

# Bret D. Elder

## Curriculum Vitae

Address: Department of Biological Sciences  
Louisiana State University  
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### Academic & Research Appointments

- 2023-present Dr. Ronald and Denise Alvarez Professor,  
Department of Biological Sciences,  
Louisiana State University, Baton Rouge, LA.
- 2020-present Professor,  
Department of Biological Sciences,  
Louisiana State University, Baton Rouge, LA.
- 2017-present Graduate Faculty at Large,  
Department of Applied Mathematics,  
University of Colorado, Boulder, CO.
- 2015-2020 Associate Professor,  
Department of Biological Sciences,  
Louisiana State University, Baton Rouge, LA.
- 2016 Visiting Scholar,  
Department of Applied Mathematics,  
University of Colorado, Boulder, CO.
- 2008-2015 Assistant Professor,  
Department of Biological Sciences,  
Louisiana State University, Baton Rouge, LA.
- 2005-2008 Postdoctoral Research Fellow,  
Department of Ecology and Evolution,  
University of Chicago, Chicago, IL.
- 2002-2005 Postdoctoral Research Associate,  
Center for Integrating Statistical and Environmental Science (CISES),  
University of Chicago, Chicago, IL.

### Education

- 2002 Ph.D. Department of Environmental Studies  
University of California, Santa Cruz, CA.  
Advisor – Dr. Dan Doak.
- 1996 M. Forest Science Wildlife Ecology  
Yale University, New Haven, CT.
- 1990 B.A. History  
Cornell University, Ithaca, NY.

## Publications

### Refereed papers

1. Dallas, T. A. and B. D. Elderd (2023). Mean-variance scaling and stability in commercial sex work networks. *Social Network Analysis and Mining* **13**, 55.
2. Richards, R. L., B. D. Elderd, and M. A. Duffy (2023). Unhealthy herds and the predator-spreader: Understanding when predation increases disease incidence and prevalence. *Ecology and Evolution* **13**, e9918.
3. The Herbivory Variability Network et al. (2023). Plant size, latitude, and phylogeny explain within-population variability in herbivory. *Science* **382**(6671), 679–683.
4. Van Allen, B. G., F. P. Dilleuth, V. Dukic, and B. D. Elderd (2023). Viral transmission and infection prevalence in a cannibalistic host-pathogen system. *Oecologia* **201**, 499–511.
5. Dallas, T. A., G. Foster, R. L. Richards, and B. D. Elderd (2022). Epidemic time series similarity is related to geographic distance and age structure. *Infectious Disease Modelling* **7**, 690–697.
6. Elderd, B. D., N. Mideo, and M. A. Duffy (2022). Looking across scales in disease ecology and evolution. *The American Naturalist* **199**, 51–58.  
*Introduction to a Focused Topic proposed and organized by the authors.*
7. Foster, G., B. D. Elderd, R. L. Richards, and T. Dallas (2022). Estimating R0 from early exponential growth: Parallels between 1918 influenza and 2020 SARS-CoV-2 pandemics. *PNAS Nexus* **1**(4).
8. Garvey, M., K. Costanza, S. Grimmell, and B. D. Elderd (2022). Examining the effects of induced plant defenses on *Spodoptera frugiperda* performance. *Applied Sciences* **12**.
9. Issa, P. P., M. Garvey, S. Grimmell, P. Pantha, M. Dassanayake, and B. D. Elderd (2021). Hitching a ride: Examining the ability of a specialist baculovirus to translocate through its insect host's food plant. *Pathogens* **10**.
10. Lanka, S. K., B. D. Elderd, J. A. Davis, and M. J. Stout (2021). Jasmonic acid-induced resistance to fall armyworm in soybeans: Variation among genotypes and tradeoffs with constitutive resistance. *Basic and Applied Ecology* **56**, 97–109.
11. Pantha, P., S. Chalivendra, D. Oh, B. D. Elderd, and M. Dassanayake (2021). A tale of two transcriptomic responses in agricultural pests via host defenses and viral replication. *MDPI: International Journal of Molecular Sciences* **22**, 3568.
12. Santiago-Rosario, L. Y., K. E. Harms, B. D. Elderd, P. B. Hart, and M. Dassanayake (2021). No Escape: The Influence of Substrate Sodium on Plant Growth and Tissue Sodium Responses. *Ecology and Evolution* **11**, 14231–14249.
13. Vilellas, J. et al. (2021). Phenotypic plasticity masks range-wide genetic differentiation for vegetative but not reproductive traits in a short-lived plant. *Ecology Letters* **24**, 2378–2393.
14. Flick, A. F., T. Coudron, and B. D. Elderd (2020). Intraguild predation increases pathogen transmission in a herbivore host and decreases predator fitness. *Oecologia* **193**, 789–799.
15. Shaffery, P., B. D. Elderd, and V. Dukic (2020). A note on species richness and the variance of epidemic severity. *Journal of Mathematical Biology* **80**, 2055–2074.
16. Smith, A. L. et al. (2020). Global gene flow releases invasive plants from environmental constraints on genetic diversity. *Proceedings of the National Academy of Sciences USA* **117**, 4218–4227.

17. Acevedo, M. A., F. P. Dilleuth, M. Faldyn, A. Flick, and B. D. Elderd (2019). Virulence-driven trade-offs in disease transmission: A meta-analysis. *Evolution* **73**, 636–647.  
*Featured in Evolution Highlights as a noted recently paper published in the journal Evolution.*
18. Elderd, B. D. (2019). Bottom-up trait-mediated indirect effects decrease pathogen transmission in a tritrophic system. *Ecology* **100**, e02551.
19. Shrestha, S., B. D. Elderd, and V. Dukic (2019). Bayesian-based survival analysis: Inferring time to death in host-pathogen interactions. *Environmental and Ecological Statistics* **26**, 17–45.
20. Faldyn, M. J., M. D. Hunter, and B. D. Elderd (2018). Climate change and an invasive, tropical milkweed: An ecological trap for monarch butterflies. *Ecology* **99**, 1031–1038.  
*Featured in Scientific American's 60-second science podcast, National Geographic online, & Natural History Magazine's samplings. One of the top 20 most read papers in Ecology for 2017-2018.*
21. Hovanes, K. A., K. E. Harms, P. R. Gagnon, J. A. Myers, and B. D. Elderd (2018). Overdispersed Spatial Patterning of Dominant Bunchgrasses in Southeastern Pine Savannas. *American Naturalist* **191**, 658–667.
22. Joshi, T., B. D. Elderd, and K. C. Abbott (2018). No appendix necessary: Fecal transplants and antibiotics can resolve *Clostridium difficile* infection. *Journal of Theoretical Biology* **442**, 139–148.
23. Barraquand, F., S. Louca, K. C. Abbott, C. A. Cobbold, F. Cordoleani, D. L. DeAngelis, B. D. Elderd, J. W. Fox, P. Greenwood, F. M. Hilker, F. Lutscher, D. L. Murray, C. R. Stieha, R. A. Taylor, K. Vitense, G. S. K. Wolkowicz, and R. C. Tyson (2017). Moving forward in circles: Challenges and opportunities in modeling population cycles. *Ecology Letters* **20**, 1074–1092.
24. Shikano, I., E. McCarthy, B. D. Elderd, and K. Hoover (2017). Plant genotype and induced defenses affect the productivity of an insect-killing obligate viral pathogen. *Journal of Invertebrate Pathology* **148**, 34–42.
25. Van Allen, B. G., F. P. Dilleuth, A. J. Flick, M. J. Faldyn, D. R. Clark, V. H. W. Rudolf, and B. D. Elderd (2017). Cannibalism and infectious disease: Friend or foe? *American Naturalist* **190**, 299–312.  
*Featured in Scientific American's 60-second science podcast & Louisiana Public Broadcasting: Louisiana - The State We're In.*
26. Compagnoni, A., A. J. Bibian, B. M. Ochocki, H. S. Rogers, E. L. Schultz, M. E. Sneek, B. D. Elderd, A. M. Iler, D. W. Inouye, H. Jacquemyn, and T. E. X. Miller (2016). The effect of demographic correlations on the stochastic population dynamics of perennial plants. *Ecological Monographs* **86**, 480–494.
27. Elderd, B. D. and T. E. X. Miller (2016). Quantifying uncertainty in demographic models: Bayesian methods for Integral Projection Models (IPMs). *Ecological Monographs* **86**, 125–144.
28. Flick, A. F., M. A. Acevedo, and B. D. Elderd (2016). The negative effects of pathogen-infected prey on predators: A meta-analysis. *Oikos* **125**, 1554–1560.  
*Editor's Choice.*
29. Elderd, B. D. and J. R. Reilly (2014). Warmer temperatures increase disease transmission and outbreak intensity in a host-pathogen system. *Journal of Animal Ecology* **83**(4), 838–849.

30. Reilly, J. R. and B. D. Elderd (2014). Effects of biological control on long-term population dynamics: Identifying unexpected outcomes. *Journal of Applied Ecology* **51**(1), 90–101.
31. Aronhime, B., B. D. Elderd, C. Wicks, M. McMichael, and E. Eich (2013). Teaching exponential growth and logistic growth in a variety of classroom and laboratory settings. *Teaching Issues and Experiments in Ecology* **9**.
32. Elderd, B. D. (2013b). Developing models of disease transmission: Insights from the ecology of baculovirus-driven systems. *PLoS Pathogens* **9**, e1003372.
33. Elderd, B. D., V. M. Dukic, and G. Dwyer (2013). Population-level differences in disease transmission: A Bayesian analysis of multiple smallpox epidemics. *Epidemics* **5**(3), 146–156.
34. Elderd, B. D., K. Haynes, B. Rehill, and G. Dwyer (2013). Interactions between an induced plant defense and a pathogen drive outbreaks of a forest insect. *Proceedings of the National Academy of Sciences USA* **110**(37), 14978–14983.
35. Fuller, E., B. D. Elderd, and G. Dwyer (2012). Pathogen persistence in the environment and insect-baculovirus interactions: Disease-density thresholds, epidemic burnout, and insect outbreaks. *American Naturalist* **179**(3), E70–E96.  
*Reviewed by the Faculty of 1000.*
36. Parker, B. J., B. D. Elderd, and G. Dwyer (2010). Host behavior and exposure risk in insect-pathogen interaction. *Journal of Animal Ecology* **79**(4), 863–870.
37. Elderd, B. D., J. Dushoff, and G. Dwyer (2008). Host-pathogen dynamics, natural selection for disease resistance, and forest-defoliator outbreaks. *American Naturalist* **172**(6), 829–842.
38. Elderd, B. D. and M. P. Nott (2008). Changing landscapes, changing demography: An individual-based model for the endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*). *Journal of Applied Ecology* **45**(1), 258–268.
39. Gear, J. S. and B. D. Elderd (2008). Bias in population growth rate estimation: Sparse data, partial life cycle analysis, and Jensen’s inequality. *Oikos* **117**(10), 1587–1593.
40. Elderd, B. D. (2006). Disturbance-mediated trophic interactions and plant performance. *Oecologia* **147**(2), 261–271.
41. Elderd, B. D. and D. F. Doak (2006). Comparing the direct and community-mediated effects of disturbance on plant population dynamics: Flooding, herbivory, and *Mimulus guttatus*. *Journal of Ecology* **94**(3), 656–669.
42. Elderd, B. D., V. M. Dukic, and G. Dwyer (2006). Uncertainty in predictions of disease spread and public health responses to bioterrorism and emerging diseases. *Proceedings of the National Academy of Sciences USA* **103**(42), 15693–15697.
43. Elderd, B. D. (2003). The impact of changing flow regimes on riparian vegetation and the riparian species *Mimulus guttatus*. *Ecological Applications* **13**(6), 1610–1625.
44. Wilcox, C. and B. Elderd (2003). The effect of density-dependent catastrophes on population persistence time. *Journal of Applied Ecology* **40**(5), 859–871.
45. Wilcox, C. V. and B. D. Elderd (2003). The endangered species act petitioning process: Successes and failures. *Society & Natural Resources* **16**(6), 551–559.
46. Harding, E. K., E. E. Crone, B. D. Elderd, J. M. Hoekstra, A. J. McKerrow, J. D. Perrine, J. Regetz, L. J. Rissler, A. G. Stanley, and E. L. Walters (2001). The scientific foundations of habitat conservation plans: A quantitative assessment. *Conservation Biology* **15**(2), 488–500.
47. Beissinger, S. R., S. Tygielski, and B. Elderd (1998). Social constraints on the onset of incubation in a neotropical parrot: A nestbox addition experiment. *Animal Behaviour* **55**(1), 21–32.

## Book chapters

1. Elderd, B. D. and G. Dwyer (2020). "Population structure and disease spread in insect baculoviruses". In: *Wildlife diseases: Linking theory to data and application*. Ed. by K. Wilson, A. Fenton, and D. Tompkins. Cambridge University Press.
2. Elderd, B. D. (2018). "Modeling insect epizootics and their population-level consequences". In: *Ecology of Invertebrate Diseases*. Ed. by A. Hajek and D. Shapiro-Ilan. Wiley.
3. Elderd, B. D., P. Shahani, and D. F. Doak (2003). "Problems and potential uses of count-based PVAs". In: *Population Viability in Plants*. Ed. by C. Brigham and M. Schwartz. Springer-Verlag, pp.173–202.

## Book reviews

1. Elderd, B. D. (2013a). Book review of "Bayesian analysis for population ecology" by King et al. *Quarterly Review of Biology* **88**(1), 32–33.

## Reports and Letters

1. Elderd, B. and A. Graff (2001). *Review of the community and rare plant monitoring programs conducted by The Nature Conservancy on Santa Cruz Island Preserve, 1991-1995*. Tech. rep. The Nature Conservancy.
2. Elderd, B., T. Vos, and M. Los Huertos (1999). Green revolutions (letter to the editor). *Science* **283**, 1267.
3. Kareiva, P., S. Andelman, D. Doak, B. Elderd, M. Groom, J. Hoekstra, L. Hood, F. James, J. Lamoreux, G. LeBuhn, C. McCulloch, J. Regetz, L. Savage, M. Ruckelshaus, D. Skelly, H. Wilbur, K. Zamudio, and NCEAS HCP working group (1999). *Using science in habitat conservation plans*. Tech. rep. American Institute of Biological Sciences.

## Honors & Awards

2019 LSU Excellence and Innovation Award

## Grants/Support

|           |   |             |
|-----------|---|-------------|
| 2020      | Epidemic control strategies for COVID-19 in age-structured populations.<br>NSF RAPID. PI: Tad Dallas, Co-PI: Bret Elderd.   | \$199,019   |
| 2019-2025 | Spatial dynamics of host-pathogen coevolution in a changing environment.<br>USDA-NIH-NSF EEID. PI: B.D. Elderd, Co-PIs: M. Das-sanayake, V. Dukic, and M. Garvey.   | \$2,168,000 |
| 2013-2020 | Scaling up epizootic dynamics - Linking individual infection probability to spatial spread of a disease using Bayesian hierarchical approaches.<br>NSF EEID. PI: B.D. Elderd, Co-PIs: V. Dukic, K. Hoover, and M. Stout | \$1,849,987 |

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|-----------|---|-----------|
| 2011-2014 | Climate change and disease transmission: Shifts in host-pathogen ranges.<br>Louisiana Board of Regents. PI: B.D. Elderd   | \$133,012 |
| 2011-2013 | Untangling top-down and bottom-up effects on host-pathogen interactions.<br>Louisiana Board of Regents. PI: B.D. Elderd   | \$8,500   |
| 2011      | The effects of global climate change on disease transmission and species interactions.<br>LSU Council on Research PI: B.D. Elderd                                   | \$5,000   |
| 2005-2008 | Mechanisms of disease transmission, variability in host susceptibility, and forest defoliator outbreaks.<br>NSF DEB. PI: G. Dwyer, Co-PIs: B.D. Elderd and M. Coram | \$362,243 |
| 1997-2002 | NSF Graduate Researcher in Training (GRT).  |           |

## Teaching

### LSU

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|----------------|--|--|
| 2008 - Present | Department of Biological Sciences.<br><i>Courses:</i> Principles of Ecology (Biology 4253 - Fall '08 – '21)<br>Analytical Approaches to Ecological Data (Biology 7800 - Fall '16, Fall '18, Fall '20, Fall '22)<br>Quantitative Ecology (Biology 4800/7800 - Spring '10, Spring '11, Fall '12, Fall '14, Fall '17, Fall '19, Fall '21)<br>Foundations of Computing for Biologists (Biology 4800 - Fall '23)<br>Current Readings in Disease Ecology (Biology 7901 - Fall '09)<br>Contemporary Issues in Ecology (Biology 7901 - Spring '13, Fall '13, Spring '15, Fall '15)<br>The Phytochemical Landscape (Biology 7901 - Fall '16)<br>Metacommunity Ecology (Biology 7901 - Fall '19)<br>Wildlife Disease Ecology (Biology 7901 - Fall '21) |  |
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### Prior to LSU

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|-------------|---|--|
| 2007        | Co-Lecturer, Department of Ecology and Evolution, University of Chicago.<br><i>Course:</i> Ecological Applications to Conservation Biology - Lecture & Lab. |  |
| 2004 & 2005 | Guest Lecturer, Department of Statistics, University of Chicago.<br><i>Course:</i> Quantitative Methods for Environmental Science.                          |  |
| 1999-2000   | Co-organizer of the Department of Environmental Studies Seminar Series, University of California, Santa Cruz.   |  |

### Teaching and Educational Outreach

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|------|--|--|
| 2016 | Invited instructor for one week of the University of Puerto Rico's premier graduate course, "Tópicos en Biología", University of Puerto Rico, Río Piedras. |  |
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## Professional Experience

- 2001 Consultant, The Nature Conservancy of California, San Francisco, CA.  
Analyzed TNC data set to determine trends in vegetative community composition and viability of rare and endemic species of Santa Cruz Island, CA.
- 2000 Consultant, Institute for Bird Populations, Point Reyes, CA.  
Modeling effects of habitat fragmentation on the endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*).
- 1992 Policy Analyst, Viar and Company, Washington, DC.  
Evaluated hazardous waste policy as related to the US EPA's Superfund program.
- 1990-1991 Environmental Program Coordinator, Viar & Company, Washington, DC.  
Coordinated hazardous sample analysis for the US EPA's Superfund program.

## Invited Seminars

- 2023 University of Mississippi.
- 2022 University of Georgia.
- 2019 Louisiana State University.
- 2017 Louisiana State University.
- 2016 University of Colorado, Boulder.
- 2016 University of Puerto Rico, Rio Piedras.
- 2015 University of Nevada, Reno.
- 2015 San Jose State University.
- 2014 Florida State University.
- 2014 University of Colorado, Boulder.
- 2013 Rice University.
- 2010 Louisiana State University.
- 2008 Oklahoma State University.
- 2007 Louisiana State University.
- 2006 Sonoma State University.
- 2004 University of California, San Diego.
- 2004 New Mexico State University.
- 2003 University of Chicago.
- 2002 University of California, Davis.

## Workshops & Symposia

- 2015 Invited participant at a focused research group on Current Challenges in Mathematical Modelling of Cyclic Populations at the Banff International Research Station (BIRS) for Mathematical Innovation and Discovery.
- 2014 Invited presenter and participant at a symposium at the Annual Gypsy Moth Review. Title – Unexpected outcomes of biological control on gypsy moth population dynamics.
- 2014 Invited presenter and participant at a symposium on Current Mathematical Modelling of Cyclic Populations at the European Mathematical Conference on Theoretical Biology (ECMTB). Title – The unexpected effects of biocontrol on cyclic pest populations.
- 2014 Invited participant at a workshop on Modeling disease transmission at the interface of wildlife, livestock, and poultry at the University of Tennessee’s National Institute for Mathematical and Biological Synthesis (NIMBioS).
- 2013 Invited presenter and participant at a workshop on Current Challenges in Mathematical Modelling of Cyclic Populations at the Banff International Research Station (BIRS) for Mathematical Innovation and Discovery. Title – Understanding disease transmission in a changing environment: Biotic and abiotic effects.
- 2013 Invited presenter and participant at a symposium on the Biography of Stress at the International Biogeography Society meeting. Title – Ecology, biogeography, and stress: Population dynamics and species interactions.
- 2012 Participant in a Research Coordination Network’s (RCN) conference on Data Assimilation at Woods Hole’s Marine Biological Laboratory.
- 2006 Invited presenter and participant at the Ohio State University’s Mathematical Biosciences Institute (MBI) workshop on Uncertainty in Ecological Analysis. Title – Disease epidemics: Smallpox outbreaks & public policy.
- 2004 Invited participant at the Ecological Forecasting and Uncertainty workshop at Duke University.
- 1998 Invited participant of the National Center for Ecological Analysis and Synthesis (NCEAS) and American Institute of Biological Science’s (AIBS) working group to evaluate Habitat Conservation Planning for Endangered Species in the United States.

## Contributed Presentations

- 2024 Conference of Research Workers in Animal Diseases. Disease transmission dynamics and host-pathogen coevolution under varying temperatures (B.D. Elder (presenter), S.M. Grimmell, K. Costanza, N. Haulk).
- 2023 International Society for BioProcess Technology (ISBioTech). A tale of two transcriptome responses in agricultural pests via host defenses and viral replication. (P. Pantha (presenter), B. Elder, M. Dassanayake).



- 2023 Conference of Research Workers in Animal Diseases. Host-pathogen coevolution in a changing environment: Pathogen exposure and host performance (B.D. Elderd (presenter), M. Garvey, S. Grimmell, K. Costanza).
- 2022 Ecology and Evolution of Infectious Disease Meeting. Epidemic time series similarity is related to geographic distance and age structure. (T. Dallas, G. Foster, R.L. Richards, G. Foster, B.D. Elderd (poster presentation)).
- 2022 Ecology and Evolution of Infectious Disease Meeting. The effectiveness of epidemic model parameter estimation varies with model complexity and data availability. (R.L. Richards, G. Foster, B.D. Elderd, T. Dallas (poster presentation)).
- 2021 Conference of Research Workers in Animal Diseases. Abiotic effects of temperature and biotic effects of pathogen exposure on host performance and susceptibility (B.D. Elderd (presenter), M. Garvey, S. Grimmell, J. Senn).
- 2021 Ecology and Evolution of Infectious Disease (EEID) Meeting. (The effects of vaccination and non-pharmaceutical interventions on COVID-19 transmission and disease burden (Bret D. Elderd, Tad Dallas and Grant Foster (poster presentation)).
- 2021 Ecology and Evolution of Infectious Disease (EEID) Meeting. (The trade-off between model complexity and data quantity in estimating epidemiological parameters (Tad Dallas, Grant Foster, and Bret Elderd (poster presentation)).
- 2021 Ecology and Evolution of Infectious Disease (EEID) Meeting. (Estimating  $R_0$  from Early Exponential Growth: Parallels between 1918 Influenza and 2020 SARS-CoV-2 Pandemics (Grant Foster, Bret Elderd, and Tad Dallas (poster presentation)).
- 2020 Conference of Research Workers in Animal Diseases. Host-pathogen coevolution in a changing environment: the fall armyworm (*Spodoptera frugiperda*) and its baculovirus. (B.D. Elderd (presenter), M. Dassanayake, V. Dukic, and M. Garvey).
- 2020 Ecological Society of America. Substrate sodium influence on plant fitness and tissue sodium accumulation in controlled settings. (L. Santiago-Rosario (presenter), K. Harms, and B.D. Elderd)
- 2019 Entomological Society of America. From the individual to across the landscape: Disease dynamics of the fall armyworm, *Spodoptera frugiperda*, and its specialist baculovirus. (M. Garvey (presenter) and B.D. Elderd).
- 2019 Ecological Society of America. Climate change and parasite infection, a one-two punch: The effects of climate change and parasite infection (*Ophryocystis elektroscirrha*) on monarch butterfly (*Danaus plexippus*) population dynamics. (M.J. Faldyn and B.D. Elderd (poster presentation)).
- 2019 Ecology and Evolution of Infectious Disease (EEID) Meeting. Cannibalism and disease transmission: Just what the doctor ordered. (B. Van Allen, F. Dilleuth, and B.D. Elderd (poster presentation)).

- 2018 Ecological Society of America. Spined soldier bugs increase disease transmission while suffering reduced fitness in a predator, pathogen, and prey community. (A.J. Flick (presenter), T. Coudron, and B.D. Elderd).
- 2017 British Ecological Society. Trait-mediated indirect effects from the bottom-up in an insect host-pathogen system (B.D. Elderd).
- 2017 Ecological Society of America. Insect host-pathogen interactions and tritrophic trait-mediated indirect effects (B.D. Elderd).
- 2016 Society for Industrial and Applied Mathematics (SIAM). Organized symposium. Effects of biodiversity on disease outbreaks: The importance of decreasing variability in transmission. (P. Shaffery (presenter), B. Elderd, V. Dukic).
- 2016 Society for Industrial and Applied Mathematics (SIAM). Organized symposium. Cannibalism and disease transmission: How risky is it to eat your own? (B. Elderd (presenter) and B. Van Allen).
- 2016 Society for Industrial and Applied Mathematics (SIAM). Organized symposium. A Bayesian approach to understanding the effects of a fatal virus disease on Gypsy Moth populations. (G. Dwyer (presenter), V. Dukic, and B. Elderd).
- 2016 Society for Industrial and Applied Mathematics (SIAM). Organized symposium. Survival analysis of fall armyworm in a tritrophic system through model comparison. (S. Shrestha (presenter), V. Dukic, and B. Elderd).
- 2016 Evolution. Cannibalism and infectious disease: Friend or foe? (B. Van Allen (presenter), F. Dillemoth, A. Flick, M. Faldyn, D. Clark, V. Rudolf, and B.D. Elderd).
- 2016 Ecology and Evolution of Infectious Disease (EEID) Meeting. Cannibalism and infectious disease: Friend or foe? (B. Van Allen, F. Dillemoth, A. Flick, M. Faldyn, D. Clark, V. Rudolf, and B.D. Elderd (poster presentation)).
- 2015 Ecological Society of America. Organized oral session. Quantifying uncertainty in demographic models: Bayesian methods for Integral Projection Models (IPMs) (B.D. Elderd (presenter) and T.E.X. Miller).
- 2015 Ecological Society of America. Stage-structured cannibalism reduces disease prevalence in a lepidopteran system (B.G. Allen (presenter), F.P. Dillemoth, and B.D. Elderd).
- 2015 Ecological Society of America. The negative effects of prey pathogens on predators (A.J. Flick (presenter), B.D. Elderd, and M.A. Acevedo).
- 2015 Ecological Society of America. Untangling the direct and indirect effects of climate change on monarch butterfly (M.J. Faldyn and B.D. Elderd (poster presentation)).
- 2014 Ecological Society of America. Bottom-up effects of plant genetic variation on virus transmission between an insect host and its pathogen (F. Dillemoth (presenter), M. Acevedo, and B. Elderd).
- 2014 Ecological Society of America. The effect of spatio-temporal heterogeneity on the dynamics of plant populations (A. Compagnoni (presenter),

- et al.).
- 2014 Ecology and Evolution of Infectious Diseases Conference. The virulence trade-off hypothesis: A meta-analysis. (M. Acevedo, F. Dilleuth, A. Flick, M. Faldyn, and B. Elderd (poster presentation)).
- 2013 Ecological Society of America. Warmer temperatures increase disease transmission and outbreak intensity in a host-pathogen system (B. Elderd (presenter) and J. Reilly).
- 2013 Joint Mathematics Meeting. Host-pathogen interactions, induced plant defenses, and insect outbreaks (B. Elderd, B. Rehill, K. Haynes, and G. Dwyer (presenter). Part of a Special Session on Mathematics of Natural Resource Modeling).
- 2011 Ecological Society of America. The effects of global warming on disease transmission in the fall armyworm *Spodoptera frugiperda* (B. Elderd (presenter) and J. Reilly).
- 2010 Ecological Society of America. Quantifying the effects of space on disease transmission: A Bayesian analysis of smallpox outbreaks in Missions of the Southwest United States (B. Elderd (presenter), V. Dukic and G. Dwyer).
- 2010 Ecological Society of America. Modeling viral and bacterial biological control of the gypsy moth (J. Reilly (presenter) and B. Elderd).
- 2009 Ecological Society of America. The effects of plant-induced defenses on herbivore disease dynamics for the gypsy moth (*Lymantria dispar*) outbreaks and disease dynamics (B. Elderd (presenter), B. Rehill and G. Dwyer).
- 2009 Ecological Society of America. Host resistance evolution and insect population cycles (G. Dwyer (presenter) and B. Elderd).
- 2008 Joint Statistical Meetings. A Bayesian SEIR approach to modeling epidemics (V. Dukic (presenter), G. Dwyer, and B. Elderd).
- 2006 Ecological Society of America. Changes in susceptibility: Gypsy moth (*Lymantria dispar*) outbreaks and disease dynamics (B. Elderd (presenter) and G. Dwyer).
- 2005 Joint Statistical Meetings. A Bayesian SEIR approach to modeling smallpox epidemics (V. Dukic (presenter), B. Elderd, and G. Dwyer).
- 2004 Joint Statistical Meetings. Bayesian inferences of disease epidemics: Smallpox outbreaks and public policy (B. Elderd (presenter), V. Dukic, and G. Dwyer).
- 2004 Ecological Society of America. Estimating variability in disease reproductive rate using smallpox outbreaks (B. Elderd (presenter), V. Dukic, and G. Dwyer).
- 2003 Society for Invertebrate Pathology. Combining mechanistic and statistical modeling to predict epidemics in insect populations (G. Dwyer (presenter), B. Elderd, and M. Coram).
- 2002 Ecological Society of America. How flooding, via indirect effects, impacts the performance of a common riparian plant species, *Mimulus guttatus*. (B. Elderd).

- 2001 Society for Conservation Biology. Exploring the sensitivity of an endangered species to changes in demography and habitat using an individual-based model for the Cape Sable seaside sparrow. (B. Elderd (presenter) and M. P. Nott).
- 1999 Ecological Society of America. Flooding as a disturbance and its effects on plant survival and community composition. (B. Elderd).
- 1997 Ecological Society of America. Predicting the optimum range for population size to minimize extinction probability: Impacts of density-dependent catastrophic mortality and environmental stochasticity. (C. Wilcox (presenter) and B. Elderd).
- 1997 Society for Conservation Biology. The Endangered Species Act: Conservation of species or natural systems? An analysis of listing proposals from Washington, Oregon, and California. (B. Elderd and C. Wilcox (poster presentation)).

## Service

### Editorial Board

- 2019 – 2022 The American Naturalist, Editor for a Special Feature Section  
 2016 – present Journal of Applied Ecology, Associate Editor

### Steering Committee

- 2018 — present PlantPopNet Steering Committee  
*International research effort on plant population demography.*

### Panelist and Review Committees

- 2022 – present Rocky Mountain Biological Laboratory (RMBL)  
*Research Committee*
- 2023 NSF – Ecology and Evolution of Infectious Disease Panel
- 2022 NSF – Ecology and Evolution of Infectious Disease Panel
- 2020 NSF – Ecology and Evolution of Infectious Disease Panel
- 2015 – 2019 NSF’s National Socio-Environmental Synthesis Center (SESYNC)  
*Science Review Committee*
- 2018 NSF – Evolutionary Processes Panel
- 2016 NSF – Evolutionary Ecology Preproposal Panel
- 2014 NSF – Doctoral Dissertation Improvement Grant Ecology Panel
- 2011 NSF – Evolutionary Ecology Panel
- 2009 NSF – Doctoral Dissertation Improvement Grant Ecology Panel

### External Committees

- 2019 – present Douglass Distinguished Lecture Series Committee at the Rocky Mountain Biological Laboratory (RMBL).

### External Reviewer for Federal Agencies

- European Research Council (ERC)  
 Government of Ireland – Postgraduate Scholarship Scheme

NSF – Integrative Research in Biology (IntBIO)  
 NSF – Division of Integrative Organismal Systems (IOS)  
 NSF – International Research Fellowship Program (IRFP)  
 NSF – Population and Community Ecology Program (PCE)

### Reviewer

Agricultural and Forest Entomology, American Naturalist, Animal Behaviour, Austral Ecology, Biological Conservation, Biological Invasions, BioScience, The Condor, Conservation Biology, Ecography, Ecological Applications, Ecological Monographs, Ecology, Ecology Letters, Ecosphere, Entomologia Experimentalis et Applicata, Epidemics, Evolutionary Ecology, Functional Ecology, Journal of Applied Ecology, Journal of Behavioral Ecology, Journal of Ecology, Journal of Economic Entomology, Journal of Theoretical Biology, Journal of Mammalogy, Madroño, Methods in Ecology and Evolution, Molecular Ecology, Nature Ecology & Evolution, New Phytologist, Oecologia, Oikos, PLoS One, Philosophical Transactions of the Royal Society B, Proceedings of the National Academy of Sciences USA, Proceedings of the Royal Society – Biological Sciences, Microbial Ecology, Theoretical Ecology, Trends in Ecology & Evolution, Viruses.

### LSU Service

|              |   |
|--------------|---|
| 2021         | Chair of Ecology Faculty Search Committee.  |
| 2021         | College of Science PS-27 Authorship Dispute Review Committee.   |
| 2021         | Internal Review Panel for Department of Plant Pathology & Crop Physiology.  |
| 2020-present | Member of pre-tenure Mentoring Committee for Dr. Daijiang Li.   |
| 2020-present | SEE representative on the Senior Peer Teaching Evaluation Committee.  |
| 2019-2021    | College of Science Policy Review Committee.   |
| 2019-2021    | Chair of pre-tenure Mentoring Committee for Dr. Tad Dallas.   |
| 2019         | Member of Ornithology Faculty Search Committee.   |
| 2017         | Chair of Ecology Faculty Search Committee.  |
| 2017         | Served as departmental representative at College of Science Diploma Ceremony.   |
| 2017         | Departmental Representative at the Spring Invitational for incoming undergraduates.   |
| 2013-present | SEE representative to the Undergraduate Awards Committee.   |
| 2015-2017    | Representative on the Department of Biological Sciences Executive Committee for the Division of Systematics, Ecology & Evolution (SEE). |
| 2015-2017    | Member of pre-tenure Mentoring Committee for Dr. Erik T. Aschehoug.   |
| 2012         | Departmental Representative at the Spring Invitational for incoming undergraduates.   |
| 2010         | Judge of oral session for 12th Annual Graduate Student Symposium.   |
| 2010         | Served as departmental representative at College of Science Winter Diploma Ceremony.  |
| 2009         | Judge of oral session for 11th Annual Graduate Student Symposium.   |

## Mentoring

### Post-doctoral researchers

2021-2022 Dr. Robert Richards, LSU (co-advised with Tad Dallas).  
2018-2022 Dr. Michael Garvey, LSU.  
2013-2017 Dr. Forrest Dillemath, LSU.  
2014-2016 Dr. Ben Van Allen, LSU.  
2013-2014 Dr. Miguel Acevedo, LSU.  
2009-2011 Dr. Maynard Milks, LSU.  
2009-2011 Dr. James Reilly, LSU.

### Graduate Students

2023-present Kale Costanza, LSU Master student.  
2018-present Scott Grimmell, LSU Ph.D. student.  
2018-present Jason Janeaux, LSU Ph.D. student.  
2021-2023 Nathaniel Haulk, LSU Masters student.  
2013-2019 Matthew Faldyn, LSU Ph.D. student.  
2012-2018 Andrew Flick, LSU Ph.D. student.  
2009-2012 Adriana Dantin, LSU Masters of Natural Science.

### Graduate Student Committees

Amanda Accamando, LSU – M.S. Advisee of J. Cronin.  
Yifeng Cao, LSU – Ph.D. Advisee of J. Tan.  
Dmitry Chouljenko, LSU – Ph.D. Advisee of K. Gus Kousoulas, Dean's representative.  
Sandra Galeano, LSU – Ph.D. Advisee of K. Harms.  
Grant Foster, LSU – Ph.D. Advisee of T. Dallas.  
Rachel Harman, LSU – Ph.D. Advisee of J. Cronin.  
Tracy Hmielowski, LSU – Ph.D. Advisee of W. Platt.  
Katherine Hovanes, LSU – Ph.D. Advisee of K. Harms.  
Metha Klock, LSU – Ph.D. Advisee of K. Harms.  
Aaron Krivchenia, LSU – Ph.D. Advisee of J. Cronin.  
Chantel Michelson, LSU – Ph.D. Advisee of M. Polito.  
Brad Nelson, LSU – M.S. Advisee of J. Brown.  
Peter Shaffery, U. of Colorado, Boulder, Ph.D. Advisee of V. Dukic.  
Sama Shrestha, U. of Colorado, Boulder, Ph.D. Advisee of V. Dukic.  
Heather Smith, LSU – M.S. Advisee of M. Kelly.  
Ruyu Tan, U. of Colorado, Boulder, Ph.D. Advisee of V. Dukic.  
J. Sebastian Tello, LSU – Ph.D. Advisee of R. Stevens.  
Neha Tewari, LSU – Ph.D. Advisee of J. Brown.  
Benjamin Toups, LSU – Ph.D. Advisee of J. Brown.  
Jared Wolfe, LSU – Ph.D. Advisee of P. Stouffer, Dean's representative.

### Undergraduate Students

LSU – Aaron Ackley, Joseph Aguda, Zoran Allen, Lucy AuCoin, Collin Aupied, Olivia Barry, Richa Banthia, Madeline Broyles, Kale Costanza, Logan Chapman, David



Clark, Matthew Darce, Lucy Detweiler, Kacie Dillon, Sophia Dworak, Richard Elfert, Ben Erdozain, Jackson Erny, Michael Fitzpatrick, Jessica Francisco, Peyton Graham, Alexandra Green, Kayla Guillot, Peter Issa, Kaden Keller, Alan Le, Schyler Lee, Paige Long, Tatum Lyles, Kyle McCauley, McCayn McDaniel, Timothy Montet, Hollie Payne, Laila Polk, Miriam Tariq, Logan Wareham, William Vial, Rush Williams.

Southern University – Lauri Syori.

Southern University, New Orleans – Jacy Haynes.

University of Chicago – Ben Parker, Emma Fuller.

Episcopal High School, Baton Rouge, LA – Aaron Miller.

### **Professional Society Membership**

American Association for the Advancement of Science, British Ecological Society, Ecology Society of America, Society of American Naturalists, Society of Mathematical Biology, Society for the Study of Evolution.

Baton Rouge, LA, April 2024