

KEVIN JAMES OLIVAL

Senior Research Fellow
NIH Fogarty US Global Health Postdoctoral Scientist
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EDUCATION

Ph.D. Columbia University, Ecology and Evolutionary Biology (2008)

Dissertation Title: “Population genetic structure and phylogeography of Southeast Asian flying foxes: Implications for conservation and disease ecology” Graduated with Distinction.

E.P.C. Columbia University, Environmental Policy Certificate (2006)

Focused on international environmental policy

M.A. & M.Phil. Columbia University, Ecology and Evolutionary Biology (2003 & 2007)

Department of Ecology, Evolution, and Environmental Biology

B.S. Colorado State University, Bio-agricultural Science (1997)

Double minor in Anatomy/Neurobiology and Philosophy, fulfilled all pre-med requirements

PREVIOUS RESEARCH AND PROFESSIONAL EXPERIENCE

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK

Post-doctoral researcher, PI: Susan Perkins (2008-2009)

- Discovery and evolution of non-human malaria parasites. Molecular genetic investigation of *Plasmodium* systematics and origins, laboratory work, analysis, collected and procured samples from bats, and established network of international research collaborators.
- Host species identification of dipteran blood meals using PCR and DNA sequencing.
- Meta-analysis, predicting viral diversity using host species traits and phylogeny.

Doctoral student, PIs: Nancy Simmons and Rob DeSalle (2004-2008)

- Population genetic structure and historical demography of two flying fox species, *Pteropus vampyrus* and *P. hypomelanus*, in Southeast Asia. Lab work and analysis.
- Delimiting taxonomic boundaries of fruit bats using molecular tools.
- Comparative host-parasite population genetics; fruit bats and Nycteribiid flies.
- Historical DNA analysis from museum specimens (50-100 yrs).
- Proficient in phylogenetic and population genetic analyses.

CONSORTIUM FOR CONSERVATION MEDICINE, NEW YORK

Research collaborator (2002-2008)

- Nipah virus ecology and distribution in Peninsular Malaysia.
- Field capture and sampling of wildlife reservoirs for EID assays, monitoring health of bat populations, mark-recapture studies, and molecular genetic analysis of host species.
- Satellite telemetry of the large flying fox (*P. vampyrus*) in Malaysia.
- Scientific consultant to change Malaysian flying fox hunting policies.

KEWALO MARINE LABORATORY, UNIVERSITY OF HAWAII

Research Associate (1999-2002)

- Managed laboratory for critically endangered Hawaiian tree snails (Genus: *Achatinella*). Conduct field surveys, mark-recapture and demography studies, and DNA sampling on Oahu, Maui, and Molokai.
- Conservation genetic laboratory work; assisting post-doc.
- Supervised graduate and undergraduate assistants in lab.
- Drafted State, Federal, and NGO reports and permit applications.

FORBIO TROPICAL PLANTS, INC. AIEA, HAWAII

Lab/Field Technician & Assistant Lab Manager (1997-1999)

- Established an agricultural biotechnology R&D facility. Coordinated with lab manager and ForBio Ltd. (Australia) to insure transfer of technology.
- Micropropagation, somatic embryogenesis, and *in vitro* experimentation with Teak, Eucalyptus, Acacia, Coffee, and Cocoa species.
- Operation of automated tissue culture robot for propagation of genetically selected plants.

RELEVANT INTERNATIONAL EXPERIENCE

Extensive field research in Southeast Asia (Malaysia, Vietnam, Cambodia) for 12 months between 2002-2007. Virus surveillance and discovery; trapping and monitoring fruit bat populations; and sampling tissue from wild, domestic, and market animals.

In-country collaborative research with: Veterinary Research Institute, Malaysia; Institute for Ecology and Biological Resources, Vietnam; Wildlife Conservation Society, Cambodia and Malaysia; and Pasteur Institute, Cambodia.

Lived in Japan for 3 months; studied Japanese language for 3 years.

Lived in Australia for 6 months; ecological restoration project at Portland aluminum plant.

Speak basic conversational **Bahasa Malaysia**.

TEACHING EXPERIENCE

Columbia University Secondary School Program, New York

Instructor, *Issues in Biological Conservation* (Summer 2006-2009)

Designed and taught intensive college prep course, 6-8 weeks per summer, 4-6 hours/day.

Columbia University, Dept. of Ecology, Evolution, and Environmental Biology, New York

Teaching Assistant for graduate and undergraduate courses, led discussion sections and labs.

Disease Ecology (Fall 2006)

Conservation Biology (Spring 2006)

Environmental Biology II (Spring 2004)

Graduate Seminar in Conservation Biology (Fall 2003)

Columbia University, Center for Environmental Research and Conservation, New York

Lecturer, adult continuing education course in *Disease Ecology* (Fall 2003)

American Museum of Natural History, New York

Mentor, Conservation Genetics High School Internship Program (2006-2007)

University of Hawaii, Manoa

Mentor and Training, NSF Undergraduate Mentoring in Environmental Biology (UMEB) for Pacific Islander undergraduate students (2000-2002)

PEER-REVIEWED PUBLICATIONS

Rahman, S. A., S. S. Hassan, **K. J. Olival**, M. Mohamed, L.-Y. Chang, L. Hassan, A. S. Suri, N. M. Saad, S. A. Shohaimi, Z. C. Mamat, J. H. Epstein, H. E. Field, P. Daszak and HERG. "Genetic characterization of Nipah virus isolated from naturally infected *Pteropus vampyrus* in Malaysia." *Submitted Emerging Infectious Disease*.

Olival, KJ. Correlates and evolutionary consequences of population genetic structure in bats. Book chapter *Submitted*. *Evolutionary History of Bats: Fossils, Molecules, and Morphology*. G.F. Gunnell and N. Simmons, Editors.

Turmelle, A and **KJ Olival**. Impacts of host colony size and population structure on viral diversity in bats (Order Chiroptera). *In Press EcoHealth*

Murdock, C, **KJ Olival**, and SL Perkins. Feeding preference of snow-melt mosquitoes (Culicidae: *Culiseta* and *Ochelerotatus*) show a link between cervid amplifying hosts for Jamestown Canyon Virus (Bunyaviridae: *Orthobunyavirus*) and humans. *In Press Journal of Medical Entomology*

Epstein, JH, **KJ Olival**, JRC Pulliam, CS Smith, J Westrum, T Hughes, A Dobson, A Zubaid, SA Rahman, MM Basir, H Field, and P Daszak. (2009) Management of *Pteropus vampyrus*, a hunted migratory species with a multinational home-range. *Journal of Applied Ecology* 46(5): 991-1002.

Olival, KJ, EO Stiner, and SL Perkins. (2007) Detection of *Hepaticystis sp.* in Southeast Asian Flying Foxes (Pteropodidae) using Microscopic and Molecular Methods. *Journal of Parasitology* 93(6): 1538-1540.

Daszak, P, R Plowright, JH Epstein, JH Pulliam, SA Rahman, HE Field, CS Smith, **KJ Olival**, S Luby, K Halpin, AD Hyatt, and H.E.R.G. (2006) The emergence of Nipah and Hendra virus: pathogen dynamics across a wildlife-livestock-human continuum. In: Disease Ecology: Community structure and pathogen dynamics, S. Collinge and C. Ray, Editors. Oxford University Press: Oxford. pp. 188-203.

Olival, KJ and H Higuchi. (2006) Monitoring the long-distance movement of wildlife in Asia using satellite telemetry. In: Conservation Biology in Asia, J McNeely, et al., editors. Society for Conservation Biology Asia Section and Resources Himalaya Foundation: Kathmandu, Nepal. pp. 319-339.

Pulliam, JRC, H Field, **KJ Olival**, and H.E.R.G. (2005) An alternative explanation of Nipah virus strain variation. Emerging Infectious Diseases 11(12): 1978-1979.

Olival, KJ and P Daszak. (2005) The ecology of emerging neurotropic viruses. Journal of NeuroVirology 11: 440-445.

Hadfield, MG, BS Holland, and **KJ Olival**. (2004) Contributions of *ex situ* propagation and molecular genetics to conservation of Hawaiian tree snails. In: Experimental approaches to conservation biology, M.S. Gordon and S.M. Bartol, Editors. University of California Press: Berkeley. pp. 16-34.

MANUSCRIPTS IN PREPARATION

Olival, KJ. Wing morphology correlates with population structure in bats. *In Prep*, Current Biology or Biological Letters

Olival, KJ, *et al.* Population genetic structure of bats (Chiroptera: Pteropodidae) and their ectoparasites (Diptera: Nycteribiidae): implications for disease transmission.

Olival, KJ, *et al.* Phylogeography of Southeast Asian flying foxes (Genus *Pteropus*).

INVITED SEMINARS AND PRESENTATIONS

Olival, KJ. “Determinants of population genetic structure in bats”. 39th North American Symposium on Bat Research, Portland, OR. 4-7 Nov 2009.

Olival, KJ, JH Epstein, CS Smith, J Westrum, T Hughes, A Dobson, A Zubaid, SA Rahman, MM Basir, H Field, and P Daszak. “Long-distance movement of the Old-World fruit bat, *Pteropus vampyrus*, determined by satellite telemetry and population genetics”. First International Symposium on Bat Migration, Berlin, Germany. 18 Jan 2009.

Olival, KJ, S Perkins, P Daszak, and H.E.R.G. “Population genetic structure of reservoir hosts (Chiroptera: Pteropodidae) and ectoparasites (Diptera: Nycteribiidae) informs Nipah virus ecology”.

Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases IX, Irvine, CA. 31 Oct 2008.

Olival, KJ. "Giant Fruit Bats, Wingless Flies, and Emerging Viruses: A Study of Population Genetic Structure and Its Implications". Comparative Biology Seminar Series, American Museum of Natural History, NY. 6 Oct 2008.

Olival, KJ. "Population genetics and phylogeography of flying foxes in Southeast Asia". First International Southeast Asian Bat Conference, Phuket, Thailand. 7-10 May 2007. *Best Student Presentation Award*

Epstein, JH, **KJ Olival***, CS Smith, J Westrum, T Hughes, A Dobson, A Zubaid, SA Rahman, H Field, and P Daszak. "Hunting, international movement, and the need for regional conservation of flying foxes (*Pteropus* spp)". First International Southeast Asian Bat Conference, Phuket, Thailand. 7-10 May 2007. *Presenting Author

Gomez, A, **KJ Olival**, M Jaiteh, and M Levy. "The last transboundary wild areas: opportunities for conservation and international cooperation". Society for Conservation Biology Annual Meeting, San Jose, CA. 25 June 2006.

Olival, KJ and J Epstein. "*Pteropus vampyrus* roost counts and hunting activity 2003-2005". Invited scientific advisor, Perhilitan (Malaysian Wildlife Department) meeting of directors accepting proposals for changes to the Wildlife Protection Act, Kuala Lumpur, Malaysia. Jan 2006

Olival, KJ, J Epstein, C Smith, SA Rahman, J Westrum, JC Morales, D Melnick, P Daszak, and H.E.R.G. "Conservation of flying foxes in Southeast Asia". Society for Conservation Biology, First Regional Meeting of the Asia Section, Katmandu, Nepal. 19 Nov 2005.

Olival, KJ. "Population genetics and phylogeography of Southeast Asian flying foxes". Henipavirus Ecology Research Group 3rd Annual Meeting, Langkawi, Malaysia. 28 Nov 2005.

Olival, KJ. "Population genetics and phylogeography of *Pteropus vampyrus*". Henipavirus Ecology Research Group 2nd Annual Meeting, Fraser Island, Australia. 11 Oct 2004.

Gomez, A, M Mockrin, **KJ Olival**. "A review of freshwater protected areas: current status, limitations, and potential". CERC Seminar Series, Columbia University, NY. 3 Feb 2004.

CONFERENCE POSTERS

Olival, KJ and A Turmelle. "Correlates of viral richness in bats". Bats and Emerging Viral Disease Workshop. Sponsored by DMID/NIAID/NIH. Rockville, MD. 10-11 Sep 2009.

Epstein, J., SA Khan, M Hahn, J Hossain, AM Kilpatrick, A Islam, SU Khan, E Gurley, **KJ Olival**, HE Field, WI Lipkin, S Luby, and P Daszak. "Understanding the dynamics of Nipah virus in *Pteropus giganteus*". North American Symposium on Bat Research, Portland, OR. 4-7 Nov 2009.

Olival, KJ and A Turmelle. “Correlates of viral diversity in bats”. Exploring the Dynamic Relationship Between Health and the Environment, American Museum of Natural History, NY. 2-3 April 2009.

Olival, KJ, JC Morales, P Daszak, N Simmons, D Melnick, S Perkins, and R DeSalle. “Conservation genetics of Southeast Asian flying foxes (Genus: *Pteropus*)”. Conservation Genetics Symposium, American Museum of Natural History, NY. 27-29 Sep 2007.

Olival, KJ. “Population Structure of Flying Foxes and the Ecology of Nipah Virus”. EPA Graduate Fellowship Conference, Washington D.C. 24-26 Sep 2006.

Gomez, A, M Mockrin, **KJ Olival**. “Characterizing Protected Areas for Freshwater Systems—conservation potential and limitations”. New Currents in Conserving Freshwater Systems, American Museum of Natural History, NY. 7-8 April 2005.

Olival, KJ, BS Holland, MG Hadfield. “The conservation and management of endangered O`ahu tree snails (Genus: *Achatinella*)”. Expanding the Ark Invertebrate Science and Conservation Conference, American Museum of Natural History, NY. 25 Mar 2004.

GRANTS AND FELLOWSHIPS RECEIVED

NIH Fogarty International US Global Health Scientist, ARRA Award \$204,668 (2009-2011)

EPA STAR Fellowship Award, \$111,000 (2004-2007)

Columbia University Faculty Fellowship, \$250,000 (2002-2007)

Bat Conservation International Student Scholarships, \$5,000 (2005-2007)

Lubee Bat Conservancy Research and Travel Grants, \$4,000 (2005, 2008)

Columbia University, Earth Institute Travel Grant, \$750 (2006, 2007)

NSF Graduate Student Fellowship, Honorable Mention (2003)

Colorado State University: Distinguished Scholar Award (1993-1997), Academic Grant (1993-1997), Charles N. Shepardson Memorial Scholarship (1993-1995), Delano F. Scott Scholarship in Agriculture (1993-1995) *Total \$37,763*

PROFESSIONAL SERVICE AND OUTREACH

Journal Referee, *EcoHealth*, *Biodiversity and Conservation*, *Molecular Ecology Resources*, *Mitochondrial DNA*.

Grant Referee

Wildlife Conservation Society, Research Fellowship Program
Fauna and Flora International, Rufford Innovation Awards

Professional Membership

Henipavirus Ecology Research Group (2003-present)
Bat Conservation International (2005-2007)
Society for Conservation Biology (2001-2006)
American Society of Mammalogists (2003-2005)
New York Academy of Sciences (2005-2006)
American Association for the Advancement of Science (1998-2000)

Symposium Organizer, Poster Judge, and Student Lunch Mentor. 39th North American Symposium on Bat Research, Portland, OR. Nov 2009.

Abstract Review Committee, “Exploring the Dynamic Relationship Between Health and the Environment”, AMNH Spring Symposium, New York, April 2009.

Organizational and Selection Committees, Special Disease Symposium, First International Symposium on Bat Migration, Berlin, Germany, Jan 2009.

Steering and Poster Selection Committees, Small Matters: Microbes and Their Role in Conservation, AMNH Spring Symposium, New York, April 2007.

Symposium Organizer, Bat Hunting and Bushmeat Symposium, First International Southeast Asian Bat Conference, Phuket, Thailand, May 2007.

Student Organization and Abstract Review Committees, Society for Conservation Biology Annual Meeting, New York, 2004.

Volunteer Judge, New York Science and Engineering Fair, NYAS, 2005.

PERSONAL INTERESTS

Didgeridoo, photography, cooking, squash, tennis, SCUBA (Advanced Open Water certified), skiing, fishing, web-design, and travel.
