

## Evan P. Economo

Assistant Professor  
Biodiversity and Biocomplexity Unit (<http://arilab.unit.oist.jp/>)  
Okinawa Institute of Science and Technology Graduate University

1919-1 Tancha  
Onna-son  
Okinawa, 904-0495  
JAPAN

+81 098-982-3328  
economo@oist.jp  
Citizenship: USA, Canada

### EDUCATION

2009 Ph.D. University of Texas at Austin. *Ecology, Evolution, & Behavior*.

2002 B.S. University of Arizona. *Ecology & Evolutionary Biology*.

### APPOINTMENTS

#### Okinawa Institute of Science and Technology Graduate University

2012 - present Assistant Professor, Principal Investigator, *Biodiversity and Biocomplexity Unit*  
2011 - 2012 Visiting Assistant Professor

#### University of Michigan

2012 - 2017 Visiting Assistant Prof., Dept. of Ecology and Evolutionary Bio., Museum of Zoology  
2009 - 2012 Postdoctoral Fellow - Michigan Society of Fellows  
Assistant Prof. (non tenure-track)- Dept. of Ecology and Evolutionary Biology

### PUBLICATIONS

#### Book

Sarnat, E.M., & **Economo, E.P.** (2012). *The Ants of Fiji*. University of California Press. (400 pages)

#### Journal Articles

47. Agavekar, G., Hita Garcia, F., **Economo, E.P.** (*In Press*) Taxonomic overview of *Tetramorium* Mayr (Hymenoptera, Formicidae, Myrmicinae) in India with descriptions and X-ray microtomography of two new species from the Andaman Islands. *PeerJ*.

46. Hita Garcia, F., Fischer, G., Liu, C., Audisio, T., **Economo, E.P.** (2017). Next-generation morphological character discovery and evaluation: an X-ray micro-CT enhanced revision of the ant genus *Zasphinctus* Wheeler (Hymenoptera, Formicidae, Dorylinae) in the Afrotropics. *ZooKeys* 693: 33-93.
45. Sarnat, E.M., Friedman, N.R., Fischer, G., Lecroq, B., **Economo, E.P.** (2017) Rise of the spiny ants: diversification, ecology, and function of extreme traits in the hyperdiverse genus *Pheidole*. *Biological Journal of the Linnean Society*. <https://doi.org/10.1093/biolinnean/blx081>
44. Friedman, N., Harmáčková, L., **Economo, E.P.**, Remeš, V. (2017) Smaller beaks for colder winters: thermoregulation drives beak size evolution in Australian songbirds. *Evolution*. doi:10.1111/evo.13274
43. Dawson, W., Moser, D., van Kleunen, M., Kreft, H., Pergl, J., Pysek, P., Weigelt, P., Winter, M., Lenzer, B., Blackburn, T., Dyer, E., Cassey, P., Scrivens, S., **Economo, E.P.**, Guénard, B., Capinha, C., Seebens, H., Nentwig, W., Berthou, E., Casal, C., Essl, F. (2017) Global hotspots and drivers of alien species richness across taxonomic groups. *Nature Ecology and Evolution*. doi:10.1038/s41559-017-0186
42. Choo, J., Carasco, C., Alvarez-Loayza, P., Simpson, B., & **Economo, E.P.** (2017) Life history traits influence the strength of distance- and density-dependence at different life stages of two Amazonian palms. *Annals of Botany*. doi: 10.1093/aob/mcx051
41. Liu, C., Dudley, K., Xu, Z., **Economo, E.P.** (2017) Mountain metacommunities: climate and spatial connectivity shape ant diversity in a complex landscape. *Ecography*. doi: 10.1111/ecog.03067
40. Hita Garcia, F., Fischer, G., Liu, C., Audisio, T.L., Alpert, G.D., Fisher, B.L., **Economo, E.P.** (2017) X-ray microtomography for ant taxonomy: an exploration and case study of two new *Terataner* (Hymenoptera, Formicidae, Myrmicinae) species from Madagascar. *PLoS ONE* 12(3): e0172641. doi:10.1371/journal.pone.0172641
39. Guénard, B., Weiser, M., Gomez, K., Narula, N., **Economo, E.P.** (2017) The Global Ant Biodiversity Informatics (GABI) database: a synthesis of ant species geographic distributions. *Myrmecological News* 24: 83-89.
38. **Economo, E.P.**, Janda, M., Guénard, B., Sarnat, E.M. (2017) Assembling a species-area curve through colonization, speciation, and human-mediated introduction. *Journal of Biogeography*. 44: 1088-1097.
37. Lasky, J., Keitt, T.H., Weeks, B., **Economo, E.P.\*** (2017) A hierarchical model of whole-assembly island biogeography. *Ecography* 39: 982-990. doi: 10.1111/ecog.02303 (\*corresponding)

36. Jaitrong, W., Guénard, B., **Economo, E.P.**, Buddhakala, N., Yamane, S. (2016) A checklist of known ant species of Laos (Hymenoptera: Formicidae). *Asian Myrmecology* 8: 1-32. DOI: 10.20362/am.008019.
35. Fischer, G., Sarnat, E.M., **Economo, E.P.** (2016) Revision and microtomography of the *Pheidole knowlesi* group, an endemic ant radiation from Fiji (Hymenoptera, Formicidae, Myrmicinae). *PLoS ONE* 11(7): e0158544. doi:10.1371/journal.pone.0158544
34. Sarnat, E.M., Fischer, G., **Economo, E.P.** (2016) Inordinate spinescence: taxonomic revision and microtomography of the *Pheidole cervicornis* group (Hymenoptera: Formicidae). *PLoS ONE* 11(7): e0156709. doi:10.1371/journal.pone.0156709
33. Sukumaran, J., **Economo, E. P.**, Knowles, L.L. (2016) Machine learning biogeographic processes from biotic pattern: a trait-driven dispersal and diversification model with model-choice by simulation-trained discriminant analysis of Principal Components Classification. *Systematic Biology* 65: 525-545.
32. Wepfer, P., Guénard, B., **Economo, E.P.** (2016) Influences of climate and historical land connectivity on ant beta diversity in East Asia. *Journal of Biogeography* 43: 2311-2321. doi:10.1111/jbi.1276
31. Liu, C., Guénard, B., Blanchard, B., Peng, Y., **Economo, E.P.** (2016) Reorganization of taxonomic, functional, and phylogenetic ant biodiversity patterns after conversion to rubber plantation. *Ecological Monographs* 86: 215-227.
30. **Economo, E.P.**, Hong, L., Page, S.E.\* (2016) Social structure, endogenous diversity, and collective accuracy. *Journal of Economic Behavior and Organization* 125: 212-231. (\*corresponding)
29. Janicki, J., Narula, N., Ziegler, M., Guénard, B. **Economo, E.P.\*** (2016) Visualizing and interacting with large-volume biodiversity data using client-server web-mapping applications: The design and implementation of antmaps.org. *Ecological Informatics* 32: 185-193. (\*corresponding)
28. Bharti, H., Guénard, B., Bharti, M., **Economo, E.P.** (2016) An updated checklist of the ants (Hymenoptera: Formicidae) of India with their specific distributions in Indian states. *ZooKeys* 551: 1-83.
27. Sarnat, E.M., Fischer, G., Guénard, B., **Economo, E.P.** (2015) Introduced *Pheidole* of the world: taxonomy, distribution, and biology. *ZooKeys* 543: 1-109.
26. Liu, C., Fischer, G., **Economo, E.P.** (2015). A rare ant on Samoa: first record of the cryptic subfamily Proceratiinae (Hymenoptera, Formicidae) and description of a new *Proceratium* Roger species. *Journal of Hymenoptera Research*, 46: 35-44.

25. Guénard, B., & **Economo, E.P.** (2015). Additions to the checklist of the ants (Hymenoptera: Formicidae) of Peru. *Zootaxa* 4040 (2): 225-235.
24. Fischer, G., Azorsa, F., Hita Garcia, F., Mikheyev, A.S., **Economo, E.P.** (2015). Two new phragmotic ant species from Africa: morphology and next-generation sequencing solve a caste association problem in the genus *Carebara* Westwood. *ZooKeys* 525: 77-105. doi: 10.3897/zookeys.525.6057
23. Guénard, B., Perrichiot, V., **Economo, E.P.** (2015). Integration of global fossil and modern biodiversity data reveals dynamism and stasis in ant macroecological patterns. *Journal of Biogeography*. 42: 2302-2312. doi: 10.1111/jbi.12614
22. **Economo, E.P.**, Sarnat, E.M., Janda, M., Clouse, R., Klimov, P., Fischer, G., Blanchard, B.D., Ramirez, L.N., Andersen, A., Berman, M., Guénard, B., Lucky, A., Rabeling, C., Wilson, E.O., Knowles, L.L. (2015). Breaking out of biogeographic modules: range expansion and taxon cycles in Indo-Pacific *Pheidole*. *Journal of Biogeography* 42: 2289-2301. doi: 10.1111/jbi.12592
21. Triantis, K.\* **Economo, E.P.\***, Guilhammon, F., Ricklefs, R. (2015). Diversity regulation at the macro-scales: the case of Oceanic archipelagoes. *Global Ecology & Biogeography* 24: 594-605. \*equally contributing corresponding authors
20. Liu, C., Hita Garcia, F., Peng, Y., **Economo, E.P.** (2015). *Aenictus yangi* sp. n. – a new species of the *A. ceylonicus* species group (Hymenoptera: Formicidae: Dorylinae) from Yunnan, China. *Journal of Hymenoptera Research*. 42: 33-45.
19. Liu, C., Guénard, B., Hita Garcia, F., Yamane, S., Blanchard, B., Yang, D.R., **Economo, E.P.** (2015). New records of ant species from Yunnan, China. *ZooKeys* 477: 17-78.
18. Hita Garcia, F., Sarnat, E.M., **Economo, E.P.** (2015). Revision of the ant genus *Proceratium* Roger (Hymenoptera, Proceratiinae) in Fiji. *ZooKeys* 475: 97-112.
17. **Economo, E.P.**, Klimov, P., Sarnat, E., Guénard, B., Weiser, M.D., Lecroq, B., Knowles, L.L. (2015). Global phylogenetic structure of the hyperdiverse ant genus *Pheidole* reveals the repeated evolution of macroecological patterns. *Proceedings of the Royal Society of London Series B*. 282: 20141416.
16. Clouse, R. M., Janda, M., Blanchard, B., Sharma, P., Hoffmann, B.D., Andersen, A.N., Czekanski-Moir, J.E., Krushelnycky, P., Rabeling, C., Wilson, E.O., **Economo, E.P.**, Sarnat, E.M., General, D.M., Alpert, G.D., Wheeler, W.C. (2015) Molecular phylogeny of Indo-Pacific carpenter ants (Hymenoptera: Formicidae, *Camponotus*) reveals waves of dispersal and colonization from diverse source areas. *Cladistics*. 31(4): 424–437
15. Sarnat, E.M., Rabeling, C. **Economo, E.P.**, Wilson, E.O. (2014). First record of a species from the New World *Pheidole flavens*-complex (Hymenoptera: Formicidae) introduced to the southwestern Pacific. *BioInvasions Records*. 3: 301-307.

14. Tin, M.Y., **Economo, E.P.**, Mikheyev, A.S. (2014). Sequencing degraded DNA from non-destructively sampled museum specimens for RAD-tagging and low-coverage shotgun phylogenetics. *PLoS ONE* 9(5): e96793.
13. Guénard, B., Blanchard, B.D., Liu, C., Yang, D., **Economo, E.P.**. (2013). Rediscovery of the rare ant genus *Bannapone* (Hymenoptera: Formicidae: Amblyoponinae) and description of the worker caste. *Zootaxa* 3734 (3): 371-379.
12. Sarnat, E.M., **Economo, E.P.** (2013). *Pristomyrmex tsujii* sp. n. and *P. mandibularis* Mann (Hymenoptera: Formicidae). *ZooKeys* (340): 43-61.
10. Sarnat, E.M., Blanchard, B.D., Guénard, Fasi, J., **Economo, E.P.** (2013). Checklist of the ants (Hymenoptera: Formicidae) of the Solomon Islands with new records from Makira Island. *ZooKeys* (257): 47-88.
9. **Economo, E.P.**, & Sarnat, E.M. (2012). Revisiting the ants of Melanesia and the taxon cycle: historical and human mediated invasions of a tropical archipelago. *The American Naturalist* 180 (1): E1-E16. (*Presidential award from ASN for best paper of 2012 in Am. Nat.*)
8. **Economo, E.P.** (2011). Biodiversity conservation in metacommunity networks: linking pattern and persistence. *The American Naturalist* 177: E167-180. (*highlighted by Faculty of 1000*)
7. Leibold, M., **Economo, E.P.**, Peres-Neto, P. (2010). Metacommunity Phylogenetics: Separating the roles of environmental filters and historical biogeography. *Ecology Letters* 13 (10): 1290-1299
6. **Economo, E. P.**, & Keitt, T.H. (2010). Network isolation and local diversity in neutral metacommunities. *Oikos* 119: 1355-1363.
5. Cowperthwaite, M., **Economo, E.P.**, Harcombe W., Miller, E., Meyers, L.A. (2008). The ascent of the abundant: How mutational networks constrain evolution. *PLoS Computational Biology* 4(7) e1000110.
4. **Economo, E. P.**, & Keitt, T.H. (2008). Species diversity in neutral metacommunities: a network approach. *Ecology Letters* 11: 52-62. (*highlighted by Faculty of 1000*)
3. Enquist, B. J., Kerkhoff, A.J., Huxman, T.E., and **Economo, E.P.** (2007). Adaptive differences in plant physiology and ecosystem paradoxes: insights from metabolic scaling theory. *Global Change Biology* 13: 591-609.
2. **Economo, E.P.**, Andrew J. Kerkhoff, Brian J. Enquist. (2005) Allometric growth, life history invariants, and population energetics. *Ecology Letters* 8: 353-360.

1. Enquist, B.J., **Economio, E.P.**, Huxman, T.E., Allen, A.P., Ignace, D.D., Gillooly, J. (2003). Scaling metabolism from organisms to ecosystems. *Nature* 423: 639-642.

### **Website:**

AntMaps.org. **Economio, E.P.**, Guénard, B., Janicki, J., Ziegler, M., Narula, N. Published online July, 2015.

## **PRESENTATIONS**

### **Invited Talks**

2017 Kyoto University, Asia Research Node Symposium  
 2016 International Colloquium on Soil Zoology (Plenary)  
 2016 International Congress of Entomology (Symposium)  
 2016 Ludwig Maximilian University Munich (Ants 2016 Symposium)  
 2015 University of Cambridge, Department of Zoology  
 2015 Society of Population Ecology Meeting (Symposium)  
 2014 Kyoto University, Evolutionary Community Ecology Symposium  
 2013 Kyoto University, Symposium in honor of E.O. Wilson and the Kyoto Prize  
 2013 University of the Ryukyus, Japan  
 2012 Ecological Society of Japan Meeting (Symposium)  
 2011 Society of Population Ecology Meeting (Symposium)  
 2011 University of Alabama  
 2011 Okinawa Institute of Science and Technology  
 2011 University of Queensland  
 2011 International Biogeography Society Meeting (Symposium)  
 2010 University of British Columbia  
 2010 Field Museum of Natural History  
 2010 UM/SFI Complex Systems Symposium  
 2004 University of New Mexico

### **Contributed Talks**

2017 Ecological Society of Japan Annual Meeting  
 2016 Ecological Society of Japan Annual Meeting  
 2015 East Asia Joint Symposium  
 2015 Ecological Society of Japan Annual Meeting  
 2014 International Union for the Study of Social Insects International Congress  
 2014 Ecological Society of Japan Annual Meeting  
 2013 Society for the Study of Evolution Annual Meeting  
 2012 International Congress of Entomology  
 2011 Ecological Society of America Annual Meeting

2011 International Biogeography Society Meeting  
 2010 Ecological Society of America Annual Meeting  
 2009 Encyclopedia of Life Biodiversity Synthesis Meeting, Fiji  
 2007 Ecological Society of America Annual Meeting  
 2003 Ecological Society of America Annual Meeting  
 2002 Ecological Society of America Annual Meeting

---

## GRANTS AND FELLOWSHIPS

- 2016-2019 Okinawa Prefectural Government Grant (~\$1.2 million), “Developing a system for fire ant surveillance, prevention, and control in Okinawa”.
  - 2017 Japanese Society for the Prom. of Science, Grant-in-Aid of Research (Kakenhi, ~\$40K)
  - 2017 Japanese Society for the Prom. of Science, Grant-in-Aid of Research (Kakenhi, ~\$35K)
  - 2014 Japanese Society for the Prom. of Science, Grant-in-Aid of Research (Kakenhi, ~\$30K)
  - 2012-2017 Economo, E. (PI), L. Knowles (co-PI). National Science Foundation (DEB 1141989), Phylogenetic Systematics. \$378,522. "Evolving hyperdiversity in phenotypic, ecological, and geographic networks: testing the taxon cycle and alternatives in Indo-Pacific *Pheidole*."
  - 2009 Michigan Society of Fellows Postdoctoral Fellowship
  - 2009 Marion Elizabeth Eason Scholarship, University of Texas
  - 2005-2009 National Science Foundation Graduate Research Fellowship
  - 2004-2005 NSF IGERT Graduate Training Fellowship in Computational Phylogenetics
  - 2007 EEB Research Fellowship
  - 2006 EEB Research Fellowship
  - 2005 EEB Research Fellowship
  - 2003 University of Texas Dean's Excellence Preemptive Fellowship
  - 2004 NSF Graduate Research Fellowship Honorable Mention
  - 2001 Honors College Undergraduate Research Grant, U. of Arizona
  - 2001 Research Training Grant in the Analysis of Diversification, U. of Arizona
- 

## AWARDS AND HONORS

- 2016 Biodiversity Action Award (to OKEON project)
  - 2013 Presidential Award from American Society of Naturalists (For best paper published in *The American Naturalist* in 2012)
  - 2009 Nominated for Distinguished Dissertation Award, University of Texas
  - 2004 Teaching Award, School of Biological Sciences, University of Texas
-

## CLASSROOM TEACHING

- 2013, 2014, 2015, 2016, 2017 “Ecology & Evolution” (graduate course) primary instructor. Okinawa Institute of Science & Technology Graduate University
- 2011 “EEB Senior Capstone”, primary instructor. U. of Michigan.
- 2011 “Insect Ecology & Evolution” (graduate seminar) primary instructor. U. of Michigan.
- 2010 “General Ecology”, primary instructor, U. of Michigan
- 2009 TA for “Ecology”, 2 guest lectures. U. of Texas at Austin.
- 2004 TA for “Ecology, Evolution and Society”, 3 guest lectures. U. of Texas at Austin. Won graduate teaching award from the School of Biological Sciences.

### Summer School:

- 2013 Co-organized “OIST Integrative Biology Course: Big Data in Biology” (<https://groups.oist.jp/oibc>)

## MENTORSHIP

### OIST Postdoctoral Fellows

Clive Darwell  
Georg Fischer  
Benoit Guénard  
Nicholas Friedman  
Francisco Hita Garcia  
Beatrice Lecroq  
Nao Takashina  
Masashi Yoshimura

### OIST PhD Students (Thesis supervision)

Cong Liu  
Yafei Mao (co-supervised)  
Yuka Suzuki  
Patricia Wepfer (co-supervised)

### OIST PhD Students (Rotation project)

Jason Ball  
Sandrine Burriel  
Christopher Campbell  
Yuna Hattori  
Keita Ikegami  
Matti Krueger  
Yafei Mao  
Menglin Wang  
Han Yan

### OIST Research Interns

**(undergrad or MS level, 3-6 mo. projects)**

Gaurav Agavekar  
Guilherme Baiao  
Benjamin Blanchard  
Sandrine Burriel  
Kotaro Fujiyoshi  
Natali Greenhalgh  
Osamu Horiguchi  
Julia Janicki  
Haruka Kasuga  
Juliette Martin  
Victoria McGruer  
Brett Morgan  
Sam Ross  
Aina Urano  
Patricia Wepfer

### University of Michigan (2009-2012)

Supervised eleven undergraduate research projects (6 students) for independent study credit or work study (through UROP).

### University of Texas at Austin (2003-2009)

Supervised 6 undergraduate students on undergraduate research.



---

## OTHER EMPLOYMENT

2002-2003 Research Technician, University of Arizona, Department of Ecology & Evolutionary Biology, lab of Brian J. Enquist.

---

## ACADEMIC SERVICE

### OIST Faculty Committees

Faculty Council (elected)  
 Gender Equality Committee  
 Information Technology Service Support  
 Admissions Committee  
 Faculty Search Committee

Human Subjects Research Review (IRB)  
 Curriculum and Examinations  
 Prospective Council  
 Working Group on Tenure Review

### Subject Editor

*Myrmecological News*

### Peer Reviewer

*American Journal of Botany*  
*Aquatic Ecology*  
*The American Naturalist*  
*Biodiversity Conservation*  
*Biological Invasions*  
*Biological Reviews*  
*Biology Letters*  
*Bulletin of Mathematical Biology*  
*Conservation Letters*  
*Diversity and Distributions*  
*Ecology*  
*Ecology Letters*  
*Ecography*  
*Functional Ecology*

*Global Ecology & Biogeography*  
*Journal of Biogeography*  
*Journal of Ecology*  
*Journal of Environmental Management*  
*Journal of Theoretical Biology*  
*Landscape Ecology*  
*Myrmecological News*  
*National Science Foundation (USA)*  
*Oikos*  
*PLoS ONE*  
*PLoS Computational Biology*  
*PNAS*  
*Proceedings of the Royal Society Series B*  
*Swiss National Science Foundation*

### Symposia Organized

- 2017 OKEON Chura-Mori Project Symposium
- 2017 Ecological Society of Japan, “Big Data in Ecology and Evolution”
- 2015 East Asia Joint Symposium (EJS) (co-organizer)
- 2014 Ecological Society of Japan, “Island Biogeography: Integrating Ecological and Evolutionary Perspectives”
- 2014 IUSSI “Island Biology of Social Insects.”

---

## OUTREACH

- 2015-present: Founded and led OKEON (Okinawa Environmental Observation Network) Chura-Mori Project, a collaborative project between citizens and researchers in Okinawa (<http://okeon.unit.oist.jp>)
- 2012-2017 Numerous other outreach events by lab in Okinawa, Japan. List available here: <http://arilab.unit.oist.jp/category/outreach/>
- 2015 Outreach lecture “Science Talks in English” series, Kyuyo High School, Okinawa, Japan
- 2014 “The ways of the Ant” Outreach lecture, OIST Open Day
- 2013 Biodiversity Exhibit Contributor, Okinawa Prefectural Museum, Japan
- 2012 Biodiversity outreach event and lecture: Kunigami village, Okinawa
- 2011 Contributor to “Umwelt: Subjective Worlds” art exhibition, The Gallery Project, Ann Arbor, MI.
- 2010 Organized EEB/Biokids field trip for 80 Detroit elementary school students.
- 2009 Outreach lecture, “The ways of the Ant”, *Science Under the Stars*.
- 2009 Founded and organized *Science Under the Stars*, outreach lecture series, Austin, Texas. (still active: <http://scienceunderthestars.org/>)
- 2008 Outreach Lecture: “The Ants of the Pacific.” Pacific Conference of Theologists, Suva, Fiji
- 2006-2008 Outreach activities on ants for schools: Matthews Elementary School, Austin, University of South Pacific open day, Hauta School, Solomon Islands.