

Shai Pilosof, PhD

Postdoctoral scholar in the group of Prof. Mercedes Pascual, University of Chicago.

CONTACT INFORMATION

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RESEARCH INTERESTS

I study the structure and dynamics of high-dimensional complex ecological systems, with a focus on host-parasite systems at multiple levels of organization. My research combines data, theory, and computational methods from ecology, evolution, epidemiology and network science.

EDUCATION

Ph.D., Ecology	Ben Gurion University of the Negev, Israel	2015
— Advisors: Prof. Boris Krasnov, Prof. Serge Morand (CNRS, France)		
M.Sc., Ecology	Ben Gurion University of the Negev, Israel	2011
— <i>summa cum laude</i>		
B.Sc., Life Sciences	Tel Aviv University, Israel	2007

PROFESSIONAL EXPERIENCE

Postdoctoral Scholar	University of Chicago	2017-Present
JSMF & Fulbright Postdoctoral Fellow	University of Chicago	2016-2017

ACADEMIC VISITS

- Dr. Martin Rosvall, Department of Physics, Umeå University, Sweden (Sep. 2018).
- Prof. Jordi Bascompte, Integrative Ecology Group, Doñana Biological Station, Spain, 2013. Funded by the Israel Academy of Science and Humanities.
- Dr. Luis Herrera, Institute of Biology, National Autonomous University of Mexico, Mexico, 2008. Funded by the Mexican and Israeli Ministries of Foreign Affairs.

SELECTED PUBLICATIONS

22. **Pilosof S**, He Q, Tiedje KE, Ruybal S, Pascual M. (in revision) Competition for hosts modulates vast antigenic diversity to generate persistent strain structure in *Plasmodium falciparum*. *PLOS Biology*. Preprint available in [BioRxiv:10.1101/406546](https://doi.org/10.1101/406546).
21. He Q, **Pilosof S**, Tiedje KE, Ruybal-Pesántez S, Artzy-Randrup Y, Baskerville E, Day K, Pascual M (2018) Networks of genetic similarity reveal the role of non-neutral processes in shaping the strain structure of *Plasmodium falciparum*. *Nature Communications* 9:1817.
20. **Pilosof S**, Porter MA, Pascual M, Kéfi S (2017) The multilayer nature of ecological networks. *Nature Ecology and Evolution* 1:0101.
19. **Pilosof S**, Morand S, Krasnov BR, Nunn CL (2015) Potential parasite transmission in multi-host networks based on parasite sharing. *PLOS One* 10.1371/journal.pone.0117909.

18. **Pilosof S**, Fortuna M, Cosson J-F, Galan M, Ribas A, Chaisiri K, Segal E, Krasnov BR, Morand S, Bascompte J. (2014) Host-parasite network structure is associated with community-level immunogenetic diversity. *Nature Communications* 5:5172.
17. **Pilosof S**, Fortuna MA, Vinarski MV, Korallo-Vinarskaya NP, Krasnov, BR (2013) Temporal dynamics of direct-reciprocal and indirect effects in a host-parasite network. *Journal of Animal Ecology* 82:987–996.

OTHER PUBLICATIONS

16. Hutchinson M*, Bramon Mora B*, **Pilosof S**, Barner AK, Thébault E, Kéfi S, Jordano P, Stouffer DB. (2018) Describing the forest rather than the trees: community ecology needs multilayer ecological networks. *Functional Ecology*. doi: 10.1111/13652435.13237 * =equal contribution.
15. **Pilosof S***, Greenbaum G*, Krasnov BR, Zelnik YR (2017) Asymmetric disease dynamics in multihost interconnected networks. *Journal of Theoretical Biology* 430:237–244. * =equal contribution.
14. Korine C, **Pilosof S**, Gross A, Morales JC, Krasnov BR (2017) The effect of water contamination and host-related factors on ectoparasite load in an insectivorous bat. *Parasitology Research* 116:2517–2526.
13. Morand S, Bordes F, Blasdell K, **Pilosof S**, Cornu J-F, Chaisiri K, Chaval Y, Cosson J-F, Claude J, Feyfant T, Herbreteau V, Dupuy S, Tran A (2015) Assessing the distribution of disease-bearing rodents in human-modified tropical landscapes. *Journal of Applied Ecology* 52:784–794.
12. Bordes F, Morand S, **Pilosof S**, Claude J, Cosson J-F, Chaval Y, Ribas A, Chaisiri K Blasdell K, Tran A (2015) Habitat fragmentation alters the properties of a host-parasite network: rodents and their helminths in South-East Asia. *Journal of Animal Ecology* 84:1253–1263.
11. Krasnov BR, **Pilosof S**, Stanko M, Morand S, Korallo-Vinarskaya NP, Vinarski MV, Poulin R (2014) Co-occurrence and phylogenetic distance in communities of mammalian ectoparasites: limiting similarity versus environmental filtering. *Oikos* 123:63–70.
10. **Pilosof S**, Korine C, Moore M, Krasnov BR (2014) Effects of water contamination on bat immune response. *Mammalian Biology* 79:183–188.
9. Kedem H, Cohen C, Messika I, Einav M, **Pilosof S**, Hawlena H (2014) Multiple effects of host species diversity on co-existing host-specific and host-opportunistic microbes. *Ecology* 95:1173–1183.
8. Poulin R, Krasnov BR, **Pilosof S**, Thielges DW (2013) Phylogeny determines the role of helminth parasites in intertidal food webs. *Journal of Animal Ecology* 82:1265–1275.
7. Khokhlova IS, **Pilosof S**, Fielden LJ, Degen AA, Krasnov BR (2013) A trade-off between quantity and quality of the offspring in haematophagous ectoparasites: the effect of the level of specialization. *Journal of Animal Ecology* 83:397–405.
6. Krasnov BR, **Pilosof S**, Shenbrot GI, Khokhlova IS, Degen A (2013) Phylogenetic structure of host spectra in Palearctic fleas: stability versus spatial variation in widespread, generalist species. *Parasitology* 141:181–191.
5. Krasnov BR, **Pilosof S**, Shenbrot GI, Khokhlova IS, Poulin R (2013) Spatial variation in phylogenetic structure of flea assemblages across geographic ranges of small mammalian hosts in the Palearctic. *International Journal for Parasitology* 43:763–770.
4. Berger-Tal R, Kieckbusch E, Sandomirsky I, **Pilosof S** (2013). Forward by the Editors: Evolution of Culture. *Israel Journal of Ecology and Evolution* 59:43–44.

3. **Pilosof S**, Dick CW, Korine C, Patterson BD, Krasnov BR (2012) Effects of anthropogenic disturbance and climate on patterns of bat fly parasitism. *PLOS ONE* 7:e41487.
2. **Pilosof S**, Lareschi M, Krasnov, BR (2012) Host body microcosm and ectoparasite infracommunities: arthropod ectoparasites are not spatially segregated. *Parasitology*, 139:1739–1748.
1. **Pilosof S**, Herrera-M LG (2010) Variability in urine concentration and fecal water content of bats in a tropical deciduous forest. *Journal of Mammalogy* 91:580–585.

TEACHING

- *Linking Community and Ecosystem Dynamics Using Ecological Networks* (workshop); University of Groningen, Oct. 2018. Invited teacher.
- *Networks in Ecology and Evolution*; University of Chicago, 2018. Co-lecturer with Prof. Mercedes Pascual.
- *Conservation Genetics*; Ben-Gurion University of the Negev, 2010. TA.
- *The Biology of Desert Dwelling Bats* (workshop); Ben-Gurion University of the Negev, 2009. Instructor.

FELLOWSHIPS AND GRANTS

- James S. McDonnell Foundation Fellowship for a postdoctoral position, 2015.
- US-Israel Educational Foundation Fulbright Fellowship for a postdoctoral position, 2015.
- Aharon and Ephraim Katzir Fellowship, The Israel Academy of Science and Humanities, 2013.
- Travel grant for a workshop, Zoological Society of Israel, 2013.
- Chateaubriand Fellowship for a Ph.D. internship, The French Scientific Office for Cooperation, 2012 (not taken).
- The Kreitman Foundation: Full Ph.D. stipend fellowship, 2011–2015.
- Travel grant for outstanding M.Sc. students, Ben-Gurion University of the Negev, 2010.
- Full M.Sc. Fellowship, Ben-Gurion University of the Negev, 2009–2011.
- Israel-Mexico Bilateral Fellowship for Cultural-Scientific Cooperation, 2008.

AWARDS

- Best-talk pitch (2nd place), NetSci 2018 conference (video here: <http://www.shaipilosof.info/netsci2018-pitch.html>).
- Rector Award and Prize for Academic Achievements in the Ph.D., Ben-Gurion University of the Negev, 2014.
- Merav Ziv Award for Excellence in Ecology (Ph.D.), Ben-Gurion University of the Negev, 2013.
- M.Sc. Summa cum laude, 2011.
- The Dean Award and Prize for Academic Achievements in M.Sc. Studies, Ben-Gurion University of the Negev, 2011.
- Best poster presentation (1st place), The 48th annual meeting of the Zoological Society of Israel, Tel-Aviv, 2011.
- Merav Ziv Award for Excellence in Ecology (M.Sc.), Ben-Gurion University of the Negev, 2010.

INVITED TALKS

Seminars

- Triangle Center for Evolutionary Medicine, Duke University, 2018.
- Duke Network Analysis Center, Duke University, 2018.
- Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev (Israel), 2018.
- School of Zoology, Tel-Aviv University (Israel), 2018.
- Northwestern University Institute for Complex System, 2017.
- Department of Ecology, Evolution and Marine Biology, University of California at Santa Barbara, 2016.
- Department of Ecology and Evolution, The University of Chicago, 2016.

Conferences and Workshops

- Networks in Disease Ecology Satellite Meeting at NetSci2018, Paris, 2018.
- Ecological Society of America annual meeting – Ecological Multiplex Networks symposium (keynote speaker), 2017.
- Mathematics and Physics of Complex Networks Workshop, Dresden, Germany, 2015.
- Networks of Networks Workshop, Göttingen, Germany, 2014.
- Swiss Institute for Dryland Environmental and Energy Research symposium, Ben-Gurion University, Israel, 2014

CONFERENCES

- NetSci 2018, Paris, 2018.
- James S. McDonnell Foundation–Santa Fe Institute Postdocs in Complexity Conference. Santa Fe Institute for Complex Systems, Santa Fe, NM, USA, 2017.
- Ecology and Evolution of Infectious Diseases, Cornell University, Ithaca NY, USA, 2016.
- NetSci 2015, Zaragoza, Spain, 2015.
- Joint meeting of the British and French ecological societies, Lille, France, 2014.
- Ecology and Evolution of Infectious Diseases, Fort-Collins, CO, USA, 2014.
- 50th meeting of the Zoological Society of Israel, Tel-Aviv, Israel, 2013.
- 48th meeting of the Zoological Society of Israel, Tel-Aviv, Israel, 2011.
- 2nd Berlin Bat Meeting, Berlin, Germany, 2010.
- The Society for Integrative and Comparative Biology, Seattle, USA, 2010.
- 46th meeting of the Zoological Society of Israel, Haifa, Israel, 2009.

SCIENTIFIC ACTIVITIES AND SERVICE

- Reviewer for academic journals, including *Nature Communications*, *Nature Ecology and Evolution* and *Ecology Letters*. Full record is available in [Publons](#).
- Organizer of the *EcoNet2018 Satellite Meeting* at NetSci2018, Paris.
- Committee of the *Conference of Complex Systems 2017* Satellite Meeting: Modeling of disease contagion processes.
- Committee of the *Society for Industrial and Applied Mathematics 2017* workshop on Network Science.

- Guest editor for Israel Journal of Ecology and Evolution (2013).
- Organizing Committee of the 2012 annual symposium of the Swiss Institute for Dryland Environmental and Energy Research.

EMPIRICAL ECOLOGY EXPERIENCE

- Surveying invertebrates and amphibians in bodies of fresh water.
- Capturing rodents, bats and birds (traps, mist nets).
- Ectoparasite collection from small mammals and birds.
- Insect collection and identification.
- Lab experiments in immunological assays.

REFERENCES

Advisors

- **Prof. Mercedes Pascual.** Department of Ecology and Evolution, The University of Chicago. pascualmm@uchicago.edu
- **Prof. Boris Krasnov.** Chair, Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev, Israel. krasnov@bgu.ac.il
- **Prof. Serge Morand.** Research Director, CNRS, France. serge.morand@umontpellier.fr

Collaborators

- **Prof. Charlie Nunn.** Department of Evolutionary Anthropology & Duke Global Health Institute. Director, Triangle Center for Evolutionary Medicine (TriCEM). clnunn@duke.edu
- **Prof. Mason Porter.** Department of Mathematics, UCLA. mason@math.ucla.edu
- **Dr. Sonia Kéfi.** CNRS, France. sonia.kefi@univ-montp2.fr