

# Alexander T. Strauss

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## EDUCATION

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2016	Ph.D. in Ecology, Evolution, and Behavior, Department of Biology, Indiana University, Bloomington, Indiana
2011	A.B. in Environmental Studies, Biology/Ecology Track; Minors in Biology & Music, Washington University in Saint Louis

## APPOINTMENTS

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2020-present	Assistant Professor, University of Georgia, Odum School of Ecology
2017-2020	Postdoctoral Associate, University of Minnesota & National Socio-Environmental Synthesis Center
fall 2017	Postdoctoral Associate, Indiana University
spring 2016	Final Year Fellow, Indiana University (Floyd/Ogg/Cleland Award)
2012-2016	NSF GRFP Fellow, Indiana University
2008-2011	Lab Assistant, Chase Lab, Washington University in Saint Louis

## GRANTS & FELLOWSHIPS

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2020	Minnesota Futures Research Grant 427224 (UMN) <i>ATS role: led proposal; co-investigator</i>	\$249K
2019	REU for NSF DEB 1556649 (PIs: Eric Seabloom & Elizabeth Borer) <i>ATS role: developed questions, wrote first draft, and revised</i>	\$6.5K
2018	REU for NSF DEB 1556649 (PIs: Eric Seabloom & Elizabeth Borer) <i>ATS role: developed questions, wrote first draft, and revised</i>	\$6.5K
2016	Floyd/Ogg/Cleland Final Year Fellowship (IU)	\$10K
2015	Floyd Plant & Fungal Biology Summer Fellowship (IU)	\$1.1K
2014	NSF DEB 1353749 (PI: Spencer Hall) <i>ATS role: contributed data, developed questions, and helped write</i>	\$376K
2014	<b>NSF DEB 1406846 (Doctoral Dissertation Improvement Grant)</b>	\$20K
2013	David G. Frey Memorial Fund Award	\$2K
2012	Floyd Plant & Fungal Biology Summer Fellowship (IU)	\$1.3K
2011	Biology Department Research Recruitment Fellowship (IU)	\$12K
2011	<b>NSF Graduate Research Fellowship Program (GRFP)</b>	\$94K
2010	Tyson Undergraduate Research Fellowship (WashU)	\$3.8K
2009	Summer Undergraduate Research Fellowship (WashU)	\$3.8K
<i>total awarded:</i>		\$786K USD

## AWARDS

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2019	JBS Haldane Early Career Award (British Ecological Society)
2017	Thomas M. Frost Award for Excellence in Graduate Research (ESA Aquatic Section)
2015	Outstanding Paper Award (ESA Disease Section)
2011	Outstanding Achievement in Environmental Natural Science Award (WashU)

## INVITED WORKING GROUPS

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- 2018-present    Microbial disease dynamics, ecosystem processes, and human eutrophication of the environment (National Socio-Environmental Synthesis Center)  
 2017-present    Nutrient Network annual meetings and workshops

## PUBLICATIONS

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† Paper awards (5x)

\* Undergraduate student coauthors mentored by ATS (2x)

1. Paseka, R, White, L, van de Waal, D, **Strauss, AT**, González, A, Everett, R, Peace, A, Seabloom, EW, Frenken, T, and ET Borer. Disease-mediated ecosystem services: Pathogens, plants, and people. *Trends in Ecology and Evolution*. In press.  
 ATS coauthor role: helped with data synthesis and framing and revision of manuscript
2. **Strauss, AT**, Hite, JL, Civitello, DJ, Shocket, MS, Cáceres, CE, and SR Hall. 2019. Genotypic variation in parasite avoidance behavior and other mechanistic, non-nonlinear components of transmission. *Proc. R. Soc. B* 286 (1915): 20192164.
3. **Strauss, AT**, Shoemaker LG, Seabloom EW, and ET Borer. 2019. Cross-scale dynamics in community and disease ecology: Relative timescales shape the community ecology of pathogens. *Ecology* 100 (11): e02836.
4. Shoemaker, LG, Hayhurst, E, Weiss-Lehman, CP, **Strauss, AT**, Porath-Krause, A, Borer, ET, Seabloom, EW, and AK Shaw. 2019. Pathogens manipulate the preference of vectors, slowing disease spread in a multi-host system. *Ecology Letters* 22 (7): 1115-1125.  
 † Ecology Letters Early Career Researcher Award, 2019  
 ATS coauthor role: assisted with experiment; helped frame and revise manuscript
5. Bresciani, L, Lemos, LN, Wale, N, Lin, JY, **Strauss, AT**, Duffy, MA, and LM Rodrigues. 2018. Draft genome sequence of *Candidatus Spirobacillus cienkowskii*, a pathogen of freshwater *Daphnia* species, reconstructed from hemolymph metagenomics reads. *Microbiology Resource Announcements* 7 (22): e01175-18.  
 ATS coauthor role: isolated parasites from the field; revised manuscript
6. Shocket, MS, Vergara, D, \*Sickbert, A, Walsman, J, **Strauss, AT**, Hite, JL, Duffy, MA, Cáceres, CE, and SR Hall. 2018 Parasite rearing and infection temperatures jointly influence disease transmission and shape seasonality of epidemics. *Ecology* 99 (9): 1975-1987.  
 ATS coauthor role: assisted with field collections and experiment; revised manuscript
7. † **Strauss, AT**, Bowling, AM, Duffy, MA, Cáceres, CE, and SR Hall. 2018. Linking host traits, interactions with competitors, and disease: Mechanistic foundations for disease dilution. *Functional Ecology* 32 (5): 1271-1279.  
 † JBS Haldane Early Career Award, British Ecological Society, 2019
8. † Shocket, MS, **Strauss, AT**, Hite, JL, Šljivar, M, Civitello, DJ, Duffy, MA, Cáceres, CE, and SR Hall. 2018. Temperature drives epidemics in a zooplankton-fungus disease system: A trait driven approach points to transmission via host foraging. *The American Naturalist* 191 (4): 435-451.  
 † American Naturalist Student Paper Award, 2019  
 ATS coauthor role: contributed field data; revised manuscript
9. **Strauss, AT**, Hite, JL, Shocket, MS, Cáceres, CE, Duffy, MA, and SR Hall. 2017. Rapid evolution rescues hosts from competition and disease and – despite a dilution effect – increases the density of infected hosts. 2017. *Proc. R. Soc. B*. 284.

10. Hite, JL, Penczykowski, RM, Shocket, MS, Griebel, K, **Strauss, AT**, Duffy, MA, Cáceres, CE, and SR Hall. 2017. Allocation, not male resistance, increases male frequency during epidemics: A case study in facultatively sexual hosts. *Ecology* 98: 2773-2783.  
*ATS coauthor role: contributed field data; revised manuscript*
11. † **Strauss, AT**, Shocket, MS, Civitello, DJ, Hite, JL, Penczykowski, RM, Duffy, MA, Cáceres, CE, and SR Hall. 2016. Habitat, predators, and hosts regulate disease in *Daphnia* through direct and indirect pathways. *Ecological Monographs* 86: 393-411.  
† Thomas M. Frost Award for Excellence in Grad Research, ESA Aquatic Section, 2017
12. Hite, JL, Penczykowski, RM, Shocket, MS, **Strauss AT**, Orlando PA, Duffy, MA, Cáceres, CE, and SR Hall. 2016. Parasites destabilize host populations by shifting stage-structured interactions. *Ecology* 97: 439-449.  
*ATS role: contributed experimental data; revised manuscript*
13. † **Strauss, A**, Civitello, DJ, Cáceres, CE, and SR Hall. 2015. Success, failure, and ambiguity of the dilution effect among competitors. *Ecology Letters* 18: 916-926.  
† Outstanding Paper Award, ESA Disease Ecology Section, 2015
14. **Strauss, A** and KG Smith. 2013. Why does amphibian chytrid (*Batrachochytrium dendrobatidis*) not occur everywhere? An exploratory study in Missouri ponds. *PLOS ONE*.
15. **Strauss, A**, White, A, and M Boots. 2012. Invading with biological weapons: The importance of disease-mediated invasions. *Functional Ecology* 26: 1249-1261.

#### IN REVIEW/REVISION: (manuscripts available upon request)

16. **Strauss, AT**, Henning, JA, Porath-Krause A, Asmus AL, Shaw, AK, Borer, ET, and EW Seabloom. Vector demography, dispersal, and the spread of disease: Experimental epidemics under elevated resource supply. *In revision*.
17. **Strauss, AT**, \*Bowerman, L, Porath-Krause A, Seabloom, EW, and ET Borer. Mixed infection, risk projection, and misdirection: Resource supply determines infection risk for hosts exposed to multiple pathogens. *In review*.
18. Borer, ET, Asik, L, Everett, R, Frenken, T, González, A, Paseka, R, Peace, A, Seabloom, EW, **Strauss, AT**, van de Waal, D, and L White. Elements of disease in a changing world: Modeling feedbacks between infectious disease and ecosystems. *In revision*.
19. Asmus, AL, Seabloom, EW, Henning JA, members of Nutrient Network including **Strauss, AT**, and ET Borer. Environmental perturbations put core species at risk. *In review*.  
*ATS coauthor role: helped collect data from 4 sites; revised manuscript*
20. Porath-Krause, A, Campbell, R, Shoemaker, LG, Sieben A, **Strauss, AT**, Shaw, AK, Seabloom, EW, and ET Borer. A fleeting cost of novelty: Transmission of a generalist virus overcomes changes in host species, vector species, and host resource conditions. *In review*.  
*ATS coauthor role: assisted with statistics and modeling; revised manuscript*
21. Frenken, T, Paseka, R, González, A, Asik, L, Seabloom, EW, White, L, Borer, ET, **Strauss, AT**, Peace, A, D van de Waal. Can changing elemental cycles impact primary producer pathogens by inducing stoichiometric mismatches? *In review*.

#### INVITED PRESENTATIONS

1. Disease Ecology and Global Change. 2020. Odum School of Ecology, University of Georgia.

## CONTRIBUTED PRESENTATIONS AT NATIONAL & REGIONAL CONFERENCES

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1. Unpacking the black box of disease models. 2018. Talk. Ecological Society of America.
2. Host traits and predict dynamical disease outcomes. 2016. Talk. Ecological Society of America.
3. Habitat, hosts, and fungus in the field: Synthesizing hypotheses from the community ecology of disease. 2015. Talk. Ecological Society of America.
4. Community Drivers of Disease. 2015. Poster. Ecology and Evolution of Infectious Disease.
5. Habitat, hosts, and fungus in the field: Synthesizing hypotheses from the community ecology of disease. 2015. Talk. Midwest Ecology and Evolution Conference.
6. The dilution effect among competing, evolving hosts. 2014. Talk. Ecological Society of America.
7. Outcomes of the dilution effect when hosts compete. 2013. Talk. Ecological Society of America.
8. Trait dependent outcomes of the dilution effect. 2013. Poster. Ecology and Evolution of Infectious Disease.
9. Invertebrate community structure helps explain the distribution of amphibian chytrid in Eastern Missouri. 2012. Poster. Ecological Society of America.

## TEACHING & MENTORING

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### Pedagogy Training:

- 2019 Teaching mentorship with Prof. Mark Decker through University of Minnesota's Department of Biology Teaching and Learning
- 2015 Enrolled Course: Mentored Teaching (IU; Bio Z620; Prof. Mimi Zolan)

### Teaching Positions:

- 2015 Associate Instructor, Honors Evolution (IU Bio S318; Prof. Emília Martins)  
*ATS role: running labs; advising student projects; grading writing-intensive assignments*
- 2011 Associate Instructor, Biology Laboratory (IU Bio L113; Prof. Jim Hengeveld)  
*ATS role: running weekly discussion section and weekly labs*
- 2011 Teaching Assistant, Intro. Ecology (WashU Bio 381; Prof. Eleanor Pardini)  
*ATS role: facilitating group discussions; grading*

### Guest Lectures:

	<u>Lesson</u>	<u>Course</u>
2019	Evolution of Sex	Biology of Sex (UMN 1003; Prof. M. Decker)
2019	Community Ecology (2x)	Foundations II* (UMN 2003; Prof. M. Decker)
	<i>*taught in a team-based active learning classroom</i>	
2016	Disease Ecology (2x)	Ecology (IU L473; Prof. T. Darcy-Hall*)
	<i>*letter of teaching support from professor available upon request</i>	
2015	Why Bio Majors need Calculus	Introductory Biology Lab (IU L113; Prof. J. Hengeveld)
	<i>*student reviews and pedagogy findings available upon request</i>	
2015	Host & Pathogen Evolution	Honors Evolution (IU S318; Prof. E. Martins*)
	<i>*letter of teaching support from professor available upon request</i>	
2014	Disease Ecology	Ecology (IU L473; Prof. Tara Darcy-Hall)

### Mentoring:

	<u>Student</u>	<u>Program</u>
2019	Carson Kephart	NSF LTER Research Experience for Undergraduates
2019-present	Hajira Wehelie	NSF Research Experience for Undergraduates

2018-2020	*Lucas Bowerman	NSF Research Experience for Undergraduates <i>*won best poster award, UMN undergraduate research symposium 2019</i>
2018-2020	Narmada Venkateswaran	Directed Research
2018-2019	Efemona Famati	Directed Research
2018	Andrew Sieben	Independent Research
2016-2017	Alison Partee	Independent Research
2016-2017	*Andrew Sickbert	Independent Research <i>* coauthor on Shocket et al. 2018 Ecology</i>
2013-2015	Johnathan Nguyen	Groups Scholars STEM Initiative (minority students)
2014	Shawn Hall	Groups Scholars STEM Initiative (minority students)
2013	Zephyr Wenrich	Groups Scholars STEM Initiative (minority students)
2014	Sean Szolek-Van Valkenburgh	Jim Holland Summer Research (minority students)
2013-2014	*Sarah Duple	Biomath Fellows Program (University of Illinois) <i>*presented talk at Ecological Society of America 2014</i>
2013	Brad Lufkin	Honors Degree Individual Study

## SERVICE, OUTREACH & SCIENCE COMMUNICATION

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### Manuscript Reviewer:

*Journal of Applied Ecology* (2), *Ecology Letters* (2), *Ecology* (4), *EcoHealth* (1), *The American Naturalist* (2), *Nature Ecology & Evolution* (1), *Journal of Animal Ecology* (2), *Oecologia* (5), *Biological Invasions* (3), *Methods in Ecology and Evolution* (2), *Functional Ecology* (1), *Nature Communications* (2), *Proceedings of the Royal Society B* (1)

Total by year: 2020 (6); 2019 (10); 2018 (9); 2017 (2); 2016 (1)

All reviews on my Publons profile: <https://publons.com/author/1267621>

### Judge for Best Paper Awards:

2017-2019 ESA Disease Section

### Conference Organization:

2015 Midwest Ecology & Evolution Conference (MEEC), Indiana University

### K-12 Outreach:

2014-2015 "Mystery Skulls" show and tell (K-8 schools, Bloomington, IN, lead Prof. Armin Mozcek)

### Invited Blog Posts & Newsletters:

2020 "The fungus among us: Research on infectious disease in grassland plants." R Paseka & A Strauss. Cedar Creek Education and Community Engagement Newsletter.

2019 "Disease, diversity, and dilution." *Functional Ecologists*: [functionalecologists.com](http://functionalecologists.com)

### Journal Clubs:

2019 Borer-Seabloom lab undergraduate journal club organizer (UMN)

2015-2016 Ecolunch committee member and organizer (IU)

2014-2014 Disease journal club organizer (IU)

## PROFESSIONAL SOCIETY MEMBERSHIP

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2010-present Ecological Society of America (ESA)

2020 Association for the Sciences of Limnology and Oceanography (ASLO)

## REFERENCES

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**Prof. Spencer R. Hall**

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Biology Department  
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