

**Michael David San Jose Ph. D.**  
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Plant and Environmental Protection Sciences  
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## Education

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- 2018 Ph.D. in Entomology, Advisor Daniel Rubinoff, University of Hawaii at Manoa, Honolulu, HI.  
Dissertation: Molecular Systematics and Population Genetics of the Tribe Dacine (Diptera: Tephritidae)
- 2008 Bachelor of Science in Biology with a concentration in Cell and Molecular Biology University of Hawaii at Manoa, Honolulu, HI.

## Professional Appointments

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- 2018- present Junior Researcher, PEPS Department, University of Hawaii at Manoa: Conduct research on Population Genetics and Molecular Identification of Fruit flies.  
Supervisors: Norman Barr Ph. D., Daniel Rubinoff, Ph.D.,
- 2010-2018 **Graduate Research Assistant**, PEPS Department, University of Hawaii at Manoa. Duties: Conduct research on distribution, systematics and population genetics of the fly genus *Bactrocera*. Supervise undergraduate research assistants in molecular systematics techniques and protocols.  
Supervisor: Daniel Rubinoff, Ph.D.
- 2011-2012 **Graduate Research Assistant**, PEPS Department, University of Hawaii at Manoa. Duties: Curate and organize specimens in the University of Hawaii Insect Museum. K-12 outreach, teach kids about insects and their role in the environment. Manage museum loans to other institutions and researchers throughout the world.  
Supervisor: Daniel Rubinoff, Ph.D.
- 2008-2010 **Researcher**, PEPS Entomology Department University of Hawaii at Manoa. Duties: Research on native and invasive moths and beetles in Hawaii, manage a molecular systematics lab, which entails supervising undergraduate and graduate researchers on molecular laboratory techniques, ordering lab supplies and general lab safety and clean up. DNA extractions, PCR, gel electrophoresis, PCR purifications, sequencing, primer design, sequence alignment, generation of phylogenetic trees, survey of invasive moths and beetles and collection of native moth adults and larvae in the field.  
Supervisor: Daniel Rubinoff, Ph.D.
- 2007-2008 **Undergraduate Research Assistant**, PEPS Entomology Department University of Hawaii at Manoa. Duties: Research on native and invasive moths in Hawaii which include DNA extractions, PCR, gel electrophoresis, PCR purifications, sequencing, sequence alignment, generation of phylogenetic trees, survey of invasive moths and collection of native moth larva in the field.  
Supervisor: Daniel Rubinoff, Ph.D.
- 2007 **Teaching Intern**, Introductory Biology 171 laboratory – University of Hawaii, Manoa, Department of Biology. Professor: Wes Riley, Ph.D.

### Awards, Grants and Scholarships (\$8350 total)

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- 2014 ARCS Helen Jones Farrar Award (\$5000)  
2014 Gamma Sigma Delta Award Oral Presentation CTAHR Symposium (\$150)  
2014 Tanada Scholarship (\$1200)

### Field Experience

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- 2016 Survey of fruit flies (Tephritidae: Dacinae) in Sri Lanka  
2016 Survey of fruit flies (Tephritidae: Dacinae) in South America (Argentina, Paraguay and Uruguay).  
2015 Survey of fruit flies (Tephritidae: Dacinae) in Vietnam.  
2014 Survey of endangered butterflies in the Central Northern Mariana Islands (Guam, and Tinian)  
2013 Survey of fruit flies (Tephritidae: Dacinae) in Taiwan.  
2012 Survey of fruit flies (Tephritidae: Dacinae) in South China.  
2011 Survey of fruit flies (Tephritidae: Dacinae) in Southeast Asia (Cambodia, Laos, Thailand)  
2009 Survey of invasive Bark Beetles (Curculionidae: Scolytinae spp.) across Hawaii.  
2009 Survey of invasive Moths (*Epiphyas postvittana*) across Hawaii.  
2007-present Field collections of native and invasive insects in Hawaii.

### Research Experience

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- 2018- present Molecular identification and population genomics of tephritid pest species, Pathway analysis using DNA sequences and SNP data  
2010-2018 Systematics, population genetics and distribution of Tephritid flies in the genus *Bactrocera*.  
2007-2010 Population genetics of the Light Brown Apple Moth (*Epiphyas postvittana*) in Hawaii, California, Australia and New Zealand using mitochondrial loci.  
2007-2008 Rearing of insects such as *Hyposmocoma* spp., *Daphnis neri*, *Hyles* spp.

### Teaching Experience

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- 2016 Guest lecturer for World of Insects at University of Hawaii at Manoa PEPS. Gave lecture on “Tephritidae: the good bad and the sexy?”.  
2016 Guest lecturer for Soil Science at Leeward Community College. Gave lecture on “Insects of Hawaii: Native conservation and Invasive pest control”.  
2014 Guest lecturer for Invasive Species. Gave lecture on “Genetics and Invasions” how to use molecular techniques to track past and current invasions to mitigate damage to agricultural and natural systems.  
2011-2017 Teaching assistant of Systematics/Phylogenetics class. Duties included teaching lectures (Phylogenomics, Gene trees vs. Species trees, Total Evidence, Morphology and Systematics, Population genetics/genomics, Bayesian and Maximum Likelihood Theory and programs) and helping students with phylogenetic projects (using software and interpreting data/trees).  
2011 Teaching assistant for General Entomology class and Lab. Duties include teaching lab lectures, made quizzes, supervising and helping students in identifying insects to family for class collections.

2007 Assisted in teaching an introductory biology laboratory (Biology 171L). Duties include teaching lab lectures, grading lab reports and quizzes, supervising students and answering questions.

### **Research Interests**

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My research interests focus on the systematics, population genetics/genomics and evolution of insects in Hawaii specifically the invasive genus *Bactrocera* (Diptera: Tephritidae). I also have several projects on native insects of Hawaii such as *Hyles* (Lepidoptera: Sphingidae). I gather molecular data using a variety of methods to investigate how various forces (drift, selection, dispersal, vicariance, life history, etc) shape population structure, evolutionary relationships, and speciation. I am particularly interested in how gene flow between various populations/species can muddle or even strengthen species boundaries.

### **Peer-Reviewed Publications**

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- Leblanc, L., C. Doorenweerd, M. San Jose, H. T. Pham, and D. Rubinoff. 2018.** Descriptions of four new species of *Bactrocera* and new country records highlight the high biodiversity of fruit flies in Vietnam (Diptera, Tephritidae, Dacinae). *ZooKeys* 797: 87–115.
- Leblanc, L., C. Doorenweerd, M. San Jose, U. G. A. I. Sirisena, K. S. Hemachandra, and D. Rubinoff. 2018.** Description of a new species of *Dacus* from Sri Lanka, and new country distribution records (Diptera, Tephritidae, Dacinae). *ZooKeys* 795: 105-114.
- Reil, J. B., C. Doorenweerd, M. San Jose, S. B. Sim, S. M. Geib, and D. Rubinoff. 2018.** Transpacific coalescent pathways of coconut rhinoceros beetle biotypes: Resistance to biological control catalyses resurgence of an old pest. *Mol Ecol.*
- San Jose, M., C. Doorenweerd, L. Leblanc, N. Barr, S. M. Geib, and D. Rubinoff. 2018.** Tracking the origins of fly invasions; Using mitochondrial haplotype diversity to identify potential source populations in two genetically intertwined fruit fly species (*Bactrocera carambolae* and *B. dorsalis* Diptera: Tephritidae) *Journal of Economic Entomology.*
- Dupuis, J. R., F. T. Bremer, A. Kauwe, M. San Jose, L. Leblanc, D. Rubinoff, and S. M. Geib. 2018.** HiMAP: Robust phylogenomics from highly multiplexed amplicon sequencing. *Mol Ecol Resour.* 18(5):1000-1019
- San Jose, M., C. Doorenweerd, L. Leblanc, S. M. Geib, N. Barr, and D. Rubinoff. 2018.** Incongruence between molecules and morphology: a seven-gene phylogeny of Dacini fruit flies paves the way for reclassification (Diptera: Tephritidae). *Molecular Phylogenetics and Evolution* 121: 139-149.
- Doorenweerd, C., L. Leblanc, A. L. Norrbom, M. San Jose, and D. Rubinoff. 2018.** A global checklist of the 932 fruit fly species in the tribe Dacini (Diptera, Tephritidae). *ZooKeys* 730: 17.
- Dupuis, J. R., S. B. Sim, M. San Jose, L. Leblanc, M. A. Hoassain, D. Rubinoff, and S. M. Geib. 2017.** Population genomics and comparisons of selective signatures in two invasions of melon fly, *Bactrocera cucurbitae* (Diptera: Tephritidae). *Biological Invasions.*

- Rubinoff, D., M. San Jose, and R. S. Peigler. 2017.** Multi-gene phylogeny of the *Hemileuca maia* complex (Saturniidae) across North America suggests complex phylogeography and rapid ecological diversification. *Systematic Entomology*.
- Rubinoff, D., M. San Jose, and J. A. Powell. 2017.** Sex-biased secondary contact obscures ancient speciation onto relictual host trees in central California moths (Syndemis: Tortricidae). *Molecular phylogenetics and evolution* 109: 388-403.
- Leblanc, L., M. San Jose, M. G. Wright, and D. Rubinoff. 2016.** Declines in biodiversity and the abundance of pest species across land use gradients in Southeast Asia. *Landscape ecology* 31: 505-516.
- Reil, J. B., M. San Jose, and D. Rubinoff. 2016.** Low Variation in Nuclear and Mitochondrial DNA Inhibits Resolution of Invasion Pathways across the Pacific for the Coconut Rhinoceros Beetle (Scarabeidae: *Oryctes rhinoceros*).
- Rubinoff, D., M. San Jose, P. Johnson, R. Wells, K. Osborne, and J. J. Le Roux. 2015.** Ghosts of glaciers and the disjunct distribution of a threatened California moth (*Euproserpinus euterpe*). *Biological conservation* 184: 278-289.
- Schutze, M. K., N. Aketarawong, W. Amornsak, K. F. Armstrong, A. A. Augustinos, N. Barr, W. Bo, K. Bourtzis, L. M. Boykin, C. CCeres, S. L. Cameron, T. A. Chapman, S. Chinvinijkul, A. ChomiC, M. De Meyer, E. Drosopoulou, A. Englezou, S. Ekesi, A. Gariou-Papalexiou, S. M. Geib, D. Hailstones, M. Hasanuzzaman, D. Haymer, A. K. W. Hee, J. Hendrichs, A. Jessup, Q. Ji, F. M. Khamis, M. N. Krosch, L. U. C. Leblanc, K. Mahmood, A. R. Malacrida, P. Mavragani-Tsipidou, M. Mwatawala, R. Nishida, H. Ono, J. Reyes, D. Rubinoff, M. San Jose, T. E. Shelly, S. Srikachar, K. H. Tan, S. Thanaphum, I. Haq, S. Vijaysegaran, S. L. Wee, F. Yesmin, A. Zacharopoulou, and A. R. Clarke. 2015.** Synonymization of key pest species within the *Bactrocera dorsalis* species complex (Diptera: Tephritidae): taxonomic changes based on a review of 20 years of integrative morphological, molecular, cytogenetic, behavioural and chemoecological data. *Systematic Entomology* 40: 456-471.
- Leblanc, L., M. San Jose, and D. Rubinoff. 2015.** Description of a new species and new country distribution records of *Bactrocera* (Diptera: Tephritidae: Dacinae) from Cambodia. *Zootaxa* 4012: 593-600.
- Leblanc, L., M. San Jose, N. Barr, and D. Rubinoff. 2015.** A phylogenetic assessment of the polyphyletic nature and intraspecific color polymorphism in the *Bactrocera dorsalis* complex (Diptera, Tephritidae). *ZooKeys*: 339.
- Leblanc, L., M. San Jose, B. P. Bhandari, C. A. Tauber, and D. Rubinoff. 2015.** Attraction of Lacewings (Neuroptera: Chrysopidae) to Methyl Eugenol in Asia. *Proceedings of the Hawaiian Entomological Society*: 67-70.
- Leblanc, L., H. Fay, F. Sengebau, M. San Jose, D. Rubinoff, and R. Pereira. 2015.** A Survey of Fruit Flies (Diptera: Tephritidae: Dacinae) and their Opiine Parasitoids (Hymenoptera: Braconidae) in Palau. *Proceedings of the Hawaiian Entomological Society* 47: 55-66.
- Leblanc, L., M. A. Hossain, S. A. Khan, M. San Jose, and D. Rubinoff. 2014.** Additions to the fruit fly fauna (Diptera: Tephritidae: Dacinae) of Bangladesh, with a key to the species. *Proceedings of the Hawaiian Entomological Society*: 31-40.

- Barr, N. B., L. A. Ledezma, L. Leblanc, M. San Jose, D. Rubinoff, S. M. Geib, B. Fujita, D. W. Bartels, D. Garza, and P. Kerr. 2014.** Genetic diversity of *Bactrocera dorsalis* (Diptera: Tephritidae) on the Hawaiian Islands: implications for an introduction pathway into California. *Journal of economic entomology* 107: 1946-1958.
- Leblanc, L., M. A. Hossain, S. A. Khan, M. San Jose, and D. Rubinoff. 2013.** A preliminary survey of the fruit flies (Diptera: Tephritidae: Dacinae) of Bangladesh. *Proceedings of the Hawaiian Entomological Society* 45: 51-58.
- San Jose, M., L. Leblanc, S. M. Geib, and D. Rubinoff. 2013.** An evaluation of the species status of *Bactrocera invadens* and the systematics of the *Bactrocera dorsalis* (Diptera: Tephritidae) complex. *Annals of the entomological Society of America* 106: 684-694.
- Rubinoff, D., M. San Jose, and A. Y. Kawahara. 2012.** Phylogenetics and Species Status of Hawaii 'i's Endangered Blackburn's Sphinx Moth, *Manduca blackburni* (Lepidoptera: Sphingidae). *Pacific Science* 66: 31-41.
- Rubinoff, D., B. S. Holland, M. San Jose, and J. A. Powell. 2011.** Geographic proximity not a prerequisite for invasion: Hawaii not the source of California invasion by light brown apple moth (*Epiphyas postvittana*). *PLoS One* 6: e16361.
- Rubinoff, D., and M. San Jose. 2010.** Life history and host range of Hawaii's endangered Blackburn's sphinx moth (*Manduca blackburni* Butler).

**Oral Presentations** (presenter underlined, invited presentation \*)

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- \*San Jose, M.** 2018. Molecular Systematics and Population Genomics of the Tribe Dacini (Diptera: Tephritidae). Presented at the USDA APHIS McAllen TX. 23 November, 2018.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2017. Assessing global population structure in the invasive oriental fruit fly, *Bactrocera dorsalis* (Diptera: Tephritidae). Presented at the Pacific Entomology conference. 7 December, 2017.
- San Jose, M.**, Leblanc, L., Sim, S., Gieb, S., Rubinoff, D. 2017. Global population genomics of *Bactrocera dorsalis* s.lat. Species boundaries and introgression in these global invaders. Presented at the Entomological Society of America. Denver Colorado. 13 November, 2017.
- San Jose, M.**, Leblanc, L., Sim, S., Gieb, S., Rubinoff, D. 2016. Using next generation sequencing to uncover population structure and species boundaries in *Bactrocera dorsalis* and its sister species *Bactrocera carambolae*. Presented at the International Congress of Entomology. Orlando Florida. 28 September, 2016.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2016. Systematics, biogeography and evolution of kairomone response in the tribe Dacini (Diptera: Tephritidae). Presented at the Evolution meeting. Austin Texas. 20 June, 2016.
- \*San Jose, M.**, Leblanc, L., Rubinoff, D. 2016. Population Genetics of the Genus *Bactrocera* (Diptera: Tephritidae). Presented at the Second Tephritid Workers Workshop. Sacramento California. 10 February, 2016.
- \*San Jose, M.**, Leblanc, L., Rubinoff, D. 2015. The species status of *Bactrocera dorsalis* and its sister species: Current research on a complex question. Presented at Pacific Entomology Conference. Honolulu, Hawaii. 15 February, 2015.
- San Jose, M.** 2014. Systematics and Population Genetics of the Genus *Bactrocera* (Diptera: Tephritidae). University of Hawaii Ph.D. Proposal Seminar. Honolulu, Hawaii. 23 September, 2014.

- San Jose, M.**, Leblanc, L., Rubinoff, D. 2014. Systematics and Population Genetics of the *Bactrocera dorsalis* complex (Diptera: Tephritidae). Presented at ARCS Scholar Symposium. Honolulu, Hawaii. 19 April, 2014.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2014. Mitochondrial DNA-based Population Genetics of *Bactrocera dorsalis* (Diptera: Tephritidae). Presented at CTAHR Symposium. Honolulu, Hawaii. 12 April, 2014.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2014. Population genetics of the *Bactrocera dorsalis* complex (Diptera: Tephritidae) based on mitochondrial DNA. Presented at Annual Entomological Society of America Meeting. Tucson, Arizona. 7 April, 2014.
- \*San Jose, M.**, Leblanc, L., Rubinoff, D. 2013. Phylogenetics of the genus *Bactrocera* and evolution of male lure response. Presented at Evolunch. Honolulu, Hawaii. 6 December, 2013.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2013. Evolution of male lure response in the genus *Bactrocera*. Presented at Annual Entomological Society of America Meeting. Austin, Texas. 10 November, 2013.
- San Jose, M.**, Larulson, A. 2013. Systematics and evolution of the genus *Bactrocera*. Presented at Bodega Bay Phylogenetics Workshop. Bodega Bay, California. 8 March 2013.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2012. Is it a complex or a complex mess? Systematics of the genus *Bactrocera* and the *Bactrocera dorsalis* complex. Presented at Pacific Entomology Conference. Honolulu, Hawaii. 23 February, 2012.
- \*San Jose, M.**, Leblanc, L., Rubinoff, D. 2012. Phylogenetics of *Bactrocera* (Diptera: Tephritidae). Presented at Tephritid Workers Workshop, McAllen Texas. 10 January, 2012.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2011. Systematics of the Genus *Bactrocera* (Diptera: Tephritidae) Based on Mitochondrial and Nuclear Genes. Presented at the Entomological Society of America, Annual Meeting. Reno, Nevada. November, 2011.
- San Jose, M.**, Leblanc, L., Rubinoff, D. 2011. Systematics of the Genus *Bactrocera* (Diptera: Tephritidae) Based on Mitochondrial and Nuclear Genes. Presented at the Entomological Society of America, Pacific Branch Meeting. Waikaloa, Hawaii. 28 March 2011.
- San Jose, M.**, Rubinoff, D. 2009. The genetic diversity and distribution of Light Brown Apple Moth (*Epiphyas postvittana*) in Hawaii. Presented at Pacific Entomology Conference. Honolulu, Hawaii. 19 February 2009.

## Services

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Reviewer for Molecular Ecology, Molecular Phylogenetics and Evolution, PLOS one, Insects, The Science of Nature, International Journal of Molecular Science.  
Member Entomological Society of America  
Member Society of Systematic Biologist  
Member Hawaiian Entomological Society  
President and Treasurer Ka Mea Kolo Entomology Club of UH 2013-2015

## Skills

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PADI Open Water Diver	Perl
R	Python
RevBayes	Various Phylogenetic and Population genetic Programs

## References

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Professor of Entomology  
Director of the University of Hawai'i Insect  
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