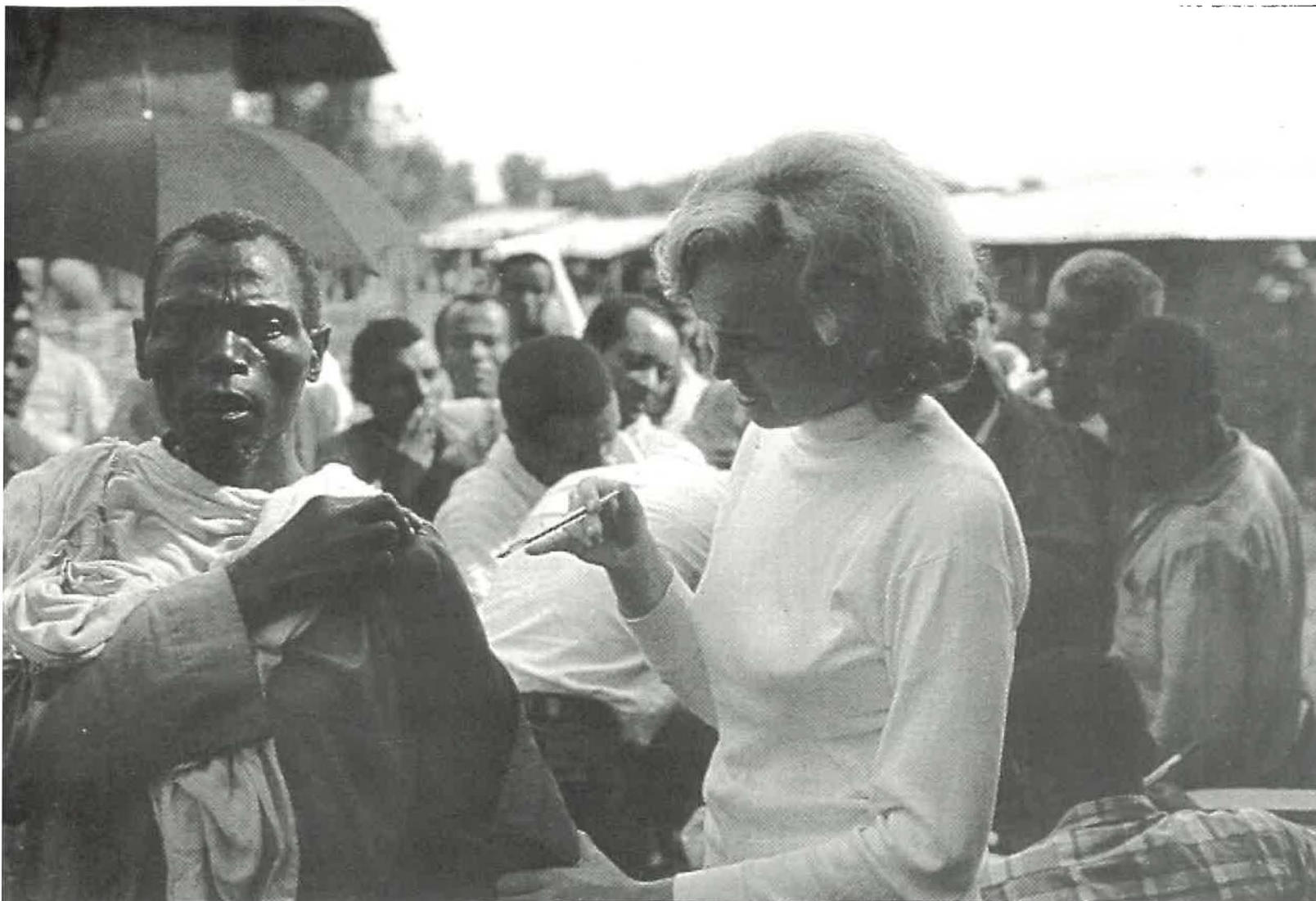


women in

Volume 18, Number 2 Winter 1997

NATURAL RESOURCES



Focus on PEACE CORPS

Interview: Patricia Garamendi

Volunteers and staff at work in Burkina Faso,
Nepal, Guatemala, Honduras,
Cameroon, Paraguay, Senegal

Defining the Environment Volunteer

Combining a Master's with volunteering

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

Guest Editorial
Daniel Crose
Peace Corps Volunteer
Zimbabwe

The struggle to achieve a voice

At Gomoguru Secondary the conditions are exceedingly poor (a description which I'm certain fits all of our schools). To illustrate this, here is what my Form One class must face everyday: Two very broken desks — for the whole class of thirty-five students — broken windows, very few textbooks, no exercise books, no floor to speak of, no door to speak of, no chalkboard to speak of, and a teacher whose eyes must betray and reflect, unavoidably, daily, the misery witnessed in the lives of his students.

This is especially true for those students seated on the ground, seated in the dirt, huddled in the corner, huddled in silence — in the back of the room.

Those students are always, and regrettably, the girls. Those students who ask, without asking, for us to believe in them so that they might believe in themselves.

So in response to this silent request, I decided to try to implement what I deemed a fair solution: on one day the boys would occupy the "privileged position," and on the next day, the girls got their turn. The students' responses: the girls hesitated to move even an inch from their corner, and the boys refused to do as much from their seats.

When the Associate Peace Corps Director for Education came out for a site visit, then, I felt it was high time for both the girls and the boys to hear, not only me talking about respect for girls (for their education and for their lives), but also to hear and to see a woman speaking on these subjects.

In the afternoon, Gladys, the Associate Director, and I and the girls and the boys all went outside and sat under a tree. For one hour Gladys talked, asking the girls what they wanted to be when they grew up. The girls' responses were quite telling: so many of them said they wanted to be her — this woman — although they admitted that they didn't know who she was or exactly what it was that she did.

All they seemed to know, in all that they didn't say, was that here, standing before them, was a woman who had achieved something for herself. She clearly had respect for herself; she thought for herself; she spoke for herself. And they — these girls — could do all these things, too, have all these things, too, be all these things, too, if only they tried.

And the boys listened.
And I watched.
And Gladys spoke some more.

And when Gladys showed the students her business card, letting them know who she was and what exactly it was that she did, I caught the look in one of the girl's eyes. And this time it was not a look of misery, of desperation, but of hope. And deep down, in this girl's eyes, I could see her struggling for air. And deep down, I could see that no one wanted anything more than to be what she herself chose to be. And I thought to myself: Who should deny anyone something that he or she deeply yearned for? Who should deny anyone that right?"

And the next day in class, as this same young girl sat up front, in one of the two very broken desks, her voice betrayed and reflected that which I had been privileged enough to see in her eyes the day before. Trying to answer one of my questions, she spoke, so softly that I could barely hear her. So softly, almost imperceptibly. So softly.

But she found her voice.
And she spoke.

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Winter 1997



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Four years in the Peace Corps in Africa—she was an American, speaking French, working with a Dutch Program.

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Namaste, Peace Corps

Renee Thakali

Yes, this was the *toughest job*, and yes it was the job *I loved the most*. There was never a dull moment in my life during the five years I worked as an Associate Director for Peace Corps Nepal

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Deputy Director,

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Working with Senegal's education officials, teachers, community, board members, and students to establish a curriculum that will be sustainable and host-country run.

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Women's Work

Joy Barrett

In many communities, women's and children's access to adequate sanitation facilities is limited. Latrines, where they exist are sometimes restricted for men's use only.

You put out a really good magazine. I have been thinking about what I could do to help spread the word to the younger generation about a career in natural resources. I do not have formal or informal contacts with young people and don't like public speaking. However, one small thing would be to give a gift subscription of your magazine both to my local rural high school and my own mid-town Manhattan, very urban alma mater. As a student, I had a strong background in math and science, and a love of the outdoors, but no one even suggested I get into a resource field. Perhaps your magazine could open some eyes.

I was wondering if you might offer a slight discount for these two gift subscriptions? I also challenge all your readers to

follow suit. We could likely reach a good percentage of high schools in the country.

Joan Schneier, Perkinston Mississippi

Editor's note:

A VERY good idea. What do you say, readers? For our part, Women in Natural Resources will offer the student rate at \$17 (rather than the library or school rate) for any gift or new subscription that comes in for a high school library or high school career counselor's office.

My name is Mary Owens and I work in University College Galway, Ireland, on a radio training project for women called "Women on Air." I'm interested in making a radio documentary about women from Donegal, in the northwest of the country, who work or used to work, gutting herring. They worked on a seasonal basis, often travelling to Scotland for periods to earn a few bob in the fish factories. Nowadays Donegal has its own fish processing factories and many women work there, again, on a sea-

sonal basis, on the herring roe. In making initial investigations for the programme, I've heard stories about women from Iceland and Scotland who followed the herring boats in the North Atlantic gutting as they went. Someone else told me that there is a very strong tradition of women fishing in Iceland and in Scandinavia. I'm fascinated by these stories and would love to explore the international angle to this story. Perhaps your readers have some information?

Mary Owens, Island House, Cathedral Square, Galway IRELAND (email woa@iol.ie)

I like the many kinds of articles in WiNR. Last time (in Fall 1996) you had the excellent overview of the management of the national forests ranging to the personal remembrances about Mollie Beattie and the culture bashing article about the pursuit of beauty. But it seems to me we don't get as many humorous stories or as many cartoons as we used to. Are you still printing those?

Alison Hardiston, St. Louis, Missouri

Editor's note:

We'd love to have some humorous articles and some cartoons. Start sending them. (Deeann are you listening?)

EDUCATION

Assistant Professor Entomology & Applied Ecology

Assistant Professor, tenure-track. Ph.D. in wildlife, conservation biology, or ecology with application to conservation. Will require excellent and innovative teaching and advisement of wildlife conservation students. Teach wildlife management, wildlife techniques, and 2-3 existing or new courses including study trips. One course per term in first year. Summer and winter session optional. Maintain externally funded research program that includes mentoring M.S. and undergraduate students. Post-doctoral experience, and credentials in any of the following, preferred: wetland ecology, quantitative aspects of conservation, wildlife conservation in mixed-use landscapes, restoration ecology, habitat classification, ecosystem management, field experience, and tropical experience. Start July 1, 1997. See <http://www.udel.edu> for details of the department and University of Delaware. Send cover letter, CV, transcripts, and three letters of recommendation to **R. R. Roth, Search Chair, Entomology and Applied Ecology, University of Delaware, Newark, DE 19717-1303. Deadline April 4, 1997.**

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Last call for manuscripts on Range and Grasslands for the spring issue of Women in Natural Resources.

If you have a manuscript in progress, call Dixie Ehrenreich at 208-885-6754, fax 208-885-5878 or email dixie@uidaho.edu. The deadline is March 25, 1997.

WOMEN IN NATURAL RESOURCES



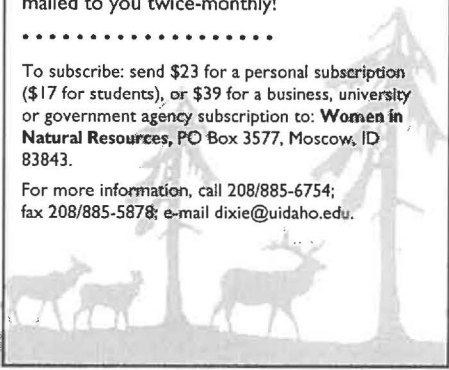
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Natural Resources Education

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The University of Nebraska

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The School of Forest Resources and Conservation, University of Florida seeks to fill a 12-month, tenure-accruing Assistant Professor faculty position; 70% extension education and 30% teaching in Natural Resources Education.

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Qualifications: Doctoral degree with at least one degree in renewable natural resources. Excellence in communication skills including writing and speaking, program development, and technology transfer is necessary. Applicants must have demonstrated ability and desire to work effectively with students, school teachers, campus and county extension faculty and clientele. Successful experience in extension and public education are highly desirable as is experience in forest resources science and management. Applicant should have demonstrated effectiveness or aptitude for extension programming and classroom instruction. Salary will be commensurate with qualifications and experience.

Application: Submit letter of application, resume, official transcripts of academic work (sent directly from the institution), and four letters of reference (sent directly from reference) to: Dr. Mary Duryea, Chair, Search Committee, PO Box 110410, University of Florida, Gainesville, FL 32611-0410; phone (352) 846-0896, fax (352) 846-1277, E-mail Duryea@nervm.nerdc.ufl.edu. **Closing Date: April 4, 1997.** AA/EA/EEO.

An American, speaking French, working
with a Dutch program—

Forestry extension in Burkina Faso and beyond

Sarah Workman

Traveling through the Atlanta airport, I was excited about what lay before me. I had completed an MS degree in Plant Ecology in 1982 at Western Washington University-Bellingham, and less than a year later, I had applied to Peace Corps, gotten over numerous bumps in the process, and was now on my way to Arizona for pre-service training as a Peace Corps Volunteer. This was not my first encounter with Peace Corps. My application had been circulated in the recruiting office within a short period of time after I applied and earlier, I had received an offer to work in Guatemala. After speaking with a few knowledgeable people, some of whom had recently returned from Guatemala, I decided to decline the offer to go there as a volunteer or representative of the U.S. government.

Peace Corps put my name back in for another round so, while that process advanced, I proceeded to pack up my things and move across the US to spend some time with my parents, thinking it a wise investment of time to devote it to family. I took a leisurely approach to crossing the country to celebrate completion of academic rigor and initiation into becoming more of a global citizen.

It was May 1982 and Spring seemed appropriately suited to the freedom of spirit I felt. By early June, after traversing North America from west to east, I stopped at a pay phone and called my mother. I remember it was a Friday, I was on the way to visit friends in Vermont, when she told me there was a letter for me from Peace Corps. I asked her to open it and found it was an invitation to work with biological control of rhinoceros beetle in coconut systems in Tonga. Oh boy, I thought, I would like to do that.

I guess I should have called in earlier. Monday when I phoned to accept the position, the reply was that my five day period for acceptance had expired on Friday and the position had been retired, unfilled! Aghast, it gave me an example of “stick to the rules” thought represented in the bureaucracy but, more importantly, it did not put me off the pursuit of becoming a volunteer.

Because of the timing of staging volunteer trainings, plus personnel changes in the placement office of Peace Corps, it was not until the next January that I got my file reactivated with a phone inquiry about my recruitment status. In March 1983, I was contacted with an offer to serve as a forestry extension volunteer in Burkina Faso, then known as Upper Volta. Knowing this was the chance, I prepared to go.

I completed the work I was involved in, the third short-term job I'd had while I was “waiting on Peace Corps,” and got on the plane to Arizona. There I became part of a group of 13 trainees destined to go to Mali or Burkina Faso. Our stateside training took place on a ranch in Sasabe, Arizona. We were there to learn about the environment of Sahelian West Africa, technical methods that could be used for tree planting and soil conservation for extension programs. In addition, we got our fair share of personal evaluation and motivational screening during those six weeks of state-side technical training—plus an introduction to cultural sensitivity. It seemed like an eternity, those weeks in Sasabe, and also a period of over-scrutiny that prompted me to mail my jeans home, since I was lectured about being professional and looking professional. I still can't help but laugh about that.

Many vaccinations, field work trips, cultural and technical sessions later, my state-side training group graduated. One person was eliminated by the trainers from going on with us to in-country training and one, who fell ill after the typhoid inoculation (much more ill than some of the rest of us) joined us late for in-country training. (Later, he terminated his training early and chose not to undertake assignment to a work site.) When people left training, it provoked thoughts of “how will I make it?” and “is it right for me?” But I believe, for everyone that stayed on, we became more closely knit as a group, knowing we held resolve about our decision and shared a common bond.

Our state-side group going to Burkina Faso joined other groups recruited for different disciplines, such as agriculture or small business development, and overall, the in-country group numbered about 90 people. During in-country training, we continued technical training, increased our cultural training, and began French language training. Later in this period, we received information about the sites where the government wanted to assign volunteers. With our Assistant Peace Corps Director (APCD), who was responsible for the forestry sector, we had the opportunity to review the sites and list our preferences for site assignments. The matches turned out pretty well. Once we received our site assignments and as we advanced in French we began local language training as well. After 10 weeks of language and cultural training we were sworn in as volunteers.

I was assigned to work with a project, *Bois de Villages*, in Dédougou under the Ministry of Environment and Tourism. Dédougou, a regional center with approximately 40,000 inhabitants, is in the west central part of the country and lies within

the curve of the Mouhoun River (formerly known as the Black Volta) as it turns southward to join other drainages and form the Volta River that flows through Ghana. The project was operating in five zones in the country and administered by different donor groups in the different zones. The government of the Netherlands coordinated the project in two districts around Kaya in the north central zone and three districts centered around Dédougou. When I arrived in Dédougou, I met with project personnel, including the project director, Martin Mantoro, his Dutch counterpart, and Department Chief Kan. D.C. Kan gave me a tour of project sites within the vicinity of the town and we attempted to discuss my major interests. I say attempted, since my French skills still needed polishing, something that would frustrate me for another three months, at which point, I felt less dysfunctional linguistically and more at ease in my work environment.

The project design called for activities in five areas of emphasis: infrastructure, improved wood stoves, nursery production, forest protection, and forest production. Over the previous five years, the project had focused on provision of buildings, equipment, and personnel with the infrastructure sector, begun an extension program with women about wood stove construction, established a system of forest guards and natural forest management, and concentrated on fuelwood plantations using exotic tree species. I was asked to work with nursery production as my main task and support forest production activities through establishment of tree plantations with village groups. The *Bois de Villages*

program was ready to diversify the species being used in their reforestation efforts, and I gladly accepted the charge to investigate and incorporate indigenous tree species into departmental and village nursery production. Though I was discouraged I was not assigned any responsibility in the management of natural forests (*Forêt Classé*), which would have been more related to my academic background, I did get to assist with some inventory work on occasion. This proved useful later, when I extended for a third year of service and conducted field research on browse species used by wild game species.

In 1983, there were three departments, or districts, in the Dutch *Bois de Villages* work zone centered out of Dédougou. One was coordinated in Dédougou, one in Tougan in the north, and one in Nouna to the west. There were eight departmental nurseries in operation, producing from 20,000 to 200,000 seedlings per year each, and I helped establish seven new ones to produce 15,000 seedlings their first year. The 23 village nurseries produced from 300 to 1,500 seedlings for use by individuals in the communities and demand from these and new villages continued to increase during the two years I worked in the project. Neem, *Azadiracta indica*, eucalyptus, *E. calamundensis*, gmelina, *G. arborea*, and cassia, *C. simea*, and common fruit trees such as mango and guava made up the majority of nursery production.

I began looking around and asking people, on their farms, in their courtyards, and in the markets about what tree species they used or wanted. Many responses prioritized fruit tree species, followed by

trees that provide fuelwood and medicinal products. From these inquiries and the literature I could access, I drew up a list of species with high potential for success and demand. A number of the valued tree species were in the legume family and most were acknowledged as multiple use species, i.e. producing fruit and/or good fuelwood, fodder, medicinals, or resin. Most all of them were new to me and sorting them out not only used my educational background but also, pushed me to come out of the books and work with people. It is difficult to say what proportion of the nursery production I planned came solely from information people gave me and what I got from the literature. Most often, the two sources reinforced one another. Usually, I would determine the botanical name, sometimes having to wait for the right time of the year (phenology) or knowledgeable guide, then decide which nurseries to seed it in and in what quantities. One major question was how to obtain good quality seed. It proved a great challenge and great fun.

The country was benefiting from establishment of a tree seed center in the capital, Ouagadougou, which I was fortunate enough to be able to associate with through the *Bois de Villages* program. Though I had some idea of the pioneering work that was being accomplished at the center with the technical assistance of the French CTFT, Centre Technique en Foresteria Tropicale, little did I realize that I was taking part in helping catalog information on biodiversity of the districts in which I worked by identifying tree species used by local people. In many cases, the seeding and raising of seedlings provided trials and data that could help improve practices for the Sahelian region and, possibly, other regions in the dryland tropics. Now, more than 10 years later, awareness of indigenous knowledge is influencing academic science and emphasis on use and domestication of indigenous fruit tree species has come to the forefront in agroforestry research.

The Dutch program was well organized and progressive in its approach to development. I felt lucky to have the framework of support and programming that enabled me to do things other forestry volunteers in the country were struggling to get started or pursue. Problems that



Chef Kan explains aspects of nursery production. Workman and interns are working with the *Bois de Villages* project in Dédougou

Plantation near Didis, Burkino Faso



plagued many, such as lack of funds for motorcycle fuel or absence of equipment and personnel, had been resolved by the project in Dédougou. I had an office to report to each work day. Concomitant with the infrastructure and organized program I benefited from came responsibility for a large work zone, and I realized later, way too many kilometers to travel by motorcycle. By the second year of work, coordinating production for the departmental nurseries, I was traveling over 1000 km a month to visit each of the 15 sites, with side visits to village nurseries in the zone along the way. Most of those kilometers came at the height of the nursery season, from February through May, when the harmattan winds blew from the north. Later in the period, daytime temperatures rose to 40 degrees centigrade during the days before the rains returned for the three to four month growing season. It is an understatement to say it was dry, dusty, and hot.

Another aspect of the work experience that shaped my outlook and aided me, both personally and professionally, was interaction with national and expatriate personnel associated with the project and related programs. Many people welcomed

me into their homes. I learned about African culture and European culture and made friends that will last through my lifetime. My travel gave me access to other PCVs at regular intervals that provided much welcomed social interaction and helped us all keep life in perspective. I so appreciated the hospitality that kept me out of isolation in what was, at first, a foreign place.

When the two year assignment in Dédougou came to an end, I was fortunate to be granted a third year of service with the Peace Corps and was assigned to help with research at a game ranch in the central south of Burkina Faso. In between the two postings in Dédougou and Nazinga Game Ranch, I took one of the three vacations I scheduled during my service as a volunteer. During holidays I took advantage of the time to travel to many of the countries bordering Burkina Faso. Among those I visited were Mali, Ivory Coast, Ghana, and Togo. These were breaks from the intensity of work and responsibility and allowed me the opportunity to see more of West Africa and in the case of the third year break, some of East Africa in Kenya and Rwanda. These gave me a broader perspective on the region



In a maize field: On vacation with other PCV friends near Kpalime, Togo

and better understanding of the ecological gradients that govern the patterns of vegetation and life in the Sahel.

By the time I returned, it was the third anniversary of the country's revolution and change of government and also the second anniversary of the country's name, Burkina Faso. The name combines words from two of the major languages spoken in the country, Burkina from the Moré language of the Mossi people meaning "man of integrity," and Faso from the Dioula dialect of the Bambara language meaning "homeland." With the new assignment, I moved into an area inhabited by people of an ethnic group different from those I had been introduced to during my previous work experience. In Dédougou, I had lived with Dioula speakers of various ethnic groups, Bamu people, Fulani people, and some Mossi people. At the Nazinga Ranch, between the towns of Pô and Léo, I was in the area of overlap between the Kassena and Sissili tribes of the Gourounsi people.

Millet and sorghum along with peanuts, were still the main crops people farmed—and only a few families could afford not to farm. Maize and tuber crops were more abundant around Nazinga than Dédougou, since the area was farther south and had higher rainfall. Some men farmed cotton as a cash crop. Soil tillage with animal traction was also more common in this zone, though still not a widespread practice. Agricultural chores were somewhat, and depending on ethnic group, sometimes strongly divided between women and men. Men would most often clear and prepare the land for seeding and women do the weeding. Often women would have their own personal fields they were solely responsible for and take pride in the harvest of their efforts. It was always good to get an idea of what the agricultural calendar demanded as far as labor at any period in time you wanted to plan an activity, lest you plan something noone could make time for.

The Forest Reserve, within which the Nazinga Game Ranch was located, was roughly 40 kilometers in diameter and provided a refuge for wild game. The Reserve was administered by the Ministry of the Environment and Tourism and staffed by officers of the *Eaux et Forêts*, or Waters and Forests Department. The Nazinga Ranch was established as a pilot project, with the assistance from the Food

Tree planting with Buamu village women, in conjunction with Mary Soule, MCC Volunteer



and Agriculture Organization of the United Nations and the Canadian government. The project objectives were to study, develop, and manage these resources for the benefit of the local population. Though the game was protected from hunting by law, there was still heavy poaching pressure.

My major duty at the game ranch was to quantify the biomass produced by selected woody species preferred by game species as browse and help calculate predictive models of browse quantity to be used in carrying capacity determination for the Reserve. Browse from woody plant species is an important source of protein and mineral elements for wild ungulates and other game, and is valuable to the overall diet especially during the dry season, periods of drought, following fires, and under heavy grazing pressure. Browse plays an increasingly important role as the length of the dry season increases (e.g. from south to north in the Sahelian zone). Between the determined carrying capacity of the land and data from census of wild game populations, the Nazinga project anticipated prediction of the game species and quantity of game meat that could be harvested from the land to provide local markets. The browse study was my day to day work. The most fun and exciting work was the annual census.

For the census, all the staff would be at their transect starting points before dawn and begin walking the transect at first light. There were 10 to 15 teams of three to four people that would systematically cover a different section of the ranch each day during the week of census. The group leader sighted the compass line to follow

predetermined bearings that ran parallel to adjacent groups, and we would record the number, maturity, and sex of animals seen as well as the distance and bearing of their location. Warthogs, *Phacochoerus aethiopicus*, and red-flanked duikers, *Cephalopus rufilatus*, were probably the most abundant animals along with red monkeys, *Erythrocebus patas*. There were abundant roan antelope, *Hippotragus equinus*, bushbuck, *Tregelaphus scripta*, waterbuck, *Kobus defassa*, bubal hartebeest, *Alcelaphus buselaphus*, and elephants, *Loxodonta africana*. I worked at the Nazinga Game Ranch for over a year.

It was December 1986 when I completed service as a Peace Corps volunteer. I had spent cumulatively, almost four years as a volunteer in Burkina Faso. Ahead of me was a great transition back into American society. It was daunting to think of all the changes that had occurred during the time I had been away from home. I had gained a much more defined perspective on being American, on what the rest of the world is like—and certainly, on who I am—and where I somehow fit into the greater scheme of things.

After several months of travel with a friend through Asia, I returned to the USA in July 1987. I settled in by visiting with close friends and family, then, I started to work in Athens, Georgia, in September. I worked awhile in the University of Georgia's Department of Agronomy and in the School of Forest Resources. It was challenging to try and talk about social or community forestry in an atmosphere and region long devoted to timber production. I did find a niche for myself, however, and began a doctoral program in forest soils and biology in 1989. After designing my doctoral research and conducting some field research during 1990 in Senegal, West Africa, I interrupted my degree work in 1993 to return to Senegal to work as Process and Linkages Specialist in the On-Farm Productivity Enhancement Program. I was hired through Western Carolina University and worked in Senegal with the OFPEP program administered by Winrock International Institute for Agriculture.

The program goal was to improve nutrition, income, and well being of small farmers in the targeted develop-

ing countries of Uganda, Senegal, and the Gambia. Activities were undertaken to achieve sustainable agricultural productivity and conservation of natural resources through improved management of community and individual resources, inputs, and knowledge (indigenous and introduced) pertaining to soil fertility and crop seed production and storage.

Upon return to the United States in 1995, I completed my Ph.D., then began my current position in Lincoln, Nebraska. The National Agroforestry Center is a USDA partnership between the US Forest Service and the Natural Resources Conservation Service. My main tasks as International Coordinator are to facilitate technical assistance in agroforestry to USAID missions overseas, work to increase the number of natural resource professionals involved in international exchange, and serve as a liaison with the International Centre for Research in Agroforestry. The idea of exchange incorporates not only exchange of personnel and information but also is meant to provide linkages to US institutions, specifically the Land Grant Universities, and provide for exchange of ideas and technologies related to agroforestry and land use management.

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"Yes, this was the Toughest Job, and Yes it was the Job I Loved the Most. There was a never a dull moment in my life during the five years I worked as an Associate Director for Peace Corps Nepal."

NAMASTE, PEACE CORPS

RENEE THAKALI

"Namaste, Peace Corps!" sang a Nepali voice on the other end of the phone as I made my first call back to Peace Corps Nepal after many years. It had been eleven years since I had finished my own Peace Corps Volunteer service in Nepal working for the Department of Soil Conservation, and now I was excited to begin a new Peace Corps assignment, this time as a staff member, the Associate Peace Corps Director for Agriculture and Natural Resources Nepal. I was thrilled, nervous, curious to know what had changed, what had not. And I was wondering how was I going to manage 30 Volunteers working in five different projects, posted in remote villages all across this mountainous country with hardly any telephones or roads. I was sure that THIS would be "The Toughest Job I'd Ever Love."

After I had been selected I participated in a month of Overseas Staff Development Training in Washington DC. I even had TOP SECRET security clearance. Our family had all been medically cleared, and now we had flown half way around the world, landing in Kathmandu, Nepal. Jon Darrah, Country Director, met us at the new international airport and drove us through crowds of people dancing in the muddy streets, celebrating the cow festival "Gaii Jatra." Jon constantly honked the car horn to warn away bicyclists, dogs, cows lazily chewing their cud watching the traffic go by, pedestrians dodging cars and bikes, and to warn all the cars that appeared to be headed straight at us. Miraculously we arrived at our new home in Maharajgunj without a scrape but I wondered how I was ever going to be able to drive in Kathmandu traffic, without stop signs, traffic lights or No Passing Zones. I had my Nepali driver's license and was honking my car horn just like everyone else within a few weeks however.

Early next morning Jon picked me up and I met Ambassador Julia Chang Bloch (also a former Peace Corps Volunteer). Next we went to Lincoln International School to enroll my daughter in the fifth grade, and at last to my new office at Peace Corps Nepal. It was a pleasure to hold my hands together

and say "Namaste" to all the Nepali staff, many of whom I remembered from my days as a Volunteer.

A personal retrospective

Some things had changed in Nepal, yet many were still the same. The majestic range of Himalayan mountains still outlined the horizon to the north, but now a menacing cloud of air pollution over the Kathmandu valley hid the mountains from view on many days. Nepali people still greet each other with the traditional Namaste, yet more and more people dress in western clothes. Dal bhaat (rice and lentils with vegetable or meat curry) is still the main meal twice a day, and hot milk-tea is still the main beverage, but now Coke, 7 UP, Pepsi, and even Ramen-like noodle packages are sold in every little store. The King is King yet, but now he shares power with a Prime Minister in a new democracy. Nepalis are still mostly Hindu, but now I heard Nepali Christians proudly singing hymns in a building behind the Peace Corps Office. Years before it was against the law for Nepalis to be Christian.

To reach most villages you still have to walk hours and days, up and down mountain trails, but more and more roads now extend into most district centers. Toilets or even outhouses continue to be hard to find, especially in the villages, but TV and VCRs were in many homes without running water and toilets. Electricity and water are still scarce in the Kathmandu, but many villages now have some electricity and water flowing through pipes to village taps.

Nepal

Then as now, Nepal is one of the world's least developed countries, with high infant mortality rates, low literacy rates, especially among women, with 80 percent of the economy and employment dependent on agriculture. To function, Nepal's government depends on huge development loans from the World Bank that Nepal can never pay back. There are a wide diversity of cultures, languages and religions, but few roads and little infrastructure.

A tiny country, (approximately the same size as California), with the world's highest mountain range, Nepal was isolated from the rest of the world until the 1950s. Like many developing countries Nepal's population is increasing fast; in 1977 there were only 12 million, and now there are 20 million. Nepal used to export rice to India and now has to import rice, corn, wheat and many other goods to feed her people. Still a majority of people live in basic poverty, living a very low standard of living. Many children especially girls, stay home to work, instead of going to school.

Peace Corps in Nepal

Over 6,000 Americans have served as Peace Corps Volunteers in Nepal since 1964. The number of in-country volunteers is steady, but the projects have changed. Volunteer engineers are no longer building suspension bridges across raging rivers.

Today Peace Corps Nepal has about 140 Volunteers from all over the U.S. serving at one time; 80 new Volunteers arrive each year, 50 in September and 30 in February. Half of the Volunteers teach English, science, or math in their first year, then work as teacher trainers for their second year.

Community forestry volunteers work with the Nepali district forestry staff to help rural villages manage their local forests, training Nepali foresters how to use a compass to survey the forests, helping villagers develop forest management objectives, and training them how to prune and thin young stands of timber. Peace Corps Volunteers focus on the village women, since they are the ones who actually cut most of the firewood. Likewise the Departments of Soil Conservation and Agriculture are slowly realizing that to make their projects effective, they have to train village women who do the majority of agriculture work: planting, weeding, and harvesting, all by hand. PVC men and women were all eager to assist Nepali women. Volunteers in horticulture extension and soil conservation train groups of Nepali women to plant and grow a greater variety of fruits and vegetables, to make compost piles, to

plant useful trees along terrace risers to stabilize the soil, to raise angora rabbits for income, and to grow and market off-season vegetables. Volunteers working in the new National Parks and Wildlife project will assist with building a natural resource and social database, and they will encourage Nepali villagers to conserve and appreciate their wildlife and other natural resources. They will also work with the communities bordering the national parks in an effort to manage the park buffer zones.

Preparing for the Volunteers—the Washington connection

Before Volunteers arrive in country, much work needs to be done. First a project plan must be prepared. The project plan describes the overall goals of the project and outlines the work a typical Volunteer in agriculture or natural resources will do. A Volunteer Assignment Description is sent to Peace Corps Washington to use for recruiting Volunteers matching the education and experience required. Peace Corps Washington Volunteer Recruitment Service matches up candidates with Volunteer requests from over 90 countries worldwide. Training plans are prepared and the training staff is hired and trained. Post surveys are completed for each Volunteer assignment, to meet with the Volunteer's Host Country supervisors and counterparts prior to the Volunteer's arrival, and to make sure there is a safe place for the Volunteer to live and work.

The Associate Director's responsibilities: training and support

From 1991 to 1996, I was the Associate Director for the agriculture and natural resource projects. My main job was to provide technical support to Volunteers so they could be effective in their work. I worked with the Nepali government to develop projects in community forestry, soil conservation, horticulture extension, and national parks and wildlife. New Volunteers go through 12 weeks of intensive training in Nepal, learning to speak, read and write Nepali well enough to communicate, how to cook and eat Nepali food (dal bhaat), how to stay healthy in new and quite dirty environments, and learning how to work effectively in Nepal. Even though the Volunteers arrive with the basic technical skills required, they all have to learn how to live and work in a new country. The most simple and basic things back home are not so easy in Nepal. Even planting trees is different. First they have to learn new names for the trees, then the Volunteers must learn how to use the Nepali tools and equipment. In-service training programs included rapid rural appraisal techniques, agroforestry, beekeeping, and managing small projects with community members. We offered these in a bi-cultural, bi-lingual format, so both Volunteers and their counterparts could comfortably participate and benefit.

Technical support meant more than just writing project plans or training Volunteers. It meant loading up the Peace Corps jeep with 50 angora bunnies and driving up narrow mountain roads, or trekking four days out to a remote village to help a Volunteer conduct an environmental assessment for a micro-hydro power project. Volunteers called me if they needed a book on raising pigs or needed training on beekeeping, or

From left: Carol Bellemy, Peace Corps Director Nepal 1994; Carol Gordenstein, Renee Thakali, Tika Karki, Will Newman—Peace Corps Nepal staff; in front, Margaret Goodman, Regional Director Asia-Pacific Region.



needed a compass to survey a community forest.

Volunteer backstopping and managing

Volunteers also called me if they were homesick and needed to hear someone speak English. Volunteers called me for more money, more food, or new boots to trek back and forth to their village. Volunteers called me when they weren't sure they could stay another day and eat another meal of rice and vegetables, or be stared at again by wide-eyed children who had never seen someone with blue eyes and blond hair. Sometimes I had to call Volunteers and tell them to write home soon, because their family in America hadn't heard from them in months. I even had to tell a few Volunteers that their mother or sister had just died and we were sending them home for the funeral.

A few Volunteers needed to transfer from their original site or assignment for a variety of reasons. If the original site was too remote, too hot or too cold, or the supervisor and counterparts were not cooperating, or the area became too politically unstable, or not enough food was available, I worked to

find a better site so the Volunteer could continue their two years of service. Even though Peace Corps provides all the medical support, mail, living allowance (less than \$100 a month), and technical support, we still had to get approval from the Nepali government to transfer a Volunteer within Nepal, since they officially worked for the Nepali government and had Nepali supervisors. It took from three days to three months to walk delicately through the sometimes endless red tape of His Majesty's Government. The wait was always worth it when the Volunteer called from his or her new post and said "Thanks for sending me here. This place is wonderful and I am working on a new project with the community."

Most Volunteers needed no encouragement to stay out in the villages and work in their primary or secondary projects. Some were so enthusiastic and got so many projects going that I even had to ask them to slow down a bit before they collapsed. A very few Volunteers needed to be reminded that even though they were "just Volunteers" they were expected to work regular days just like any paid employee. Peace Corps Volunteers must take an oath or



Thakali on left—with volunteers in far western Nepal, 1992



swear into office, promising to work to the best of their ability and to abide by the laws of the country. Volunteers can decide to leave or quit at any time for any reason, no questions asked. They must either return directly to their home in the USA or forfeit the paid ticket home, official passport and visa and trekking permit, if they choose to remain in Nepal. Only a small percent actually leave before completing their two years of service, some because of medical problems or family problems back home, some because Peace Corps just wasn't for them.

It was rare that we had to ask a Volunteer to resign, but once we had to ask four volunteers to resign or else we would administratively "separate" them. They had admitted to drug abuse. It was no easy decision, but the future of Peace Corps Nepal was at stake. Volunteers were not allowed to abuse alcohol or drugs, preach or convert Nepalis to another religion, actively debate or get involved in politics, drive vehicles, ride motorcycles without a helmet, or use weapons. They could get married, but not have children while in service.

Volunteer health and safety is always the number one concern. Peace Corps Nepal has an excellent medical staff to take care of the accidents and illnesses that are part of the Volunteer experience. If a Volunteer is seriously ill or injured, Peace Corps Nepal sends out a Nepali army helicopter to the rescue. We took turns as duty officer, a week at a time, so someone was on call 24 hours a day. My first visit to Pyuthan District was by helicopter to pick up a Volunteer who had fallen down a trail and broken his foot.

Some Volunteers went more than the "second mile." A few come to mind: Kurt MacLeod was shocked to learn that cholera was killing many people in his village, yet he didn't ask to be transferred to a cleaner village. Rather, he invited another volunteer to help him train village women how to boil drinking water and care for cholera victims. Darlene Foote stayed a third year to help the poorest of the poor, the landless Badi tribe of musicians and entertainers. Jana Jenkins trekked to Kathmandu over muddy and treacherous mountains soon after she began work, bringing messages from her village, describing the death and damage the people suffered from heavy monsoon floods. Jana returned to her village bringing hope and promises for immediate assistance from key Nepali and foreign aid officials. Dao Thach, a naturalized American citizen, refugee from Vietnam and Peace Corps Volunteer, took his Nepali counterpart to America on a fundraising trip, bringing back financial support and 20 angora rabbits to begin a women's cooperative. These Volunteers made it easy to make this job the one I loved more than any other.

The unexpected happens

Since 1991, Nepal has had four different governments, each with a new agenda and each making new promises that are never kept. In these times of political turmoil, tempers run high and people have less tolerance for others. Visiting Volunteers was always an adventure, whether traveling across country by Peace Corps jeep, flying through the Himalayan mountains on small twin otter airplanes, trekking on steep paths, riding horse drawn carts—or riding in

rickshaws behind sweaty men as my husband and I did in the hot flat Terai town of Nepalgunj. On my first visit to Nepalgunj—on the border of India—I felt a strong sense of fear for Nepal in its infant democracy. King Birendra Bikram Shah had just abdicated his absolute monarchy in 1990 following a short but intense revolution for democracy. While passing through the town, which is predominantly Muslim, a group of irate Muslims had thrown rocks at a Nepali government official's car, shattering the windshield. They were protesting the Hindu festival that the rest of the country was celebrating. There are no auto taxis in Nepalgunj and we were in the rickshaw for the five mile trip from town to the airport where our plane was due to take off in 30 minutes. Suddenly we looked up and saw a large, screaming crowd of men heading right for us. The rickshaw driver quickly turned down a narrow alley just in time to avoid the angry demonstrators. I gave him a generous tip for getting us to the airport with two minutes to spare. With relief we flew up to the cool and peaceful mountains of Bajhang District in the remote corner of western Nepal to visit several agriculture and forestry Volunteers.

I never realized how really tough it was going to be for me, until I woke up in the hospital in Thailand one day. A week earlier I had been trekking down a mountain trail in Nepal, with my husband Aita, and Peace Corps Volunteer Kurt MacLeod. Apparently, I had fallen off the steep trail, tumbling 150 feet down a ravine, landing on a narrow ledge. I still have no memory of the fall or how I was rescued. My husband later told me that after climbing down to reach me and making sure I was still alive, Kurt ran 10 miles to the nearest village that had a police radio. Peace Corps arranged a helicopter rescue, then flew me to Thailand for medical treatment. The support I received from the Volunteers during my recovery made it easy for me to decide to extend my original 30 months assignment to five years. Just three months after my accident I was out trekking again with Volunteers to visit their project sites.

Yes, this was the *Toughest Job*, and Yes it was the *Job I Loved the Most*. There was a never a dull moment in my life during the five years I worked as an Associate Director for Peace Corps Nepal. I learned as much from the Volunteers as they learned from me. I'll always miss the spirit and enthusiasm the Volunteers shared. No doubt I'll be ready for another assignment with Peace Corps in just a few years.

Renee Thakali is currently a district ranger for the Forest Service's Kaibab National Forest, Tusayan Ranger District, adjacent to the Grand Canyon National Park. Since 1980, she has worked as a forestry technician and forester with the US Forest Service in California, Colorado, Arizona and the Commonwealth of the Marianas Islands. Her BS in environmental education and MS in forest management are from Michigan State University. Thakali served as a Soil Conservation Peace Corps Volunteer in Nepal, 1977-1980, and as Associate Peace Corps Director from 1991 to 1996.

Jessie A. Micales

Research

In

Progress

Focus on:

ecosystem management
wood preservatives

DEVELOPING ENVIRONMENTALLY FRIENDLY WOOD PRESERVATIVE TECHNOLOGY

Suki C. Croan
U.S.D.A. Forest Service
Forest Products Laboratory

Environmental regulations and increasing global concerns about the environment have compelled the wood preservative industry to search for environmentally friendly wood preservative technology. Progressive companies are interested in using biological techniques to control the biodeterioration of wood by brown-rot, white-rot, and soft-rot fungi, and the biodiscoloration of wood caused by mold and sapstain fungi. When this technology is implemented, it will reduce the release of undesirable chemicals into the environment and contribute to the sustainability of ecosystems.

The decay and decomposition of wood by brown-rot, white-rot, and soft-rot fungi cause serious structural damage to wood. White-rot fungi remove the three basic chemical components of wood: cellulose, hemicellulose, and lignin. They primarily decay hardwood species and can attack both living trees, as heart rots, butt rots, and root rots, and forest products. Brown-rot fungi metabolize and remove the cellulose and hemicellulose components and chemically modify the lignin of wood. Because the lignin is still present, brown-rotted wood remains brown in

color. Brown-rot fungi usually decay conifers, including economically important timber species. Brown-rotted wood loses a large portion of its strength early in the decay process, so wood that shows early symptoms of brown-rot decay must be replaced representing a large cost for the consumer. Soft-rot fungi are usually associated with wood that is submerged in water, such as wooden docks, piers, and water towers. Soft-rotters usually destroy only the outer layers of wood, so are not as serious a threat as white- and brown-rot fungi.

Other fungi do not break down the chemical structure of wood, but the staining associated with these organisms causes great aesthetic damage and severely reduces the value of the wood. This is termed "biodiscoloration" and is a serious problem for industries that require high grades of wood, such as manufacturers of furniture, paneling, and veneer. Two major types of fungi cause biodiscoloration. Sapstain fungi are usually early colonizers of wood. They rapidly and extensively penetrate the sapwood of trees, logs, sawn timber, lumber, veneer, and other wood products. The discoloration is caused by fungal cells ("hyphae") that contain large quantities of the dark pigment melanin. These fungal cells grow throughout the wood and give it a bluish-black, gray, brown, or black appearance. In contrast, mold fungi grow only on the surface of wood and do not penetrate into the deeper layers. The discoloration associated with mold fungi is due to the production of darkly pigmented cells and massive quantities of deeply colored spores.

The primary wood preservatives currently employed to prevent biodeterioration and biodiscoloration are creosote, chromated copper arsenate (CCA), sodium pentachlorophenates, and inorganic arsenicals. These synthetic chemicals are broad-spectrum toxins that pose a serious threat to the environment. Of special concern is the potential release of naphthalene from creosote-treated heavy timbers and of arsenic or chromium from CCA-treated wood.

My research objective is to develop biological control technologies for the control of biodeterioration and biodiscoloration. In this research, microorganisms are identified that are antagonistic to wood decay and stain fungi but do not damage wood on their own. Some of these microorganisms produce antibiotics or other metabolites that are toxic to decay and stain fungi. Others actively parasitize the hyphae of decay and stain fungi.

One particularly promising candidate is a mutant actinomycete culture, desig-

nated SC-36 NRRL 2103, which prevents the reproduction and growth of a large number of decay and stain fungi. Actinomycetes are a group of microorganisms that resemble fungi but are actually classified as bacteria. The mutant is a nonsporulating culture and was obtained by selecting colonies that had the ability to inhibit the growth of decay and stain fungi. Both living cells and metabolites of this antagonistic organism appear to be effective.

In order to successfully market these products, we must be able to manufacture large quantities of the antagonistic organism and its metabolites. This is done by a continuous single-step daily product fermentation. The fermentation uses an inexpensive liquid nutrient medium in very large quantities which is aerated in a "fermentor"—a large vat used in the pharmaceutical industry to raise large quantities of microorganisms. Fresh culture media is continuously added to the fermentor, so large quantities of the antagonistic organism and its metabolites can be produced. The products are harvested daily, and a portion of the living cells is recycled for continuous production. The antagonistic organism can be grown this way for long periods of time as long as the culture remains uncontaminated.

Biological preservative technology promises new applications for the wood preservation industry. These techniques represent significant progress in allaying environmental and health concerns associated with the broad-spectrum synthetic chemicals used today.

Suki Croan is a Microbiologist at the U.S. Forest Products Laboratory in Madison, Wisconsin. She has a B.S. in Pharmacy and a M.S. in Mycology with a minor in Organic Chemistry from Sungkyun K. University in Seoul, Korea. She also has a M.S. in Microbiology with a minor in Biochemistry from Oregon State University. Croan was awarded a U.S. patent for her discovery of the biocontrol microorganism SC-36.

RESEARCH IN PROGRESS (continued next page)

If you have a research project which would interest our readers, give us a brief overview, your own contributions to the research, and what you expect the outcome to be. Contact:

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QUANTIFYING FOREST STRUCTURE, FUNCTION, AND DIVERSITY IN THE NORTHERN ROCKY MOUNTAINS

Penelope A. Latham
University of Montana

In response to increasing concern over species extinctions, environmental pollution, and loss of critical habitat, the Endangered Species Act of 1973 and the National Forest Management Act of 1976 were passed to restrict forest management activities in areas where threatened or endangered species occurred. Small preserves of critical habitat were and continue to be set aside, but it is generally agreed that they will not be sufficient to protect from the general loss of biological diversity.

In the western United States, it has become apparent that large tracts of land in public, state, and privately managed forests will have to be managed in more ecologically sound ways in order to protect biodiversity. Ecosystem management has been adopted as the general approach toward achieving this goal.

Most, if not all, land managers are struggling to meet the demands of ecosystem management without adequate "tools" to assess these conditions or provide a common basis for discussion. Many forest management tools currently in use, like relative density indices, were developed when the focus was primarily on timber production. Ecological tools like forest classifications, though little discussed, are important because they influence the conclusions we draw, as do silvicultural tools like relative density indices.

In addition, silviculturists in the western U.S. are increasingly shifting to

variations of uneven-aged silvicultural treatments to more closely approximate historical forest structures. However, we do not know if the assumptions and/or application of current "tools" are appropriate for goals that include the conservation of biological diversity. These assumptions should be tested. The structure of a forest is an important characteristic based on the composition, abundance, and distribution of the plants within it (both horizontally and vertically) which affects many aspects of forest function from nutrient cycling, growth, and seed dispersal to wildlife habitat, biotic interactions, and disturbance regimes. Moreover, forest structures integrate the processes that give rise to them and thus, have more potential to be related to processes that govern the development of plant diversity (the fundamental layer which supports biological diversity).

I developed a quantified classification for Inland Northwest forests based primarily on the structural characteristics of trees at two scales, a forest scale and a stand scale. The primary classification criteria are process-related classes of stand development and cover types. I also investigated the relationship of the classification criteria to changes in the biological attributes of stands. I found significant differences among structural classes in total tree cover, the variation of canopy development, the vertical stratification of trees in stands, age variation, understory development, and species diversity. Differences in most of these variables showed patterns consistent with predictions of density-dependent models of even-aged population growth modified in transitional stands by fine-scale disturbance. Moreover, differences were not always simply related, but interacted or acted additively to produce differences in overstory structures and understory communities.

The classification functions were developed (using discriminant analysis) at two scales and the variables used are hierarchically related. Using a dataset of over 1500 USDA Forest Service ECODATA plots in three cover types (Douglas-fir, western larch, and lodgepole pine), successful classification was 70 percent or higher using three structural classes.

I also examined the relationship of several relative density indices to forest structure. While many were related to diameters and the horizontal occupation of

growing space, few were related to tree heights or the relative positions of tree crowns in a stand. Briegleb's index proposed in 1952, but unused as far as I can tell, is strongly related to these attributes, and therefore has greater potential to incorporate aspects of forest structure important for wildlife, aesthetics, timber productivity, and understory plant diversity.

A computer program was developed to quantify tree height inequalities, tree diversity, and estimate vertical tree strata based on assumptions regarding the development of competition among tree crowns. The competition coefficient can be modified in this program to accommodate differences in species composition for shade tolerant and shade intolerant cover types. Both the number of vertical tree strata quantified by the program and Briegleb's index were strongly correlated with the structure of the understory community in the cover types and structural classes as indicated by canonical correspondence analysis (Pearson's correlation coefficients: Briegleb's index = -0.702; number of vertical strata = -0.865). One of the structural classes developed was representative of structures that might be produced by discrete periods of silvicultural treatment. The results of these treatments for both overstory canopy structures and understory communities were dependent upon the cover type and in some cases produced structures similar to those associated with relatively stressful periods of stand development. This suggests that uneven-aged silvicultural treatments may not produce the intended results in some cover types depending upon how they are applied.

An appropriate framework within which to monitor change in forest ecosystems is essential to the successful implementation of ecosystem management. The quantification of forest structures should provide forest managers with a common criteria for describing the degree and direction of forest change for multiple objectives and at multiple scales. Most importantly, the new classification uses criteria that are biologically related to functional processes, and which will, hopefully, allow forest managers to quantify how people are affecting forest attributes which influence the long-term maintenance of biological diversity.

Penny Latham has a B.A. in Biology (Genetics) from California State University and a M.S. in Forest Ecology from the University of Montana. Her Ph.D. in Quantitative Ecology is also from the School of Forestry at the University of Montana.



Women in Development— Community Forestry in Guatemala

Kallie Marie Kull

The Women of Xococ

The village of Xococ rises upwards from the fertile river valley of the Rio Negro in the central Guatemalan province of Baja Verapaz. Adobe houses and corn fields are scattered across mountainsides that were at one point covered with trees. Generations of firewood cutting has left the village hot and dry and the lack of trees adds many hours of walking to collect fuel. While all of the farmers of Xococ farm the surrounding hillsides during the rainy season, only a few have irrigated land beside the river which they can farm during the dry months from January to May. The others must find alternative work during the dry months and most reluctantly head to the coastal plantations to cut cotton or sugarcane.

When Alfonso Ixmalej (the local forest service extentionist) and I first introduced the idea of a community forestry project to the village, the people at the meeting, mostly men, were enthusiastic. Everyone agreed that replanting was long overdue and that firewood was only getting scarcer. This was in September and still raining. As the dry months approached and it came time to begin the nursery, the men and their enthusiasm had vanished, either down to the river for a second planting or out to the coast to work.

Not willing to give up, we met with the agricultural representative of the village, Don Fermin, Don being a title of respect for men in the community. Employed by the National Ministry of Agriculture, Don Fermin was charged with promoting new ideas and projects within his own community. After putting our heads together, we decided to promote the idea of a tree

nursery to the women of the village instead of the men. Xococ, like many villages in Guatemala, has a tragic number of widowed women struggling to support entire families on their own. It seemed like a perfect match because CARE International, the non-profit group sponsoring the nursery project provided corn and beans in exchange for tree nursery work. The community agreed to the arrangement that the women would do the nursery work in exchange for food. Once the seedlings were ready, they would be distributed freely in the community and everyone would be responsible for planting them. With this agreement in place, we set a meeting time for the following week and went home with renewed hope for the project.

As I look back one year later, I am amazed at the group that has developed. That first morning however, not one person showed up at 8:00 as instructed. As I sat, growing more doubtful by the moment, Don Fermin took up an ancient Mayan drum made from a huge sea turtle's shell. I watched in amazement as he climbed high up on a hill and drummed out his message to the village, his voice ringing out in an ancient lilting call. As he put down his drum he reassured me, "Don't worry, they're going to come." As we hiked down to the nursery site by the river, I saw that he was right. Looking up the mountain paths, women were making their way down to the river. In traditional weavings and headdresses, carrying baskets, hoes, babies and watering jugs, they arrived. Such colors! By 10:00 I had signed up 40 women to work in pairs and had to turn many more away. Widows, married and single women had all come

and each could point to the distant mountains she had to walk to in order to collect firewood.

Dona Antonia, (Dona being the equivalent title of respect for women), became an immediate leader in the group and was elected President. Her assistant, Dona Tomasa was to take roll call each meeting day and was in charge of the distribution of corn and beans at the end of each three month period. These two women, in their late 30's, were mothers of 5-6 children each and had both lost their husbands in the violence of the early 1980's. They, like many of the other women in the group, still farmed the family lands with the help of their children and any available and able relatives. In the more prosperous homes, fruit trees grew in the yard and chickens scurried underfoot. Although food was grown for the table there was always a shortage of money for medicine, soap, shoes, clothes and school notebooks.

Both Dona Antonia and Dona Tomasa attended the local school through the 6th grade, which was quite an accomplishment for young girls living in a remote Guatemalan village. In school they learned to speak and write Spanish in addition to their native language, Quiche Achi, a dialect of the regional language Quiche. Many of the older women in the group spoke only Quiche Achi, thus it was a relief to have Dona Antonia and Dona Tomasa as translators when speaking with the entire group. Don Alfonso, also spoke the dialect but we discovered over time that the older women were more hesitant to communicate with him, preferring instead to speak with another woman. Many of the younger women in their early

The following story is about a CARE women's group that Kallie Kull (Peace Corps, Guatemala 1987-1990) and her Guatemalan counterpart Don Alfonso Ixmalej initiated and worked with every Wednesday morning for two and a half years. The group was started at a time when Women in Development was quickly becoming more than a buzz word and the development community was taking a careful look at how women's work fit into the overall equation of economic well-being.

20's were also able and eager to help with the paper work, but in general the group preferred the confident and matronly leadership that Dona Antonia and Dona Tomasa brought to our meetings.

With great enthusiasm, we began weekly meetings on Wednesday mornings and our nursery quickly filled with seedbeds, trees in bags and a huge compost pile. Our plan was to grow trees year round in the nursery with an intensive planting period scheduled for the rainy season later in the year. We ordered seeds from CARE to grow the species of trees that the women agreed were best for firewood such as *Casuarina equisetifolia*, a fast growing tropical species and *Pinus oocarpa*, a native pine used for firewood and construction. Nitrogen fixing species such as *Leucaena leucocephala* and *Madre Cacao* were planted for wind breaks and animal fodder. Since food and medicine were also important to women, the lower quarter of the nursery was devoted to fruit trees, primarily oranges and papaya, and to medicinal herbs such as *artemesia* and *yerba buena*.

It took a few months for the group to come together and for the women to relax and begin to know one another. Even though they were of the same community they tended to live somewhat isolated from one another, traditionally staying at home out on their land. Our weekly gathering to talk and work together was a novel and enriching experience. News, gossip, and old stories were constantly exchanged and as the atmosphere loosened up the fun began. During the span of the morning other women would stop by and sell drinks and snacks and children would always be running underfoot. Joking and laughter was the common background to our mornings and occasionally we would all run to the river to strip half naked for a cool swim. My Wednesday mornings never ceased to rejuvenate my spirit and keep me inspired in my work.

One event mid-way through the first season stopped us all in our tracks. We had petitioned for a truck to go up to the mountain to bring back *tierra negra*, the rich soil that we used in the nursery bags. Thinking in traditional terms, I asked five men in the community if they would help by hauling the dirt. Although they agreed to this, I later found out that the men became very angry at being asked to do extra work and instead of going to the

central nursery on the appointed morning to meet the truck, they went directly to the mayor's office to protest. They refused to do the work without a written order, filed a formal complaint and returned empty handed. The dirt never came and we all sat in the nursery the next Wednesday in shock. "Why did you ask the men?" they questioned me, "why not us? The men in this community never want to do anything new. They're always too busy."

"It's true," affirmed Don Fermin, "it's hard to get them involved in any new projects for community development. They work very hard, both here and on the coast and at night they are obliged to keep guard over the village in the military organized civil patrols." "But still" the women argued, "if they won't even take a half morning to haul dirt, how will they plant and care for trees." Silence...that's right, the trees. And slowly it dawned on us that these were OUR trees—women's trees. And they were the ones who were responsible for the gathering and cutting of firewood. They were the ones who needed these trees. "And so what, we can dig the holes and plant them ourselves. And for dirt...we'll carry it here poco a poco, everybody bringing a little, and if you can get another truck, we'll go to the mountain and bring it back ourselves."

The nursery was buzzing and the work took on new meaning. When they left that morning I asked Don Fermin "Will they go back and talk to the men or their husbands about this? Will they get angry at the ones who wouldn't help? He laughed, "No, they probably won't say anything, they'll be really closed mouthed at home. But they'll plant the trees and they are excited."

Whatever really passed in their homes I'll never know, but the event brought up many questions. Where did my own preconceived ideas of who "should" haul dirt come from? And what other limiting paradigms are present in my work and in development work with women in general? What about 'new idea' projects that don't have a set precedence on what gender will manage them, such as tree nurseries, fish ponds and artisan projects? So time goes on in this project and I am thankful for the stimulus and questions it brings. Nobody seems to want our group work sessions to end and we are searching for ideas for expansion. The possibilities are many and the enthusiasm is high.

The preceding piece was written in 1988 in contribution to a newsletter published by the Women in Development Committee of Peace Corps Guatemala and sent to other Peace Corps WID groups around the globe. At the time of writing, I had completed my first year as a Peace Corps volunteer in an agroforestry program sponsored by CARE International and DIGEBOS, the Guatemalan Department of Forestry. The story served as an example of one group's experience which began with the building of a tree nursery and evolved into a community establishment, a meeting place for women in the village and a model women's group for CARE and US AID.

Today, almost 10 years later, I reflect on the lives of the women living in the village of Xococ. Just recently in December 1996, after 35 years of fighting, the Guatemalan government and the rebel guerrilla groups signed a peace accord, bringing this long war to an end at last. In 1988, a great number of the women in the village had recently become widows and heads of households, having lost husbands and family in the violence of massive military assaults and a heightening of a decades-long civil war. The military dictatorship in power from 1954-1985 was known for its violation of human rights and extreme brutality and by the mid 1980's, was considered responsible for the deaths of over 100,000 citizens, primarily those of Mayan Indian descent. By 1985, international pressure and the withdrawal of US military funding forced the military to relinquish ruling power to a democratically elected government. This fundamental change in politics brought relative peace to the Baja Verapaz region and the killings by death squads subsided in all but the more remote areas of the country.

The recent political history of Guatemala lends perspective to understanding the challenges the women faced in beginning this nursery project. From 1980-1985, during the worst years of the war, community development work had come to an abrupt halt in the Baja Verapaz region. Community leaders were targets for violence and villages were shut down with fear. By 1982, nearly all Peace Corps volunteers had been pulled from most regions of the country into Guatemala City, the country's capital.

In 1986, volunteers were allowed back into the Baja Verapaz region. During these few years, much had changed and over 3,000 people had been killed in the Rabinal region. Walking from the tree nursery to the river in Xococ, we were forced to walk around graves, hastily dug in the fields where the husbands of the women in the group had been shot down while hoeing their corn. In 1988, the shadow of political violence remained and the men in Xococ were still required by the military to form civil patrols to scout at night for guerrilla activities. This added to the chaos of the times because many of the villagers themselves were or had been guerrillas. As an outsider, I worked and spoke with caution, while fear and suspicion hung heavy in the air. During my years with the group, tenuous peace existed in the Rabinal area while the civil war continued on in neighboring provinces.

Addressing the need for rural development, the newly elected democracy attempted to integrate into more remote rural areas by developing programs which employed a network of salaried agricultural, forestry and health extensionists. Working as promoters and educators, individuals such as Don Alfonso and Don Fermin were stationed in the villages and worked to rebuild the shattered programs and projects that had existed in the late 1970's. In many ways, I believe the nursery group in Xococ helped to bring the community back together after so much hardship and struggle.

The tree nursery and watershed restoration project was sponsored by CARE International, a large non-profit group based in New York. CARE was founded on the premise of exchanging food for work in developing rural communities. "CARE packages" provide basic grains and supplemental food products to augment the limited diet of poorer peoples. In Guatemala, CARE had established a tri-lateral agreement with the Guatemalan National Forest Service and the US Peace Corps, whereby CARE provided the funding and materials for tree nurseries and soil conservation structures, Peace Corps provided a volunteer in each region and the Guatemalan forest service provided working offices, administration, and a local counterpart. Projects in the Baja Verapaz region were of high priority due to the fact that the nearby Chixoy



Top: Kull calling roll often brought great laughter as she worked her way through long and difficult to pronounce Mayan surnames.

Bottom: A typical Wednesday morning work day organized by leaders Dona Antonia (left front with arms folded) and Dona Tomasa (shown to the right of Dona Antonia).

Hydroelectric Project, originally planned to provide energy to the greater portion of the country, was failing due to massive deforestation and soil erosion. Overall plans included the production of trees in nurseries, reforestation projects and the building of soil conservation structures.

In the beginning, the main focus of the nursery project was not on Women in Development but rather on the number of trees grown and planted and the number of terraces built to conserve erodible soils. Approximately a year after the group began, the CARE Watershed Conservation Program received a large US AID grant dedicated solely to working with women. The development community was ready to recognize that women can successfully participate in this type of community forestry project as we had already seen to be true in the village of Xococ. The women of Xococ, having an already established forum, became a model group

for this national level Women in Development program. Our regular meetings took on new meaning. We were now not just a group of women, but a *women's group*, with a new sense of identity. Pulling topics out of a WID workbook entitled *Navimanga*, I facilitated weekly discussions to talk about issues that were pertinent to their lives and personal development. The discussion would at times become serious or sad but most of the time we ended up just talking and laughing. Having these open discussions in light of all that had passed and simply sitting down together for an hour or so was an affirming experience.

As the idea of working with women spread throughout the CARE project, Alfonso and I were invited to workshops that focused on creating new ways to incorporate women into agroforestry projects. During these meetings, we made presentations of our work with the Xococ

Mother and daughter, both active members of the project.



women's group and soon the group became well known for their great attitude and accomplishments. Visitors from CARE, Peace Corps, and other European development groups often stopped by the nursery to chat and take photos.

A highlight of our time together came in the form of a visit from a National Public Radio special feature news team. As it turned out, a portion of the CARE Watershed Conservation Project funding came from a coal burning utility in Connecticut, *Allied Energy, Inc.*, who had been permitted to burn coal with high CO₂ emissions in exchange for funding mitigation in the form of reforestation projects in Latin America. The NPR team was in both Guatemala and Brazil, doing a special documentary on this pollution trade agreement and had targeted the Xococ group as one of the more successful and interesting CARE groups.

Excitement in the village rose at the arrival of the news team with all of their equipment. The fact that both interviewers were women helped to relax the group. The interview itself was great and we talked and laughed, translating from Mayan to Spanish to English. It quickly became apparent that from the women's remote perspective, Connecticut was a place they could hardly imagine and the idea that the trees they were planting in Guatemala could have any effect on global CO₂ balance seemed incomprehensible. The NPR team also managed to uncover

many of the false assumptions and pitfalls inherent in this scheme when they asked about realistic survival rates of the trees and pointed out that most of the trees would eventually be burned for local energy needs. The best part of this experience however, was the recognition and praise that the group received both locally and internationally and the pride they all felt when we listened to the final tape, sent to us months later.

And the group continued. At the beginning of the year we would reopen enrollment for newcomers, if places became available. Dona Antonia continued to keep the ball rolling and faced her own challenges of getting women to arrive at work on time and working equally. She showed brilliance in negotiating with the difficult landowner of our nursery space, a prime location beside the river which had the necessary water for the trees. At times soothing his ruffled feathers and at times berating him for not supporting a concept which was inherently good for all, she managed to make trades of fruit trees and at times collected a small portion of every woman's grain in exchange for rent. A leader with less initiative might have given up this unpleasant but necessary battle. I occasionally worried that the group would dissolve without her and tried whenever possible to foster initiative in other members. I also knew that Dona Antonia, in her solid and dependable way, would probably be with the nursery for as long as it existed.

I left my Peace Corps job in November of 1989, opting to stay in Guatemala for another year to help establish a non-profit school to promote sustainable agriculture. Another volunteer came to take my place in Xococ and continued working with Don

Alfonso. We marked my departure with a wonderful going away party, sitting together in the nursery and drinking bottled soda pop, a sign of high esteem and celebration. I made certificates of achievement for all of the women and we talked and laughed, remembering back to the beginning days of the group. Old incidences like the problem with the men being asked to haul dirt in the truck seemed so distant; we felt like we had been meeting forever.

As I left my work with the nursery, I tried hard not to have expectations about the future of this group. I felt that it would continue and knew that it would evolve, yet I doubted it would exist forever. Reports from my Peace Corps replacement Denise were positive although she played less of a role than I had, opting to work starting new groups in other villages and letting Dona Antonia and Dona Tomasa run more of the Xococ project.

The last I heard, they were planning village projects to reforest the land surrounding the community school and health clinic. In any case, regardless of the future, I was confident that the group had already achieved tremendous success and had accomplished so much.

After returning from Guatemala in 1990, Kallie Kull attended graduate school to study watershed science at the University of California at Berkeley. She now works as a stream ecologist, managing projects to improve land-use practices and minimize cumulative effects on salmonid streams in Northern California. Clients include community groups, certified sustainable timber companies, and UC Berkeley.

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Combining Peace Corps Service with a Master's Degree

Eloise Parker

Introduction

As the Peace Corps celebrates its 35th anniversary this year, it also marks a long and successful tradition of collaboration with American higher education. Throughout its history, the Peace Corps has always looked to the university community for support in overseas program development, training, and evaluation. College campuses have long been rich "natural resources" for Peace Corps in its efforts to recruit Volunteers who can provide technical assistance to developing nations and, at the same time, strengthen the bonds of friendship and understanding between Americans and the people of the developing world. More than 145,000 men and women have joined the Peace Corps since the agency was established in 1961. The vast majority of these Peace Corps Volunteers are recruited from their undergraduate institutions.

In 1986, Rutgers University Professor Michael Lang proposed an idea that would further enhance the Peace Corps' collaboration with America's universities, as well as the academic experience of Rutgers' students: to provide an opportunity for students to incorporate Peace Corps service into a graduate degree program. A pilot program was designed that allowed students at Rutgers to complete one year of academic coursework toward a master's degree in Public Administration and then enter the Peace Corps to work in a project related to their discipline. Upon returning to the United States, students submitted

and defended a directed study based on their Peace Corps field experience.

This early partnership between Peace Corps and Rutgers University has since been replicated at 24 colleges and universities through the Master's International (MI) Program. Master's degrees are currently offered in the fields of public health, forestry, natural resources management, agriculture, English, business, non-profit management, and urban planning. To date, 73 students have received their master's degrees through this program; 115 students are currently serving as Volunteers; and 168 students currently have Peace Corps applications pending as they complete their on-campus studies.

The Master's International Program: A Response to Diverse Needs

By the mid-1980s, competition for Volunteer positions was extremely intense. For every one position available, the Peace Corps received approximately four applications, most of whom were recent graduates of liberal arts programs. At the same time, requirements for becoming a Volunteer were changing in response to increasing demands in the developing world for individuals with higher and more specific levels of expertise. Where countries had once requested Volunteers with basic gardening skills and some interest in sustainable resource use, for example, they now also asked for individuals with education and practical experience in crop diversification, integrated pest management, and

agroforestry. By 1990, more than 40 percent of the assignments for Volunteers required technical expertise in public health, water sanitation, business, English teaching, agriculture, and natural resources management.

Master's International students are crucial to Peace Corps' ability to supply mature, professional Volunteers with specific technical skills to work in challenging assignments in developing countries. In the health sector, for example, Master's International students pursuing public health degrees currently make up 60 percent of all Volunteers working in health projects where a master's of public health is required. Their commitment to Peace Corps service is essential to meeting needs in maternal and child health, nutrition and HIV/AIDS education.

The program also benefits the university, its faculty, and students in a number of ways:

- The university can provide students with a low-cost, professionally relevant field experience in an international setting. Peace Corps provides transportation to and from the country of service, a monthly living allowance, and full medical coverage.
- Students, many of whom are torn between going to graduate school and joining the Peace Corps, can "have it all" by combining both experiences.

Master's International students have a more integrated graduate experience: they make a tangible connection between theory and practice in their field. As they start their Peace Corps service, they are often called upon to take a leadership role in the training class, or to serve as a resource for their fellow Volunteers.

- Upon completion of the Master's International Program, students can claim two years of solid field experience in addition to a master's degree. Peace Corps Volunteers who have completed their service are eligible for non-competitive employment with Federal agencies.

- Once their Peace Corps service is completed, students receive a \$5,400 readjustment allowance from the Peace Corps which can be used to offset tuition costs.

- A symbiotic relationship develops between the Master's International student and his/her faculty advisor. As a Peace Corps Volunteer, the student enjoys both technical and moral support from the faculty advisor back at the university. At the same time, faculty advisors expand their own academic and experiential base by advising Master's International students who are working and conducting important research in potentially unfamiliar environments.

The Master's International Program in Natural Resources Management

As this issue of *Women in Natural Resources* demonstrates, there are ample research opportunities for Master's International students to pursue degrees in natural resources management. There are currently seven universities offering master's degrees in forestry or natural resources management through the Master's International Program: Colorado State University, Michigan Technological University, University of Minnesota, University of Montana, Washington State University, University of Wisconsin at Stevens Point, and Yale University. Seventy Master's International students have been placed, or are scheduled to be placed, in countries with widely diverse environmental issues, including the Philippines, Benin, Madagascar, Ecuador, and Slovakia.

The bulk of Peace Corps' current environmental projects are focused on forestry, agroforestry, and environmental education. Volunteers work with forestry departments or rural development organizations to promote reforestation and soil

conservation at the grass-roots level. Some Volunteers also work within buffer zone communities, encouraging sustainable resource use of designated protected areas. A new focus of many Volunteer projects is to work with environmental non-governmental organizations to support the development of environmental education programs, organize youth conservation groups, and public awareness campaigns.

Given the important role that women play in the social and economic development of their communities, the Peace Corps also places special emphasis on their role in sustainable natural resource utilization. Peace Corps projects are an excellent foundation for MI students interested in working with women and their impact on the environment.

Eloise Parker is the Director for University Programs at Peace Corps. Her Master's is in International Education from American University. Over the last 13 years, she has worked on numerous inter-cultural education programs.

Making a Difference

This year the Master's International Program celebrates its 10th year of providing academic preparation and related practical application to more than 300 graduate students. The potential growth and impact of this program is great. The Peace Corps welcomes inquiries from students and faculty interested in participating in a Master's International partnership.

For more information, please contact Eloise Parker, Office of University Programs, Peace Corps, 1990 K Street, NW, Room 9106, Washington, DC 20526. Telephone: 202-606-9322. E-mail: eparker@peacecorps.gov.

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Reviewed by Jonne Hower
**Ten Stupid Things Women Do
 to Mess Up Their Lives**

Laura Schlessinger
 Villard Books, New York, 1994

Sometimes my work takes me around remote areas in eastern Oregon. One day a couple of years ago I was driving the 100 or so miles between Burns and LaGrande. I had my radio tuned to the only station I could get. And there I made the acquaintance of "Dr. Laura," a radio psychologist.

Just so you can understand my bias, I need to explain that I have spent a number of hours "on the couch" as well as given serious consideration to returning to graduate school to acquire a Ph. D. in psychology. Further, I don't hold radio shrinks in high regard. However, this program was different. Dr. Laura offered insightful advice and recommendations. I agreed with her assessments of where responsibilities lay. She continually emphasized that *each* of us is responsible for our own responses to the events in our lives. She encouraged her callers not to blame others in their lives. Rather, they should look within to discover other choices or solutions to an event.

So, I was fascinated to see this book at my local library. Reading it, I was surprised (or rather horrified) to discover myself. As a result of my years of counseling and personal growth work, I thought I was making (or had made) rather wise decisions. But, too often I recognized bits and pieces of my past life (or my historical self) as Dr. Laura presented her list.

Why is this an important book (with important questions to examine) for those of us who work in natural resources? We don't deal directly with the issues of marriage and courtship usually in our work lives. However, as I grow and mature, I realize that the person I am and the choices I make in my personal life strongly influence my behavior, attitude, and expectations in my work life. It seems that becoming more aware—and cleaning up my life in one area—always benefits another area.

Here are all 10 chapter titles (italics supplied by Dr. Laura):

1. Stupid Attachment: Is a Woman Just a Wo-Wo-Wo- on a Man? *You typically look to the context of a man to find and define yourself.*

2. Stupid Courtship: "I Finally Found Someone I Could Attach To" and Other Stupid Ideas About Dating. *Desperate to*

have a man, you become a beggar, not a chooser, in the dating ritual.

3. Stupid Devotion: "But I Love Him" and More Stupid Romantic Stuff. *You find yourself driven to love and suffer and succor (or do you spell that "sucker"?) in vain.*

4. Stupid Passion: "Ohhh, Ahhh, We're Breathing Hard It Must Mean Love." *You have sex too soon, too romantically, and set yourself up to be burned.*

5. Stupid Cohabitation: The Ultimate Female Self-Delusion. *So stop lying to yourself! You're not living with him because you love him. You're living with him because you hope he'll want you!*

6. Stupid Expectations: First You Commit to Him, Then You Hate Him!? *Using marriage as a quick fix for low or no self-esteem.*

7. Stupid Conception: Making Babies for the Worst Reasons. *Misguidedly, you use biology as a jump start for love, personal growth, and commitment.*

8. Stupid Subjugation: Letting Him Hurt Your Babies. *You and your children are held hostage to your own obsessive need for security and attachment.*

9. Stupid Helplessness: "Oh, I Always Whine and Whimper When I'm Angry." *Too scared and insecure to deal with your rage, you turn it into wimpishness.*

10. Stupid Forgiving: "I know He's Adulterous, Addicted, Controlling, Insensitive, and Violent ... But Other Than That..." *You don't know when to break off a no-win relationship, or how not to get involved in the first place.*

To illustrate and flesh out these stark (and insultingly phrased) chapter heads, Schlessinger offers many examples of conversations she has had with clients as well as radio listeners. One was related by a woman in love with her boss for the past year. The caller admitted she had never spoken to him about her feelings, nor had the boss previously ever acted other than businesslike with her:

A month ago he asked me out to dinner on a Friday night....went to his house....ended up staying the weekend....it was all so romantic—just like a dream come true. We didn't talk about what would happen now at the office....It's been three weeks now and he treats me exactly like he did before that weekend!

Dr. Laura asked the caller's thoughts on being sexual with her boss without a prior discussion about the relationship. She replied: "I thought that if he had sex with me, it meant that he feels like I do." So there it is: relationship by hopeful fantasy.

Dr. Laura saves her most scathing scorn for women in abusive relationships. Succinctly put, it is "Leave the jerk!" This

advice I strongly agree with. However, in discussion with one of my female colleagues, I discovered that she didn't think this was good advice. I don't know whether this difference in our opinion is a result of a generational difference (she's younger than I) or something else. She says: "It's not that easy." I agree: it is not easy. However, the jerk isn't going to change and there is always a way. Make the choice, the good doctor would say, to remove yourself and your children from harm; it seems really stupid to choose to stay with someone who hurts you "because he's really a good person." Baloney. If he's good, he wouldn't hurt you.

I met myself face-on in "Oh, I Always Whine and Whimper When I'm Angry," and discovered that I had perfected this behavior in my past work life, not to mention my "historical" private life. In 1997, "always responding appropriately" is one of my resolutions. Noting that women frequently respond with behavior other than anger when anger is called for, Dr. Laura asks if women really don't recognize their own righteous anger? She writes: *When I've probed, nagged, challenged, and nagged some more ... I've gotten to the reality of the anger. The main problem is that women are too scared about the ramifications of expressing anger. So they "do" oblivious, confused, hurt, or depressed instead.* I have seen myself respond in this way to work situations which, in retrospect were intolerable and should have resulted in outrage. No more!

Schlessinger's foreword, appropriately placed as a warning sign at the beginning of the book, prepares the reader to be roasted on the spit of guilt. She understands we will inevitably feel regret at past mishandlings of the only life we are charged with determining.

This book is going to be difficult for you to read—and may be even hurtful to you—and you may get angry. There are 10 million exceptions to everything I say. Nonetheless, EVERYTHING I SAY IS TRUE!

Read this book. Apply its lessons. Share this book with your colleagues. Talk about it with your daughters. Mentor younger women using some of Dr. Laura's examples. And like I am doing, get some new slogans. Here are two: MAKE WISE CHOICES. FOLLOW THROUGH.

Jonne Hower Lowery is a Public Affairs Specialist with the Bureau of Land Management in Oregon. Her Bachelor's is in Range from the University of Idaho.

PATRICIA GARAMENDI

AN INTERVIEW BY DAINA DRAVNIKES APPLE

INTERVIEW

WINR: Are you related to California's political and activist Garamendi family?

Garamendi: Yes, we are all very political, and are all activists. My husband John was a California State Senator; his District was from Mono County to Lake Tahoe, down into the Sacramento area—13,000 square miles, much of it sensitive delta, the largest inland estuary in the Northern Hemisphere. John is now Deputy Secretary of Interior. I was a Democratic nominee for Congress in 1992, the "Year of the Woman." I lost a very close race in a recount. I've continued to help other women who want to run for office.

We have six children, and they are activists, too. Our daughter Autumn was in Alaska this summer as a ranger, living out with the grizzlies and working on environmental issues. Our son is in the Peace Corps in Paraguay. He wrote home about how it breaks his heart every morning to wake up and hear the chain saws in the rainforest in his area. Our oldest daughter Genet spent five years on the Hill as a press secretary for Congresswoman Zoe Lofgren, and now works at The Learning Channel. Our daughter Christina was a Peace Corps volunteer in Ecuador. She had an illness that required that she be evacuated, but is now studying nursing in California. We have two children still at home, and they're now "into" recycling. Every year for the last 15 years, I've compiled everything that the children, their Dad and I have done: the different issues we've worked on, the things that were important, and those we accomplished. So yes, you could characterize us as political and activist.

WINR: How long have you been with the Peace Corps?

Garamendi: I was President Clinton's first political appointee at the Peace Corps. Since 1993, I have been Associate Director. He had said during the campaign that for the first time, he would appoint returned Peace Corps volunteers to the Peace Corps. It was amazing, after 35 years, that that had never been the case. Of course when he asked me to serve, this was where I wanted to be. I oversee all of the recruitment, selection, and evaluation within the United States, and then the placement of all volunteers overseas in 90 countries. I had served on a number of international delegations and work groups for several decades so I came somewhat prepared. I was recruited by President John F. Kennedy, so in a sense I am passing on the torch. It's an incredible job and a wonderful opportunity.

WINR: What kind of academic background and other background prepared you for what you're doing now?

Garamendi: I feel like I've been preparing my entire life for this wonderful job. I graduated from the University of California-Berkeley, have my doctorate in law, and I have always worked with nonprofits and have been an activist in all the different political initiatives in California. All of my basic values, however, came from being a Peace Corps volunteer.

When President Kennedy spoke at Berkeley I was there in a wheelchair because I had been in a skiing accident. I was a senior in high school, and it was one of those field trips to hear the President speak. I can remember being in the front row because of the wheelchair access. Suddenly out of the stadium's football tunnel came the Secret Service and then came John Kennedy. I can remember that day like it was two seconds ago! It was a spring day and the sun was hitting his hair, and it was kind of a red-gold. He was walking with his hand at his back, because he had back problems. He walked by, and those electric blue eyes connected as he went up on the podium. I just had this feeling that something incredible was going to happen in my life. I sat there in the Berkeley sunshine, and he gave that wonderful call to serve, and I saw myself as a Peace Corps volunteer. I knew I was going to be somewhere in Africa. I was still just a high school senior, but I made that commitment. He wanted all of us—young men and young women equally. And there weren't many opportunities for women in the 1960s. You could be a teacher, or, if you were really good at science, you could be a nurse. To have that opportunity to see yourself in this international position, to be working at the grass roots level, to be truly helping people, it was something I knew I would do.

WINR: So that was really a decision point?

Garamendi: Interestingly enough, I find that when I am out meeting with my volunteers around the world, I always ask them, "When did you know you were going to be a Peace Corps volunteer?" It is incredible at what a young age people know. I had a volunteer in El Salvador, a very difficult area, who said, "I saw a television commercial. I was about 10 years old, and I saw guys pulling in fish with all the people singing—those fish were so gucky—but I just thought that looked so wonderful! I knew that was me." They know that they are called, and they keep that dream. When people ask me about Generation X and this self-indulgent group, I say, "I'm sorry, but these young people are more idealistic, more committed than I've ever seen."

WiNR: Was your own experience as a volunteer meaningful?

Garamendi: I think one of the most moving things for me was when I came to my close of service in Ethiopia in 1968. It was a very trying time. One day just weeks before I was to leave my teaching post, my students began wailing, walking from the village, where they would gather each day for their one cup of tea and their piece of bread. When I asked what had happened they said, "Why have you killed the father of all Black men?" And they repeated it. And then they told me about Martin Luther King being assassinated.

I was able to grieve with them, to be that real face of America. I shared with them how much he had meant to me. Just weeks later, that same group came with news of Robert Kennedy's assassination. They told me, "You don't have to worry, Mrs. Garamendi, because we had a village meeting as soon as we heard, and we have decided that we are going to take care of you the rest of your life. It's too dangerous for you to go home." I told them, "More than ever, I must go home. My country needs me. But if you need me, I will come back. You just write to me."

The call came from my students in the 1980s with the famine. So John and I returned to Ethiopia, just before information was breaking to the media. Speaking the language fluently, we were able to talk our way through customs, through immigration, and to go up north where the famine camp was. There were 5,000 people there—some literally dying in my arms.

Since we were there to help organize things, I wanted immediately to get the porridge going, but John knew I was not going to get any porridge going until he fixed the water line blown out by the guerrillas. After working in the camps, we went back to visit in our village where we had served together 1966-68. In my present position, I was able to send off and swear in the first volunteers Peace Corps sent after being out of Ethiopia for 20 years. So the importance of and connection to Peace Corps runs throughout my adult life.

WiNR: What did you and your husband do after you returned from Ethiopia the first time in 1968?

Garamendi: John was at the Harvard Business School. I taught in the Phillips Brooks school district in Roxbury, Massachusetts. I requested that school district. There were car burnings on Bluegrass Avenue. There was no African Studies program, there was just hate and anger, and a lot of violence. I went into the inner city every day and developed the "Sights and Sounds

of Africa" Program. I felt I really had such a gift from Africa to give back to the students here at home. Peace Corps is still contributing these kinds of things to students.

WiNR: You're obviously a very enthusiastic spokesperson. What are your administrative duties?

Garamendi: I am one of the four associate directors in the Peace Corps. My office oversees the recruitment, selection, and placement of Peace Corps Volunteers. I manage all of the recruitment in the nation. We field yearly some 120,000 inquiries. I manage the budgets for all of the recruitment, all of the domestic offices here, the evaluations, the suitability assessments, and the actual placement of these volunteers in the 90 host countries. There are nearly 7,000 volunteers in the field at this moment. Those all were placed on my watch. About 200 staff work directly for me. I've grown enormously as a manager in order to master the job.

WiNR: How has the downsizing of government affected you?

Garamendi: I downsized from 16 offices to 11 offices as part of the "reinventing." And also one of the things I'm very proud of is I created seamless online communications between the headquarters, the domestic offices, and the overseas offices for great efficiencies. My children laugh because they wonder how their mother became such a techie! I really embraced it, and I find it exciting. It's certainly a good way to do business in the Peace Corps.

WiNR: How specifically has computer technology helped you?



Garamendi: What used to take two weeks time, my recruiters can now do in two hours to identify recent college graduates, since students are all online. And professors are very used to communicating electronically and checking the bulletin board. They're on lists and easy to contact. Say we were looking for French speakers for West Africa, we contact all the heads of French departments, for example, and they in turn send the message out to their students that we were having an information session in French.

WiNR: How does your hierarchy work?

Garamendi: Peace Corps' hierarchy consists of the Director and his offices, the Deputy Director, and four Associate Directors who report directly to the Director. There is (1) an Associate Director for International Operations—which includes our four regions: Africa; Inter-America; Asia/Pacific; and Eastern Europe, Central Asia and the Mediterranean. Then (2), there is an Associate Director for Volunteer Support, which includes offices such as Medical Services and Special Services; (3) the office of Management, overseeing Administrative Support, Information Resources, Human Resources; and (4) my office, the Office of Volunteer Recruitment and Selection (VRS). Within VRS, we have the Office of Recruitment, which includes our 11 regional recruitment offices; the Office of Placement; and the Administrative Unit.

WiNR: Has structure—or morale—changed as you downsized?

Garamendi: No, structure has not changed, but within this structure, there has been major re-engineering. I have reduced my staff by 25 percent. We've collapsed

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entire units, but we have not lost production. We work, I believe, as a team and we have very high morale. During the furloughs and snowstorms last year when we were shut down, our production was still at an all-time high. And we also had endured a 20 percent budget cut.

WiNR: Do you attribute your ability to keep up with production mostly to improved technology?

Garamendi: No, I think we have very motivated people in Peace Corps, first of all. Nobody stops volunteering. Since 1961, 147,000 Americans have joined the Peace Corps. They are not former volunteers, they are returned volunteers. And they continue to serve. So we maximize all of this goodwill, this incredible resource out there. But utilizing technology helps with time management. We cut travel costs to the bone and we still reach people and have very successful face-to-face interviews so I think it accounts for our ability to stay on budget. I think the American people know that Peace Corps is very cost-effective and a very wonderful way to have a global presence and a cross-cultural experience for American citizens.

WiNR: What are some of the criteria you use to determine when you "graduate" a country or when you bring a new one on board?

Garamendi: We try to look for potential successes and what's happening in that country's economy. When we went into Eastern Europe, we didn't plan on being there for a long time. We planned on being there to help them into the free market with some assistance and to help stabilize. We are graduating out of the Czech Republic because it is time but we are leaving their own domestic Peace Corps. People that we trained are going to pick up the banner with what they've learned from us. We were able to answer an invitation from Nelson Mandela to go into South Africa, where we are going in January, and to answer the call to Jordan. We are now in China with 18 volunteers doing primarily university level education for teacher training. I recently talked with some volunteers just back from Kazakhstan. They were doing teacher training for English teachers. And we are moving into environmental areas in both of those last two regions. But we are predominantly in environmental areas in Inter-America and Africa.

WiNR: If you had to make a wild guess, how many people in these developing countries over the last 35 years do you think you've impacted?

Garamendi: My husband and I are two of the 147,000 returned Volunteers. I know without a doubt that when I lived in my village, that entire village was impacted. When we returned to our village in 1985, we walked down the street, and the people all came out of their houses, and said "Where have you been?" My husband and I looked in the town square, and there was his town map showing where they were going to put the new school and the market. This was 17 years later! They'd been under a Marxist regime, but they had that plan, and they had been moving slowly toward those hopes and those dreams. So to answer your question, if you even talked about five persons impacted or an easy 10 people for each volunteer, that is very significant. And think of the teachers. Many of us had several hundred students—we know we had a tremendous impact. Without a doubt, Peace Corps' impact is in the millions of people.

WiNR: Why does America have the Peace Corps? What is its true purpose in terms of national policy?

Garamendi: In terms of national policy, Sargent Shriver, the first Director, was brilliant when he said our mission is world peace. The world has come to America, we have more diversity than ever. Peace Corps volunteers have led the way to understanding arriving cultures because we have volunteered our work in 131 countries.

We have lived with the families, we see the need for world peace. Our founders set out three goals which hold today. Our first goal is to go where we are invited—and to bring technical skills there to help that country. Our second goal is to be the face of America. I see volunteers go into the former Soviet Union; the people there had no idea what Americans really were all about. At the end of the training, the local people have tears streaming down their faces because they have learned person-to-person that we care about our families the same way they do. Our third goal is to bring the world back home. That is a great benefit to America. Volunteers are communicating with more than 4,500 U.S. classrooms. They then come back and visit the schools. These children are learning about other classrooms with foreign students in a very real way. And also, we continue to serve the nation because we have produced 38,000 teachers for the classroom. This is a time when America is very shorthanded when it comes to teachers.

WiNR: Who sets the policies and how do you prioritize them?

Garamendi: We have a very clear priority—it's the volunteer. In terms of our pro-

gramming, that is driven by the requests from our host countries. Of course, budget resources also have an effect on how much we can do. Peace Corps has been held up as a model over at OMB, however, because we do such a fine job with our limited resources. Our current budget is \$220 million.

WiNR: Do you have alternative financing or other sources of funding?

Garamendi: No, except that we do have some small grants from the Agency for International Development that are used for specific things like for training our host-country counterparts, but we're not reliant on that money.

WiNR: Do you cost-share to leverage the funds that you do have?

Garamendi: Sometimes, as a contribution, the country will offer housing to the volunteers. Most of the countries are very, very poor. But often there will be a village that will rent a house because they want a Peace Corps volunteer. We also have an Office of Private Sector Relations, but it is also very tiny. If a volunteer has somebody back home who wants to send basketballs for the team there, for example, we have an office that can help get them mailed.

WiNR: So you basically get a check for \$220 million, and you make do with that?

Garamendi: We are responsible for a two-year cycle on the volunteers. We can't become dependent on anything except our own appropriated dollars.

WiNR: Does the State Department have any control over Peace Corps?

Garamendi: We are very much an independent agency, separate from the State Department. A few years ago, there was some talk in the last administration about folding us in with State Department. It was not a good idea, and the proposal died early on. Independence is very important to us. And it's also important for the security and safety of the volunteers and to the effectiveness of their work.

WiNR: But when controversy does arise, how do you handle that?

Garamendi: There are senior agency staff who decide together. We understand the hot spots in the world. Overseas, we are part of the country team, of course, so if there is an evacuation, the embassy is there to assist us. For example, it is well known, in the Central African Republic, we brought our

volunteers out of an unstable situation. There is always communication and cooperation with the embassies, but we are independent.

WiNR: Do the volunteers ever feel like they become politically suspect because they are American, even if they are not an arm of the State Department?

Garamendi: No. Our volunteers understand that they are not to engage in any political activities while serving overseas. They, and Peace Corps, have earned the trust and respect of our host countries due to 35 years of dedicated, grass-roots work—helping people help themselves.

WiNR: Who and where is your political base and your constituency?

Garamendi: Almost everybody in America knows somebody who was a Peace Corps volunteer. In Congress, we have a very bipartisan constituency. Currently, we have six Congressional members—three Democrats, three Republicans—who were Peace Corps volunteers. Senator Paul Coverdell, who is on the Senate foreign relations committee, was a director of Peace Corps. Senator Chris Dodd was a Peace Corps volunteer. Our programs were cut, as were nearly all federal programs, but not drastically. When you look at the new millennium and the new skills that employers want, this is something else that we do for America. We are creating global citizens with language skills, cross-cultural skills, team-building skills. They've got fire in the belly to want to serve, to be part of something larger. Those are great benefits to America, because we're bringing home people who are really going to help. Congress understands that.

WiNR: Who is volunteering for Peace Corps these days? You mentioned recent college graduates. Are your needs being met by them?

Garamendi: The average age is 30, but I think it's because we have no upper age limit. Most of our volunteers are around 25. The difference today from 35 years ago is that most young people are graduating at an older age because they're having to work their way through college. They have an average of \$10,000 in college loans. They usually have some work experience. We really need more over the age of 50, because we have a great need for experienced business volunteers.

If a former volunteer who is now a mature adult and works for the EPA or the U.S. Forest Service wants to volunteer again, for example, Peace Corps volunteering would count toward their retirement. It counts in federal retirement as foreign service does. But some of our people are past retirement—our oldest volunteer is in his 80s. He is incredible! He was serving in Hungary. I met somebody who was volunteering with him, and he said the students follow him around. He was a journalist who had interviewed Winston Churchill and President Roosevelt during World War II. Think of having lived behind the Iron Curtain and the resulting lack of information, and then to have somebody like him to talk to about the last 50 years!

WiNR: We have a number of Forest Service retirees who have gone back.

Garamendi: Yes, and they are the team leaders. I welcome this opportunity to reach Women in Natural Resources readers who might be interested in such service.

WiNR: What do most volunteers do, if you can characterize the majority?

Garamendi: Thirty-six percent are still in education. That has always been the bread and butter occupation. Many of the volunteers in education are doing community content-based education, where they actually are teaching English through recycling, health education, perhaps talking about AIDS. Our fast-growing area is the environment, which is what I'm most excited talking about. We have 1,246 who are overseas in that right now. It is our most popular program. We have green volunteers and the brown volunteers: those who are working in urban settings and those who are working in the rainforests. Fifty-six percent are women now; I'm pleased about that. When I went in, it was about 20 percent. In terms of disciplines, we have about nine percent in Agriculture; Environment is at 18 percent; Education, 36 percent; Business has gone up to 15 percent and that's primarily in the former Soviet Union. In Health, we've stayed at 17 percent. Then there are other individual projects.

WiNR: You've described the high motivation factor for volunteers. Surely there are dropouts?

Garamendi: Usually the early terminations (ETs) are for family emergencies or acceptance to a graduate program—or medical evacuations. The ones who are actually really unsuitable are minimal. We have a very careful screening process before applicants are invited to serve. When I started in the Peace Corps as a trainee, they invited us all to a huge training site in Utah, and 60 percent of us were deselected at that time. It was inefficient and expensive. Now, as one of our efficiencies, we nominate perhaps two people for every available slot, and that gives us room for those who decide to go to graduate school, or those who may not clear medically, or some who may just change their minds. The class that we actually invite is usually very carefully screened for emotional maturity, motivation, commitment, competencies. I always tell them, "If you just want to see the world, go down to the travel agency, because this is a very, very tough job. And it is not for everybody. But if it is for you, and you do this, you will have international credentials and never again will you ever question your ability to do any task at hand."

WiNR: Describe the training.

Garamendi: Once you're invited, you are in training for three months. We are working on what we call FIT models. In some of our programs now, volunteers arrive in-country, are put in a training center for a couple of



weeks to get language skills, safety, and security issues down, and then are put right into their village with a language trainer to cross-train with five other volunteers. These volunteers are happy, because they want to get out in that village, and they want to start working. We're getting almost no early terminations now from those training groups, because they are immediately doing what they expected to do. In some countries, where there is a lot of technical training needed, we still have the larger training classes for three months. But I like the newer models that we are experimenting with, where we're really pushing people out more quickly.

WiNR: Specifically, what kind of work would natural resources volunteers do?

Garamendi: I'll give you a biodiversity example from Niger. It had many different levels of involvement. We had a forester from Stanford with his Masters, who is also interested in the endangered giraffe. Giraffes had been nearly wiped out in West Africa. And of course to save the giraffe, you have to protect the habitat and you have to educate local people. The forester photographed every giraffe and took a census. He had all of the detail. The communicator, Sonny, was in the classroom and translated a book into French about the giraffe and the importance of protecting the habitat. Claude, who was very fluent in French, worked with the tourism ministry convincing them that it was to the benefit of Niger to protect the giraffe because it would bring tourists. Also he was training the guides, which was also another income generation. Another person was teaching how to build efficient mud stoves so they wouldn't need to cut down the limited forest to cook. That was a diverse team. They all were working together on an environmental project, protecting the habitat.

WiNR: Do foresters like this work?

Garamendi: Absolutely. There is always a limitation on how many experienced foresters we can get into Peace Corps, because after graduation and into a job, they're not going to leave because jobs are hard to find. But if you can get somebody with a lot of experience mid-career, they can take a sabbatical or volunteer towards the end of their career. The experienced ones are willing to work with someone who has a degree but doesn't have the work experience. So we try to cluster the experienced with the inexperienced. One thing in our favor is that an inexperienced person may be still scraping the gum off the picnic tables if they went right into the Park Service after college, but with us they are managing projects in a very real way within the team.

WiNR: Do they all get a lot of responsibility quickly?

Garamendi: Yes. The volunteer is part of a continuing project which becomes his or her major work assignment upon arrival. As a volunteer, there was someone there before, and there will be someone there after you. And you're learning all of the time. You have a plan and a goal, and you know what to do. But you will also see so many other needs that you will develop secondary projects. And we very much believe in capacity building, sustainability, and institution building. We really "know" those terms.

WiNR: Have you had pressures from returned volunteers to change the basic Peace Corps mission or methodology? Or were they pleased?

Garamendi: We surveyed our volunteers on our 35th anniversary from all the different decades. We know anecdotally that 97 percent say they would do it again. You don't find that in many life choices. Former Senator and presidential candidate Paul Tsongas was interviewed on the Mary Matalin show not long before his death. He was a Peace Corps volunteer in Ethiopia with me. He was asked what was the most important thing he ever did in his life. Without hesitation, he said, being a Peace Corps volunteer.

WiNR: Describe the Masters International program as it relates to natural resources colleges.

Garamendi: In natural resources, Peace Corps has agreements with Colorado State University, Washington State University, the Universities of Minnesota, Montana, Wisconsin, and Yale. Michigan Tech, which we just signed, will be called the Loret Ruppe Masters International program in forestry. (Loret Ruppe was the Peace Corps director in the 1980s and just passed away of cancer. She was an incredible woman.) A student applies for a masters program and for Peace Corps at the same time and must be accepted by both. The masters program is designed for one year of a special curriculum to prepare for the Peace Corps assignment—which becomes the student's field study. It's a practicum. They get credit for it, and the professor sometimes goes over to see how it's going. There are some financial benefits for students. At the end of Peace Corps service, the students come back and finish up the universities' requirements. At job search time they have international and work experience. It's really very popular. My daughter-in-law in Peace Corps-Paraguay is a masters international in public health.

WiNR: What is the motivator for universities?

Garamendi: Universities love the Peace Corps partnership because many want to branch into international fields. Suddenly they're partners with 91 countries. Our World Wide Web gives information about the Masters International; their university is listed. Students still have to apply at the individual university. If accepted, then I guarantee a position for that person in the Peace Corps so the student and professor can plan.

WiNR: Can you describe the difference between staff and volunteers? We've talked about volunteers and what they do. How many staff are there?

Garamendi: There are 890 U.S. direct hires, which includes the staff at our Washington, D.C. headquarters, our 11 regional recruitment offices, as well as the 91 countries where Peace Corps is present. Overseas, the volunteer to staff ratio is approximately 25:1. Every Peace Corps volunteer is well qualified and has the potential for great success, but we also appreciate the magnitude of the role they are playing. It is important that they have the support of the staff: in training, project development, safety and security. We place the highest premium on supporting our volunteers and helping them get the most out of their Peace Corps experience. One of the most interesting aspects of Peace Corps staffing, and something that keeps us forever young, is the five year rule. You cannot be in a staff position at Peace Corps for longer than five years. However, volunteer service is not counted as part of that five years.

WiNR: So you essentially have forced rotation?

Garamendi: We do have an exception as I alluded to earlier. If you're in for five years, and you go out five years, then you can come back in. Some people will come back once a decade. Once you've worked for Peace Corps, you never want to work anywhere else, because you've learned so much. But the five year rule presents a tremendous training challenge. We're constantly training.

WiNR: You're constantly training and you're losing a lot of corporate memory, which could be disastrous in some agencies. The Forest Service would certainly find it difficult. Where do these people go after five years?

Garamendi: President Kennedy wanted and got, first of all, for the returning volunteer to have noncompetitive eligibility in federal

agencies, because he wanted those global skills everywhere. As staff at Peace Corps, former volunteers' noncompetitive eligibility can be directly transferred. Some 78 percent are at our FP5 level, which is a GS-9/10 equivalent, with over 21 percent of our positions at FP 1 and 2 level (combined) which is GS 14/15. So Peace Corps offers good career path opportunities for returning volunteers and others.

WiNR: Are all the Peace Corps staff former Peace Corps volunteers?

Garamendi: Most are returned volunteers, but we also have many fine employees that are not.

WiNR: How diverse is Peace Corps in your office?

Garamendi: We have tremendous diversity: 35 percent of the recruitment staff are minorities.

WiNR: Do you spend a great deal of time traveling? Or do you delegate that? Or do you have to spend a lot of time "lobbying," in the good sense?

Garamendi: In my international travel, I try to go when all the country directors are gathered at one time. In Morocco, for example, there were 35 country directors together. I can talk to them about the supply of volunteers, what we're doing at home, what they need to do so I can be placing appropriate volunteers in their projects. When I'm in that country, I will do site visits with the volunteers. In the U.S., I am on the road to the 11 regional offices constantly. Because of downsizing, I try to help in their recruitment campaigns. We have very large spring and fall campaigns. The fall campaign is where we recruit all of our volunteers for the spring/summer class, which is 70 percent of the departures. We do a lot of media, a lot of television, a lot of press. I'm very much a spokesperson domestically. When I came on board, we had been off television for several years. We were not even doing public service announcements.

WiNR: So you are responsible for rejuvenating that?

Garamendi: One of the first things I said was, "I will not have anybody ask me, 'Is Peace Corps still around?'" And I can guarantee that is not happening! We are alive and well, but it was not that way at the beginning of this administration. We've had more than \$30 million in free public service announcements, plus a 30-minute history of the different decades which we have out on cable



stations right now. On the World Wide Web, we've had more than a million hits just since March 1996. During the 35th anniversary celebrations, we had a display in the visitor's center at Arlington National Cemetery—where President Kennedy is buried. National Park Service employees said it was the most popular display that they've had in all the history of Arlington. We took that display on the road and we had 35th anniversary blitzes throughout the United States. We were on the Today Show, ABC News, CNN, Oprah Winfrey, and many other national and local programs.

WiNR: With you and your husband in high profile jobs, you must have to plan carefully together to get everything fit in. Is your high energy life fulfilling?

Garamendi: Yes, but we are balancing all the time. For example, my husband called during the election to ask me to go with him to Little Rock when President Clinton was there. The President gave me a hug and asked how we were doing. He gave a wonderful speech and talked about giving young people the same chance that he had, just the chance. And I saw so clearly that Peace Corps is that chance for so many young people. They've got a plane ticket to anywhere in the world where they can test themselves. After that night in Little Rock, the plane got back to Washington at 5:30 in the morning, and then I had a meeting with AmeriCorp's leadership at 10:00 to see where we could find partnerships. That isn't an unusual schedule for me.

WiNR: You still have two children at home. How do they and Peace Corps fit together?

Garamendi: Our two children at home are 16 and 10. Our youngest goes to John Eaton Public School, where we recently had a big Peace Corps World Wise School Day—a national teach-in to share Peace Corps with school children across the country. Many Peace Corps volunteers taught geography wearing their in-country clothes, talked about their countries, showed artifacts. My daughter's thrilled with all of this.

WiNR: With children and your travel schedule, do you need live-in help?

Garamendi: We have an Uncle Ozzie now 81 years old, who has lived with us for 25 years. He was with us on the ranch where we farm in California, and when I started packing to come to Washington I finally said, "Ozzie, you don't want to move to Washington, do you?" He said, "I've been packed for two weeks." He provides a lot of stability and makes our public life easier on the children. I was on an important recruitment-campaigning trip in the Northeast recently doing several 35th anniversary celebrations and keynote speaking at universities. I took my 10-year-old out of school and we went together. Our children are learning and carrying on what we've always done. It's a part of our life. Traveling with and observing us has been good role modeling for our five daughters and son.

WiNR: Speaking of daughters, do women volunteers ever run into problems where you have a relatively macho culture?

Garamendi: The agroforestry volunteers work with men farmers most often. When I was in El Salvador, I met with 78 volunteers individually, talking about their

projects. I would ask them, "What has been your greatest challenge?" and "What has been your greatest reward?" One young woman told me her greatest reward was when the men farmers started listening to her and inviting her to their meetings. In Honduras I was scheduled to meet with another agroforestry volunteer so I'm rattling along to find her in a Land Rover on terrible roads for miles. This volunteer walks this everyday with a pack on her back to go up to the hillside farmers. So the women are leading by example, with their knowledge, with their presence, with their fluency of language. I believe, yes, these are macho cultures, but these hardy young women are doing so much for the women in those communities, role-modeling for the young women and trying to involve them.

In training we ask: How do you deal with sexual harassment while just going into the market? We teach volunteers to counter it with "presence," the way you carry yourself, the way you dress, with self-confidence, and with how well the work is done. Usually macho behavior will settle down after testing. One woman I talked to said it would take her hours to get home because every farm she passes through she is asked to stop and have tea and coffee. You always have to observe the personal "niceties," have talk about the weather, and answer questions.

WiNR: So you do train women to deal with cultural differences, gender differences?

Garamendi: Our training addresses these issues head-on. We have recruitment films that talk about it. We have behavioral-based sessions face-to-face where we really talk about what would you do in this or that situation. We send a packet to each potential volunteer as well, explaining the medical issues and the cross-cultural issues. In fact, sometimes people say, "You make it sound so bleak," but we really don't want people to be surprised. It is not for everyone. Out of 120,000 inquiries, we receive a good, solidly screened 10,000 applications for the 3,500 slots.

WiNR: The Clinton Administration supports Peace Corps?

Garamendi: Yes. During the election, the President talked about getting over "that bridge" and having it be wide enough and strong enough for everyone—meaning, I think, that he is committed to affirmative action. And since he is so committed to people having opportunities for education and getting to that first rung of the economic ladder, he sees Peace Corps as a means. He is not alone in this support. Vice President Al Gore's sister was a Peace Corps staff mem-

ber, Hillary Clinton's brother was a volunteer. USDA's Deputy Secretary, Richard Rominger's son was a Peace Corps volunteer. Paul Johnson, head of Natural Resources Conservation Service, was, and so was his wife. They're everywhere. Peace Corps is the largest environmental force on the ground in the world. Satellites cannot tell us really what's happening environmentally but the volunteers on the ground can. We talk about visionary things, but volunteers are there. There's so much need out there. I would love to see us grow to 10,000 volunteers in the year 2000, as we head into the new millennium.

WiNR: You'll still be with Peace Corps?

Garamendi: I will still be here. After that, I'll bloom where I am planted. I've always worked for world peace, whether it was the Beyond War Movement or civil rights marches. In California I worked on the environment, on the Bi-State Compact to Save Lake Tahoe (California and Nevada), and organized to save Lake Mono. If I had become a Congresswoman in 1992, I would just be a terror on the Hill right now, probably. But I have found great joy and satisfaction where I am. There is so much work to do right here, I am really not looking at next steps.

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, and 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. 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.

Photos of Patricia Garamendi in El Salvador (1996) and Ethiopia (1968) courtesy of Peace Corps.

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"MY PEACE CORPS EXPERIENCE HAS INFLUENCED EVERYTHING . . ."

SHARON ZIEGLER

I found out that I was going to Guatemala with Peace Corps on a summer afternoon in 1984. My father, Dr. Donald Ziegler, then an academic dean at the liberal arts Doane College in my hometown of Crete, Nebraska, received an excited call. "I'm going to Guatemala!" I exulted, not having any idea where Guatemala really was and definitely not aware of its political, social, and cultural history or makeup.

I had just finished my Bachelors of Arts degree in Biology at Grinnell College in Iowa and was unsure as to my next steps. I knew that I was not ready for graduate school, but felt more like working with people. Born and raised in the Midwest (first Wisconsin, followed by Iowa and then back to my parents' home state of Nebraska), I had grown up surrounded by fresh air, horses, corn fields and people who valued both education and common sense. Looking back now, I think I was pretty naïve to have solely invested my future in Peace Corps, but luckily it worked out.

I became one of 14 new volunteers in the aquaculture extension program in Guatemala. It was one of several Peace Corps fish culture programs across the world. The program had already been going for more than five years when we arrived, and my group was the biggest pulse of volunteers into the program since its inception. The international aid organization, CARE, the Dirección General de Servicios Pecuarios (DIGESEPE, the Guatemalan government agency responsible for providing livestock services), and Peace Corps had recently signed a tripartite agreement to improve aquaculture extension services to rural Guatemalan communities in order to increase protein availability to families and provide an alternate cash crop to

farmers. We Peace Corps volunteers were to be the front-line forces for this effort and they brought our large group in to serve as extension agents in areas that did not yet have volunteers.

In reflection now, I realize we were extremely fortunate to receive the good technical training that we did. I feel strongly that Peace Corps' best programs over the years have been those in which they have invested the time and money in producing volunteers who have specific skills that they can offer their host communities. Through our intensive 10-week experiential training program at the University of Oklahoma, we learned every aspect of aquaculture: how to manage our own pond, economics, nutrition, and feeding. Most Peace Corps programs worldwide at the time required their future aquaculture volunteers to go through this training program prior to entering the host country. Upon reaching Guatemala, we focused on language training, cross-cultural skills, and aquaculture conditions. After five months as a trainee, we finally entered our sites as volunteers.

Through funds from CARE, we were able to hire Guatemalan counterparts to train with us over the course of our service with the intention that they would eventually replace the volunteer effort. Francisco de Leon Cahuec became my work partner soon after I moved to my site, Salamá, Baja Verapaz. Pancho is an *indigena*, a native Guatemalan of Mayan ancestry. A small man, especially compared to this tallish white lady, we made quite a sight as we both rode the program's 125cc motorcycle on visits to surrounding communities. We worked with another Peace Corps Volunteer, now my husband, Charles Chong, and his *ladino* (those of Spanish ancestry) counterpart, Angel Samayoa. Charlie and I worked together to train Angel and Pancho about polyculture of tilapia (*Oreochromis spp.*), common carp (*Carpus carpio*), and a native carnivorous fish, *guapote* (*Cichlasoma manguensis*), while they worked equally as hard in teaching us how to live and work in Guatemala.

Between the four of us we covered the municipalities of Salamá and San Jerónimo in Baja Verapaz, which is one of the 22 departments comprising the country. We covered an area of approximately 225 square miles with an estimated population of 10,000, where we worked with some 40 farmers with ponds ranging from 75 m² to 1000 m². Our farmers were representative of the population of the area: approximately 50 percent *indigena* and 50 percent *ladino*. Many were subsistence farmers, with a yearly income of little more than \$1000, while others had more land and produced corn, black beans, tomatoes, bananas, sugar cane, vegetables, chickens, and cattle for sale at local markets.

The core of our daily work was extension visits to assist these farmers in developing their own fish ponds through siting and constructing ponds, carrying fish to ponds to stock, teaching about feeding and fertilizing ponds, and keeping records of growth rates and harvests. A monthly schedule would include at least one visit to each farm that already had a pond established, and frequent visits for those building ponds or just starting out. A typical visit



The author and Charlie behind Pancho and his family

would involve traveling by motorcycle to the site, sometimes through rivers and over rough roads, or hiking two to three miles to farmer's houses, carrying equipment, fish in a bag in a backpack, or PVC pipes for drains. We ventured into areas where people had never seen local government before let alone a white lady speaking formal Spanish and this *indigena* sidekick who traveled with her. We would appear at people's doors who were not expecting us, although it was written on their calendar on their front door. To some we remained a novelty. But to several our visits were a time to talk about the world, marvel at some bit of news on the radio, discuss the rain, and have a cup of coffee. Then we'd go look at the pond, perhaps sample to see how the fish were growing, discuss feeding, and plan harvests. A county extension agent in Alabama once told me that you have to approach extension work via the back door to be successful; rather than take a formal approach of only talking about technical issues, one has to spend time talking about all the things that are important in people's lives as part of one's work. That became our mode of operation in Guatemala.

Pancho, Angel, Charlie and I all worked out of the same office located at a regional government fish station in San Jerónimo that produced tilapia, carp, and guapote fingerlings for farmers to stock. In addition to working with local farmers, we assisted the fish station manager in constructing holding tanks and re-constructing water and draining systems for some of the station's 20 ponds to improve the management and harvest of fingerlings.

Charlie and I also ran several aquaculture training workshops for both farmers and Peace Corps trainees at the station. Our emphasis was on utilizing feeds for aquaculture made of plants and agricultural by-products available at no or low cost to farmers. In addition to training farmers about basic feeding strategy and fish nutrition, we worked with them to identify sources of feed other than using a prepared chicken feed. Given this work on feeds, our location at a fairly well-run fish station, and the strong skills of our counterparts, we also coordinated Peace Corps aquaculture training programs for new groups of volunteers.

As part of the countrywide program, we attended regional meetings where the volunteers would discuss with DIGESEPE and CARE representatives work being done at each of our sites. From those meetings and larger volunteer meetings, our Peace Corps group encouraged and convinced DIGESEPE and CARE to develop a long term strategic plan for small-scale aquaculture for the country that focused on increased training of counterparts, phasing out of volunteers, and strengthening of local fish stations. Through these meetings and discussions, our counterparts and those of other volunteers began to network. As a result, DIGESEPE began to recognize them as a group of technical specialists separate from the volunteers.

Was this a successful program? Physically Guatemala is a good candidate for aquaculture: there is more than sufficient water, good soil, and fair topography in many parts of this Ohio-sized country. But there are other aspects of Guatemala that limit its potential to develop a small-scale freshwater fish culture industry.

The targeted audience for this aquaculture program was the rural subsistence community. The 50 percent who are of direct Mayan descent maintain their traditional language, dress, and customs that have changed little for many centuries. The ladinos sometimes had more land but were subsistence farmers, raising mainly corn and beans to support their families. This raised many problems for program development. First, farmers owned a limited amount of land, most of which was planted to crops that either were consumed by the extended family or had a definite local market, such as bananas or tomatoes. To use land and water on a pond was often looked upon as a sacrifice of valuable



Angel's pond, behind his house, is a typical example

resources. Consequently, many farmers invested only a small amount of land into a pond which was often unsuitable (poor drainage, lack of water, inaccessible) and little time was dedicated to a pond's care. Resultant low harvests in these ponds did not serve as impetus for the farmers to expand.

Secondly, the program encouraged growing fish for a profit and hence, following feeding regimes to grow fish quickly and efficiently. Not only was feeding fish difficult financially for many farmers to do, it also did not make economical sense in many situations: a family could eat the same corn or rice being used to feed the fish. Additionally, this idea of feeding animals regularly was a foreign concept in relation to how they managed their other farm animals. Most of their domestic animals foraged far and wide for their food and the farmers knew from experience that fish grew in the rivers without anyone feeding them. Efficiency and length of time to harvest were also not of concern to many of them. Many farmers preferred to let the fish grow for a long time, letting them get as big as possible and, as they did with their chickens, taking out one or two fish when they wanted a meal. Consequently, only a few farmers regularly fed their fish. Our workshops helped some farmers get a better understanding of feeds and nutrition and resultant benefits from following such regimes, but those who attended our seminars were usually those who already fed their fish.

And related to all of this, although everyone loved to eat fish in Guatemala, it was viewed as a luxury food by most, caught occasionally from rivers and lakes or bought (salted marine fish) on holidays. Because of that, the pond and its fish were again viewed the same way as their other livestock—there for special occasions but not a constant source of food or economic gain.

However, the program was beneficial for the country in several ways. Communities and government agencies are now aware of the concepts of aquaculture through the education and extension efforts of Peace Corps. If the economy improves, farmers with sufficient land may be able to diversify their crops further and could consider producing fish for regional markets. As part of the agreement with CARE, our counterparts were hired as extension agents by DIGESEPE in 1985; many of them remain in those positions today. Hence, the government is now better prepared to assist communities with aquaculture development, and could assist this through market development and linking



Pancho and a farmer install drainage pipe in an earthen dike

markets with incentives and loans for farmers to develop ponds on their farms. Additionally, as Guatemala stabilizes politically, the potential will grow for larger companies to consider tilapia culture for export markets, similar to current efforts in Honduras and Costa Rica.

Our counterpart training efforts were the most significant component of our careers as Peace Corps Volunteers. Pancho had been able to complete only a few years of elementary school, but was known in the community as a solid, dedicated worker. As an *indigena*, many considered him lower in social class than *ladinos*. Although some workers at my government agency had tried to discourage me from hiring him because of that, he continued to impress those same people with his level of responsibility and capability as he worked steadily as an extension agent. Our training efforts focused on teaching them the math, science, and concepts of aquaculture. By the time we completed our two years of service, Pancho and Angel were essentially running the agency's extension program in San Jerónimo and Salamá. Consequently we recommended the two of us being replaced with only one volunteer, and by the end of our successor's term, Pancho was working as the extension agent for the municipality of Salamá. As the only *indigena* extension agent in our DIGESEPE office, he was respected as conscientious. Last Christmas we received a fancy holiday card from Pancho and his family. No note was included but his title embossed below his name said it all: *Jefe de la Estación Piscícola*, Director of the Government Fish Station.

Our individual work with farmers and communities resulted in information transfer, too, but to a more limited degree. Like farmers worldwide, the people we worked with were good at making do with little and improvising tools, methods, and materials. One of my more successful farmers was missing his right hand, had only a child's bicycle for transportation, and worked sporadically for farmers and contractors in the area. But he did have a small amount of land, and almost single handedly built a 100 m² pond, persuaded a local chicken grower to give him manure that he collected, and regularly carried feed and fertilizer the 1.5 miles to his pond on his bike. Hard work was not a deterrent for those with whom we worked.

Perhaps our biggest contribution to farmers was that in addition to introducing farmers to a new alternate crop, we also focused on helping farmers analyze if it made economical sense for them to grow fish. Did he/she have sufficient land, water, resources, feed, and access to markets, and was fish culture the most profitable or economical use of her/his land versus a different crop? For many of these farmers who produced just enough for their families and sold the extra occasionally at

market, this was a difficult concept. Yet, of the farmers I worked with, there were two farmers that I viewed as my most successful, even though neither one succeeded in aquaculture beyond producing some fish for their families. Instead, they were fascinated with this approach—which was new to them—of looking at their farm as an investment that needed to be evaluated and managed. They applied this same thinking to their other crops management and improved their yields and diversified their crops.

Many ask what impact this experience has had on me. My Peace Corps experience has influenced everything I have done since leaving Guatemala. Following Peace Corps, I worked as a trainer in South Carolina for the same U.S.-based Peace Corps aquaculture training program I had undergone. That led me to conduct two training programs in Honduras and Ecuador for the Peace Corps for volunteers in those countries and also motivated me to complete a Master of Science at the University of South Carolina in Biology while working on international training programs in fisheries and coastal management. The skills that I started to develop in Guatemala, such as approaches to problem-solving, planning, extension, and communication, I use daily in my work now as a human resource development extension agent with the University of Hawai'i Sea Grant Extension Service.

And that time in Guatemala taught me a great deal about the challenge of being accepted as a technical resource in a non-traditional female role. There I constantly had to battle with the multiple stereotypes associated with being this blonde, "clear-eyed" American woman. It was difficult and I almost quit at the beginning. But I stayed and I am glad I did, since the experience and my travels and work since then have taught me a great deal about myself. It is that self-awareness that continues today to allow me to appreciate the uniqueness and strength each individual has to offer in solving problems related to global resources and community development. And beyond all of that, the friendships, the often hilarious experiences, and the memories of Guatemala are still an important part of me.

Four years ago, Charlie and I returned to Guatemala. Time moves slowly there. People came up to us and asked where we had been since they had not seen us for awhile. As if we had been gone for a vacation, not five years. Children are now teenagers and new babies have appeared. More families have members who have left to try their luck crossing the Rio Grande to make money working in New York City and other places to the north. The ponds? A few of them are still functioning, some are harvested occasionally. But what people thought of first was how hard we worked and how they appreciated our efforts. I went back to one farmer's house who still takes care of his pond, harvesting every so often. We had coffee, looked at pictures of children, talked about the story on the radio about pet cremations in California ("do they really spend money on cremating pets?!"), talked about his new crops, and then, we walked out to the pond.

Sharon Ziegler is an extension agent and program coordinator with the University of Hawai'i Sea Grant Extension Service for their cooperative marine extension program in the U.S.-affiliated Pacific islands of the Federated States of Micronesia, the Republics of Palau and the Marshall Islands, American Samoa, and the Commonwealth of the Northern Marianas. Her B.A. in Biology is from Grinnell College in Iowa and her M.S. in Biology is from the University of South Carolina. Following Peace Corps she worked as a trainer for the Stateside aquaculture training program for Peace Corps run out of the University of South Carolina as well as coordinated aquaculture extension training programs for Peace Corps in Ecuador and Honduras. As a Latin American Specialist during graduate school, Ziegler assisted with international training programs in fisheries and coastal resource management.

ABOUT THE PEACE CORPS

JAMIE WATTS

The Peace Corps is an independent agency of the United States government established through the vision and efforts of President John F. Kennedy, who challenged Americans to dedicate two years of their lives to help people in developing countries. The Peace Corps Act of 1961 defined Peace Corps' mission to promote peace and friendship by making available willing and qualified U.S. citizens to interested countries to achieve the following three goals:

- To provide Volunteers who contribute to the social and economic development of interested countries;
- To promote a better understanding of Americans among the people who Volunteers serve; and
- To strengthen Americans' understanding about the world and its' peoples.

Peace Corps carries out this mission by sending Peace Corps Volunteers to work in partnership with people at the grass roots level of their host countries. Each Volunteer becomes an integral member of a local community, transferring skills directly to local people and working through a long-term country strategy so that the Peace Corps' efforts may last long after the Volunteer's period of service.

Peace Corps programs are developed collaboratively with host-country governments, focusing on those areas where the need is greatest and where Peace Corps is best able to respond. Volunteers focus their activities in the key areas of agriculture, economic development, education, the environment, and health. Volunteers go through a rigorous application process where they are screened to match the current needs. Volunteers generally serve for a two-year term and receive intensive technical, language, and cross-cultural training prior to the beginning of their service. At the end of their tour, former Volunteers return to the United States to share their experiences.

Who are Peace Corps Volunteers?

Currently, nearly 7,000 Volunteers are serving in the Peace Corps. The average age of the Volunteer is 29. Approximately 55 percent of all Volunteers are female. Most Volunteers have bachelors degrees and enter their Peace Corps service as recent college graduates seeking practical experience. Some have several years of related work experience or graduate degrees before joining Peace Corps. More experienced professionals also join Peace Corps looking for new challenges and new ways to apply their skills. Currently, about eight percent of all Volunteers are over 50 years of age. These older Volunteers have many years of experience to offer and are often highly respected by their host country counterparts and communities.

How to become a Peace Corps Volunteer

Environment programs are one of the fastest growing technical areas in the Peace Corps. In 1989, eight percent of

Volunteers worked in environment programs. By 1996 that percentage had grown to over 18 percent. To fill this demand, natural resources professionals are needed in the following areas:

Forestry Volunteers promote sustainable forest management, tree nursery development and management, fruit tree planting, agroforestry, and watershed management.

National Parks/Biological Diversity Volunteers provide support to national parks to slow the loss of biological diversity, survey and mark park boundaries, train interpreters and environmental educators, establish visitors centers and museums, develop ecotourism and park management plans.

Wildlife Management Volunteers reinforce local efforts to protect threatened and endangered species and promote sustainable wildlife management.

Environmental Education Volunteers work to promote wise use of natural resources through education activities including teacher training, media campaigns, school-based and community-based environmental education programs.

Non-Governmental Organization Development Volunteers work with NGOs to increase their ability to plan, organize, support, implement and evaluate activities to promote conservation.

To meet minimum qualifications for Peace Corps service, applicants must be U.S. citizens, in good general health, and at least 18 years of age (although few applicants under 21 have the skills and experience to qualify). There is no upper age limit. Married couples without dependent children may be accepted but both spouses must qualify for a Volunteer assignment.

Volunteer selection is based on a competitive application, evaluation, and invitation process. An environmental degree or experience is in itself a desirable qualification.

Other steps that can be taken to enhance an applicant's prospects include:

- developing leadership skills and community involvement through community organizations, youth leagues, or other activities;
- earning a good grade point average;
- studying a foreign language; and
- pursuing an internship or gaining experience in an environment related field.

Benefits of Peace Corps service include:

- living and housing allowance during service;
- transportation to and from the country of assignment;
- language, technical and cross-cultural training;
- medical and dental care;
- possible student loan deferment or forgiveness;
- \$5,400 readjustment allowance after 27 months of service and training; and
- easier access to federal jobs upon return.

To find out more, or to receive an application, call (800) 424-8580.

Protecting and **restoring** the environment

Peace Corps' environment volunteers work on a wide variety of projects in **interesting** places

Jamie Watts

For 35 years, Peace Corps Volunteers have been working as partners with people in developing countries to encourage economic and social progress and, at the same time, to strengthen the bonds of friendship and understanding between Americans and the people of the developing world. In recent years, Volunteers have expanded their efforts to protect and restore the environment and promote the sustainable management of precious natural resources. As the next century approaches, one of the most important environmental challenges is to translate the policy ideas about sustainable development discussed at the "Earth Summit" and other international forums into effective action at the *local* level, where the needs are often the most pressing, and the prospects for success are often the most promising.

In 1996-97, nearly 7,000 Peace Corps Volunteers are working at the grass roots level in more than 90 countries. These Volunteers bring a spirit of commitment and determination to these countries, and with support from a professional in-country staff and long-term development strategies, they are well positioned to play a key role in responding to this critical challenge.

Peace Corps' Environment Programs

Working in partnership with governments, non-governmental organizations (NGOs), and local communities, the Peace Corps supports national and community-based efforts to protect fragile environments, conserve natural resources, expand public awareness about the environmental issues, and help find solutions to environmental problems. Because the well-being of people is inextricably linked to the health of the environment, Volunteers focus their talents and energies on enhancing the quality of the local environment.

In 1996, approximately 1,200 Environment Volunteers are serving in 52 countries and constitute nearly 18 percent of all Peace Corps Volunteers serving around the world. Environment Volunteers are employed in

forestry, environmental education, parks and wildlife management, and non-governmental organization development. Environment Volunteers are fairly evenly distributed between male and female.

•**Forestry** This is the largest technical area in which Environment Volunteers are working. Forestry Volunteers promote sustainable forest management, community forestry, and agroforestry. They also work with communities to improve the management of tree nurseries, orchards, and watersheds. Some Volunteers are working with forestry departments overseas to support traditional forestry programs. They help conduct inventories, develop forest management plans, provide extension services to individuals and communities, and conduct regeneration surveys. Other forestry Volunteers build and manage tree nurseries to promote and facilitate the planting of fruit trees and other important species.

Volunteers working in agroforestry are also promoting the introduction and management of multi-purpose trees and shrubs in agriculture landscapes and systems. When they are planted within agricultural systems, trees can provide a wide variety of benefits to the local environment. These include the natural fertilizing effect that nitrogen-fixing trees can have on agricultural soils, the shade and wind-break effects of tree cover, fodder provided by tree leaves, and increased diversity of cash crops, such as wood and fruit. Trees in agriculture systems also provide ground cover, stabilize soils, and provide habitat for animal species.

Community and social forestry techniques encourage people in the local community to participate in forest management and decision-making. This may involve introducing new forest management practices, environmental education to increase awareness of environmental issues, and a variety of community participation activities and strategies. Community participation in decision-making around natural resources can be a complicated job. Therefore, Peace Corps Volunteers conduct their activities in close



collaboration with host-country agencies and in concert with the laws and policies that govern public involvement and land-tenure issues.

Peace Corps' Community Forestry Extension Project in Thailand provides an example of Environment Volunteers at work. In Thailand, Volunteers are working to increase the annual income for farmers through the increased planting and sale of economically valuable tree crops. Volunteers work with local foresters to develop demonstration plots, teach farmers to incorporate fruit or fast growing trees into their agriculture systems, develop tree nurseries, and assist extension agents in conducting training.

•**Environmental Education** Expanding the public's awareness of the environment is fundamental to conserving and managing natural resources. Environmental Education Volunteers are working on a number of successful projects around the world to strengthen understanding of the environment and encourage solutions to environmental problems: (1) Volunteers are working with teachers and students in schools to introduce environmental themes into education curricula. (2) They are working at parks and protected areas to develop interpretive programs and materials that help people understand the natural resources around them. (3) Volunteers collaborate with farmers and communities to promote the planting of trees and other conservation practices. (4) They work within the school systems in developing countries to promote the development of environmental education programs and teacher guides at the national or regional level.

For example, in Jamaica, Peace Corps Volunteers are working to increase the level of awareness and knowledge about environmental issues and concerns so that people will change those behaviors that contribute to environmental degradation. Volunteers are working with NGOs, community groups, and schools to conduct environmental stud-

ies, develop mangrove management plans, and organize recycling programs. In Russia, Volunteers are working in preserves and protected areas to increase environmental awareness. Several are posted at the Sikhote-Alin Reserve, the home of the Siberian Tiger, to develop environmental education programs and ecotourism activities.

•Protection of National Parks and Wildlife Volunteers are providing support to national parks to slow the loss of biological diversity, survey and mark park boundaries, train interpreters and environmental educators, establish visitors centers and museums, develop ecotourism, and prepare park management plans. Other Volunteers focus more on wildlife management work, including reinforcing local efforts to protect threatened and endangered species, promote wildlife-based tourism, conduct surveys and research of wildlife populations, and determine sustainable harvest levels. A key component of the Peace Corps parks and wildlife program is to train individuals and to work with communities and local or national institutions to help them manage their wildlife and protected areas, to conserve biological diversity, and to generate long-term economic benefits.

Uganda, for example, is one of the most biologically diverse countries in Africa. Yet rapid population growth, poverty, and civil strife are threatening forest reserves and wildlife populations. Peace Corps Volunteers, therefore, are working with counterparts from the Ugandan government and other organizations on conservation education programs, park guide training, nature trail construction, ecotourism development, and activities to improve the standards of living of people living near protected environmental areas.

In the Philippines, Volunteers collaborate with the Department of Environment and Natural Resources to improve management in 16 protected areas. They helped carry out biophysical surveys, organize agroforestry associations in communities living near protected areas, and conduct environmental education workshops. One Volunteer worked with a group of indigenous people to help develop their skills as tour guides for ecotours in the adjacent protected area.

•Non-governmental organization (NGO) development

Among the most important actors in efforts to protect and restore the environment are the rapidly expanding number of NGOs around the world. Volunteers are working with local NGOs to improve their ability to plan, organize, support, implement, and evaluate activities to promote environmental protection and conservation.

Environmental NGOs include a wide variety of small or medium sized non-profit organizations, which are managed and operated by local people to fill a community need that cannot be filled by government services. For instance, Volunteers may help train NGO staff in strategic planning and other basic management skills.

In Eastern and Central Europe, for example, Volunteers work with NGOs and local governments to increase public participation in decision making about environmental issues and overcome years of environmental neglect in the "Black Triangle," one of the region's most polluted. In Uruguay, Volunteers work with local environmental NGOs to strengthen institutional and administrative capacity, and to generate public support for, and participation in, conservation efforts.

Local support and sustainability

Local support, local capacity-building, and local participation are fundamental principles of the Peace Corps. The personal ties that Volunteers develop during two years of service in a community overseas are crucial elements that the Peace Corps brings to broader collaborative efforts (including those involving other U.S. government agencies) to encourage sustainable use of natural resources.

The Peace Corps uses several strategies to establish sustainable programs and local-level support. For example:

- Volunteers work as part of a long-term strategy developed between the Peace Corps and the host country.
- Peace Corps' long-term strategy often includes a multi-tiered approach to problem-solving, with work focused at the community, regional, and national levels of society.
- Volunteers live in communities, often with host-country families so that they teach, learn, and interact continuously during their period of service.
- Volunteers learn the local languages and live at the same standard of the local people.
- Volunteers focus on training and building the capacity of the people they serve in order to increase the prospects for sustainability of their projects.

Peace Corps develops long-term programs collaboratively with host-country governments, so that there is commitment to a set of mutual goals and objectives at the national level as well as the local level. In addition to efforts by Volunteers, Peace Corps staff play a key role in developing commitment and capacity with their counterparts in the national government. These staff (the Associate Peace Corps Directors) are often nationals of the host country and are well-

respected professionals in their fields. They work closely with counterparts in the government to develop long-term programs. These programs often include training and workshops for government officials to introduce new concepts and techniques.

Another key component to developing sustainable programs is working with diverse groups within the community to develop natural resources management capacity. Volunteer projects often focus on women and out-of-school youth to encourage their participation in conservation activities and projects.

Women in Development

The Peace Corps has long recognized that women play critical roles in the social and economic development of their communities and societies. Many Volunteer projects are designed to focus on women because they are often most interested in working for change in their communities, yet have often been overlooked by other development efforts. The natural resource work many women carry out often goes unrecognized in some developing countries, since women's work is often seen as simply a part of their daily household tasks rather than as economically productive tasks. In reality, however, women have been natural resource users and managers for thousands of years. They have found and protected water sources, identified and used edible and medicinal plants, and harvested wood and other fuel sources for cooking and heating their homes.

To avoid the marginalization of women in developing countries, many Peace Corps projects now center on integrated projects that include both women and men and address their different roles, rights, responsibilities, and priorities. The philosophical basis for this broad approach has several components:

- Effective sustainable development will only occur when the needs and priorities of all community members are considered.
- The integration of women into the systematic examination of needs and priorities will lead to the identification of opportunities in project design and implementation that will strengthen projects and their overall impact.
- Including women from the problem analysis stage through the evaluation will bring women into projects as full participants, rather than keep them on the sidelines as helpless victims or passive beneficiaries.

Peace Corps projects and activities focused on women may be carried out by either male or female Volunteers. Some cultures, however, discourage contacts between the sexes, making it essential for female Volunteers to work with community women and males to work with men.

Some examples: Volunteers in Nepal are working with groups of women forest users to encourage sustainable forest management practices. In 1992, several hundred Nepali women were trained in community forestry concepts, and formed Community Forest User Groups for on-going training and support. In Cameroon, Volunteers introduced agroforestry and sustainable farming to both women and men to decrease soil erosion and improve soil fertility. In Albania, a Volunteer introduces solar water heaters into homes for women who are food preparers and principle gatherers of fuel wood. Solar water heaters reduce the frequency of wood collection and conserves firewood resources; the houses are cooler in summer and the family saves money. In Uruguay, Volunteers worked with a government ministry and Scouts to train women and men Scout leaders in park and forest management techniques in collaboration with park personnel.



the Partnership for Biodiversity, a collaboration among the Peace Corps, the U.S. Department of the Interior, and the U.S. Agency for International Development to conserve biological diversity and promote sustainable economic development. In partnership with developing countries, the program is designed to build the capacity of governmental and non-governmental institutions and promote conservation and sustainable use of biological resources.

Peace Corps is collaborating with the North American Association of Environmental Education and the Environmental Protection Agency to respond to requests from countries of Eastern Europe for environmental education books and resource materials. Through this effort, approximately 200 boxes of environmental education books and other resources will be supplied to environmental educators in 10 countries in Eastern Europe, and hundreds of educators will be trained in the use of these materials.

The Peace Corps also has a long standing collaboration with the U.S. Department of Agriculture's Forest Service to promote sustainable forest management around the world. This collaboration includes an interagency agreement that allows Forest Service staff to be granted leaves of absence to serve as Peace Corps Volunteers. Currently, there are a number of Forest Service employees serving as Peace Corps Volunteers. They bring the wealth of knowledge gained from Forest Service employment to bear on conservation in other countries. When their service in the Peace Corps is completed, they return to the Forest Service with valuable new skills and overseas experiences.

Youth and the environment

To address the unemployment problems of urban and rural youth, as well as the growing need for conservation workers, Peace Corps Volunteers are helping to create youth conservation corps that focus on at-risk youth in developing countries. Instead of ending up on the street, young people are learning conservation and leadership skills while contributing important work

to municipal environmental projects. For example, Volunteers in Costa Rica have organized youth ecology clubs, whose members conduct tree planting campaigns, sea turtle propagation, and community litter clean-up programs. Through their participation in environmental clubs, these young people become advocates for conservation within their communities.

Bringing skills back

No discussion of the Peace Corps' work in environmental conservation and natural resource management would be complete without a recognition that environmental problems are not unique to the developing world. The United States also faces many critical environmental problems and challenges. For example, Americans are struggling with issues related to sustainable resource management, environmental education, pollution, and the balance between economic development and conservation.

One of the Peace Corps' fundamental principles is that Volunteers who live and work in other countries return to the United States with new skills and a better appreciation for what it takes to solve problems. Nowhere is this more important than in environmental issues. Today, many former Peace Corps Volunteers are working for environmental NGOs, government agencies, and in private business to do their part to protect and restore America's environment.

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Photos: A Malian woman carries her ax on her head; Renee Welling, a fisheries volunteer in Thailand, with women at a local fish pond.

Environment Initiatives

•Integrated Programming The Peace Corps is integrating traditional environment activities with other technical areas to expand the scope of environment activities and enhance their impact: by conducting training workshops for Volunteers and counterparts from different technical areas, developing integrated project plans and, in some cases, locating a number of Volunteers in the same area of a country to encourage greater coordination. For example, since 1990 the Peace Corps has worked to link education and the environment by bringing environmental education into the classrooms. This approach expands environmental awareness and problem solving among thousands of students and introduces new teaching techniques and strategies to thousands of teachers. Environment themes in traditional subject areas can make those subjects more relevant to the student, many of whom will be better prepared to make informed decisions about the environment as adults.

The Peace Corps is promoting greater collaboration between business and environmental NGOs to bring together the planning and management skills of Business Volunteers and the environmental skills and knowledge of Environment Volunteers. Their goal is to encourage environmental protections and economic growth at the same time.

•Partnerships and Collaboration

Peace Corps collaborates with a variety of agencies and organizations on a number of projects. One of the newest partnerships is

A Management Column
by
Barb Springer Beck

G REENER

G RASS

Do you ever dream about working for yourself, working at home, and utilizing your talents on your own time and your own terms? If you do, you are not alone. In fact, you are decidedly "on-trend." Women know that while work is integral to life, it is not all of life. It has been difficult for us to achieve this balance we see as so important in traditional work settings.

Each of us had expectations of our employers and for ourselves when we joined the workforce as natural resource professionals. Most likely, those of us who "signed on" prior to the 90's, expected to spend our entire career with the agency or company that hired us. Job security, corporate or agency stability, opportunities for advancement, and a comprehensive benefits package appeared to offer the best of all worlds. So, what has changed and why are we dreaming these dreams?

Although for many years, job security in the private sector was strong, the past several decades has witnessed a serious erosion of this security. Mergers, downsizing, and plant closures affecting hundreds and sometimes thousands of employees are in the news daily. How many times as a state or federal employee have you greeted this news from the private sector with a sense of insulation and personal security, knowing that "it could never happen to me." As with many other management trends, government is following the path of the private sector in regard to job security. Previously stable resource agencies are being forced to respond to cuts in funding and full-time equivalents as never before, brought on by fluctuations in the support of Congress and the public. Reductions in force, known as RIFs, have now become a possibility in almost all agencies. There has even been discussion about completely eliminating some long-standing agencies, such as the U.S. Geological Survey.

The loss of certainty about one's job hits everyone hard, and especially those

government employees for whom security is all-important. In addition, changes in retirement systems have increased the burden on employees to save for their own retirement. At the same time, employees' share of health insurance costs has increased. Finally, reorganized (and downsized) agencies are under more scrutiny. This has increased workloads, stress, and the pace of change, while reducing opportunities for advancement. The civil servant, once held in high regard by members of the public is now viewed by some as a tax burden, and even as a threat to private property rights. Taken as a whole, it's no wonder agency employees struggle to remain motivated and productive.

Along with internal organizational changes, many factors affect the broader work and marketplace. Anyone considering a career change now or in the future should understand and take into account these external factors or trends. For more insight, let's look at a few of the trends identified by Faith Popcorn in her books *The Popcorn Report* (1991), and *Clicking* (1996).

Icon toppling, a trend observed and named by Popcorn and her company BrainReserve, refers to the widely-held "anti-big" sentiment. Anti-big applies to governments, as well as corporations. As a society we feel betrayed by those we once trusted, and are reluctant to place further trust in the very institutions we once held in high esteem. Alleged misdeeds and scandals surround our Congress, the president, the British monarchy, judges and law enforcement officers, and even highly-placed church authorities. Through no doing of their own, government employees can find themselves the recipients of this collective skepticism and cynicism. Compounding this negative situation, we may be disillusioned with government too, but still employed in the public sector.

Trading the rewards of traditional career success for a higher quality and slower pace of life is what the trend of **cashing out** is all about. Tell the truth, didn't you identify with Diane Keaton in the movie *Baby Boom*? As a harbinger of the cashing out trend, she quit her high-powered executive job and moved to the country to sell jam. The romance of small town, rural life presents an attractive alternative when viewed against the hectic pace, high-crime option of urban dwelling.

"There's no place like home" was Dorothy's mantra in the *Wizard of Oz*, and more and more people agree. **Cocooning** is the impulse to go inside when it gets too scary, to insulate and put a shell of safety around yourself. Where better to retreat, than at home? When you close your eyes do you imagine yourself in the middle of a Calgon bath commercial? Popcorn identified and named this trend years ago, and is credited with coining the verb cocooning.

Evidence supporting the accuracy of Popcorn's observations, is the growing number of subscribers to *Home Office Computing* (HOC), a magazine catering to home based workers. The feature story in the November 1996, issue of *Home Office Computing* is titled, "The American Dream: Be Your Own Boss." HOC Editor Bernadette Grey, reports that today there are 16 million people running their own businesses with fewer than 20 employees. Most of them are headquartered at home. The trend of cocooning combined with technological advances mean that businesses located in homes no longer need be disadvantaged. Even in rural areas, where my business is headquartered, technology has made communication and marketing easy through phones, faxes and the Internet.

Have you changed careers in your lifetime? Your experience may have been to change jobs within your company or

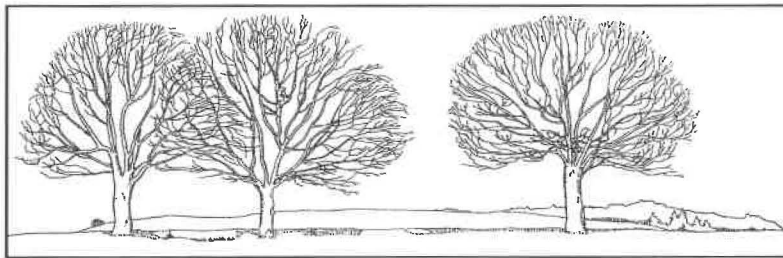
agency, or you may have switched employers out of necessity, or by choice, to pursue a new interest. If you have, you are part of the trend of **re-careering**. Re-careering and multi-careering are explained by Popcorn in her new book, *Clicking* (1996). Re-careering is a trend made possible and even necessary by the increasingly rapid rate of change around us. In a nutshell, it means changing careers and doing something different. Career changes may involve only a slight variation from one's past experience or may be something totally different. My colleague Elaine, worked 20 years as an archeologist for a utility company before switching jobs into the computer education field. Her far-sighted employer, recognizing her abilities and track record accommodated the switch internally and retained a loyal employee. She was able to keep her job security and benefits yet grow with the new challenges.

The capacity to learn is becoming prized as a new "meta-ability," one that affects our success in other endeavors. Education has shifted from a pursuit for the young, to a lifelong effort. Publications in the field of organizational development tout the benefits of becoming a "learning organization" and provide the steps to get there. According to Peter Senge, author of *The Fifth Discipline* (1990), a learning organization is "an organization that is continually expanding its capacity to create its future." Employees in learning organizations are challenged and expected to learn, and then to apply the new knowledge. Whether you work in a learning organization or not, personal learning could lead you in another direction, to re-career.

If you are relatively new to the workforce, more than likely you envision a future in which you expect to change jobs and even professions numerous times. This belief was not held by new employees 20 years ago. At that time, traditions within agencies dictated the steps which one would follow to attain certain positions such as Park Superintendent, Refuge Manager, or District Ranger. While largely benefitting women in the workforce by opening more avenues for advancement, it has become increasingly confusing to identify clear career paths within agencies.

While this can be difficult to sort through, it opens the door for wider use of employees' talents and re-careering within an agency.

As some women in the natural resource fields reach retirement, they may



find that opportunities for directing their experience and expertise in other areas, perhaps paid work or community service, abound. As we develop our individual capacities for learning, we'll find our opportunities expanding further.

Whether we realize it or not, these trends shaping the world around us are bound to influence our perceptions of our own work situation and possibilities for the future. Although the grass always looks greener on the other side, it's important not to lose sight of the fact that there are indeed tradeoffs with any choice we might make. If you feel dissatisfied, the first thing to do is take action to address those factors within your current situation that are causing the problem. If they are within your control, you just might be able to turn an unsatisfactory situation into a good or even great one without a major change.

If you have earnestly tried without success, to improve your present situation and made no progress, it's time to explore your options. But before you decide to strike out on your own, you need to assess yourself from three different perspectives: (1) your inner resources, (2) your personal situation, and (3) the external world. As you might guess, cashing out is definitely not the answer for everyone!

A hard look at your personal strengths, and the strength of your desire are in order. Are you an energetic self-starter with the emotional stability to handle the inevitable ups and downs every entrepreneur faces? Can you set your own deadlines and monitor progress? What type of work setting allows you to be most productive? Remember, it can be lonely without the coffee breaks and camaraderie of a typical office. Are you well organized, and do you have the self discipline and perseverance to stick with it when answering only to yourself? These are just a few of the questions you'll need to ask yourself if you are contemplating striking out on your own.

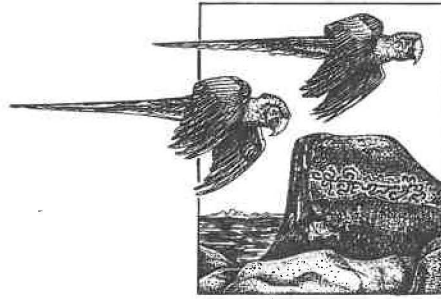
Once you have taken stock of your inner resources, you'll need to consider your personal situation, the demands of others on your time, your qualifications, and your financial well being. Is financial security your top concern, or do you have the flexibility to live for a short time on less income? If you need cash to start your business, how will you obtain it? Will your family commitments allow the time and energy that will be required, and can family members be counted on for emotional support? What are your health care and insurance needs, and how can you best meet them? Do you have the education you need to market yourself in your new profession, and do you understand your odds? Finally, you must be able to clearly see the niche you can fill.

Last, but not least, how does your idea fit with the larger trends upon which your success will hinge? Consider the trends above only as a starter list to examine. Although some of the trends may be pointing in a particular direction, you need to interpret and apply them to your own needs and desires. Work situations are anything but one size fits all. As the top decision maker in charge of your career, knowing what is important to you is the key to making sound decisions for your well-being and your future.

So, what's the upshot of all this change in the work world? In a nutshell, it can help explain our feelings of satisfaction or dissatisfaction with our own situation. Although we seldom stop to ponder it, each of us operates in a constant decision stream about our life and career. It's natural and healthy to take stock and recognize we have options. Choosing to exercise options can be exciting and challenging, while choosing to remain on our present course can be truly reaffirming.

Barb Springer Beck is President of Beck Consulting, a firm that specializes in meeting facilitation, and managing personal and organizational change.

Logo of the Ecotourism Committee, Las Marias: two scarlet macaws and one of the petroglyphs called Walpulbansirpi ("small, written rock" in Miskito).



Nielson sample, there were 238 tourists for the eight months he surveyed March 1994 to January 1995. There is a high variability in tourist numbers between months, and interestingly, the variation is not correlated with the rainy and dry seasons. The highest tourist months were April and August, followed by February, March, and November. The average for all months both years was 26 to 30 persons.

HONDURAN ECOTOURISM

Christy M. McCain

The Rio Platano Biosphere Reserve is located in the Mosquitia of Honduras, Central America. In 1980, it was declared a World Heritage Site by the United Nations and includes 250,000 hectares of lowland tropical rainforest, riparian river valleys, lagoons, beaches, mangroves and patches of pine savannah, as well as four indigenous cultures: the Garifuna, the Tahwakas, Miskitos, and the Pech. Las Marias is located in the core zone of the Biosphere; it is the last community on the River Platano in the heart of the tropical rainforest.

It is a small, traditional indigenous community with about 50 elevated, wood houses spread along the river and inhabited by the Pech and Miskito indians. The tourists come for the traditional dugout canoe trips, powered by locals who pole the canoe upriver to visit the ancient and mysterious petroglyphs on the river, and to enjoy hikes into the virgin rainforest to visit various hidden rivers, vista points, peaks, and to experience the rare and beautiful wildlife and flora of the area.

Ecotourism has existed in Las Marias and in the Rio Platano Biosphere Reserve for the last five to six years. It began slowly, spreading solely by word of mouth. It seems that each year more tourists are arriving in the zone, increasing in Las Marias, as well as in other parts of the Biosphere: Rio Sico, Ibans Lagoon, Brus Lagoon, and the coastal Miskito and Garifuna communities. Two other sites which are attracting visitors are the Butterfly Farm in Raista and the Marine Turtle Conservation Project in Plaplaya.

As the locals begin to see the benefits and the consistency of tourism, they have begun to supply more facilities and services, and started to better organize themselves. For example, in Las Marias, a local ecotourism committee was formed in July 1995, lead by a directive board of 13

leaders from the community. Throughout their 11 months (at the time of this report: June 1996), they have worked to set prices, rules and regulations of tourism; to organize and manage a list of guides with one guide from each family in the community, including single mothers; to organize and send each tourist group on their ecotour; and to manage donated funds for the improvement of ecotourism and the betterment of the community. They have also been learning to work as a group and to manage tourism professionally and fairly. They have set their sights on infrastructure improvement and courses to improve organization, guiding, food, accommodations, and security of visitors in the zone. Other organizations have begun to work towards similar goals within the Biosphere, such as the Butterfly Farm, and motorboat guides of the Rio Platano, Tingni Tara.

Data collection

Due to increased visitation and the need to manage and accommodate the tourists, a systematic investigation was begun in 1994 in Las Marias to collect data beginning with a formal questionnaire presented to each group of tourists. The first Peace Corps volunteer in Las Marias, Eric Nielsen, compiled the information from the questionnaires from March 1994 to January 1995. No data was collected during February 1995. In addition, data from a "visitor's book" which is presented by each lead guide the night before groups leave Las Marias allows each tourist to sign, give general information, and include their comments.

According to the book, approximately 319 tourists visited between March 26, 1995 and April 30, 1996. Of these 319 people, 103 filled out and returned the questionnaire (32 percent). While small, it is basically a random sample. In the

Who are eco-tourists?

The visitors came from 21 countries, but the majority were Europeans (47 percent) followed by North Americans at 28 percent. Other attributes in the 1995-96 survey: 47 percent were females, 53 percent males, the majority were between the ages of 20-29 (54 percent), they were most often professionals, and most came in pairs. The groups were friends at 64 percent followed by family at 20 percent. Eighty percent came without a guide although guide companies are well represented in the area including five or six who offer trips from Tegucigalpa, San Pedro Sula, Copan, and La Ceiba. Some 94 percent were first time visitors to the Rio Platano Biosphere Reserve and to Las Marias. The majority claimed to be frequent or extensive travellers and claimed to have heard about it by word of mouth (52 percent) or by reading guide books (36 percent). They came to the Biosphere by plane from La Ceiba to Palacio (89 percent) by boat (five percent) or walked the beach from Sangrelaya, Colon (six percent). To get to Las Marias, they rented outboard-motorized canoes (71 percent) or tuk-tuks (15 percent) which have small on-board motors, while a few walked the forest trail or rafted in.

Duration of the stay and nature of tourist activities

The average stay of tourists in the Biosphere is four nights and five days, with an average stay in Las Marias of two nights and three days. During the stay, 80 percent went on a trip upriver, and 45 percent went on a forest hike. While the river trippers sometimes spent an overnight upriver, very few of the forest hikers did. Activities included (in descending order): boat trips, hiking, visiting indigenous cultures, wildlife observation, bird watching, jungle excursion, camping, relaxing, exploring, backpacking/mountain trekking, botanizing, swimming.

Economic revenues and costs

The data collected from the tourists on expenditures were mostly incomplete and inaccurate. In addition, over the two year period of the study the Lempira was

devalued from L. 9.00 / U.S. dollar to L.11.00 / U.S. dollar, but real prices increased much higher than to accommodate the devaluation.

Revenues to Hondurans almost doubled due to price increases—even though the amount of tourism was approximately the same making tourism appear to be an economic benefit to the 80 guides and canoe owners of Las Marias. Each earned about L. 1,036 a year. The four pension (small hotel) owners collectively earned L. 12,760 in 1995-96; the few family-owned restaurants collectively earned L. 19,140 in 1995-96.

Ratings by the tourists

The majority of tourists arriving in the Biosphere were very happy with their experience: 80 percent stated excellent, and the other 20 percent said good. As for the experience in Las Marias, 83 percent stated excellent and the remaining 17 percent said good. In neither case did anyone say their experience was mediocre or disappointing.

Suggestions for improvement

Prices: The continual process of increasing prices causes problems. Since tourists compare prices to what they have heard and to what is written in the guide books, they think they are being taken advantage of when they are presented with higher prices. Some groups left Las Marias without going on river trips or forest hikes because they had not counted on higher prices. This will also deter other tourists from coming since the majority are young professionals who usually have a limited budget. More economic training for the locals is needed, including consciousness-raising about the need to couple cost analysis with facility and service improvements; and to explain that price changes in one part of the tourist chain in the Biosphere Reserve can have a negative impact on the more distant communities like Las Marias. Additionally, a net gain evaluation is needed between the two tourist profiles: the "backpacker" tourists and the ecotourism package-tour tourists, would lead to more consistent pricing scales based on the target tourists for the current situation.

Transportation to Marias: Additional training would be valuable for the river motorists to improve their customer service, price regulation, environmental interpretation, and safety. Tourists would like to see set prices and posted information about what is included. They sometimes disliked the hard boat seats and unreliable motors.

Guides: In Las Marias, only 17 percent stated their guides were mediocre or unsatisfactory. Many, however, stressed the need for more professional guides who

give more information on the rainforest, the flora and fauna, the local cultures, and who have knowledge of low-impact camping and professional treatment of clientele. Specific complaints were for guides to avoid fishing and hunting, smoking, throwing waste and trash in the river and to keep in mind that these are eco-tourists and all that that implies. (A guide course in September 1996 was completed with 52 local participants.)

Accommodations in Las Marias: Very few said accommodations were mediocre to unsatisfactory (14 percent). Many commented the food was good, the owners pleasant and helpful, and the rooms clean. Others complained of the lack of proper bedding, mosquito nets, drinking and bathing water, and the lack of latrines/waste disposal. To remedy this situation, there is a need for a course to educate the owners about hygiene, customer service, tourist needs, and customs.

Community resources: More maps and reference materials about the locale topped the lists of tourist needs. Purified water, rental equipment, permanent campsites, well-marked trails to be used without a guide, emergency communications, information center, emergency communication equipment, handicrafts, public transportation, and a larger variety of foods were further suggestions. Almost all of these have also been seen as necessary by MOPAWI (an indigenous NGO based in the Mosquitia), Peace Corps, the Ecotourism Committee, and the community. Hopefully, many of them will be available in the visitors center which is now under construction.

The future

The ultimate goal behind ecotourism in the Rio Platano Biosphere Reserve is to protect the unique and endangered habitat, species, and cultures found there. In order to be sustainable, the majority of the families in Las Marias need to benefit from this tourism. Since it is at a relatively low level, a gradual increase in numbers spread throughout the year would achieve this goal and Las Marias is prepared to handle such an increase. Mass tourism, however, is a significant danger, and must be avoided. Therefore, a study to determine carrying capacity or to develop a measure to indicate danger levels on the river, on the forest trails, and in Las Marias is needed. Publicity inside Honduras would be useful to get nationals to

A Biosphere Reserve constitutes a representative example of one of the world's major ecosystems and thus conserves genetically viable plant and animal populations in their natural habitats; provides sites for long-term research on the structure, functioning and dynamics of ecosystems, combines research and monitoring, environmental education, training and demonstration; and seeks the support and participation of the local people, in part through research contributing to their social and economic development. A biosphere reserve is not an enclosed, inaccessible sanctuary. It blends with the surrounding landscape.

B. von Droste zu Hulshoff

come to the region as well as luring those travellers already visiting. Outside of Honduras, however, publicity should still be by word of mouth; this decreases the likelihood that there will be a sudden rush of tourists which would cause severe problems.

Christy M. McCain graduated from Humboldt State University with a Bachelors of Science in Wildlife Biology and a Bachelors of Arts in Fine Art. She worked in the Mosquitia from July 1995 to December 1996 after spending six months working with COHDEFOR, the Honduran Forest Service, in the buffer zone of the National Park Sierra de Agalta in Dulce Nombre de Culmi, Olancho. She continued projects and activities that were started by two previous volunteers with the support and cooperation of MOPAWI, a non-governmental organization working towards the sustainable development and the conservation of the Mosquitia and the Rio Platano Biosphere Reserve.

This report is derived from McCain's official progress report to Peace Corps.

Photo: McCain and the Ecotourism Committee. They gathered to work on the visitor's center/community center in Las Marias supported in part by *Partnership for Biodiversity* consisting of USDI, Peace Corps, and MOPAWI since 1996.



AFTER SEVERAL YEARS IN PEACE CORPS-PARAGUAY, AND NOW WITH CARE, THIS AUTHOR REFLECTS ON "HELPING"

DEFINING DEVELOPMENT

CATHERINE PLUME

As my friends and family and I drove through the early morning Dallas rush-hour on a Thursday morning back in 1984, we caught the attention of the other drivers. We shared a bottle of champagne, watched the Today Show, and waved out the window of the stretch limousine my Mother and Father had rented to take me to the airport. It was a great tension breaker and it took my mind momentarily off the fact that I was leaving home for at least two years. At the airport, we said our good-byes, and I was off to Miami, the first stop on my journey to become a Peace Corps volunteer in the South American country of Paraguay.

My reasons for deciding to join the Peace Corps were not wholly altruistic. I had graduated from university the year before with a forestry degree, but I had studied forestry for a love of nature. Frankly, the idea of working in the southern timber industry depressed me, but at the same time I had no alternative plans. Eight months of bicycling and touring in Europe and the Middle East after university had taught me that I liked travel and adventure, but it hadn't brought me any closer to deciding my future.

Peace Corps offered me an opportunity for travel and adventure, to work in a different country, to learn a language, to use my degree—and to delay the reality of deciding my future for a while longer. If I could help people along the way—all the better.

As it turned out, my Peace Corps experience made a huge impression on me and has done much to determine my life to date. I was fortunate to have bosses and trainers who were dedicated individuals who believed in working at the grass-roots level. Our textbooks included the development cult classics such as Roland Bunch's *Two Ears of Corn* and E.F. Schumacher's *Small is Beautiful*. Our schooling in Paraguay, however, consisted of a vacant lot where we established a trial tree nursery and visits to the field to discuss forestry issues with rural Paraguayan farmers.



The author with Pinguino, taken in 1996

During my two years and three months in Paraguay, I worked with my counterpart Esteban "Pinguino" (yes, "penguin" in English) and together we established a tree nursery in the eastern part of the country not far from the Brazilian border. With Pinguino, I learned how to establish a tree nursery using locally-available materials. For fertilizer, we used manure from his family's livestock. For shade-structures, we cut bamboo and laid it over the seedbeds. Water came from a nearby well. We collected kilos of sour oranges and juiced them for their seeds. These we planted and then grafted with sweeter, more marketable varieties. These tree seedlings, along with "yerba mate" tree seedlings (a member of the *Ilex* genus, the leaves of which are harvested for a popular local tea), provided income needed to keep the nursery operating. At the same time, we grew "paraiso" (*Melia azedarach*), a relative of the chinaberry and leucaena (*Leucaena leucapholia*) and promoted these among local farmers as potential timber species.

I lived in a 10 x 15ft. house behind that of a Paraguayan family. While I could have lived in the nearby pueblo of O'Leary (O-lee-ar-ee in Spanish) where I would have had the amenities of running water and electricity, as I had always wanted to try living without these "basics," I opted to take advantage of my Peace Corps experience to do so. Here, I learned how

to wash my clothes in the nearby stream (though not nearly as efficiently as my Paraguayan "sisters"), to spend the evenings with candle-light, and to appreciate the extra light a moon offered.

During those two years and three months, I learned a great deal about how to operate a tree nursery, but I learned even more about the life of rural farmers. I learned how hard they work, often for so very little. I learned that the deforestation of the South American forests is not only due to exploitation by large companies but is also due to farmers like my Paraguayan family who wanted to find more fertile land so that they can perhaps break even on next year's crop.

I also realized that while I had all sorts of technical training, the (most-often) illiterate farmers I worked with were the experts in their world. To help them, I first had to listen and learn from them. They have reasons for doing everything they do; their livelihoods are too marginal to do otherwise. "Helping" people, I learned, was complex; I could not pretend to have the answers.

I also learned a great deal about life itself. I learned that Paraguayan skies are different from central Texas skies (although I never did really learn why—Paraguayan clouds are Paraguayan and Texas clouds are Texan?). I learned how rich I could feel because I had all the ingredients necessary to make orange-

flavored biscuits on a Sunday morning. I learned the joy of having quality time to spend with a good friend and the thrill of sitting alone and watching Haley's comet and a million other stars on a moonless night under a cloudless sky from my front yard. I know now what hard work it is to pick cotton and what it is to really sweat. I learned how very hospitable people can be even when they have very little.

There were some bad times, too. I learned to HATE the bull that chased me when I cut through "his" pasture to avoid sinking in the mud in the road. I learned the meaning of the word "lonely." I quickly tired of the "machismo" that is seemingly innate to many Paraguayan men (and too often is

The host family (with twin granddaughters) in 1996



encouraged by their mothers), and frankly I never grew accustomed to eating manioc (yuca) at every meal. I saw how frightened people were to live under a military dictator, and I heard then unbelievable rumors of the atrocities he committed.

A year after joining Peace Corps, my mother came to visit. A friend of mine and I took her to Brazil for the day and bombarded her with our experiences working in "development." We were sure we were doing "good" development; we were critical of "bad" development. I recall sitting with her in a restaurant and her saying, "I know this is a stupid question, but what is development?" I was speechless. My friend recovered enough to say, "That's not a stupid question. We don't know what it means. If we knew that, we wouldn't be here." He was right. And now 10 years later, I am still perplexed as to what development is and means, what makes it work and why it doesn't always work even when all the necessary elements are seemingly there.

The drought of 1985 hit Sahelian West Africa while I was in Peace Corps and brought development and relief aid theory even more into the limelight. My Peace Corps friends—many of whom I still count among my best friends today—and I discussed and debated the "appropriateness" of our development interventions at great length. In the end I was so moved by the meaningfulness of this development theme that I decided to pursue a career in international development. After I finished Peace Corps, I returned to the United States and eventually received a Masters in Watershed Management from the University of Arizona.

For the last six years, I've worked with CARE USA, a development organization working in some 36 countries. I've

worked with CARE in three countries—Togo, Mali, and now Bolivia. On most days I absolutely love my work. Currently, I oversee three agriculture and natural resource projects which together work with some 5,000 rural families. Our staff work with rural men and women to help them determine natural resource activities which will make their lives more sustainable. In Bolivia, this usually translates to constructing terraces and barriers for soil conservation on steep (I mean *really* steep) slopes. We also promote agroforestry systems, livestock management, small-scale irrigation systems, environmental education for adults and children, and because it is a need families have asked us to respond to, reproductive health. Among our staff, there are five Peace Corps volunteers—which is a nice way for me to give back to an organization that has had such an influence in my life.

I am still awed by the courage of rural farmers. Farmers in Mali cultivate in sand and farmers in Bolivia cultivate in rock. Yet amazingly they don't give up. These

men and women are true testimonies to human perseverance. I learn from them and am inspired by them and I try to teach our staff to do the same.

In July, 1996, I returned to Paraguay. It had been 10 years since I'd left. On a Saturday afternoon, I got off a bus at Pinguino's house, where to my incredulity, I found the tree nursery still in operation. Better still, I found Pinguino now with his own family; a wife and two very cute little girls. The next day, I traveled north to the area where my family had moved. "Estas de vuelta," (You're back.) the Senora said matter-of-factly, as though it did not surprise her that I had appeared on that particular day.

On my way back to the capital, I spent one night at a hotel I had frequented in my Peace Corps days. That night, on the terrace overlooking the city and beyond into Brazil, I was swept with the acknowledgement of how much of who I am today was born in those two years and three months spent in the Peace Corps. When I reflected on the feeling, I was surprised that I had not made the connection before. Maybe I had needed the distance and experiences of 10 years.

And I laughed at the memory of that day in Brazil with my mother (who later went on to be a Peace Corps volunteer herself!). I realized that after all these years, although I still cannot define "development," I have learned that good development, for me at least, stems from a respect for local people's knowledge and values and is based on the very basic lessons I learned about life in rural Paraguay in the Peace Corps.

Catherine Plume currently is the Regional Manager for four CARE projects in Sucre, Bolivia. Prior to that she worked for CARE in Togo and Mali. After returning from Peace Corps Paraguay, Plume traveled extensively in Latin America then bicycled around and picked grapes in France in order to learn French so that she could work in Francophone Africa. Her Bachelors is in Forestry from Stephen F. Austin State University-Nacogdoches and her Masters in Watershed Management is from the University of Arizona-Tucson.

Fish Heads are known in Peace Corps circles as the volunteers most likely to be in the "bush" posts: furthest away from services, maintained roads, and cold beer. We were the dirtiest volunteers, up to our knees in core trenches, diversion canals, or the pond mud after a harvest. Fish Heads lived fish.

On Becoming a **F**ish Head in Cameroon

Lauren Suraci Johnson

Sometime during my third or fourth month as a Peace Corps fisheries extension agent in Cameroon, Africa, I was trying hard to keep up with a flip-flop clad, machete-wielding, 30-something farmer ahead of me on the path. We were heading through densely vegetated forest, through well-tended coffee plantations, and freshly sown fields of peanuts, plantains, and pineapples, on our way to a potential pond site. He would soon clear it of vegetation and begin digging a pond which he would stock with fish to raise for food and profit. After about 10 minutes, I stopped to wonder at an amazingly bright, fire-engine red shingle fungus growing on a dead stick on the ground. "Hey!" I shouted in French, "come look at this!" He paused and turned in interest to see what I was so excited about. Referring to the fungus, I said, "Isn't it beautiful?" "Yes, it is beautiful," he agreed. He then added impatiently (for my having slowed us down for something so trivial), "but you can't eat it."

Few comments since that time have put me in my place so effectively. I was reminded that while my preparation in biology, anthropology, and fish culture was adequate training for the technical aspects of this job, there is nothing that replaces experience in the field and the development of plain old "people skills." While the apparent reason I spent two years in Cameroon was to teach fish culture, I really went to learn about another place and people. I gained much more than I bargained for. Learning people skills in this culture so different from mine was an immensely enriching experience.

"O.K.," began the Head Trainer, "go into this field and 'observe.' When you think you're done, come and see one of us." This was our first direction as new Peace Corps trainees in freshwater fisheries. In 1988, coastal South Carolina was the site of our training for 10 weeks, when 25 of us would pursue an intensive

course in teaching ourselves everything we would need to know about fresh water fish farming: site selection, pond construction, water chemistry, feeds and feeding, fish physiology and taxonomy, diseases, harvesting, accounting—and finally, teaching and extension. Our crew, about ?? percent women, all but one white, consisted of recent college graduates and master's degree holders, as well as people leaving careers in banking and finance and women who had crewed on fishing boats in the Bering Sea.

Our trainer's second question after three long days of "observation" in that field: "What do you want to do now?" I should mention that our trainer was a veteran among veterans in Peace Corps fish culture, a true Fish Head. Dressed in dark, combat-like clothes and aviator glasses, she stood at five-foot-two, her head topped with a mass of curly black hair. She had a quiet, understated way of making you listen—and making you nervous. Having spent three days "observing" a field of long narrow ponds used for disease vector research, I had satisfactorily proven that I understood that there were both macro and micro processes at work in the field, that we had under our feet an integrated system of inputs, processes and outputs—not to mention mosquitoes. I could now start learning something about fish farming.

I was assigned a pond in which to work and experiment, from which I would produce a report regarding pond preparation, stocking rates, feeding, fertilizing, and harvesting tilapia, a perch-like cichlid native to Africa. Along the way, I tracked O₂ and CO₂ levels, turbidity and temperature of the water, and reproduction and growth of the fish. Eventually, we would be learning how to situate and build ponds and fill them using a method called gravity-fed diversion. Only gravity is used to get water to the pond, without any pumps, and diversion is the method by which the water is brought to the pond by

means of digging a canal leading off the water source and into the pond. Training was interspersed with exercises in surveying, topographic map making, soil sampling, and dike construction—as well as library research into the processes at work in the water and the fish under our care.

I knew that the fish were embedding themselves into my subconscious. One night after a grueling six-day week, with 12-hour work days, I had a frightening dream: I was swimming underwater in my pond, searching for the 200-odd fingerlings I had stocked the previous week. To my horror, there were no little fish, only one huge specimen that had grown larger than I, by eating the other inhabitants of the pond. The monstrous cichlid approached me, mouth agape, when I awoke. It was a relief the next day to greet my fingerlings with a cast net and find the fish in the sample I caught were a predictable size!

At the end of the 10 weeks, armed with our knowledge, confidence to deal with ambiguity and stress, and first doses of malaria prophylaxis, those of us still looking for adventure arrived in Cameroon—for eight more weeks of training. The focus was now appropriate technology. Whereas in the United States we knew that ponds were constructed with bulldozers and often lined with high-quality clays or even plastic, we now learned how important a good clay core trench would be, particularly in wet sites or sites with sandy soil. The core trench—a two-foot-wide trench dug as the foundation of the walls or dikes—of the pond needs to be filled with a virtually impermeable compacted clay so that water inside the pond does not find an outlet underneath the dikes. Eyeballing distances in dense forest vegetation and learning analogies for stocking rates which a typical farmer would understand were other examples of our appropriate tech training. Commercial fertilizers were a

rarity in rural Cameroon, so building compost bins in the ponds would be crucial to promote phyto- and zoo-plankton blooms in the water. When the water is rich with plankton, it takes on a vibrant deep green color and allows only a few inches of visibility. To achieve this murky green ideal, the compost bins would be filled daily with locally available materials: leftovers from the kitchen, manioc leaves, rotten fruit, and ashes were all beneficial. Since a thick plankton bloom causes a night-time oxygen debt in the pond, the tilapia's hardiness to oxygen debt and fluctuation is its main strength. Tilapia guard their fertilized eggs and newly hatched fry in their mouths, making it that much more important that they are provided with plenty of food which they can ingest by filter feeding. Plankton is the key to ensuring strong growth throughout the cycle.

By the end of the appropriate technology training, which also included lessons in Cameroonian culture, motorcycle maintenance and riding, and language instruction, I had now joined the ranks of Fish Heads. Fish Heads are known in Peace Corps circles as the volunteers most likely to be in the "bush" posts: furthest away from services, maintained roads, and cold beer. We were the dirtiest volunteers, up to our knees in core trenches, diversion canals, or the pond mud after a harvest. Fish Heads lived fish. Actually the physical labor and technical knowledge involved in being a fisheries extension agent was the easy part. Finding interested, promising candidates who had viable pond sites was the challenge. It would be well over a year before I would really get my feet wet.

I was posted in a town of about 4,000 people in the East Province of Cameroon, about 4 degrees north latitude. French is the official language of government, but four distinct local languages are spoken within a radius of 50 kilometers. The area is at the edge of the equatorial forest zone, its rivers ultimately feed the Congo. Baka pygmies still hunt and collect honey in the region. Increasingly, the forest is selectively logged by French and German corporations, creating new logging roads and providing access for swidden farmers looking for fresh areas to clear for crops such as corn, manioc, peanuts, plantains and squash. As road access increases, cash crops such as coffee and cocoa are penetrating into deeper sections of the forest.

Most of the population is engaged in agriculture for their subsistence. Agricultural work is largely divided along gender lines. Women provide an estimated 80 percent of the food in their fields and have

considerable control of village resources as a result. The principal cash crop, coffee, is the domain of men's farming. Local women fish in dry season streams and men trap and hunt birds, forest antelope, anteaters, and monkeys for protein. Pigs, goats and chickens are kept but rarely raised intensively and are usually eaten only for special occasions. During periods of planting and harvest, men and women work together and often a village will work communally to maximize efficiency in agricultural work.

With some understanding of this system, I embarked upon presenting the idea of fish farming to villages in the Doume area. Many of the older people in the villages had some experience with the extensive form of fish farming using large barrage ponds introduced during the French colonial administration. I ex-



plained that diversion method fish farming would be more intensive, enabling a farmer to have more control over his pond or ponds, and would require very few or no materials that he didn't already have access to whereas a barrage pond is simply made by damming a stream and constructing a drainage device usually out of concrete and PVC pipe. Barrage ponds are often several hundreds of square meters in area and require extremely large and strong dikes, which are difficult to build by hand. Because water flows constantly into the pond, water is also being let out, allowing nutrients to leave the pond as well and making it difficult to promote a healthy plankton bloom. Diversion ponds, on the other hand, are only about 200 square meters in area and divert source water to the outside of the pond by means of a canal, eliminating the loss of nutrients from overflow and making the water level and plankton growth easier to control. When the site allows, several ponds can be built in succession, using the same diversion canal, and providing the

opportunity for the farmer to have a harvest every two, three, or four months. Fish ponds can become a valuable part of an integrated farm, providing beneficial fertilizers for fields from built up detritus, and water for livestock.

Tilapia, I explained to individuals and groups of farmers, can grow to 250 grams or more and 8-10 inches in length in six months when they are stocked at the rate of one fish per square meter and provided with plenty of food in the form of plankton which have been fed by the compost. I tried to explain that fish don't just drink water or eat only large insects to survive in nature, there are organisms that are almost invisible to the eye which fish eat by means of filters in their gills. Sometimes farmers were skeptical of this assertion until I gathered some water and pointed out the tiny zoo-plankton wiggling around

in the glass. With the help of a flip chart depicting the various stages of construction and management, I tried to get people interested in giving fish farming a try.

After about 50 presentations to individuals and village groups, speaking in French and using local language interpreters, I began work with five individual farmers who proved to have viable sites for diversion ponds. Perhaps because of the intensity of the physical work involved in building a pond (with women already claiming a large percentage of the agricultural labor), or perhaps because the harvest of fish could be considered a cash crop, men presented themselves as candidates for fish culture. More than likely, men had in the past been the sole recipients of "outside" help in matters of agriculture, particularly on the part of the French colonial government and more recently, aid to coffee growers, whose product sells on a world market. The men tended to take on the role of adopters of new technology, even when it was a woman teaching it.

One of the farmers with whom I developed a friendship adopted the role of teaching me about his village and life. His name is Tsagle Francois and he understood better than most how foreign I was to his culture, taking the time to explain things he sensed I didn't understand. Tsagle reached out to his neighbors to help explain why I was there and made me somewhat less of a foreigner as a result. He taught me how to listen to the liquid-filled base of a raffia palm for the tell-tale gurgle of the prized rhinoceros beetle grub. These white, fat, thumb-sized larvae are a local delicacy, and to be offered a plate heaped with hot, grilled grubs is to be honored, indeed. He was also an avid collector of palm wine and enjoyed teaching me the fine art of tapping and appreciating this West African staple. Two methods for tapping palm wine were used in the area. One involved climbing a palm, cutting a branch at the top and placing a jug under the cut in order to catch the liquid which flowed over the course of a day or so. The other method had the farmer cutting down the tree at the base and placing the jug at the bottom of the trunk. Each method had advantages and disadvantages, but both resulted in a morning jug full of sweet, whitish liquid, like the consistency of filtered orange juice. As the day warms, so does the palm wine, its sugar quickly fermenting into alcohol.

One day, Tsagle brought me to his wife's peanut field and, armed with a short handled hoe and a small basket tied about my waist, I planted peanuts. After cutting through the red brick-like clay soil to make a grapefruit-sized hole, I dropped one peanut. I covered the vulnerable looking seed with soil using the back side of the blade and moved forward about a foot to repeat the action. The entire time, I was stooped over at the waist, head bent, eyes down. Women do this for days on end, then gather firewood to break into pieces and haul on their backs and heads to their villages. Sometimes the village is three or more miles away. I lasted about two hours planting peanuts that day and had a sorer body than any day digging a pond!

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Tsagle was much more my mentor than I was his. The fish pond was the locus of our relationship, however, and I have never been happier than the day he drained the pond for the first time to reveal his harvest of fish. He had worked for almost a year preparing his site, digging his diversion canal and building the dikes with clay from the sides of the small valley below the spring which was the pond's source of water. He prepared the compost bins and bought about 200 fingerlings from the government fish station in the town of Doume. During this time he joined me on visits to other farmers' sites and, despite the hard work he was undertaking, he encouraged people in neighboring villages to try something new. In effect, he would be the extension agent in the years to come if his pond proved successful.

Two days before the day of his harvest, he began to drain the pond through an opening he made in the bottom dike. It was six months since he stocked the original 200 or so fish and they had grown to a size of about eight inches, judging from the samples we had taken. If he waited any longer, he would have lowered his return on the harvest because the tilapia's growth curve levels off considerably after they begin to reproduce at around six or seven months of age. Since the fish were stocked at the age of two months, they were now about eight months old and had probably reproduced two or three times in the pond. These original fish were grandparents and the pond was probably getting crowded. Without draining the pond completely, there is no way to know how many fish are in the pond and no way to maintain an optimal stocking rate. Tilapia are prolific breeders and, like all fish, will become stunted after time in overcrowded conditions. While the overall fish weight in the pond may increase, the fish adapt to these conditions by staying small. People in this area preferred a fish the size that could fill up a plate, so a six-month harvest was recommended.

The day of that harvest, the fish laid low in the pond mud as the water level dropped and it almost seemed as if the fish had all disappeared. With only a few inches of water left, their dorsal fins became visible and they started flapping around. Tsagle, his family and I gathered the fish by hand and with baskets, taking care to gently gather the two-inch long fingerlings first so that they could be kept in a small "bac de stockage" next to the pond to restock in a few days time. The larger fish were sorted by size and we weighed them in order to make a record

and get them ready for sale. Skeptics and supporters alike were excited to witness the harvest and cheer his success as well as enjoy the spectacle of us sloshing around in the mud.

A total of about 30 kilograms were harvested that day, a moderate harvest for the slightly less than 200 square meter pond. Tsagle and his wife sold about 2/3 of these fish to the people gathered on the dikes and gave the others to their family and neighbors. After cleaning the pond of debris and filling in the plate-sized depressions in the dikes that the fish used as nests for reproduction, Tsagle opened the diversion canal and began to refill his pond. He restocked his compost bins and counted out his fingerlings for restocking to begin the six-month growing cycle again. Financially, he probably broke even during this cycle. He had some improvements he needed to do to the pond, however, and could have had a better compost and plankton bloom.

It is difficult to assess how "well" he did in this brief time. Results are better tabulated over the course of three or four harvests. Whether or not Tsagle or other farmers continued with fish farming after my departure is not the most significant aspect of its introduction in the Doume area. The importance of fish farming in this case was in allowing people another option, to allow them to adapt it to their needs and lives. Furthermore, it was a potential catalyst for farmers to develop their own, sustainable agricultural innovations, particularly when options for obtaining protein were shrinking rapidly and help for crops not bound for the world market was rare.

For me, it was an often difficult, but very satisfying way to spend two and a half years. Back in the states since 1991, I am urbanized. While I'm not actually yearning for raffia grubs or a sore back, I miss the people, the palm wine, and the fish of Cameroon. Secretly, I am still very much a Fish Head.

Lauren Suraci Johnson is now a graduate student in Geography and Human Environmental Studies, San Francisco State University. Her Bachelor's is from Bryn Mawr College in anthropology with a concentration in Alaskan archaeology. She married a fellow Fish Head from Cameroon who now works for USDA. After Peace Corps, Johnson joined an environmental consulting firm for two years in San Francisco.

Photo: Johnson is with a farmer next to the fish pond he built.

WEST AFRICAN Environmental Education

GEORGANNE MORIN

After graduating from college with a degree in environmental science, I began working in the outdoor environmental education field as a Teacher/Naturalist for the San Joaquin County Outdoor School in La Honda, California. In this capacity, I found that I enjoyed the challenges of trying to motivate students to learn about nature and to foster in them an appreciation for the environment. Nature was my classroom; I used the majestic redwood forest, chaparral and California coast as my teaching tools. By combining hands-on, experiential activities with other non-formal teaching strategies, I was able to make complex scientific principles and environmental issues easy to understand. For me, environmental education meant teaching students to use their senses, appreciate, protect, and understand nature.

Working with students from San Joaquin County, California, also provided me with exposure to multicultural education. I was fascinated by working with students from many cultures and tried to reflect and affirm student's cultural diversity in my teaching.

After three years at the San Joaquin County Outdoor School, I decided that I needed a change. My interests in environmental and multicultural education led me to explore the option of working in the environmental education field in the Peace Corps. Because of my work experience and several years of high school French, I was assigned to the environmental education project in Sénégal, West Africa.

Sénégal

A relatively small country (about the size of South Dakota), with a population of 9,007,080 (1995 est.) It is located on Africa's bulging coast, between Guinea-Bissau and Mauritania. The capital, Dakar, is the continent's most western point. Because of its geographic location, Dakar was built into a modern industrial city by the French colonists.

The majority of the country, however, remains relatively undeveloped. Of Senegal's 192,000 km², forests and woodlands comprise 31 percent of the landscape, while meadows and pastures compose 30 percent and arable land only about 27 percent. In the

fertile central valleys beyond Dakar, peanuts were introduced by the French as a cash crop. Today, approximately 40 percent of the arable land is used to grow peanuts and they remain important to this mainly agrarian society's economy. Rice is grown along the banks of Senegal's two major rivers and figures in many Senegalese diets.

Farming is possible during the rainy season, which lasts from July to mid-October. This season is hot and humid, with temperatures ranging from 23-30 degrees Celsius. The length of the season and the amount of rainfall varies from region to region. Ziguinchor, in the densely forested Cassamance region, for example, may receive 93 days of rain each year with a rainfall of about 1,500 mm. Semi-arid Podor, in the far north, on the other hand, may receive as few as 30 days of rain, with a total precipitation of 350 mm. Following the rainy season is the dry season where temperatures range from 18 to 40 degrees Celsius, with almost no relative humidity. Hot, dry Harmattan winds blow from the Sahara and serve as a reminder of the encroaching desert.

Today, Senegal's ecology is changing rapidly. Disappearing vegetative cover and reduced rainfall are indicators of the alarming environmental degradation in the country. Severe winds erode much of the topsoil and decrease agricultural productivity. Wood is scarce, as trees are harvested at a faster rate than they are replanted. Much of the rural population in the central and north regions rely on cow dung as a major source of cooking fuel. Lowered water tables and increased salinization in certain areas greatly impact the lives of women who are responsible for the families' water needs. It is not uncommon for women to spend three-four hours each morning at the village well, where they pull many gallons of water from depths of up to 40 meters, then carry it on their heads to the family compound where it is contained in large oil drums. Although many villages now have mechanical pumps, these often break down and parts are expensive and hard to obtain.

Some of the ecological changes taking place are natural, but much of the problem is human-induced. The area has always experi-

enced cyclical draughts, but pasture overgrazing and the over-use of agricultural lands, coupled with poor agricultural practices and exponential population growth has exacerbated the problem. Past remedies have focused on quick solutions, mainly in the form of massive plantings throughout the country. After evaluating early efforts, however, conservationists realized that it was important to consider each of the ecological zones separately and to look to create sustainable conservation programs. Education came to the forefront as a key component in the effectiveness of these efforts.

The Peace Corps efforts

The first group of Environmental Education Volunteers arrived in Sénégal in 1991 and began 12 weeks of pre-service training: language, cross-cultural and technical components. Training is held at the Peace Corps Training Center in Thiès, about an hour northeast of Dakar. Training is intense; trainees are required to attend classes eight hours a day, six days a week. As French is the official language and necessary for working with government officials, most trainees learn it. Since the majority of the population, however, does not speak French, it is also necessary to learn a local language. Wolof is the most widely spoken language in Sénégal. Sereer, Pulaar, Diola and other languages are also spoken by different ethnic groups. Volunteers normally learn the language spoken in the area to which they are assigned. To aid trainees in language acquisition, each trainee lives with a local family and spends the majority of the time out of class with this family, experiencing the culture and practicing language skills.

The environmental education program began when forestry volunteers found themselves doing a substantial amount of agroforestry work in the schools. Thus, the technical component of pre-service training for the first group of volunteers was the same as for the forestry volunteers and focused completely on agroforestry skills. As time went on, however, the EE volunteers found that, in order to work effectively in the schools, they needed a background in pedagogy and educational theory as well as knowledge of agroforestry techniques. In response to these needs, lesson-writing skills were introduced into the EE training program. The 12-week technical training which I received, included both agroforestry and pedagogic components. We were also given opportunities to prepare and deliver EE lessons in a primary school, as it was understood at the time that this was what our job would mainly entail.

The Schools

Ultimately, I did very little actual teaching. Instead, I acted more as a consultant

and assisted teachers in the creation and implementation of a sustainable environmental education program in 10 rural primary schools. Much of the early ambiguity in the program was caused by the lack of either an official project plan or a formal memorandum of understanding between the Ministry of Education and Peace Corps. Essentially, volunteers created the program on their own as they went along in response to what they perceived to be the needs of the school teachers and children.

Although Sénégal has been independent since 1960, the educational system is still very Eurocentric and all teaching is done in French. French is the official language and the main goal of primary school is French acquisition. This is taught through memorization and repetition. Although students are taught science, social studies, history, geography and math, subject-matter comprehension is low as students struggle with the French.

Education is town/city-biased; textbooks use references and subject matter that are foreign to most rural students. For example, one of the first lessons I watched in my village primary school used a text about two Senegalese children going to a supermarket in town to buy various packaged foods. Most of the students in the class had never left the village, and so had no experiential base for understanding this lesson.

As competition for admission into junior high is stiff, only a very small percentage of rural students are able to proceed to the higher grade levels. One school I worked in, Ndioufène, was a typical rural school. Last spring, the CMI class (sixth-graders) took the junior high entrance exam. Out of the 30 students in the class, only one passed the exam.

Presently, the schools are undergoing reform. The Ministry of Education (MEN) recognizes that the current educational system is not designed to meet the needs of the majority of students who live in the rural areas. The MEN is now striving to make primary school more applicable to the realistic futures of the rural population. At present, about 38 percent of the total population is literate. The literacy rate among females is a mere 18 percent.

Rural life

I swore-in as a Peace Corps Volunteer at the end of May 1994 and left for my village to begin my life as a rural-based environmental education extension agent. I was assigned to the village of Gappo, in the region of Diourbel (located in the heart of the Peanut Basin) about an hour and a half east of Dakar.

Gappo is a small Sereer village with a population of around 600. Sereer villages

are very spread-out, with clusters of family compounds built in the middle of the family fields. The school year was just ending and the farmers were preparing the fields for the coming rainy season. The area is semi-arid and cultivation is only possible during this four month season. The soil is extremely sandy and nutrient-poor. After the harvest, the fields are cleared, leaving the topsoil exposed to the almost constant winds that blow through the area. The villagers grow peanuts, not only as a cash crop, but also for making sauces and cooking oil. In addition, they grow millet and black-eyed peas, which are their main dietary staples. My village has no electricity or running water. The women pull water daily from a 35-meter well to accommodate their families' domestic needs.

In Senegalese culture, family is very important and few people live outside the extended family structure. Thus, most village-based volunteers in Sénégal are placed with a local family and assume a role in that family appropriate to their age and gender. I lived in Gappo with the family of the Bathie Diouf, president of the Association des Parents d'Elèves (similar to the American PTA) for the village primary school. Bathie welcomed me into his family, and I assumed the role of his sister. His father became my father; his wife, Adama, was my sister and my best friend. I even adopted the Diouf family name, and called myself, Lobé Diouf. The village built a millet-stalk hut for me, which was located in the family compound. In this way, I became fully integrated into the family and village life. Living the realities of village life was an incredible experience. It also greatly helped me in my work. As the EE program was designed to meet the needs of the rural population, it was imperative that I understood the particular challenges which the villagers faced.

The teachers, however, were less enthusiastic about being part of village life. The overwhelming majority of teachers with whom I worked came from the larger urban areas. To become a teacher, one must complete a one-year program at one of the four national teacher-training schools. Admission to these schools is fairly competitive. The minimum admission requirement is a junior-high school degree, although most teachers have a high school degree and sometimes a little university experience. Typically, the beginning teachers are assigned to the rural areas. Once established, they can request a transfer and slowly work their way back to the cities. Many of the teachers who work in the rural schools are willing to commute long distances from the larger towns and almost all of them spend their summers and holidays with family back in the cities.

This proved to be an important factor in implementing the EE program. As one of the

goals of the EE Program was to increase community participation in the school projects, it was essential that the teachers made efforts to become a part of the village community. Ibrahima Ba, the school director in my village, Gappo, for example, was very involved in community life. As a Diourbel native, he lived with his family in town and walked to my village every day. Outside school hours, he attended all the village meetings and ceremonies and was involved in the various community development projects. As a result of the rapport that he developed with the village families, the school was able to (1) do several tree nurseries in conjunction with the general community, (2) a fuel efficient mudstove project and (3) a solar food drying project with the women's group. Although the mud stove and solar food drying projects experienced problems with follow-through, the groundwork was laid for further school-community cooperation.

History and progress of EE

I spent my first month visiting with teachers and with the volunteer whom I was to replace, learning about the history of the EE program in Diourbel. EE in Diourbel began in 1991, when a forestry volunteer, Debbie Roos, began working with a primary school director, Omar Diallo, on a school garden and tree nursery. The project was so successful that when Debbie left, she introduced her replacement, Molly Brown (an environmental education volunteer) to Mr. Diallo and recommended that Molly continue to work with him. Omar Diallo's dedication and enthusiasm became a driving force behind the creation and development of the Diourbel EE Program. During Molly's first year of service, she wrote a series of five environmental education lesson plans, which Mr. Diallo then taught to his class. The lessons culminated with the construction of a large tree nursery and garden. Based on this experience, Molly and Mr. Diallo decided to extend the program to include seven other primary schools in the region. At the end of that school year, they held a seminar in Diourbel to evaluate the program. While the teachers concluded that environmental education was important, they wanted to play a more active role in choosing the themes and designing the lessons. They felt that the experiential teaching techniques which Molly required them to use in teaching the lessons were too "American," because they were not consistent with the prevalent Senegalese teaching methods of repetition and rote memorization. Thus, they felt that the lessons were too difficult for them to present and the students to understand. In addition, these EE lessons were taught as a separate block of instruction, scheduled once a month. Because the Peace Corps EE program was not yet offi-



Top: Students from Sambé Ecole (school) perform a song about trees at the Departmental Environmental Education Day Festival in Diourbel, June 24, 1995. Sambé Ecole won the preliminary theater contest at a Zonal Festival and thus was invited to perform at the Departmental Festival.

Middle: A young girl from Ndoulo Ecole explains the Diourbel EE Program to the audience at the Departmental Environmental Education Day Festival.

Bottom: Inspector Bousso-Matteu trains teachers at the second teacher-training seminar December 1995. He is presenting new teaching methodologies to employ in teaching environmental education in their classrooms.

cially sanctioned by the Ministry of Education, the teachers were hesitant to deviate from the highly structured national curriculum. They decided that infusing EE themes throughout the curriculum would be a much better format for the EE program. Among themselves, the teachers chose a pilot committee to work on developing the EE program over the summer.

At the end of June, Molly concluded her service and I was on my own to work with the newly created Pilot Committee. After some outside recruiting, the committee consisted of four school directors, including Omar Diallo and Mr. Ba, a school inspector (administrator), Inspector Barro, a government forestry extension agent and an interested member of the community, Mr. Ibrahima Dacosta. One of the most satisfying aspects of my service, was helping this group to evolve into a cohesive unit. Each member developed a specialty and became recognized by his peers for his unique contributions. As the program grew, the committee members also enjoyed outside recognition and were often invited to speak to other teacher and community groups.

At our initial meeting that summer, the committee decided that the first order of business should be to create a replicable EE curriculum which was specific to the ecological zone. During this time the committee and I struggled with the question of defining EE. I found that EE American-style was not directly applicable to rural Sénégal. As farmers, these students were well aware of the connection between the environment and their lives. They saw the signs of environmental degradation every day. Although existing science education addressed scientific concepts and knowledge, the committee and I believed that this was not practical enough to combat the local environmental problems. In order to move into the realm of environmental education, we needed to add culturally and technically-appropriate conservation activities to the curriculum. Composting, tree propagation, and natural regeneration efforts, for example, allowed the students the opportunity to develop the necessary skills for actively protecting the environment. In addition, by emphasizing conservation skills and scientific knowledge throughout the primary grades, we hoped to cultivate in students a life-long reflex to protect the environment.

We began this endeavor by selecting the themes already found in the official school curriculum which related to EE. We then arranged the themes in a logical manner, and spread each across the curriculum by designing sub-themes within each discipline. Thus, each theme would be taught through a series of lessons in the different domains such as geography, science, math, language arts, and social studies. We did this for each of the primary school grade levels. To add to the practical side, I then designed a hands-on project, corresponding with each theme, to be conducted at the end of each thematic unit of study. The committee then designed a specific lesson plan format for EE lessons and wrote sample lesson plans. I also wrote a technical plan for each conservation project, giving step-by-step instructions for conducting the projects. At the end of the summer, we assembled the final product into the 65-page Diourbel Environmental Education Curriculum.

With the core curriculum established, we began planning other aspects of the EE Program. One aspect was the environmental education bulletin, "Ngelembu." The previous spring, Omar Diallo had organized a committee to develop a twelve-page environmental education bulletin to be used as a teaching tool in the upper-grade classrooms. This bulletin was patterned after the successful "Walia" bulletin established by the International Union for the Conservation of Nature (IUCN) in Mali. The committee named the Diourbel bulletin, "Ngelembu," which is Wolof for a certain race of horses common in the area.

According to local superstitions, having an Ngelembu at one's house will bring good luck and keep away the bad. In addition, the Ngelembu was favored by the area's most famous religious leader,

Cheikh Amadou Bamba, and many pictures show him mounted on an Ngelembu. The committee planned to produce two issues of the bulletin each school year. The first issue provided students with an introduction to their ecological zone. It included features about the ecological history of the region, local natural resources, and maps of the area. Later bulletins were organized around a central theme, such as composting, tree uses, and population growth. In addition to articles relating to the central theme, each issue also contained articles and activities addressing health concerns, information on different natural resources, and profiles of various animals found in the region. Students were invited to write letters to "Ngelembu" and one page was devoted to student correspondence. The first issue was published that fall, and, with paper provided by IUCN, we were able to print 1,000 copies. This proved to be enough to give each student in the highest grade of each school his/her own copy. The bulletin turned out to be an excellent extension tool. I saw the children in my village sharing their "Ngelembu" with parents and siblings, explaining the contents to those who were unable to read French.

Recognition of the program

School opened in mid-October and, at this time, a major development occurred on the national level. Peace Corps and the Ministry of Education signed a memorandum of understanding, making the environmental education program official at last. I was assigned an official counterpart at the Departmental Inspection, Inspector Barro, and given a desk in his office. The committee members were excited to be officially sanctioned and their confidence in the longevity of the program grew. At the same time, Mr. Mamadou Diaw, the Peace Corps Assistant Programming Country Director for Natural Resources, unveiled the new project plan, which defined for volunteers the long-term goals and objectives of the project and their roles and responsibilities in achieving these goals.

The committee and I compared our plans for the year to the project plan and found that we were right on target. We began planning a teacher-training seminar for mid-November to introduce the new Diourbel Environmental Education Curriculum and the now official Diourbel Environmental Education Program to the other teachers at the 10 schools involved. We wrote a budget proposal, selected a site, sent out invitations to all 40 teachers, submitted to the Inspection a list of teachers to be excused from class to attend the seminar, and made the necessary logistical arrangements.

The seminar turned out to be quite a learning experience about the politics of how things are done (or not done) in Sénégal. First, when we compiled the budget, I understood it to be the actual budget, whereas the others thought it was just an approximation. Thus, I was the only one concerned about staying within the budget and many of the other committee members expressed frustration with my American "stinginess." Second, although I never officially met with the Inspectors to discuss the seminar, my daily contact with my counterpart, Inspector Barro, in our office, led me to believe that the Inspection was okay with whatever we decided concerning the seminar and that I was following all the proper bureaucratic channels. I learned, however, the morning before the seminar, that the Inspection was not okay with either the dates of the seminar nor the fact that we planned to invite all the teachers from the 10 schools. Mr. Sall, the head Inspector, chastised me and told me not to forget that they were his teachers and that I had no right to organize a seminar without his prior consent. I was very upset and concerned about the impact my faux pas would have on the program. When I told the other committee members about this incident, however, they laughed it off and told me not to pay the Inspectors any heed. By their reaction, I learned where relations between the teachers and the Inspection stood.

I also discovered in the course of the seminar one of the major problems in doing development work in Sénégal: per diem. Nor-



Top: M. Ibrahima Ba and Morin lead students at Ecole Gappo in Race for the Sun, as part of the animation program for the bulletin, "Ngelembu 3." Teachers liked this educational game which demonstrates the process of photosynthesis. The theme of "Ngelembu 3" was the importance of trees.

Middle: Women at the Gappo well. The school is in the left far background.

Bottom: Morin sitting with her village sister Adama (Bathie Diouf's wife) on the right and her oldest daughter, Koddu, on the left, and Adama's new daughter, Soxna Bintu, who is a week and a day old in this photo. Adama has five other children.

mally, the organization conducting a seminar is responsible for the participants' travel expenses and lunch. Additional money, in the form of a per diem, is given to participants ostensibly to cover incidental expenses. However, as there are so many aid projects operating in Sénégal, this per diem has become an incentive for attracting participants to a particular seminar. Because of Peace Corps' grass-roots approach, I paid \$2, which is a reasonable sum, per participant at the seminar. The teachers complained bitterly, as organizations such as World Bank and the European Community projects normally give participants \$20 or more per day to attend their seminars. This issue of per diem is a major obstacle in encouraging grass-roots development as projects have come to be equated with money in the pocket for participants. The subject of funding came up again and again in the course of my work and became a serious problem in my second year, when the heavily-funded national environmental education program expanded into the Diourbel region. The first year, the committee was proud of all that we accomplished with limited funding and laughed at the expenses of the national program. But, the second year, when they saw neighboring teachers participating in the national EE program receive huge per diems at seminars and a stipend for teaching EE lessons in class, they began to complain and become disenchanted with the program. This began a difficult period, which is still being negotiated by my successors.

The seminar itself, however, was a success. Participants met in groups and evaluated the curriculum. Most teachers were positive about it and only minor changes needed to be made. Plans were made to begin implementing "Ngelembu" in January and an organizational committee was formed to plan the Environmental Education Day Festival.

In order to assist teachers in utilizing the "Ngelembu" bulletin in the classroom, the committee prepared a two-hour animation session. Using filmstrips, games, contests, and other non-formal and formal education techniques, these animation sessions literally brought the bulletin to life in the classroom. Each animation was presented by the classroom teacher with the aid of the animation team. The animation team consisted of myself and fellow committee member, Ibrahima Dacosta. Mr. Dacosta is a highly-educated Diourbel resident who is passionate about environmental education. A true volunteer, Mr. Dacosta spent long hours illustrating, formatting and typing "Ngelembu," as well as conducting the animations in the schools. As a respected member of the community, his presence at the animations gave them a certain degree of professionalism and his involvement in the production of the bulletin has greatly contributed to the sustainability of this project.

The EE Festival

Meanwhile, in mid-January, the Festival Organization Committee, comprised of representatives from the 10 schools plus the Pilot Committee members, met for the first time. We prepared a budget and began preparations for the festival. Once the issue of money became involved, the Inspection decided to revoke the committee's autonomy and seized control of the Festival. This wreaked havoc on the committee and several key members quit as a result of this action. Several months and many meetings later, the Committee regrouped and, with the Inspection at the helm, began planning for the Environmental Education Festival. We then learned that our original budget proposal was rejected and that we would have to greatly scale down the scope of the festival. At this point, no one wanted to quit, so we reduced the budget and began searching for local sponsors.

<u>Date</u>	<u>Event</u>
February 1994	Arrive in Sénégal-begin pre-service training
May 1994	Swear-in as a volunteer
June 1994	Move to Gappo
June 16, 1994	First meeting of the Pilot Committee
September 1994	Diourbel Environmental Education Curriculum completed
October 1994	School begins
November 1994	First teacher-training seminar
January 1995	Ngelembu 1 animations (classroom presentations) First meeting Festival Organization Comm.
February 1995	Inspection revokes the Committee's autonomy- many key members quit
April 1995	Dispute resolved-festival preparations resume
April-May 1995	Ngelembu 2 animations-conservation activities carried out at each school
June 1995	Zonal Environmental Education Day Festivals
June 24, 1995	Departmental Environmental Ed. Day Festivals
November 1995	School begins for the 1995-1996 school year Committee plans year's activities
December 1995	Second teacher-training seminar
January-February 1996	Ngelembu 3 animations
March-April 1996	School map painting project
May 1, 1996	Close of volunteer service
May-June 1996	Co-trained incoming Peace Corps EE Volunteers

For me, this was one of the most positive aspects of the planning process. The Committee spent long hours visiting local government officials and businesses. We targeted industries, such as the SONACOS peanut oil factory in Diourbel and the CAFAL match factory in Dakar, as well as other NGOs who were conducting natural resource projects in the area. Although we did not receive enough financial assistance from these sources to cover our expenses, we received quite a few gifts-in-kind and plenty of positive reinforcement for our efforts. SONACOS was the most generous. They gave us about \$100 worth of peanut oil, vinegar and gasoline, and sent representatives to the festival. Seeing that their efforts paid off, the Committee became empowered to look for funding themselves rather than wait for a project to come to them. Receiving some financial support from local sources was one step closer to self-sufficiency for the program.

Conservation activities

During the spring, I spent most of my time traveling around, helping each school conduct a different conservation activity, one which involved the entire community where possible. The projects included: composting, three tree nurseries, two fuel-efficient mud stove projects, creating math tools from plastic waste, the solar food dryer in my village, creating and installing a school weather vane, building tree protectors, and pollution art.

One of the most successful efforts to involve the community in a school project was at my village school. Mr. Ba, the president of the women's group, and I decided to organize a fuel-efficient mudstove project. We began by calling a meeting of the women's group to describe a fuel efficient mudstove. The women were very excited and chose one woman to work with the school children to build a demonstration mudstove in her cooking hut. Mr. Ba then taught his students a series of lessons using the themes found in the EE Curriculum relating to deforestation. Afterwards, we showed students a filmstrip on building mudstoves. I also arranged a "movie night" in my compound and invited the community to watch the filmstrip projected on the millet-stalk compound wall using a solar-powered slide projector. I made popcorn and most of my neighbors came. Although the script to the filmstrip was written in French, I had one of the young men of the village who attended junior-high school translate the text into their native Sereer. The afternoon of the actual mudstove construction, the students went to the woman's compound and together they built the stove.

Although other stoves were planned, the project was interrupted by the death of my village father (an important member of the community), and so lost momentum. Hopefully, Mr. Ba will try again when he teaches this unit next year.

We decided to hold three smaller zonal environmental education day festivals, each involving three to four schools and held at one of them. The festivals consisted of three major activities: Theater Contest, Design Contest and Exposition. Each school formed a theater troupe and created a theater piece with an environmental theme. We converted one classroom into an exposition hall and created displays using the 10 best environmental drawings from each school, information about the EE Program and its activities, "Ngelembu" and the concrete conservation activities carried out by each school. These festivals acted as preliminary rounds for the theater contest, and winners from each zonal festival performed at a larger Departmental Environmental Education Day Festival held in Diourbel.

The zonal EE days were extremely successful. Because they were located at schools in the rural areas, they were able to draw the local population. The theater pieces were presented in Wolof, which helped extend the environmental themes to the villagers. In addition, the exposition served several purposes. Villagers saw examples of the concrete conservation activities which the schools were undertaking and gave parents a sense of what their children were learning, plus it afforded both groups the opportunity to learn new conservation ideas to implement at home. The festival likewise gave teachers a chance to show the parents and the communities what they were teaching the students. Incidentally, I noticed in the villages where the zonal days were held, the villagers' attitudes toward me personally improved greatly after the festivals. No longer was I the puzzling foreigner, but now a contributing member of the community.

At the Departmental Environmental Education Day Festival, we created a grand exhibition hall, displaying the materials from the three zonal exhibition halls. The goal of the Departmental Festival was mainly to publicize the program and gain the support of government officials and other important personages. To our surprise, the national television station dedicated five minutes of the nightly news to the Departmental Festival. The next morning, the teachers and I found ourselves to be celebrities. Later, volunteers in other regions mentioned that their counterparts had seen the festival on television and wanted to work towards accomplishing a similar project. We all worked extremely hard on this project, and it was great to hear the teachers say, "Look what we have done!" Too often the credit is given to the outside funding sources and the participants are left feeling no ownership of the project. This was a team effort, and the highlight of my Peace Corps service.

Collaboration: the Inspection and the Committee

The following school year got off to a really rough start. An excellent harvest combined with a lack of preparedness on the part of the Inspection delayed the opening of schools for several weeks. The Inspection, still in control of the EE Program, refused to allow any activity on the part of the Committee until the Inspection had time for us. Thus, it was November before we even began planning for the upcoming school year.

This year, we were joined by a new environmental education volunteer, Andy Colquitt. Andy and I began by working with the Committee and the Inspection to design a survey to assess the teachers' further training needs for properly using the EE Curriculum. The survey clearly showed areas of pedagogic weaknesses which became the content areas for the fall teacher-training seminar. This time, the Inspectors were in charge of presenting the training and the Committee took care of the logistics. After the previous problems between the Committee and the Inspection, this seminar was a model of how cooperation between the two groups could produce positive

results. The seminar was well-organized and the Inspectors gave a practical, highly technical seminar which generated a lot of excitement on the part of the teachers. In subsequent school visits, I saw many of the techniques taught at the seminar being implemented by the teachers.

The Committee is also working to set up a teacher's EE resource center in Diourbel. The resource center will contain a library to provide teachers with materials to aid them in designing EE lesson plans. Books, even textbooks, are scarce and most teachers have indicated a frustration at not being able to find background environmental information to improve their knowledge of environmental issues. The resource center will also give the program a home base for record storage and meetings. Because of this project's emphasis on increasing teacher capacities, the national EE program has offered to help finance the resource center's book library. This type of cooperation among the different outside groups doing EE in Sénégal is crucial for the sustainability of EE in the country. More and more, the different agencies are sharing materials and information. It is hoped that down the road, all these different experiences will be combined and EE will become a standard part of the national school system. As Peace Corps' goal is to work itself out of a job, the Diourbel EE Program will someday be run entirely by the host-country participants.

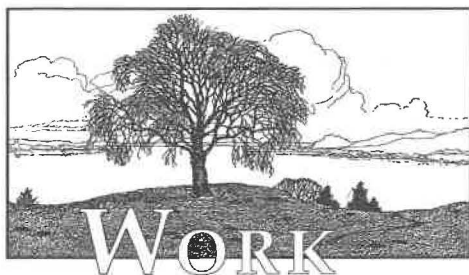
In addition, Andy is currently working with each school on a long-range plan to turn the school grounds into a demonstration site, with the school at the center of village conservation activities. Eventually, each school should have a live-fence, a shaded courtyard, with trees of many species, and demonstrations of various agroforestry techniques, such as alley-cropping, windbreaks, composting and tree nurseries. The Committee negotiated with FIDA, a local aid agency who had participated in the EE festivals, for donations of barbed wire to enclose the school grounds. This was essential for conducting further conservation activities at the schools, as roaming domestic animals pose a constant threat. In return, each school would plant a live fence next to the barbed wire. The most practical tree for this in the Diourbel region is the *prosopis juliflora*. It is able to thrive, even when scantily watered from the well or using the salinated pump water found in many of the villages.

EE will continue

After conducting the animations for "Ngelembu 3," and a school map painting project with fellow volunteer, Caragh Brett, I began preparing to end my service. Andy picked up the reins and worked with the Committee on "Ngelembu 4." Although teacher-turnover is high in Diourbel, all of the Pilot Committee members are still actively involved. After I ended my service in May, I remained in Sénégal to co-train the incoming group of environmental education volunteers. My co-trainer, Julie Lorton, and I invited Mr. Ba to be a guest speaker during a session on community involvement. Trainees were touched by the pride and ownership he conveyed for the Diourbel Environmental Education Program and his dedication to the village community. Under such strong leadership, I have no doubt that environmental education and natural resource conservation will be a vital and lasting part of the school experience of the teachers, students, and communities involved in the Diourbel Environmental Education Program.

Georganne Morin is now working on her Multiple-Subjects Elementary Teaching Credential at Holy Names College in Oakland and is a Curriculum Assistant in Cooperative Extension for the Oakland Housing Authority 4-H After-School Program. Her Bachelor's is in Environmental Science from Allegheny College in Meadville Pennsylvania. Prior to her Peace Corps work, she worked for four years in the environmental education field.

WOMEN'S



"In many communities, women's and children's access to adequate sanitation facilities is limited. Latrines, where they exist, are sometimes restricted for men's use only."

JOY BARRETT

Worldwide, provision of an adequate water supply for the family is the responsibility of women. Other water and sanitation/environmental health activities that affect the health and well-being of everyone — personal and environmental hygiene — also fall disproportionately on women and girls. Women are the caregivers for family members who are ill from water-related diseases.

International organizations designated the decade of the 1980s as the International Water Supply and Sanitation Decade ("The Decade"). The goal of The Decade was to provide adequate safe water and sanitation services to all. Sadly, the goals of The Decade were not met; new systems barely kept pace with population growth and quickly fell into disrepair. Approaches to water and sanitation service provision were generally hardware-focused, i.e., building systems but not capacity to manage them, and were not participatory in terms of service users.

During The Decade, the international community became aware that women, though primarily stakeholders in water and sanitation projects, had been excluded from the process of service improvement. Initial steps to address this problem tapped into traditional roles of women as nurturers and caregivers. Development projects which improved water and sanitation services began training women in hygiene and the promotion of hygiene. This change was a good start in women's participation in water and sanitation services. In fact, hygiene education is the foundation for the behavior changes that are a pre-requisite to better health from improved water and sanitation services.

The inclusion of women in only the hygiene education component of water and sanitation neglected the valuable input of women, and has led to system neglect, non-use, failure, and abandonment in many cases. In one particular project in Sierra Leone, a new water supply (well with hand pump) was installed at the site the village chief selected — next to his house. The improved water supply never became popular with the village women, because its location next to the chief's house disrupted the crucial social rituals associated with water gathering.

To assure sustainability, women must be involved in every aspect of a water supply and sanitation project, from problem identification (health effects) to site and technology selection through rehabilitation, maintenance, and overall management of systems. It can be argued that dependability of a water supply will be guaranteed only when women have the capability to rehabilitate and maintain water supply schemes.

Consider the different effects of a broken hand pump on women's and men's lives. Men find their water needs met by the water the women have brought to the home. Women will assure their families' water needs are met, whether they have to haul the water fifty meters or two kilometers. Women, therefore, have a

greater motivation to keep the hand pump in good condition. A study of hand pumps in Bangladesh found that a smaller percentage of those broken down were maintained by women, and the frequency of breakdowns during the preceding two years was significantly lower for women's pumps.

Calling for the active participation of women in projects fails to take one crucial fact into account: women are already overburdened with responsibilities and demands on their time. It is unrealistic to expect that many rural women can simply add management of a water supply system to their long, busy days. One solution to this conflict is to seize the potential for "service managers" to earn income. That is, women overseers of, for example, a hand pump, can be paid for their contribution to system maintenance. Receipt of compensation can substitute for other income-generating activities, and hence relieve some of the added demands on women's time.

In many communities, women's and children's access to adequate sanitation facilities is limited. Latrines, where they exist, are sometimes restricted for men's use only. In some countries, women have trained themselves not to defecate during daylight hours because there are no facilities that provide privacy. Often, women limit their food intake to avoid eliminating, depriving themselves of needed nutrients during hours of high physical demand.

Sanitation in general, and excreta management, in particular, are often lower priorities than water supply at the national and community levels. Yet, prevention of diarrhea and most worm infestations is greatly enhanced by safe excreta disposal.

Sanitation is the primary barrier to prevent pathogens from gaining access to the environment. Without sanitation, the environment is exposed to pathogens. Hands, food, objects, soil, and water are contaminated. Attempts to improve one hygiene area — for example, safe water — do not reduce transmission through food, soil, objects, and hands. One study found that fewer than fifty percent of outbreaks from common diarrheal pathogens are water-borne. In another study, the highest rates of diarrhea were found among children without improved sanitation, regardless of the type of water supply found.

The inter-dependency of hygiene and water, sanitation services, and the required roles of, and effects on, women and girls are depicted in the conceptual framework for UNICEF's Water and Environmental Sanitation Programme. This framework provides an excellent model for participatory, sustainable, and gender-equitable water and sanitation projects.

Joy Barrett is a Water and Sanitation Specialist, Office of Training and Program Support, Peace Corps Washington DC.

Excerpted with permission from *The Exchange*, Volume No. 24, April 1996

New report on status of agroforestry

A current update on the status of agroforestry in the US will soon be published by the Association for Temperate Agroforestry (AFTA). The 40-page document, entitled "The Status, Opportunities and Needs for Agroforestry in the United States: A National Report," makes specific recommendations on ways to advance the development of Agroforestry. The new publication is a summary of nine regional assessments of Agroforestry that were prepared by independent authors for the USDA National Agroforestry Center. All US states and Pacific Island territories (except Alaska and Puerto Rico) are included. Production and distribution of the report by AFTA was made possible by financial and technical assistance from the National Agroforestry Center.

The findings of each regional assessment related to the following topics are summarized in the report: 1) environmental problems which agroforestry might help mitigate, 2) current status of agroforestry practices, and 3) recommendations to address needs and opportunities to advance agroforestry. A national synthesis of these findings was prepared to identify common problems and needs across regions, and to help promote programs at the national and regional levels in agroforestry research, development, and technical information.

Miles Merwin, *The Temperate Agroforester*, January 1997.

An arbor attack—with "tree bombs"

Think of Moshe Alamaro as Johnny Appleseed meets Norman Schwarzkopf. "This is very smart bombing," insists the Massachusetts Institute of Technology mechanical engineer. In what amounts to the most ambitious reforestation campaign ever conceived, Alamaro

hopes soon to be flying sorties over the planet's most environmentally ravaged areas and sprinkling them with 12-inch saplings. His strategy: A "tree bomb," a bullet-shaped, biodegradable container that packs a tiny tree and a little fertilizer, is dropped from the cargo hold, reaches a maximum velocity of 20 mph, and then plants itself in the topsoil. Or so the theory goes. This spring, before Alamaro approaches various governments for permission to, um, attack, he'll test-bomb several sites in Massachusetts. So confident is Alamaro of his green thumb, he says that he intends to reforest areas as diverse as Greenland and the Arabian Peninsula. "Leave it to me," he says. "We will drop billions of trees."

Todd Balf and Paul Kvinta, *Outside*, February 1997.

Secrets to fearless speaking

Few things are more daunting than the prospect of stepping up to the podium and speaking to an audience. In fact, it heads the list of greatest fears in the *Book of Lists*, outdistancing such mundane annoyances as death. Yet communications skill in general and public-speaking ability in particular top nearly every company's wish list of executive attributes....

Speeches are written for the ear, not for the eye. The language should be conversational and straightforward. Short sentences and punchy phrases are not only livelier, but they make it easier for the speaker to follow along on the written text with an occasional glance at the page. A useful speechwriting style checklist includes: active voice, vivid language, personal pronouns, contractions, and familiar, shorter words with fewer syllables.... Effective anecdotes, real-life or fictional, funny or not, make a lasting impression and add seasoning. Above all, cadence is key. Just as with great music, cadence leaves the audience humming your words. Listen to the great speeches of Martin Luther King Jr., John F. Kennedy, Winston Churchill, and you'll find that cadence more than anything else is why we remember what they had to say.... It should, but won't, go unmentioned that when writing a speech you should avoid clichés and jargon. Also, while humor is invaluable (if not essen-

tial), it has to flow out of the occasion: it must cap the moment... There are few better ways to start your speech or drive a point home. Finally, practice, practice, practice. Preparation is the time-honored antidote to the stage fright that plagues us all. Do a run-through at a podium, in front of a mirror, for your dog. If you can visit the room where you'll be speaking beforehand, do it. Be sure to check out the audiovisual system. Familiarity dissipates fear.

Phyllis Gates, *Working Woman*, February 1997.

The inception of Smokey Bear

Although for half a century Smokey Bear has cautioned Americans to be careful with fire while enjoying the forest, the idea of preventing carelessly caused wildfire came long before his time. This idea quickly grew into a necessity. With the advent of World War II, Americans feared that an enemy attack or sabotage could destroy our forest resources at a time when wood products were greatly needed. As a result of this concern, the USDA Forest Service organized the Cooperative Forest Fire Prevention (CFFP) Program in 1942. It encourages citizens nationwide to make a personal effort to prevent forest fires.

To help convey the concept to the public, the Forest Service asked the War Advertising Council for assistance.... In 1944, the council produced an appealing poster featuring Walt Disney's "Bambi" character. The success of this poster demonstrated that an animal of the forest was the best messenger to promote the prevention of accidental forest fires. On August 2, 1945, the Forest Service and the War Advertising Council introduced a bear as the campaign symbol. This bear was to be black or brown and his expression intelligent, appealing, and slightly quizzical. To look his part, he would wear a traditional campaign hat.

Albert Staehle, noted illustrator of animals, worked with

this description to paint the forest fire prevention bear. His art appeared in the 1945 campaign, and the advertising symbol was given the name "Smokey Bear." This first poster carried the caption: "Smokey says: Care will prevent 9 out of 10 forest fires." As the campaign grew, Smokey reached out to Americans from posters and roadside billboards, from the pages of magazines and newspapers, and over the air from hundreds of broadcasting stations. Many major corporations donated valuable advertising time and space. The result was a great success for the Smokey Bear symbol and a decrease in accidental, human-caused forest fires....

Forest Stewardship Notes, Fall 1996

Age-defying phenomenon

Not surprisingly, the late classical pianist Vladimir Horowitz began to move and react more slowly as he got older. Yet even in his eighties, Horowitz's magnificent performances attracted standing-room-only audiences. Horowitz stood as a stellar example of an age-defying phenomenon typical of older professional pianists, according to a new study. Intensive practice throughout adulthood maintains the musical skills of these elderly performers at levels comparable to those of much younger piano masters, despite decreases in general mental and motor abilities that accompany aging, contend Ralph Krampe of the University of Potsdam, Germany and K. Anders Ericsson of Florida State University in Tallahassee.... Thanks to their Herculean practice schedules, expert pianists acquire mental capacities that enable them to work around the cognitive and motor limitations that arise later in life, the scientists assert. Further research must address how motivated adults can improve and preserve various types of expert skills, Ericsson says.

Science News, December 21 & 28, 1996.

"The best new environmental publication in North America"

The Natural Resources Council of America (NRCA) named *Voyages: Canada's Heritage Rivers* the best new environmental publication in North America, making it the first Canadian title to receive the award. *Voyages* was published last year by Breakwater Press in conjunction with QLF and

celebrates the diversity of splendor of the 27 rivers nominated to the Canadian Heritage River System. Its stories are described by Don Gibson, national Manager of Canadian Heritage Rivers System Program, as "filled with a spirit of adventure, discovery, beauty, and joy." *Voyages* is 20 pages with illustrations, maps, color, and black and white photos. For U.S. orders, call toll-free 1-800-805-1083.

Compass, Fall 1996.

Two dollar views on the National Forests

•Report says taxpayers had their pockets picked by timber companies

Logging of national forests cost federal taxpayers \$398 million more than the timber sales returned to the U. S. Treasury in 1995, losses hidden by the government's accounting system. "While timber companies racked up record earnings in 1995, taxpayers had their pockets picked," said Carolyn Alkire, an economist with The Wilderness Society. The Forest Service reported earlier that its commercial logging operations turned a \$59 million profit for the fiscal year ending September 30, 1995. But the society's annual audit of the U.S. timber program says the agency numbers are skewed because they ignore huge costs, such as road construction and special payments to counties with national forests.

Ninety-five of the 109 national forests failed to return as much money as the logging cost, said the nonprofit environmental group. The biggest losers were in the Pacific Northwest where national forests in Oregon and Washington lost nearly \$177 million that year, the audit said. Forest Service spokesman Alan Polk defended the agency's accounting system. He said it has been approved by Congress' General Accounting Office. "We haven't figured the costs in the same way they figure them. It is two different accounting systems," Polk said....

•Report says fed is underestimating logging's contribution to the economy

The Clinton administration is underestimating federal logging's contribution to the economy and exaggerating recreation dollars from national forests, Rep. Bob Smith, R-Ore., said.... Smith points to a new report by three forest economists, who have done research for the timber industry in the past. The report takes issue with government pro-

jections that recreation, fisheries and wildlife will account for 84 percent of the \$130.7 billion national forests contribute to the gross domestic product in 2000. The government's draft resource assessment, touted by Clinton officials in quarrels with western Republicans last year, says timber will contribute only about 2.7 percent of that total.... "These estimates are grossly inaccurate and misleading," [wrote the economists].... A better estimate would be 53 percent from logging and 23 percent from recreation, fish and wildlife, they said. Mining would provide most of the rest. The upward bias toward recreation is due primarily to faulty estimates of the number of recreation visits to the forests, the report said....

Lewiston Morning Tribune, January 15 and February 6, 1997.

Business etiquette for the office—especially for women

Q. Although most of the men in my office are pretty used to women co-workers by now, they still fall back into patterns of expecting women to do "the women's work" in the office. I don't even think they are aware of it, but at every meeting, they expect me to pour the coffee, refill their cups, and take the notes. How can I get them to change this without making a big deal.

A. First, don't sit near the coffee pot. Second, when a man tries to catch your eye with that coffee glint in his, become very busy with your papers. If he actually asks you to get him a cup of coffee, say, "I'm really busy right now—perhaps you or Andrew can do it," or "You're closer to the pot, James; it will be easier for you—and while you're there, I could use a refill too! Thanks so much." If you run into men who still consider a woman the only one eligible for taking notes at a meeting, you can follow the same procedure. Say, "Suppose someone else takes the notes this time—I took them at the last three meetings." They should get the message. If asked again at the next meeting, say gently and with a smile, "It's not my turn yet—there are quite a few other people who haven't served as note-taker before the responsibility goes back to me." This is not to mean that you never take a turn. Always offer to take a turn once it is established that those jobs are shared equally.

Emily Post on Business Etiquette, 1990.

Burning Rocks?

The white rock from the ocean floor is more than just an odd-looking ice cube from the deep. Place a match near it and the rock bursts into flame. The gas-loaded rock—methane hydrate—has the potential for supplying a major portion of the world's energy needs. And it's been found off the Oregon coast. Oceanographers from Oregon State University, Germany and Canada on a German research ship recently discovered the snow white hydrate on a 2,000-foot-deep ridge about 50 miles west of Newport. "The sea floor there is paved by hydrate," said Robert W. Collier, an OSU associate professor of marine geochemistry. "We've known that hydrates are out there, but the real surprise is that they're at the surface of the sediment. Now there's the potential for being able to take samples that we can study without a great deal of difficulty."

Methane hydrates are abundant, both in offshore sediments and in arctic regions. "It's an enormous source of methane," said Keith Kvenvolden, a geochemist with the U.S. Geological Survey in Menlo Park, Calif. He's estimated the quantity of methane hydrates at twice the world's known coal, oil and natural gas deposits combined. If technology is developed to extract and collect the methane, the hydrates would be a major source of natural gas. "The major deposits are in very deep water," Kvenvolden said, "and it's not really straightforward how you would produce the gas hydrate. So that has to be worked out."

Assoc. Press, November 21, 1996

Taking care of sleep troubles

In the United States, more than 40 million people—almost six times the population of New York City, the city that

never sleeps—have a sleep disorder, according to the National Commission on Sleep Disorders Research. Another 20 million to 30 million people experience periodic problems.... Sometimes a few new habits can take care of sleep troubles. If you've counted so many sheep that you now have pet names for them, you're probably striving too hard for slumber. So do like Little Bo Peep and lose the sheep. Instead, the sleep foundation suggests that you try adopting the following good sleep habits: Avoid caffeine within six hours of bedtime. Other stimulants, such as alcohol and nicotine, can also impair your ability to sleep. Don't use your bedroom as an office or television room. The more you associate your bedroom with sleep, the more likely you'll be able to nod off at bedtime. Don't nap during the day if it seems to affect your ability to fall asleep at bedtime. Go to bed only when you are sleepy, but get up on a consistent schedule. Develop bedtime rituals like relaxing in the same chair every evening, taking a warm bath, or reading.

If you're a bedtime worrier, put your problems to rest in your mind before going to bed. Earlier in the evening, write your problems down, along with some possible solutions. Exercise regularly. The ideal time for exercise is late afternoon or early evening. However, avoid strenuous activity in the late evening, which may make it more difficult to get to sleep. If you can't sleep, don't stay in bed fretting. Go to another room. Read, watch television or do something that relaxes you. When you feel sleepy, go back to bed.

Health Scene, Jan/Feb 1997



Professional Development Opportunities

The Worldwide Women in Development (WorldWID) Fellows Program offers a unique opportunity to expand established technical expertise into the field of Gender and Development (GAD)/Women in Development (WID) through high level training and a field placement with the U.S. Agency for International Development (USAID).

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Tel: (352)392-7074, Fax: (352) 392-8379
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Requirements:

- ✓ Mid-career professionals, both men and women
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The Yellowstone Grizzly Foundation is a non-profit organization dedicated to the conservation of the grizzly bear in the Yellowstone Ecosystem. They do independent research and produce publications, educational materials, and public programs. Write to 104 Hillside Court, Boulder, CO 80302 (303-939-8126).

Forest Products for Sustainable Forestry will be held at Washington State University-Pullman July 7-12, 1997. The focus: recycling, economics, markets, building construction, composite wood, energy, and chemicals. Contact International Union of Forestry Research Organizations/WSU Conferences and Institutes, PO Box 645222, Pullman WA 00164-5222.

Cornell is hosting the 5th Agroforestry Conference August 3-6, 1997. The theme: Exploring the Opportunities for Agroforestry in Changing Rural Landscapes. Contact them at 118 Fernow Hall, Ithaca NY 14853-3001 (607-255-2810; fax 607-255-0349).

The World Organization for Women in Science is an independent, non-profit, non-governmental organization which aims to promote the role of women in the development of science and technology in Third World countries. For information about membership and costs, wrote them at PO Box 586, Strada Costiera 11, 34100 Trieste ITALY.

American Fisheries Society's annual meeting will be held August 1997 in Monterey California. The theme is "interfaces," highlighting the interconnectiveness of disciplines, environments, cultures, and nations. Call Jennifer Nielsen 408-655-6233 or jnielsen@leland.stanford.edu. for details.

BLM sponsors an 8-week experience (includes one week in camp) in Oregon called Resource Apprenticeship Program for Students (RAPS) designed to provide high potential/low opportunity youth with mentoring and information about college and other opportunities. Contact Shannah Anderson at 503-952-6343 for information about summer of 1997's program.

World Wise Schools is a program to match Peace Corps Volunteers with teachers and classes grades 3-12. PCVs interact with information and teachers get packets with videos, suggested activities, etc., suitable for the age group. Call them at 202-606-3294 or email DPINFO@PEACECORPS.GOV.

FAO has a training package on use of gender analysis (using the individual rather than the household) for foresters, planners, rangers, extensionists and others going into resource development work. Email FAO at Helen.Gillman@fao.org for costs/details.

The Agroforestry for Sustainable Land Use conference focuses on fundamental research and modeling for temperate and mediterranean applications. It will be held in Montpellier France 23-28 June 1997. For information fax Daniel Auclair at 33-67 59 38 58 or email auclair@cirad.fr.

The Design and Environment Conference focuses on the links between the design of the built environment and the transformation to a sustainable society. The meeting will be held December 5-8, 1997, University of Canberra Australia. For information email Dr. Janis Birkeland jlb@design.canberra.edu.au or fax 06 201 2279.

The World Wildlife Fund will be holding their North American Forests for Life Conference May 8-10, 1997 in San Francisco. Topics include: critical

forest regions of North America, improving forest management through the Forest Stewardship Council's Timber Certification Program, creating demand for certified wood, non-timber forest products. Contact Kathy Kessler, phone: 202-861-8346; fax: 202-887-5293; e-mail: kathy.kessler@wwfus.org.

Global Alternatives: Education and Development Opportunities is a monthly newsletter and job announcement bulletin published by the School of International Training. Cost is \$30 for six months. Write c/o PDRC-SIT, PO Box 676, Brattleboro, VT 05302.

Take Back the Trails is a national hiking event sponsored by the Women's Professional Group of the Association for Experiential Education (AEE) held on Memorial Day weekend, May 23-26, 1997. Its purpose is to create a general awareness of safety issues for all outdoor enthusiasts and crusade against violence/harassment. Contact Nina Roberts at 301-513-9115; e-mail: nsroberts@aol.com. AEE is a not-for-profit, international, professional organization at 2305 Canyon Blvd., Ste.100, Boulder, CO 80302 (303-440-8844).

Oregon State University will be offering a class, Managing Forest Ecosystems: Practices to Conserve Diversity and Functional Integrity, April 7-12, 1997 in Corvallis, Oregon. Contact the Conference Assistant, Oregon State University, College of Forestry, 202 Peavy Hall, Corvallis, OR 97331-5707; phone: 541-737-2329.

The 24th Natural Areas Conference is scheduled for August 27-30, 1997 in Portland, Oregon. The theme this year is "Bridging Natural and Social Landscapes" and will challenge participants to find areas of common ground and to form linkages between the natural and the cultural/socioeconomic values of landscapes. For more information about the conference and/or the call for papers, contact Natural Areas Association, ATTN: 1997 Conference Information, PO Box 23712, Tigard, Oregon 97281-3712; e-mail Kathleen Bergquist, Conference Coordinator, at kbconnor@ix.netcom.com.

The Canada-U.S. Fire Safety Summit will be held in Rossland, British Columbia Canada 30 September to



2 October 1997. Call for papers until June 15, 1997. Contact IAWF, PO Box 328, Fairfield WA USA 99012 email greenlee@cet.com or call 509-283-2264.

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