

# BioNews

BioNews is published two times per year and features the people and programs of SF State's Department of Biology.

Fall 2011 Issue 11



## A Letter to Alumni and Friends from Dr. Michael Goldman, Department Chair

This issue of BioNews is brimming with inspiring stories including a brief look back at the career of my predecessor Jack Hensill for whom Hensill Hall was named for. Inside this issue, you can learn about our current and former students who are making an impact in science. You'll read about Assistant Professor Vance Vredenburg's groundbreaking work with endangered frog species and climate change — work that's been widely profiled in the national news. Professor Emerita Jan Randall remains active in her field, and funds a seminar program and scholarship for Women in Science and Engineering. And, you'll read about Kathleen Baker, our office and administrative manager, who has probably touched and enriched more lives each year than any of us.

I'm continually amazed at the spirit and resilience of our faculty, staff and students in the face of devastating State budget cuts. For those of you who graduated as little as five years ago, the campus is truly a different place. In 2006, the Department was just coming off a very difficult six-year earthquake retrofit of Hensill Hall. It was a time of lost productivity and premature faculty retirements as we struggled with all the pitfalls of construction. We'd barely caught our breath when budget woes rose to the fore. We've made a conscious and vigorous effort campus wide to minimize the impact of budget shortfalls on student experience, but deferred maintenance, stagnant salaries, attrition and increases in workload have made it ever more difficult for us to attract and retain faculty and staff. We are thrilled that Dr. Scott Roy, most recently from Stanford, will join us in January as Assistant Professor of Biology in the exciting field of bioinformatics. But, we know we're on a campus that once hired more than 50 faculty members a year, and hired only 20 last year, and three the year before. *That's attrition.*

If we are going to continue to accommodate growing student demand for biology, we recognize that we must attract and retain a faculty and staff capable of delivering an innovative, exciting education and a high-profile, lively research environment. The old model of State funding supplemented by Federal grants to support some research won't do. We depend more than ever on contributions from our alumni, retired faculty and staff, our community, and the companies and organizations that hire many of our students to help us come through these difficult times with unparalleled strength and stability.

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# KATHLEEN BAKER

## Solving Problems and Helping Others



Photo by M. Baker

**K**athleen Baker is a master at balancing multiple projects simultaneously. She collaborates with the Department Chair and two Associate Chairs, supervises the staff, advises hundreds of students, develops enormous class schedules that serve over 2000 students, and organizes major Department events. Faculty and staff all know that Kathleen with her positive outlook is the person to go to for finding ways to cut through the administrative challenges that are part of university life. Department Chair Dr. Michael Goldman admits that for him “it’s impossible to conceive of Biology without Kathleen. She has taken on a central and independent role in the day-to-day management of our academic programs, bearing ever-increasing responsibilities with grace as our Department has grown more complex and limited budgets have called for ever more creative solutions.” Associate Chair Dr. Carmen Domingo agrees that the Department is “really fortunate to have such a capable administrator with years of experience at SF State.”

Before joining the Biology Department in 1984 as an Administrative Analyst Specialist, Kathleen attended SF State earning a BA in Sociology (with a minor in Spanish) and developing the skills to help others. “My undergraduate studies provided me with an in-depth understanding of different cultures which has enabled me to help students with their individual challenges.”

One key Department event Kathleen organizes is Biology’s annual commencement ceremony. Over 1800 students, families and guests attended the May 2011 ceremony. When asked for her secret to successfully organizing such a massive event, Kathleen gives high marks to the ceremony committee members. “This event is possible because of the dedication, commitment and ingenuity of my colleagues.”

Kathleen describes her job as “an opportunity to constantly learn something new, and is full of interesting challenges which I can help creatively solve.” In 2004, she received an award for excellence in performance and contribution to the University, but when asked what achievement she is most proud of Kathleen replied it is when “the students who I advise tell me that my advice contributed to positive life choices that made a real difference in their lives. I am so fortunate to have such an intrinsically rewarding career.”

## READERS’ COLUMN

### Misquoted in Article

The article “Biology Staff is a Microbiology CSI!” that appeared in the Spring 2011 issue of BioNews was well written. However, you misquoted me in the article. My quote should have read “We have created an environment for bacteria to grow and become more resistant to drugs.”

Darleen Franklin, Biology Instructional Services Facility Supervisor

### Remembering Margaret Bradbury

Thanks for the “In Memory” article. I will share it with colleagues, students and friends at the Moss Landing Marine Laboratories who knew Margaret. She was a special person, and we all miss her.

Dr. Gregor Cailliet, Professor Emeritus Moss Landing Marine Laboratories

### Biology Courses Make a Difference

I taught Introduction to Biology (BIOL 230) in Fall 2010 with Dr. Zheng-Hui He, and we collected survey data from all the students (~275) that included final reflections. Here are two favorites:

*“I found it useful to consider what I was learning in class on my bicycle ride to school...Considering a tree in Stern Grove, I could appreciate that each leaf is made up of cells (cell theory), has traits that are determined by selective gene-expression (central dogma), and contains stomata involved in gas exchange (transpiration and cohesion-tension theory).”*

*“I learned so many things...I will carry these with me throughout my life...I won’t be afraid to question, propose new ideas and try things I never thought I would do before this year...I am afraid the world might not be ready for me just yet!”*

Associate Professor Kimberly Tanner  
SF State Department of Biology

# PHILANTHROPY AT WORK:

## MEET THREE BIOLOGY SCHOLARSHIP RECIPIENTS



**Marisa Soski** is a senior Physiology major who began college as a Kinesiology major until she learned about a new career path — Naturopathic Medicine — and was hooked. “I figured out which major would best set me up for success for this career, and that led me to Physiology.”

She received a John Hensill Scholarship in Spring 2011, and is using the funds to support her study abroad at East Anglia University in England for two semesters. “I expect this to be a life changing experience that will open my eyes and mind to the rest of the world. I am also excited to learn Biology in a different country because it will give me different perspectives on the topics covered.”

After graduation, Marisa’s goal is to become a Doctor of Naturopathic Medicine specializing in either Naturopathic Oncology or Family Medicine.



**Issam Jadrane** is a graduate Cell & Molecular Biology major who received an Arthur Nelson Scholarship in Spring 2011.

Issam’s research focuses on the “Green Island” formation (caused by a fungal pathogen infection) in white orchid petals. This infection causes senescence at the infected site, and induces photosynthetic ability in the surrounding cells. “We are working towards identifying the signal responsible for the switch in the developmental program of otherwise non-photosynthetic cells.”

When asked why he chose to attend SF State, Issam explained that his decision was based on “the quality of education and research, and the positive attitude and openness of its faculty, staff and students.”

Issam’s goal is to teach or research in an academic setting “where I would be an active player in biological research, and also have the satisfaction of training and educating future scientists.”



**Reyka Jayasinghe** is a senior Cell & Molecular Biology major who was drawn to the program because many in her family have been affected by cancer, and she wanted to learn more about the organisms that can create colossal changes in human lives.

“Receiving the Janis Kuby Memorial Scholarship boosted my self-esteem,” said Reyka. “I feel that throughout our lives we question the decisions we make, and winning awards or being complimented on our work helps remind us that we are going in the right direction.”

Reyka’s future plans include medical research. “Dr. Janis Kuby studied immunology, and my interests in science parallel hers. Cancer, viruses and bacteria affect us because our immune system was tricked or failed in some way. I hope to one day understand why our bodies decide to stop attacking certain bacteria, and not others, and how viruses mold our complex bodies to be their new breeding ground.”

Other 2011 Biology Scholarships recipients who benefitted from the generosity of our donors included:

**Sophie Archambeault, Brittany Bjelde, Emily Blanchard, Amalia Borson, Brigitte Jong, Rosa Schneider, Carissa Shipman, and Stella Shao.** Visit: <http://biology.sfsu.edu> and click on “Make a Difference” to make a donation.



# Dr. Clive Hayzelden

## Electron Microscopy Facility

Clive Hayzelden joined the Biology staff as the Electron Microscopy Facility (EMF)

Manager in Spring 2011. Before coming to SF State, he received a D. Phil. degree in Physical Metallurgy from the

University of Sussex in 1984, and was a Harvard University Assistant Professor and Research Associate in Materials Science, and Manager of the Carl Zeiss SMT Center of Excellence in Electron Microscopy at UC Irvine. At SF State, Dr. Hayzelden assists EMF Director, Dr. Andrew Ichimura, provides microscopy class laboratory support, occasional lectures, and student training and is engaged in outreach to local universities and industry. "My goals are to continue building up the usage of the EMF, provide a diverse and enthusiastic student population with the highest level of training in microscopy, and help the faculty conduct cutting-edge research."

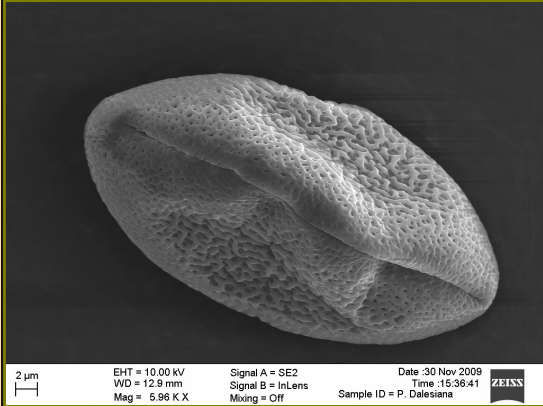
Located in Hensill Hall room 138, the EMF provides a specimen preparation lab for hard and soft materials. The facility houses specialized instruments including a Carl Zeiss Ultra55 Field Emission SEM (see above photo) that according to Dr. Hayzelden gives the Biology Department outstanding capabilities for electron microscopy which are attracting users from other universities both in the Bay Area and beyond. "The SEM doesn't just take pretty pictures," said Dr. Hayzelden, "but provides meaningful scientific data."

The four micrographs (left) shown here represent a small sampling of the EMF's "pretty pictures." The top micrograph shows a culture of *Emiliania huxleyi*, a coccolithophore species that is the most common in the world's oceans, and plays a large role in the global carbon cycle. The second image (from top) shows a dried pollen grain from a rare California plant species, *Howellanthus dalesianus*. The third image records the basidiospores of a newly described species of mushroom collected in the native forests of Sarawak on the island of Borneo. The bottom image was taken to advance prostate cancer cell therapy research, and shows the pseudopodia-like extensions on a prostate cancer cell.

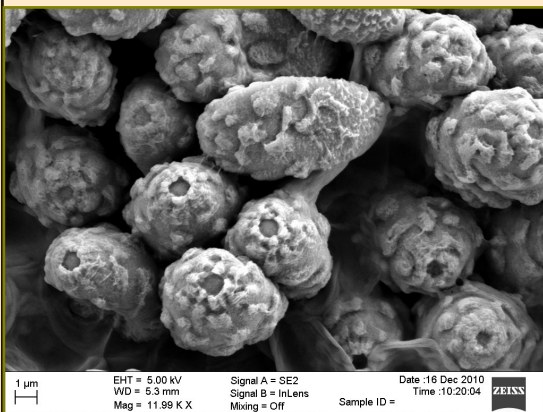
Dr. Hayzelden can be contacted at [cliveh@sfsu.edu](mailto:cliveh@sfsu.edu)



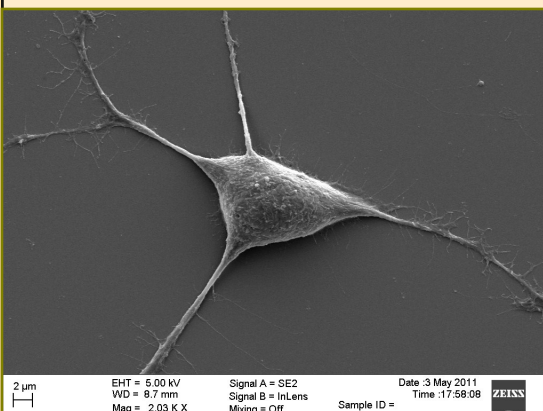
Coccolithophore (Drs. J. Stillman, E. Carpenter and T. Komada) Image by Dr. Clive Hayzelden



Howellanthus dalesianus pollen (Dr. Robert Patterson's lab) Image by Dr. Andrew Ichimura



Spongiforma squarepantsii (Dr. Dennis Desjardin's lab) Image by Dr. Andrew Ichimura



Metastatic human prostate cancer cell (Dr. Ursula Simonis' Lab) Image by Conny Louridas

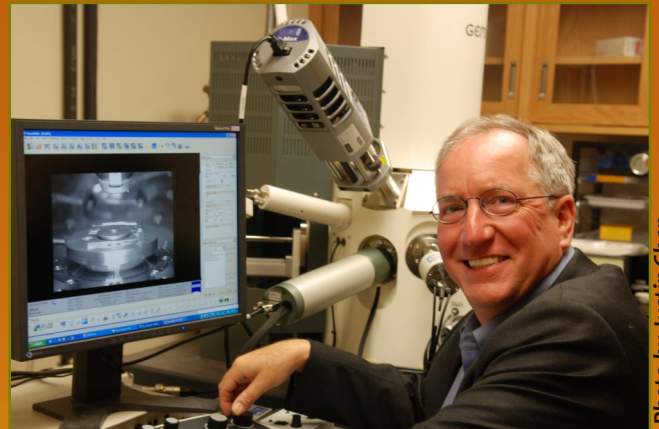


Photo by Justin Chan

# Dr. Vance Vredenburg

## Calling Citizen Scientists to Save Endangered Amphibians

**V**ance Vredenburg is asking citizen scientists to post photographs of amphibians along with the locations on [www.iNaturalist.org](http://www.iNaturalist.org) because he hopes to learn why these animals are being driven to extinction. The effort called Global Amphibian Bioblitz uses smartphone technology and social media networks to link citizens and scientists. Dr. Vredenburg and his colleagues will identify the amphibians in the photos, and add the data to the AmphibiaWeb.org database at UC Berkeley's Museum of Vertebrate Zoology.

Amphibians have flourished for over 350 million years, but today 40 percent of the species are in trouble, and no one is sure why they are dying off. Many scientists think the fungus *Batrachochytrium dendrobatidis* (also known as the chytrid fungus) may be responsible. The fungus infects the skin of amphibians, disrupting breathing (even amphibians with lungs can breathe through their skin), and osmoregulation which in many species leads to death in about four weeks.

In 1998, the chytrid fungus disease was unknown to science. Today, the disease has spread to Africa, Europe, Australia and North, South and Central America. Scientists now want to learn where the next concentrated wave of the disease will strike. Dr. Vredenburg hopes that citizens armed with smartphones and the social network media can help.

Dr. Vredenburg's scientific training began as an undergraduate at the University of California, Santa

Barbara where he worked on ecological research projects in coastal California, Alaska, the Caribbean and Antarctica. His Ph.D. from the University of California, Berkeley (2002) included whole-lake experiments that showed recovery of declining frog populations in the Sierra Nevada after the removal of introduced trout—but soon his subjects began dying off.

In 2007, Dr. Vredenburg joined the Biology faculty as an Assistant Professor. His current research focuses on the impacts of emerging infectious amphibian diseases, the phylogeography of amphibians (using genetics, morphology and mating behavior), and climate change impacts on aquatic food webs. He and his students typically use field-based experimental and comparative approaches to test hypotheses.

Dr. Vredenburg is a California Academy of Sciences' Research Associate, and a co-founder of AmphibiaWeb.org, an online conservation resource for the world's amphibians. His work has resulted in numerous peer-reviewed publications including articles in the *Proceedings of the National Academy of Sciences* and has been covered extensively by the news media, featured in articles in the *New York Times*, *Scientific American*, *National Geographic Magazine* and others. Dr. Vredenburg has also been a guest on ABC, CBS, CNN, NPR's "Science Friday" and on Animal Planet.

Dr. Vredenburg can be contacted at [vancev@sfsu.edu](mailto:vancev@sfsu.edu)



Dr. Vance Vredenburg at Sixty Lake



Mating pair of  
Southern Yellow-Legged Frogs



Assistant Dave Daversa (left) and  
graduate student Sam McNally (right).

Photo by A. Varma



Dr. Vredenburg with  
Sierra Nevada Yellow Legged frog.



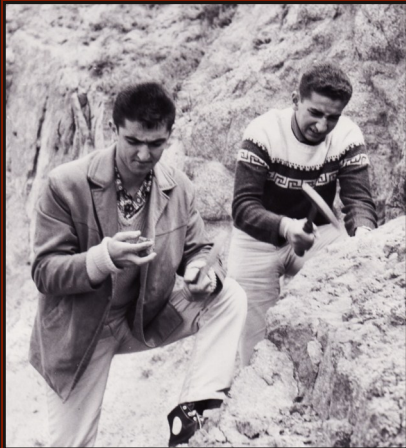
# ALUMNI NEWS



Professor Harry Thiers  
and Biology Alumnus and  
Professor Bob Patterson  
1980

Advancing  
Global Health

and the Biosphere:  
Educating Generations of  
Scientists,  
Health Professionals,  
Teachers and Citizens



Two ways to keep in touch  
Share your  
accomplishments with  
other Biology alums,  
email: [silver@sfsu.edu](mailto:silver@sfsu.edu)  
and  
Join the SFSU Biology  
Alumni Facebook.

**GAVIN ARCHBALD'S** (B.S. Ecology 2007; M.S. Ecology and Systematic Biology 2011) research is the basis for a major fundraising and outreach effort by the Bay Area Early Detection Network to support eradication of invasive Algerian sea Lavender (*Limonium ramosissimum*) from San Francisco marshes.



**ALLAN CHINN** (B.A. Ecology and Systematic Biology 1974) is a member of the Seattle Chinese Garden Society's Board of Directors who are creating a 5.2 acre Sichuan-style garden designed and built by architects and artisans from Seattle and Sister City Chongqing, China. To view the largest Chinese garden outside of China, visit: [www.seattlechinesegarden.org](http://www.seattlechinesegarden.org)



**MATTIAS JOHANSSON** (M.S. Marine Biology 2004) received a Ph.D. in Fisheries Science from Oregon State University in 2010, and is a Postdoctoral Research Associate at the Cooperative Institute for Marine Resources Studies in Newport, Oregon.



**JULIE DAY** (BS Marine Biology and Limnology 2007) wrote to us when her SF State Biology faculty advisor, Dr. Sarah Cohen, brought Julie's accomplishments to the attention of the BioNews editor.

*"I completed a MS in Biology in 2009 at the University of Central Arkansas where I studied phylogenetics and population ecology of a new species of threatened cavefish in southeast Missouri. Then went on to work as a research technician at the University of Texas at Austin and Howard Hughes Medical Institute on parasite distributions in Vancouver Island sticklebacks as part of a large study of immunogenetic evolution.*



*Presently, I am involved in several different projects in the Bay Area. First, I continue to work on the development of a recovery plan for threatened sDPS green sturgeon for the National Marine Fisheries Service. These ancient anadromous fish are only known to spawn in the upper Sacramento River, and are subject to numerous natural and anthropogenic threats throughout their long lives. I'm also helping with a risk assessment of live bait and seafood trades as vectors of invasive species to the San Francisco Bay for the Center for Research on Aquatic Bioinvasions (CRAB). In summer, I teach study abroad marine science programs for Academic Treks."*

*-Julie Day ([scubajulz@gmail.com](mailto:scubajulz@gmail.com))*

*p.s. "This past summer I led a Shark Studies program in Fiji that focused on shark biology, conservation, and significance in Fijian culture."*



# ALUMNI NEWS

**Shani Chapman**

(MS Cell and Molecular Biology 2011)

**MATT MESHRIY** (M.S. Physiology 2009) (*photo right*),  
**LESLIE PARRA** (M.S. Physiology 2009) and Professor  
**Emerita JAN RANDALL** (*see sidebar*) published “Kin  
Associations of a Solitary Rodent *Dipodomys ingens* at  
Fluctuating Population Densities” in *Animal Behavior*.



**JULIE MILLER** (M.S. Ecology and Systematic Biology 2010)  
is pursuing a Ph.D. in Animal Behavior at Cornell  
University. In May, she published her research findings  
in “Biologists Study how Insect Moms Fight  
Cannibalistic Neighbors” in  
*Behavioral Ecological Sociobiology*.



**NICOLE MUNOZ** (M.S. Physiology and Behavioral Biology  
2010) is pursuing a Ph.D. in Behavioral Ecology at  
University of California, Los Angeles funded by a highly  
competitive NSF Pre-doctoral Fellowship.



**THOMAS WANG** (M.A. Conservation Biology 2004)  
is a professor at City College of San Francisco’s  
Environmental Horticulture Department. He works on the  
conservation of lupine-mission blue butterfly  
grassland through the Mission Blue Project, and is  
collecting and illustrating stories linking plants and fungi  
with their mythological origins.



## WHERE ARE THEY NOW?



**J**an Randall, Professor  
Emerita, joined the  
Biology faculty in 1987.  
She taught Nature Study,  
Mammalogy, Animal  
Behavior, Hormones and  
Behavior and Behavioral  
Ecology. Her research on  
animal behavior led her to  
projects in Arizona, California  
and Uzbekistan. From 1982-  
2003, Dr. Randall had almost  
continuous grants from NIH,  
NSF, and the National  
Geographic Society. She  
retired from SF State in 2004.

In 2005, Dr. Randall was  
awarded “Outstanding  
Alumnus” from the University  
of Idaho where she earned  
her B.S. in Zoology.

These days she enjoys  
traveling, gardening and  
serving as Associate Editor of  
*Animal Behaviour*. She is a  
Board Member and Chair of  
the Scientific Advisory  
Committee of the  
Endangered Species  
Coalition. She also continues  
to promote women in science  
by funding a seminar series  
that features outstanding  
women scientists.



# Hensill Hall

Home to  
SF State's  
Department of  
Biology

(Photo by Justin Chan)



**What's in a Name?** Hensill Hall is named for former Biology professor and Dean of the School of Natural Sciences (now the College of Science and Engineering) Dr. John S. Hensill. Dr. Hensill joined the Biology faculty in 1947, and served as Department Chair in the 1950s. He co-wrote a textbook "Biology of Man," taught human, marine and invertebrate biology courses, and led popular field trips up and down California's coast. During his tenure as Dean (1969-1975), Dr. Hensill oversaw the rapid growth of the natural sciences at SF State. But, he considered the naming of Hensill Hall his greatest honor, and always gave the building a salute when he passed.



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