

ISSUE 9
Fall 2010



Photo by Justin Chan

SAN FRANCISCO STATE UNIVERSITY DEPARTMENT OF BIOLOGY

BioNews

An Appeal from the Chair

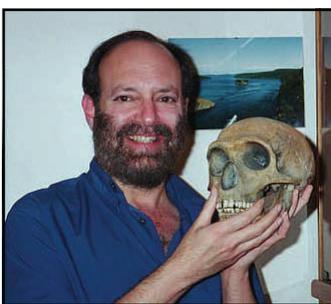
Dear Alumni and Friends:

During the past year the achievements of the faculty, staff, lecturers and students of the Department of Biology have been broadcast across the nation and the world through the national TV networks and in the pages of top professional journals like *Science* and *Nature*. We take pride in the extraordinary quality of the educational experience we provide students, especially those students who take the opportunity to participate in our faculty research laboratories. For all its mystery, scientific research is really nothing more than learning how to design experiments and evaluate evidence to reach an understanding of the natural world. There is no better way to learn about research than by doing it, and we provide that chance to as many students as we can.

It is a continuing struggle to obtain the resources we need to support our education program, and closely mentor our students in research. We ask that you help us expand our ability to purchase needed equipment and supplies and provide student stipends, so that promising students can work more toward their goals and less at part-time jobs unrelated to their studies (see page 8). **We invite you to use the enclosed envelope or make a tax-deductible donation online at <http://biology.sfsu.edu> (click on the "Make a Difference" link).** Be sure to select "Biology Department" in the drop down menu list. If you have any questions or need more information, please don't hesitate to contact me at 415-338-1549 or goldman@sfsu.edu.

Many of you have been long-time contributors to our efforts, and we appreciate your support tremendously, and hope to acknowledge all of you in the future. We also hope you enjoy reading in this newsletter about the many achievements that are a direct consequence of your kind gifts. Your philanthropic support ensures that our Department will continue to grow and thrive even in the toughest economy our State and our Nation have faced.

We're so sad to have to say goodbye to three beloved colleagues over the past months—Lecturer **Scott Converse**, Professor Emeritus **Hideo Yonenaka**, and very recently



Professor Emerita **Margaret Bradbury** (look for a touching story on this remarkable scientist and teacher in the Spring issue of *BioNews*).

Our spring conference continues to be well received and we will be hosting "Personalized Medicine 4.0" (<http://personalizedmedicine.sfsu.edu>) on May 26.

Mike Goldman 

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accomplishments!**

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MARILYN THOMAS

**BS Microbiology
Hood Recipient
Class of 2010
(Photo by Lily Chen)**



GENEVIEVE WALDEN

**MS Ecology and
Systematic Biology
Class of 2010
(Photo by Howard Hao Phung)**

ALUMNI NEWS BRIEFS

Esteban G. Burchard, Ph.D. (BS Cell and Molecular Biology, 1990)

published the results of a study which examined how race and ancestry plays a role in the accuracy of a lung function test in "Genetic Ancestry in Lung-Function Predictions," *New England Journal of Medicine* (July 2010).



Renate Eberl (MS Ecology and Systematic Biology 2005)

is a Ph.D. candidate in Ecology at UC Davis, and in a fellowship program for Coastal, Atmospheric and Marine Environmental Observing Studies at Bodega Marine Laboratory.



Denise Hardesty (MA Ecology and Systematic Biology 1999)

completed her Ph.D. at the University of Georgia, and is a Research Scientist for the Commonwealth Scientific and Industrial Research Organization in North Queensland, Australia.



Janelle Muranaka (BS Cell and Molecular Biology 2009)

is a founding member of AltraVax, a biopharmaceutical company in Sunnyvale, California, focused on developing vaccines using proprietary technology.



Ruth Timme (BS Botany 1999; MA Ecology and Systematic Biology 2001)

completed her Ph.D. at the University of Texas in 2006, and is a Research Scientist at the National Center for Biotechnology Information (GenBank).



Gregory Wahlert (MS Ecology and Systematic Biology 2006)

is a Postdoctoral Researcher in the Africa and Madagascar Department at the Missouri Botanical Garden. He works out of the National Herbarium at Muséum National d'Histoire Naturelle, Paris, France.



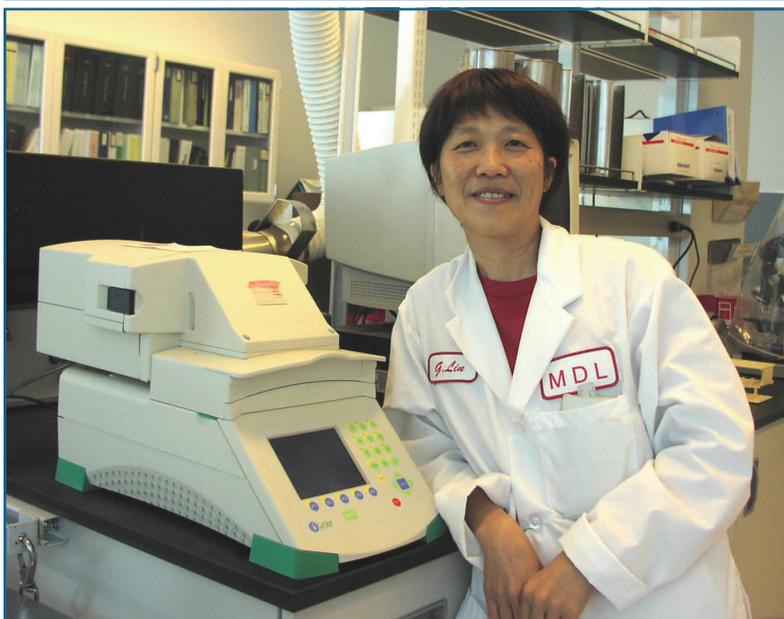
Simone Whitecloud (Ecology and Systematic Biology)

is a Ph.D. candidate in Ecology and Evolutionary Biology at Dartmouth College. In July 2010, she travelled with ten polar science researchers to the Greenland Ice Sheet as part of a NSF Fellowship. Read her blog at: <http://dartmouthigert.wordpress.com>



BLS Alumna Grace Lin: Developing Diagnostic Tests for TB

by Chantal Jolagh



Grace Lin has impacted many lives with a molecular beacon assay for detecting drug-resistant mutations in *Mycobacterium tuberculosis* complex — the organism that causes tuberculosis (TB) in humans. She was the first recipient of the Dr. Desmond Award for Outstanding TB Laboratory Services presented by the National TB Controller's

Association on June 26 in Atlanta, Georgia.

In November 2009, she was part of a team led by the Christian Friends of Korea, the Bay Area TB Consortium and the Nuclear Threat Initiative to renovate a TB lab in Pyongyang, North Korea. The project provides new technologies for diagnosing TB and detecting drug resistance to overcome the TB epidemic in North Korea.

Before coming to SF State, Lin earned a BS in Medical Technology from the National Taiwan University. Foreseeing the wide applications of molecular technologies in TB diagnostics, she attended SF State's M.S. degree program in Biomedical Laboratory Science (BLS) in 2000. With the completion of her thesis on the development of a TB molecular beacon assay, Lin received her M.S. in 2004. She is grateful that the BLS master's program prepared her to take on new challenges in the molecular field of TB laboratory testing.

Grace has 31 years of work experience—21 years as a Clinical Laboratory Scientist at Kaiser Regional Laboratory, and ten years in the public health laboratory area. Since joining the Microbial Diseases Laboratory of the California Department of Public Health, she has worked on developing and validating new assays, provided consultations on TB drug susceptibility testing to county public health laboratories, and worked closely with State and County TB controllers to enhance laboratory services for TB control and patient management.

Lin is currently participating in a five-year international project funded by the National Institute of Health. She is developing a new assay using a pyrosequencing technology for screening drug-resistant TB. If successful, it will be used in South Africa, India, Philippines and Moldova.

Lin plans to devote her time on global efforts in fighting TB and nurturing young scientists in TB lab work.



Assistant Professor Vance Vredenburg's work inoculating frogs against a fungal disease that has driven 200 amphibian species to extinction was featured in an October 5 New York Times story "Tolling to Save a Threatened Frog."



Professor Dennis Desjardin's fungal discovery, *Phallus drewesii*, is an International Institute for Species Exploration Top 10 Species.



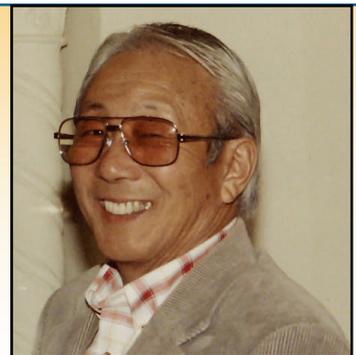
PROFESSOR BOB SWEENEY
1960

IN MEMORY

Hideo Yonenaka

1926-2010

A Loving, Peaceful and Compassionate Man



Hideo Yonenaka, Professor Emeritus, died August 26 at the age of 84. The son of a Palo Alto strawberry farmer, Dr. Yonenaka's childhood included four years of incarceration in Japanese-American internment camps in Utah, North Dakota and New Mexico during World War II. Yet, the experience did not negatively impact his outlook on life. In an article entitled "Enduring Communities: Resisting Incarceration in Concentration Camps" (posted at www.discovernikkei.org) he wrote that he chose to listen to his mother and his Reverend who advised him to move on with his life. Dr. Yonenaka earned his B.A. in Zoology from the University of California, Berkeley, and a M.A. in Bacteriology and a Ph.D. in Microbial Physiology from the University of Southern California.

In 1963, Dr. Yonenaka joined SF State's Department of Biology faculty and taught microbiology courses until his retirement in 1992. "Early after his arrival, he was asked to develop what became very successful courses: BIOL 210 and 211, General Microbiology and Public Health," recounts Professor Emeritus William Wu. Another of Dr. Yonenaka's many professional achievements came in 1967-68 when he co-wrote a U.S. Public Health Service grant that led to the establishment of the Center for Advanced Medical Technology (CAMT). *(Editor's note: CAMT's Master's Program merged with Biology; CAMT's Clinical Laboratory Scientist Internship program is offered through the College of Health and Human Services.)*

Dr. Wu remembers that Dr. Yonenaka was always willing to take the time to help a student or colleague. "One of the first faculty I met when I arrived in 1968 was Dr. Yonenaka," recalls Professor Emeritus John Stubbs.

"I had never taught and I was very nervous. I will always remember the counsel he gave me not to worry about my ego, and simply share my knowledge with my students. He truly loved our Biology Department, and I know that this kind and gentle man has had a lasting impact on the many who were lucky enough to have known him."

Dr. Yonenaka's influence changed the life of Biology alum Dr. Jim McLaughlin who met him in 1963 shortly after his arrival at SF State. "I was uncertain about how I was going to proceed with my life. That fall, I took Dr. Yonenaka's course 'Microbiology for Nursing Students' and it became clear to me that microbiology was going to be my life work."

"It is okay to get angry, but get over it, and learn from it, because when you are angry, your mind becomes cloudy and confused and you cannot make sensible decisions." — Dr. Hideo Yonenaka

Another person whose life changed as a result of meeting Dr. Yonenaka was Biology Professor Emeritus Remo Morelli who met Dr. Yonenaka in 1964 when he enrolled in BIOL 210. "I was then a Chemistry major and needed a Biology class as part of the program. By the end of the class, I knew that I wanted to spend my life pursuing a career in the field of Microbiology."

"Hideo was a great story teller," Dr. McLaughlin recalls, "who made microbiology sound extremely interesting with his stories of Robert Koch, Louis Pasteur, Ignaz Semmelweiss and other early microbiologists."

Biology Office Manager Kathleen Baker attended Dr. Yonenaka's memorial service and recalls the many people who spoke of ways they tried to emulate him. "His influence made them strive to a better person."

To make a donation in memory of Dr. Yonenaka, visit <http://biology.sfsu.edu> and click on the "Make a Difference" link. Please select "Biology Department" in the drop down list and write "In Memory of Dr. Hideo Yonenaka" in the "Comments" box. Thank you.



Researcher Studies Effects of Environmental Changes on Bird Pathogens

Ravinder Sehgal is an outstanding teacher, a bassoonist with the Berkeley Symphony, a multinational holding passports from Sweden, Lithuania, India, the USA, and an avian parasitology researcher.



Fiery-breasted Bush Shrike
Photo by R. Sehgal

He earned a B.A. in Biology and Piano Performance from Oberlin College and Conservatory of Music in 1988, and his Ph.D. in Cell Biology from UCSF in 1997. While a postdoctoral fellow with interests in conservation biology, he worked with Dr. Thomas Smith at SF State’s Center for Tropical Research. He participated in the SFSU/UC Davis teaching postdoc program and worked as a researcher/adjunct professor for the Department. In 2007, Dr. Sehgal joined the Biology faculty as an Assistant Professor. Two years later, he was awarded the Department of Biology’s “Outstanding Teaching Award” (*photo left*) for his courses in Parasitology and Emerging Infectious Diseases. “This is my dream job,” he explains, “because of my love for research, teaching, and working with faculty and students from many diverse backgrounds. We have a tremendous faculty doing world-class research.”

Dr. Sehgal focuses on how environmental changes affect the spread and evolution of bird pathogens — research he believes is highly pertinent in this time of rapid global change. He is currently working on four collaborative projects including a multi-year study with UCLA’s Center for Tropical Research looking at how host specificity and the prevalence of avian malaria are affected by deforestation. With Buzz Hull at the Golden Gate Raptor Observatory, he monitors the effects of avian malaria on the migration of Red-Tailed Hawks. Along with Dr. Cagan Sekercioglu at Stanford University, Dr. Sehgal is researching how bird movements and the effects of habitat fragmentation influence the spread of avian pathogens in Costa Rican birds. And, he is collaborating with Endemicos Insulares and Dr. Juan Martinez at the University of Veracruz, Mexico on the reintroduction of the Socorro Island dove to its native habitat — the first reintroduction of a locally extinct species to its native island habitat.

“Blood parasite diseases in birds have similar pathologies to their human counterparts—making the study of birds an excellent model system.”

Dr. Sehgal’s research interests have taken him to many world locations including Africa where he once spent a summer living in a tent in the Cameroon jungles with the Baka (also known as the ‘pygmies’) people. His future scientific goals are in keeping with his interest in worldwide conservation. “I plan to work with more universities in developing countries in Africa, South Asia and Eastern Europe to develop exchange programs and sister department relationships with SF State’s Department of Biology. I intend to continue and expand collaborations to develop a platform for research that impacts policies designed to protect forests and fragile habitat.”

Dr. Sehgal can be contacted at: sehgal@sfsu.edu

As Chair of Biology’s Development Committee, my goal is to reach out to alumni, donors, companies, and non-profit organizations to acquire more funding for the Department. Supporting innovative programs and research, state-of-the-art facilities, and students—whatever their financial need—is vital to our mission of educating the next generation of scientists, health professionals, teachers and citizens.

I would like to ask you to make a 2010 year-end tax-deductible donation to the Department of Biology. Generous contributions from alumni and friends make a tremendous impact.

Please visit: www.biology.sfsu.edu and click on the “Make a Difference” link.

Thank you,
Ravinder Sehgal

IN MEMORY

Scott Converse

1978-2010

Teaching with Enthusiasm and Patience



Photo by Jeffrey Cox

Scott Converse passed away on April 26. He was 32.

Dr. Converse earned his undergraduate degree in Biology (summa cum laude) in 2000 from the University of Illinois, Champaign-Urbana, then attended the University of California, San Francisco where he worked with Dr. Jeffrey Cox. He received his Ph.D. in Molecular Biology in 2005.

Dr. Converse joined the Department of Biology as a lecturer in 2008, and taught Introductory Biology, General Microbiology, and Molecular Pathophysiology. Department Chair, Dr. Michael Goldman, recalls that “Scott stepped in to teach key courses replacing Cell Biology Professor Leigh Auleb when he was taken ill. Leigh’s were tough shoes to fill, but Scott slid in and a very demanding cadre of more than 100 students were thrilled.”

Scott also taught for the Chemistry Department. “He was the kind of person you instantly liked upon meeting,” said Chemistry Professor Dr. Jane Dewitt. “Several of his CHEM 115 students credited Scott with their good performance in the class because he was available to answer questions and took all the time they needed to help them.”

At the time of his death, Dr. Converse was playing an increasing role in Biology’s post-baccalaureate programs. “I looked forward to working with Scott,” recalls Office Manager Kathleen Baker. “He made any project a fun and positive challenge.”

“Scott’s knowledge was broad and deep, and the rapport he had with the students was legion.”

- Dr. Michael Goldman

Biology Assistant Professor Andy Zink shared an office space with Scott and was impressed with his enthusiasm and patience with students. Dr. Zink recalls that “it was standing room only during Scott’s office hours. Scott approached teaching without pretense or ego, meeting students on their level and teaching to their needs.”

“Scott was one of a kind,” said Assistant Professor Anne Todgham. “His passion for teaching and science was contagious to not only his students, but to all of us who knew him.”

To make a donation in memory of Dr. Converse, visit <http://biology.sfsu.edu> and click on the “Make a Difference” link. Please select “Biology Department” in the drop down list and write “In Memory of Dr. Scott Converse” in the “Comments” box. Thank you.

NEWS BRIEFS

- Learning to think like a Biologist

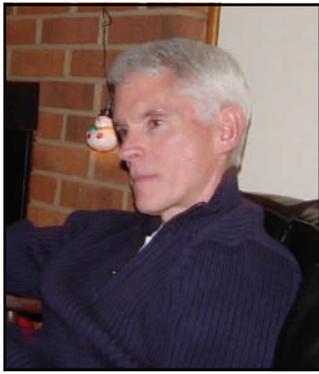
Dr. Kimberly Tanner received a prestigious NSF CAREER grant to fund an investigation into how University biology majors learn to think like biologists.



- Discovering the Power of Purple

Dr. Zheng-Hui He discussed the healthy benefits of the purple pigment, Anthocyanin, found in fruits and vegetables in an October 2010 YouTube video “Improving Health with the Power of Purple.”





Professor Ed Connor received CSU's Distinguished Faculty Excellence in Professional Achievement Award and was elected Fellow of the California Academy of Science and the Royal Entomological Society.



Lecturer Isaac Yang, M.D. received the 2010 Exceptional Physician Award from the UCSF Medical Center's Department of Neurological Surgery for his dedication to outstanding patient care.



Greenhouse Manager, Martin Grantham, received the California Horticultural Society's Annual Award for his contributions to Bay Area horticulture.

Top Ranking Lecturer Fosters Critical Thinking Skills

Lynne Dowdy is one in a million — according to the student reviews on the “2009-10 Highest Rated Professor and Faculty” list released in Spring by the largest online destination for professor ratings: RateMyProfessor.com. From over six thousand schools, one million professors and 10 million student comments, Biology lecturer Lynne Dowdy was rated No. 16 of the top 25 university professors in the nation.

Lynne earned her BA in Genetics from UC Berkeley in 1982, and enrolled in SF State's Master's Program in Cell and Molecular Biology in 1983. Her major advisor and then Department Chair, Dr. Crellin Pauling, hired her as a Teaching Assistant for a genetics course. She ran a weekly Problem Session where she soon developed an interest in how students learn, and decided to focus on a teaching career.

She taught her first genetics class in the summer of 1985, and has been teaching at SF State ever since. Courses she has taught include Genetics, The Genetic Revolution, Introductory Biology, Disease!, Human Biology (both lecture and lab), and Human Physiology.

Most of her classes are large, and she may teach 450-600 students a semester, so it can be a challenge to engage each student, but it is worth it to Lynne. "I try to connect with my students because learning is a lot more than people talking at you. I want non-majors to acquire a positive impression of science, and to realize the relevance and importance of science to their lives. For both majors and non-majors, I explain to them that science is not just memorizing terms and facts. Instead, science is asking questions, it is working to make connections between ideas, it is a way of thinking about problems."



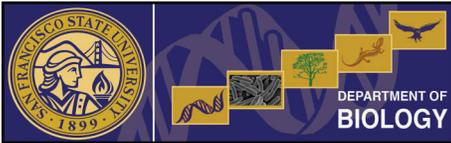
Lynne also teaches Life, Earth and Physical Science at St. Brendan School in San Francisco where she works with 12-14 year olds. One of her favorite activities is running an annual School Science Fair for which 120 students conduct self-designed investigations, write reports, and create posters. She guides the students as they conduct their investigations, and then mentors them as they move progressively on to local, state and national science fairs.

“She makes Biology so clear and easy to understand — even those who dread science will want to come to class.”

- quote from a posting on RateMyProfessor.com

In 1997, Lynne along with lecturer Shanna Yonenaka (now retired) received a NSF-funded Mathematics and Science Teacher Education Program grant to revise SF State's Biology 101 curriculum. By incorporating more independent discovery and cooperative approaches to problem solving, “the revised course allows students to develop basic, but universally applicable problem-solving skills. My goal is for students to leave this course, and my lecture classes, with critical thinking skills which they can apply to the research articles they read, to the latest nutritional supplement advertisements, to current science-based political issues.”

In Spring 2010, Lynne received an Outstanding Teaching Award from the Department of Biology. She can be contacted at: lmdowdy@sfsu.edu



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How Did You Pay for Your University Education?

Paying for a University education can be an achievement on its own.

We asked Spring 2010 graduating students (N=167) how they funded their education while at SF State. Below are their responses:

