

Sarah E. Bush - Curriculum Vitae

August 2016

Address: Department of Biology
University of Utah
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Education: Ph.D. in Biology, University of Utah, UT, 2004
Molecular Evolution, Woods Hole, MA, 2004
B.S. in Biology, University of Utah, UT, 1999

Positions:

Current: Assistant Professor, Department of Biology, University of Utah (full-time appointment since Jul. 2014, half-time appointment Jul. 2010 - Jul. 2014)
Adjunct Curator-Vertebrate Zoology, Natural History Museum of Utah (since 2011)

2008 - 2010: Research Assistant Professor, University of Utah

2004 - 2010: Postdoctoral Researcher, Natural History Museum and Biodiversity Research Center, University of Kansas

2004 - 2005: Co-director, Center for Alternate Strategies of Parasite Removal (CASPeR), University of Utah

2001 - 2004: NIH Genetics Training Grantee, University of Utah

1995 - 1999: Undergraduate researcher, Department of Biology, University of Utah

1993: H. Hughes Summer Research Program, Inst. Human Genetics, University of Utah

Teaching:

2015-- Co-instructor: "Evolution & Diversity of Life" (Biol 2010, fall semesters), University of Utah

2012-- Sole instructor: "Ecology & Evolution of Parasites & Pathogens" (Biol 5555, Lecture/Lab, 3credits, every other spring), University of Utah

2012, 2016: Organizer: "SpeakerFest" (Biol 7406), University of Utah

2010-- Lecturer in: "Advanced Topics in Ecology & Evolution" (Biol 7964, fall semesters), University of Utah

2010-- Lecturer in: "Bootcamp for Graduate Students" (Biol 7964, spring semesters)

2009: Sole instructor; Continuing Education Course: "In the footsteps of Darwin, Evolutionary Biology in the 21st Century", OSHR Institute of Learning

2006: Co-instructor; Graduate Core Seminar: "Geographic Mosaic of Coevolution", University of Utah

2004 - 2005: Guest Lecturer & Field Support: Ornithology & Adv. Field Ornithology, University of Utah

2004: Guest Lecturer: Heredity and Genetics for high school teachers, Genetic Science Learning Center, Department of Human Genetics, University of Utah

1998 - 2003: Teaching Assistant, University of Utah
Advanced Field Ornithology 2000, 2001 and 2003
Ornithology 1999, 2000
Plant Systematics 1999
Organismal Diversity, Form and Function 1998 and 1999

1997 - 2001: Educator, Tracy Aviary, Salt Lake City, Utah
Public outreach programs, and summer workshops for children

Research Interests:

Co-evolutionary ecology of hosts and parasites
Biodiversity, biogeography, and systematics of parasites



Removing ectoparasites from an American White Pelican on the flats of the Great Salt Lake, Utah.

Professional Memberships:

American Ornithologists' Union (Elected Member as of 2009)
American Society of Parasitologists (Elected as Council Member-at-Large, 2016-2020)
International Society of Phthirapterists (Elected as Executive Committee Councilor 2014-2018)
Society for the Study of Evolution
Society for Systematic Biology

Grants & Honors:

2016: NSF DEB: Conditions of engagement - host tolerance and resistance to parasitism in different environmental contexts. Full proposal invited for August 2016 deadline.
2016: University of Utah Funding Incentive Seed Grant: Conditions of engagement - are hosts more likely to resist or tolerate parasites under different environmental conditions? (\$15,362, 1yr).
2016: NSF DDIG: Effect of Phoretic Dispersal on the Structure of Parasite Populations (\$19,503, with Ph.D. candidate Emily DiBlasi).
2015: Early Career Teaching Award, University of Utah
2014: NSF REU supplement for undergraduate research (\$6,600).
2013: NSF Dimensions of Biodiversity: Experimental adaptive radiation - genomics of diversification in bird lice (\$1,999,069; amount to University of Utah \$1,370,098, 5yrs; one of 4 PIs).
2013: NSF REU supplements for undergraduate research (\$19,050).
2013: Swedish Taxonomic Initiative: Chewing lice on birds in Nordic countries (\$290,000, 3yrs). Lead institution. Co-PIs: Daniel Gustafsson, (postdoctoral fellow in Bush lab, Univ. UT) and Urban Olsson, Professor, University of Gothenburg, Sweden.
2012: NSF REU supplements for undergraduate research (\$7,500).
2011: NSF- REVSYS: Unlocking the black box of feather louse diversity, a comprehensive revision of the hyper-diverse genus *Brueelia* (\$407,000, 3 yrs). Lead PI. Co-PI: K.P. Johnson, Illinois Natural History Survey.
2011: NSF- OPUS: The ecological basis of coevolutionary history - lessons from lice (\$150,000, 2yrs; one of 3 PIs).
2009: Elected Member of the American Ornithologists' Union
2008: NSF-Biotic Surveys & Inventories Grant: *A Comprehensive Biotic Survey of Philippine Land Vertebrates and their Parasites* (\$900,000, 5yrs; one of 4 PIs).
2005: Utah Centers of Excellence Grant (renewal) Co-director: *Center for Alternate Strategies of Parasite Removal* (\$150,000, 1 yr.)
2005: G. Richard Riser Award for outstanding graduate research, University of Utah
2005: NIH Travel award, Symposium on the Evolution of Infectious Diseases, Maryland
2004: Utah Centers of Excellence Grant Co-director: *Center for Alternate Strategies of Parasite Removal* (\$135,000, 1 yr).
2003: Biology Department Travel Award, University of Utah
2003: Marcia Brady Tucker Travel Award, American Ornithologists' Union
2002: ASUU Travel Award, Association of Students, University of Utah
2002: Research Award, American Ornithologists' Union
2002: Frank M. Chapman Research Grant, American Museum of Natural History
2002: Grant-in-Aid of Research, Sigma Xi
2002: Biology Departmental Travel Award, University of Utah
2001: Marcia Brady Tucker Travel Award, American Ornithologists' Union
2001: Biology Department Travel Award, University of Utah
2000: Biology Department Travel Award, University of Utah
1999: Student Presentation Award, Bio. Undergrad. Research Program, University of Utah
1998: Bioscience Undergraduate Research Grant, University of Utah
1997: Bioscience Undergraduate Research Grant, University of Utah
1994: Honors at Entrance Scholarship, University of Utah

Eponyms:

Proterothrix sarahbushae ex. *Paradoxornis verreauxi* (Golden Parrotbill).

Mironov, S., and H. Proctor. 2009. Feather Mites of the Genus *Proterothrix* Gaud (Astigmata: Proctophylloidae) from Parrotbills (Passeriformes: Paradoxornithidae) in China. *Journal of Parasitology* 95(5): 1093–1107.

Neopsittaconirmus bushae ex. *Northiella haematogaster* (Bluebonnet Parrot)

Price, Roger D., and K. P. Johnson. "Three new species of chewing lice (Phthiraptera: Ischnocera: Philopteridae) from Australian parrots (Psittaciformes: Psittacidae)." *Proceedings of the Entomological Society of Washington* 109.3 (2007): 513-521.

Columbicola [bush] *altamimiae* ex. *Metriopelia aymara* (Golden-spotted Ground-dove)

Clayton, D. H., and R. D. Price. "Taxonomy of New World *Columbicola* (Phthiraptera: Philopteridae) from the Columbiformes (Aves), with descriptions of five new species." *Annals of the Entomological Society of America* 92.5 (1999): 675-685.

Publications:

Book

Clayton, D. H., **S. E. Bush**, and K. P. Johnson. 2016. Coevolution of life on hosts: Integrating ecology and history. University of Chicago Press. 320pp ([Univ. Chicago Press website](#))

Papers and Book Chapters

55. Gustafsson, D. R., and **S. E. Bush**. *In review*, *Zootaxa*. Morphological revision of the hyperdiverse *Brueelia*-complex (Phthiraptera: Ischnocera: Philopteridae) with checklists and generic key. *Zootaxa*. (Contains descriptions of 22 new genera, 500 illustrations, and over 400 pp of text.)
54. Boyd, B. M., J. A. Allen, N. Nguyen, A. D. Sweet, T. Warnow, M. D. Shapiro, S. M. Villa, **S. E. Bush**, D. H. Clayton, and K. P. Johnson. *In review*, *Systematic Biology*. Phylogenomics using target restricted assembly resolves intrageneric relationships of parasitic lice (Phthiraptera: *Columbicola*).
53. Harnos, A., Z. Lang, D. Petrás, **S. E. Bush**, and L. Rózsa. *In review*, *Evolution*. An evolutionary allometry of bird and louse (Phthiraptera) body sizes: comparative tests controlled for host, rather than parasite phylogeny.
52. Villa, S. M., H. E. Campbell, **S. E. Bush**, and D. H. Clayton. 2016. Does anti-parasite behavior improve with experience: An experimental test of the priming hypothesis. *Behavioral Ecology* 27: 1167-1171. [PDF](#)
51. Bartlow, A. W., S. M. Villa, M. W. Thompson, and **S.E. Bush**. 2016. Walk or Ride? Phoretic behavior of amblyceran and ischnoceran lice. *International Journal of Parasitology* 46: 221-227. [PDF](#)
• Journal cover article
50. **Bush, S. E.**, J. D. Weckstein, D. R. Gustafsson, J. Allen, E. DiBlasi, S. M. Shreve, R. Boldt, H. R. Skeen, and K. P. Johnson. 2016. Unlocking the black box of feather louse diversity: a molecular phylogeny of the hyper-diverse genus *Brueelia*. *Molecular Phylogenetics and Evolution* 94: 737-751. [PDF](#)
49. **Bush, S. E.**, J. D. Weckstein, D. R. Gustafsson, J. Allen, E. DiBlasi, S. M. Shreve, R. Boldt, H. R. Skeen, and K. P. Johnson. 2015. Data supporting a molecular phylogeny of the hyper-diverse genus *Brueelia*. *Data in Brief* 5: 1078-1091. [PDF](#)
48. Gustafsson, D. R. and **S. E. Bush**. 2015. Four new species of *Brueelia* Kéler, 1936 (Phthiraptera: Ischnocera: Philopteridae) from African songbirds (Passeriformes: Sturnidae and Laniidae). *Zootaxa* 4013: 503-518. [PDF](#)
47. Gustafsson, D. R., and **S. E. Bush**. 2015. The chewing lice (Insecta: Phthiraptera: Ischnocera, Amblycera) of Japanese pigeons and doves (Columbiformes), with descriptions of three new species. *Journal of Parasitology* 101: 304-313. [PDF](#)
46. Makarikov, A. A., V. V. Tkach, S. M. Villa, and **S. E. Bush**. 2015. Description of two new species of *Hymenolepis* Weinland, 1858 (Cestoda, Hymenolepididae) from rodents on Luzon Island, Philippines. *Systematic Parasitology* 90:27-37. [PDF](#)
45. Gustafsson, D. R., and **S. E. Bush**. 2014. Two new species of *Paraphilopterus* Mey, 2004 (Insecta: Phthiraptera: Ischnocera: Philopteridae) from New Guinean bowerbirds (Passeriformes: Ptilonorhynchidae) and satinbirds (Passeriformes: Cnemophilidae) *Zootaxa* 3873:155-164. [PDF](#)

44. McAllister, C. T., Seville, R. S., Duszynski, D. W., and **S. E. Bush**. 2014. A new species of coccidia (Apicomplexa: Eimeriidae) from Cordillera striped shrew-rat, *Chrotomys whiteheadi* (Rodentia: Muridae), from the Philippines. *Acta Parasitologica* 59: 686-689. [PDF](#)
43. Hastriter, M. W. and **S. E. Bush**. 2014. Description of *Medwayella independencia* (Siphonaptera: Stivaliidae), a new species of flea from Mindanao, Island, the Philippines and their phoretic mites, and miscellaneous flea records from the Malay Archipelago. *Zookeys* 408:107-123. [PDF](#)
42. Gustafsson, D. R., and **S. E. Bush**. 2014. Three new species of chewing lice of the genus *Emersoniella* Tendeiro, 1965 (Insecta: Phthiraptera: Ischnocera: Philopteridae) from Papua New Guinean kingfishers and kookaburras (Aves: Coraciiformes: Alcedinidae). *Zootaxa* 3796:528-544. [PDF](#)
41. McAllister, C. T., R. S. Seville, D. W. Duszynski, **S. E. Bush**, R. N. Fisher, C. C. Austin. 2013. Two new species of *Eimeria* Schneider, 1875 (Apicomplexa: Eimeriidae) from emerald tree skinks, *Lamprolepis smaragdina* (Lesson) (Sauria: Scincidae) from Papua New Guinea and the Philippines. *Systematic Parasitology* 86:165-171. [PDF](#)
40. **Bush, S. E.**, M. Reed, and S. Maher. 2013. Impact of forest size on parasite biodiversity: implications for conservation of hosts and parasites. *Biodiversity and Conservation* 22: 1391-1404. DOI: 10.1007/s10531-013-0480-x. [PDF](#)
- ◆ **Reviewed by Faculty of 1000**
39. Morse, S. F., **S. E. Bush**, B. D. Patterson, C. W. Dick, M. Gruwell, K. Dittmar. 2013. Evolution, multiple acquisition, and localization of endosymbionts in bat flies (Diptera: Hippoboscoidea, Streblidae, Nycteribiidae). *Applied and Environmental Microbiology* 79:2952-2961. [PDF](#)
38. Makarikov, A. A., V. V. Tkach, and **S. E. Bush**. 2013. Two new species of *Hymenolepis* (Cestoda: Hymenolepididae) from murid rodents (Rodentia: Muridae) in the Philippines. *Journal of Parasitology* 99:847-855. [PDF](#)
37. Kuzmin, Y., J. M. Kinsella, V. V. Tkach, and **S. E. Bush**. 2013. New species of *Kalicephalus* (Nematoda: Diaphanocephalidae) from a snake *Oxyrhabdium leporinum* on Luzon Island, Philippines. *Comparative Parasitology* 80:240-246. [PDF](#)
36. Tkach, V. V., O. I. Lisistyna, J. L. Crossley, T. T. Binh, and **S. E. Bush**. 2013. Morphological and molecular differentiation of two new species of *Pseudoacanthocephalus* Petrochenko, 1958 (Acanthocephala: Echinorhynchidae) from amphibians and reptiles in Philippines, with identification keys for the genus. *Systematic Parasitology* 85:11-26. [PDF](#)
35. Hastriter, M. W., and **S. E. Bush**. 2013. Description of *Lentistivalius philippinensis*, a new species of the flea (Siphonaptera: Pygiosyllomorpha: Stivalidae), and new records of the Ascodipterinae (Streblidae) on small mammals and bats from the Philippines. *Zookeys* 260:17-30. [PDF](#)
34. **Bush, S. E.**, S. M. Villa, T. J. Boves, D. Brewer, and J. R. Belthoff. 2012. Influence of bill and foot morphology on the ectoparasites of Barn Owls. *Journal of Parasitology* 98:256-261. [PDF](#)
33. Lisistyna, O. I., V. V. Tkach, and **S. E. Bush**. 2012. New records of Acanthocephalans from birds in the Philippines with a description of a new *Porrorchis* species and identification keys for the genus. *Journal of Parasitology* 98:1176-1184. [PDF](#)
- Journal cover article
32. **Bush, S. E.** and R. G. Robbins. 2012. New host and locality records for *Ixodes simplex* Neumann and *Ixodes vespertilionis* Koch (Acari: Ixodidae) from bats (Chiroptera: Hipposideridae, Rhinolophidae, and Vespertilionidae) in southern China. *International Journal of Acarology* 38:1-5. [PDF](#)
- Journal cover article
31. Kuzmin, Y., V. V. Tkach, and **S. E. Bush**. 2012. A new species of *Rhabdias* (Nematoda: Rhabdiasidae) from Agamid Lizards in Luzon Island, Philippines. *Journal of Parasitology* 98: 608-611. [PDF](#)
30. **Bush, S. E.**, A. N. Rock, S. L. Jones, J. R. Malenke, D. H. Clayton. 2011. Efficacy of the LouseBuster, a new medical device for treating head lice. *Journal of Medical Entomology* 48: 67-72. [PDF](#)
29. Johnson, K. P., J. D. Weckstein, **S. E. Bush**, and D. H. Clayton. 2011. The evolution of host specificity in dove body lice. *Parasitology* 138:1730-1736. [PDF](#)
28. **Bush, S. E.**, D. Kim, M. Reed, and D. H. Clayton. 2010. Evolution of cryptic coloration in ectoparasites. *American Naturalist* 176:529-535. [PDF](#)
27. Clayton, D. H., Koop, J. A., Harbison, C. W., Moyer, B. R., and **S. E. Bush**. 2010. How birds combat ectoparasites. *Open Ornithology Journal* 3:41-71. [PDF](#)

26. Hastriter, M.W. and **S.E. Bush**. 2010. Notes and new records of fleas (Insecta: Siphonaptera) from small mammals and birds collected in southern China. *Proceedings of the Entomological Society of Washington* 112:214-228. [PDF](#)
25. Tkach, V. V. and **S. E. Bush**. 2010. *Serpentoanisocladium sinensis* n. gen., n. sp. (Digenea: Cryptogonimidae) from the Eastern Water Snake *Sinonatrix percarinata* (Serpentes: Colubridae) in Guizhou Province, China. *Systematic Parasitology* 76:205-210. [PDF](#)
24. **Bush, S. E.** 2009. Does microhabitat flexibility facilitate host switching by parasites? *Functional Ecology* 23: 578-586. [PDF](#)
23. **Bush, S. E.**, C. W. Harbison, D. Slager, A. T. Peterson, R. D. Price, and D. H. Clayton. 2009. Geographic variation in the community structure of lice on Western Scrub-jays. *Journal of Parasitology* 95:10-13. [PDF](#)
22. **Bush, S. E.**, R. D. Price, and D. H. Clayton. 2009. Descriptions of eight new species of feather lice in the genus *Columbicola* (Phthiraptera: Philopteridae), with a comprehensive world checklist. *Journal of Parasitology* 95:286-294. [PDF](#)
21. M. W. Hastriter, **S.E. Bush**, K. Dittmar, S. S. Hla Bu, and M. F. Whiting. 2009. *Nycteridopsylla quadrispina* Lu and Wu, a junior synonym of *Nycteridopsylla iae* Beaucournu and Kock (Siphonaptera: Ischnopsyllidae) as determined by DNA analysis. *Proceedings of the Entomological Society of Washington* 111: 598-602. [PDF](#)
20. **Bush, S. E.**, D. W. Duszynski, and B. B. Nickol. 2009. Acanthocephala from amphibians in China with description of a new species of *Pseudoacanthocephalus*. *Journal of Parasitology* 95:1440-1445. [PDF](#)
19. **Bush, S. E.** and J.R. Malenke. 2008. Host defense mediates interspecific competition in parasites. *Journal of Animal Ecology* 77: 558-564. [PDF](#)
18. Harbison, C. W., **S. E. Bush**, J. R. Malenke, D. H. Clayton. 2008. Comparative transmission dynamics of competing parasite species. *Ecology* 89: 3186-3194. [PDF](#)
17. Peterson, A. T., **S. E. Bush**, E. Spackman, D. E. Swayne, and H. Ip. 2008. Influenza A Virus Infections in Land Birds, People's Republic of China. *Emerging Infectious Diseases* 14: 1644-1646. [PDF](#)
16. Clayton, D. H., R. J. Adams and **S. E. Bush**. 2008. Phthiraptera, the Chewing Lice. Pp. 515-526 in C. T. Atkinson, N. J. Thomas, and D. B. Hunter (eds). *Parasitic Diseases of Wild Birds*. Wiley-Blackwell, Ames, Iowa.
15. Peterson, A. T., T. Brooks, A. Gamauf, J. C. T. Gonzalez, N. A. D. Mallari, G. Dutson, **S. E. Bush**, D. H. Clayton and R. Fernandez. 2008. The avifauna of Mt. Kitanglad, Bukidnon Province, Mindanao, Philippines. *Fieldiana: Zoology* 114: 1-43. [PDF](#)
14. **Bush, S. E.** and D. H. Clayton. 2006. The role of body size in host specificity: reciprocal transfer experiments with dove lice. *Evolution* 60: 2158-2167. [PDF](#)
13. Goates, B. M., J. S. Atkin, K. G. Wilding, K. G. Birch, M. R. Cottam, **S. E. Bush**, and D. H. Clayton. 2006. An effective non-chemical treatment for head lice: a lot of hot air. *Pediatrics* 118: 1962-1970. [PDF](#)
12. **Bush, S. E.**, and R. D. Price. 2006. Reconsideration of the *longiceps* species group of the feather louse genus *Columbicola* (Phthiraptera: Philopteridae) with descriptions of two new species. *Journal of Parasitology* 92:949-952. [PDF](#)
11. **Bush, S. E.**, D. Kim, J. Lever, B. R. Moyer and D. H. Clayton. 2006. Is melanin a defense against feather-feeding lice? *Auk* 123:153-161. [PDF](#)
10. **Bush, S. E.**, E. Sohn and D. H. Clayton. 2006. Ecomorphology of parasite attachment: experiments with feather lice. *Journal of Parasitology* 92:25-31. [PDF](#)
9. Hastriter, M. W. and **S. E. Bush**. 2006. Description of *Maabella stomalata*, n. gen., n. sp. (Diptera: Streblidae: Ascodipterinae) from Guangxi Province, China and Vietnam with notes on the preservation of Ascodipterinae. *Zootaxa* 1176:27-40. [PDF](#)
8. Robbins, R.G. and **S.E. Bush**. 2006. First report of *Amblyomma papuanum* Hirst (Acari: Ixodida: Ixodidae) from the dwarf cassowary, *Casuarus bennetti* Gould (Aves: Struthioniformes: Casuariidae), with additional records of parasitism of *Casuarus spp.* by this tick. *Proceedings of the Entomological Society of Washington* 108:1002-1004. [PDF](#)
7. Price, R. D., D. C. Arnold, and **S. E. Bush**. 2006. Five new species of *Myrsidea* (Phthiraptera: Menoponidae) from Asian Babblers (Passeriformes: Timaliidae). *Journal of the Kansas Entomological Society* 79:369-377. [PDF](#)

6. Clayton, D. H., B. R. Moyer, **S. E. Bush**, D. Gardiner, B. Rhodes, T. Jones and F. Goller. 2005. Adaptive significance of avian beak morphology for ectoparasite control. *Proceedings of the Royal Society of London: B* 272: 811-817. [PDF](#)
5. Johnson, K.P., **S.E. Bush**, D.H. Clayton. 2005. Correlated evolution of host and parasite body size: tests of Harrison's rule using birds and lice. *Evolution* 59: 1744-1753. [PDF](#)
4. Price, J. J., K. P. Johnson, **S. E. Bush**, and D. H. Clayton. 2005. Phylogenetic relationships of the Papuan Swiftlet *Aerodramus papuensis* and implications for the evolution of avian echolocation. *Ibis* 147: 790-796. [PDF](#)
3. Clayton, D. H., **S. E. Bush** and K. P. Johnson. 2004. The ecology of congruence: Past meets present. *Systematic Biology* 53:165-173. [PDF](#)
2. Clayton, D. H., **S. E. Bush**, B. M. Goates and K. P. Johnson. 2003. Host defense reinforces host-parasite cospeciation. *Proceedings of the National Academy of Sciences* 100:15694-99. [PDF](#)
1. Clayton, D. H, **S. E.** Al-Tamimi [**Bush**], and K. P. Johnson. 2003. The ecological basis of coevolutionary history. Pp. 310-341 in R. D. M. Page (ed.) *Tangled Trees: phylogeny, cospeciation, and coevolution*. University of Chicago Press, Chicago, Illinois. [PDF](#)

Non-traditional publications

- Lim, B. K., J. L. Eger, A. T. Peterson, M. B. Robbins, D. H. Clayton, **S. E. Bush** and R. M. Brown. 2008. Biodiversity in China: Lost in the masses? *Harvard Asia Quarterly* 11:12-23.
- Bush, S. E.** Field Guide to Parasite Collection - written to help vertebrate biologists collect parasites they encounter in their own research. [PDF](#)
- ◆ Featured on the Armed Forces Pest Management Board 2009-2010.

Popular press & textbook coverage of published research:

- Topic - evolution of cryptic coloration in ectoparasites (Bush et al. 2010. Am. Nat.):*
New York Times, Science Times. Sept. 6, 2010. On Birds of Many Colors, Lice Dress the Part. S. N. Bhanoo.
Nature. 2010. 466:1024. Research Highlights - Evolutionary Biology: Lice in hiding.
Science NOW - Science Shot: Colored lice are for the birds. Aug. 25, 2010.
 Science Year, World Book, 2012.
 Evolutionary Analysis, 5th ed. 2013. J. Herron & S. Freeman. Pearson/Prentice Hall.
 Evolution: Making Sense of Life (electronic edition). 2013. C. Zimmer and D. Emlen. Roberts and Co. Pub.
- Topic - evolutionary ecology of hosts and parasites (Bush & Clayton 2006. Evolution; Clayton, Bush, Goates and Johnson 2003. PNAS).*
 Evolution. 2011. C. Bergstrom & L. Dugatkin. WW Norton & Co. Inc.
 Evolution, 2nd ed. 2009, D. Futuyma, Sinauer.
 Evolutionary Analysis, 4th ed. S. Freeman & J. Heron. 2007. Pearson/Prentice Hall.
New York Times - Tales a Bird's Beak Tells. May 10, 2005. H. Fountain.
Japan Times - Lice of a feather grow together. Dec. 11, 2003. R. Hooper.

Invited Talks and Seminars:

- 2017: University of Alberta, Edmonton, Canada (scheduled for winter term, 2017), Research Seminar.
- 2016: University of Illinois, Champaign-Urbana, Illinois Natural History Survey, Research Seminar.
- 2015: College of Science Day - November 2015, University of Utah.
- 2015: Hungarian Natural History Museum, Budapest, Hungary, Research Seminar.
- 2015: Utah State University, Ecology Center - Public Seminar.
- 2015: Utah State University, Ecology Center - Research Seminar.
- 2015: Washington State University, Department of Entomology, March 2015. Research Seminar .
- 2015: University of North Dakota, Department of Biology, January 2015. Research Seminar.
- 2014: University of Southern Mississippi Gulf Coast Research Laboratory, Department of Coastal Sciences, Research Seminar.
- 2014: Utah Coalition of Reason & Humanists of Utah's "Darwin Day: A celebration of science", Keynote Address.

- 2014: Symposium in Honor of Dr. Roger D. Price. 5th International Conference on Phthiraptera, Park City, Utah.
- 2013: Avian Parasites: models for understanding processes and patterns of diversification. American Ornithologists' Union. Symposium co-organizer and speaker.
- 2012: University of the Philippines- Dilliman. Manila, Philippines. Research Seminar.
- 2011: Oklahoma State University, Department of Zoology. Research Seminar.
- 2011: Annual meeting for Ecology and Evolution of Infectious Diseases. Santa Barbara, California. Symposium Speaker.
- 2009: Arthropod Host-Symbiont Symposium, Entomological Society of Canada, Winnipeg. Symposium Speaker.
- 2009: Center for Infectious Disease Dynamics (CIDDD), Pennsylvania State University, State College, Pennsylvania, Research Seminar.
- 2009: Workshop: Collecting parasites for biotic inventory projects. University of Kansas, Lawrence, Kansas.
- 2008: University of Nebraska-Lincoln, Departments of Entomology and Veterinary & Biomedical Sciences, Research Seminar.
- 2008: Evolutionary Ecology of Host-Ectoparasite Interactions, American Society of Parasitologists, Arlington Texas. Symposium co-organizer and participant.
- 2007: Utah State University, Department of Biology, Research Seminar.
- 2006: Phylogenetic Perspectives on Ectoparasitism. Entomological Society of America, Indianapolis, Indiana. Symposium Speaker.
- 2006: College of Geography and Biology, Guizhou Normal University, Guiyang, China. Research Seminar.
- 2006: Tracy Aviary Lecture Series. Salt Lake City, Utah. Public Research Seminar.
- 2004: Genetics Science Learning Center, University of Utah. Public Research Seminar.
- 2003: Wasatch Avian Education Society, Salt Lake City, Utah. Public Research Seminar.

Contributed Talks and Posters at Scientific Meetings (partial list):

- 2016: North American Ornithological Conference. Washington, D.C.
- 2016: Society for the study of Evolution. Austin, TX
- 2016: Dimensions of Biodiversity PI-meeting, Washington, D.C.
- 2014: 5th International Conference on Phthiraptera, Park City, Utah.
- 2013: Society for the Study of Evolution, Snowbird, Utah.
- 2012: American Society of Parasitologists, Richmond, Virginia.
- 2010: American Society of Parasitologists, Colorado Springs, Colorado.
- 2009: Rock Mountain Conference of Parasitology, Moran, WY.
- 2007: Rocky Mountain Conference of Parasitology, Denver, CO.
- 2007: Annual meeting of the American Ornithologists' Union. Laramie, WY.
- 2007: Utah Ornithological Society. Provo, UT.
- 2006: 3rd International Conference of Phthiraptera, Buenos Aires, Argentina.
- 2003: American Ornithologists' Union. Urbana-Champaign, IL.
- 2003: Society for the study of Evolution. Chico, CA.
- 2002: 2nd International Conference on Phthiraptera. Brisbane, Australia.
- 2002: Society for the Study of Evolution, Urbana-Champaign, IL.
- 2001: American Ornithologists' Union. Seattle, WA.
- 1999: Biology Undergraduate Research Symposium, UT (student presentation award).

Service:

Departmental Service

- 2015-- Biology Undergraduate Research Advisory Committee Member
- 2015 - 2018: Bartender for Departmental functions (Ace Bartending Academy, ID#107350)
- 2014 - 2015: Seminar Committee Member, Department of Biology, University of Utah
- 2010 - 2014: Communications Committee Member, Department of Biology, University of Utah

University Service

- 2015 - 2017: (Elected) College of Science Council Member, University of Utah
2011-- Rio Mesa Center Advisory Committee Member, University of Utah

Service to Scientific Societies and Institutions

- 2014 - 2018: (Elected) Executive Committee Councilor, International Society of Phthirapterists
2015: NSF panelist
2013 - 2014: (Elected) Chair of Nomination Committee, American Society of Parasitology
2012 - 2014: Co-organizer, 5th International Conference on Phthiraptera, held in Park City in 2014, UT.
<http://www.conferences.utah.edu/icp5/index.html>
2010 - 2013: Student Awards Committee Member, American Society of Parasitology
2007 - 2010: Question writer for the Biology GRE
2006-- Grant reviewer for: NSF, Marsden (New Zealand grant agency), Graduate Women In Science, University of Utah Undergraduate Research Program, and the Global Change and Sustainability Center.
2004-- Manuscript reviewer for: *Auk*, *Acta Parasitologica*, *Behavioral Ecology*, *Canadian Entomol.*, *Evolution*, *Evolutionary Ecology*, *Functional Ecology*, *International Journal of Acarology*, *Journal of Animal Ecology*, *Journal of Avian Biology*, *Journal of the Kansas Entomological Society*, *Journal of Parasitology*, *Oikos*, *Molecular Phylogenetics and Evolution*, *Parasitology*, *Parasitology Research* and *Zootaxa*
1999-- Museum specimen collection and preparation: Hundreds of parasite samples deposited in collections worldwide, including: lice, fleas, flies, ticks, mites, acanthocephalans, cestodes, nematodes, trematodes, haematozoans, viruses, and other misc. parasites and pathogens. Birds: >300 skins, skeletons and anatomicals deposited in the Field Museum (IL), Kansas Museum of Natural History, Utah Museum of Natural History, Guangxi Provincial Museum (China), and the National Museum of Papua New Guinea.
1999-- Scientific and program illustrations: Clark Ornithology Symposium, *Life among feathers*, Ohio Wesleyan University; poster illustrations for the Tracy Aviary Distinguished Lecturer Series, Salt Lake City, Utah; 100 interpretive signs for birds on public display at Tracy Aviary, Salt Lake City, Utah; Price et al. 2003 *J. Avian Bio.* 35:135-143; Johnson et al. 2002 *Molecular Ecology* (cover); 5th International Conference of Phthiraptera, 2014.

Public Outreach

- 2015: Educational lab tours for youth groups (Summer camps at the Natural History Museum of Utah).
2013-- Teaching Toolbox designed, demonstrated and constructed for the Natural History Museum of Utah. The toolbox is a series of educational modules with specimens, lesson plans and interactive activities based on inquiry based learning protocols. This toolbox is freely available to any educator (K-12) in the state of Utah.
<http://nhmu.utah.edu/educators/teaching-toolboxes>
2014: Workshop for Salt Lake City School Board, Extended Learning Program Educators (K-12): Evolutionary lessons for Utah students.
2013: Workshop for Utah Educators (K-12): Using the Parasite Teaching Toolbox, Natural History Museum of Utah
2012 - 2013: Presentations with interactive activities at SLC elementary schools covering topics of parasitism, evolution, ecology, and field biology. Beacon Heights (2nd grad class), Bonneville Elementary (three 1st grade classes, two 3rd grade classes), Dilworth Elementary Community (three 6th grade classes), Community Cooperative Nursery School (one pre-K class).
2012: Davis County, UT - youth summer literacy program, scientific presentation with hands on activities
2010: Contributed information and photos to "Dirty and Dangerous Jobs: Parasite Collector" by J. Cohn (Marshall Cavendish Publishing, 2010).

Trainees:

Postdoctoral Associate

2012 -- Daniel R. Gustafsson, Ph.D., Biodiversity of ectoparasitic lice on songbirds

Ph.D. Students

2016-- Jordan Herman (co-advised) Bird-parasite interactions (Ph.D. student)
2015-- Ashley Saulsbury (co-advised), Evolutionary ecology of speciation (Ph.D. student)
2014-- Graham Goodman (co-advised), Host-parasite behavioral ecology (Ph.D. student)
2012-- Sabrina McNew (co-advised), Evolutionary ecology of avian blood parasites (Ph.D. student).
2012-- Andrew Bartlow (co-advised), Parasite diversity in changing environments (Ph.D. student).
2011-- Emily DiBlasi (sole advisor), Influence of dispersal on host and parasite population genetic structure (Ph.D. candidate)
2010 - 2016: Scott M. Villa (co-advised) Dissertation: Evolutionary ecology of parasite diversification: experiments with pigeons and their ectoparasites. Ph.D. Defense: 8/2016

Other Graduate Students

2016: Matthew Reynolds (committee chair)
Masters of Science Degree for Secondary School Teachers.
2016: Scott Ripple (committee chair)
Masters of Science Degree for Secondary School Teachers.
2015-- Douglas Cornwall (committee member), Ph.D. candidate, Dept. Biology (Potts Lab)
2014: Amanda Johnson (committee chair)
Masters of Science Degree for Secondary School Teachers.
2010-12: Craig Gritzen (committee member), Masters of Science, Dept. Biology (Dearing Lab)

Undergraduate Research Associates

2016: W. Chase Brown
2016-- Andrew Beach (Univ. Ut. Research Program)
2015 - 2016: John Jackson (Univ. UT. Research Program)
2015 - 2016: Lane Mulvey (Biosci. Research Program & Honors Program)
2014 - 2015: Hector Santiago-Zumeata (Univ. UT. Research Program)
2014 - 2016: Angela Hansen (Univ. UT. Research Program)
2013 - 2015: Erik Poole (Univ. UT. Research Program)
2013-- Juan Altuna (Univ. UT. Research Program)
2012 - 2015: Heidi Montgomery (Biosci. Research Program & Univ. UT. Research Program)
2012 - 2014: Michael Thompson (Univ. UT. Research Program)
2010 - 2013: Alejandra M. Aguilar (Biosci. Research Program & Univ. UT. Research Program)
2012 - 2013: Kacey Gao (ACCESS Program)
2012 - 2013: Sarah Windes (Biosci. Research Program & Univ. UT. Research Program)
2011 - 2012: Ian White (Univ. UT. Research Program)
2010 - 2011: Dallas Brewer (Univ. UT. Research Program)
2005 - 2008: Michelle Reed (Biosci. Undergrad Research Program)