

New Global Health Minor at Penn State, University Park

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In support of President Graham Spanier's goal to internationalize Penn State's curriculum, the Department of Biobehavioral Health in the College of Health and Human Development will initiate a new minor in global health during the 2010-2011 academic year. The program will be coordinated by Melina Czymoniewicz-Klippel, and supported by a number of Penn State faculty. The Global Health minor will provide under-

graduate students with an interdisciplinary exposure to the theoretical, scientific, and practical issues affecting the health of populations in various countries and regions of the world. Students from across the University Park campus will be eligible to apply for this exciting program. Czymoniewicz-Klippel anticipates that within a few years, a class of approximately 20 students from diverse disciplines and backgrounds, will be admitted to the minor each fall semester following a competitive application and interview process.

With national borders becoming less and less important to the health of the public, a need for students to be prepared for cross-cultural encounters has become critical. The Global Health minor aims to foster students' capacity to professionally participate in global health activities across national and cultural borders by offering a series of cutting-edge global health courses that will collectively develop students' academic and interpersonal skills to compete in an increasingly international world of work in the United States as well as abroad.

The Global Health minor also includes a supervised fieldwork experience, which complements the campus-based component of the program and offers students the opportunity to directly observe, critique, and, if/when appropriate, contribute to, the implementation of global health research and development initiatives at the local level. In preparation for their global health experience, students will enroll during spring semester in a one-credit seminar that addresses practical matters relating to travel and deconstructs their worldviews to raise cultural consciousness. Students will then travel during summer session to assigned field sites in the United States or in the developing world where they will engage in global health-related projects that have been conceived for them by the program's local partners. These field projects will address pressing health needs in the local communities. During the fieldwork period, the educational focus will be on encouraging students to become self-motivated and reflective global health practitioners who are able to adapt to, and work through, challenging situations.

The Global Health minor is a critical component of Penn State's vision of fostering global citizenry among its students. The program will develop students' ability to critically listen to marginalized voices and perspectives; will increase their capacity to creatively solve problems in flexible and contextually contingent ways; and will provide them with theoretical and experiential knowledge of what it means to form productive and equitable relationships across a range of cultural settings. Simply stated, the Global Health minor will encourage Penn State students to recognize and respect the diversity of knowledge and identities present in the world today, and to critically reflect upon their own positions of power and privilege. These processes, Czymoniewicz-Klippel believes, are key to the reduction of global health inequities.

Comments and questions regarding the Global Health minor are welcomed, and should be directed to Czymoniewicz-Klippel at mtc16@psu.edu or 814-865 4672.

Encountering Traditional Healing: A Medical Student's Reflections

By Rachel Hardenstine



Talking with Claudia (far right), a curandera

The atmosphere upon entering Claudia's home (not her real name) was like any other home my first year medical student colleagues and I visited in the seaside town of San Pablo, Ecuador: a warm welcome was followed by a scramble for chairs and curious children peered at us over their mother's shoulder. However, in this house, many religious icons hung on the walls and bottles filled with scented oils lined a shelf. Claudia is a *curandera*—a traditional healer—she was younger than I expected and very eager to talk with us.

Claudia first explained her role as a midwife. She no longer delivers babies because deliveries are free and safer in public hospitals. However, pregnant women come to her for the nine months prior to delivery and for postpartum care. Claudia performs abdominal massages, realigns mal-positioned babies, and palpates women in order to ascertain the sex of their child. She claims to have the gift of prediction, and has incorrectly identified the gender of only three fetuses.

Claudia's tone was solemn and her voice hushed when she elaborated on her additional role as a *curandera*: eliminating "spells" affecting her patients. She described this activity as a dangerous undertaking, one that requires her relative anonymity in the San Pablo community. Patients come to her to distinguish between a physical illness and the manifestations of black magic. She has remedies for both, but making the distinction is crucial for subsequent therapies.

Claudia described herself as a very religious person, and all of her treatments are an interesting blend of Catholicism and cultural tradition. She begins every treatment session by making the Sign of the Cross, reciting the Hail Mary, and saying a prayer specific to the patient's malady. She then uses homemade scented oils to massage the patient's entire body, focusing her hands on the site of the complaint. Next, she takes an egg and rubs it over the patient's body. She whispers prayers and quietly questions the patient throughout the session. In observing Claudia conducting a treatment, I noted how her calm way of interacting with a patient resembled the atmosphere in an American spa, though the massage table was her own bed and a session cost the equivalent of just five US dollars. Massage is the primary way of healing, according to the three alternative healers with whom I spoke. The women healers made scented oils for their patients in an effort to enhance the healing experience, while the male healer used Johnson's Baby Lotion.

During a household survey we conducted in San Pablo, the majority of people denied seeking medical care from traditional healers. However, they spoke openly about the herbal teas they used to cure "la grippe," colicky pain, and general sickness. Most of these herbs could be obtained from a large market in Libertad, a town about 35 minutes by bus from San Pablo. The herbs were inexpensive remedies that even some of the physicians in the area recommended to their patients.

After two weeks, I left the coast to explore the Amazon where I personally experienced the benefit of jungle medicine. When I was feverish one evening, our guide gathered three different plants from the jungle, blew tobacco smoke on the leaves, and wove them around me. He said this treatment would ward off evil spirits. I was hesitant to undergo the treatment and recall sitting awkwardly on a bench, eyebrows raised, as smoke billowed around my head; yet the experience was soothing. I slept soundly and awoke symptom-free.

Most of our Western remedies exist as isolated chemical compounds in pill form, so it was a novel experience to see medicinal herbs employed in their natural state. As medical students, we have barely studied the herbal therapies that are easily accessible throughout the world. Our medical training will only casually address this way of curing. However, it is irresponsible of us as future medical professionals to ignore the existence of traditional medicine. There are many patients today who are tired of waiting for a cure for their specific illness, and others who are uncomfortable with, and distrusting of, "Western medicine." They are seeking, and many have found, alternative means of healing. We need to be open to learning from the experiences of these patients so we can gather and analyze the data to ascertain the safety of therapies that are not described in our medical texts. We have the potential to expand our library of remedies for the benefit of our patients.



Rachel Hardenstine is a second year medical student at Penn State College of Medicine and a Global Health Scholar.

Global Health Scholars Program at Penn State College of Medicine

The Global Health Scholars Program (GHSP) is a collaborative project, developed in conjunction with multiple departments of the Penn State Hershey Medical School, including Family and Community Medicine, Humanities Medicine, Pediatrics, Public Health Sciences, and Penn State's School of Nursing. GHSP is an innovative approach in allowing students and faculty to participate in making a difference for people in an impoverished setting. A major focus of the Global Health Scholars Program is to produce measurable and sustainable improvements in the health of residents in a specific, underserved community in Ecuador. For more information, including application details, visit:

<http://pennstatehershey.org/web/fcm/education/globalhealth/scholars>.

Agricultural Systems in East Africa, 2010

Since 2008, Penn State faculty and students have been working on a variety of programs with the Children and Youth Empowerment Centre (CYEC), an innovative residential and educational program for street dwelling children and other highly vulnerable young people in Nyeri, Kenya. The CYEC is a public-private initiative established to address specific gaps in the care and support of disadvantaged children and youth. It focuses on comprehensive development of its target population, including life skills and entrepreneurship training, to enable these youth to lead fulfilling lives and contribute to the well being of their communities. Penn State faculty, Cooperative Extension educators, and students are working with the CYEC to identify and develop models for program sustainability and program exit which can then be replicated at other centers in Kenya and beyond.

As a key part of this initiative, the College of Agricultural Sciences offered the course "Agricultural Systems in East Africa" (AGRO/CED 497C) in the spring of 2010. The primary focus of this interdisciplinary course was to develop a plan for the creation of an eco-village in Lamuria, a semi-arid region of the Rift Valley. This eco-village will facilitate program exit, providing a place for youth to live, work, and further develop their skills when immediate employment is not available. During the semester, students in the course conducted background research for the development of the eco-village and compiled curriculum materials for the agricultural training program at the CYEC.

Course objectives were:

- to investigate the agro-ecological environment of Lamuria, Kenya and the socio-economic conditions and agricultural practices in the Rift Valley and Central Province;
- to identify soil management technologies and practices appropriate for a semi-arid environment and crops suited for such an environment;
- to develop a community assessment tool for the Lamuria community to understand their practices and attitudes (a tool later employed by students in assessing the community);
- to conduct secondary research on markets available for the crops identified (or value-added processing of these crops), and while in-country, to complete this analysis;
- to develop or compile learning materials for the Children and Youth Empowerment Centre relating to appropriate agricultural production practices; and
- to gain a greater understanding of and appreciation for Kenyan culture and history.

At the end of the semester, students and faculty in the course spent three weeks in Kenya to complete the research and plan future activities. In the first few days, the students and faculty visited several agricultural research institutes and universities in Nairobi, including Kenya Agricultural Research Institute (KARI), the Kenya Forest Research Institute (KEFRI), and Jomo Kenyatta University of Agriculture and Technology (JKUAT). These visits helped them gather locally-specific information on the products and practices they had researched. The students especially enjoyed meeting their counterparts at JKUAT and learning about the lives of Kenyan university students.

The class spent the remaining two and a half weeks at the CYEC in Nyeri, with day trips to Lamuria and other sites in the area. In collaboration with CYEC staff, the students used the curricular materials they had collected (as well as local educational materials) to outline a hands-on, applied agricultural training program to support the agricultural program at the CYEC. The CYEC has approximately three acres of agricultural land on which they grow maize and horticultural products to supplement the children's diet. Penn State students also provided materials and ideas for activities for younger children in the nature/environmental science club.

The students and faculty also spent several days in Lamuria where they surveyed the eco-village land using a hand-held GPS device, collected soil and water samples for analysis, and examined the indigenous flora and fauna. With help from KEFRI staff, they identified the species of aloe growing there. A critical part of their time in Lamuria was spent learning from local community members through focus groups and informal interviews. The eco-village will be located at the edge of the local village, and students wanted to see how the eco-village could support community development efforts as well as the needs of the CYEC. Students learned about current agricultural practices, marketing of products, land markets, and other community concerns.

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In the eco-village of Lamuria

"The CYEC is a public-private initiative established to address specific gaps in the care and support of disadvantaged children and youth. "



Janelle Larson with children from the CYEC



CYEC has three acres of agricultural land.

AgKnowledge Africa Share Fair in Addis Ababa

The 2010 AgKnowledge Africa *Share Fair* will take place from October 18-21 on the campus of the International Livestock Research Institute in Addis Ababa, Ethiopia. The fair will bring together the diverse knowledge of the continent and the multiple innovative ways it is created, shared, communicated, and applied.

The heart of the fair is a series of thematic 'learning pathways' in a process of mapping, sharing and connecting people and activities. These pathways will showcase how African 'talents' are creating, sharing, and using rural knowledge at the grassroots, in research and policy, and through intermediaries. The pathways will focus on agriculture and climate change, land, livestock, and water.

Helen Sheehy and Sylvia Nyana, Social Science Librarians at Penn State, will be presenting in the indigenous knowledge session on **Libraries as Centers for the Dissemination of Indigenous Knowledge**.

For more information about *Share Fair*, visit: <http://www.sharefair.net/>.



Children of the CYEC

Agricultural Systems in East Africa, 2010

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Based on their prior research, information from the research institutes, and feedback from the community, the class identified several enterprises as priorities for additional research and development for the short to medium term: honey, rabbit, aloe, and hay production. For each of these initiatives, CYEC youth (with the support of staff) are developing business plans that will be submitted for review before funding by a micro-finance nonprofit.

There is a strong market for honey in Kenya, and Lamuria had a beekeeping cooperative until several years ago; therefore, honey production was selected as the first initiative for the eco-village. As a result of this year's effort, three CYEC youth are now in training with a local beekeeper and beekeeping specialists at icipe (African Insect Science for Food and Health) in Nairobi. The intent is for the youth to build and sell hives, collect raw honey from their own and other hives in the community, and then process and sell the honey.

The students' research also indicated that rabbit production can be profitable and that rabbit meat is a cost-effective source of protein. With the financial support of a private donor, CYEC youth used a hutch design identified by Penn State students to support rabbit production at the CYEC for both consumption and sale.

In addition to the CYEC accomplishments, Penn State students benefited greatly from the course. In post course assessment surveys, the students indicated that they appreciated the opportunity to apply what they had learned in other courses, and to learn from peers in other academic programs. They also noted that the course enhanced their research skills and their awareness of the complexity of global food security. By working closely with youth and staff at the CYEC, the Penn State students had a rich cultural experience, and most of the students plan to continue working with the project in the future.

For more information, contact Janelle Larson at JBL6@psu.edu, or Sjoerd Duiker at sduiker@psu.edu.

Penn State Cooperative Extension Reaches Out to Africa

In May 2010, Penn State Cooperative Extension Educators, Bibiana Chestnut and Fran Alloway traveled to the Children and Youth Empowerment Center (CYEC) in Nyeri, Kenya, as part of the group led by faculty members Janelle Larson and Sjoerd Duiker. Their objective was to conduct training for CYEC staff and meet with local and district health educators to learn how Family and Community Science Extension educators might collaborate with the Kenyan Ministry of Health in providing outreach programs in Nyeri and communities near the CYEC. A community assessment, conducted by Penn State students helped to identify several issues of importance where collaboration might be developed. These issues included 1.) a lack of household food preservation knowledge and skills, leading to severe seasonal food insecurity when harvest stores are depleted in rural households and 2.) the contamination of ground nuts (peanuts) and grain by cancer-causing Aflatoxin spores.



Cloth for the CYEC's tailoring classes

At the request of the CYEC Director, Bibiana also provided staff training on child discipline through which CYEC staff learned appropriate new disciplinary techniques to supplement those they were currently using. Email communication with CYEC staff following the trip confirmed that the staff found the techniques taught to be effective in their work with the children. 4-H program materials were also shared with the CYEC after-school coordinator. In addition, a project was designed to enable tailoring classes to utilize donated clothing the Center had received that wasn't being worn by the children. Working together, students created a quilt top using fabric squares cut from the donated clothing. This pieced material could also be used instead of expensive new fabrics for skirts, blankets, backpacks, or other student sewing projects.

Fran and Bibiana will use these experiences to work with other Extension colleagues planning to travel to Kenya in 2011 to further develop the Penn State/CYEC collaboration.

For more information contact Fran Alloway at ffa2@psu.edu.



Fran Alloway with donated clothing

Penn State Food Science Students Win 2010 “Developing Solutions for Developing Countries” Competition

By Wladir Valderrama, Angela Richard, and Julius Ashirif-Gogofio

Each year, the Institute of Food Technologists (IFT) sponsors the “Developing Solutions for Developing Countries Competition.” At this year’s IFT Meeting in Chicago, the Penn State Food Science Department’s international team of graduate students, Angela Richard (USA), Wladir Valderrama (Peru), and Julius Ashirif-Gogofio (Ghana) received first prize in this prestigious competition to develop a solution that would “Provide Sustainable, Nutritional and Affordable Food for Families with Small Children”

With input from faculty members Greg Ziegler, J. Lynne Brown, and Audrey Maretzki, the Penn State team developed a novel concept for producing and distributing a confectionery product in Peru where traditional diets are extremely low in calcium. The students named their product “CalciMelo” (“Calci” for Calcium and “Melo” from Caramelo, the Spanish word for a confection or candy).

The ingredients used in making CalciMelo are *panela* (unrefined cane sugar produced in Peru), *calcium carbonate* (an inexpensive and readily available source of calcium), *corn starch* (used as a thickener and to prevent CalciMelo from sticking to the mold while it is cooling), and *yacon syrup* (made from the root of a native Andean plant, *Smallanthus sonchifolius*, that contains an unusually high concentration of FOS (fructo-oligosaccharides). FOS are reported to significantly increase the absorption of calcium from the digestive tract into the blood stream, where it is available for forming bones and teeth. The team calculated that a single 9.4 gram piece of CalciMelo (about the size of a Kraft caramel) would contain approximately the amount of calcium a child between one and eight years of age should consume daily. Two pieces of CalciMelo, providing 1000 mg. of calcium and eight grams of FOS, approximates the recommended calcium intake for older children and women of child-bearing age.

The FOS in CalciMelo enhances the absorption of calcium from the confection as well as from other food items. This increased calcium absorption is important because Peru is not a milk-producing country and the small amount of dietary calcium normally obtained from a non-dairy source means that a high proportion of Peruvians, particularly children and women who are pregnant or breast-feeding, are unlikely to be getting enough of this essential nutrient. The problem of insufficient dietary calcium is exacerbated in low-income communities where residents cannot afford an adequate diet.

However, it is in these poor communities where women’s cooperatives have existed for more than 25 years with the mission of improving the quality of life of young children. The women accomplish this feat in a creative way by cooking and delivering food to members of the community. The Penn State team identified these cooperatives as a potentially useful way to produce and deliver CalciMelo to the target population most in need of dietary calcium supplementation and least likely to receive it.

CalciMelo is very easy to make by combining *panela*, *yacon syrup*, *corn starch*, and *calcium carbonate*, then boiling the mixture until sufficient liquid has been evaporated to allow the mixture to form a firm thread when a spoonful is dropped into cold water. The thickened mixture is poured into simple molds to produce standard size pieces which are allowed to cool, coated lightly with oil, wrapped, and then stored in an airtight container.

The Penn State team believes local women’s cooperatives in Peru could produce CalciMelo inexpensively for sale to the public as a way to help finance its free distribution to low income children and women who are pregnant or breast feeding. They also believe the CalciMelo concept could be replicated in other developing countries where the special nutritional needs of a target population could be addressed through the involvement of women’s groups in the creative use of local resources.

To learn more about the team’s award-winning concept, contact Wladir Valderrama at wbv1@psu.edu



2010 IFT Meeting in Chicago, IL



Two pieces of CalciMelo provide 1000 mg of calcium



Root of a native Andean plant used to make yacon syrup

“The students named their product “CalciMelo” (“Calci” for Calcium and “Melo” from Caramelo, the Spanish word for a confection or candy).”



Dr. Osseo-Asare visiting a local market

A Taste of Ghana

A Mentor's Notebook by Fran Osseo-Asare, PhD

Boston University historian James McCann reminds us in *Stirring the Pot: A History of African Cuisine* (Ohio University Press, 2009) that foods and foodways are markers of cultural identity. "Cuisine" is more than simply recipes and foods; it is a fascinating record combining economic, political, geographical, historical, social, and cultural elements. Given Sub-Saharan Africa's oral traditions and Western biases, African cuisines have often remained invisible and/or undervalued.

As a sociologist and culinary professional, I have long been fascinated by the cuisines of Africa, and particularly those of the West African country of Ghana, (see www.betumiblog.blogspot.com or *Food Culture in Sub-Saharan Africa* [Greenwood Press, 2005]). In the 1990s, I published a primer on West African cooking (*A Good Soup Attracts Chairs*, Pelican, 1993), but I longed to develop a more comprehensive volume. Several years ago, a West African culinary pioneer and leader in Ghana's hospitality industry, Barbara Baëta (<http://bit.ly/9wyeJu>), agreed to collaborate with me on such a book. We have worked for several years on the manuscript and recipe testing. I first received funding in 2002 to travel throughout Ghana to research regional specialties and variations in local dishes. I have since made several additional trips there to further the project. Besides maintaining culinary authenticity, the book will include the nutritional content of both traditional and contemporary versions of the recipes.

In Spring semester 2010, an energetic and motivated Penn State freshman, Katie Cochrane, was enrolled in Petra Tschakert's seminar in the Department of Geography where she learned about our Ghana cookbook project. Katie offered to help with our book in any way she could, including calculating nutritional content of dishes and assisting with food photography. After she participated in my West African cooking class and helped facilitate my ICIK seminar presentation, I agreed to take Katie to Ghana as my assistant for my summer visit there if we could find financial support for her from Penn State.

We succeeded, and Katie accompanied me during part of the trip. In addition to doing food research and photography, she recorded my interviews with Barbara Baëta and others as part of an oral history project. Baëta is a fascinating woman who has cooked for every Ghanaian head of state since the country gained its independence in 1957. Her company, Flair Catering, has cooked for innumerable international dignitaries, including President Barak Obama and his family in 2009.

Katie and I met with colleagues at the University of Ghana's Department of Food Science and Nutrition and with food scientists at the Science & Technology Policy Research Institute (<http://bit.ly/a2snGM>). We also visited local outdoor and indoor markets, conducted several recording sessions with Barbara Baëta, did extensive food photography, ate in a variety of restaurants, and even explored the topic of culinary tourism with members of the hospitality industry. In addition, we had fruitful discussions with colleagues at the Food Research Institute in Accra, and were given a copy of *Composition of Foods Commonly Used in Ghana*; a useful reference in the calculation of the nutritional value of local dishes. Trips to several bookstores in Ghana yielded valuable additions to my Africa Cookbook Project (<http://bit.ly/doU22M>), including contemporary Ghanaian books on foods and nutrition, popular cookbooks, and more academic works, such as one on Ghana's herbal pharmacopoeia. Additionally, I initiated contacts with Brazilian colleagues collaborating on cassava research projects in Ghana.

Ghana was definitely a hands-on experience for Katie: she pounded cassava and plantain *fufu* in a traditional flat mortar with one kind of pestle (<http://bit.ly/bSbFoJ>), and pounded palm nuts for palmtree soup and plantains for *tatale* (a savory ripe plantain pancake) in a rounded mortar using a different type of pestle. She also took cold "bucket baths" and daily malaria tablets, and was able to experience a little of the beauty and history of Ghana, from its historic and sobering slave castles at Cape Coast to the canopy forest walk at Kakum.

Providing new educational and life experiences for Katie in exchange for her help on moving my book and oral history projects forward was, I believe, a good deal for all of us: Katie, me, and Penn State. As they say in Ghana, "Ayekool!" ("Well done!")

Dr. Fran Osseo-Asare can be contacted through the BETUMI: The African Culinary Network at fran@betumi.com.

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"...foods and foodways are markers of cultural identity. "Cuisine" is more than simply recipes and foods; it is a fascinating record combining economic, political, geographical, historical, social, and cultural elements."



Katie on the canopy forest walk at Kakum

A Taste of Ghana

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Notes from Katie's Blog by Katie Cochran

In June 2010, I spent two and a half weeks in Ghana learning about West African food and agriculture, recording interviews and photographing the preparation of food, food markets, and innovative food developments in addition to tropical landscapes. I also created a blog (<http://eatmywork.blogspot.com/>) that featured some of my better shots plus a daily journal.



The ingredients and beginning stages of "Tom Brown," a common breakfast porridge made of toasted corn flour.

My mentor, guide, and traveling companion, Dr. Osseo-Asare, had warned me that Ghana runs on a different clock. I found that it can take hours to travel only a few miles when your taxi has to negotiate deep potholes on dirt roads that are transformed into pools of stagnant water when it rains. Productive activity comes to a halt when the national soccer team plays in the World Cup, as Ghana did during my visit, and traditional meals require many hours and much labor to prepare.

Cooking starts with acquiring the ingredients. To have fresh vegetables, fruits, or fish in Ghana, one must go to the market every few days. Refrigeration is expensive, so perishable food (particularly animal products) cannot always be kept cold. Market trips could take hours, especially when traveling by *tro-tro*, the public vans that cost the equivalent of fifty cents. In the open markets, there were stacks of smoked, dried, and salted fish; both whole and ground. Shrimp were found everywhere. Fruit is picked ripe and spoils quickly in the heat of the market, but I also found delicious mangoes and pineapples at the peak of their flavor.

In addition to the traditional open-air markets, Ghana has grocery stores like Shoprite, a South African grocery chain with markets in urban shopping malls. The shelves of these "supermarkets" are stocked largely with imported goods at prices that exceed most Ghanaian budgets.

Rose Omari at the University of Ghana at Legon, described to me Warren Belasco's universal model of food selection in which convenience, responsibility and identity represent the three points of a triangle. (Belasco is a professor of 19th and 20th century American culture, mass culture, environmental studies at the University of Maryland, Baltimore Campus. For more information on his universal model of food selection, visit: www.umbc.edu/window/belasco.html.) I observed that in Ghana, as in the U.S., responsibility and identity are often sacrificed for convenience, especially in homes where women are working full-time.



Dried and smoked fish vendor at market

I encourage students who might share my interests in tropical agriculture and food science to seek creative ways to pursue those interests through international experiences. There is much the U.S. and other countries can learn from each other; farming practices, crop varieties, new flavors, and novel cooking techniques are a few of the things I learned about in Ghana. We, as students, cannot know and understand the world until we view it from more than our own limited perspectives.

My trip would not have been possible without help at Penn State from AESEDA (the Alliance for Education, Science, Engineering and Development in Africa), the Office of Global Programs, and the

Schreyer Honors College Ambassador's Program to all of which I am grateful for having provided me with financial support for my travel to Ghana.

If you would like to contact me about my travels, I can be reached at kfc5041@psu.edu.



Palm fruits, sold in both traditional and larger "agric" sizes, are the source of palm oil, a signature ingredient in many Ghanaian dishes.



Shrimp, dried and smoked, is often ground and sold as powder as well as whole



Fried yam balls with tomato and onion bits

Education Abroad at Penn State: People and Parks in Tanzania

By Larry Gorenflo

In 2010, the Penn State Department of Landscape Architecture in the Stuckeman School of Architecture and Landscape Architecture began an education abroad program focused on the relationship between parks and people in Tanzania. In this case, *parks* refer to protected areas—



Penn State students working with residents of Tundu to map their village for community planning purposes

localities defined by some level of government and managed for the conservation of selected resources, such as natural habitat and places of cultural importance. The program focuses broadly on the interface between parks and local communities in an attempt to understand more clearly the relationship between poor people who live in the vicinity of parks and the resources in those parks that are important both to conservation and to human survival. As population continues to grow and increase its impact on our planet, this link between people and parks emerges as one of the key challenges to conservation in the 21st century.

Landscape Architecture's Tanzania program, led by Larry Gorenflo and Brian Orland, currently focuses on Udzungwa Mountains National Park in south central Tanzania. Udzungwa is a park known for remarkable biological diversity, containing 12 species of primates, more than 2,500 plant species, in excess of 250 bird species, and more than 250 butterfly species. Many of the species that live in the park are unique to it, making conservation in the reserve essential to their survival on our planet. The setting where Udzungwa Mountains National Park occurs is particularly challenging for conservation in that it borders human settlement, particularly along its eastern border. Local communities

look to the park for certain resources, notably the legal (through June 2011) harvesting of firewood and the illegal harvesting of other plant and animal resources. Both resource use and encroachment of settlement on the edge of the park are consequences of local people attempting to meet basic demands, particularly on the eastern edge of the park where a growing population is squeezed into a narrow area between commercial agricultural fields and the protected area.

"As population continues to grow and increase its impact on our planet, this link between people and parks emerges as one of the key challenges to conservation in the 21st century."

In recognition of the need to address local community demands to ease pressure on Udzungwa Mountains National Park, in 2006 the World Wide Fund for Nature (WWF) began to support the preparation of participatory land use plans for selected villages. The Penn State program at Udzungwa, following a year-long period of consulting with WWF, focuses on providing the next steps in community design to help villages meet subsistence and fuel demands.

In 2010, several students participating in the program focused on community planning in Tundu, a village of about 4,000 northeast of the park, mapping buildings and roads and designing an improved transportation network, house plot configuration, wood lots, alternative activities to generate village income, and a strategy for rainwater management. Other students focused on community design to address human encroachment, community outreach based at the Udzungwa Ecological Monitoring Centre (where the education abroad program was based), and development of an improved Website for the park to increase tourism and tourist revenue. Existing literature, augmented by interaction with park personnel, Monitoring Centre staff, and village residents, provided key information for design solutions, with local knowledge determining both the pertinence and feasibility of proposed design solutions.

Presentations at the end of the season to the Chief Park Warden, the WWF Country Program Director, and Monitoring Centre staff showed the value of this service-learning model with a strong indigenous

knowledge component. Gorenflo and Orland will return for five to six more years to expand planning activities, increase socioeconomic understanding of the local communities, and design corridor connections between the park and neighboring key habitat.

For more information contact Larry Gorenflo at lfg11@psu.edu.

University Office of
GLOBAL
 Programs

Project Baobab Update

By Lisa M. Steinberg

In the spring 2010 issue of ICIK E-News, Dr. Richard Schuhmann reported on the initiation of "Project Baobab." The focus of the initiative is to improve mechanization of the harvesting of products from the fruit of *Adansonia digitata*, the baobab tree. Baobab is an equatorial African tree that is an important source of food, water, shelter, and medicine. The pulp of the tree is high in vitamins C, A, B1, B2, B6, as well as calcium, iron, and potassium, and sugars including pectin.

In 2008 and 2009, students examined improved decortication methods for baobab seeds, and found that soaking the seeds in vinegar helped to soften the seed coat. However, the results varied somewhat from seed to seed. Later students discovered that a short boiling time (no more than 10 minutes) in vinegar was enough to soften all seed coats. In addition, students found that roasting seeds made them able to be chewed and eaten without further treatment, and they investigated the use of solar ovens for this purpose.

In the fall of 2009, students created a simple machine to effectively separate the internal materials of the baobab fruit. The contents of the baobab fruit are subjected to a grating motion against a fiberglass screen which removes the powdery pulp from the seeds and breaks the fibers into smaller pieces which fall through the screen. The clean seeds are left on the top screen, and pieces of fiber are separated from the pulp by passage through a second screen directly below the first screen.

In the spring of 2010, students attempted to improve the design of the separation machine by using a rotating drum to remove the pulp from the seeds and fibers which would then be separated through a series of screens. Both methods allow processing of many baobab fruits simultaneously and the machines can be driven by a hand crank or a bicycle wheel.

In fall 2010, students will extract and characterize pectin from baobab for use as a binding agent in prepared foods. They will also investigate the market potential for baobab pectin in the U.S. and the European Union.

For additional information, contact: Richard Schuhmann at rxs34@psu.edu.

U.N. Food, Agriculture, and Hunger Database Made Public

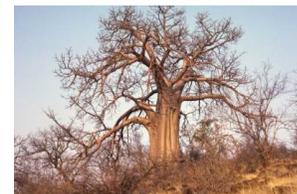


The world's largest database of food, hunger, and agricultural information is now fully accessible online. Earlier this summer, United Nations announced that the FAO granted free and open access to its central repository, FAOSTAT (<http://faostat.fao.org/>). FAOSTAT includes data on agricultural and food production, usage of fertilizers and pesticides, food aid shipments, food balance sheets, forestry and fisheries production, irrigation and water use, land use, population trends, trade in agricultural products, the use of agricultural machinery, and more.

In addition to aiding development planning, the information contained in FAOSTAT gives developing countries the intelligence they need in order to participate in and benefit from international trade in an effective and competitive manner. Donor countries can also use it to identify specific sectors where aid might be most effectively targeted.

"We are now providing totally free access to this immense pool of data," said Hafez Ghanem, FAO Assistant Director General for Economic and Social Development. "This information is an important tool in the fight to alleviate poverty, promote sustainable development and eliminate hunger. We're particularly keen on making sure that economists, planners, and policy-makers in the developing world, where that tool is needed most, can get at it and put it to good use."

"FAOSTAT is a powerful tool that can be used not just to see where hunger occurs, but to drill down and better understand why hunger occurs – and what might be done to combat it," added Pietro Gennari, FAO Statistics Division Director. "It's especially designed to support monitoring, analysis and informed, evidence-based policy-making specifically related to rural and agricultural development and hunger reduction, the only tool of its kind."



Baobab tree—photo courtesy of <http://www.plantzafrica.com/plantab/adansondigit.htm>.



Baobab fruit—Photos courtesy of <http://www.baobab-fruit.com/>.

Global Poverty and Hunger in 2015

The United Nations UN Millennium Goal 1 is to reduce by half global poverty and hunger by 2015. For more information, visit:

<http://www.ifpri.org/publication/halving-hunger>.



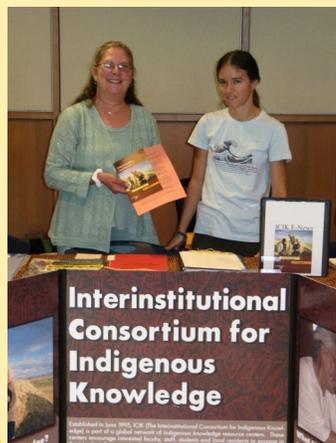
Touring historical and cultural sites in China

ICIK Booth at Resource Fair for New PSU Students

This year, for the first time, ICIK was represented at the Campus Resource Fair on August 23-24 and at the College of Agricultural Sciences Graduate Student Resource Fair on August 27th.

The displays were staffed by volunteers, Tataleni Asino, Kathy Karchner, Danna Seballos, Kristal Jones, Mary Marete, and Angela Richard, who provided fair attendees with information about ICIK activities and encouraged them to join the ICIK listserv. There were 35 students from 25 different academic majors who signed up!

If ICIK E-News readers know individuals who might be interested in joining the ICIK list, please provide their names and e-mail addresses to Audrey Marezki at anm1@psu.edu.



Together, Penn State and Jiangnan Undergraduates Take on a Big Environmental Problem to Sustain their World

By Jacqueline S. McLaughlin, Penn State Lehigh Valley

Tackling the world's most challenging environmental problems takes more than classrooms and textbooks. It takes preparation, hands-on research efforts, collaboration, and commitment. It also takes real-world exposure and experience.

Recently, a contingent of undergraduate students from Penn State and Jiangnan University met in Wuxi, China, with faculty from both institutions to address the eutrophication of Lake Taihu—China's third-largest freshwater body and a long-time source of natural beauty, water, and wealth. This joint effort was part of the Penn State CHANCE embedded interdisciplinary field course *Environmental Concepts and Economic Principles: A Field Study in China*, which ran from May 15- 28, 2010. The course was developed for science and economics undergraduate students in the United States and China to study global water pollution and to teach global environmental sustainability through hands-on research efforts.

As part of their preparation for actual field work, Penn State students visited Dow Chemical Company's Bristol and Shanghai wastewater treatment plants, received hands-on experience in industrial water purification technology, and compared water regulations in the United States with those from other countries. The students also visited Dow's Zhangjiang site to learn about new technologies in ion-exchange resins used to treat/purify water world-wide, and the development, production, packaging, and worldwide distribution of such resins. Students were ultimately able to purify "coke water" (water polluted from coal mines with toxic phenols and other such chemicals) in a state-of-the-art laboratory using a Dow resin.

The course's field component consisted of American and Chinese students carrying-out an intensive one-week practicum. Students participated in a program of field-based research activities that focused on gathering and analyzing data on the differences in water quality of two sites along Lake Taihu: one located at the mouth of a river that releases industrial and urban wastes directly into the lake (Liangxi River), and another in an area of government-based ecological restoration that began in 2007 when this once pristine body of water succumbed to floods of industrial and agricultural waste, making international headlines. A bloom of toxic cyanobacteria turned this aquatic industrialized epicenter (presently representing 11.6 percent of China's GDP) a fluorescent green.

Students presented data and their interpretations to an audience of faculty, government officials, and other students at the end of their work. Potential solutions to the pollution of Lake Taihu, such as salvaging cyanobacteria, improving industrial and waste water treatment, and removing sediment, were discussed in a faculty-led panel discussion among government officials, business owners, faculty experts, and citizens. This forum was eye-opening, allowing all involved to freely discuss the issues at hand and the realities of other water-related environmental problems in China, such as those affecting the Yangtze and Yellow Rivers.

Students also visited the World Expo in Shanghai to tour and study the Dow-sponsored Eco-House, as well as several historic and cultural sites such as Tian'anmen Square, Forbidden City, Temple of Heaven, and the Great Wall in Beijing. When asked to comment, post-trip, on her most captivating cultural experience, Amy Haupt, senior in the Smeal College of Business majoring in supply chain management wrote about her interactions with Asian counterparts.

"The most fascinating cultural experience for me was talking to the Chinese college students. It was interesting to see how they have a lot of similar interests and hobbies, yet they live in a completely different culture. I believe that they would be shocked with the amount of openness that exists on Penn State's campus. There were many differences between Jiangnan and Penn State such as the amount of bicycles used on campus, the dorm room rules and setup, and the type of housing available for students, but both campuses are filled with young students eager to learn. So, although different in many ways, I really do feel like we are still peers and can relate."

To see footage of Penn State and Jiangnan students giving their research presentations and selected adventures from their sightseeing tours, watch the two videos at <http://chance.psu.edu/videos2010.html>.

(continued on page 11)

Penn State and Jiangnan Undergraduates Take on Big Environmental Problem

(continued from page 10)

CHANCE (Connecting Humans And Nature through Conservation Experiences) is both an educational outreach and a professional development program whose overarching goal is to educate high school science teachers and students, as well as university undergraduates, in conservation biology and global environmental sustainability.

Through international field courses and online curricular tools, participants engage in inquiry-based research opportunities and conservation efforts that allow them to better understand global environmental issues. Participants also gain the awareness, knowledge, and skills needed for a more sophisticated understanding of the causes, connections, and consequences of global environmental destruction.

CHANCE is grounded in the principle that by connecting people, at all levels, to nature through real-world experiences that incorporate scientific concepts, techniques, data, and interpretations, they can better construct their own understanding of their local landscapes and better effect change that will sustain the biodiversity of our planet.

For more information on CHANCE and its embedded field programs and modules please visit www.chance.psu.edu and <http://www.facebook.com/psuchance>.

Honey Bees in Africa: Back to the Future

By Maryann Frazier

It surprises many people to learn that honey bees are not native to the New World. The earliest records indicate that honey bees, *Apis mellifera*, were brought to North America from Europe in 1621. However, today, honey bee populations, as well as the populations of other pollinators, are declining. This decline is documented in a 2007 report by the National Academies of Science, *The Status of Pollinators in North America*. Due to this report and the mapping of the honey bee genome, as well as the phenomenon known as colony collapse disorder (CCD) and the media's response to it, there has been a lot of attention paid to this tiny creature.

Worldwide, honey bees are a critical player in the pollination of many native plants as well as in the production of important food, fiber and seed crops. The loss of honey bee colonies could result in lower quality, higher priced foods or the total absence of some foods from the marketplace. There may be a number of reasons why honey bees are declining including loss of habitat, poor nutrition, exposure to pesticides, diseases, and the introduced parasitic mite, *Varroa destructor*, that is considered to be the most devastating pest of *A. mellifera* worldwide. The race is on to understand what is happening to our bees and what can be done to save them.

There are approximately seven known honey bee species. All are native to Asia, except the one species brought to the Americas, *Apis mellifera*, which is native to Africa and Europe, but may have originated in Africa. Its presence for thousands of years on a continent where ecosystems range from desert to savannah to tropical rain forest has resulted in a highly diverse population of unique subspecies, each well adapted to its specific habitat. The subspecies have unique mechanisms that equip them to thrive, even in places that appear unsuitable for honey bees. One such mechanism is defensive behavior: these bees are, after all, the parent population of the Africanized (aka "killer") bee, now ubiquitous throughout most of South America and all of Central America and Mexico as well as the southern United States. In addition, African bees reproduce (swarm) and abscond (leave the nest) more often than do their European counterparts and they are able to migrate long distances to find the nectar and pollen resources they need. African bees also appear to be better equipped to deal with the diseases and pests that plague nearly all keepers of *A. mellifera* in other parts of the world.

A 2009 United States Department of Agriculture, International Science Education grant awarded to Penn State's Center for Chemical Ecology in collaboration with the International Center for Insect Physiology and Ecology (icipe), enabled Jim and Maryann Frazier, Jim Tumlinson, beekeeper Tom McCormack, and graduate students, Dan Schmehl and Tracy Conklin, to visit Kenya. The goal was to study the biology and behavior of African bees and learn how they are kept by beekeepers in East Africa. What was discovered on this trip was a surprise not only to us, but also to icipe colleagues, Elliud Muli and Baldwyn Torto. *Varroa* mites, thought not to be present in East Africa, were discovered in all the icipe colonies, yet the bees did not appear to be suffering from the infestation. This initial discovery led us, and later our icipe colleagues, to survey additional colonies. It is now clear that the mite is widespread throughout much of Kenya and is also present on the coast of Tanzania as well as in Ghana.

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Penn State and Jiangnan students visiting the Dow site



2009, Elliud Muli, icipe beekeeping specialist, searches for varroa mites in honey bee drone brood while conducting hygienic behavior test, icipe apiary, outside of Nairobi.



Harland Patch and Diana Sammataro collecting honey bee samples in Nadasa (Aberdares). These samples have been brought back to Penn State for molecular testing that will allow us to identify the bees to subspecies to determine if they are infected with any known bee diseases.



2010, taking colony health measurements on hives, Muchorwe Village, in the Aberdares.

See the spring 2011 issue of ICIK E-News for information on indigenous knowledge about beekeeping in Africa.



Image courtesy of USDA.

Honey Bees in Africa: Back to the Future

(continued from page 11)

In 2010, an expanded Penn State/icipe team that included Christina Grozinger and Harland Patch from Penn State, and Dan Masiga from icipe, returned to Kenya with funding provided by a Gates-NSF-BREAD grant (Basic Research to Enable Agricultural Development). Also joining the team was visiting scientist Diana Sammataro (USDA/ARS). The 2010 goal was to identify the geographic distribution of the four known *A. mellifera* subspecies in Kenya, to characterize their *Varroa* mite and disease loads and to look for certain behavioral characteristics. We also hoped to learn what impact *Varroa* mites are having on the honey bee populations and whether or not different subspecies are responding differently to the *Varroa* infestations. We spent the month of June visiting beekeepers, collecting samples and measuring honey bee colony health parameters at fifteen different locations in central Kenya and along the eastern coast. We also conducted extensive interviews with twenty-seven beekeepers.

Based on the colonies that we inspected, the beekeeper interviews we conducted, and the experience of the icipe beekeeping staff, the health of honey bee populations in Kenya appears to be declining. In general, there are fewer hives being colonized by swarms or migrating colonies of bees than in the past. Hives containing bees are small and are not producing much honey. Colonies in areas where beekeeping has traditionally thrived due to abundant nectar and pollen resources seem to be less affected than are those in areas with poor or limited resources. Potential factors contributing to the decline in health may include loss of foraging areas (deforestation and increased clearing of land for farming), drought and climate change, pesticide use, and, of course, the presence of the parasitic mite, *Varroa destructor*, and the viruses it can transmit. Over the next year, we and our icipe counterparts will analyze the samples we have collected, monitor the health of the colonies we visited and conduct additional experiments to increase our understanding of these bee subspecies and their abilities to withstand many of the same pressures that are causing bees to decline in other areas of the world.

We learned from the beekeepers we interviewed that there is an unlimited market for honey. Individuals have the potential to generate income from keeping bees and producing honey, but access to good-quality beekeeping equipment and adequate training is limiting their success. It is important to understand why Kenyan honey bees are not thriving and to find out what needs to be done to ensure healthy, productive populations. We are hopeful that what we learn in Africa will provide clues to help ailing honey bee populations around the world.

Penn State Hosts 14 New Humphrey Fellows

By David Ader

Humphrey Fellows have been coming to Penn State ever since the program was established in 1987 by President Jimmy Carter to honor the late U.S. Vice President, Hubert H. Humphrey. More than 300 Humphrey Fellows have come to Penn State in the past twenty-three years. During the current academic year, fourteen new Humphrey Fellows are being hosted by the College of Education where the program is directed by Leila Bradaschia.

The...Fellowship Program provides ten months of non-degree academic study and related professional experiences in the United States. "Humphrey Fellows are selected based on their potential for leadership and their commitment to public service in either the public or the private sector. The Humphrey Program fosters a mutual exchange of knowledge and understanding about issues of common concern in the United States and the Fellows' home countries. The Program offers Fellows valuable opportunities for leadership development and professional engagement with Americans and their counterparts from many nations. More than 4,000 men and women have been honored as Humphrey Fellows since the program began in 1978. Approximately 200 Fellowships are awarded annually. Eighteen major universities in the United States host Humphrey Fellows. These host universities are chosen for their excellence in [identified] fields...and for the resources and support they offer Humphrey Fellows." (<http://www.humphreyfellowship.org/>)

This year's Humphrey Fellows come from many countries and have diverse backgrounds, but in their home countries they all work in the field of higher education administration. As such, they will have the opportunity to share important information about higher education administration from a variety of cultural perspectives, as well as to learn about administrative structures and practices at Penn State. The Penn State community is encouraged to involve the fellows in campus activities to make their experiences meaningful during their time on campus. Inviting fellows to attend department or program administrative meetings is encouraged. The fellows could take part either as observers or as active participants in the proceedings. Faculty, staff, students and townspeople are invited to support these international visitors to Penn State by attending their Humphrey Fellow presentations. These presentations will take place in the Paterno Library, Foster Auditorium from 12:00 p.m. to 1:00 p.m. on the following dates in 2010: October 12, October 19, November 2, November 9, November 30, and December 7.

Information on each of the 2010-2011 Humphrey Fellows can be found on Penn State Live at: <http://live.psu.edu/story/48104/rss4>.



2010 Humphrey Fellows

Humphrey Fellows Presentations:

October 12

October 19

November 2

November 9

November 30

December 7

Paterno Library, Foster Auditorium

12:00 p.m. to 1:00 p.m.

Learning the iPad Way in Namibia

Following his experience with iPads in a class on “Disruptive Technologies” taught by Cole Campese, Director of Education Technology Services, and Scott McDonald, Associate Professor of Science Education, Tataleni Asino, decided to take the iPad to his home country of Namibia. Asino, a doctoral student in Instructional Systems and Comparative and International Education in the College of Education, wanted to see what impact this new technology would have in a location where students were unfamiliar with the technology. Read about Asino’s experiences in a two-part story at:

<http://tlt.its.psu.edu/about/news/2010/doctorate-student-takes-ipad-to-african-homeland-as-part-of-summer-research-part-1>

<http://tlt.its.psu.edu/about/news/2010/doctorate-student-takes-ipad-to-african-homeland-as-part-of-summer-research-part-two-of-a-two-part-series>

Asino’s personal blog can be read at:
www.personal.psu.edu/tia103/blogs/the_ipad_in_various_contexts/.

ICIK Co-Sponsors 2010 United Nations Day Celebration

ICIK will be a co-sponsor of the 2010 United Nations Day Celebration hosted by the Centre County United Nations Association and its Council of Organizations. The event will be held on Sunday, October 24, 2010, from 5:30 p.m. to 8:30 p.m., at the Ramada Inn Conference Center and Ballroom, 1450 South Atherton Street, State College, PA.

Distinguished speaker Dr. Mary Burke of Carlow University and executive director of the Project to End Human Trafficking (www.endhumantrafficking.org) will make a presentation on the topic of “Human Rights and Responsibility: The Issue of Modern Slavery.” For more information about Dr. Burke and the topic of human trafficking, visit: http://www.unacentrecountypa.com/Burke_Trafficking.html.

The cost for the U.N. Day Dinner is \$30 per person. To register, please send check to Normal Keller, 178 Beasons Road, Tyrone, PA 16686. For more information, visit: www.unacentrecountypa.com. Free parking is available.

Dr. Burke will also be speaking on the topic of human trafficking at 7:00 p.m. on Monday, October 25, 2010, in the Auditorium of the Lewis Katz Building on the Penn State University Park campus. Parking is free behind the Katz building.

Bednar Intern Catalogues CIKARD Materials



In 2000, Iowa State University closed CIKARD, the Center for Indigenous Knowledge in Agriculture and Rural Development, following the untimely death of

founder Dennis Michael Warren in 1998. In 2010, the anthropology department at Iowa State donated the CIKARD collection to Penn State. Benjamin Hess, a senior majoring in Community, Environment and Development with a focus on international development, has been awarded a Bednar Internship for the 2010-2011 academic year to examine the content of the CIKARD archive and identify unique items for an indigenous knowledge resource collection to be housed in the Penn State University Libraries.

As a result of working on this project, Benjamin will broaden his knowledge of international rural sociology by researching, cataloguing, and working with knowledgeable subject librarians. Benjamin is supervised in his internship by Amy Paster, Head of the Life Sciences Library, Steven Herb, Head of the Education and Behavioral Sciences Library, and Helen Sheehy, Head of the Social Sciences Library.

The Bednar Internship is named for Marie Bednar, a former head of Cataloging Services at the University Libraries. The purpose of the Bednar Internship is to support and enhance the University Libraries by providing monies for an internship program that will enable undergraduate students to participate in an active and collaborative learning experience and to gain career experience while earning academic credit.



Tataleni Asino

UN Day Celebration

Sunday, October 24, 2010

5:30 p.m.—8:30 p.m.

Ramada Inn Conference Center
and Ballroom
145 South Atherton St.
State College, PA



Benjamin Hess

ICIK

Your Questions and Comments Are Welcome!

The ICIK E-Newsletter will be published each semester—Fall, Spring, and Summer. If you have questions or comments about this newsletter, or ideas for articles, features, or general information you would like to see in upcoming newsletters, please contact Audrey Maretzki. Questions regarding ICIK may also be directed to either Dr. Semali or Dr. Maretzki.



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SPECIAL NOTE TO CONTRIBUTING AUTHORS:

We encourage and appreciate articles submitted for publication consideration in ICIK E-News. Please note that articles accepted for publication in future issues must have a **clear focus on indigenous knowledge**. Through ICIK E-News, we report on, honor, and celebrate the diversity of “ways of knowing” among indigenous peoples around the world.

We encourage your submissions for future newsletters. **Please Note:** ICIK reserves the right to accept or refuse submissions, and to edit those submissions that are published.

Upcoming Publication and Submission Deadlines for ICIK E-News

<u>Publication:</u>	<u>Submissions Due:</u>
Spring 2011	December 1, 2010
Summer 2011	May 1, 2011

Alternative Format

This publication is available in alternative media on request.

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See you in
the Spring!