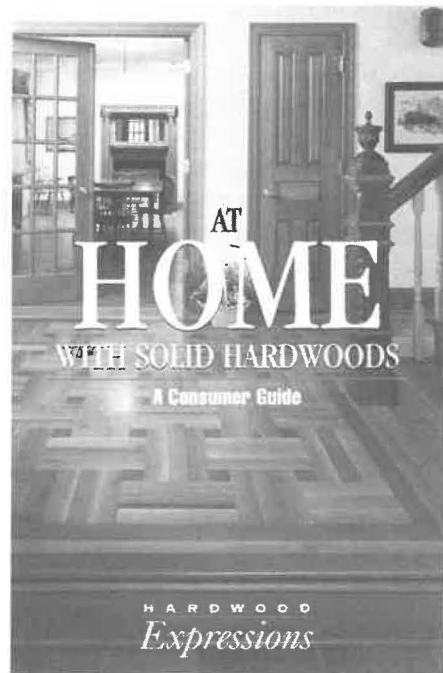
Regan: When you address the subject of "educating the public" and changing or influencing public opinion, it's a tremendously complex undertaking that I think, in general, everybody in this industry greatly underestimates. It's not a simple case of saying, "Well, we're right. We have the facts. And if we just say it often enough, people will change their minds." People in communications will tell you that it doesn't work that way. We learn as novices in public relations, that you never change people's opinions with facts when they're deeply and emotionally held. If we've learned anything in the forest products industry it's that you can throw a lot of money at programs that are "designed to change public opinion," and you will simply waste your money if you don't understand the psychology of where people are coming from.

You just have to be disciplined enough to say, "What is it precisely that we want to change?" And that's a very painstaking process. You can't simply say, "We want to change American public opinion about forestry." There are 269 million Americans. What very, very specific perception, what very, very specific group of people gives you a problem? Why is it giving you a problem? Why do you think they

have that perception? Then maybe we can do something about it over a period of time. But it has to be extremely well defined. It's the last thing you ever want to do, to pay for a national campaign to change people's minds.

WiNR: To take the "devil's advocate" role, I might say, "But for 10 years, you've been doing a national public relations campaign on building demand for hardwood products."

Regan: There's a *key* difference, which is, people like hardwood products to begin with. They always have. We didn't create the love of wood cabinets and wood furniture and wood floors. It's a wonderful material, the products are beautiful, but also it has all this emotional history of family, and heirloom, and tradition. I'd venture to say that if we had to create that love in American public opinion, I don't know that we could. We are starting at a tremendous advantage, which is why we can simply, with our efforts in public relations and communications, reinforce it, remind people of it, bring them back in touch with their feelings. This is important, particularly in the face of some other products that are competing with us. But that's a tremendous difference, and one that isn't remembered enough in the forest products industry when it's sug-



gested that we transfer the same strategies and techniques in communications on the product side over to the resource side. It's not comparable.

WiNR: Do you have any nasty environmental issues in the industry?

Regan: No, because the process of taking a log and breaking it down and making it into lumber is, despite what we've discussed earlier about high technology, really a simple and basic process. That's one of the advantages of being a primary producer. The main chemicals we use are surface dips to combat gray stain or sticker stain. Everybody has arranged for their dip tanks to be fully compliant with EPA regulations. On the clean air side, a sawmill's main emissions are from burning wood waste as fuel.

WiNR: And in secondary manufacturing?

Regan: I'm not an expert, but certainly secondary manufacturing processes are more complex and have more about them that is of regulatory concern: wood dust, glues, finishes, and VOCs (volatile organic compounds).

WiNR: What are some of the other challenges to the industry as a whole?

Regan: Wood is not the easiest material for anyone to work with. It's a natural material, and it has all of the wonderful things and all of the challenging things about a natural material. It shrinks and swells, has color and grain variation. It's far more labor intensive to deal with than a panel product that doesn't have those attributes. But then, a panel product hasn't the character and the emotional appeal of a solid wood product. But I think that one of the challenges in the hardwood lumber industry is to forge an even closer alliance with those industries that use hardwood lumber to make consumer products. We need to use the original resource, the log, to its maximum value, thus making sure that the resource itself is being managed wisely and then see that the lumber is being used to its maximum potential. Also to forge a closer alliance to ensure that from a marketing standpoint, solid hard-

wood products for the home continue to have the position they have in the marketplace.

WiNR: Are you worried about pricing your products above what people can afford?

Regan: Yes. We're very fortunate that we have a consuming public that likes our product. Loving it does no good, except to make sadness and frustration, if buyers can't afford it however. Solid wood products were never inexpensive. My parents bought solid cherry furniture—this was 40 years ago—and they sacrificed for it. But they still have it, and it's still beautiful. They knew that it was an investment. But there are cutoff points at which products are no longer really affordable, and I think we all have to be realistic about that. When you look at hardwood floors, although they're not inexpensive, they are not an out-of-the-ballpark alternative compared to ceramic tile and with carpet when you look at the longevity of the product. There continues to be hardwood furniture in the medium-prices. And certainly we want it to stay that way.

WiNR: Is promotion and marketing a member-directed activity at the association? Or do you generate it from the top down.

Regan: Both. Ten years ago, after I came, there was no solid hardwood promotion program. There were two or three members of the HMA who had a vision that this industry should do something day-in, day-out to keep demand up for hardwood products. They talked about it to maybe six other members of the HMA who each kicked in \$20,000. The early years were totally funded by voluntary contributions. It wasn't until several years later that it was even part of the dues. So, yes, I executed and implemented and, as the years went on, definitely had a creative contribution.

Frequently I get calls from people in other industries who have heard of our promotion program. They want the pro forma for it. "We want to start one." I always say that the HMA is the result of visionaries and unique entrepreneurial people. It's not something you just pick up and duplicate. Depend-

ing on the nature of their membership or trade association, it may never work. Everything we do is very much member driven. They own it.

WiNR: I gather from what you have said that you value highly your relationships with the HMA members?

Regan: Yes. The members of the HMA are very, very smart business people. It's not up to our staff to say anything about how they run their business. That's one of my pet peeves sometimes with people in staff positions in trade associations, forgetting that we're not the ones meeting the payroll. I truly view it as: these are very smart people with limited time. Our role is to provide them with information. They do with it what they will and in their own wise way.

Daina Dravnieks Apple, a natural resource economist, is a strategic planner with the U.S. Forest Service, Resources Program and Assessment Staff, Washington, D.C. She has served as Assistant Regulatory Officer in the Washington Office, as Regional Appeals Coordinator and on the Engineering Staff in Region 5, San Francisco. She began her Forest Service career as an Economist at Pacific Southwest Research Station, Berkeley. She is now on temporary assignment as Assistant Director, International Institute of Tropical Forestry, in Rio Piedras, Puerto Rico.

Her B.Sc. in Political Economy of Natural Resources, and her M.A. in Geography are both from the University of California, Berkeley. She is currently in the Environmental Science and Public Policy Ph.D. program at George Mason University in Virginia. She has been active in the Society of American Foresters National Capital Chapter and has served as Chairperson of several committees; is a member of Sigma Xi Scientific Research Society; and was elected President of Phi Beta Kappa Northern California Association, and National Secretary.

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Composting Wood Waste

A Poem (with apologies to Robert Service)

Jessie A. Micales

One of the major problems associated with sawmills and other forest products production facilities is what to do with all the waste wood that is generated, e.g., bark, sawdust, and wood chips. One possibility is to compost this material to form a nice organic soil amendment. Wood is very high in carbon, and successful composting requires the addition of a separate nitrogen source. I recently traveled to Alaska to present a seminar on composting waste wood with byproducts of the fisheries industry. This trip, coupled with a heavy influence of Robert Service, the "Bard of the Yukon,"—which I read—inspired the following:

A bunch of the boys were whooping it up, in the sawmills of old Ketchikan.
They were sawing like fiends, making rafters and beams for the cabin of Sourdough Dan.
Now Sourdough Dan is a nasty old man and he needed the wood by the dawn.
So the sawyers hove to and labored 'til two when the last of the wood had been sawn.

And oh it was dark in the sawmill that night, when the sawyers had said their goodbyes.
They went towards the door, but hadn't noticed before, the pile of sawdust in front of their eyes.
At the start of the job, the floor had been clean, but they had sawn for many a night.
As they looked round the mill from floorboard to sill, they saw a terrible sight.

With nary a sound sawdust drifted down and piled up on the floor.
As each day went by, the sawdust would fly, adding a few inches more.
As days passed into weeks, the pile got deep 'til they no longer could open the door.

"It's OK," said the foreman, old Stanley the Mormon, "we can still go home to our wives.
Out the window we'll go, we'll land in the snow, and we can get on with our lives."
To the window they ran, but all to a man, they stopped—they groaned and they cried.
T'was a terrible sight on the tundra that night—there were mountains of sawdust outside!

The mill had been open nigh 25 years. There wasn't a live tree in sight.
But a horrible view met the gaze of the few who looked out the window that night.
The sawdust formed mountains for miles and miles, right up to the wall of the mill.
"There is no escape now," the sawyers cried out, as they staggered away from the sill.

"We will die here bereft, only bones will be left. Our wives will be widowed and poor."
"But wait," said old Stan, "there's help right at hand—there's a telephone next to the door.
And there's the phone number of the Forest Products Lab—231-9724.
Our lives will be saved, they'll send help right away, 'fore the sawdust caves in the floor."

There are strange things done in the midnight sun in pursuit of soft money and fame.
The arctic trails may have more bizarre tales than this land of darkness and rain.
So to Ketchikan I hurry, by airplane and ferry, through streets filled with puddles and ruts
To save the Alaskans, I cry to the night, "Compost that wood waste with fish guts!"

Dr. Jessie A. Micales is Research Plant Pathologist at the USDA Forest Service Forest Products Laboratory, Madison, Wisconsin. She is a Women in Natural Resources editor.

Being a lone (female) ranger in a start-up company has some advantages. Among many lessons learned is that plantations are the future of forestry.

Observations from Chile

CAROLYN J. HENRI

When I left for Santiago in January 1991, I knew little or nothing about Chilean culture. Almost four years later, when I left Chile to return to graduate school in the U.S., I had learned a thing or two—not just about Chilean forestry, but about my career goals and what it means to be a woman in forestry.

I had been sent to Chile by a small American forest products firm to open a branch office, analyze business and investment opportunities, and make investments for the company. The corporation we formed, Pan-Americana, S.A., still operates today as a wood products trading company in Valdivia, Chile. The main business of the company is the export of semi-manufactured components and lumber to furniture manufacturers in Asia, the U.S., and Europe.

My routine activities (if you could call them that) were (1) to secure and maintain long term supply contracts with several Chilean lumber and parts manufacturers, (2) arrange for the transport of products to the end users, and (3) recruit new international markets for Chilean wood products. I traveled a lot, mostly to mills within Chile, but also to visit clients in the U.S. and Europe. Because Pan-Americana is a small company, I often had to be a “jack of all trades.”

The most rewarding part of my job was to work with Chilean producers, many of whom had never exported wood products before. Problem solving, education, and effective communication were a constant part of the professional relationship I brought with me to suppliers. Rather than being a hindrance, I found being female to be an advantage in this part of my job. Most mill owners and managers rarely did business with women, and were often surprised by my ability to hold my own in a negotiation. This surprise factor almost always worked to my advantage. Aside from this, I also made it a point to be a good listener and to work with producers on problem solving. Rather than take an adversarial position when problems arose, I tried to work with a “win-win” attitude, which in general got a very positive response and built loyalty between the suppliers and Pan-Americana.

Like any start-up anywhere, the formation of Pan-Americana had its share of 18-hour days, steep learning curves, and stress. But it also gave me a chance to explore the Chilean woods at length and to build close working relationships with Chilean wood products producers and forestry professionals, something that was personally very satisfying. Not least of all, I gained a tremendous understanding of the hardwood and pine timber industries in Chile. This understanding has affected my career goals ever since.

One of the many professional lessons I brought home from my years in Chile was the importance of intensively managed plantation forests in the production of timber world-wide. As natural forests are depleted and/or made inaccessible by public policy, the role of “tree farms” or plantations in supplying the world’s wood needs becomes more and more important. The millions of acres of pine and eucalypt plantations in Chile are strong testament to the quality and quantity of wood that can be produced at competitive prices through intensive management. As stumpage prices have risen in the past decade, U.S. timber producers, particularly in the south, also are beginning to realize the long term benefits of intensively managed forest plantations for supplying timber needs, based on the successes of countries like Chile, Brazil, and Argentina. My experiences in Chile and recent Ph.D. work on plantation forestry in Venezuela, have led me to believe that plantations are the future of forestry; in my life time I would not be surprised to see plantation forests taking the place of natural forests in supplying the bulk of our wood product needs.

While I strongly endorse plantation forestry, one cannot deny that forest plantations are controversial in countries like Chile, just as they are in the U.S. Most commonly, one hears that pine plantations acidify the soil through needle fall, siltify rivers, and lead to a decline in biodiversity. In some cases, these accusations are true, especially if poor forest practices have been used to manage the plantations. But as Chilean technology and wood production have advanced, so have responsible forest practices, making these claims less valid.

Author collecting data for dissertation research in two year old Gmelina arborea stand, Venezuela.



While the lessons I have learned about plantation forestry have been bold revelations, my understanding of the role of women in forestry has evolved more gradually. The current professional situation of women in Chile is perhaps comparable to the conditions U.S. women faced in the 1960s. In short, they are in a period of nascent change. I observed that most Chilean women who work for private companies are employed in low level positions as secretaries and administrative assistants, and that many do not continue to work after they marry.

One of my major complaints about working in Chile was the lack of female colleagues. In four years I met fewer than a handful of professional women in the forest products sector and the private forestry sector. I did meet one woman sawmill owner in a small southern town, whose weathered face and rough hands spoke of a life-time career. The other was a furniture buyer in Santiago. The sectors I observed where women did manage to reach more than low level positions were health care and banking. Fortunately, this situation is slowly changing for the better as more women attend professional institutions and universities and make career-oriented choices.

Most people who study forestry in Chile, attend a five year forestry school program that is the equivalent to a master's degree program in the U.S. The completion rate for this program is disappointingly low—fewer than a third of the students complete the program and receive their degree, instead settling for a technical certificate which states they have completed their course work, but not their thesis. Time, money, and family constraints all contribute to this situation, but a number of forestry students have told me that completing the thesis created by the university system keeps students from finishing the full program. A handful of foresters in Chile have completed graduate work in Europe or the U.S., but they are the select few—and from what I saw, all male.

When I returned to the U.S. in 1994 to begin a Ph.D. program in forest management, I realized that in the production forestry sector, the presence of women was not much greater in this country than in Chile. When I attend professional field trips and seminars, I am often the only woman attending—or one of very few. Production forestry is traditionally a male profession, and perhaps one in which women are just not interested. I haven't experienced any barriers to entry into this field because of my gender, either in the U.S. or in Chile, for that matter. However, I am also well aware that, for the most part, private forest industry has not done much to attract women to career positions with innovative, balanced, family-friendly policies. Perhaps this is something that those of us in the profession can work to change.

Carolyn J. Henri is currently a student: in the fall of 1994 she enrolled in the Ph.D. program in Forest Management at North Carolina State University. Her Bachelor's is from Stanford University in International Relations and her Master's is from Georgetown University in Washington, D.C. in development economics from the School of Foreign Service. She was employed by Pan-Americana Forest Products of Valdivia, Chile as general manager from 1990 to 1994. Her thesis work "Land Valuation of Short Rotation Tropical Forest Plantations" is in collaboration with the Jefferson Smurfit Corporation.

focus on wood products

Research conducted by women graduate students in the
Wood Science and Forest Products Department
Virginia Tech, Blacksburg, Virginia

Overview of the Graduate Program

Audrey G. Zink, Assistant Professor

The Wood Science and Forest Products department at Virginia Tech is one of three in the College of Forestry and Wildlife Resources. Graduate programs lead to the Master of Forestry, Master of Science, and Doctor of Philosophy degrees. Currently there are 15 full-time faculty in the department, 20 Ph.D. students, and 15 M.S. students. The graduate program can loosely be classified into two categories: a.) Forest Products Operations and Marketing and b.) Wood Science and Engineering. Specific subject areas include wood chemistry and adhesives, wood-based composites, wood processing/automation, wood engineering/mechanics, marketing and management, pallet and container research, recycling, and international economic development.

Forest Products Operations and Marketing:

Research in wood processing at Virginia Tech focuses on manufacturing processes in the automation of lumber production, developing new instrumentation for grading lumber by electronic imaging, designing computer-based decision making for lumber recovery, automating kiln drying operations, reducing the energy consumed during drying, and other high tech process control operations. Recycling of wood and fiber based materials is an important activity. Conversion of manufacturing residues, waste paper, construction debris, and agricultural by-products to useful materials is accomplished in a small-scale steam-explosion pilot plant. Forest products marketing involves the creation of a data

base concerning market intelligence and discovery of competitive advantages for forest products operations in particular circumstances.

Wood Science and Engineering:

Research in the chemistry, physics, anatomy, and mechanics of wood provides the foundation for research in improved manufacturing processes of wood products. Wood chemistry aims at understanding wood as a natural biocomposite of three main polymeric constituents. The wood-based composites program is a cooperative effort with private industry. Research focuses on advanced techniques for optical image analysis for coatings and adhesives, fundamental models for describing the densification of wood during processing, and heat and mass transfer conditions during hot pressing. Wood mechanics and engineering seeks to advance timber utilization through emphasis on reliability of structures, through understanding how the engineering properties of wood are affected by environmental and use factors, and through research into structural design provisions.

The educational scheme is highly interdisciplinary and requires courses within the department as well as from the fields of engineering, statistics, chemistry, material science, economics, and business administration. The Master of Science and Doctor of Philosophy degree programs are research oriented. Graduate research projects may range from basic studies to the solutions of practical problems of

concern to the industry. Many of the research projects are sponsored by industrial or by public grants and contracts. During the last two and a half decades graduate education in Wood Science and Forest Products at Virginia Tech has developed into one of the largest programs in the United States. Graduate enrollment in 1996 was 50, and the 1997 enrollment level is 40.

The program is highly international. Typically, the ratio of international-to-domestic students is 50:50. Students come from all over the world; currently there are students from Malaysia, Germany, Switzerland, India, China, Russia, France, Brazil, Canada, and Hungary. We also have students on study leave from Virginia Tech in Sweden and Nicaragua. The ratio of female-to-male students varies from year to year but averages about 30 percent; about two-thirds of the female students are international students.

Virginia Tech has been recognized as the leading institution in wood science and forest products graduate education. Acceptance into the program is highly competitive and graduates enjoy a high degree of success in finding professional employment. The acceptance rate into our graduate program for applicants is typically around 30 percent. All graduates with advanced degrees from Virginia Tech have found employment in industry, government, and educational organizations in the areas of management, research, and teaching.

Wood-to-Concrete Bolted Connections

Inez Johnson, M.S. Student
(Major Professor: Dr. J. Dan Dolan)

Very little data exist on wood-to-concrete connections of the type used in foundation design. Until now, research has only been performed on wood connections and concrete connections autonomous of each other. Unfortunately, testing connection materials separately does not give a reasonable estimate of the capacity or allowable design values of wood-to-concrete connections and the connection capacity can be affected by a number of factors. Further, it is becoming increasingly significant that we quantify the way foundations behave under cyclic load when designing for earthquake and high wind. The design specifications for wood construction provide information only on the lateral design of connections under monotonic loading. We now know that seismic events lead to a cyclic loading of structures.

The primary goal of this research project is to quantify the behavior of wood-to-concrete bolted connections under monotonic (static) and cyclic loading conditions. The secondary objective is to quantify how concrete strength and bolt size affect connection capacity.

The materials used for this research consist of lumber typical of the type and grade most often used in housing construction. Two types of typical steel bolts and two strength grades of concrete will be tested. The connections will be tested using either monotonic or cyclic loading. Other supporting tests will be conducted such as specific gravity of the wood, bolt bending strength, and embedment strength tests.



Inez Johnson

Hong Mei Gu and Audrey G. Zink



The results of this testing will reveal the wood-to-concrete mechanical behavior under cyclic loading similar to that experienced in seismic or wind loading and can be used to enhance the safety and effectiveness of connections, particularly where cyclic loading cases exist.

Moisture Gradient Measurement During Drying of Red Oak

Hong-mei Gu, M.S. Student
(Major Professor: Dr. Audrey G. Zink)

The key to improving drying quality and reducing drying time lies in understanding and controlling moisture movement during drying. As wood dries, moisture gradients are developed that lead to differential shrinkage and often drying defects such as cracks and splits. Due in part to equipment limitations, high resolution measurement of the moisture gradients have yet to be perfected.

In this project, moisture gradients in red oak were measured through four different techniques: bandsaw slicing, Forstner bit layering, flaking, and razor blade slicing. The flaking and razor blade slicing were developed in this study. Bandsaw slicing and Forstner bit layering were techniques found in existing literature. The results from each technique after drying for five days were compared to find the most reliable technique for measuring



Lillian C. Pita

moisture gradients. Because the thickness of the slice is known to influence the sensitivity of the moisture gradient measurements, six different slice thicknesses were tested to determine the optimum thickness for accurate measurement. The influence of direction of moisture movement was determined using directed movement in the tangential and radial wood principal directions.

Results of this study indicate that moisture distribution as measured with the four techniques were statistically significantly different from one another, although results from the two new techniques were very close to each other. The gradients measured with the bandsaw slicing technique were the lowest of the four, and those measured with the Forstner bit layering technique were the highest. The two new techniques developed in this study produced moisture contents that were closest to the average for the particular slice or layer as determined using the oven-dry method. They are both relatively simple to perform in the laboratory, although the flaking technique requires a disk flaker typical of those found in flake board mills. While the razor blade slicing technique requires very simple equipment and produces high resolution measurements of the gradients using specimens as thin as 2 mm, it becomes less accurate when the test block becomes drier and the wood becomes difficult to cut. However, it still produces more accurate measurements even with dry wood blocks than the other two techniques currently used in industry — bandsaw slicing and the Forstner bit layering technique.

Influence of Drying Conditions and Anatomical Structure on the Development of Strain in Red Oak and Southern Yellow Pine Lumber

Lillian C. Pita, Ph.D. Candidate
(Major Professor: Dr. Audrey G. Zink)

As wood dries, strains and internal stresses develop as a result of restraints imposed by moisture gradients and differential shrinkage in wood. The result of the differential shrinkage is often wood failure due to checks or splits. These checks and splits substantially reduce the wood quality and utility, but their prevention adds considerably to drying time and



costs. This is an especially critical problem in woods such as oak that are difficult to dry and valued for high quality end products. The improvement of drying of the refractory hardwoods and high quality softwoods poses unique challenges and also promises rewarding payoffs.

It is the objective of this study to determine and describe the influence of temperature, time, relative humidity, and wood anatomy on the development of surface strains during drying of red oak and southern yellow pine. This will be accomplished through an experimental study using image correlation techniques to measure the full-field deformations and calculate strains on the surface of wood specimens during various stages of drying. The wood parameters that are of particular interest are the moisture content and anatomical structure, mainly the ray volume in the oak and earlywood/latewood transitional areas in the pine.

The test specimens for this study were 25.5 mm x 6 mm across the grain and 152 mm along the grain. Specimens were prepared so that either the tangential or radial face of the specimen was observed for strain field development. Specimens were dried using one of four conditions: 40°C, 60% R.H.; 40°C, 40% R.H.; 60°C, 60% R.H.; or 60°C, 40% R.H. Development of strain on the surface was measured using image correlation techniques developed and perfected in this study.

Preliminary analysis of the results indicates that species, direction of movement, temperature, and relative humidity are key factors in the magnitude of maximum and mean strain. The presence of large oak-type rays are sites of large strain values which will lead to eventual drying cracks and checks in the oak. Large strain values occurred early in the drying process in southern yellow pine in

the latewood to earlywood transitional areas.

Biodegradable Composites from Cellulose-Based Materials

Razaina Mat Taib, Ph.D. Candidate
Major Professor: Dr. Wolfgang Glasser

Since the early 1960s, there has been an ever increasing demand for newer, stronger, stiffer and yet lighter materials in fields such as aerospace, transportation and construction. High demands made on materials for better overall performance have led to extensive research and development of composite materials. These materials have low specific gravities that make their properties particularly superior in strength and modulus to many traditional engineering materials such as steels. As a result, composite materials are now utilized in many industries and have become a major field of research and development.

One area of composite research that has caught the attention of many scientists is biodegradable composites. The development of such composites is feasible since there are a number of biopolymers and biofibers available including polyhydroxybutyrate, regenerated cellulose fiber, and wood fibers. Biodegradable composites are very much favored compared to other composites because they help reduce the amount of waste deposited in landfills and help to preserve our global environment.

This research deals with high performance biodegradable composites made of regenerated cellulose fibers and cellulose acetate butyrate (CAB). The fibers and matrix are manufactured from renewable resources, which are sustainable. The "powder prepregging" technique will be adapted in making the composite. This

technique involves impregnation of the regenerated cellulose fibers with the CAB matrix in a fluidization chamber. The density of the matrix powder in the chamber will be varied to prepare composites with different volume fractions of fibers. The impregnated fibers or "prepregs" will then be compression molded at 250°C. The resulting unidirectional composites will be mechanically tested using the Minimat tensile tester and dynamic mechanical thermal analysis (DMTA) and will be optically characterized by scanning electron microscopy. The properties of the composite will be compared with carbon fiber composites in which the same CAB matrix will be used. To determine the corresponding volume fractions of fibers, matrix digestion techniques will be applied. This method consists of dissolving the matrix resin in a liquid medium. In this work, the CAB matrix will be dissolved in methyl ethyl ketone. The residue, i.e., the fibers, will be filtered, washed, dried, and weighed. The volume fraction of fibers will then be calculated with the knowledge of the fibers and composite densities. It is expected that the mechanical properties of the biodegradable composites will increase with the amount of volume fractions of fibers employed.

Marketing of Non-Timber Forest Products, Nicaragua

Sarah Marsden Greene
M.S. Student

Major Professor: Dr. A.L. (Tom) Hammett

The ecological diversity of Nicaragua provides many untapped opportunities for economically important non-timber forest products (NTFPs), such as seeds, resins, oils, tannins, waxes, rubber, and medicinal



Sarah Marsden Greene

plants—and for communities wishing to market them. The potential for NTFP markets can only be realized if NTFP trade depends on sustainable management and efficient marketing. To achieve these practices, research must uncover information on important NTFPs including details of collection, processing, and the marketing and socioeconomic factors which drive NTFP trade. Today, research is vital as forests are rapidly degraded, and Nicaragua seeks to generate economic growth and development from its own resources.

The goal of this project is to empower forest-based enterprises in Nicaragua with the ability to sustainably manage and market non-timber forest products for social, economic, and environmental benefits. Objectives are to 1) document NTFPs presently collected, processed, and marketed; 2) identify opportunities for individuals, organizations, and communities to improve existing NTFP markets—and create markets for important unmarketed NTFPs; and 3) develop strategies to sustainably manage NTFP resources.

Methodology for the research will involve a series of in-depth interviews with NTFP stakeholders in Nicaragua. The study will begin with the identification of NTFP stakeholders, including collectors, processors, and marketers. Market paths will then be traced forward to their destinations in Nicaragua and backward to source locations in the forest. Stakeholders will be interviewed to gather data on collection, processing, marketing systems, valuation, quantities sold, and perceived limitations and needs. Rates of return at various positions along the market path will be determined for different marketing strategies of the same NTFP. Resultant NTFP profiles will reveal opportunities for value addition, increased cooperation among stakeholders, and improved methods for collection and processing on a sustainable basis. Using Sarah Warren's *Gender and Environment: Lessons from Social Forestry and Natural Resource Management* (1992), upon completion of NTFP profiles, participatory decision making processes involving NTFP stakeholders in source and destination locations will develop strategies. These will be used for sustainable utilization and marketing based on social, economic, and environmental factors.

Final strategies will belong to local communities and organizations wishing to collect NTFPs sustainably, process them to their highest value, and market them on local, national, and regional levels in addition to the possibility of international marketing.

Smart Surfaces in Biobased Materials

Ulrike Becker, Ph.D. Candidate
Major Professor: Dr. Wolfgang Glasser

With the recent discovery of novel solvents for cellulose, the interest in cellulose has increased dramatically. Cellulose, being a natural polymer, is more electron rich and oxygenated than most polymers, and therefore relatively hydrophilic. For many possible applications, a more hydrophobic surface is desirable.

The present study examines the surface segregation process in cellulosic blends as a new means to create cellulosic materials with a more hydrophobic surface. Surface segregation is a smart, thermodynamically driven process. If a film consisting of two components is cast against air, the more hydrophobic component will enrich at the surface and the result is a bi-layered structure with a hydrophobic surface layer over the more hydrophilic bulk phase.

The model system examined in this study consists of cellulose propionate, CP, as the hydrophilic component and a fluorine (F) containing CP as the hydrophobic component. Two types of F-containing CP are examined: random copolymers with numerous F-groups distributed evenly along the backbone, and

F-terminated CP oligomers, which are short CP segments with exactly one F-containing group at one end.

The effect of the surface segregation process is measured with contact angle measurements. If surface segregation occurs, a very small amount of F-containing species will lead to a large increase in hydrophobicity of the film. This behavior is observed only for random copolymers. Oligomers do not surface segregate, instead they spontaneously self-assemble into micelles with the F-containing groups in the center, surrounded by CP. The contours of the micelles can be seen using the atomic force microscope, a new and powerful method for examining the surface topology of samples on a very small scale.

Other experiments aim at determining the behavior of the surface segregated films during an environmental change, i.e., when they are moved from air (hydrophobic) into water (hydrophilic). The results show that in the hydrophilic environment, the film surface becomes more hydrophilic too. This is due to surface reorganization, where the hydrophobic moieties at the surface rearrange into the bulk of the film. The reorganization takes place because the film senses the change in the environment and this indicates that the films are smart materials.

China's Wood Products Market: An Effort to Identify Opportunities for Value Addition

Xiufang Sun, Ph.D. Student
Major Professor: Dr. A.L. (Tom) Hammett

Since the late 1980s, the double-digit annual growth in the Chinese economy has led to an increasing demand for wood



Ulrike Becker



products in that country. As a result, several trends have recently been evident. Construction and housing markets are growing quickly, and developers tend to prefer quality over price. The demand for high quality furniture has increased because the number of middle and upper class consumers is growing. The pulp and paper sector is another fast growing sector.

The primary purpose of this study is to give an overview of China's wood products market, to show the ability of China's wood products industry to supply its own market, and to examine the future trends of wood products supply and demand.

The analytical method used in this study was modeled after China's current wood products market system and was used to analyze the linkage between wood producers and consumers and for projecting trends of wood products supply/demand. On the supply side, projections were based on historical production and forestry-related policies. On the demand side, projections were developed either through forecasting economic growth and its relation with wood products uses or based on the development strategies set by each individual end-user. Qualitative discussions on product demand were given to examine the market trends and potential. We also assessed China's ability to meet domestic market demand for wood products.

The projections of both supply and demand show that China's domestic wood supply will still not be sufficient to feed its own demand. This result represents particular characteristics of China's wood products market. Both production and consumption has faced the constraints of limited forest resources and has been controlled by the central government. Under present conditions, a perfect competitive wood products market similar to those in other large industrialized countries can never be formed.

Both increasing demand and a limited supply of wood products result in an increasing need for wood products imports which continues to be an opportunity for North American wood products industries. Based on our preliminary examination of China's wood products demand and supply, there are several reasons why opportunities for value addition are great. Augmenting demand of wood products coupled with limited timber resources and wood processing capacities lead to continuous wood products imports. Lumber and wood-based panels are major products to be imported. Although China encourages finished wood products exports, exports will not increase dramatically. The domestic market remains strong.

People

Patrick A. Shea of Utah has become the 15th Director of the 51-year-old USDI Bureau of Land Management. The Director has policy and administrative responsibility for 265 million acres of surface land and over 570 million acres of mineral estate, with an annual budget of more than \$1 billion, and a work force of about 9,000 employees. Shea is 49, a prominent Utah lawyer, educator, and businessman. Besides practicing law in Salt Lake City and the District of Columbia, he is an Adjunct Professor of political science at the Brigham Young University Law School. He was Counsel to the U.S. Senate Foreign Relations Committee from 1979 to 1980, and the Wharton School of Business' global competition center. He serves as Director and Board member of a number of other organizations. His Bachelor's is from Stanford, his law degree from Harvard, and he was a Rhodes Scholar earning a Master's from Oxford. He lives in Salt Lake City, Utah.



The Charles A. Weyerhaeuser Award from the Forest History Society for best book on forest and conservation history is biennial, granted in odd-numbered years. For 1997, the winner was **Nancy Langston** for her book titled *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West*. Few histories of national forests have so explicitly and elegantly combined political/policy history with a close look at ecological history. Although focusing specifically on the Blue Mountains in Oregon, Langston's book offers a timely insight into natural resource management practices on other national forests and public lands. Another award from the Forest History Society, the F. K. Weyerhaeuser Forest History Fellowship was awarded to Erika Nystrom Sasser, Duke University. Her Ph.D. proposal intends to articulate the impact of property rights on land use in the U.S., Canada and Mexico.

Leigh Welling, Assistant Research Professor, Geosciences Department, at the University of Nevada, Las Vegas, received a grant from the National Science Foundation Human Resources Division under the Program for Women and Girls, and is a collaboration among Geosciences, Sociology, and Women's Studies. A central goal is to develop thematic teaching modules aimed at transforming both the content and pedagogical techniques of traditional Earth Science curricula. Welling was drawn to the project because working with women has been an especially rewarding experience after coming from a male dominated field. She says: "The reasons why women drop out of science are not always easy to identify. It's an institutionalized problem."

One hundred and fifty years ago, Maria Mitchell discovered a comet, an event that made her internationally famous. The first awards in her name were given by the Maria Mitchell Association (MMA). Among them are three women from the Nantucket, Massachusetts area: **Dorrit Hoffleit** received her doctorate in astronomy from Harvard. At the age of 90 she is still Yale University's senior research astronomer. **Edith Andrews** was a professor at Miami University's Department of Physiology and is now the MMA's resident ornithologist. **Eileen P. McGrath** taught courses from biology to genetics and now serves on the MMA Board of Managers. All recipients share a common belief in the importance of having mentors when considering science careers.

Creating a healthy political climate for profitably growing timber is only one of the tasks WFPA sets for itself.

Washington Forest Protection Association

Mike Munson

WFPA includes in its mission the following:

- Be the leading advocate for the responsible stewardship of all forest resources on private forest lands in Washington state.
- Develop a healthy economic climate in which to grow and harvest timber in Washington on a perpetual basis in order to meet the global need for forest products.
- Be recognized as the state's leading voice and creative strategist for major political issues and sound governmental policies affecting private and state forest resources.
- Be an active proponent of management practices which give meaningful emphasis to the non-commodity values provided by forests.
- Be the leading source of public information and education about the values and challenges of forest resources management.

The Washington Forest Protection Association (WFPA) represents the interests of private forest landowners in Washington State. WFPA members are large and small companies, made up of individuals and families who grow, harvest and re-grow trees in a continuous cycle on more than 4.5 million acres in Washington.

Founded in 1908 to protect the forest from wildfire, WFPA today works for balance in public policy so that its members can continue to practice forestry that is economically sound and environmentally sensitive.

Membership numbers change slightly from year to year; currently there are 61 landowner groups in the association.

Governance

The association is led by a board of trustees, who are elected by the members at an annual meeting. In addition, the trustees set policy and overall direction for the association. The members also elect an association president from among the trustees, and other officers of an executive committee. The president generally serves two one-year terms and is succeeded by the vice president.

The current WFPA president is Wade Boyd, Ph.D., vice president - timber, Longview Fibre Company. Boyd has past experience with the U.S. Forest Service, and also taught forestry at the university and community college levels. WFPA's vice president is Cassie Phillips, director of environ-

mental and regulatory affairs, Weyerhaeuser Company. Phillips has both forestry and law degrees and also has government resource agency experience. She is a member of the Washington State Forest Practices Board.

Association policy is carried out under the leadership of an executive director hired by the trustees, who leads a staff of 14. The staff includes professionals in different disciplines, such as forestry, taxation, governmental relations, communications, and administrative support. WFPA's executive director is Bill Wilkerson who, as an attorney before joining the association, specialized in the negotiation of natural resource issues for public and private organizations. At different times, Wilkerson also has been director of both the Washington State departments of fisheries and revenue.

In addition to the all-member annual meeting, either the trustees or executive committee meet monthly. Most of WFPA's standing committees, connected with program areas, also meet monthly. Committee participation comes from the appropriate discipline, such as forest management or governmental relations. Larger companies are generally represented on committees by "hands-on" managers—for example, a regional woods manager.

WFPA's trustee positions are held either by owners or CEO-level people of medium and smaller companies or, in larger companies, a person holding the top-level forestry/land manager

position. WFPA's financial support comes from dues based on a per-acre assessment.

Current issues

WFPA's prime issue in 1998 is to develop a cooperative, state-based solution for fish habitat and water quality needs on private forest land in the state. The association is working primarily through the Timber-Fish-Wildlife (TFW) forum, which brings together private forest landowners, state resource agencies, Native American tribes, the environmental community and county government to seek resolution of forest management issues. (It was a former WFPA executive director who joined with a tribal leader to start the discussions that led to creation of TFW in early 1987.)

WFPA has developed proposals for riparian management and small stream issues, linked to what we've learned from field research. The riparian work covers large woody debris, shade and stream bank stability. Our proposals in this area also cover a new stream typing system for the state, changes in road construction and maintenance, reducing risk of mass wasting, and stream restoration.

Program areas

WFPA works to accomplish its mission through several program areas, which are led by a staff director and guided by a standing committee drawn from members' organizations. Work plans and priorities for program areas usually are developed annually by standing committees, within the overall policy set by the trustees. Priorities can change during the year when circumstances change and issues develop in new ways. An example would be how the Northern Spotted Owl burst into forest management planning after court rulings in the early 1990s. If the trustees have an issue of overriding importance then that, of course, becomes the top priority for one or more program areas. Such is the case with the fish/water issue in both 1997 and 1998.

Forest Policy

The purpose of the forest policy program is to ensure governmental policies and regulations promote responsible land stewardship and a healthy economic climate in which to own, grow, and harvest timber in Washington state. Our goal is to achieve reasonable, stable, predictable public policies, legislation, regula-

tions—and their administration—which affect forest management on private forestland.

The fish/water issue is the top priority for this program area and will continue to be until we develop a satisfactory resolution. In the early 1990s we were focused more strongly on resolving wildlife issues, which led to a series of changes in the state's Forest Practices Act. Those changes include a requirement for some trees to be left behind during harvest for wildlife recruitment, smaller clearcut size, and a "greenup" requirement for existing clearcuts before new harvest can occur.

Environmental Affairs

Working closely with the forest policy team, our environmental affairs program provides linkage between forest practices issues and other land use and environmental issues that affect the operations of the association's members. We work to ensure that local, regional and state environmental policies, laws and regulations are coordinated and consistent with private forest management and forest practices, and support the ability of WFPA members to profitably and efficiently manage their land and resources.

In 1996, we completed a two-year study of harvest practices in visually sensitive areas and published a forest aesthetics manual to guide road building and harvest in such areas. In 1997, we supported state legislation to cope with local government's growing concern with the conversion of forest lands near urban areas to residential use without appropriate regulatory review.

Eastside Forest Management

This program area was created by the trustees in mid-1997 to focus on landowner issues east of the Cascade Mountains, which run north-south through Washington. The mountains divide us into "wet" (west side) and "dry" sides, with significantly less rainfall to the east. This has produced different tree species and forest



WFPA Executive Committee at the 1997 annual meeting. From left: Wade Boyd, Longview Fibre Company, president; John Warjone, Port Blakely Tree Farms, member-at-large; Steve Tveit, Boise Cascade Corporation, member-at-large; Dave Crooker, Plum Creek Timber Company, treasurer; Bill Wilkerson, WFPA executive director; Cassie Phillips, Weyerhaeuser, vice president; Randy Johnson, Green Crow, secretary.

practices between east and west. Most of the state's timber and population are on the west side and, as a result, most of WFPA's membership is west of the Cascades. Our eastside members wanted a more formal working relationship to consider issues unique to their geography, and a way to ensure a regular eastside "voice" in WFPA discussions.

Governmental Relations

The governmental relations program provides WFPA members with a full-time advocate and strategist in the public policy debate on all issues that impact private forest landowners. Our goal is to support public policy that is consistent with the basic land management and business principles practiced by WFPA members. We also seek to limit member exposure to unnecessary regulations that reduce management options or increase tax or other financial obligations or liabilities.

In a typical year the association works on a wide legislative front. In 1997 we helped pass legislation authorizing "landscape planning" pilot projects, which will explore new ways to protect wildlife and fish while providing some regulatory stability for landowners. In the same session, we returned to our roots of wildfire control, seeking an increase for the state wildfire protection budget; but in this we were unsuccessful.

Forest Taxation and Economics

The forest taxation and economics program strives to ensure that WFPA members pay their fair share—but no more—of state and local taxes. In addition, this program also ensures WFPA members will pay a reasonable and equitable level for special assessments for surface water and drainage management, weed control, lake management and other resource protection activities where private forestland management contributes to resource impacts.

In Washington, the forest industry pays a business and occupation tax, a

property tax on forest land and a timber harvest tax. In 1995 these taxes amounted to \$157.7 million. In addition to these three key categories, we pay state sales taxes, employer taxes, fuel taxes, real estate taxes, federal excise and income taxes, as well as various user fees and other assessments.

One of WFPA's continuing concerns with our state tax structure is its failure to recognize that in modern forestry, timber is a "crop," and other crops are not taxed as timber is. To this end, we completed two financial studies to help us decide if it is appropriate to propose improvements to the existing system and, if so, the timing of any proposals. Both studies analyzed the value of bare timberland in Washington. One was from a market approach, looking at the sales prices of bare timberland, and the other from an income approach, analyzing what bare timberland is worth from an investment approach.

Public Information

The goal here is to create and maintain an information link between the citizens of Washington state and forest landowners so the forest products industry may continue to operate in an economically sound, environmentally sensitive manner. We seek to be the leading source of public information and education regarding the values and challenges of private forest resources management. A high-profile public education program has been funded since 1991, using print and television advertising, direct mail, and other tools to communicate directly with different sectors of the public.

In 1994 we pioneered the use of a 30-minute, paid-television "documercial" to take our forest management message to a wide audience. Because of strong positive response, since then we have produced two newer versions. We also are making use of the Internet to communicate our messages.



ANNUAL REPORT

1997

WASHINGTON FOREST PROTECTION ASSOCIATION

**Forests
&
FISH**
Meeting the Challenge



Legal Affairs

The legal affairs program provides legal assistance and support in the development of public policy, legislation and regulations that affect the respective association programs. The legal affairs committee provides legal advice to the association, recommends courses of action for issues requiring potential legal response, and helps manage legal work being done for the association.

In 1993 the committee helped guide our legal action in response to a state agency that attempted to require more than necessary habitat for spotted owls on private forest land, and we won a favorable court ruling. We later worked with that agency and other parties to produce a workable new state rule for spotted owl habitat.

Environmental Education

While most of WFPA's work is advocacy, the association also supports an extensive environmental education program specifically designed to be opinion-neutral. Our continuing partnership with two state agencies, the Office of Superintendent of Public Instruction and Department of Fish & Wildlife, helps us deliver classroom materials that are factual,

but allow participants to make up their own minds about issues. Our environmental education program is aligned with WFFPA's strategic goals, but retains the balanced, social science-based approach that maintains acceptance within the education community. Environmental education is part of WFFPA's regular budget; in addition, we have been able to secure some grants to support conferences and other educator activities.

Our program makes use of *Project Learning Tree*, the national curriculum we helped create. In addition, five years ago we developed *Forests of Washington*, a curriculum specifically designed for the forests, geography and climate of our state. Over the last two years we have helped several school districts use environmental education and our materials as a way of implementing new learning objectives adopted by the state.

Tree Farm

WFFPA has sponsored the national *Tree Farm* program in Washington for 10 years, with support from the Washington Farm Forestry Association, Society

of American Foresters, Washington State Department of Natural Resources, USDA Forest Service, Natural Resource Conservation Service, and Cooperative Extension Service. The first Tree Farm in the nation was certified in Washington state in 1941.

Animal Damage Control

Black bears west of the Cascade Mountains damage fast-growing trees of high economic value every spring. In a search for sugar before their regular food supply ripens, they strip the bark off trees and feed on the sapwood, frequently killing the trees. To limit our losses and reduce the need for lethal control, WFFPA's Animal Damage Control Program (ADCP) developed a supplemental bear feeding program several years ago, which delivers special food pellets to the bears until berries and other food become available in early summer.

In addition to the feeding program, the ADCP is involved in cooperative research to find other ways to limit the bears' destructive behavior. One promising theory is that the "taste" of

trees can be made unattractive to bears with mineral additives, harmless to trees, applied like fertilizer. The ADCP is funded independently by cooperating landowners in Washington and Oregon, which include WFFPA members, government agencies, city watersheds, and Indian tribes.

Studies commissioned

The association has produced or commissioned several studies, some in cooperation with other groups or state agencies, to support policy development. They include the following:

The Impact of Environmental and Management Factors on Washington's Wild Anadromous Salmon and Trout. John F. Palmisano, Ph.D., Robert H. Ellis, Ph.D., Victor W. Kaczynski, Ph.D. Prepared for WFFPA and Washington State Department of Natural Resources. 1993

The Forest Products Economic Impact Study, Current Conditions and Issues. Richard S. Conway Jr., Dick Conway & Associates. Prepared for WFFPA, Washington State Department of Natural Resources, Washington State Department of Trade and Economic Development. 1994, revised.

The Role of Private Landowners in Improving Forest Health. Prepared by the Washington Farm Forestry Association and the Eastside Forest Management Subcommittee of the WFFPA. 1994

Forest Aesthetics, Harvest Practices in Visually Sensitive Areas. Guidelines for the design of harvest practices in visually sensitive areas. Professor Gordon A. Bradley, College of Forest Resources, University of Washington. 1996

Mike Munson is Director of Communications for the Washington Forest Protection Association, located in Olympia, Washington. He handles media relations, public information and internal communications. He has spent the last 22 years with the forest products industry, including assignments with Weyerhaeuser and Simpson Timber Company.

He has also been a newspaper reporter and editor in Washington state and in Louisville, Kentucky. His Masters in Journalism is from the Medill School of Journalism, Northwestern University, Evanston; his undergraduate degree is in English from Whitman College, Walla Walla, Washington.

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Ten Stupid Things Men Do to Mess Up Their Lives.

Book Review

Jonne Hower

Dr. Laura Schlessinger

Harper Collins, New York. 1997.

For the obvious reason of "gender equity," (and also because I was really curious), I picked up the new book *Ten Stupid Things Men Do to Mess Up Their Lives*, by radio psychologist and talk-show host, Laura Schlessinger. And, I'm able to say that—although the title says the book is for men—I found it very interesting. But in a definitely different way that *Ten Stupid Things Women Do to Mess Up Their Lives* (WINR, Vol. 18, No. 2, Winter 1997).

When I read *TST Women Do*, I saw myself. However, when I read *TST Men Do*, I saw myself again! How can this be? (And, no, I didn't see myself in her description of guys.) It was more that I saw the reflection of myself in relationship to my husband.

I ended the review of *TST Women Do* by saying Read this book.... Share this book.... Talk about this book... Make wise choices. Follow through on them, etc., etc. I stand by those words for this book also. Why?

Well, I believe—as obvious as it appears to be—that we only know what we know. Learning anything, whether new or just from a different

perspective, enables us to grow and, if we so desire, make different choices. *TST Men Do* describes the category of "American men" in a way I had not understood before. Secretly, I've always believed that everyone is just like me—but I guess it just ain't so. However, I'm not saying *TST Men Do* has a universally accurate description that all men should aspire to. It's just given me something to think about.

Just as I did for the *TST Women Do* book, here are the chapter titles and subheads from *TST Men Do*, including italics supplied by Dr. Laura:

1. *Stupid Chivalry*. By getting involved with the wrong woman (weak, flaky, damaged, needy, desperate, stupid, untrustworthy, immature, etc.) you think that your love will save/transform her?

2. *Stupid Independence*. Unwilling to admit need for bonding and intimacy, you hide in excesses of work, play, drink, drugs, porn, and meaningless sex.

3. *Stupid Ambition*. Unable to comfortably and proudly accept your inherent importance to society and family as

husband and father, you bow to the false idols of money, toys, power, and status.

4. *Stupid Strength*. Uncomfortable with feeling weak, vulnerable, useless, powerless, or rejected, you use intimidation, force, or passive-aggressiveness to regain control.

5. *Stupid Sex*. Taking an attraction, opportunity, or erection as a *sign*, you measure your masculinity and power by sexual conquests, infidelities, and orgasms.

6. *Stupid Matrimony*. Lacking a mature sense of the purpose, meaning, or value of marriage, you realize too late you've gone down the aisle with the wrong woman for the wrong reasons and feel helpless to *fix it*.

7. *Stupid Husbanding*. Thinking that marriage is the honorable discharge from loving courtship, you continue to live as though you were single and your *mommy-wife* will take care of everything else.

8. *Stupid Parenting*. Believing that only women/mothers nurture children, you withdraw from hands-on parenting to assert your masculine importance,

missing out on the true *soul-food* of a child's hug.

9. *Stupid Boyishness*. Having not yet worked out a comfortable emotional and social understanding with your mother, you form relationships with women that become geared to avenge, resolve, or protect you from your ties to Mommy.

10. *Stupid Machismo*. Understanding the true and meaningful difference between being male and a man, you can become a man.

Drawing on phone calls from her radio audiences, as well as faxes and letters, Dr. Laura opens each chapter with a short quote or story. Many of them made me roll my eyes and chortle.

An old Oregon rancher once told me, 'There are three types of men. One ... learns from books. One...learns from observations. And one...just has to urinate on the electric fence himself.'
Carl Barney (listener), 1996.

Q: Why do many men tend to give their penis a nickname?
A: They wouldn't want some of their most important decisions to be made by a complete stranger.
Anonymous.

Publications

I'm not sure men would truly appreciate them all.

In Chapter 7, *Stupid Husbanding*, Dr. Laura quotes a listener's parallel of a working relationship between a husband and wife to the workings of a car engine. Here is one of the places where I see myself reflected. And, also, why I believe this book is as important to women as to men:

A relationship is like a finely tuned car engine. The way it works better is by what you put into it The better gas you put in, the better mileage you achieve. An engine takes careful maintenance with oils and filters and spark plugs.... Oil represents communication shared between the couple; there must be constant communication that entails all aspects of their lives... If the oil is prevented from areas in the engine, that part will overheat and breakdown.... The filters represent forgiveness.... The spark plugs...provide the fire and power which gets the engine started, [and] represents the couple's passion....

Something must continually power the engine—that is the gasoline, which represents the committed effort.... As an engine will not run without gas, a relationship will not grow without attention and work.... If the engine is kept in fine condition, there should be no problem when the gas tank is full.

I was astounded to read that more than half of Dr. Laura's listening audience are men, even though most (in the order of 90 percent) relationship books are purchased by women. Guys won't buy a book and read, but they'll listen to the radio? Go figure.

Jonne Hower works for the Bureau of Land Management in eastern Oregon. She is a Women in Natural Resources editor.

The use of public lands in the western United States has become the focus of international, national, and regional debate. Public concern for wildlife, fish, wilderness, recreation, and other values associated with these lands has increased substantially since the 1960s. And that concern has clashed with the more user/extraction orientation of traditional interests. The priorities for management of these lands have become the subject of increasing controversy and litigation, particularly U.S. federal forests and rangelands. *Public Lands Management in the West: Citizens, Interest Groups, and Values* is edited by Brent S. Steel (Greenwood Publishing Group Inc, 1997) with contributions from a number of essayists who look at public lands uses.

Building the National Parks: Historic Landscape Design and Construction (Johns Hopkins, 1997) tells the story of the architects and engineers who built America's scenic national parks. Author Linda McClelland, an historian for the National Register of Historic Places, chronicles the two conflicting missions of the National Park Service: to preserve our country's natural wonders for future generations and to develop national parks for the appreciation and enjoyment of visitors.

Various species of wildlife use different species of snags and downed logs for shelter, food, caching, overwintering, and resting. But how do you determine the species of a dead tree or log when some or all of the branches, cones, or bark are missing? The Pacific Northwest Research Station of the Forest Service has two publications PNW-GTR-390 and PNW-GTR-391 from email desmith/r6pnw@fs.fed.us which may help.

A new journal, *Organization & Environment* is an international forum for discussion of the complex social causes and consequences of environment damage, restoration, sustainability, and liberation. Formerly, it was called *Industrial & Environmental Crisis Quarterly*, but O & E is a dramatic departure from its predecessor. Sample issues are available by emailing jsamples@sagepub.com.

Water Policy, The journal of the World Water Council is a new international forum for the latest thinking on global water issues and to provide a forum for dialogue between private and public communities, or industrial, urban, agricultural, and transportation water communities. Editor Jerome Delli Priscoli invites submissions and can be contacted at priscol@mail.erols.com; a free sample can be requested from usinfo-f@elsevier.com.

National Parks and the Woman's Voice: a History, by Polly Welts Kaufman has just been published in paperback. It includes a new appendix listing more than 100 NPS sites that interpret women's history. The book received the 1996 Jeanne Farr McDonnell Book Award of the Women's Heritage Museum of San Francisco. It can be ordered for \$18.95 from the University of New Mexico Press (1-800-249-7737).

A new 28-minute video produced by the Izaak Walton League of America helps people learn to stabilize eroding streambanks and restore degraded stream side forests. Environmentally sound techniques, woody plantings, and erosion control are featured. Call 1-800-284-4952 for *Restoring America's Streams* at \$20.

A Guide to Women's Studies in the Outdoors is a review of the literature and research, compiled and edited by Nina S. Roberts. This international edition also includes an annotated bibliography. If you are interested in women's experiences in adventure-based activities, then this is the place to start. To order, call 1-800-428-4466.

The International Network for Availability of Scientific Publications (INASP) is a London-based cooperative network of international partners aimed at improving worldwide access to science information. Among their activities, they publish the *INASP Directory*, which provides full information on over 200 groups involved in library and book development. For more information, visit them at <http://www.oneworld.org/inasp>

Women's Studies Quarterly invites submissions for a special Spring/Summer 2000 issue on Women and the Environment. Diane Hope, Department of Professional and Technical Communication at Rochester Institute of Technology (New York) is co-editor of this volume and can be reached at dshgpt@RIT.edu.

Women in Natural Resources journal will have a focus issue on air as a natural resource. We solicit articles which have to do with air quality, pollution, wind, atmospheric science research, thermal aspects, and others. We are interested in regulations which impact the air resource.

If you have a manuscript or topic to discuss, call Dixie Ehrenreich, Editor, at 208-885-6754 or email dixie@uidaho.edu.

Will motivation and enthusiasm translate to job creation and an improved economy in rural Kentucky?

A **Value Added** Wood Processing Plant... for our *Garden*

Sheila Rush

If you have ever wondered what it's like to live in the garden spot of the world, ask me. I can tell you all about it! I've been living there for the last 25 years. It's a small, rural community in south-central Kentucky, much like Andy Griffith's Mayberry. Everyone knows everyone, the crime rate is low, and everything you could ever need is just over in Mt. Pilot, or in our case Bowling Green.

But every garden spot has problems and so does ours—a lack of jobs. This concerns me more and more as I watch my children grow. I realize they will have virtually no chance for a career unless they move away. As a matter of fact, we have an out-migration of over 57 percent of each year's graduating class. We have been declared an "economically distressed county" by the Appalachian Regional Commission; the Tennessee Valley Authority considers us a "special opportunity county." If things continue in this manner, our garden will lose its beauty because we are losing our most valuable resource, our children.

Where do you go to find remedies for this situation? I certainly didn't know. Then, quite by accident, I stumbled onto the Kentucky Natural Resource Leadership Institute (KNRLI). It has given me tools to start improving our garden.

KNRLI is a leadership training program developed by the University of Kentucky with funding from the W.W. Kellogg Foundation. Its goal is to develop leaders who can help groups move beyond conflict and toward consensus-building and problem solving for contentious natural resource issues. Participants come from a variety of sectors and meet at locations throughout the state for five, three-

day sessions, as well as one session in Washington D.C.

My learning experiences in the program began with the application process. Each applicant was required to design a practicum to complete at the end of our classroom sessions. I didn't know what to do. So I started asking for ideas from people who I thought could help me.

Finally, I spoke to someone who challenged me to work on a practicum that wouldn't come easy for me. Something I would have to work at. Something I was truly concerned about. I decided to facilitate a forum to identify the incentives and assistance available for locating a new—or expanding an existing—wood processing operation to manufacture value-added wood products in Monroe County, Kentucky. Specifically, my goal is to create jobs that will better utilize our resource and our large population of displaced female workers. Wow! Sounds great doesn't it? But then, so does winning the Publishers Clearinghouse Sweepstakes! And it may be just as easily done.

Each month I looked forward to my KNRLI meetings. I was sure I was getting more from them than any of my classmates because I drew so much from their experiences. By the end of our 5th session, I was ready to break ground for a plant! I began to realize I didn't have to stop my project with the forum; the best chance for creating jobs would be to convince members of our strong primary wood industry to expand. The smaller, local manufacturers already recognize the unique things about our community that many of the big players—who might be recruited to come to our county—might not appreciate. They are aware of and

troubled by the huge amount of lumber we ship out of our county and state, lumber that could better serve their business and our community if it could undergo value-added processing before it leaves the region. Who would be better to pitch this dream to than my own employers?

I began to eat, breathe, and sleep *new plant*. I could see women making all kinds of wooden things in a beautiful facility, with a daycare center and exercise room. I followed every lead to find people who could help me make it happen. I spent countless hours on the phone. I met with people, joined the Chamber of Commerce. And yes, I completed my last KNRLI session and held my forum. It was a huge success and brought me information and knowledge that will help me reach my goal.

Next week I'm off to Birmingham, Alabama to attend the Forest-Based Economic Development Academy. I'm really looking forward to it. I know I'll return home ready to break ground again. But instead, I'll follow every lead, spend countless hours on the phone, meet people . . .

I've finally given the new plant a working name: "Dreamwood Dimension." I don't know when I'll really get to break ground, but it will happen. And while it may not completely take care of all the problems in our garden, it will be a start. One that I can be proud of as I follow every sales lead, return countless phone calls, meet customers . . .

Sheila Rush is the working mother of two children. She has worked for Graham and Hammer Lumber Company for 10 years, in large part because of the respect and responsibility they give to her; they allow her the flexibility and freedom necessary to be available for her family.

News & Notes

The Games Go On

When adults want attention, they behave in ways they know will produce desired reactions in others... Psychiatrists Eric Berne, MD, uncovered this "game" behavior 30 years ago. In his bestselling book *Games People Play*, he explained that people play games to get attention and fill up time if intimacy or productivity is not available. Even stirring up negative attention—anger, outrage and hurt—is more gratifying than being ignored, bored, or useless, he pointed out. Games are emotionally arousing. Each one is a little drama that provides the opportunity to play roles. They enable us to interact with others without making ourselves as anxious or vulnerable as we would be if we revealed our true selves. These games are also comfortably familiar because we've probably been playing the same ones since childhood.

Games operate at cross-purposes. In the workplace, the pleasure of games often moves people to distract others from productive work—and in some departments and even entire companies, games can replace work altogether. Some of the major games:

See what you made me do? In this game, a manager who is failing and/or has lost the motivation to succeed frequently asks subordinates for suggestions on how to execute a project or solve a problem. Then, when the suggestions fail to produce results or backfire, the manager blames the subordinate... A parent or spouse becomes irritated at being interrupted while performing a task, then when a mistake is made, the parent or spouse blows up at the person who made him/her slip up. The player feels vindicated. Feeling victimized put the player in a morally superior position of power—as opposed to having to recognize the failure.

Now I've got you is played by someone who seems engaged in meaningful activity but whose real aim is to trap others when they slip up. This player says "no one does anything right around here." This game allows the player's rage to feel justified. The player can "righteously" vent his anger, sometimes in abuse.

The player who invites *Kick me* enjoys watching others lose control while he remains calm. He behaves in ways that others find obnoxious, irritating, and arrogant. The negative response by others always arouses a hostile reaction by the player, often followed by an injured wail of, "Why does this always happen to me?"

I'm always late, but that's too bad for you. The workers who are constantly late for

work, late for meetings, miss deadlines, or take forever to return phone calls may be playing this game. They always do what they're supposed to, but insist on being irritatingly late. They seek control and take the upper hand by determining the pace of his or her life—and yours—without open rebellion.

What do you think? Thanks, but I disagree. In this game, the player complains about a problem, usually to a group of friends or coworkers, and fends off every suggested solution by explaining why it won't work. This game can go on indefinitely. It provides the player with reassurance. The player assumes the role of a child, and the listeners are transformed into sage parents giving the benefit of their wisdom. Then the player can feel superior to his/her failed "rescuers." Remember that the player isn't looking for a real solution.

Martin Groder, *Bottom Line Personal*
December 1, 1997

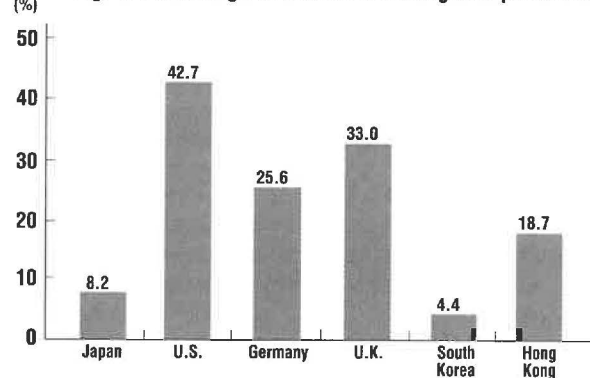
Japanese Women and Their Work Profiles: Comparisons to Other Countries

In the November 1997 edition of the Annual Report on the National Life, edited by the Economic Planning Agency and published by the Publications Bureau of the Ministry of Finance, it was noted that the graying of Japanese society is proceeding at an unprecedented pace. Currently, the social welfare burden of supporting one elderly person and one child is presently shouldered by five adults. In the year 2025, however, only two adults will have to shoulder this same burden. Once the latent capabilities of women are brought into the workplace rather than being devoted merely to household labor with no other realm for expression than within the home, a whole world of potential will naturally open up. It is

not too much to say that women hold the key to whether or not Japan's graying society will be a prosperous one. Compared to western countries the percentage of Japanese women in the work force by age characteristically follows a distinct "M" pattern—with 20 percent entering the labor force at 18, rising to 80 percent at age 22, then dropping to 55 percent at age 32 and rising to 75 percent again from ages 43-54. This indicates that they temporarily withdraw from the labor force upon childbirth and seek out employment again once free from the duties of child rearing—and this is expected to continue. (The pattern is different for the U.S., with 45 percent working at age 18, going to 75 percent at age 22 and staying there until the age of 55 when it tails off to 48 percent at age 62. Sixty percent of women in England are at work by age 18 but only 10 percent are in France. Sweden has 90 percent—the highest—of women working ages 35 to 59, Italy the lowest at 60 percent dropping rapidly to 20 percent by age 60.)

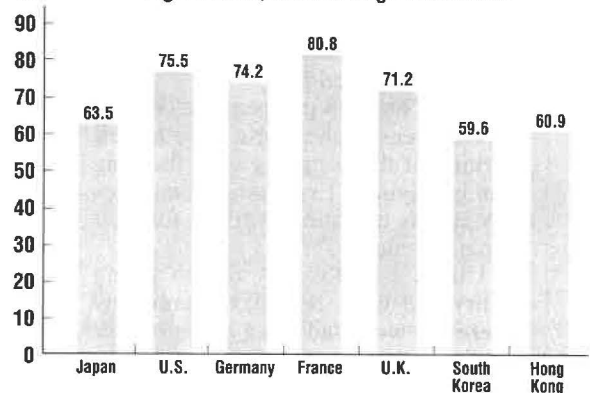
In Japan, among women under 34, many of whom are unmarried, some 68.7 percent say they plan to quit their jobs for marriage,

Fig. 1: Percentage of women in managerial positions



SOURCE: ANNUAL REPORT ON THE NATIONAL LIFE, 1997

Fig. 2: Male/Female wage differential



NOTE: MALE WAGE ASSIGNED A BASE VALUE OF 100
SOURCE: ANNUAL REPORT ON THE NATIONAL LIFE, 1997

childbirth, and child-bearing. Companies who hire women thus consider women's lengths of service short, causing the employer real problems.

Akiba Fukiko, *Look Japan*, March 1998

Dangerous Desk Accessory

The Anytimer Executive Organizer has in the top half, an appointment book, credit cards, a three-ring binder, and a pen. The bottom half holds a removable foam insert, sculpted to fit a semiautomatic weapon, a revolver, or an Air Taser gun. Velcro keeps the weapon in place. Private investigator Daniel Tschudy was inspired to design the Anytimer when he moved to Scottsdale, Arizona, where the 120 degree summer heat makes dressing sans jacket a necessity. "How else was I going to carry a concealed weapon?" he asks. Sales are brisk in Florida, Texas, and California; about one-third of his customers are women.

Lorie Parch, *Working Woman*, February 1998

Remit Promptly... Or Else

Banks, stores, and other businesses have begun levying hefty penalties on tardy consumers. Giant banks are among the worst—they all charge a late fee—but most smaller banks and stores from Macy's to Sears have also jumped on the bandwagon. The average penalty is \$20, up from \$13 two years ago, says Robert B. McKinley, head of RAM Research Group, which tracks credit cards. Bank revenue from interest has dropped, so they're making up for it with fees. In 1991, 29 percent of customers paid off their monthly credit card balance, which avoids finance charges, McKinley says. Now it's 40 percent. Utilities are regulated by states, which is why their late fees are so tightly capped. Banks are also regulated, but the Supreme Court ruled in 1996 that their credit-card fees are "interest" and subject to state regulations. Those rules are set by a bank's home state, not the cardholder's state. So banks have put their credit-card operations in states such as Delaware and South Dakota, where the sky's the limit on interest and fees.

Consumer Reports, February 1998

No Global Fisheries Management

In the 99 Ranch Market in Irvine California, shoppers browse through over 100 species of fish from around the world, brought here to satisfy even the most demanding palates. Behind this abundance lies a tragic dichotomy. The food fish industry has evolved into a global economic powerhouse, able to deliver virtually every edible marine species to markets around the world. There is, how-

ever, no global fisheries management, or even sensible regional management. No global norms exist to prevent overfishing, reduce the wasteful "bycatch" of unwanted fish, reduce the costly excess capacity in fishing fleets, and prevent loss of critical habitats. We can't agree with our neighbors on how to make sure we maintain important stocks. Even within our own national boundaries, and in state waters, we don't know enough about what is happening to our fish, and when we find out, we can't always do what's necessary. So what is the future for fish and fishing in the world's oceans? Clearly it's grim if current levels and methods of exploitation continue. With their own coastal fisheries depleted, the United States, European countries, and Japan now compete to import food fish from developing nations, where fisheries are even more poorly managed. If there is any good news, it's the growing awareness in the United States that fishery management needs to be reformed and that depleted stocks need to be restored...

Can aquaculture fill the gap between supply and demand? Ironically, aquaculture often grows at the expense of the wild fisheries. Shrimp farmers in China, Thailand, Ecuador, and Indonesia clear away mangrove forests, wetlands, and other key fish habitats to build shrimp ponds. Nearly one-half of Thailand's mangrove forests have been destroyed to make way for ponds. Wastewater discharges from these ponds, which include fecal matter, feed pellets, and chemicals, pollute coastal waters... To feed their captive brood a high protein diet, shrimp and salmon farmers rely on fishmeal made from sardine, anchovy, menhaden, and other small schooling fish stocks. It takes four to five tons of fish to make one ton of fishmeal and they compete with poultry and swine producers for the meal which is in short supply. The more sardines and anchovies are exploited to feed aquacultured shrimp in China and farmed salmon in Maine, the fewer remain to sustain the marine ecosystem.

Wesley Marx, *Coast & Ocean*, Winter 1997-98

Plastic Lumber

The term "plastic lumber" has been accepted by ASTM Committee D20 on plastics. Wood industry representatives opposed acceptance, pointing out that the term lumber is normally associated with wood products and that lumber is regulated in building codes, so that regulations covering lumber could be incorrectly applied to plastic lumber. The Committee described the objections as well-meaning, but voted to accept the term because it has been widely used and accepted by industry for several years.

Forest Products Journal 47 (10), 1997

Alaska Yellow Cedar Decline: Utilization of Dead Stems

The extensive mortality of Alaska yellow-cedar predates this century. Nevertheless, yellow-cedar timber consistently commands the highest price of any tree in the rainforest region of coastal Alaska. Yellow-cedar wood is a highly desirable product in Pacific-rim markets. To combat the decline of this species and utilize the wood most effectively, research is aimed at determining the cause of the decline, facilitating better reproduction of the species, and testing dead stems.

There is much uncertainty about the relative importance of various factors involved in the decline of Alaska yellow-cedar. Suspected agents include poor site drainage, advancement of bogs, soil toxicity, freezing of roots, and climatic warming. In an article in the *Journal of Forestry*, Paul Hennon and Charles Shaw III conclude that if climate has been a trigger, then yellow-cedar decline in Alaska may be an excellent example of the devastating effects of a moderate climate shift on a forest ecosystem.

The feasibility and economics of salvage of the extremely durable dead wood are being investigated by Forest Service units in State and Private Forestry, the Wrangell Ranger District of the Tongass National Forest, and the Forest Products Laboratory (FPL). Studies at FPL are determining whether mechanical properties vary with how long the snags have been dead. In tests to date, wood appeared to maintain strength with time, regardless of the number of years the trees had been dead. Not one of the snags, in any class, had lost enough strength to prevent it from potential use. Average bending strength values obtained for clear yellow-cedar wood in most snag classes were above the strength of all dead yellow-cedar, equaled, or exceeded the values reported for coast Douglas-fir.

Journal of Forestry, December, 1997 and USDA Forest Service Research Paper FPL-RP-565.

Biology of Wilderness-Dependent Large Animals

Wilderness-dependent animals tend to be large. There are several important reasons for this. First, large animals tend to be less resilient to human-caused mortality. This is a consequence of predictable declines in fecundity and potential population growth rate as average body size of species increases. This underlies the related tendency for large animals to exist at low densities. Large animals also tend to exhibit density-dependent responses in survival and reproduction only at densities near carrying capacity, and so have a limited ability to com-

pensate for increases in mortality when they are already exploited. Thus, all else equal, populations of large animals are more vulnerable to extirpation than populations of small animals. If humans are the primary agent of death, then large animals require a correspondingly greater level of protection from contact with humans. This has been clearly demonstrated for ungulates and primates subject to subsistence and market hunting in impoverished developing countries. Larger-bodied species have often been severely depleted while smaller-bodied species have survived or even flourished.

Second, large mammals are more likely to be killed because they more often pose a physical threat to humans or cause more per capita damage to crops. Rhinos (*Rhinocerotidae*) and elephants (*Loxodonta africanus* and *Elaphus maximus*) are notorious in this regard. Elephants have killed a surprising number of people. Even though populations of these pachyderms have dramatically declined, human victims still receive considerable attention and provide a sometimes legitimate rationale for continued lethal resolution of conflicts in the relatively few places where crop damage still occurs. In addition to these better-known species, many larger ungulates and, in places, bears (*Ursidae*), are implicated in damaging crops that are sometimes critical to the survival of individual subsistence farmers or owned by wealthy and politically powerful individuals.

Third, animals also tend to be preferred by meat hunters, whether for subsistence or market. Although this preference is modified by cultural and market considerations, large animals tend to be selected by hunters, who focus their attention on small prey only after depleting the large. Meat from wildlife is a major source of dietary protein for humans.

The importance of aggressiveness is highlighted by difference between North American black and brown bears (*Ursus americanus* and *U. arctos*, respectively), related human responses, and the greater ability of the less aggressive black bear to coexist with humans. Given that many megaherbivores also tend to be aggressive in their defense of space, young, or access to food, e.g., rhinos, elephants, buffalo, and bison, lethal human responses to this aggression compound the body-size related vulnerability of these animals to human-caused mortality. Predaciousness is perhaps of greater importance than aggressiveness *per se* in determining whether a species can abide contact with humans. Wherever carnivores come into contact with domestic livestock there is some level of depredation—eradication. Ironically, humans have exacerbated this conflict by reducing or eliminating native prey, thereby leaving domestic livestock as the only prey available.

Finally, of the biological factors, wilderness-dependence is potentially affected by whether wildlife are vectors for diseases detrimental to human economic interests, or whether in turn the wild species is vulnerable to diseases propagated by domesticated animals.

David Mattson, *International Journal of Wilderness*, Vol. 3, No. 3, December 1997

Looking for a great
cotton T-shirt?
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designs and logo on page 2.

The National Hardwood Lumber Association announces a number of upcoming training sessions at their headquarters in Memphis, Tennessee. Among them in 1998 are Manufacturing Value Added Products at the Sawmill, March 23rd; Lumber Grading, April 27-29, Basics of Drying Hardwood Lumber, May 18-20 and Wood Technology June 15-16. For information call Mary Bartee at 800-933-0318.

The Department of Wood Science and Forest Products at Virginia Tech will hold workshops in Roanoke on Advanced Techniques for Drying Hardwood Lumber, April 6, 1998 and Troubleshooting Wood Processing Problems for technical and quality control personnel in furniture, cabinet, and millwork industries on May 18, 1998. Call Fred Lamb at 540-231-7256 for registration information.

The International Woodworking Machinery & Furniture Supply Fair will be held at the Georgia World Congress Center, Atlanta on August 20-23, 1998. For information call the IWF at 770-246-0608.

The Forest Products Society meets in Yucatan Mexico for its 52nd annual meeting, June 21-24, 1998. For information, contact FPS at 608-231-1361.

The University of Kentucky hosts a conference on workforce and employee development in the wood industry to be held in Louisville, April 23-24, 1998. Contact Jan Wiedenbeck or Kevin Powell at 606-257-8289 or -2806 for information.

The 4th Annual Pacific Rim-World Products Marketing Conference will be held in Vancouver, British Columbia Canada on April 29-May 1, 1998. For information call 604-443-5087.

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Scholars from all disciplines are invited to submit proposals for papers related to common property resource management for the conference scheduled June 10-14, 1998 in Vancouver BC Canada. For registration or paper information, contact Evelyn Pinkerton, School of Resource and Environmental Management, Simon Fraser University at iascp98@sfu.ca or at <http://www.sfu.ca/~iascp98/>

The U.S. Geological Survey is asking for the public's help with deformed amphibian research. U.S. and Canadian residents should call the North American Reporting Center for Amphibian Research in Jamestown ND at 1-800-238-9801 or use the data entry form on the website <http://www.npsc.nbs.gov/narcom>. NARCOM is interested in normal or malformed amphibians.

Wilderness Science in a Time of Change is the theme for the Wilderness Research Conference at the University of Montana, Missoula, May 23-27, 1999. This is a change of date. Information can be found at 406-243-4623 or <http://www.wilderness.net>.

Global Warming 9, is scheduled for June 9-11 1998 in Hong Kong. Contact the program committee at CWIC, PO Box 5275, Woodridge IL 60517-0275 for advance news on registration.

Graduate students working in tropical research can apply for Short-Term Fellowships at the Smithsonian Tropical Research Institute in Panama. Applications are due four times a year. Contact STRI Office of Education 507-227-4918 in Panama.

The Association for International Agriculture and Rural Development fosters international collaboration between development workers from universities, private voluntary organizations, donor agencies and foundations. It has a website at <http://www.aces.uiuc.edu/~aiard/>

Fire Effects on Rare and Endangered Species and Habitats will be held March 22-25, 1998 at Coeur d'Alene, Idaho to explore the relationships between wildland fire and rare and endangered species. Contact Maria Greenlee at 509-283-2397 or greenlee@cet.com

The conference Agroforestry: Integrating Conservation, Crops, Livestock and Trees in the Pacific Northwest, will be held May 12-13, 1998 in Richland, Washington, and May 14-15 in Portland, Oregon. For information, contact Gary Kuhn, email kuhn@geology.washington.edu. at the NRCS.

Looking for a government job? The Automated Vacancy Announcement Distribution System (AVADS) for government positions can be accessed at <http://www.info.er.usgs.gov/doi/avads/index.html>. Candidates may apply for most

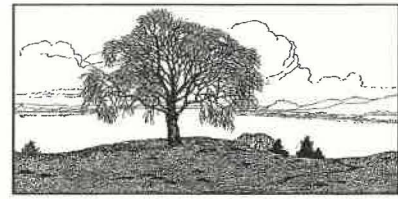
jobs with the Optional Application for Federal Employment (OF-612), a resume, or any other written format. Please review Optional Form 510 which lists all the required information that will need to be included. Check the college credits you need for a job with the Fish and Wildlife Service at <http://www/fws.gov/who/careers.html>. Other federal vacancies can be found at <http://www.usajobs.opm.gov> or <http://safetynet.doleta.gov> or any state employment agency.

The North American Conference on Enterprise Development Through Agroforestry: Farming the Forest and Agroforest for Specialty Products will be held in St. Paul, October 4-7, 1998. For information contact Scott Josiah, CINRAM, email josia001@maroon.tc.umn.edu

An International Conference on the Inventory and Monitoring of Forested Ecosystems will be held in Boise, Idaho on August 16-20, 1998. For more information contact Mark Hansen, USDAFS, hansen034@maroon.tc.umn.edu

The International Union of Forest Research Organizations will convene in Florence Italy 18-23 May 1998. The convention theme is History and Forest Resources. There will be a field trip to the castle of Gargonza and its forest. For more information email Dr. Mauro Agnoletti at agnoletti@cesit1.unifi.it

Planetary Stewardship: An Interdisciplinary Conference on the Environment is sponsored by the Borah Foundation and the Martin Institute. It will be held in Moscow, Idaho April 15-18, 1998. Regional fieldtrips include to the Hanford nuclear reservation, the Nez Perce Wolf Recovery project,



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Silver Valley Mining District, and Snake River dams and hatcheries. For more information contact registration at 1-888-884-3246 x 6 or <http://www.martin.uidaho.edu>

The International Conference of the Society for Ecological Restoration will be held in Austin Texas September 28-30, 1998. The theme is Making Connections, meaning forming partnerships and alliances. For information access <http://www.phil.unt.edu/ser/call.htm> or email ser@vms2.macc.wisc.edu

The Bryn Mawr College Summer Institute for Women in Higher Education Administration will hold its 23rd session at the University of Denver, June 28 through July 24, 1998. Fees are \$5600 which includes tuition, room, and board. For information contact Betsy Metzger 303-871-6866 or email bmetzger@du.edu

A Wood Technology Clinic & Show in Portland Oregon runs from March 25-27, 1998 and offers attendees 1,000 booths featuring wood processing products/services. Call 415-905-2745.

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