

Bailey Douglas Kessing

Curriculum Vitae

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Contact Information

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Personal Data

Birth date: December 18, 1961
Birthplace: Norfolk, Virginia
Marital status: Married to Jayma L. Martin Kessing
Children: Zachary Noel Kessing, born 1995
Emile Paige Kessing, born 1998

Education

- 1984 - 1991 *University of Hawaii at Manoa*
Department of Zoology, Honolulu, HI
M.S. Degree in Zoology
Thesis Topic: Strongylocentrotid Sea Urchin Mitochondrial DNA: Phylogenetic Relationships and Patterns of Molecular Evolution.
- 1980 - 1984 *New College of the University of South Florida*
Natural Sciences, Sarasota, FL
B.A. Degree in Biology and Ecology, Natural Science Division
Thesis Topic: A Review of Cleaning Symbiosis involving Reef Fishes: A functional Approach.
- 1983 *Woods Hole Marine Biological Laboratory*
Course in Marine Ecology
Woods Hole, MA
- 1981 *Old Dominion University*
Course in Principles of Ecology
Norfolk, VA
- 1976 - 1980 *Norfolk Catholic High School*
Norfolk, VA

Grants, Awards, and Honors

1998 *Smithsonian Institute cash award for exceptional service*

- 1990 *The Albert Tester Award for Best Paper from the Department of Zoology, University of Hawaii*
- 1987 *Fellowship from the Cave Research Foundation*
- 1986 *Sigma Xi Society Grant in Aid of Research*
- 1983 *M.O. Mast Scholarship from the Woods Hole Marine Biological Laboratory*

Scientific Meeting Participation (papers presented at all meetings)

- 1999 *Society for the Study of Evolution. Madison, Wisconsin*
- 1998 *Society for the Study of Evolution. Vancouver, Canada*
- 1997 *Society for the Study of Evolution. Boulder, Colorado*
- 1996 *Eighth International Congress on Coral Reefs. Panama, Panama*
- 1995 *Society for the Study of Evolution. Montreal, Canada*
- 1991 *Society for the Study of Evolution. Hilo, Hawaii*
- 1990 *Fourth International Congress of Systematic and Evolutionary Biology. College Park, Maryland*
- 1988 *American Society of Zoologists. San Francisco, California*

Languages and Special Skills

- *English and Spanish*
- *Computer languages/programming skills cover C, Pascal, Basic, HTML, Javascript, hypertext, and "databases"*
- *Proficient in most modern molecular laboratory techniques*
- *Proficient with computers, their maintenance, networking, programming and use. I have also setup and maintained Unix and Macintosh servers (Alpha Unix and MacOS X server), setup web servers, created web pages for our laboratories (<http://nmg.si.edu>) and "served" databases via our LAN and the internet for use in remote labs.*
- *PADI and YMCA Open Water Diving Certified*
- *CPR Certified by the American Red Cross*

Professional Experience

- 2001-present *Programmer/Analyst IV*
SAIC-Frederick
Laboratory of Genomic Diversity
Frederick Maryland
Chief duties include development and maintenance of all database systems supporting the LGD's scientific needs. I also address programming needs of the scientists as needed. Other responsibilities include supervising the staff in three core lab within the LGD—Core genotype, Core cell culture, and FIND.

- 1993-2001 *Senior Science Technician and Lab Manager*
Smithsonian Tropical Research Institute
Unit 0948
APO AA 34002-0948 USA
Responsibilities include managing a staff of technicians in the collection of molecular data; developing techniques and software; analyzing molecular data with both my own techniques/software and other techniques/software that are available; maintaining tissue collections and database archiving of tissue collections cross-referenced with molecular data using databases that I designed and wrote; writing justifications for equipment purchases, managing all laboratory monetary transactions using databases that I designed and wrote; developing molecular laboratory techniques and training staff in their use. Aiding in all aspects of research and publication preparation with a particular emphasis on lab management, molecular data analysis and graphical presentations. I also setup and maintain our LAN and server for all our molecular laboratories and their data. In addition, I coordinate/oversee general supply orders, equipment usage and maintenance with three other molecular laboratories at our facility.
- 2000 *Computer Database Consultant*
Center for Comparative Genetics
Davis, CA
I created a relational database that allowed the manager of the molecular labs (Dr. G. Lento) to track sample use in their research and manage their collections and storage facility. I also trained her in its use and database programming.
- 1997 *Computer Database Consultant*
Molecular Program
Field Museum, Chicago, IL
I created a relational database that allowed the manager of the molecular labs (Lee Weigt) to make requisitions, track orders, bill "users", and manage accounts. I also introduced them to my collections/molecular data relational database.
- 1991-1993 *High School Science Teacher*
Maryknoll High School
1402 Punahou St.
Honolulu, HI 96822
I taught Physical Science, Biology and AP Biology in a College Prep Catholic High School. Other Responsibilities included serving on various committees—such as the National Honor Society and Admissions Committees, and running the Peer Counseling program.
- 1990-1992 *Computer Database Consultant*
Department of Botany
Bishop Museum, Honolulu, HI
I updated/rewrote the Botany Department's collection database.

- 1987 - 1990 *Research Assistant for Dr. Stephen R. Palumbi*
Department of Zoology
University of Hawaii, Honolulu, HI
and
Pacific Biomedical Research Center
41 Ahui St
Honolulu, HI 96813
I was a graduate research assistant of Dr. Steve Palumbi's and was partly responsible for managing the lab. In addition, I worked on collecting data for my own graduate research projects. These projects included collecting DNA sequence data for a group of cave spiders, shrimp, and sea urchins and analyzing the data from a molecular evolutionary and phylogenetic standpoint. I also did various data collection and data analysis for grants to Dr. Palumbi. This included work on both shrimp and sea urchins. In addition, I helped train visitors and other workers in the lab in various DNA techniques. Work included the use of DNA-DNA hybridization, RFLPs, PCR, cloning (using both plasmid and viral vectors) and sequencing of both nuclear and mitochondrial DNA.
- 1985 - 1987 *High School Math and Science Teacher*
Academy School, Honolulu, HI
I taught math (Basic Math, Geometry, Algebra, and Calculus) and science (Physical Science, Biology and Marine Science) to learning disabled and emotionally disturbed high school students. Responsibilities, in addition to those normally required for teaching, included student counseling and support, organizing over 40 field trips annually, and coaching sports.
- 1984 - 1987 *Teaching Assistant for the Department of Zoology*
Introductory Zoology; Human Anatomy and Physiology; Vertebrate Zoology
University of Hawaii, Honolulu HI
Typical graduate student responsibilities including teaching laboratories, proctoring exams, guiding field trips, and holding study sessions.
- 1986 (summer) *Research Assistant for Dr. Stephen R. Palumbi*
Department of Zoology
University of Hawaii, Honolulu, HI
Started a research project with Dr. Palumbi that involved looking for genetic markers in shrimp populations and examining population dynamics. This project also included helping to set-up Dr. Palumbi's new genetics laboratory and learning/teaching genetic techniques with/to other workers.
- 1982 - 1984 *Paleontologist/Student Intern at the South Florida Museum*
Sarasota, FL
Responsibilities included cataloging and conserving fossils in the museum's collections. I was also asked to lecture at local schools and hold TV interviews about the museum and its fossil collection and the natural history of the area.

1982 - 1983 *Computer Operator for the University of South Florida, Sarasota, FL*
This student job entailed running the Sarasota branch campus' mainframe computer and training people in its use. It was also my responsibility to train users in PL-1 and PL-C programming languages.

Publications

- Guo, X.-C., Scott, K., Liu, Y., Dean, M., David, V., Nelson, G. W., Johnson, R. C., Dilks, H. H., Lautenburger, J., Kessing, B., Martenson, J., Guan L, Sun, S., Deng, H., Zheng, Y., de The, G., Liao, J., Zeng, Y., O'Brien, S. J., and C. A. Winkler. 2006. General Factors Leading to Chronic Epstein-Barr Virus Infection and Nasopharyngeal Carcinoma in South East China: Study Design, Methods and Feasibility. *Human Genomics*, 2:365-375
- Guo XC, O'Brien SJ, Winkler C., Scott K., Hutcheson H., David V., Kessing B., Zheng Y.M., Liao J., Lui Y., Guy de T. and Y. Zeng. 2006. Association study of chromosome 4 STRs polymorphisms with nasopharyngeal carcinoma. *Yi Chuan*. 28:783-90
- Smith, MW, Patterson N, Lautenberger JA, Truelove AL, McDonald GJ, Waliszewska A, Kessing BD, Malasky MJ, Scafe C, Le E, De Jager PL, Mignault AA, Zeng Yi, de Thé G, Essex M, Sankalé JL, Moore JH, Poku K, Phair JP, Goedert JJ, Vlahov D, Williams SM, Tishkoff SA, Winkler CA, De La Vega FM, Woodage T, Sninsky JJ, Hafler DA, Altshuler D, Gilbert DA, O'Brien, SJ Reich D. 2004. A High-Density Admixture Map for Disease Gene Discovery in African Americans. *Am. J. Hum. Genet.* 74:1001–1013
- Biermann C. Kessing BD, Palumbi SR. 2003. Phylogeny and development of marine model species: stronglycentrotid sea urchins. *Evolution and Development* 5:4, 360-371
- Lessios HA, Garrido MJ, Kessing BD. 2001. Demographic history of *Diadema antillarum*, a keystone herbivore on Caribbean reefs. *Proc. R. Soc. Lond. Ser. B.* 268:2347-2353
- Lessios HA, Kessing BD, Pearse JS. 2001. Population structure and speciation in tropical seas: Global Phylogeography of the sea urchin *Diadema*. *Evolution* 55(5) 955-975.
- Lessios HA, Kessing BD, Robertson DR, Paulay G. 1999. Phylogeography of the pantropical sea urchin *Eucidaris* in relation to land barriers and ocean currents. *Evolution* 53:806-817.
- Lessios HA, Kessing BD, Robertson DR. 1998. Massive gene flow across the world's most potent marine biogeographic barrier. *Proc. R. Soc. Lond. Ser. B.* 265:583-588
- Lessios HA, Kessing BD, Wellington GM, Graybeal A. 1996. Indo-Pacific echinoids in the tropical eastern pacific. *Coral Reefs* 15:133-142
- Zanotto, PM, Kessing, BD, Maruniak, JE. 1993. Phylogenetic interrelationships among baculoviruses: Evolutionary rates and host associations. *Journal of Invertebrate Pathology* 62:147-164

- Palumbi SR, Kessing BD. 1991. Population biology of the trans-Arctic exchange: Mitochondrial DNA sequence similarity between Pacific and Atlantic sea urchins. *Evolution* 45:1790-1805
- Palumbi SR, Martin AP, Kessing B, McMillan WO. 1991. Detecting population structure using mitochondrial DNA. In *Genetic Ecology of Whales and Dolphins*, AR Hoelzel (Ed.) International Whaling Commission, Cambridge, UK, pp. 271-278
- Kessing BD. 1991. Molecular evolution in sea urchin mitochondrial DNA. *Pacific Science* 45:93 (Abstract)
- Martin AP, Kessing BD, Palumbi SR. 1990. The accuracy of estimating genetic distance between species from short sequences of mitochondrial DNA. *Molecular Biology and Evolution* 7:485-488
- Kessing BD. 1990. Concurrent speciation in temperate sea urchin lineages. *Pacific Science* 44:188 (Abstract)
- Kessing BD, Croom H, Martin AP, McIntosh C, McMillan WO, Palumbi SR. 1989. The simple fool's guide to PCR. Department of Zoology, UH Publication, vers. 1
- Kessing BD. 1989. Secondary sexual characters in *Lycosa Howarthi*. *Pacific Science* 43 (Abstract)
- Kessing BD, Palumbi SR. 1988. The evolution of sea urchins in the genus *Strongylocentrotus*. *American Zoologist* 24: 8A (Abstract)