

# Human Biology Newsletter

The Program in Human Biology | Stanford University

Spring 2010

## Stanford's Disease Detectives

*New classes explore the links between environment and health*



*Professor Salkeld examining a flea-bitten prairie dog for disease.*

**Dan Salkeld, Ph.D.**, a wildlife disease specialist, put down his tick draggers and flea flickers this year to teach two new classes — “Intro to Epidemiology” (HumBio 151) and “Environment & Health: An Impact Assessment” (HumBio 117). In the first course, students get a basic understanding of epidemics of infectious and chronic diseases. In the latter, students assume the role of disease detectives, exploring the origins of disease outbreaks by dissecting the complex interrelationships between wildlife, land use, and climate change.

Salkeld’s research focuses on how animals harbor and spread human diseases, and he brings a wealth of field experience into the classroom. Besides studying flea-transmitted plague in Colorado prairie dogs, parasites in Australian lizards, and vector-borne diseases in deforested southeast Asia, he has recently published on the importance of western gray squirrels in spreading Lyme disease in Northern California.

Classroom discussions in HumBio 117 begin with seminars by experts on the interaction of environmental and health. The series will kick off with Nobel-winning climatologist,

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### DIRECTOR'S MESSAGE

*The Program in Human Biology turns 40 next year, and to celebrate, we're planning a major birthday party during the 2011 Stanford Homecoming weekend.*

*To prepare for this event, we're collecting your personal stories to share with fellow HumBio alums. What are your best or funniest memories of your HumBio years? What are you doing now? How did HumBio influence your perspective on the world?*

*In the meantime, we'll be celebrating our 39th birthday as usual, with a HumBio mini-reunion event on Oct. 22, 2010. We hope to see many of you then.*

*Please mark your calendars for the Big 4-0 on Oct. 14, 2011. More details on the program will be coming as we get closer to the event. We hope to share a piece of HumBio birthday cake with you!*

*To register for Stanford Homecoming:*  
<http://www.stanfordalumni.org/erc/reunions/home.html>

*To participate in the HumBio 40th Birthday Survey:*  
[http://www.surveymonkey.com/s/Alumni\\_HumBios\\_40th](http://www.surveymonkey.com/s/Alumni_HumBios_40th)



*Professor Carol Boggs*

CURRICULUM

## Disease Detectives, cont'd

**Stephen H. Schneider, Ph.D.**, a Senior Fellow at [Stanford's Woods Institute](#), who will provide an overview of climate change issues, setting the stage for discussions to come. Lecturers will also include some relatively new arrivals to Stanford, such as epidemiologist **Kris Ebi, Ph.D., MPH**, who will talk about why global warming may be contributing to a rise in respiratory diseases; and **Michele Barry, M.D.**, Senior Associate Dean for Global Health in Stanford's School of Medicine, who will discuss environmental health initiatives abroad.

In each class, students will analyze environmental-health issues from different perspectives, from microscopic pathogens to macroscopic ecosystems. They'll also learn how to use analytical tools, mind maps, and modeling frameworks to better understand these complex systems in the context of public health and policy decisions.



Michele Barry, M.D., discussed global health with Liberian President Ellen Johnson-Sirleaf.

With climate change in the news on almost a daily basis, this class promises to include some lively discussions with experts who have been on the front lines of this controversial issue.

Salkeld adds, "What we hope the students take away from this class is an appreciation for the inter-connectedness of health and the environment, as well as a useful set of tools for making good health-related policy decisions."

Next fall, Salkeld again teaches "Intro to Epidemiology," which covers the basic principles of epidemiology, from the distribution and determinants of disease and health problems, such as obesity and cancer, to the medical detective work required to understand disease outbreaks. This class was funded by a generous donation from renowned epidemiologist, **Richard Hoffman** (Biological Sciences '71), with the goal of introducing students to the fascinating world of epidemiology. §



© Nick Saunders 2007

Photo: [Nick Saunders](#)

### Of Squirrels, Mice and Men

Epidemiology professor **Dan Salkeld** tested hundreds of northern Californian mice, rats, voles, skunks, opossums, and squirrels for Lyme disease and made a surprising discovery — the most notorious host reservoir for the Lyme bacterium (*Borrelia burgdorferi*), was different in California than in the northeastern United States.

In California, western gray squirrels (*Sciurus griseus*) wear the black hats when it comes to spreading the disease, not mice, as previously believed. This species of squirrel was found to infect up to 86% of feeding *Ixodes pacificus* tick larvae in California woodlands, and the infections were long-lasting (up to 14 months), allowing the bacteria to survive trans-seasonally in the ecosystem.

These findings, which Salkeld and his UC Berkeley advisor, **Robert S. Lane, Ph.D.**, published in [The American Society of Tropical Medicine and Hygiene and Ecology](#) and [Vector Borne Zoonotic Diseases](#), should lead to more accurate Lyme disease surveillance and better preventative measures for Californians. §



Chase Richard (Left) and Sam Lawrence (Right) (HB '12) presenting a poster abstract on Chronic Fatigue.

FACULTY PROFILE

## Curran's Jungle Love

**Lisa M. Curran, Ph.D.**, a recent transplant from Yale University, is offering HumBio students two new courses on the impact of humans on the environment — “Political Ecology of Tropical Land Use” (Anthro 166) and “Human Dimensions of Global Environmental Change” (HB 111) — through a joint appointment with the Woods Institute and the Department of Anthropology at Stanford.

Curran is interested in the interactions and dependencies among tropical rain forest species, and how rain forests’ intricate ecosystems are being altered by human activities. Over the last 20 years, much of her field research has focused on the impact of oil palm plantations in Borneo, and how the resulting deforestation is seriously threatening the region’s tropical ecosystem.

Curran’s big discovery, which was published in *Science Magazine*, centers on the region’s dominant 100-foot canopy trees (dipterocarps), which have an unusual cooperative reproductive strategy that makes them vulnerable to forest fragmentation caused by logging and plantations.

Every few years these trees drop a superabundance of seeds within a few weeks. This all-you-can-eat buffet in the rain-forest triggers a stampede of nut lovers — parakeets, monkeys, orangutans, and bearded pigs — that gorge on and spread the seeds that propagate the next generation of trees.

What her years of careful detective work showed was that forest fragmentation, along with an increase of El Niño weather patterns, virtually halted this seed propagation process. No new seedlings were germinating, putting



*Borneo bearded pigs play an important role in spreading rain forest seeds.*

the forest and endangered species at risk.

With the goal of slowing deforestation on a worldwide basis, Curran is working with a multinational team on [REDD](#) (Reducing emissions from deforestation and forest degradation), a “carbon credits” program that will allow industrialized nations to offset their CO<sub>2</sub>-

producing activities by funding the protection of native forests in developing nations.

REDD creates an economic framework where square kilometers of saved forests can be traded in financial markets like a bushel of corn or soybeans. Curran is working on a pilot REDD project in Indonesia, ironing out the complex equations, valuations and measurements that will allow a company to compensate for their greenhouse gas emissions by saving a forest that can neutralize those emissions on a global scale. In time, REDD will be an essential component of UN climate negotiations and the climate change bills pending in Congress.

Curran brings a first-hand understanding of the effects of land use change, climate, drought and fire on carbon dynamics and biodiversity to the classroom. As one of ten Stanford researchers who attended the 15th United Nations Framework Convention on [Climate Change in Copenhagen](#) (COP15), she brought back first-hand accounts of impacts of governmental policies and industrial practices on tropical forests. Or, in the words of Dr. Seuss, this jungle lover “speaks for the trees.” §



*Lisa M. Curran, Ph.D.*

FACULTY NEWS

## HumBio Profs Named Clayman Fellows

**Anne Firth Murray**, HumBio Consulting Professor, and **Marcia L. Stefanick**, Professor (Research) of Medicine, were awarded Clayman Institute Faculty Research Fellows 2009-2010 for new gender solutions. Murray is researching social justice and the importance of agape love as an inspiration for service. Stefanick is addressing chronic disease prevention, as related to menopause and sex hormones.



*Anne Firth Murray & Marcia Sefanick*

## “Preventing Genocide” Online

**David A. Hamburg**, the Reed-Hodgson Professor Emeritus of Human Biology and President Emeritus of the Carnegie Corporation, has donated his documentary, [“Preventing Genocide”](#) to Stanford Digital Collections, and this film is viewable on Stanford’s website.

Produced by David Hamburg and his son, it includes twenty-nine videotaped interviews with world leaders on the prevention of mass violence. §



*David Hamburg*

STUDENT RESEARCH

## Redesigning a Street to Improve Public Health

*Honors student creates a blueprint for healthier urban renewal*



Elaine De Leon

**Elaine De Leon** (HB '10) grew up in a town in rural Pennsylvania where virtually every errand required the use of a car. After moving onto the Stanford campus, she marveled at how much better her quality of life was in a pedestrian-friendly, car-free environment.

“I have more social interactions, and it is much easier to stay physically active,” said De Leon.

These observations, along with a public health internship in San Mateo County, paved the way for her current Human Biology Honors project, “Integrating Health and Planning: A Case Study of the Grand Boulevard Initiative.”

[The Grand Boulevard Initiative](#) is a collaboration of 19 cities, counties, and agencies, all working to improve the safety and aesthetics of El Camino Real, the busy retail thoroughfare that connects South San Francisco to San Jose. For her Human Biology honors project, De Leon is researching how public health considerations can be incorporated into these types of urban renewal projects.

Before she started this project, it wasn't obvious to her how a street redesign could improve public health.

“I soon discovered that getting people out of their cars is the most important priority, because it can measurably reduce everything from obesity to mental illness,” said De Leon. “For example, a recent [Georgia Tech study](#) found that for every 30 minutes that a person spends commuting in a car, that person has a three percent greater chance of becoming obese.

To encourage people to drive less, the Initiative's urban planners are encouraging participating cities to cluster retail stores near mass transportation hubs, to add biking lanes, and to change zoning rules to encourage more sidewalk cafes and fewer drive-through restaurants.

Enhancing the aesthetics of the pedestrian experience can also motivate people to walk more. Before the street makeover began, most of El Camino Real was lined with ugly car-centric strip malls. Now, the cities that have implemented the street redesigns are seeing pedestrians returning and businesses thriving.

Proven strategies include widening sidewalks, adding pedestrian-oriented street lighting, and creating green barriers to buffer the impact of traffic on shoppers. In addition, reducing the number of lanes on El Camino Real from eight to four is slowing traffic and making it easier and safer for pedestrians to cross the street.

De Leon learned that incorporating design elements to promote more social interaction is good for mental health, too. Adding public squares, dog and people parks, benches, and farmers' markets forges social connections, which in turn reduces isolation-driven depression and crime.

During the research phase of her project, De Leon has been attending task force meetings, interviewing key participants, and analyzing the complex interactions between the stakeholders in the project. At the end of her

senior year, she will publish a case study on the Grand Boulevard Project, which will help city planners understand how county-level public health officials can become more involved with urban renewal projects, and in turn, help them make better health-informed design decisions.

While De Leon thought she'd become a pediatrician when she began Stanford, **Catherine Heaney's** class, “Community Health Planning and Assessment” (HumBio



*El Camino's redesign will encourage more people to walk, bike, and take mass transit.*

*continued on page 5*

## Street Redesign cont'd

127A) opened her eyes to all the interesting career possibilities in public health:

“I liked that this class tackled real problems in our community. And from that experience, I learned a set of analytical tools that would allow me to identify public health problems and evaluate solutions.”

De Leon received valuable guidance on her honors project from Stanford Medical School advisors,

**Randall S. Stafford, M.D., Ph.D.** at the Stanford Prevention Research Center, who teaches “Obesity in America: Clinical and Public Health Implications” (Hum-Bio 123) and **Abby King, Ph.D.**, Professor in Medicine and Health Research & Policy. King’s research focuses on disease prevention, especially on behavioral risk factors such as physical activity, smoking, weight, and stress.

As De Leon enters the homestretch of her senior year, she’s finishing up her honors project, and deciding which graduate program in public health to join next year. §

## STUDENT AWARDS

## Bingham Fund Fosters Student Innovation

The [Bingham Foundation](#) provides funds for innovative student projects that enrich undergraduate education at Stanford. These grants are available to Human Biology students, through applications that are due on April 30 and October 31. Here is a summary of this year’s inspirational projects:

☀ **Andrea Pimental** (HB ’10) recruited Spanish-speaking Stanford volunteers to the “Newborn Referral Project,” which helps new mothers enroll at-risk newborns into county health services and insurance programs.

☀ **Christa Morris** (HB ’10) helped organize the [Stanford-Papua New Guinea Conference on Development](#), which brought together academics, diplomats, and activists to discuss health initiatives, education, the environment, and government reforms in this biologically and culturally diverse rainforest nation.

☀ **Abimbola Dairo** (HB ’10) is organizing the “[Beyond MD Conference](#),” which will be held from 6 to 8pm on May 12, 2010. It features physician panelists who have launched enterprising interdisciplinary projects that may inspire Stanford premed students to think beyond traditional careers in medicine.

☀ **Josh Wong** (HB ’10) helped organize the “[When the Shooting Stops Conference](#),” which explores factors that combine to create deadly conditions during and after conflicts.

☀ **Joy Zhang** (HB ’10) assessed and improved [awareness of the Hepatitis B Virus \(HBV\) on campus](#), especially among the high-risk Asian and Pacific Islander population.

☀ **Sarah Mummah** (HB ’10) founded the [DreamCatch-ers](#) social network of Stanford students passionate about educational issues and careers in K-12 education.



Stanford’s “Team HBV” raises awareness about Hepatitis B Virus

☀ **Anne Wattles** (HB ’10) contributed to the infectious disease curriculum being developed by the Stanford Program on International and Cross-Cultural Education ([SPICE](#)), a non-profit organization that develops multidisciplinary high school curriculum materials on international themes.

☀ **Anne Stake** (HB ’10) organized [Camp Kwizera](#),

last year, and it is now self-funding. This week-long leadership camp introduces 6th through 8th graders to social activism through kid-friendly social justice lectures and service field trips. These day camps will be held at Stanford in June and July 2010.

☀ **Pooja Bakhai** (HB ’11) organized the First Annual Student Global Health Symposium, which featured Dr. [William McClure](#) speaking on “Compassion.” McClure is from Interplast, and a recipient of the Dalai Lama Unsung Heroes of Compassion Award.

☀ **Erin Price, Annikka Frostad-Thomas, Jenny Rempel, Francisco Martinez, Sheel Tyle, and Sam Cohen Tanugi** are producing a documentary on the [Stanford Galapagos Field Seminar](#) from a student’s viewpoint, highlighting what’s expected of students in the classroom, in their research projects, and in the field. §

STUDENT AWARDS

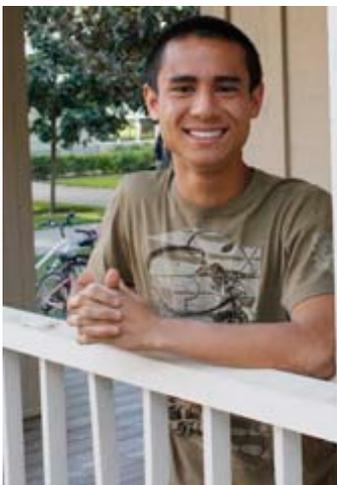
*Kalt Named a Marshall Scholar*

**Anne Kalt** (HB '08) has been awarded a [Marshall Scholarship](#) for postgraduate study in the UK. Kalt, who will study health policy, planning and financing under a joint program offered by the London School of Hygiene and Tropical Medicine and the London School of Economics and Political Science, is one of 35 U.S. students to receive the award this year. During her second year, she plans to study public health in developing countries. As a senior at Stanford, Kalt served as managing director of [FACE AIDS](#), a nonprofit organization dedicated to mobilizing and inspiring students to fight AIDS in Africa. Ultimately, she hopes to become a pediatrician who helps develop policies and programming in the field of global child and maternal health. §



*Seniors Win Gates & Luce Scholarships*

**Allison Rhines** (HB '10) was awarded a [Gates Cambridge Scholarship](#) for graduate study at the University of Cambridge this fall. Most recently, Rhines has been involved in research on the consequences of rapid migration from rural to urban areas in China, focusing on how the widespread cultural preference for male children results in an imbalance in sex ratios in urban centers. She also has studied the spread of animal domestication in Africa by using DNA retrieved from sheep fossils to track the migration patterns of the people who raised sheep. At Cambridge, Rhines plans to pursue a Master of Philosophy degree in human evolutionary studies, focusing on human demography and evolutionary processes.



*Wong Awarded a Haas Fellowship*

**Josh Wong** (HB '10) was awarded the [Haas International Public Service Fellowship](#), which includes a \$35,000 stipend to cover all expenses. Wong is passionate about public health, as evidenced by his work on Stanford projects such as the health care of migrant farm workers, infant immune responses to

measles vaccines, and HIV/AIDS in Tanzania and Kenya. After getting a medical degree, Wong hopes to join the CDC's team of disease detectives, the Epidemic Intelligence Service (EIS). §

**Rayden Llano** (HB '10) was one of 18 Americans recently chosen for the 2010-11 [Luce Scholars Program](#), a program that places interns in Asian countries. Last year Llano interned at the Office of the Surgeon General, helping to implement national policy legislation to assist vulnerable populations in accessing health services during major disasters. He also has worked on health policy issues in France and Spain through internships funded by Stanford and the National Institutes of Health. In Asia, Llano hopes to work on addressing the issue of China's 300 million uninsured people or learning more about Japan's universal healthcare system. Ultimately, Rayden Llano hopes to work on health care issues in China or Japan. §



ALUMNI NEWS

*Alum Starts the Tutorpedia Foundation*

**Seth Linden** (HB '00), founder of [Tutorpedia](#), a SF Bay Area tutoring company, has launched the non-profit [Tutorpedia Foundation](#) to provide high-quality tutoring and education services to underserved K-12 students. After Stanford, Linden earned his MA in Teaching at Brown, then spent 12 years of teaching and tutoring, including two years at Sacred Heart Preparatory, one of the Bay Area's premier independent schools. §

*In Memoriam: Barbara Wilson 1937-2010*

**Barbara Wilson**, wife of Emeritus Professor of Economics at the Stanford Graduate School of Business and mother of two daughters, considered her years in Human Biology to be the greatest learning experience of her life. She relished courses taught by Donald Kennedy, Paul Ehrlich David Hamburg, John Gurley, Colin Pittendrigh, Joshua Lederberg, and other founders, and lectures by Jane Goodall. Her field project was with Environmental Volunteers, teaching children about the baylands.

ALUMNI NEWS

## HumBio grad expands CSU prosthetics program

Scott Hornbeak, who graduated from the Program in Human Biology in 1976, is now Director of the [Orthotics and Prosthetics Education Program](#) at California State University Dominguez Hills (CSUDH). He recently opened a new 10,200 square foot custom-built facility for training people to make and fit artificial limbs and braces. This collaboration with the Long Beach Veterans Administration (VA) hospital expands CSU's program's academic offerings and provides continuing education for the VA staff. This program is one of only seven in the nation.

Working closely with the Balboa Navy Medical Center in San Diego, CA, Hornbeak's students go on weekly rotations to assist experienced prosthetists working with ampu-



Patient Aaron Garcia (left), and students Bernard Watson, and Colby Rogers (right)

tee soldiers returning from Iraq and Afghanistan. In this capacity, students get hands-on experience working with sophisticated microprocessor-controlled hydraulic knees, spring-steel jogging legs, and externally powered myoelectric controlled arms.

Students and faculty are also collaborating with the [California Orthotic and Prosthetic Association \(COPA\)](#) to refurbish used prostheses for the thousands who lost limbs during the earthquake in Haiti.

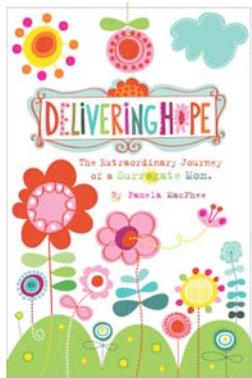
Hornbeak, marveling at the versatility of his HumBio background, added, "Who would have ever believed I would be doing this?" §



ALUMNI BOOKS

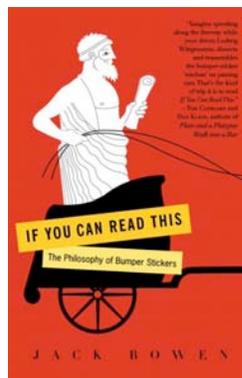


**Pamela MacPhee**, (HB '86) worked as a consultant in the sports and entertainment marketing industry until 1999, when she became surrogate mom for her cousin, who wasn't able to conceive due to cervical cancer treatments. "[Delivering Hope](#)" is her memoir of this fulfilling journey as a surrogate mom. From the offer, to the delivery of a baby girl, the story reveals the joys and challenges of carrying someone else's baby and the life lessons learned along the way. §



**Jack Bowen** (HB '95) just released his third book, "[If You Can Read This: The Philosophy of Bumper Stickers](#)."

After Stanford, Bowen received an MS in Philosophy from California State University Long Beach, *Summa Cum Laude*. Following a six-year stint teaching philosophy and ethics at De Anza College, he has settled at Menlo School in Atheron, CA, where he teaches philosophy and coaches water polo. §



EVENTS

**Mark Your Calendar**

Saturday, April 17, 2010

[GAIA FutureFest](#)

To participate: [snchopra@stanford.edu](mailto:snchopra@stanford.edu)

Wednesday, May 12 at 6pm

**BeyondMD**

Physician panelists who have launched enterprising interdisciplinary projects.

More info: [adairo@stanford.edu](mailto:adairo@stanford.edu)

Thursday, May 20 at 4 p.m.

Boething Lecture: [Seeing the Forest for the Bees: Pollination Subsidies](#)

Taylor Ricketts, World Wildlife Fund  
Braun Auditorium, Mudd Chemistry Bldg

For more info: [rlubby@stanford.edu](mailto:rlubby@stanford.edu)

Tuesdays Spring Quarter at 3:15pm

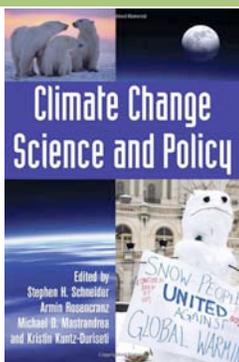
Bldg 420, Rm 041, Stanford affiliates

**Health & Environment Seminars**

For more info: [rlubby@stanford.edu](mailto:rlubby@stanford.edu)

FACULTY BOOKS

Stanford's climate change team has just published, "[Climate Change Science and Policy](#)," a comprehensive reference resource on climate change that features 49 indi-



vidual chapters by some of the world's leading climate scientists. Its five sections address climate change from the dimensions of ecological impacts; policy analysis; international considerations; U.S. considerations; and mitigation options to reduce carbon emissions. It discusses not only the science behind global climate change, which is now in progress, but international governmental policy implications as well.

Editors and contributors include **Stephen H. Schneider** (the Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Professor of Biology and HumBio, and a



Students Melissa Luu and Alicia Andersen presented posters at HumBio's annual Core event.

Woods Institute Senior Fellow); **Armin Rosencranz** (former HumBio consulting professor and recipient of the 2005 ASSU Teacher of the Year award); **Michael D. Mastrandrea** (Consulting Assist. Professor, Stanford Woods Institute for the Environment); and **Kristin Kuntz-Duriseti** (Managing Editor, *Climatic Change*). §

**We'd like to hear from you**

Please send us news about your achievements or activities to:

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Stanford, CA 94305  
(650) 725-0336  
[rlubby@stanford.edu](mailto:rlubby@stanford.edu)

**SAVE THE DATES:**

HumBio Reunion:  
October 22, 2010  
October 14, 2011



Jane Stanford photo: [Robert Siegel](#)

**Thank You!**

Stanford's Program in Human Biology extends its sincere appreciation to the generous contributions of our supporters.

To discuss HumBio gift opportunities or make a gift, contact Cindi Trost, Associate Director for External Relations at (650) 724-2812.



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