

Takao Sasaki

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Appointments

2018- Assistant Professor, Odum School of Ecology, University of Georgia

Education

- 2008-2013 **Ph. D. Biology, Arizona State University**
Advisor: Stephen Pratt
Committee members: Nia Amazeen, Jennifer Fewell, Bert Hölldobler, Marco Janssen and Jürgen Liebig
Dissertation: “Psychology of a superorganism”
- 2006-2008 **M. S. Applied psychology, Arizona State University**
Advisors: David. Becker, Douglas Kenrick and Steven Neuberg
Thesis: “The relationship between product information quantity and diversity of consumer decisions”
- 1998-2002 **B. S. Physics, Nihon University**

Research Experience

- 2016-present Marie Skłodowska-Curie Postdoctoral Fellow, Zoology Department, Oxford University
Advisor: Dora Biro
- 2014-2016 Royal Society Newton Postdoctoral Fellow, Zoology Department, Oxford University
Advisor: Dora Biro
- 2013-2014 Postdoctoral Fellow, School of Life Sciences and Centre for Social Dynamics and Complexity, Arizona State University.
Advisors: Bert Hölldobler and Stephen C. Pratt
- 2008-2013 Research assistant, School of Life Sciences, Arizona State University
Advisor: Stephen C. Pratt
- 2006-2008 Research assistant, Psychology, Arizona State University
Advisors: David V. Becker, Douglas Kenrick and Steven Neuberg

2003-2004 Research assistant, Ecology, University of California, Davis
Advisor: Peter Richerson

Publications

21. **Sasaki, T.**, Mann, R.P., Warren, K.N., Herbert, T., Wilson, T. & Biro, D. (2018). Personality and the collective: Bold homing pigeons occupy higher leadership ranks in flocks. *Philosophical Transaction of the Royal Society B*, 373(1746).
20. Pratt, S.C. & **Sasaki, T.** (2018). Psychology of a superorganism: collective decision-making by insect societies. *Annual Review of Entomology*, 63, 259-275.
19. Charbonneau, D., **Sasaki, T.** & Dornhaus, A. (2017). Who needs 'lazy' workers?: Inactive workers act as a 'reserve' labor force replacing active workers, but inactive workers are not replaced when they are removed. *PLoS ONE* 12(9): e0184074.
18. Kennedy, P., Baron, G., Bitao, Q., Freitak, D., Helanterä, H., Hunt, E.R., Manfredini, F., O'Shea-Wheller, T., Patalano, S., Pull, C., **Sasaki, T.**, Taylor, D., Wyatt, T. & Sumner, S. (2017). Deconstructing superorganisms and societies to address big questions in biology. *Trends in Ecology and Evolution*, 32(11), 861-872.
17. **Sasaki, T.** & Biro, D. (2017). Cumulative culture can emerge from collective intelligence in animal groups. *Nature Communications*, 8, 15049.
16. Shaffer, Z., **Sasaki T.**, Haney, B., Janssen, M., Pratt, S.C. & Fewell, J.H. (2016). The foundress's dilemma: group selection for cooperation among queens of the harvester ant, *Pogonomyrmex californicus*. *Scientific Reports*, 6, 29828.
15. Biro, D., **Sasaki, T.** & Portugal, S.J. (2016). Bringing a time-depth perspective to collective animal behaviour. *Trends in Ecology & Evolution*, 31(7), 550-562.
14. **Sasaki, T.**, Shaffer, Z., Pratt, S.C. & Janssen, M (2016). Evolution of networks for different payoff distributions. *Current Zoology*, 62(3), 52-214.
13. **Sasaki, T.**, Penick, C.A., Shaffer, Pratt, S.C. & Liebig, J. (2016). A simple behavioural model predicts the emergence of complex animal hierarchies. *American Naturalist*, 187(6), 765-775.
12. **Sasaki, T.**, Colling, B., Sonnenschein, A., Boggess, M.M., & Pratt, S.C. (2015). Flexibility of collective decision making during house hunting in *Temnothorax* ants. *Behavioural Ecology and Sociobiology*, 69, 707-714.
11. Becker, D. V., Mortensen, C. R., Anderson, U., & **Sasaki, T.** (2014). Out of sight but not out of mind: Memory scanning is attuned to threatening faces. *Journal of Evolutionary Psychology*, 12(5), 901-912.
10. **Sasaki, T.**, Hölldobler, B., Millar, J.G., & Pratt, S.C. (2014). A context dependent alarm signal in the ant *Temnothorax rugatulus*. *Journal of Experimental Biology*, 217, 3229-3236.
9. **Sasaki, T.** & Pratt S.C. (2013). Ants learn to rely on more informative attributes during decision making. *Biology letters*, 9, 20130667.

- 8 **Sasaki, T.**, Granovskiy, B., Mann, R.P., Sumpter, D.J.T., & Pratt, S.C. (2013). A crowd is wise for hard tasks but not for easy ones. *Proceedings of the National Academy of Sciences of the United States of America*, 110(34), 13769-13773.
- 7 Shaffer, Z., **Sasaki, T.** & Pratt S.C. (2013) Linear recruitment leads to allocation and flexibility in collective foraging by ants. *Animal Behavior*, 86(5), 967-975.
- 6 Pinter-Wollman, N., Hobson, E., Smith, J., Edelman, A., Shizuka, D., de Silva, S., Waters, J., Prager, S., **Sasaki, T.**, Wittemyer, G., Fewell, J. & McDonald, D. (2013). The dynamics of animal social networks: analytical, conceptual, and theoretical advances. *Behavioral Ecology*, 24, 1-24.
- 5 **Sasaki, T** & Pratt, S.C. (2012). Groups have a larger cognitive capacity than individuals. *Current Biology* 22(19), R827-R829.
- 4 Becker, D.V., Mortensen, C. R., Ackerman J.M., Shapiro J., Anderson, U., **Sasaki. T.**, Maner, J., Neuberg, S. & Kenrick, D. (2011). Signal detection on the battlefield: Priming self-protection vs. revenge-mindedness differentially modulates the detection of enemies and allies. *PLoS ONE*, 6(9): e23929.
- 3 **Sasaki, T.**, Becker, D. V. Janssen, M. & Neel, R. (2011). Does greater product information actually inform consumer decisions? The relationship between product information quantity and diversity of consumer decisions. *Journal of Economic Psychology* 32, 391-398.
- 2 **Sasaki, T.** & Pratt, S.C. (2011). Emergence of group rationality from irrational individuals. *Behavioral Ecology*, 22, 276-281.
- 1 Ackerman, J. M, Becker, D. V., Mortensen, C. R., **Sasaki, T.**, Neuberg, S. L, & Kenrick, D. T. (2009). A pox on the mind: Disjunction of attention and memory in processing physical disfigurement. *Journal of Experimental Social Psychology* 45, 478-485.

Grants and Awards

2016	Marie Skłodowska-Curie Fellowship, €195,454
2015	St Cross College non-stipendiary Junior Research Fellowship
2013	Newton International Fellowship, £98,250
2012	ASU Graduate College Dissertation Fellowship, \$17,000
2012	ASU Conference Travel Grant, \$400
2011	ASU Graduate Research Support Program, \$1975
2010	ASU GPSA JumpStart, \$494
2010	ASU Conference Travel Grant, \$400
2010	ASU GPSA JumpStart, \$465
2009	ASU GPSA JumpStart, \$412
2009	ASU Grant Research Support Program, \$715

- 2014 Glushko Dissertation Prize, \$10,000
- 2012 Best oral presentation in North American Section-International Union for the study of Social Insects
- 2010 Outstanding Teaching Assistant Awards, nominated
- 2010 Student competition for president's prize in Entomological Society of America meeting, 2nd place

Invited Talks

- 2018 Centre for Advanced Studies, The Graduate University for Advanced Studies, Japan
- 2018 Department of Ecology, University of Georgia
- 2018 Department of Neurobiology and Behavior, Cornell University
- 2017 Centre de Biologie Integrative, Univeristy of Toulouse, France
- 2017 School of Psychology and Neuroscience, St Andrews, UK
- 2017 School of Biological Sciences, Royal Holloway University of London, UK
- 2017 School of Biological and Chemical Science, Queen Mary University, UK
- 2017 Department of Biology, University of Pennsylvania, USA
- 2016 Department of Computer Sciences, University of Bath, UK
- 2016 Department of Psychology, University of Washington, USA
- 2015 Ecology and Behaviour Workshop, University of Bristol, UK
- 2015 Social Insect Behaviour Workshop, Champalimaud Foundation, Portugal
- 2013 Agriculture and Psychology Departments, Hokkaido University, Japan
- 2013 Integrated Behavioural Research Group, Princeton University, USA
- 2013 Zoology Department, Oxford University, UK
- 2013 School of Biological and Chemical Science, Queen Mary University, UK
- 2013 Biology Department, University of St Andrews, UK
- 2012 Centre for Nonlinear Phenomena and Complex Systems, Universite Libre De Bruxelles, Belgium
- 2011 Ecology Department, Tsukuba University, Japan
- 2011 Centre for Advanced Studies, The Graduate University for Advanced Studies, Japan
- 2011 Mathematics Department, Uppsala University, Sweden

Conference Presentations (* indicates undergraduates supervised by me)

- 2018 **T. Sasaki**, Y. Cho, B. Thompson*, L. Danczak* & S.C. Pratt. Social information use during tandem running in the rock ant, *Temnothorax albipennis*. International Union for the Study of Social Insects meeting, Guaja, Brazil.
- 2017 **T. Sasaki**, Y. Cho, B. Thompson*, L. Danczak* & S.C. Pratt. Social learning and cumulative culture in the rock ant, *Temnothorax albipennis*. Behaviour meeting. Estoril, Portugal.
- 2017 **T. Sasaki**, B. Granovskiy, R.P. Mann, D.J.T. Sumpter & S. C. Pratt. A crowd is wise for hard tasks but not for easy ones. International Convention for Psychological Science. Vienna, Austria.
- 2016 **T. Sasaki** & D. Biro. From collective to cumulative culture in animal groups. Culture Conference, Birmingham, UK.
- 2014 **T. Sasaki**, B. Hölldobler, J. G. Millar, & S. C. Pratt. A context dependent alarm signal in the ant *Temnothorax rugatulus*. International Union for the Study of Social Insects meeting, Cairns, Australia.
- 2013 **T. Sasaki** & S. C. Pratt. Ants learn to rely on more informative attributes during decision-making. Entomological Society of America, Austin, Texas, USA.
- 2013 **T. Sasaki**, B. Granovskiy, R.P. Mann, D.J.T. Sumpter & S. C. Pratt. A crowd is wise for hard tasks but not for easy ones. International Ethological Conference Association for the Study of Animal Behaviour, Newcastle, the UK.
- 2013 J. Briner*, **T. Sasaki** & S. C. Pratt. Some is good, more is better: Brood presence affects collective choice in *Temnothorax* colonies. Animal Behaviour Society meeting, Boulder, Colorado, USA.
- 2013 **T. Sasaki** & S. C. Pratt. Ants adjust attribute weights according to prior experience. Animal Behaviour Society meeting, Boulder, Colorado, USA.
- 2013 **T. Sasaki**, B. Granovskiy, R.P. Mann, D.J.T. Sumpter & S. C. Pratt. A crowd is wise for hard tasks but not for easy ones. Society for Mathematical Biology Annual meeting, Tempe, Arizona, USA.
- 2012 **T. Sasaki** & S. C. Pratt. Colonies more precisely discriminate options than individual ants do. North American Section-International Union for the study of Social Insects, North Carolina, USA. **Best student oral presentation.**
- 2012 **T. Sasaki** & S. C. Pratt. Colonies more precisely discriminate options than individual ants do. International Behavioural Ecology Congress, Lund, Sweden.
- 2012 **T. Sasaki** & S. C. Pratt. Colonies more precisely discriminate options than individual ants do. Animal Behaviour Society meeting, Albuquerque, New Mexico, USA.

- 2011 **T. Sasaki** & S. C. Pratt. Do groups have a larger cognitive capacity than individuals? Entomological Society of America, Reno, Nevada, USA.
- 2011 **T. Sasaki** & S. C. Pratt. Do groups have a larger cognitive capacity than individuals? Behaviour meeting, Bloomington, Indiana, USA.
- 2011 S. Gage*, **T. Sasaki** & S. Pratt. Flexibility of nest site preferences based on cue validity in the ant *Temnothorax rugatulus*. Behavior meeting, Bloomington, Indiana, USA.
- 2011 N. Forrest*, **T. Sasaki** & S. Pratt. Behavioral syndromes in nest site selection by the ant *Temnothorax rugatulus*. Behavior meeting, Bloomington, Indiana, USA
- 2011 **T. Sasaki** & S. C. Pratt. Emergence of group rationality from irrational individuals. Society for Integrative and Comparative Biology meeting, Salt Lake City, Utah, USA.
- 2010 **T. Sasaki** & S. C. Pratt. Emergence of group rationality from irrational individuals. Entomological Society of America, San Diego, California, USA. **2nd place, student competition for President's Prize.**
- 2010 **T. Sasaki**, S. C. Pratt, Z. Shaffer & M. Janssen. Evolved communication networks for different payoff distributions. Computational Social Science Society Conference, Tempe, Arizona, USA.
- 2010 **T. Sasaki** & S. C. Pratt. Emergence of group rationality from irrational individuals. International Union for the Study of Social Insects meeting, Copenhagen, Denmark.
- 2010 **T. Sasaki** & S. C. Pratt. Emergence of group rationality from irrational individuals. Animal Behavior Society meeting, Williamsburg, Virginia, USA.
- 2010 **T. Sasaki** & S. C. Pratt. Rational Decision-Making in Ants: where biology and psychology meet. Social Biomimicry: Insect Societies and Human Designs, Tempe, Arizona, USA.
- 2009 **T. Sasaki** & S. C. Pratt. Rational Decision-Making in Ants: where biology and psychology meet. School of Life Sciences meeting, Tempe, Arizona, USA.
- 2008 **T. Sasaki**, D. Vaughn Becker, M. Janssen. Do Informative Choices Actually Inform Us?: Relationship between Quantity of Information Offered and Diversity of Consumer Decision. The second World Congress on Social Simulation, Virginia, USA.
- 2008 D. Vaughn Becker & **T. Sasaki** (2008). Gender is not perceptually separable from displays of anger and happiness. The 20th Annual Meeting of the Human Behavior and Evolution Society, Kyoto, Japan.

Workshops

- 2014 Frontiers in Insect Behaviour, Social Organisation and Evolution. University of Würzburg, Germany.

- 2012 Summer School in Collective Behaviour (organizer: David Sumpter). Uppsala University, Sweden.
- 2012 Symposium on Network Science in Biological, Social, and Geographic Systems. University of Wyoming, WY, USA.
- 2011 Complex Systems Summer School. Santa Fe institute, NM, USA.
- 2011 Insect Self-organization and Swarming. University of Ohio, OH, USA.
- 2009 Ant Course. Portal, AZ, USA.
- 2009 Nonlinear Methods for Psychological Science. Ohio State University, OH, USA.
- 2008 Systems Biology of Decision Making. University of Ohio, OH, USA.
- 2006 Netlogo Workshop at Agent. University of Chicago, IL, USA.

Teaching Experience

- 2014-2017 Guest lecturer, Communication, Culture, and Collective Behaviour Core FHS Lecture (for 3rd year undergraduate students), Oxford University
- 2015 Guest lecturer, Biology of Social Insects (for undergraduate students), Providence College
- 2013 Guest lecturer, Biometry (for graduate and undergraduate students), Arizona State University
- 2011&2012 Guest lecturer, Biomimicry (for undergraduate students), Arizona State University
- 2006-2011 Teaching assistant, Arizona State University
 - Biometry (for graduate and undergraduate students; 2 semesters)
 - Genetics (for undergraduate students; 2 semesters)
 - Introduction to Psychology (for undergraduate students; 2 semesters)

Student Supervision

- 2017 Leo Danczak & Dominique Vassie (Undergraduate research projects, Oxford)
- 2016 Benjamn Stott, Helena Gilchrist, Bethany Thompson, Tristian Herbert & Katherine Warren (Undergraduate research projects, Oxford)
- 2015 Harriet Stooke (Undergraduate research project, Oxford)
- 2015 Tara Wilson (High school summer project, Oxford)
- 2012-2014 Blake Colling (Undergraduate honor thesis, Arizona State University)
- 2013-2014 Lucas Talken (Undergraduate honor thesis, Arizona State University)
- 2013-2014 Sayah Bogor and Shannon O’Leary (Undergraduate research projects, Arizona State University)

- 2011-2013 Jennifer Briner (Undergraduate research project, Arizona State University)
2011-2012 Forrest Noelck (Undergraduate honor thesis, Arizona State University)
2010 Gage Shaper (Undergraduate research project, Arizona State University)

Synergistic Activities

The BEST Summer Program

This is a one-week program (<http://engineering.asu.edu/summerprograms/best/index>), which includes introductory-level LEGO MINDSTORMS robotics, science and engineering activities designed by Arizona State University. I mainly explained nest-mate recognition systems in ants to middle school students (in 2010 and 2011).

Mirai kan

I collaborated with staff at Mirai kan (“future museum”; <http://www.miraikan.jst.go.jp/en>) in Tokyo, Japan, to help create displays about cognition in social insects and human groups. My dissertation results were used to complement their displays (in 2010).

Ask-a-biologist

This acclaimed web site (<http://askabiologist.asu.edu/>) at Arizona State University was created ten years ago to provide a userfriendly educational interface between students, parents, teachers, and academic researchers. I have regularly been answering questions in my role as a researcher in biology.

Selected Media Coverage

- 2017 Cumulative culture can emerge from collective intelligence in animal groups, *Nature Communications*, featured in [Science](#), [BBC](#), and [The Telegraph](#).
- 2014 The dissertation work, featured in [The Wall Street Journal](#).
- 2013 Ants learn to rely on more informative attributes during decision making, *Biology letters*, featured in [Scientific American](#).
- 2013 A crowd is wise for hard tasks but not for easy ones, *Proceedings of the National Academy of Sciences of the United States of America*, featured in [Nature](#), [National Geographic](#), [The Atlantic](#), and [Los Angeles Times](#).

References

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