Colorado State University Establishes Center Focused on Toxicology and Environmental Complexity Science

Colorado State University announced in November the formation of the new international Center for Environmental Medicine, based in the Department of Environmental and Radiological Health Sciences, with missions in research, teaching, and global outreach.

“The center focuses on research that seeks to understand the complexity of certain systems and the impact they have on human and animal health,” said Dr. William Hanneman, Director of the Center for Environmental Medicine and Associate Professor in the Department of Environmental and Radiological Health Sciences. “Networks and complex systems have been the subject of a great deal of recent research in multiple disciplines including business, physics, and engineering.

“We study environmental toxicology and infectious disease at the network or systems level. Contamination of global food and water supplies with pesticides, heavy metals, pharmaceutical agents, agriculture waste, and pathogenic bacteria are all examples of these complex systems.”

The CEM was formally announced during Colorado Gov. Bill Ritter’s trade mission to Asia in November 2008 when the University signed rare research and education partnership agreements with Japan's National Institute of Radiological Sciences, Japan's equivalent of the National Institutes of Health, and Gifu University’s School of Medicine. It was through Dr. Hanneman’s long-term research and connections in Japan that major steps were taken toward a successful signing of memoranda of understanding with NIRS and Gifu.

Also on the trade mission to Asia with Gov. Ritter were Dr. Tony Frank, Interim President of Colorado State University; Dr. Jim Cooney, Vice Provost for International Programs; Dr. Lance Perryman, Dean of the College of Veterinary Medicine and Biomedical Sciences; Dr. Pete Hellyer, Associate Dean, Professional Veterinary Medical Program; Dr. Jac Nickoloff, Head, Department of Environmental and Radiological Health Sciences; Thom
Welcome

Dear Friends,

My name is Jac Nickoloff and I am the new Head of the Department of Environmental and Radiological Health Sciences. I come to Colorado State University from the University of New Mexico, but in a way I feel like I have come home. I have collaborated with and known many Colorado State University faculty members, alumni, and students through the years, and it is a great pleasure to now have them as colleagues working toward ambitious goals and developing exciting new programs.

One of these new programs, launched in November, is the Center for Environmental Medicine which you’ll read about in this edition of the ERHS Emitter. The center began as a result of established international connections, the foresight of faculty members to see growing prospects for research and academic collaboration, and societal needs that had to be addressed. In November, I had the incredible opportunity to travel to Japan with Gov. Bill Ritter and envoys from state government, business, and Colorado State University. The CEM was formally announced during this trip and memoranda of understanding between Colorado State and two Japanese research institutions were signed.

Other stories in this edition include an update on the Colorado School of Public Health, which is watching its enrollment numbers grow steadily as the school gains regional and national recognition; profiles of several of our talented undergraduate students who have traveled abroad to expand their experiences in environmental health; a faculty profile on Dr. Stephen Reynolds, who continues to excel as Director of the High Plains Intermountain Center for Agricultural Health and Safety and Co-Director of the Mountain and Plains Educational Research Center; a visit with Dr. Rena Saito, an ERHS alum now working at NIOSH; and much more.

I’d also like to take this opportunity to recognize and give a special thank you to Dr. John Zimbrick who has helped make the transition in leadership at the Department a smooth one. I greatly appreciate his time, wisdom, words of encouragement, and positive energy. He remains on the ERHS faculty and I look forward to his continued contributions to our Department.

I hope you enjoy the Spring 2009 edition of the ERHS Emitter. I welcome your questions and comments on the magazine and its contents, as well as suggestions for articles in future editions. Please drop us a line or give us a call with your input.

Best Regards,

Jac A. Nickoloff, PhD
Professor and Head
Department of Environmental and Radiological Health Sciences

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University Announces Establishment of Center Focusing on Food and Fuel

continued from Page 1

Hadley, Director of CVMBS Office of Finance and Strategic Services; and Makoto (Max) Matsuura (see page 4 for separate article on Matsuura).

While global in mission, the CEM began work immediately looking at environmental health issues related to commerce in Asia. The center’s partnership with Japan allows it access to products manufactured there and in other countries with high exports. For example, along with the United States, Japan is one of China’s largest importers of goods, although many products from both countries are exported globally.

The CEM anticipates initial projects in Asia will include research and educational efforts into issues such as melamine in food products; heavy metal levels in water sources for agricultural products that are distributed globally, including soybeans; and the quality and purity of vitamin C. About 90 percent of the world’s vitamin C is produced in China. Neither China nor Japan has the equivalent of the Environmental Protection Agency, and CEM officials expect to play an international role in education and team building between countries.

“Energy is a leader in this field and we are partnering with them on a "state-of-the-art" toxicological research facility – built to scale at the Foothills Research Campus – to study various technologies that recover energy from biomass fuel sources as well as study the toxicological impact.”

NOVO ENERGY, LLC

Exploring Green Possibilities

One area of specialized research focus for the Center for Environmental Medicine is the use of biomass and biofuels for energy production. The CEM is entering a joint venture with Novo Energy, based in Fort Collins, Colo., to establish a waste-to-energy research facility that will convert animal waste products to energy.

“We are interested in testing how we can incinerate waste and turn it into energy with zero emissions,” said Dr. William Hanneman, Director of the Center for Environmental Medicine. “Novo Energy is a leader in this field and we are partnering with them on a "state-of-the-art" toxicological research facility – built to scale at the Foothills Research Campus – to study various technologies that recover energy from biomass fuel sources as well as study the toxicological impact.”

Novo Energy provides state-of-the-art technology for solid fuel-based renewable energy projects throughout the world. The core technology is the patented Aireal® Combustion System (ACS), which is a combustion technology that is lower in cost to install and maintain than conventional technologies, while improving plant efficiency ratings both operationally and environmentally. Novo’s ACS technology will anchor the commercial scale research facility. It also will integrate other technologies for energy recovery, including gasification. The biomass fuel streams to be tested include waste wood, crop residues, and animal waste.

With the Novo ACS technology, animal waste, including poultry waste which contains heavy amounts of nitrogen and phosphorus as well as contamination with antibiotics and bacteria, would move from being a potentially hazardous product in the environment to a renewable, nonpolluting source of energy. Communities with particular concerns over feedlot waste would benefit from removal of the waste from their landfills, holding ponds, and local surface water systems. Dr. Hanneman estimates the proposed new facility could incinerate between 100 and 200 tons of waste per day, once fully operational.

“We are developing a partnership with Novo Energy to conduct toxicology studies at the proposed research facility from a number of different perspectives including particulate studies and carbon concerns,” said Dr. Hanneman. “Right now, Novo Energy is somewhat limited in its research progress because it lacks full-scale research facilities. Often, what works on the laboratory bench does not transfer to industrial settings. Novo has a number of commercial installations of its ACS technology, but the fuel testing has been limited thus far to municipal solid waste and industrial waste. The new facility would enable Novo Energy and the CEM to conduct research on a larger scale with a multitude of other renewable fuels, resulting in real-world solutions.”

With the help of venture capital, Dr. Hanneman said that Novo Energy and the CEM hope to raise $25 million to $32 million to build the facility, paying a return on investment with knowledge gained and patentable breakthroughs in renewable energy conversion technologies.

In addition to global research and outreach, the CEM will provide national and international educational opportunities, particularly through its professional master’s program.

Additional ERHS and CVMBS faculty members affiliated with the Center for Environmental Medicine include Drs. Marie Legare, Ron Tjalkens, Richard Slayden, and Greg Dooley. Matsuura is on the staff as Special Assistant to the Director for Business and Student Relations. To learn more about the center, visit their website at www.cvmbs.colostate.edu/cem/.
Working to establish relationships and agreements with agricultural companies, the Center for Environmental Medicine is fostering a team environment that will ultimately benefit consumers, as well as countries importing and exporting industrial goods, by developing and standardizing testing technologies to detect pathogenic bacteria and chemical residues in agricultural products.

“The problem many companies face is that each country has different standards and that requires a lot of testing depending on where a shipment is heading to,” said Dr. William Hanneman, Director of the Center for Environmental Medicine in the Department of Environmental and Radiological Health Sciences. “We want to position the CEM to set policies on testing so that we can run samples that will meet regulations in China, Japan, or other import/export countries, and provide cost savings for companies, with reliable test results for governments and, ultimately, consumers.”

Testing of agricultural products varies from country to country, with Japan having some of the most strict “purity” standards on the planet. Dr. Hanneman said testing technologies have a lot of room for improvement using technologies in development, or already developed, at the CEM that are ready for field deployment. Partnering with industry and government agencies will allow those technologies to move into the marketplace more quickly and result in improved testing.

“We have to be mindful of the combination of science and politics, with both playing an important role in international import/export policies,” said Dr. Hanneman. “By establishing the CEM as a third party, we can begin to build trust with agricultural companies along with fostering an environment of confidentiality. We also can work with governments to encourage them to reward ‘good behavior’ in companies that consistently meet or exceed regulatory standards.”

Agricultural testing and safety has become a greater concern in the United States and around the world in the wake of numerous contamination incidences such as melamine in infant formula, E. coli in spinach and pepper crops, and salmonella in peanuts. More than 200 known diseases are transmitted through food, caused by viruses, bacteria, parasites, toxins, metals, and prions. In the United States alone, the Centers for Disease Control estimates that foodborne diseases cause 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths each year. Food safety advocates are calling for stronger regulations and increased oversight and testing of food production, all areas of expertise within the CEM.
With little standardization in regulations from one country to another, agricultural products that are fine to sell in one place may not meet minimum acceptable residue standards in another.

its initial growth phase, day-to-day tasks are not predictable. Right now, I’m working on developing connections between the University and agricultural producers as well as domestic and international consumers, government, and industry, and working to recruit international students to our graduate program.”

One early success for the Center for Environmental Medicine were memoranda of understanding signed late last year for research and education partnership agreements with Japan’s National Institute of Radiological Sciences, which is Japan’s equivalent of the National Institutes of Health, and Gifu University’s School of Medicine.

“We have a very big vision of where we want to go and the relationships between the CEM and industry are an important component of that,” said Dr. Hanneman. “Without those relationships, and those with governments and the international community, nothing will happen. Max is definitely an important part of helping us establish the center on firm ground with an international footprint.”

In addition to his duties at the CEM, Matsuura works part time in the College’s Office of Finance and Strategic Services. His primary responsibilities include the development of an internationalization plan for the College, recommendation of policies and development of procedures that assist in diversifying the College’s international presence, and development of key contacts in Japan and East Asia that will lead to further partnerships of teaching, research, and service not only in the Department of Environmental and Radiological Health Sciences but throughout the College.

Matsuura, who is an accomplished “karate-ka,” also hopes to create an international karate club at the University, bringing in students from Japan and elsewhere to train in traditional Japanese karate, while pursuing graduate education in the College. “Sensei Matsuura” is a sixth-degree black belt in Hayashiha-Shitoryu-kai and a certified instructor by the Japan Karate-do Federation. He has trained more than 700 students in the art of karate, including several national champions. He joined Colorado State University in November 2008 and is enjoying getting settled into the Northern Colorado community and working with his colleagues and students in the Center for Environmental Medicine.

ERHS Professor Receives $1.176 Million NIGMS Grant

Dr. Jac Nickoloff, a Professor and Head of the Department of Environmental and Radiological Health Sciences, recently received a four-year, $1,176,000 grant from the National Institute of General Medical Sciences to study a novel human DNA repair protein called Metnase. The NIGMS is one of the National Institutes of Health.

The grant, which began in March 2009, will enable Dr. Nickoloff to continue studies on the Metnase protein. The protein regulates DNA repair of damage caused by radiation, chromosomal translocations, the DNA replication stress response, and chromosome decatenation (untangling) when cells divide. The protein also regulates cellular sensitivity to commonly used cancer drugs and may be an important biomarker that will allow physicians to customize therapies for more effective cancer treatments. These studies also may lead to more efficient and safer human gene therapy protocols.

“This project will further clarify the protein interaction partners of Metnase and mechanisms underlying its roles in chromosomal translocations, DNA replication, and DNA repair,” said Dr. Nickoloff.

Metnase is a recently evolved human fusion protein that promotes random DNA integration and nonhomologous end-joining, and it stimulates chromosome decatenation by Topoisomerase IIα.

“We currently are testing whether manipulating Metnase levels or activity can be used to enhance homology-directed gene targeting in human cells,” said Dr. Nickoloff. “Metnase also may be an important factor in Topoisomerase IIα-mediated chromosome translocations that cause secondary tumors in patients treated with chemotherapeutics that inhibit Topoisomerase IIα.”

Dr. Nickoloff’s grant from the NIGMS reflects the institute’s mission to support research that increases understanding of life processes and lays the foundation for advances in disease diagnosis, treatment, and prevention.

The protein ... may be an important biomarker that will allow physicians to customize therapies for more effective cancer treatments.
Now ending its first year, the Colorado School of Public Health has admitted 25 new students for the 2009-2010 academic year, not including DVM/MPH students. This is up from just five students in 2008-2009 and reflects a growing awareness of the school and the quality of its programs.

“In our initial year, word has gotten out about the school and we have really seen application numbers grow, not only in quantity but also in quality,” said Dr. Stephen Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences and a faculty affiliate with the school. “We are still working out a few bugs – not unexpected given that this is a multiuniversity endeavor – but are working much better from campus to campus as well as making a lot more connections within departments at Colorado State University.”

Dr. Reynolds said a particular emphasis is the development of distance learning as well as developing parallel systems for core classes. Five core classes are offered at all participating campuses, while students and faculty travel to other campuses for additional courses. The enhancement of distance education should improve the delivery of all classes. Dr. David Gilkey, an Assistant Professor in ERHS, has made significant contributions to ensure that the coordination of coursework and offerings continues to improve, in particular through his work with the Mountain and Plains Education and Research Center.

The Colorado effort combines the strengths of the state’s flagship schools to create a school of public health that is greater than the sum of its parts. The consortium includes Colorado State University, the University of Colorado (the school is headquartered at CU’s Health Sciences Center in Denver), and the University of Northern Colorado. CSU brings a strong program in environmental and occupational health sciences, and epidemiology. In addition, the Department of Health and Exercise Science, the Department of Social Work, School of Education, Cooperative Extension, Tri-Ethnic Center, and the College of Business are all University partners participating in the Colorado School of Public Health. UNC brings its nursing program and CU-Denver brings its medical school and an existing MPH program. Dr. Lorann Stallones, a Professor in the Department of Psychology, College of Natural Sciences, is the Director of the school’s Colorado State University program.

The Governor’s Blue Ribbon Task Force on Public Health and Environment, building on earlier efforts, established the rationale for a school of public health in 1989. In 2002, the Colorado Public Health Education and Research Advisory Committee was formed to determine the state’s needs in public health education and research. Findings included:

1. The economic vitality of Colorado’s citizens and businesses is threatened by the high cost of health care and the growing number of uninsured citizens.
2. More than 50 percent of Colorado’s public health workforce lacks public health training and many of its trained personnel are nearing retirement.
3. Gaps in knowledge and access to preventive services limit health improvements for Colorado’s population.
4. Changing demographics of Colorado’s population could lead to further health disparities in disease and disability between rural and urban populations and among ethnic minorities.
5. Current medical training and practices often place undue emphasis on treatment that can overshadow cost-effective, public health prevention solutions.

To address these concerns and others, the Colorado School of Public Health was launched in 2008. The school is beginning to do the work to receive accreditation. The school already is preaccredited by the Council on Education for Public Health and is a member of the Association of Schools of Public Health.

Faculty Awards and Recognition

- Dr. Raymond Yang received a “Lifetime Achievement Award” at the 24th International Conference on Soils, Sediments, and Water, held at the University of Massachusetts in October 2008.
- Drs. Tom Keefe and Marie Legare were each nominated for “Best Teacher Awards” by the Colorado State Alumni Association and the Student Alumni Connection. Both were invited to attend the 2009 Best Teacher Awards program on April 3 in the Lory Student Center North Ballroom.
- Dr. Stephen J. Reynolds was invited to be a keynote speaker at the Australian Institute of Occupational Hygienists to be held in Australia, December 2009.
- KromaTid Inc., received its first Small Business Innovation Research grant, with matching funds from the State of Colorado. The SBIR (NASA) grant provides Phase 1 funding with Colorado House Bill 1001 providing matching funds pending review (designated for early-stage bioscience companies). A Cancer Supercluster grant also was awarded with Colorado House Bill 1001 providing matching funds (proof of concept award).
- Professor Emeritus Roy Buchan was appointed in November 2008 to a 12-person national advisory committee on Occupational Safety and Health for a two-year term. The committee advises the secretaries of labor, and health and human services on occupational safety and health programs.
- Erin Reichert, Environmental Health Undergraduate Adviser/Internship Coordinator, received the Jack E. Cermak Advising Award at the Celebrate! Colorado State awards banquet in April. The award has been presented annually to outstanding advisers across campus since 1984. Reichert, who joined the Department in January 2006, advises current and incoming ERHS undergraduates, works closely with businesses and organizations on internship programs, and is the staff adviser for the Environmental Health Student Association.

- Erin Reichert
High School Class Opens Foreign Doors to ERHS Professor

Turkmenistan, Uzbekistan, and Slovenia are among the distant map points Dr. Stephen Reynolds has visited and worked in during his years as an industrial hygienist and environmental health researcher, not exactly typical destinations for work or travel. But if it wasn’t for one high school class in particular, those opportunities to work in such exotic and challenging locales may not have presented themselves.

“I attended a high school in Minnesota which actually offered Russian as one of its foreign languages,” said Dr. Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences and Director of the High Plains Intermountain Center for Agricultural Health and Safety. “There were only two students in the class, but the class had a big impact on the opportunities I’ve had in my professional career.”

Following high school, Dr. Reynolds attended Carleton College in Minnesota where he majored in chemistry and Russian. He worked as a biochemist for a while and then attended graduate school at the University of Minnesota where he received his master’s and PhD in environmental health. (He helped support himself in school as a distance runner sponsored by Nike.) He also worked for a consulting firm in industrial hygiene and broader areas of environmental health getting real-world experience outside of the academic realm.

“The environmental movement was really taking off in the 1970s,” said Dr. Reynolds, who also is Deputy Director of the Mountain and Plains Education and Research Center, one of 17 national centers funded by the National Institute of Occupational Safety and Health. “I found out by chance about the University of Minnesota’s program and thought it looked really interesting. I was especially interested in the human side of things and decided to focus on industrial hygiene. While I was in graduate school, I used to altitude train in Colorado and arranged to meet Roy Buchan (at Colorado State) who was working in the same field.”

In 1991, Dr. Reynolds joined the faculty at the University of Iowa, a tremendous place in terms of research and teaching, he noted, with a small faculty and lots of activities. Around this time, the Soviet Union was breaking up and Dr. Reynolds was invited to work in Russia as a visiting scientist. With the National Academy of Sciences, he spent time trying to work in Turkmenistan and Uzbekistan.

“These countries have pretty devastating environmental problems, and little to no worker safety regulations, but they have so many fundamental problems with just stabilizing the government and providing basic services, those issues are barely acknowledged,” said Dr. Reynolds. “There are dedicated and passionate individuals who are trying hard, but it’s a very difficult environment and can also be quite dangerous. Democracy in that part of the world is pretty shaky.”

In Slovenia, Dr. Reynolds worked with colleagues to develop a private university with an environmental program. He also was awarded a Fulbright scholarship two years ago to work on papers, pesticide exposures, public health programs, and more in Armenia.

In 2001, Dr. Reynolds left the University of Iowa to join the faculty at Colorado State University and be Deputy Director of HICAHS. Since then, the program has been revamped to reflect changing concerns in agriculture. Dr. Reynolds’ current research focuses on the relation of respiratory disease to organic dust and bioaerosols, as well as endotoxins from gram negative bacteria. He also is developing genetic studies to look at the human susceptibility side of exposures, a particularly important issue for those who are especially sensitive to endotoxin exposure.

“In our laboratory, we are able to look at things a little bit more in-depth, as well as learn from our colleagues here at CSU, especially as we delve into proteomics and genomics,” said Dr. Reynolds. “These tools will be particularly valuable in characterizing not only endotoxins, but other factors that lead to differences in exposure-related health effects.”

In addition to his roles at HICAHS and the Mountain and Plains ERC, Dr. Reynolds is a faculty affiliate with the Colorado School of Public Health. He also is the current Vice Chair of the American Conference of Governmental Industrial Hygienists, and will serve as Chair next year. ACGIH is the global leader in science-based guidelines to protect workers.

His Russian language skills still open opportunities abroad and Dr. Reynolds looks forward to continuing the partnerships that will help that part of the world care for its workers and its citizens, with an eye to the future health of their collective populations.
Possibility to Improve Lives of Others Drew Alum to Industrial Hygiene

When Rena Saito moved from Japan to the United States during middle school, she wasn’t sure what the future held for her. Relocating to a foreign land always offers a unique set of challenges, but those challenges seem to be amplified during one’s teenage years when fitting in seems to be so important. Apparently, no one told Dr. Saito.

She excelled in school and went on to attend the University of Washington in Seattle where an adviser encouraged her to explore environmental health, a field with lots of good things, said Dr. Saito, including good jobs and great opportunities.

“I was really interested in pollution, but then took a course in industrial hygiene, and that appealed to me right away,” said Dr. Saito, who finished her PhD at Colorado State University last year and is now working at the National Institute of Occupational Safety and Health. “I enjoyed the aspect of using high-tech machines to study and improve workers’ environments, and to make an immediate difference in people’s lives.”

She graduated with her degree in environmental health and a minor in chemistry, and her advisers encouraged her to continue her education by applying to the graduate program in the Department of Environmental and Radiological Health Sciences in the College of Veterinary Medicine and Biomedical Sciences at Colorado State University.

“I really enjoyed my time in ERHS; I learned so much and everyone was eager to share information with me,” said Dr. Saito, who is now a U.S. citizen. “The Department is smaller and it was really easy to make friends. All of the professors took an interest in my success, providing me with the support and encouragement I needed to make the best decisions for my future.”

Dr. Stephen Reynolds was Dr. Saito’s major professor for her graduate work, which focused on agricultural safety and health, particularly in bacterial endotoxins as related to agricultural exposures. Her minor in chemistry came in handy, and she developed extensive experience in gas chromatography-mass spectrometry. Her graduate experience is especially relevant in her job today as an Associate Service Fellow in the NIOSH Division of Respiratory Disease Studies, Field Study Branch. She began working there in January 2009, after working as a postdoctoral student with Dr. Reynolds following her graduation in May 2008.

“I enjoy the work I do a lot; it gives me a lot of satisfaction,” said Dr. Saito, who now lives in Morgantown, W. Va. “We are working quite a bit with flavoring companies – particularly with regards to the butter flavorings used in popcorn – to determine exposures, develop standardized sampling methods, and to understand the impact of these chemicals on respiratory health.”

In addition to her work, Dr. Saito is involved with the American Industrial Hygiene Association (she notes it’s important to get involved in professional associations and attend conferences as one of those contacts led to her current position at NIOSH), and is looking forward to warmer weather when she can explore the hiking trails around Morgantown as well as develop her photography skills.

**ERHS 2009 Calendar**

- **May 15-16** – Colorado State University Spring Commencement (www.colostate.edu)
- **May 30-June 4** – American Industrial Hygiene Association Annual Conference, Toronto, Canada (www.aiha.org)
- **June 21-24** – National Environmental Health Association Annual Education Conference and Exhibition, Atlanta, Ga. (www.neha.org)
- **Aug. 24** – Fall Classes Begin at Colorado State University
- **Sept. 30-Oct. 2** – Colorado Environmental Health Association 54th Annual Educational Conference and Exhibition, Copper Mountain Resort, Colo. (www.cehaweb.com)
- **Oct. 9-11** – Colorado State University Homecoming and Family Weekend (www.colostate.edu)
- **Nov. 29-Dec. 4** – Radiological Society of North America Annual Conference, Chicago (www.rsna.org)
Trekking through the rainforest in Ecuador, Madeline Anna developed an appreciation for the importance of natural places in the lives of native people as well as the impacts of resource development – both good and bad. During an alternative spring break in March, Anna was part of a group of students and faculty members from Colorado State University who embarked on a 10-day journey to see firsthand the impacts of oil drilling and mining on local populations, as well as the possibilities of ecotourism and sustainability in helping to rebuild Ecuadorean communities.

“In Ecuador, you get a true appreciation for how the rainforest is the grocery store for people in the region,” said Anna. “Diets and lifestyles are shaped by the rainforest, and activities that interrupt the natural connection between people and the land tend to be very detrimental to both.”

Seeing the ecological damage caused by oil drilling, and hearing accounts from local residents about the battles with oil companies to restore their lands, brought a human face to some of the subjects Anna had been studying in the classroom. Her trip to Ecuador reflects her interests and area of study in the Department of Environmental and Radiological Health Sciences, where she is an undergraduate in the environmental health program. She eventually hopes to attend veterinary school, and focus on her interests in epidemiology and public health.

“When I first learned about environmental health, the variability offered in the degree appealed to me,” said Anna, who is a junior this year. “Water quality, food safety, industrial hygiene, toxicology – there are so many different fields within the EH program. As I’ve learned more, I’ve decided to focus on epidemiology and public health, with the eventual goal of receiving a combined DVM/MPH degree. Working as a port veterinarian is something that holds particular appeal for me.”

Last spring, Anna explored other aspects of environmental health while participating in a study abroad program with Lincoln University in New Zealand. This summer, Anna will extend her field experience through an internship with the U.S. Public Health Service’s Junior Commissioned Officer Student Training and Extern Program. She’ll be serving in the Indian Health Services, Division of Environmental Health, in Shawnee, Okla. Anna, who also is Native American, is looking forward to her first paid internship, especially with the title of junior commissioned officer.

Anna is a participant in the University Honors Program and was a Hughes Undergraduate Research Scholar. She also is an active volunteer with the Rocky Mountain Raptor Program where she has achieved an E1 certification and volunteers as a care provider and handler, bringing the RMRP’s educational “ambassadors” (rescued birds unable to survive in the wild) to special events to help educate the public about the environment and the importance of raptors in ecosystems.
A mong Sahaja Templin-Hladky’s most prized possessions are thank-you letters from elementary school students in New Zealand, with whom Templin-Hladky shared a message of sustainability and environmental responsibility during a study-abroad program at Lincoln University last spring. The notes are just a small, albeit colorful, reminder of experiences that are helping to shape her academic and professional career choices.

After graduating at age 16 from high school in Colorado Springs, Templin-Hladky came to Colorado State University and, while participating in a pre-vet tour, learned about the undergraduate major in environmental health. It appealed to her interests right away, and she entered the program as a starting freshman.

“Since I was little, I’ve had an environmental sensibility,” said Templin-Hladky. “We lived in California and I would get so sad to see the piles of trash in the streets of San Francisco. I’d pick up as much as I could while my parents would patiently wait, and I’d tell my mom that Mother Earth was crying.”

For as long as she can remember, Templin-Hladky wanted to own a horse and be a veterinarian. When her family moved to Colorado, she took her first riding lessons and when she came to Fort Collins, she purchased her first horse, Strider. Studying environmental health fits in well with her career goals of veterinary school and eventual plans to practice wildlife medicine in the field of international conservation. Her semester in New Zealand expanded her knowledge of global environmental concerns, particularly with regard to native species and more basic concerns of water quality and sustainability.

“I worked with a local elementary school to develop a series of classes on the water cycle as well as the waste cycle, based in large part on the Environmental Home Program developed in the Department of Environmental and Radiological Health Sciences,” said Templin-Hladky. “Dr. Dave Gilkey provided me with materials and I also developed new study aids for the kids, along with different experiments. It was a lot of fun to get off the college campus and into the local school, to really see what an international community New Zealand is.”

Back at Colorado State University, Templin-Hladky continues her environmental health education along with taking many elective courses in genetics and other biological sciences. In addition to her studies, she works as a lab technician at Global AECOM in the aquatic toxicology laboratory; has an independent study program with the Animal Reproduction and Biotechnology Laboratory, working in the crypreservation of embryos and PCR reactions; volunteers with the Fort Collins Spay/Neuter Clinic; and previously worked as a barn assistant at the James L. Voss Veterinary Teaching Hospital. She’ll spend this summer as an intern at Yellowstone Bear World, returning to Colorado State in the fall to complete her studies and apply to veterinary school.

“Studying environmental health has really opened my eyes to all the possibilities available in this field, from toxicology to public health to environmental medicine,” said Templin-Hladky. “The experiences I’ve had outside of the classroom have played a large part in helping me determine what I want to do in the future. Bear World will be a long way from New Zealand, but I’m looking forward to learning what I can in that venue as well.”

“Studying environmental health has really opened my eyes to all the possibilities available in this field, from toxicology to public health to environmental medicine.”
CEHA Welcomes First Student to Serve on Board

There’s a saying that if you want something done, give it to the busiest person you know. In the Department of Environmental and Radiological Health Sciences, students take that old adage to heart and step up to just about every opportunity presented including a new one at the Colorado Environmental Health Association. Hannah Reed, a junior in the environmental health program, is now serving in a newly created position as student representative on the CEHA board.

“This is the first year the Colorado Environmental Health Association has had a student on their board, so it’s a great honor to represent our Department and serve in this capacity,” said Reed. “They wanted a student voice and had been considering it for a while. It gives them another perspective.”

The nonvoting board position is for a one-year term and Reed is using her time to generate awareness about the professional organization, as well as how students can organize, get involved, and get active. Reed notes that an important part of success after college is making connections while still a student, especially through involvement with professional organizations, internships, and volunteer work. She also is reaching out to other University students to increase awareness about the environmental health major and career opportunities.

In addition to her work with CEHA, Reed serves on three committees and works as a volunteer in the Equine Orthopaedic Research Center at the James L. Voss Veterinary Teaching Hospital. She works at the Centers for Disease Control in the Arboviral Branch’s West Nile mosquito laboratory, and carries a full load of classes. Reed also is an avid horsewoman.

“I grew up in New England and then, following high school graduation, moved to Germany to continue my dressage education,” said Reed. “After two years, the woman I was training with encouraged me to continue my formal education. I had a friend in the environmental engineering program at Colorado State University who encouraged me to come here, so I started here in engineering.”

After a year, Reed left the engineering program and attended Front Range Community College to establish residency and get a clearer picture of the direction she wanted to go with her studies. Returning to Colorado State University, and after a brief stint in watershed science, she learned about the environmental health program and never looked back. This summer she’ll be one of eight undergraduate students heading to Nicaragua for follow-up studies on the Nicaraguan cook stove project, which is establishing the scientific basis of the effectiveness of cleaner cooking stoves in improving baseline health outcomes. Her goal after graduation is to complete the DVM/MPH combined degree at Colorado State, with a focus on human disease and the environment.

Association Helps Keeps EHSA Students Active in Community and Profession

The Environmental Health Student Association in the Department of Environmental and Radiological Health Sciences offers undergraduate students the opportunity to have an active role in their community, as well as develop a network of peers to support them in their academic and professional journey.

This year’s EHSA officers are: Jessica Lucero, President; Melodie Nye, Vice President; Lindsay Davis, Secretary; and Rachel Burmeister, Treasurer. Other officers are Hannah Reed, Professional Development and College Council Representative; Shanan Gronewoller, Fundraising Chair; and Chris Pedersen, College Council Representative.

The association has an active event calendar including CSUnity on April 18, when EHSA students joined more than 2,000 Colorado State University students who gathered for a daylong service day in and around the Fort Collins community; a student/staff chili cook-off on April 10; movie fundraisers at the Lyric Café; working booths at the CSU Sustainability Fair; a scholarship for a student who is completing an unpaid internship; and participating in the Nicaragua cook stove project.

“We hope to keep adding activities to our calendar,” said Jessica Lucero, EHSA President. “There are so many ideas for activities that members have shown interest in. My goal is to make as many of them happen as possible. This is the year that I hope our smaller student association stands out in our CSU and Fort Collins communities.”

The Environmental Health Student Association:

• Promotes unity among students interested in environmental health at Colorado State University.
• Is committed to the betterment of the nation’s health through control of the environment.
• Promotes the active improvement of environmental health professional education.
• Involves its members in the social, moral, and ethical obligations of the profession of environmental health.
• Assists in the improvement and understanding of the environmental health students.
• Advances the profession of environmental health.
• Supports the activities, programs, and objectives of the National Environmental Health Association.

To learn more, visit the EHSA website at [www.cvmbs.colostate.edu/erhs/ehsa.htm](http://www.cvmbs.colostate.edu/erhs/ehsa.htm).
Gifts to the Department of Environmental and Radiological Health Sciences are used to fund undergraduate and graduate scholarships, support startup and established research programs, and provide discretionary funds that are used where most needed. If you would like to make a donation in support of the Department’s needs and goals, please complete the form below and return with your gift. If you have any questions on making a donation to the Department, please contact Paul Maffey, Director of Development for the College of Veterinary Medicine and Biomedical Sciences, at paul.maffey@colostate.edu or (970) 491-3932. Please note that you also may make your donation at our secure online site as listed below.

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