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## Kort præsentation

I am a community ecologist leading a research group that explores how physiological traits govern performance and species co-existence across environmental gradients in a changing climate. I have a special fondness for ants from danish grasslands to panamanian rainforests. Visit my website ([www.jonathanshik.com](http://www.jonathanshik.com)) for more information about my work and to find opportunities to join my team!

## Ansættelse

### Lektor

Ecology and Evolution  
Københavns Universitet  
København Ø, Danmark  
14 apr. 2016 → nu

## Publikationer

### **Ecological strategies of (pl)ants: Towards a world-wide worker economic spectrum for ants**

Gibb, H., Bishop, T. R., Leahy, L., Parr, C. L., Lessard, J., Sanders, N. J., Shik, Jonathan Z., Ibarra-Isassi, J., Narendra, A., Dunn, R. R. & Wright, I. J., 2023, I: *Functional Ecology*. 37, 1, 13 s.

### **Evidence that the domesticated fungus *Leucoagaricus gongylophorus* recycles its cytoplasmic contents as nutritional rewards to feed its leafcutter ant farmers**

A. Leal-Dutra, Caio, Yuen, L. M., Guedes, B. A. M., Contreras Serrano, Marta, Marques, P. E. & Shik, Jonathan Z., 2023, I: *IMA Fungus*. 14, 1, 13 s., 19.

### **Reciprocal nutritional provisioning between leafcutter ants and their fungal cultivar mediates performance of symbiotic farming systems**

Bolander, M., Andersen, J. E., Conlon, B. H., Arnan, X., Michelsen, Anders & Shik, Jonathan Z., 2023, I: *Functional Ecology*. 37, 12, s. 3079-3090 12 s.

### **A fungal symbiont converts provisioned cellulose into edible yield for its leafcutter ant farmers**

Conlon, B. H., O'Tuama, D., Michelsen, Anders, Crumière, A. J. J. & Shik, Jonathan Z., 2022, I: *Biology Letters*. 18, 4, 6 s., 20220022.

### **Male ant reproductive investment in a seasonal wet tropical forest: Consequences of future climate change**

Donoso, D. A., Basset, Y., Shik, Jonathan Z., Forrister, D. L., Uquillas, A., Salazar-Méndez, Y., Arizala, S., Polanco, P., Beckett, S., Diego Dominguez, G. & Barrios, H., 2022, I: *PLoS ONE*. 17, 3, 13 s., e0266222.

### **Nutritional challenges of feeding a mutualist: Testing for a nutrient–toxin tradeoff in fungus-farming leafcutter ants**

Crumière, A. J. J., Mallett, S., Michelsen, Anders, Rinnan, Riikka & Shik, Jonathan Z., 2022, I: *Ecology*. 103, 6, 12 s., e3684.

### **Orthogonal protocols for DNA extraction from filamentous fungi**

Conlon, B. H., Schmidt, Suzanne, Poulsen, Michael & Shik, Jonathan Z., 2022, I: STAR Protocols. 3, 1, 10 s., 101126.

### **Nutritional niches reveal fundamental domestication trade-offs in fungus-farming ants**

Shik, Jonathan Z., Kooij, P. W., Donoso, D. A., Santos, J. C., Gomez, E. B., Franco, M., Crumière, A. J. J., Arnan, X., Howe, Jack, Wcislo, W. T. & Boomsma, Jacobus J., 2021, I: Nature Ecology & Evolution. 5, 1, s. 122-134

### **The multidimensional nutritional niche of fungus-cultivar provisioning in free-ranging colonies of a neotropical leafcutter ant**

Crumière, A. J. J., James, A., Lannes, P., Mallett, S., Michelsen, Anders, Rinnan, Riikka & Shik, Jonathan Z., 2021, I: Ecology Letters. 24, 11, s. 2439-2451 13 s.

### **24 Messages on a Sustainable Career in Research at UCPH**

Larsen, K. R. (red.), Wegener, H. C., Stein, A., Bach, A., Williams, A. R., Gall, C., Gravert, C., Gloriam, D. E., Lorenzen, E., Yvanez, E., Cappellini, E., Poulsen, F., Mortensen, J., Bentzen, J. S., Shik, J. Z., Miskowiak, K. W., Elgaard, K. K. E., Jønsson, K. A., Won, K. J., Nørgaard, L. C. & 9 flere, Cantarero Arevalo, Lourdes, Kristiansen, Maria, Lund, Marianne N., Borregaard, Michael Krabbe, Høyland-Krogsho, Nina Molin, Iversen, Rune, Viskum, U., Nosch, Marie Louise Bech & Hjorth, Jens, 2020, University of Copenhagen. 31 s.

### **Nutritional Dimensions of Invasive Success**

Shik, Jonathan Z. & Dussutour, A., 2020, I: Trends in Ecology and Evolution. 35, 8, s. 691-703 13 s.

### **The evolution of multicellular complexity: the role of relatedness and environmental constraints**

Fisher, Roberta May, Shik, Jonathan Z. & Boomsma, Jacobus J., 2020, I: Proceedings of the Royal Society B: Biological Sciences. 287, 1931, 8 s., 20192963.

### **Using Nutritional Geometry to Explore How Social Insects Navigate Nutritional Landscapes**

Crumiere, A. J. J., Stephenson, C. J., Nagel, M. & Shik, Jonathan Z., 2020, I: Insects. 11, 1, 14 s., 53.

### **Can interaction specificity in the fungus-farming termite symbiosis be explained by nutritional requirements of the fungal crop?**

da Costa, R. R., Vreeburg, S. M. E., Shik, Jonathan Z., Aanen, D. K. & Poulsen, Michael, 2019, I: Fungal Ecology. 38, s. 54-61

### **Evidence for locally adaptive metabolic rates among ant populations along an elevational gradient**

Shik, Jonathan Z., Arnan, X., Oms, C. S., Cerdá, X. & Boulay, R., 2019, I: Journal of Animal Ecology. 88, 8, s. 1240-1249 10 s.

### **Using nutritional geometry to define the fundamental macronutrient niche of the widespread invasive ant *Monomorium pharaonis***

Krabbe, B. A., Arnan, X., Lannes, P., Bergstedt, C. E., Larsen, Rasmus Stenbak, Pedersen, Jes Søre & Shik, Jonathan Z., 2019, I: PLoS ONE. 14, 6, 17 s., e0218764.

### **The farming ant *Sericomyrmex amabilis* nutritionally manages its fungal symbiont and social parasite**

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### **Context is everything: mapping *Cyphomyrmex*-derived compounds to the fungus-growing ant phylogeny**

Hamilton, N., Jones, T. H., Shik, Jonathan Z., Wall, B., Schultz, T. R., Blair, H. A. & Adams, R. M. M., 2018, I: Chemoecology. 28, 4-5, s. 137-144

### **Cryptic Diversity in Colombian Edible Leaf-Cutting Ants (Hymenoptera: Formicidae)**

Kooij, P. W., Dentinger, B. M., Donoso, D. A., Shik, Jonathan Z. & Gaya, E., 2018, I: Insects. 9, 4, s. 1-12 191.

**Disentangling nutritional pathways linking leafcutter ants and their co-evolved fungal symbionts using stable isotopes**  
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**Reconstructing the functions of endosymbiotic Mollicutes in fungus-growing ants**  
Sapountzis, P., Zhukova, M., Shik, Jonathan Z., Schiøtt, M. & Boomsma, Jacobus J., 2018, I: eLife. 7, s. 1-31 e39209.

**Extreme polygyny in the previously unstudied subtropical ant *Temnothorax tuscaloosae* with implications for the biogeographic study of the evolution of polygyny**  
Guénard, B., Shik, Jonathan Z., Booher, D., Lubertazzi, D. & Alpert, G., 2016, I: Insectes Sociaux. 63, 4, s. 543-551 9 s.

**Liquid foraging behaviour in leafcutting ants: the lunchbox hypothesis**  
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**Nutrition mediates the expression of cultivar-farmer conflict in a fungus-growing ant**  
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**Aphid honeydew provides a nutritionally balanced resource for incipient Argentine ant mutualists**  
Shik, Jonathan Z., Kay, A. D. & Silverman, J., 2014, I: Animal Behaviour. 95, s. 33-39 7 s.

**Diet specialization in an extreme omnivore: nutritional regulation in glucose-averse German cockroaches**  
Shik, Jonathan Z., Schal, C. & Silverman, J., 2014, I: Journal of Evolutionary Biology. 27, 10, s. 2096-2105 10 s.

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**Prey handling performance facilitates competitive dominance of an invasive over a native keystone ant**  
Bednar, D., Shik, Jonathan Z. & Silverman, J., 2013, I: Behavioral Ecology. 24, 6, s. 1312-1319

**The life history continuum hypothesis links traits of male ants with life outside the nest.**  
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**Towards a nutritional ecology of invasive establishment: aphid mutualists provide better fuel for incipient Argentine ant colonies than insect prey**  
Shik, Jonathan Z. & Silverman, J., 2013, I: Biological Invasions. 15, 4, s. 829-836

**A life history continuum in the males of a Neotropical ant assemblage: refuting the sperm vessel hypothesis**  
Shik, Jonathan Z., Flatt, D., Kay, A. & Kaspari, M., 2012, I: Naturwissenschaften. 99, 3, s. 191-197

**Diet composition does not affect ant colony tempo.**  
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**Effect of scattered and discrete hydramethylnon bait placement on the Asian needle ant**  
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**Toward a general life history model of the superorganism: predicting the survival, growth, and reproduction of ant societies**  
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**More food, less habitat: how necromass and leaf litter decomposition combine to regulate a litter ant community**  
Shik, Jonathan Z. & Kaspari, M., 2010, I: Ecological Entomology. 35, 2, s. 158-165

**Scaling community structure: how bacteria, fungi, and ant taxocenes differentiate along a tropical forest floor**  
Kaspari, M., Stevenson, B. S., Shik, Jonathan Z. & Kerekes, J. F., 2010, I: Ecology. 91, 8, s. 2221-2226

**The metabolic costs of building ant colonies from variably sized subunits**  
Shik, Jonathan Z., 2010, I: Behavioral Ecology and Sociobiology. 64, 12, s. 1981-1990

**Lifespan in male ants linked to mating syndrome**  
Shik, Jonathan Z. & Kaspari, M., 2009, I: Insectes Sociaux. 56, 2, s. 131-134

**Ant colony size and the scaling of reproductive effort**  
Shik, Jonathan Z., 2008, I: Functional Ecology. 22, 4, s. 674-681

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Shik, Jonathan Z., Francoeur, A. & Buddle, C. M., 2005, I: The Canadian Field-Naturalist. 119, 1, s. 38-42