

Piotr Łukasik – *Curriculum vitae*

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Institute of Environmental Sciences
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ACADEMIC APPOINTMENTS

Jagiellonian University, Kraków, Poland **from Jul 2019**

Research Group Leader / Assistant Professor

- Leading a research program focused on the diversity of the microbial symbioses of insects

Swedish Museum of Natural History, Stockholm, Sweden **Oct 2018 – Jun 2019**

Researcher, Bioinformatics and Genetics, Insect Biome Atlas

- Leads the development of molecular methods for a massive insect biodiversity project

EDUCATION AND TRAINING

University of Montana, Missoula, MT, USA **Sep 2014 – Oct 2018**

Postdoctoral researcher, Advisor: John McCutcheon

- Studied the genomic evolution of endosymbiotic microorganisms of cicadas

Drexel University, Philadelphia, PA, USA **Sep 2011 – Jul 2014**

Postdoctoral researcher, Advisor: Jacob Russell

- Characterized the diversity, distribution, and biological functions of ant-associated microbes

National Institute of Advanced Industrial Science and Technology, Japan **Oct - Dec 2013**

Visiting postdoctoral researcher, Advisor: Ryuichi Koga

- Studied the distribution of symbiotic bacteria across insect tissues

University of Oxford, Oxford, United Kingdom **Apr 2008 – Sep 2011**

D.Phil. in Zoology, Advisors: Charles Godfray and Julia Ferrari

- Studied biological properties of defensive facultative endosymbiotic bacteria of aphids

Jagiellonian University, Kraków, Poland **Oct 2001 – Sep 2006**

Undergraduate studies in Mathematical and Natural Sciences

M.Sc. in Biology, Advisor: Ryszard Laskowski

- Completed M.Sc. thesis project in ecotoxicology of flour beetles
- Research fellowships in invertebrate ecology and evolution at Smithsonian Tropical Research Institute (Panama), Wageningen University (The Netherlands), University of St. Andrews (Scotland) and during the Tropical Biology Association field course (Madagascar)

PEER-REVIEWED PUBLICATIONS

- o Google Scholar profile - <https://scholar.google.com/citations?user=nqaO1yUAAAAJ>

Simon C., Gordon E.R.L., Moulds M.S., Cole J.A., Haji D., Lemmon A.R., Lemmon E.M., Kortyna M., Nazario K., Wade E.J., Meister R.C., Goemans G., Chiswell S.M., Pessacq P., Veloso C., McCutcheon J.P., **Łukasik P.** (2019): Off-target capture data, endosymbiont genes and morphology reveal a relict lineage that is sister to all other singing cicadas. *Biological Journal of the Linnean Society*, doi:10.1093/biolinnean/blz120 [\[Full text\]](#)

Łukasik P., Chong R.A., Nazario K., Matsuura Y., Bublitz D.A.C., Campbell M.A., Meyer M.C., Van Leuven J.T., Pessacq P., Veloso C., Simon C., McCutcheon J.P. (2019): One hundred mitochondrial genomes of cicadas. *Journal of Heredity* 110(2): 247-256 [\[Full text\]](#)

Campbell M.A.*, **Łukasik P.***, Meyer M., Buckner M., Simon C., Veloso C., Michalik A., McCutcheon J.P. (in press): Changes in endosymbiont complexity drive host-level compensatory adaptations in cicadas. *mBio* 9(6): e02104-18 [\[Preprint\]](#) [\[Full text\]](#) *contributed equally

Łukasik P., Nazario K., Van Leuven J.T., Campbell M.A., Meyer M., Michalik A., Pessacq P., Simon C., Veloso C., McCutcheon J.P. (2018): Multiple origins of interdependent endosymbiotic complexes in a genus of cicadas. *Proceedings of the National Academy of Sciences of the U.S.A.* 115(2): E226-E235 [\[Full text\]](#)

- Bisch G., Neuvonen M.M., Pierce N.E., Russell J.A., Koga R., Sanders J.G., **Lukasik, P.**, Anderson S.G.E. (2018): Genome evolution of Bartonellaceae symbionts of ants at the opposite ends of the trophic scale. *Genome Biology and Evolution* 10(7):1687-1704 [\[Full text\]](#)
- Matsuura Y., Moriyama M., **Lukasik P.**, Vanderpool D., Tanahashi M., Meng X.-Y., McCutcheon J.P., Fukatsu T. (2018) Recurrent symbiont recruitment from fungal parasites in cicadas. *Proceedings of the National Academy of Sciences of the U.S.A.*: 201803245 [\[Full text\]](#)
- Hu Y., Sanders J.G., **Lukasik P.**, D'Amelio C.L., Millar J.S., Vann D.R., Lan Y., Newton J.A., Schotanus M., Kronauer D.J.C., Pierce N.E., Moreau C.S., Wertz J.T., Engel P. Russell J.A. (2018): Herbivorous turtle ants obtain essential nutrients from a conserved nitrogen-recycling gut microbiome. *Nature Communications* 9: 964 [\[Preprint\]](#) [\[Full text\]](#)
- Campbell M.A., **Lukasik P.**, Simon C., McCutcheon J.P. (2017): Idiosyncratic genome degradation in a bacterial endosymbiont of periodical cicadas. *Current Biology* 27(22): 3568–3575 [\[Preprint\]](#) [\[Abstract\]](#)
- Lukasik P.**, Newton J.A., Sanders J.G., Hu Y., Moreau C.S., Kronauer D.J.C., O'Donnell S., Koga R., Russell J.A. (2017): The structured diversity of specialized gut symbionts of the New World army ants. – *Molecular Ecology* 26(14): 3808–3825. [\[Preprint\]](#) [\[Abstract\]](#)
- Sanders J.G., **Lukasik P.**, Frederickson M.E., Russell J.A., Koga R., Knight R., Pierce N.E. (2017): Dramatic differences in gut bacterial densities correlate with diet and habitat in rainforest ants. *Integrative and Comparative Biology* icx088 [\[Preprint\]](#) [\[Abstract\]](#)
- Hu Y., Holway D.A., **Lukasik P.**, Chau L., Kay A.D., LeBrun E.G., Miller K.A., Sanders J.G., Suarez A.V., Russell J.A. (2017): By their own devices: invasive Argentine ants have shifted diet without clear aid from symbiotic microbes. *Molecular Ecology* 26(6): 1608–1630. [\[Abstract\]](#)
- Lukasik P.**, Guo H., van Asch M., Henry L.M., Godfray H. C. J. & Ferrari J. (2015): Horizontal transfer of facultative endosymbionts is limited by host relatedness. *Evolution* 69(10): 2757-2766. [\[Abstract\]](#)
- Smith A.H., **Lukasik P.**, O'Connor M., Lee A., Mayo G., Drott M., Doll S., Tuttle R., DiSciullo R., Messina A., Oliver K.M. & Russell J.A. (2015): Patterns, causes, and consequences of defensive microbiome dynamics across multiple scales. *Molecular Ecology* 24(5): 1135-1149. [\[Abstract\]](#)
- Hu Y., **Lukasik P.**, Moreau C.S. & Russell J.A. (2014): Correlates of gut community composition across an ant species (*Cephalotes varians*) elucidate causes and consequences of symbiotic variability. *Molecular Ecology* 23(6): 1284-1300. [\[Abstract\]](#)
- Lukasik P.**, van Asch M., Guo H., Ferrari J. & Godfray H.C.J. (2013): Unrelated facultative endosymbionts protect aphids against a fungal pathogen. *Ecology Letters* 16(2): 214-218. [\[Abstract\]](#)
- Lukasik P.**, Guo H., van Asch M., Ferrari J. & Godfray H. C. J. (2013): Protection against a fungal pathogen conferred by the aphid facultative endosymbionts *Rickettsia* and *Spiroplasma* is expressed in multiple host genotypes and species and is not influenced by co-infection with another symbiont. *Journal of Evolutionary Biology* 26(12): 2654-2661. [\[Full text\]](#)
- Lukasik P.**, Dawid M.A., Ferrari J. & Godfray H.C.J. (2013): The diversity and fitness effects of infection with facultative endosymbionts in the grain aphid, *Sitobion avenae*. *Oecologia* 173: 985-996. [\[Abstract\]](#)
- Russell J.A., Weldon S., Smith A.H., Kim K.L., Hu Y., **Lukasik P.**, Doll S., Anastopoulos I., Novin M. & Oliver K.M. (2013): Uncovering symbiont-driven genetic diversity across North American pea aphids. *Molecular Ecology* 22(7): 2045-2059. [\[Abstract\]](#)
- Lukasik P.**, Hancock E.L., Ferrari J. & Godfray H.C.J. (2011): Grain aphid clones vary in frost resistance, but this trait is not influenced by facultative endosymbionts. *Ecological Entomology* 36: 790-793. [\[Abstract\]](#)
- Lukasik P.** (2010): Trophic dimorphism in alternative male reproductive morphs of the acarid mite *Sancassania berlesei*. *Behavioral Ecology* 21: 270-274. [\[Full text\]](#)
- Lukasik P.**, Zygadlo M. & Radwan J. (2009): The effect of a phosphogluconate dehydrogenase genotype on sperm competitiveness in the bulb mite, *Rhizoglyphus robini*. In: Sabelis M.W., Bruin J. (Eds.): *Trends in Acarology – Proceedings 12th International Congress of Acarology*, Springer, Dordrecht: pp. 295-297. [\[Abstract\]](#)
- Lukasik P.** & Laskowski R. (2007): Increased respiration rate as a result of adaptation to copper in the confused flour beetle, *Tribolium confusum* Jacquelin du Val. *Bulletin of Environmental Contamination and Toxicology* 79(3): 311-314. [\[Abstract\]](#)
- Lukasik P.** & Johnson T. (2007): Arthropod communities and succession in baobab, *Adansonia rubrostipa*, fruits in a dry deciduous forest in Kirindy Forest Reserve, Madagascar. *African Entomology* 15(1): 214-220. [\[Abstract\]](#)

- Lukasik P.**, Radwan J. & Tomkins J.L. (2006): Structural complexity of the environment affects the survival of alternative male reproductive tactics. *Evolution* 60(2): 399-403. [Abstract]
- Lukasik P.** (2004): Aphally in the land snail *Chondrina clienta* (Gastropoda: Chondrinidae) from Kraków-Częstochowa Upland, Poland. *Malakologische Abhandlungen* 22: 67-76.

PUBLICATIONS IN PROGRESS

- Macias A.M., Geiser D.M., Stajich J.E., **Lukasik P.**, Veloso C., Bublitz D.A.C., Berger M.C., Boyce G.R., Hodge K., Kasson M.T. (2019): Evolutionary relationships among Massospora spp. (Entomophthorales), obligate pathogens of cicadas. *Under review*. [Preprint]

CONFERENCE PRESENTATIONS (LAST 5 YEARS)

- Lukasik P.**, Michalik A., Husnik F. (Sep 2018): Puzzling evolutionary patterns in a nested nutritional symbiosis of a leafhopper. Oral presentation, *7th Polish Evolutionary Conference*, Gdańsk, Poland
- Lukasik P.**, Bublitz D., McCutcheon J.P. (Jul 2018): Degenerative processes in ancient nutritional endosymbionts of cicadas. Oral presentation, *International Symbiosis Society 2018 Meeting*, Corvallis, OR, USA
- Lukasik P.**, Nazario K., Van Leuven J.T., Michalik A., Meyer M., Campbell M., Simon C., Veloso C., McCutcheon J.P. (Jun 2017): Multiple splits of a nutritional endosymbiont into symbiotic complexes. Invited oral presentation, *Gordon Research Seminar in Animal-Microbe Symbioses*, West Dover, VT, USA
- Lukasik P.**, Van Leuven J.T., Campbell M., McCutcheon J.P. (May 2015): The evolution of symbiotic complexity in cicadas. Oral presentation, *CIFAR Integrated Microbial Biodiversity meeting*, Victoria, BC, Canada
- Lukasik P.**, Moreau C.S., Russell J.A. (Nov 2014): Convergent acquisition of symbionts by ants at extreme ends of the trophic scale. Invited symposium presentation, *Entomology 2014*, Portland, OR, USA
- Lukasik P.**, Weldon S., Vorburger C., Ferrari J., Godfray H.C.J., Oliver K.M. & Russell J.A. (Nov 2014): Strain-level diversity of parasitoid-protective endosymbionts of aphids: Looking for correlations between phenotypes and genotypes. Oral presentation, *Entomology 2014*, Portland, OR, USA
- Lukasik P.**, Newton J.A., Hu Y., Sanders J.G., Koga R., Kronauer D., Moreau C., O'Donnell S., & Russell J.A. (Jun 2014): Distribution, specificity and horizontal transmission of microbial symbionts in army ant colonies. Oral presentation, *Evolution 2014*, Raleigh, NC, USA
- Lukasik P.**, Newton J.A., Hu Y., Moreau C., Kronauer D., O'Donnell S., & Russell J.A. (Jan 2014): Surprising diversity of specialized bacterial symbionts of neotropical army ants. Poster presentation, *Keystone Symposia: Mechanisms and Consequences of Invertebrate-Microbe Interactions*, Lake Tahoe, CA, USA

RESEARCH GRANTS AND AWARDS (1000 USD or more)

- National Science Centre of Poland (NCN), Opus 16 program, research grant “*Insect microbiome dynamics in time and space*” no. 2018/31/B/NZ8/01158 (PI). 2019-2022; PLN 2,132,854 ≈ USD 560,000
- National Science Centre of Poland (NCN), Sonata Bis 8 program, research grant “*The evolutionary dynamics of the symbioses of Auchenorrhyncha*” no. 2018/30/E/NZ8/00880 (PI). 2019-2024; PLN 3,498,144 ≈ USD 920,000
- Polish National Agency for Academic Exchange (NAWA), Polish Returns program, grant “*Insect Microbiomics*” no. PPN/PPO/2018/1/00015 (PI). 2019-2023; PLN 1,723,000 ≈ USD 450,000
- National Science Centre of Poland (NCN), Sonata 13 program, research grant “*The evolution of the symbiotic systems of Fulgoromorpha*” no. 2017/26/D/NZ8/00799 (co-PI, with PI Anna Michalik, Assistant Professor, Jagiellonian University, Poland). 2018-2021; PLN 829,200 ≈ USD 250,000
- National Geographic Society Committee for Research and Exploration grant “*The ecological genomics of symbiotic complexity in cicadas*” no. 9760-15 (PI). Oct 2015-Sep 2017; USD 25,000
- American Genetics Association Ecological, Evolutionary and Conservation Genomics Award “*Intergeneration transmission of a complex symbiotic consortium*” (PI). Apr 2015-Dec 2017; USD 10,000
- Japanese Society for the Promotion of Science Postdoctoral Fellowship for Foreign Researchers (Short-term) “*Histological characterization of gut microbiota of social insects*” no. PE13061 (PI, with PI Ryuichi Koga, Senior Researcher, AIST, Japan). Oct-Nov 2013; approx. JPY 1,200,000 ≈ USD 12,000
- Jesus College Writing-Up Scholarship – May-Aug 2011; GBP 1,500 ≈ USD 2,400

Sir Richard Southwood Graduate Scholarship for doctoral study at the Department of Zoology/Jesus College, University of Oxford, UK – Apr 2008-Apr 2011; approx. GBP 70,000 ≈ USD 135,000
Smithsonian Tropical Research Institute Short-Term Fellowship for research in Panama – Dec 2005-Feb 2006; USD 3,550
Socrates-Erasmus grant for research and study at Wageningen University, Netherlands – Jan-Sep 2005; EUR 2,305 ≈ USD 3,200
The Gibson-Sykora Foundation grant for research at the University of St. Andrews, Scotland – Jun-Oct 2004; GBP 2,500 ≈ USD 4,500
Polish Ministry of National Education Scholarship for Outstanding Academic Performance – 2004/05 and 2005/06; in total 26,000 PLN ≈ USD 8,000
‘Sapere Auso’ Scholarship for Outstanding Academic Performance – 2003/04, 2004/05 and 2005/06; in total 9,500 PLN ≈ USD 2,900
First class stipend for biology students at Jagiellonian University – 2002/03 and 2003/04; in total 8,200 PLN ≈ USD 2,500
Laureate of the Polish Biology Olympiad for high school students (2001)
Laureate of the Polish Ecology Olympiad for high school students (2000)

TEACHING EXPERIENCE

Leads an active research group comprising postdocs, Ph.D. Students, a lab manager, and a research technician (Jagiellonian University, from 2019)
Mentored visiting researchers, junior postdocs and graduate students, supervised research technicians and undergraduate volunteers at the University of Oxford (2010-2011), Drexel University (2011-2014) and the University of Montana (2015-2018)
Supervised undergraduate thesis project: Emily L. Hancock, BA (Honors) Biological Sciences, University of Oxford (2010-2011)
Guest lectured in invertebrate biology, molecular ecology and symbiosis at Drexel University (2013-14) and University of Montana (2015-17)
Assisted in labs in invertebrate biology and molecular ecology, at the University of Oxford (2010) and Drexel University (2012-2014)
Worked as a dive guide and scuba diving instructor in commercial and university club environments in Egypt, Poland, and England (2007-2011)

PEER REVIEW ACTIVITIES

- Reviewer profile at Publons - <https://publons.com/author/1189546>

Journals – Molecular Ecology, Molecular Ecology Resources, Environmental Microbiology, Proceedings of the Royal Society of London B, Journal of Animal Ecology, Journal of Evolutionary Biology, Biology Letters, Applied and Environmental Microbiology, Microbial Ecology, FEMS Microbiology Ecology, Frontiers in Microbiology, Ecology and Evolution, Insect Science, Arthropod-Plant Interactions, Myrmecological News, Ecological Entomology, Insect Molecular Biology, Insectes Sociaux, Neotropical Entomology, Behavioral Ecology, PLoS One

Grants – U.S. National Science Foundation, U.S.-Israel Binational Agricultural Research Development Fund, Austrian Science Fund, Marsden Fund (New Zealand)

LANGUAGES

Polish – native
English – fluent
Spanish – advanced (speaking, reading), intermediate (writing)
French – intermediate