

THE MVZ BULLETIN



DIRECTOR'S MESSAGE

Welcome to the second edition of The MVZ Bulletin. We have had much to celebrate over the past few months but also face looming challenges that we must address if the MVZ is to retain its tradition of leadership in research and education on vertebrate diversity. Since the last Bulletin we have concluded our formal Centennial celebration with 3 final events: an Art Show on Cal's Homecoming weekend, a prominent display in the refurbished Bancroft Library, and the National Academy of Sciences (NAS) symposium titled "Biogeography, Changing Climates and Niche Evolution." So our Centennial celebrations are over, but we are not resting on our laurels. Rather, we are moving forward to protect and develop the collections and to advance our missions in research and education. Recent achievements include the following:

- The award of The Freedman Chair in Undergraduate Education to Eileen Lacey, a previous winner of the campus Distinguished Teaching Award.
- A substantial grant from the National Science Foundation (NSF) to move our globally significant frozen tissue collection from aging, energy guzzling -80°C walk-in freezers into liquid nitrogen storage.
- Another NSF grant for historians and philosophers of science to study the development of the MVZ program in the context of changing ecological and evolutionary science disciplines.
- Other awards such as Dissertation Improvement and PreDoctoral grants for our graduate students, funding for biodiversity analysis of the Atlantic rainforests of Brazil, and additional support from the State to extend the Grinnell Resurvey Project and to develop infrastructure at Hastings.
- A healthy flow of high-quality publications; some 80 papers from 2008 to the present.
- Continued vitality of the MVZ's contribution to education: the award-winning Undergraduate Apprentice Program (UAP), the successes (and graduations!) of our graduate students, and our great group of post-docs – some of whom are moving to faculty positions.
- An impressive international breadth of researchers, including students from South and Middle America, Africa, Europe, Indonesia, and Australia.

The collections themselves continue to grow at a spectacular rate. From 2007 to the present there have been over 300 accessions comprising more than 17,000 specimens. As important as growth is how we use the collections and share knowledge about them. The MVZ is recognized internationally for developing Biodiversity Informatics through its leadership of distributed data-portals (MaNIS, HerpNET, ORNIS, and now VertNET), development of georeferencing software (BioGeomancer), and development of IT tools to support field collecting and genomic analysis (Moorea Biocode Project). Our next major challenge is to exploit the potential of next-generation sequencing (NGS) technology - this might be referred to as "Biodiversity Genomics." For decades the MVZ has been an early adopter of advances in genetic analysis: first with allozymes and cytogenetics (proteins and chromosomes), then RFLPs (the first form of genetic testing based on DNA), and then PCR and DNA sequencing. There is great opportunity to apply next-generation sequencing to improve analyses of lineage history, speciation processes, and responses to recent environmental change.

Even as our program flourishes we face significant challenges stemming from California's budget woes. We have been asked to plan for a substantial, perhaps 20% permanent cut to our state funding, making some 40% in the past decade. With some belt-tightening, and thanks to the generosity of past donors, we are able to maintain our program, at least for now. One exception is the Hastings Program in long-term ecology and conservation, where we have had to reduce the Research Zoologist position formerly occupied by Walt Koenig (now at Cornell).

Of necessity we are now engaged in fundraising to sustain the collections and build our exciting program on the Berkeley campus and also to rebuild the Hastings Program. Thus, the "MVZ Centennial Campaign," which focuses on supporting (i) development of the collections and their use in research, education, and outreach; (ii) graduate student research, including international fellowships; (iii) our undergraduate program; and (iv) the Hastings Program. I ask you, our friends and alums, to consider giving to the MVZ as and when you can (see http://mvz.berkeley.edu/Giving_Opportunities.html). The future of the Museum depends on it.

Craig Moritz, Director, June 19, 2009



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MONICA ALBE RECEIVES 2009 CHANCELLOR'S OUTSTANDING STAFF AWARD

Senior Museum Scientist and Prep Lab Supervisor Monica Albe was awarded the Chancellor's Outstanding Staff Award, or COSA, this April in recognition of her initiative and indisputable enthusiasm for MVZ outreach to the Berkeley campus and community. The COSA is one of UC Berkeley's most prestigious awards, presented yearly to staff and teams "who not only perform their normal job duties with excellence, but also take initiative to go above and beyond in their contributions to the UC Berkeley campus community" (COSA website). According to the Chancellor's awards committee, "These awards are among the highest honors bestowed upon staff by the Chancellor."

Accomplishments of special note in Albe's COSA nomination include the MVZ's Undergraduate Apprentice Program, created by Albe in 2006. The MVZ Undergraduate Apprentice Program received the UC Berkeley Office of Educational Development's Educational Initiatives Award in 2008, recognizing its "distinctive and innovative



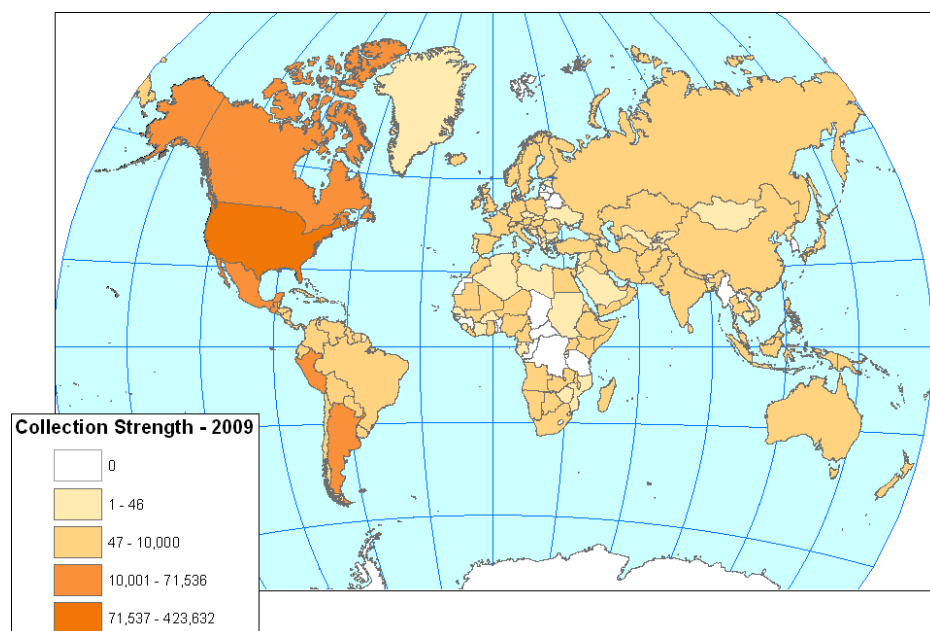
Monica Albe (left) pictured with fellow COSA recipient, and friend, Nancy Finkle (right). Finkle is Undergraduate Student Services Office Manager in the Department of Integrative Biology.

contributions to undergraduate education." Dr. Eileen Lacey, Associate Director & Curator of Mammals at the MVZ, describes the UAP program as offering students "a unique opportunity to learn vertebrate biology through direct participation in specimen preparation, as well as instruction in other aspects of museum science." The program has been lauded as an outstanding success for involving
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*"It means so much to me
to have a job where I
can make an impact and
be appreciated. "*

*~ Monica Albe, MVZ
Senior Museum Scientist
and 2009 Chancellor's
Outstanding Staff Award
Recipient*

MVZ COLLECTION STRENGTH



Graduated color depicts number of specimens per country.

Michelle Koo, 2009

For more information on MVZ specimens visit <http://arctos.database.museum>

CAL DAY 2009

Cal Day, held April 18 this year, is the one day of the year that UC Berkeley's research institutions are open to the public. In honor of Darwin's 200th birthday this year the MVZ, in collaboration with the Berkeley Natural History Museums, the Integrated Biology and Molecular and Cell Biology departments, and the Marian Koshland Biosciences Library launched "Evolutionary Science at Cal," one of the most impressive and popular Cal Day events to date.

This collaborative effort featured the exhibit "Travels with Charles: an Exploration of Darwin's *Beagle* Voyage" which displayed Darwin's original writings and examples of the plants and animals he encountered on his historic voyage. In addition, the institutions cooperatively hosted the Young Explorer Science Corner, an interactive lecture series for children, and the Biodiversity Roadshow, which allowed visitors to ask

scientists, graduates, and undergraduates plant and animal identification questions.

The MVZ's open gallery, organized by Maressa Takahashi and Monica Albe, was an impressive collection of displays and specimens highlighting research and fieldwork by MVZ scientists and graduate students. Major themes of these displays included conservation and evolutionary biology in the field with exhibits like "Savers of the Lost Salamanders," and "Pika! A Cautionary Tale." The "Preparatory Lab" display illustrated how to prepare a specimen skin for the museum collection, and the "Bird Song guessing game: Twitter in the Museum" invited visitors to match various bird songs to the correct species. Live animals from MVZ labs and various local organizations were also on hand

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Graduate Student, Sean Rovito, educates and entertains Cal Day visitors with a Colombian Red Tail Boa.

MVZ HISTORY PROJECT

What can we learn about the history of science by studying the history of the MVZ? Our research team is investigating the MVZ as a way to understand how ecological and evolutionary biology were shaped during the 20th century.

The interdisciplinary research team includes: historian Cathryn Carson, philosopher James Griesemer, sociologist Elihu Gerson, museum director Craig Moritz, archivist Karen Klitz and post-doctoral fellow Mary Sunderland. Our project explores how continuity in the museum's research program provided a broad platform for technical and institutional change.

Of note, the museum's core course, Natural History of the Vertebrates, which began in 1913, has contributed to this remarkable continuity. By introducing the wonders of fieldwork, this course has inspired many generations of students. Early in the course's history, Joseph Grinnell, the museum's founding director, established practical fieldwork experience as an important prerequisite to sound conservation policies and practices. Although Grinnell had planned to develop his lectures into a book, he was unable to do so before his untimely death. Fortunately, Grinnell kept meticulous records, and we have been studying how his ideas are reflected in the development of his course material.



Pictured here are Adrey C. Borell and Raymond M. Gilmore with Museum truck on an unnamed road between Smith Mt. and Black Lake, Idaho. 356 specimens were collected during this trip in June and July, 1930.
MVZ Image No. 8495, Date: July 22, 1930

Indeed, there is much to be learned from studying the archives, and studying education is just the first step in our larger effort to gain a deeper understanding of the museum.

If you have material that you would like to contribute to our project, please contact Mary Sunderland, mary.sunderland@berkeley.edu.

Cal Day 2009 Photo Album

All photos courtesy of Anand Varma, 2009



Susumu Tomiya helps with the display, "Biodiversity Roadshow." Visitors brought in photos, bones, plants, bugs to have them identified by experts and learn about the natural history behind their piece.



Karen Rowe (with snake in tow) and Janette Havens lead a group of children to the interactive "Young Explorer Science Corner" lab activity.



MVZ Undergraduate, Juliana Olsson, face painting in the VLSB atrium



Jeremy Hamilton discusses an exhibit from the section, "Evolutionary Biologists for Conservation!" with attentive visitors in the MVZ main gallery.



Dr. Doug Bell, Wildlife Program Manager from the East Bay Regional Park District, gives a special seminar talk on the role of museum egg collections in fingering DDT as the culprit in nearly causing the extinction of the peregrine and others during the DDT era. Pictured here with his own peregrine falcon.

PROFILE: THE BOWIE LAB

Members of our lab (<http://ib.berkeley.edu/labs/bowie/>) focus on a wide variety of research fields centered on using birds as a model system to understand the evolution and maintenance of avian diversity, particularly in mountains. Topics span the fields of: phylogeny reconstruction, traditional and coalescent-based approaches to population genetics, toxicology, macroecology, biogeography, conservation science and evolutionary biology. A unifying theme in all our research is the need for detailed field studies, with members of the lab having conducted fieldwork in the last three years in several countries including: South Africa, Namibia, Malawi, Tanzania, Kenya, Congo, Vietnam, Solomon Islands, Western USA, Canada and Guatemala.

Principle Investigator: Rauri Bowie

I joined the MVZ as Curator of Birds and the Department of Integrative Biology as an Assistant Professor in October 2006. My research is centered around Old World taxa, primarily African birds, the scope of which focuses on five interrelated research themes: (1) the timing of Asian-African faunal exchanges, (2) exploring evolutionary processes in the Old-World ecological analogues of Hummingbird – the Sunbirds, (3) comparative phylogeography and conservation planning of montane (high-altitude) birds and small mammals, (4) evolutionary versus ecological processes as determinants of distribution patterns among African, Guatemalan and Californian birds, and (5) host shifts and specificity of malarial parasites among montane bird communities. Reflecting a long-term interest in marine biology (of birds and other organisms) a sixth research theme focuses on the comparative phylogeography of southern African marine rocky and sandy shore organisms with differing life histories.



Back Row (Left to Right): Anh-Thu Elaine Vo, Karen Rowe, Rauri Bowie, Andrew Rush, Jérôme Fuchs, Beth Wommack, Front Row (Left to Right): Hanneline Smit, Lauryn Benedict, Jay McEntee, Ângela Ribeiro, Robyn Wong



Lauryn Benedict records California Towhees at Hastings Natural History Reservation.

Postdoctoral fellow: Lauryn Benedict

Lauryn Benedict studies the evolution of communication signals by examining both their function and evolutionary context. Recent work has focused on the vocal repertoire of the California Towhee particularly with respect to the highly unusual vocal duets performed by mates. She has studied the social and ecological conditions that promote cooperative duetting behavior across North American birds. Currently she is working on investigating the evolution of vocal traits, including songs, calls and duets, within a large group of old-world warblers in the genus *Cisticola* and new-world sparrows in the family Emberizidae. Lauryn is funded by UC-Berkeley and the MVZ.

Graduate student: Anh-Thu Elaine Vo

Elaine pursues the integration of environmental toxicology, conservation genetics, and disease ecology in birds. Many bird species are competent and abundant hosts of pathogens that engender both conservation and public health concern. For her dissertation, she is interested in understanding the effects of anthropogenic toxicants on avian physiology and how these effects may support avian-hosted disease emergence, propagation, and spread. Through contaminant quantification, stable isotope profiles, immunological assessments, disease prevalence surveys, pathogen transmission modeling, and molecular markers, she hopes to gain insight into questions regarding the current ecological implications and future evolutionary responses of avian populations exposed to pollutants. Elaine is just coming to the end of her first year at UC-Berkeley and is about to initiate her first field season.

Honors student: Joanna Wu & Zach Hanna

For her IB honors thesis, Joanna is using data and specimens from the Grinnell Project to compare morphological changes of bird species that have shifted in range over the past 80 years to those that have stayed stable. She is taking morphometric and molt measurements on historical Grinnell specimens (1923-1928) and resurvey specimens (2006-2007) from the Lassen transect, using elevational shift data from Morgan Tingley. For his honors thesis Zach worked on a comprehensive phylogeographic study of Orange-crowned Warblers, with a particular focus on the origins of the Channel Island taxa. This spring, Zach has been continued with this project, and has also been working part-time as tech helping collect microsatellite data from Sage Sparrows and Steller's Jays.

PROFILE: THE BOWIE LAB

Graduate student: Sampath Lokugalappatti

Sampath is a qualified vet, and has a MSc in Fish and Wildlife Management. Despite these qualifications he maintained a desire to obtain a PhD and with funds obtained from the World Bank joined the Bowie lab in 2005 to work on the speciation of African bulbuls. He has a passion for conservation biology and his research interests lie chiefly in conservation genetics, evolutionary biology and disease ecology. Sampath is now busy writing up his thesis, but has already been snapped up as the equivalent of an Assistant Professor in the veterinary school of the University of Peradeniya in his native Sri Lanka, where is currently setting up his own lab.

Graduate student: Andrew Rush

I am a second-year graduate student, studying two closely related songbirds, Pacific-slope and Cordilleran Flycatchers. I am exploring how ecological and behavioral differences affect the ability of these species to hybridize. Throughout most of their ranges, the two species occupy different bioclimatic regions, with Pacific-slope Flycatchers inhabiting more humid forest on the West Coast and Cordilleran Flycatchers inhabiting more arid forests mostly in the Rocky Mountains. They meet in two different regions. In the interior Pacific Northwest they meet and interbreed. In northeastern California they meet as well, but previous studies have shown that interbreeding between there is limited. By comparing both of these areas, I will examine how specific environmental conditions and behavior affect interbreeding between the two. Pacific-slope and Cordilleran Flycatchers look almost identical, but have different vocalizations. This summer I will be performing a series of song playback experiments to explore how the differences in vocalizations affect interbreeding, and how these species use vocalizations for species recognition and mate choice. The presence of hybrids between Pacific-slope and Cordilleran Flycatchers also provides an interesting opportunity to examine how vocalizations change in genetically intermediate birds. Ultimately, this research will help us to understand how ecology and behavior help maintain the distinctness of species. I have had the opportunity to share my research by teaching natural history and ornithology classes to undergraduates at Berkeley and by teaching evolution and ecology at San Quentin prison. This coming year, I am looking forward to a new opportunity, teaching natural history to local middle school and high school students. I have received funding for my research from the MVZ and Department of Integrative Biology.



Western flycatcher

Graduate student: Beth Wommack

Birds communicate using a variety of methods, one of which is through colors in feathers that may be used in signaling between individuals and groups. Such signals can provide information on the health of a bird, its social status, or even its individual identity. Beth's studies are centered around the analysis of the use of these colors, specifically in the behavior of diurnal birds of prey. Her study system involves working with American Kestrels (*Falco sparverius*) in California, and she has recently been awarded a Mildred E. Mathias Graduate Student Research Grant, to help finance her work in the U.C. Natural Reserve System.



Beth Wommack with an adult Red-tail hawk

Graduate student: Knud Jønsson

Knud is primarily interested in the systematics and biogeography of crow-like (corvid) birds. Several families such as Old-World Orioles, Cuckoo-shrikes and Whistlers originated in Australia and New Guinea and dispersed from there to Asia, Africa and the Pacific in the Miocene (5-23 Mya) when land masses of Asian and Australian origin collided. The combination of increasing knowledge of plate tectonics in the region and the construction of robust phylogenies has enabled Knud to link present distribution of species with historic terrane movements and get a better understanding of overall biogeographic patterns in the Indo-Pacific. Knud is funded by a prestigious scholarship from the University of Copenhagen in Denmark, and has been traveling across the Atlantic to do his lab work and analyses in the MVZ. Recent fieldwork has brought him to the Solomon Islands and Mauritius.

Graduate student: Marta de Ponte Machado

Marta is currently in the final year of her PhD, an amalgam of population genetics, demographics, ecology and behavior of Great White Pelicans in southern Africa. Seabirds are one of her main passions, as they have interesting life histories and pretty unique behavioral patterns. Her future research plans involve expanding her work on pelican population genetics and phylogenetics, and possibly expanding to other species of seabirds. Other research interests are: (1) conservation and (2) island ecology and evolution. For her post-doctoral work she would like to maintain the links to research and conservation in southern Africa (home for the last 7 years), as well as getting involved in research in her native home land: the Canary Islands. In her own words "keeping close ties to the MVZ community will also be an important part of her priorities."

PROFILE: THE BOWIE LAB

Postdoctoral fellow: Jérôme Fuchs

Jérôme is particularly interested in the molecular systematics and evolution of birds. His research focuses on the biogeographic history of Afro-tropical and Indo-Malayan birds and involves different spatial and temporal scales: ranging from the timing of faunistic exchanges that occurred between continents during the Tertiary to the patterns and processes underpinning the Plio-Pleistocene diversification of birds in Africa and South East Asia. Jérôme has recently conducted fieldwork in Cameroon, Cambodia, Laos, Vietnam, Guatemala and South Africa. Jérôme is jointly funded by the MVZ and the DST/NRF Centre of Excellence at the Percy FitzPatrick Institute (University of Cape Town, South Africa).

Postdoctoral fellow: Hanneline Smit

Hanneline has a specific interest in the conservation of African mammals and birds. She obtained her PhD on African endemic elephant-shrews (order Macroscelidea) from Stellenbosch University, South Africa. In 2008, a new species of elephant-shrew was described by her and colleagues from the Central Karoo in South Africa (*E. pilicaudus*; Karoo rock elephant-shrew). For her postdoc, she aims to understand the current patterns of species abundance and genetic diversity of a number of bird and small mammals species with distributions that span different vegetation regions in Southern Africa. She is investigating the influence of past climatic events on shaping current genetic profiles to predict the likely impact of future environmental change on these model taxa. Hanneline is funded by an UNESCO-L'Oreal fellowship for women in life sciences.

Graduate student: Jay McEntee

Jay McEntee is a third-year graduate student who divides his time between the MVZ and his field sites in the mountains of East Africa. He is neck-deep in a study examining speciation in a group of sunbirds known collectively as the Eastern Double-collared Sunbird species complex. These sunbirds inhabit East Africa's forested "sky islands" – isolated mountain tops that share cold, wet climates and similar biota. Each population is isolated from others by dry, hot savanna "seas." The male birds are visually stunning, with iridescent greens, blues, and violets and bright red breast bands. But another aspect of their biology is perhaps even more intriguing when examining their speciation: the sunbirds are evolving dramatically different songs across their distribution, with song evolution paralleling diversification in their DNA sequences. For each remaining year of his PhD work, Jay will set out to examine how evolutionary divergence in song contributes to the creation of bird diversity. Outside of research, Jay has enjoyed instructing undergraduates for the MVZ's flagship course, Natural History of the Vertebrates, a course whose value he understands deeply because he was so inspired by it when he was a Berkeley undergraduate. Jay's research has been funded by a National Science Foundation Graduate Research fellowship, a UC Berkeley Center for African Studies' Rocca Fellowship and grants from the Explorer's Club, American Ornithologists Union, IB and the MVZ.



A male Fuelleborn's Sunbird

Graduate student: Ângela Ribeiro

I made it all the way from Portugal to Berkeley, with a nice shortcut through South Africa, to embark on a project that seeks to understand how avian populations become organized across southern African landscapes, both on ecological and evolutionary time scales. For my dissertation I aim to combine different sources of information such as life-history traits (e.g., breeding systems, sociality), ecological (e.g., environmental variables) and molecular data (multi-locus framework) to gain new insights into the evolutionary history and comparative demography of three southern African robins. In particular I am focusing on the Karoo Scrub-robin, a facultative cooperative breeding bird endemic to the southern African arid-zone (an ecosystem sorely overlooked despite the evidence of past and projected range shifts). Gathering data for my dissertation has allowed me to travel extensively across South African and Namibia, investigating the species habitat and marveling in the beauty of the landscapes. My project is funded by the Portuguese Science Agency (FCT), which awarded me a 4-year fellowship to study overseas.

Undergraduate students: Robyn Wong, Josh Penalba, Jessica Pasqua, Sushrita Neogi, Rachel Gulbraa

Several undergraduate students play an invaluable role in the Bowie lab, working on a range of topics in both the evolutionary genomics lab and within the collection. Recent projects include the collection of multilocus data in order to investigate speciation in various African, Guatemalan and California birds, the extent and origins of avian malaria in African and Mesoamerican birds, and morphological variation in New-World flycatchers.

Graduate student: Potiphar Kaliba

Potiphar completed his undergraduate education at the University of Malawi and MSc in Conservation Biology (2006) from the University of Cape Town. He is also presently the acting director of the Museums of Malawi. His research interests center primarily on the phylogeography of birds and small mammals in Malawi and started a PhD to this affect in 2007. Potiphar's research is funded by the DST-NRF Centre of Excellence at the Percy FitzPatrick Institute (University of Cape Town, South Africa).

RECENT MVZ PUBLICATIONS

Below is a selection of recent MVZ Publications. For a complete list of museum publications, visit our online database. (<http://docubase.berkeley.edu/reprints.html>)

Museum researchers, always send new publications to mvzpubs@berkeley.edu for entry into our publications database!

- Moritz, C., C. J. Hoskin, J. B. MacKenzie, B. L. Phillips, M. Tonione, N. Silva, J. VanDerWal, S. E. Williams, C. H. Graham. 2009. Identification and Dynamics of a Cryptic Suture Zone in Tropical Rainforest. *Proceedings of the Royal Society B* 276: 1235-1244.
- Carnaval, A. C., M. J. Hickerson, C. F. B. Haddad, M. T. Rodrigues, C. Moritz. 2009. Stability Predicts Genetic Diversity in the Brazilian Atlantic Forest Hotspot. *Science* 323: 785-789.
- Rovito, S.M., G. Parra-Olea, C. R. Vasquez-Almazan, T. J. Papenfuss, D. B. Wake. 2009. Dramatic Declines in Neotropical Salamander Populations Are an Important Part of the Global Amphibian Crisis. *Proceedings of the National Academy of Sciences*, 106: 3231-3236.
- Clark, C. J. and T. J. Feo. 2008. The Anna's hummingbird chirps with its tail: a new mechanism of sonation in birds. *Proceedings of the Royal Society B* 275 (1637): 955-962.
- Kuchta, S. R., D. S. Parks, R. L. Mueller and D. B. Wake. 2009. Closing the ring: historical biogeography of the salamander ring species *Ensatina eschscholtzii*. *Journal of Biogeography* 36, 982–995.
- Kremen, C., et al.. 2008. Aligning Conservation Priorities Across Taxa in Madagascar with High-Resolution Planning Tools. *Science*. 320(5873): 222-226.
- Moritz, C., J. L. Patton, C. J. Conroy, J. L. Parra, G. C. White, S. R. Beissinger. 2008. Impact of a Century of Climate Change on Small-Mammal Communities in Yosemite National Park, USA. *Science* 322: 261-264.
- Harshman, J., E. Braun, M. Braun, C. Huddleston, R. Bowie, J. Chojnowski, S. Hackett, K. Han, R. Kimball, B. Marks, K. Miglia, W. Moore, S. Reddy, F. Sheldon, D. Steadman, S. Steppan. 2008. Phylogenomic Evidence For Multiple Losses Of Flight In Ratite Birds. *Proceedings of the National Academy of Sciences*. 105: 13462-13467.
- Barnosky, A. D.. 2008. Megafauna Biomass Tradeoff As A Driver Of Quaternary And Future Extinctions. *Proceedings of the National Academy of Sciences* 105: 11543-11548.
- Hackett, S. J., R. T. Kimball, S. Reddy, R. C. K. Bowie, E. L. Braun, M. J. Braun, J. L. Chojnowski, W. A. Cox, K. Han, J. Harshman, C. J. Huddleston, B. D. Marks, K. J. Miglia, W. S. Moore. 2008. A Phylogenomic Study of Birds Reveals Their Evolutionary History. *Science* 320: 1763-1768.



Cover image featuring *Ensatina eschscholtzii*

MVZ GRANTS 2008-2009

Principle Investigators(s)	Sponsor	Project Title
David Wake	UC Mexus	<i>Diversity and Conservation of Salamanders in Southern Mexico</i>
Craig Moritz	National Science Foundation	<i>Historical Climate Change and Prediction of Endemism in the Central Corridor of the Brazilian Atlantic Rainforest</i>
Craig Moritz	California Institute for Energy Efficiency	<i>Testing Methods for Predicting Species' Responses to 20th Century Climate Change in California</i>
Craig Moritz	USDI Geological Survey	<i>VertNET: A Distributed Network of Museum Specimen Data for Vertebrate Species</i>
Craig Moritz, Cathryn Carson, et al.	National Science Foundation	<i>Grant for Collaborative Research: Shaping Evolutionary Biology in Berkeley's Museum of Vertebrate Zoology</i>
Matthew Fujita	National Science Foundation International	<i>U.S. Australia Dissertation Enhancement: Cytonuclear Interactions in a Hybrid Parthenogenetic Gecko (<i>Heteronotia binoei</i>)</i>
Matthew Fujita	National Science Foundation -- DDIG	<i>Dissertation Research: Genome Dynamics in Parthenogenetic Geckos of the <i>Heteronotia Binoei</i> Complex</i>
Steve Beissinger and Craig Moritz	Cal RA California Energy Commission	<i>Assessing Long-Term Dynamics of Bird Distributions in Relation to Climate Change: From Grinnell to Present</i>
Thomas Devitt	National Science Foundation -- DDIG	<i>Dissertation Research: Identifying and Measuring Components of Reproductive Isolation Between Terminal Forms of the <i>Ensatina Eschscholtzii</i> Ring</i>
Jimmy McGuire, Rauri Bowie, Eileen Lacey	National Science Foundation	<i>Conversion of the Museum of Vertebrate Zoology Genetic Resources Collection from Ultra-Cold to Liquid Nitrogen Storage</i>
Shobi Lawalata	National Science Foundation -- DDIG	<i>Dissertation Research: Biogeography of Sumatra and the Mentawai Islands: Phylogeographic Studies of Southeast Asian Flying Lizards (Agamidae: <i>Draco</i>)</i>
Jonathan Fong	National Science Foundation -- DDIG	<i>Dissertation Research: A Genomic Approach to Resolving the Origin of and Evolution of Turtles</i>
Matthew MacManes	National Science Foundation -- DDIG	<i>Dissertation Research: MHC and Mating Systems: Is Sexual Behavior Related to Selection on MHC Genes</i>

FEATURE ILLUSTRATION

ARTIST SARA WEINSTEIN



ALBE COSA (CONT.)

(Continued from page 2)

undergraduates in museum-based research.

Albe also voluntarily serves each year as organizer for the MVZ's Cal Day program. "Since Monica assumed this role," writes Lacey, "attendance at the MVZ on Cal Day increased, with more than ~3,800 visitors to the museum in 2008."

The COSA was presented to Albe at a ceremony held in UC Berkeley's Barrows Hall on Thursday, April 9, 2009. On receiving the award, Albe said, "When I heard that I had received the COSA award, I cried. It means so much to me to have a job where I can make an impact *and* be appreciated. Thanks to the MVZ and UC Berkeley community for being so supportive -- especially Ann Trapaga, Anna Ippolito, and Eileen Lacey for the nomination. I love my job and feel so lucky!"

Albe's nomination for the COSA was submitted by Dr. Eileen A. Lacey, Associate Director & Curator of Mammals, and supported by Anna Ippolito, Receptionist/Undergraduate Coordinator, and Ann Trapaga, Museum Scientist/Assistant Prep Lab Manager. ♦

BERKELEY NATURAL HISTORY MUSEUMS ADMINISTRATIVE NOTES

- The BNHM Website and Intranet is online at <http://bnhm.berkeley.edu/>
- We have updated the BNHM contact list (who to contact for what), the expense reimbursement form and the order form. These items can be found on the BNHM Website above.
- The mileage reimbursement rate has decreased from \$.585/mile to \$.55/mile effective 1-1-09 and the updated reimbursement form reflects this change.
- The Alameda County sales tax rate has increased from 8.75% to 9.75% effective 4-1-09 and the updated order form reflects this change.

Here is a current list of BNHM staff. Please don't hesitate to contact us if you have any questions.

Director of Administration

(Robert Derbin – rderbin@berkeley.edu 510-642-6968)

Human Resources Manager

(Jeanne G. Kassis – kassj@berkeley.edu 510-642-3568)

Financial Analyst

(John Stenske – stenske@berkeley.edu 510-642-6979)

Financial Specialist

(Yvonne Rosby – yvonne@berkeley.edu 510-642-7850)

Contracts & Grants Specialist

(Rhanee Guzman-Dungey – rhaneeg@berkeley.edu 510-642-6976) *On maternity leave. If you have questions about grants, please contact Yvonne Rosby until further notice.

Human Resources/Payroll Assistant

(Mary Dunn – mdunn@berkeley.edu 510-642-6848)

Administrative Assistant (mornings)

(Judith Foster – judithf@berkeley.edu 510-642-6979)

Administrative Assistant (afternoons)

(Helen Cameron – cameronhl@berkeley.edu 510-642-6979)

CAL DAY 2009 (CONT.)

(Continued from page 3)

including tuco-tucos from Dr. Eileen Lacy's lab, a Peregrine Falcon from East Bay Regional Parks, boas from the East Bay Vivarium, and a hawk, barn owl and bats from the Lindsay Wildlife Hospital.

Between 3,800 and 4,000 people attended MVZ's Cal Day 2009, and visitor feedback was glowing. Of the many exhibits and activities, overwhelming crowd favorites were the live animals, and the Bird Song guessing game. One repeat visitor commented that his favorite part about Cal Day is "meeting the researchers and being able to talk to them about their work." Another visitor said, "I really like the research displays- it's great to show my kids the scientific method in action."

Coordinators Albe and Takahashi were aided in this immense undertaking by numerous volunteers, undergraduate apprentices, and the MVZ staff. Takahashi estimates that least 200 hours were put into making this Cal Day such a huge success, saying, "Thank you to everyone involved for pitching in and producing another fabulous Cal Day! Yay for inspiring the public!" ♦

Spring 2009 Newsletter

Contributors

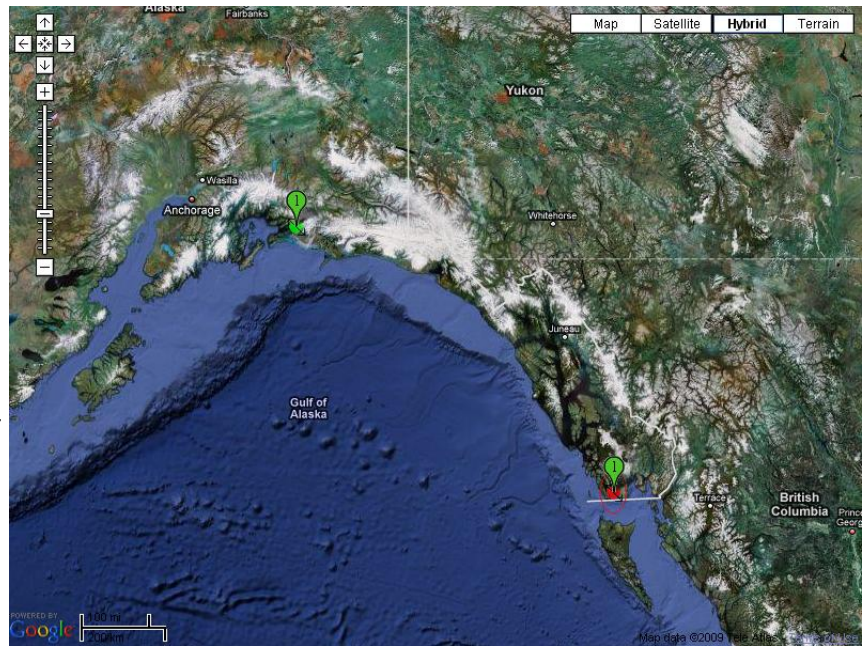
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MVZ UNDERGRADUATES FINDING THEIR WAY BY FINDING HISTORIC SITES

Joseph Grinnell, Charles Camp, Tracy Storer, James Patton, David B. Wake, Pascal Title...

If the last name on the above list of MVZ researchers does not have the same familiar ring as the previous ones, we'd like to familiarize you with the role of undergraduates in georeferencing and archival research at the MVZ. Having learned the georeferencing basics as a volunteer for HerpNET where both the classic methods (paper maps, rulers) and the more sophisticated (ArcGIS) are used side by side, Pascal Title graduated to GIS work for the MVZ collection. His talents for sluicing through collector's notes for the relevant information to resolve geographic coordinates and affix an uncertainty value have proven useful and critical for the Grinnell Resurvey Project as well as countless other studies dependent on spatial analysis of the MVZ's collection.

Investigating localities is not restricted to inkstained fieldnotes but also involves interacting with many collectors in-house (MVZ researcher, Ted Papenfuss, is a regular consultant) and beyond. As MVZ datasets are used more frequently in mapping, all of our georeferencers' names will be more recognizable in association with localities.



An example of Pascal's handiwork in Arctos is demonstrated above. The corrected locality based on fieldnotes is GREEN, quite distant from the previously unresearched, incorrect locality in RED.

Meet Pascal Title, MVZ Georeferencer



Pascal poses with a taricha on a herpetology class field trip.

How and when did you first get involved with the MVZ?

I first got involved with the MVZ in the Spring semester of 2007, while taking IB 104. I started as a volunteer for Carol Spencer, working as a georeferencer for HerpNET.

Describe some of your favorite MVZ memories?

Some of my favorite memories come from the field season in Lassen in 2007. We camped and surveyed in some very beautiful areas of the park. I hadn't really been camping before, so going for 6 weeks was quite the experience! Distributing flyers for the art symposium near Sather Gate while dressed up as a Taricha was also something I will probably never forget, as well as the time Carol and I tried to figure out a new pumping system and drenched ourselves with ethanol in the process.

Why do you find working at the MVZ rewarding?

My favorite part about working at the MVZ is that I get to work with a great group of people. From my supervisors to my coworkers to the researchers that I interact with, I truly enjoy coming to work and spending time with them. The fact that this also happens to be a top-notch natural history museum full of fascinating animals and interesting research makes this work environment incomparable and provides me with an endless source of motivation.

Pascal first learned about the MVZ in his junior year and has since become a MVZ regular. He hopes to follow in Grinnell's footsteps with plans to pursue a graduate degree under another MVZ alumnus, Associate Professor Kevin Burns, at San Diego State University in Fall 2009.

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