

Andrew P. Martin, Ph.D.



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EMPLOYMENT HISTORY

2019-2022 Chair, Department of EBIO, University of Colorado
2010-present Professor, Department of EBIO, University of Colorado
2016-2018 ASSETT, Professional Development Director
2016-present Presidential Teachign Scholar, UColorado System
2002-2010 Associate Professor, Department of EBIO, University of Colorado
2004-present Affiliate Professor, Department of Molecular and Microbiology, Colorado State University
2004-2005 Associate Chair, Department of EBIO, University of Colorado
1998-2002 Assistant professor, Department of EPOB, University of Colorado
1994-1998 Adjunct professor, Friday Harbor Marine Labs, Univ. of Washington.
1994-1998 Assistant professor, University of Nevada-Las Vegas
1992-1994 Postdoctoral scientist, Smithsonian Tropical Research Institute
1990 Contractor, National Marine Fisheries Service, NOAA.

AWARDS

2016 Presidential Teaching Scholar
2015 Chancellor's Teaching Fellowship
2015 Boulder Faculty Assembly Teaching Award
2013 CU College Scholar Award
2012 National Academies Education Fellow in Life Sciences
2005 CU Faculty Fellowship
1997 Smithsonian Institute Senior Scientist Fellowship
1992 Smithsonian Institution Tupper 3-year Fellowship

EDUCATION

PhD 1992 Zoology, University of Hawaii
MS 1990 Zoology, University of Hawaii
BS 1986 Renewable Natural Resources, University of Arizona

SCIENCE



Grants

- 1) OSMP, 2020, Spatial analysis of prairie dog colonies, (awarded to students Sean Streich and Pat Todd), \$20,000.
- 2) Colorado Parks and Wildlife, 2015-2018, “Genetic analysis of Gunnison’s prairie dogs”, \$105,000
- 3) National Park Service, 2013-2016, "Genetics analysis of trout populations", \$45,000. PI
- 4) UC Seed Grant Program, 2013-2014, "Genomics of Genetic Rescue", \$48,000. PI
- 5) National Park Service, 2010-2014, “Genetic analysis of trout populations”, \$51,000. PI
- 6) CDOW, 2009-2011, “Range Wide Survey of Gunnison Prairie Dogs”, \$50,000. PI
- 7) National Park Service, USFS, BLM, etc., 2009-2012, “Using DNA from museum specimens to explore the heritage and native range of Colorado’s state fish”, \$105,000. PI
- 8) NIH, 2009-2012, “New tools for understanding the composition and dynamics of microbial communities in human body habitats”, Co-PI (R. Knight, PI), \$1,130,600.
- 9) NSF, 2008-2009, Population and Systematic Biology, “Islands on islands on islands: phylogenetic analysis of microbial communities in fleas on prairie dogs in Boulder County.” \$11,470. PI
- 10) USFWS, 2008-2010, “Genetics of the endangered Mojave niterwort”, \$27,000. PI
- 11) USFWS, 2007-2009, “Genetics of pupfish populations”, \$71,000. PI
- 12) National Park Service, 2007-2008, “Genetic analysis of trout populations”, \$39,000. PI
- 13) NSF, Integrative and Organismal Biology, Collaborative Research, 2007-2009, “Evolution of hammerhead shark cephalofoil”, Co-PI, \$400,000.
- 14) USFWS, 2005-2006, “Analysis of MHC Diversity in Historic and Restoration Populations of Greenback Cutthroat Trout”, \$2700. PI
- 15) NSF, Microbial Observatory Program, 2005-2010, “Microbial Biogeochemistry and functional diversity across the Forest-Tundra ecotone in the Rocky Mountains”, Co-PI (w/ S. Schmidt, J. Neff, and R. Guralnick), \$2,000,000.
- 16) NDOW/USFWS, 2005-2006. “Conservation Genetics of Devils Hole Pupfish”, \$7,000. PI
- 17) NSF, Biotic Surveys and Inventory, 2004-2007, “Discovery, Description and Biogeography of Novel Alpine Fungi”, Co-PI (w/ S. Schmidt), \$280,000.
- 18) National Park Service, 2003-2004, “Determine and Establish appropriate source populations for restoration of native trout subspecies in Rocky Mountain National Park”, \$61,870. PI
- 19) NSF, GK-12 Training grant. 2002-2005, “Partners in Science Education: GK-12 Fellows at CU Boulder, Co-PI, \$1,359,348.

- 20) NSF, Doctoral Dissertation Improvement, 2002-2003, “Phylogeography of alpine butterflies and their host plants. \$10,000. PI
- 21) NSF/NIH, 2002-2007, “Landscape Effects on Disease Dynamics in Prairie Dogs”, Co-PI (w/ S. Collinge), \$1,750,000.
- 22) NSF, Molecular and Cellular Biology, 2000-2004, “Microbial Biogeochemistry and functional diversity across the Forest-Tundra ecotone in the Rocky Mountains”, Co-PI (w/ S. Schmidt), \$1,000,000.
- 23) Nevada Division of Wildlife, 2000-2002, “Conservation genetics of endangered poolfishes”, \$7,500. PI
- 24) CU-CRCW, 2000-2001, “Conservation genetics of endangered poolfishes”, \$5,539. PI
- 25) NSF, 2000-2001, REU Supplement, \$5,000. PI
- 26) Smithsonian Institution, 1999, Senior Scientist Fellowship, “Biogeography of freshwater fishes”, \$8,000. PI
- 27) NSF, Systematic Biology, 1999-2002, “Using complex multigene family trees in systematics: the hsp 70 gene family \$150,000. PI.
- 28) NSF, Doctoral Dissertation Improvement, 1999-2000, “Evolutionary genetics of small populations”, \$10,000 (with J. Wilcox).
- 29) NSF, REU Supplement, 1997, \$5,000.
- 30) NSF EPSCoR Program, 1997, Seed Grant, \$5,000.
- 31) UNLV, Faculty Development Award, 1997, \$3,000.
- 32) University of Nevada, Las Vegas, 1997-1999, “Development of a conservation genetics program for endangered fishes”, \$7,500.
- 33) Nevada Division of Wildlife, 1997-1999, “Development of a conservation genetics program for endangered fishes”, \$7,500. pI.
- 34) USFWS, Endangered Species Grant, 1997-2000, “Conservation genetics of pupfish”, \$9,500. PI.
- 35) NSF, Systematic Biology, 1996-1999, “Molecular systematics of lamniform sharks using creatine kinase genes”, \$90,000. PI.
- 36) National Geographic Society, 1993, “Historical biogeography of the Amazon basin”, \$21,000. PI.
- 37) Smithsonian 3-year fellowship, Tupper Fellowship, 1992-1994, “Historical biogeography of neotropical freshwater fishes”, \$105,000. PI.
- 38) RCUH, Predoctoral Fellowship, 1990-1992, University of Hawaii, 2 years, \$28,000.

Peer-reviewed science manuscripts

Published journal articles

- 1) Paulson, A. C. and A. P. Martin. 2021. Ecological divergence of a habitat constructed to harbor an endangered species. *Conservation Science and Practice* <https://doi.org/10.1111/csp2.471>
- 2) Paulson, A. C. and A. P. Martin. 2019. Eukaryote alpha and beta diversity of freshwater spring communities in Ash Meadows National Wildlife Refuge, Nevada, USA. *Oecologia* 191: 931-944.
- 3) Streich, S, K. Keepers, K. A. Griffin, N. Kane, and A. P. Martin. 2019. The complete mitochondrial genome of Gunnison’s prairie dogs (*Cynomys gunnisoni*)

- gunnisoni*) and phylogenetic relationships within the genus *Cynomys*. Mitochondrial DNA 4: 397-398.
- 4) Keepers, K, N. Kane, and A. P. Martin. 2018. Following the fate of facilitated migration in a small desert spring. *Southwestern Naturalist* 63: 8-17.
 - 5) Love Stowell, S., J. L. Metcalf, D. Markle, and A. P. Martin. 2018. Species conceptualization and delimitation: a framework for the taxonomic revision of Cutthroat Trout. In *Cutthroat Trout: evolutionary biology and taxonomy* (P. Trotter, P. Bisson, L. Shultze, and B. Roper, eds). Special Publication 36, American Fisheries Society.
 - 6) Rogers, K. B., K. B. Bestgen, S. M. Love Stowell, and A. P. Martin. 2018. Cutthroat Trout diversity in the southern Rocky Mountains. In *Cutthroat Trout: evolutionary biology and taxonomy* (P. Trotter, P. Bisson, L. Shultze, and B. Roper, eds). Special Publication 36, American Fisheries Society.
 - 7) Love Stowell, S. M., C. Pinzone, and A. P. Martin 2017. Overcoming barriers to active interventions for genetic diversity. *Biodiversity and Conservation* 26: 1753-1765.
 - 8) Keepers, K., N. Kane, and A. P. Martin. 2016. The complete mitochondrial genome of the Warm Springs pupfish, *Cyprinodon nevadensis pectoralis*. Mitochondrial DNA doi:10.3109/19401736.2015.1025259.
 - 9) Love Stowell, S. M., C. M. Kennedy, S. C. Beals, J. L. Metcalf and A. P. Martin. 2015. The genetic legacy of more than a century of stocking trout: a case study in Rocky Mountain National Park, Colorado, USA. *Can. J. Fish. Aquat. Sci.* 72: 1565-1574.
 - 10) Gubili, C., C. S. Jones, G. Cliff, S. P. Wintner, E. de Sabata, R. M. Aspden, A. P. Martin, D. W. Sims, and L. R. Noble. 2015. Insights into white shark colonization and genetic diversity from historical artifacts. *Endangered Species Research* 27: 233-241.
 - 11) Mara, K, A. P. Martin, R. Hueter, and P. Motta. 2015. Constructional morphology within the head of hammerhead sharks (Sphyrnidae). *Journal of Morphology* 276: 526-539.
 - 12) Keepers, K. G., A. P. Martin. 2014. Fitness landscapes of sympatric pupfish: a useful tool for visualizing speciation. *Molecular Ecology* 23: 2144-2145. <http://onlinelibrary.wiley.com/doi/10.1111/mec.12727/full>
 - 13) Sackett, L. C., A. Seglund, R.P. Guralnick, M.M Mazzella, D.M. Wagner, J.D. Busch, A.P. Martin. 2014. Evidence for two subspecies of Gunnison's prairie dogs (*Cynomys gunnisoni*), and the general importance of the subspecies concept. *Biological Conservation*: <http://dx.doi.org/10.1016/j.biocon.2014.03.010>
 - 14) Knight, R., M. E. Lladser, A. P. Martin, S. E. Brenner. 2014. New tools for understanding the composition and dynamics of microbial communities. *Encyclopedia of Metagenomics*, Springer Press.
 - 15) Paulson, E. L., A. P. Martin. 2013. Discerning invasion history in an ephemerally connected system: landscape genetics of *Procambarus clarki* in Ash Meadows, Nevada. *Biological Invasions* DOI 10.1007/s10530-013-0621-x
 - 16) Martin, A. P., E. L. Paulson, and R. Graham. 2013. Geographically disjunct and widespread genets in an endangered halophilic plant, the Amargosa Niterwort (*Nitrophila mohavensis*). *Conservation Genetics* DOI

- 10.1007/s10592-013-0486-7.
- 17) Sackett, L. C., S. K. Collinge, and A. P. Martin. 2013. Do pathogens reduce the genetic diversity of their hosts? Variable effects of sylvatic plague in black-tailed prairie dogs. *Molecular Ecology* 22: 2441-2455.
 - 18) McCafferty, S. S., A. P. Martin and E. Bermingham 2012. Pliocene diversification and phylogeography of the lower Mesoamerican cichlid *Aquidens coeruleopunctuatus* (Cichlidae). *International Journal of Evolutionary Biology* (in press).
 - 19) Metcalf, J. L., S. Love-Stowell, C. M. Kennedy, K. B. Rogers, D. McDonald, J. Epp, K. Keepers, A. Cooper, J. J. Austin, A. P. Martin. 2012. Historical stocking data and 19th century DNA reveal human-induced changes to native diversity and distribution of cutthroat trout. *Molecular Ecology* 21: 5194-5207.
 - 20) Gubili, C, C. A. J. Duffy, G. Cliff, S. P. Wintner, M. Shivji, D. Chapman, B. D. Bruce, A. P. Martin, D. W. Sims, C. S. Jones and L. R. Noble. 2012. Application of molecular genetics for conservation of the White Shark, *Carcharodon carcharias*. Ch. 24 in M. L. Domeier (ed.) *Global Perspectives on the Biology and Life History of the White Shark*, CRC Press.
 - 21) Jones, R. T., S. A. Bernhardt, A. P. Martin, K. L. Gage. 2012. Interactions among symbionts of *Oropsylla* spp. (Siphonoptera: Ceratophyllidae). *Journal of Medical Entomology* 49: 492-496.
 - 22) Martin, A. P., A. A. Echelle, G. Zegers, S. Baker, and C. L. Keeler-Foster. 2012. Dramatic shifts in the gene pool of a managed population of an endangered species may be exacerbated by high genetic load. *Conservation Genetics*: 13: 349-358
 - 23) Sackett, L. C., T. B. Cross, R. T. Jones, W. Johnson, K. Ballare, C. Ray, S. K. Collinge and A. P. Martin. 2012. Connectivity of prairie dog colonies in an altered landscape: inferences from analysis of microsatellite DNA variation. *Conservation Genetics* 13: 407-418.
 - 24) Brinkerhoff, R. J., A. P. Martin, R. T. Jones, and S. K. Collinge. 2011. Population genetic structure of the prairie dog flea and plague vector *Oropsylla hirsuta*. *Parasitology* 138: 71-79.
 - 25) Robeson, M., A. P. Martin, S. K. Schmidt,, A. King, et al. 2011. Bdelloid rotifer communities: extremely diverse at global scales and spatially autocorrelated at local scales. *Proceedings National Academy of Sciences USA* 108: 4406-4410..
 - 26) Gubili, C., R. Bilgin, E. Kalkan, S. U. Karhan, D. W. Sims, H. Kabasakal, A. P. Martin, C. S. Jones, L. R. Noble. 2011. Antipodean white sharks on a Mediterranean walkabout?: historical dispersal of a top marine predator accounts for an endangered anomalous population. *Proceedings Royal Academy of Sciences B* 278: 1679-1686. *Media coverage included Time, Nature, BBC, Discovery, MSNBC.*
 - 27) Martin, A. P. 2010. Conservation genetics of Ash Meadows pupfish populations. I. The Warm Springs pupfish *Cyprinodon nevadensis pectoralis*. *Conservation Genetics* 11: 1847-1857.
 - 28) Robeson, M, S., E. K. Costello, K. R. Freeman, J. Whiting, B. Adams, A. P. Martin, S. K. Schmidt. 2010. Environmental DNA sequencing primers for eutardigrades and bdelloid rotifers. *BMC Ecology* 9: 25.

- 29) Lim, D., K. Mara, P. Motta and A. P. Martin. 2010. Phylogeny of hammerhead sharks (Family Sphyrnidae) inferred from mitochondrial and nuclear genes. *Molecular Phylogenetics and Evolution* 55: 572-579. *Media coverage included ScienceDaily, Discovery.*
- 30) Sackett, L. C., L.K. Etchberger, M.N. Mazzella, D.D. Lim, A. P. Martin. 2009. Characterization of 18 microsatellite loci for three species of prairie dogs. *Molecular Ecology Resources* 10: 232-236.
- 31) Freeman, K. R., A. P. Martin, D. Karki, M. S. Mitter, A. F. Meyer, J. E. Longcore, D. R. Simmons, and S. K. Schmidt. 2009. Evidence that Chytrids dominate fungal communities and decomposition processes in high-elevation soils. *Proceedings of the National Academy of Sciences USA* 106: 18315-18320.
- 32) Jones, R. J, R. K. Knight, and A. P. Martin. 2009. Bacterial communities of prairie dog fleas sampled across time, space and flea species. *ISME J.* 4: 223-231.
- 33) Eaton, M. J., G. L. Myers, S.-O. Kolokotronis, M. Leslie, A. P. Martin, and G. Amato. 2009. Barcoding bushmeat: molecular identification of Central African and South American harvested vertebrates. *Conservation Genetics* 11: 1389-1404. *Media coverage included ScienceDaily,*
- 34) Pritchard, V. L., J. L. Metcalf, K. Jones, A. P. Martin and D. E. Crowley. 2008. Population structure and genetic management of Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*). *Conservation Genetics* 10: 1209-1221.
- 35) Eaton, M. J., A. P. Martin, and G. Amato. 2008. Molecular and geographic evidence of speciation of African dwarf crocodiles (*Osteolaemus tetraspis* ssp.) across Central and West Africa. *Molecular Phylogenetics and Evolution* (In press).
- 36) Mayhew, L. E. D. Swanner, A. P. Martin and A. Templeton. 2008. Phylogenetic relationships and functional genes: distribution of a manganese-oxidizing gene (mnxG) in *Bacillus* species. *Applied and Environmental Microbiology* 74: 7265-7271.
- 37) Schmidt, S. K., S.C. Reed, D. R. Nemergut...and A.P. Martin. 2008. The early stages of ecosystem succession in high-elevation (5000 meters above sea level) recently deglaciated soils. *Proceedings of the Royal Society B* 275: 2793-2802.
- 38) Nemergut, D.R., M. S. Robeson, R. F. Kysela, A. P. Martin, S. K. Schmidt and R. Knight. 2008. Insights and inferences about integron evolution from genomic data. *BMC Genomics* 9: 261-271.
- 39) Bai, Y., M. Kosoy, A. Martin, C. Ray, K. Sheff, L. Chalcraft and S. K. Collinge. 2008. Characterization of *Bartonella* strains isolated from Black-tailed Prairie Dogs (*Cynomys ludovicianus*). *Vector Borne Zoonotic Diseases* 8: 1-5.
- 40) Porter, T. M., C. W. Schadt, L. Rizvi, A. P. Martin, S. K. Schmidt, L. Scott-Denton, R. Vilgalys, J.-M. Moncalvo. 2008. Widespread occurrence and phylogenetic placement of a soil clone group adds a prominent new branch to the fungal tree of life. *Molecular Phylogenetics and Evolution* 46: 635-644.
- 41) Metcalf, J. L. M. Siegel and A. P. Martin. 2008. Hybridization dynamics between greenback cutthroat trout and rainbow trout. *Heredity* 99: 149-156.
- 42) Jones, R. J, K. McCormick and A. P. Martin. 2008. Bacterial symbionts of fleas that vector diseases in small mammals. *Applied and Environmental Microbiology* 74: 1667-1670.

- 43) Metcalf, J. L., V. L. Pritchard, S. M. Silvestri, J. B. Jenkins, J. S. Wood, D. E. Crowley, P. R. Evans, D. K. Shiozawa and A. P. Martin. 2007. Across the Great Divide: genetic forensics reveals misidentification of endangered cutthroat trout populations. *Molecular Ecology* 16: 4445-4454. *Media coverage included NY Times, Science Daily, Nature, Daily Camera, Rocky Mountain News, Earthwatch Radio.*
- 44) Pritchard, V. L., K. Jones, J. L. Metcalf, A. P. Martin, Y. Perot, K. Patten, P. Wilkinson, and D. E. Crowley. 2007. Characterization of tetranucleotide microsatellites for Rio Grande cutthroat trout (*Onchorhynchus clarkii virginalis*) and rainbow trout (*O. mykiss*), and their cross-amplification in other cutthroat trout subspecies. *Molecular Ecology Notes* 7: 594-596.
- 45) Schmidt, S. K., E. K. Costello, D. R. Nemergut, C. C. Cleveland, M. N., Weintraub, A. F. Meyer and A. P. Martin. 2007. Biogeochemical consequences of rapid microbial turnover and seasonal succession in soil. *Ecology* 88: 1379-1385.
- 46) Nemergut, D. R., S. P. Anderson, C. C. Cleveland, A. P. Martin, A. E. Miller, A. Seimon and S. K. Schmidt. 2007. Microbial community succession in an unvegetated deglaciated soil. *Microbial Ecology* 53: 110-122.
- 47) Vignieri, S. N., E. M. Hallerman, B. J. Bergstrom, D. J. Hafner, A. P. Martin, P. Devers, P. Grobler and N. Hitt. 2006. A wolf in sheep's clothing: Ramey et al.'s semantic debate of "taxonomic validity undermines conservation of an evolutionary distinctive lineage. *Animal Conservation* 9: 237-243.
- 48) Martin, A. P. 2006. Advocacy dressed up as science: a comment on Ramey et al. 2005. *Animal Conservation* 9: 248-249.
- 49) Jones, R. T. and A. P. Martin. 2006. Testing for differentiation of microbial communities using phylogenetic methods: accounting for uncertainty of phylogenetic inference and character state mapping. *Microbial Ecology* 52: 408-17.
- 50) Wilcox, J. L. and A. P. Martin. 2006. The Devil's in the Details: Genetic and phenotypic divergence between artificial and native populations of the endangered pupfish *Cyprinodon diabolis* *Animal Conservation* 9: 316-321.
- 51) DeChaine, E. G. and A. P. Martin. 2006. Quaternary climate cycles inhibited co-divergence in an alpine plant-insect association. *Evolution* 60: 1004-1013.
- 52) Duncan, K. M., A. P. Martin, B. W. Bowen and H. G. de Couet. 2006. Global phylogeography and population structure in the scalloped hammerhead shark (*Sphyrna lewini*). *Molecular Ecology* 15: 2239-2251.
- 53) DeChaine, E. G. and A. P. Martin. 2005. Historical biogeography of two alpine butterflies in the Rocky Mountains: broad scale concordance and local-scale discordance. *Journal of Biogeography* 32: 1943-1952.
- 54) Collinge, S.K., W.C. Johnson, C. Ray, R. Matchett, J. Grensten, J.F. Cully, Jr., K.L. Gage, M.Y. Kosoy, J.E. Loye, and A.P. Martin. 2005. Landscape structure and plague occurrence in black-tailed prairie dogs. *Landscape Ecology* 20: 941-955..
- 55) Collinge, S. K., W. C. Johnson, C. Ray, R. Matchett, J. Grensten, J. F. Cully, Jr., K. L. Gage, M. Y. Kosoy, J. E. Loye, and A. P. Martin. 2005. Testing the generality of a trophic cascade model for plague. *Ecohealth* 2: 1-11.

- 56) Jones, R, A. Mitchell, S. Collinge, C. Ray and A. P. Martin. 2005. Characterization of 14 polymorphic microsatellites markers for the black-tailed prairie dog (*Cynomys ludovicianus*). *Molecular Ecology Notes* 5: 71-74.
- 57) DeChaine, E. G. and A. P. Martin. 2005. Marked genetic divergence among sky island populations of *Sedum lanceolatum* (Crassulaceae) in the Rocky Mountains. *American Journal of Botany* 92: 477-486.
- 58) Martin, A. P. and J. L. Wilcox. 2004. Evolutionary history of Ash Meadows pupfish (genus *Cyprinodon*) populations inferred using microsatellite markers. *Conservation Genetics* 5: 769-782.
- 59) Davelos, A.L., K. Xiao, A. P. Martin, D. A. Sumac and L. L. Kinkel. 2004. Spatial variation in *Streptomyces* genetic composition and diversity in a prairie soil. *Microbial Ecology* 48: 601-612.
- 60) Martin, A. P., E. K. Costello, A. Meyer, D. R. Nemergut and S. K. Schmidt. 2004. The rate and pattern of cladogenesis in microbes. *Evolution* 58: 946-955.
- 61) Nemergut, D. R., A. P. Martin and S. K. Schmidt. 2004. Integron diversity in heavy metal contaminated mine tailings and inferences about integron evolution. *Applied Environmental Microbiology* 70: 1160-1168.
- 62) Winchell, C. W., A. P. Martin and J. A. Mallet. 2004. Molecular phylogeny of differentiation: Using LSU and SSU ribosomal RNA genes to evaluate morphology-based hypotheses. *Molecular Phylogenetics and Evolution* 31: 214-224.
- 63) Meyer, A., D. Lipson, A. Martin, C. Schadt and S. Schmidt. 2004. Molecular and metabolic characterization of cold tolerant, alpine soil *Pseudomonas* Sensu Stricto. *Applied and Environmental Microbiology* 70: 483-489.
- 64) DeChaine, E. G. and A. P. Martin. 2004. Historic cycles of expansion and contraction in *Parnassius smintheus* (Papilionidae) inferred using mitochondrial DNA. *Evolution* 58: 113-127.
- 65) Schadt, C. W, A. P. Martin, D. A. Lipson and S. K. Schmidt. 2003. Seasonal dynamics of previously unknown fungal lineages in tundra soils. *Science* 301: 1359-1361.
- 66) Martin, A. P. 2002. Phylogenetic approaches for describing and comparing microbial communities. *Applied and Environmental Microbiology* 68: 3673-3682.
- 67) Martin, A. P. and T. M. Burg. 2002. Perils of paralogy: Using HSP70 genes for inferring organismal phylogenies. *Systematic Biology* 51: 570-587.
- 68) Martin, A. P., A. Pardini, C. Jones and L. Noble. 2002. Conservation of a microsatellite locus in sharks. *Molecular Phylogenetics and Evolution* 23: 205-213.
- 69) Burg, T. M., J. Wilcox, and A. P. Martin*. 2002. Polymorphic microsatellite loci from pupfish (genus *Cyprinodon*). *Conservation Genetics* 3: 197-204.
- 70) Martin, A. P. 2001. The phylogenetic placement of Chondrichthyes: Inferences from analysis of multiple genes and implications for comparative studies. *Genetica* 111: 349-357.
- 71) Pardini, A. T., C. S. Jones, L. R. Noble, B. Kreiser, H. Malcolm, B. D. Bruce, J. D. Stevens, G. Cliff, M. C. Scholl, M. Francis, C. A. J. Duffy and A. P. Martin*. 2001. Sex-biased dispersal in great white sharks. *Nature* 412: 139-140.

- 72) Martin, A. P. 2001. Is tetralogy real: testing the assumptions of the “one-to-four rule”. *Molecular Biology and Evolution* 18: 89-93.
- 73) Martin, A. P. 2000. Choosing among alternative trees of multigene families. *Molecular Phylogenetics and Evolution* 16: 430-439.
- 74) Martin, A. P. and E. Bermingham. 2000. Regional endemism and cryptic species revealed by molecular and morphological analysis of a widespread species of Neotropical catfish. *Proceedings of the Royal Society of London B* 267: 1135-1141.
- 75) Martin, A. P. 1999. Increasing genomic complexity by gene duplication and the origin of vertebrates. *American Naturalist* 154: 111-128.
- 76) Martin, A. P. 1999. Nucleotide substitution rates in organelle and nuclear genes of sharks: Implicating metabolic rate (again). *Molecular Biology and Evolution* 16: 996-1002.
- 77) Bermingham, E. and A. P. Martin. 1998. Comparative mtDNA phylogeography of neotropical freshwater fishes: testing shared history to infer the evolutionary landscape of lower Central America. *Molecular Ecology* 7: 499-517.
- 78) Martin, A. P. and E. Bermingham. 1998. Systematics and evolution of lower Central American cichlids inferred from analysis of cytochrome b gene sequences. *Molecular Phylogenetics and Evolution* 9: 192-203.
- 79) Lovejoy, N. A., E. Bermingham and A. P. Martin*. 1998. South American rays came in with the sea. *Nature* 396: 421-422.
- 80) Simon, C., L. Nigro, J. Sullivan, K. Holsinger, A. Martin, A. Grapputo, A. Franke, and C. McIntosh. 1996. Large differences in substitutional pattern and evolutionary rate of 12S ribosomal RNA genes. *Molecular Biology and Evolution*. 13: 923-932.
- 81) Martin, A. P. 1995. Metabolic rate and directional nucleotide substitution in animal mitochondrial DNA. *Molecular Biology and Evolution* 12: 1124-1131.
- 82) Martin, A. P. 1995. Mitochondrial DNA sequence evolution in sharks: Rates, patterns, and phylogenetic inferences. *Molecular Biology and Evolution* 12: 1114-1123.
- 83) Martin, A. P. 1993. Hammerhead shark origins. *Nature* 364: 494.
- 84) Martin, A. P. and S. R. Palumbi. 1993. Body size, metabolic rate, generation time, and the molecular clock. *Proceedings of the National Academy of Sciences USA* 90: 4087-4091.
- 85) Martin, A. P. and S. R. Palumbi. 1993. Protein evolution in different cellular environments: cytochrome b in sharks and mammals. *Molecular Biology and Evolution* 10: 873-891.
- 86) Martin, A. P., R. Humphreys, and S. R. Palumbi. 1992. Population genetic structure of the armorhead, *Pseudopentaceros wheeleri*, in the North Pacific Ocean: Application of PCR to fisheries problems. *Canadian Journal Fisheries & Aquatic Science* 49: 2386-2391.
- 87) Martin, A. P., G. J. P. Naylor, and S. R. Palumbi. 1992. Rates of mitochondrial DNA evolution are slow in sharks compared to mammals. *Nature* 357: 153-155.
- 88) Kessing, B. K., A. P. Martin, H. Croom, W. O. MacMillan, S. Romano, & S. R. Palumbi. 1991. *The Simple Fool's Guide to PCR*. University of Hawaii, Special Publication (over 3000 copies reproduced and distributed by the authors).

- 89) Martin, A. P., B. D. Kessing, and S. R. Palumbi. 1990. Accuracy of estimating genetic distance between species from short sequences of mitochondrial DNA. *Molecular Biology and Evolution* 7: 485-488.
- 90) Martin, A. P. and C. Simon. 1990. Variation in insect life cycles and its evolutionary significance: Lessons from periodical cicadas. *Bioscience* 40: 359-367.
- 91) Martin, A. P. and C. Simon. 1990. Differing levels of among population divergence in the mitochondrial DNA of periodical cicadas related to historical biogeography. *Evolution* 44: 1066-1080.
- 92) Simon, C. and A. P. Martin. Periodical cicadas. 1989. *Nature* 341: 288-289.
- 93) Archie, J. A., C. Simon, & A. P. Martin. 1989. The influence of small sampling size on the stability and accuracy of phylogenetic inferences: Gorman & Renzi revisited. *Evolution* 43: 678-683.
- 94) Martin, A. P. & C. Simon. 1988. Anomalous distribution of nuclear and mitochondrial gene markers in periodical cicadas. *Nature* 336: 237-239.

Peer-reviewed book chapters

- 95) Jones, R. P., E. K. Costello, and A. P. Martin. 2007. Phylogenetic approaches for the study of soil microbial communities. Pp. 608-617 in *Manual of Environmental Microbiology*, 3rd Ed., AEM Press, Washington, DC.
- 96) Martin, A. P. 1999. Molecular clocks. In *Encyclopedia of Life Sciences*, MacMillan Press.
- 97) Martin, A. P. and G. J. P. Naylor. 1997. Independent origins of filter-feeding in megamouth and basking sharks (Order Lamniformes) inferred from phylogenetic analysis of cytochrome b gene sequences. Pp. 39-50 in K. Yano, J. F. Morrissey, Y. Yabumoto and K. Nakaya (eds.) *Biology of the Megamouth Shark*, Tokai Univ. Press.
- 98) Martin, A. P. 1997. Systematics of the Lamnidae and the origination time of *Carcharodon carcharias* inferred from the comparative analysis of mitochondrial DNA sequences, pgs. 49-54 in P. Klimley and D. Ainsley (eds.) *The Biology of the White Shark*, Academic Press, NY.
- 99) Bermingham, E., S. MacCafferty, and A. P. Martin. 1997. The Isthmus of Panama, molecular clocks, and the historical biogeography of neotropical freshwater fishes. In T. D. Kocher and C. Stepien (eds.) *Molecular Systematics of Fishes*. Academic Press, New York.
- 100) Naylor, G. J. P., A. P. Martin, E. Mattison, and W. M. Brown. 1997. The inter-relationships of lamniform sharks: Testing phylogenetic hypotheses with sequence data. In T. D. Kocher and C. Stepien (eds.) *Molecular Systematics of Fishes*. Academic Press, New York.
- 101) Bermingham, E., H. Banford, A. P. Martin and V. Aswani. 1997. Smithsonian Tropical Research Institute Neotropical Fish Collections. Pp. 37-38 in L. Malabarba (ed.) *Neotropical Fish Collections*. Museo de Ciencias e Tecnologia, PUCRS, Puerto Alegre, Brazil.
- 102) C. Simon, A. Franke and A. Martin. 1991. The polymerase chain reaction: DNA extraction and amplification. In: G. M. Hewitt, A. Johnston and J. Young,

Editors, Molecular Taxonomy, Springer Verlag/NATO Advanced Studies Institute, Berlin (1991), pp. 329-355.

- 103) Martin, A. P. 1991. Application of mitochondrial DNA sequence analysis to the problem of species identification of sharks. NOAA NMFS 115: 53-59.

Technical reports and other non-peer reviewed publications

- 1) Martin, A. P. 2014. Genetics management plan for the Ash Meadows pupfish. Technical report, USFWS, 71 p.
- 2) Martin, A. P. 2007. Genetics management plan for the Devils Hole pupfish. Technical report, USFWS, 122 p.
- 3) Martin, A. P. 2007. Genetics management plan for the Warm Springs pupfish, Technical report for the USFWS, 37 p.
- 4) Martin, A. P. 2005. Comparison of Sequence Variation in the Major Histocompatibility Complex Between Como Creek and Restoration Populations Originating from Como Creek Stock. Report submitted to the United States Fish and Wildlife Service.
- 5) Martin, A. P. 2005. Genetic Analysis of *Cyprinodon diabolis*: Hybridization With *C. nevadensis* in the Point of Rocks Refuge. Report submitted to the Nevada Division of Wildlife and the USFWS.
- 6) Martin, A. P., J. Mitton and J. Metcalf. 2005. Describe existing populations and determine the appropriate source populations for restoration of native trout subspecies in Rocky Mountain National Park utilizing mitochondrial and nuclear DNA markers. Submitted to National Park Service and US Fish and Wildlife Service.
- 7) Winchell, C. J., A. P. Martin and J. Mallatt. 2001. Phylogeny of living differentiation based on LSU and SSU rRNA-gene sequences. American Zoologist 1: 1627-1628.
- 8) Wilcox, J. & A. P. Martin*. 2001. Report on the studies of the Devil's Hole pupfish. National Parks Service Technical Report, 55 p.
- 9) Wilcox, J., C. Serway, J. Stein & A. P. Martin*. 2001. Systematics and conservation genetics of the tui chub (*Siphateles bicolor*) in Nevada. Nevada Division of Wildlife, Annual Report.
- 10) Martin, A. P. and J. Wilcox. 1999. Conservation genetics of Ash Meadows pupfish. Report to the United States Fish and Wildlife Service, 33 p.

Invited talks

- 1) 2015, American Fisheries Society Meeting, Portland, OR, "Historical perspective on Colorado's cutthroat trout"
- 2) 2015, Boulder County Ecosystems Symposium, Longmont, CO, "The historical and modern diversity and distribution of the greenback trout"
- 3) 2013, University of Northern Colorado, "Genetic Restoration of Small Spring Populations"
- 4) 2013, Denver University, "Genetic Restoration of Small Spring Populations"
- 5) 2009, Department of Ecology and Evolutionary Biology, University of Arizona. "Microbial Diversity: The Alpine Microbial Observatory and the Vector Microbiome Projects."

- 6) 2006, Desert Fish Council, Invited Symposium Speaker, "Conservation Genetics of Species Suffering from Deleterious Mutations"
- 7) 2006, Ecological Society of America, Tennessee, Invited Symposium Speaker, "The Generation of Microbial Diversity"
- 8) 2006, Leigh Marine Laboratory, University of Auckland, "Revealing the Biology of Sharks Through Phylo- and Population Genetic Analyses"
- 9) 2006, University of Auckland, Department of Biology, Auckland, New Zealand, "The Alpine Microbial Observatory and Macroevolution of Microbes."
- 10) 2006, LandCare Research, Lincoln, New Zealand, "The Alpine Microbial Observatory and Macroevolution of Microbes."
- 11) 2006, University of Canterbury, Christchurch, New Zealand. "The Alpine Microbial Observatory and Macroevolution of Microbes."
- 12) 2005, University of Hawaii, Dept. of Zoology, "Microbial Macroevolution", Honolulu, HI
- 13) 2004, University of Colorado, Applied Math Department, "Phylogenetic Methods for Describing and Comparing Microbial Communities".
- 14) 2003, Center for the American West, "Healing the West" series, "Restoration of native species: A tail of two fishes."
- 15) 2003, EPA Species at Risk Program, "Disease dynamics in a fragmented landscape", EPA, Corvallis, OR.
- 16) 2003, Microbial Observatory Workshop, "Comparing the diversity of microbial communities", National Science Foundation, Washington DC.
- 17) 2002, University of Illinois-Chicago, "Gene duplication and phylogenetic inference: the perils of paralogy", Chicago, IL.
- 18) 2001, University of Denver, "Gene duplication and the evolution of vertebrates"
- 19) 2000, University of Nebraska, Dept. of Biology, "Gene duplication and the evolution of vertebrates"
- 20) 2000, University of Nebraska, Dept of Biology, "Phylogeography of Lower Central America: A fish eye's view"
- 21) 2000, University of California-Berkeley, Ecosystem Sciences, "Conservation genetics of fishes through the molecular looking glass"
- 22) 2000, University of Alabama, Dept of Biological Sciences, "Gene duplication and the evolution of vertebrates"
- 23) 1999, Colorado State University, Dept of Biological Sciences, "Phylogeography of Lower Central American fishes: A fish eye's view"
- 24) 1999, Duke University, Biology Department, "Gene duplication and the evolution of vertebrates"
- 25) 1998, University of Chicago-Illinois, Biology Dept. "Gene duplication and the evolution of vertebrates"
- 26) 1998, University of South Florida, Dept of Biological Sciences, "Gene duplication and the evolution of vertebrates"
- 27) 1997, University of Nevada-Reno, Biology Department, "Metabolic rate and the molecular clock"
- 28) 1996, Keystone Symposia, Sante Fe, "Gene duplication and the evolution of complexity"

- 29) 1996, University of California-Davis, Bodega Bay Marine Labs, “Rates and patterns of molecular evolution in sharks”
- 30) 1994, University of California, Santa Cruz, “Tempo and mode of molecular and morphological evolution in sharks”
- 31) 1994, 4th Indo-Pacific Conference on Fishes, Thailand, “Phylogenetic of sharks”
- 32) 1993, Gordon Conference, Sante Fe, NM, “Rates and patterns of molecular evolution”
- 33) 1992, Allan C. Wilson Symposium, “Rates of mitochondrial DNA evolution in sharks”

Presentations at symposia and conferences

- 1) 2016, “Evaluating the age of the Devils Hole pupfish, Desert Fish Council, Albuquerque, NM
- 2) 2015, “Community biodiversity of Devils Hole and its constructed analog”, Abbey Paulson presenter, Desert Fish Council, Death Valley. CA
- 3) 2015, “Variation in fitness among families of greenback cutthroat trout”, Sierra Love Stowell presenter, Desert Fish Council, Death Valley. CA
- 4) 2015, “Inbreeding depression reduces fitness in Colorado’s remaining greenback cutthroat trout”, American Fisheries Society, Portland, OR
- 5) 2015, “The genomics of genetic rescue”, Biofrontiers Institute, Kyle Keepers presenter
- 6) 2014, “Genetic rescue of a small, isolated population”, Evolution meetings, UNC, Chapel-Hill, NC
- 7) 2014, “Genomics of cutthroat trout”, Sierra Love Stowell presenter, Desert Fish Council, Cabo San Lucas, Mexico
- 8) 2012, "Invasive crayfish in a desert spring system: Using landscape genetics to inform ecological restoration", E. Paulson, A. Martin, Ecological Society of America, Portland, OR.
- 9) 2010, “Sylvatic plague extirpation causes evolution in prairie dogs,” L. Sackett, A. Martin, and S.K. Collinge, Evolution, Portland, Oregon, June 2010 (Poster)
- 10) 2009, “Conservation Genetics of Spring Populations”, Desert Fish Council Meetings, Death Valley, CA.
- 11) 2008, International Meeting of the Desert Fish Council, “Genetics of Spring Populations”, Cuatro Ciénegas, Mexico.
- 12) 2008, International Conference on Genetics, Berlin, “Population Genetics of Southern Rocky Mountain Cutthroat Trout” (D. Crowley, NMSU)
- 13) 2007, UCLA Conference on Evolution in a Changing World, “Genetic Forensics of Trout Populations”
- 14) 2003, American Society for Microbiology, w Nemergut and Schmidt.
- 15) 2003, Evolution meetings, “Rate and pattern of cladogenesis in prokaryotes”, Chico, CA.
- 16) 2003, Evolution meetings, Chico, CA. “Evolutionary genetics of native Colorado cutthroat trout: a tail of two slopes”.
- 17) 2003, Evolution meetings, “Cycles of population fragmentation and expansion from multiple interglacial refugia inferred for the Rocky Mountain butterfly, *Parnassius smintheus*”.

- 18) 2003, Society of Integrative and Comparative Biology, "Gene duplication and phylogenetic inference: the perils of paralogy", Toronto, CANADA.
- 19) 2002, American Fisheries Society, "Morphological and behavior differentiation between artificial and native populations of the Devil's Hole pupfish", Lake Tahoe, CA.
- 20) 2001, Regional Aquarist Association, Denver, "Species diversity of freshwater fishes in Central America", Denver, CO.
- 21) 2001, Guild of Rocky Mountain Population Biologists, "The devil's in the details: failure of artificial propagation to preserve the Devil's Hole pupfish. Ghost Ranch, NM.
- 22) 2001, American Fisheries Society, "Morphological and behavior differentiation between artificial and native populations of the Devil's Hole pupfish", w/ Jen Wilcox, Phoenix, AZ.
- 23) 1999, Evolution meetings, "Gene duplication and the evolution of vertebrates", University of Wisconsin
- 24) 1998, Desert Fish Council, "Evolutionary genetics of endangered pupfish", Page, Arizona, w/ J. Wilcox.
- 25) 1998, Evolution meetings, "Evolutionary genetics of endangered pupfish", University of British Columbia w/ J. Wilcox.
- 26) 1997, Desert Fish Council, "Evolutionary genetics of endangered pupfish", Death Valley National Mon, w/ J. Wilcox
- 27) 1996, Evolution meetings, "Gene duplication versus genome duplications at the base of vertebrates", University of Colorado, w/ M. Ronshaugen
- 28) 1995, Evolution meetings, "Rates of nucleotide substitution in mitochondrial DNA: mammals are much faster than sharks", Park City, Utah.
- 29) 1994, 4th Indo-West Pacific Conference, "Phylogenetics of sharks", Thailand
- 30) 1993, American Society of Ichthyologists and Herpetologists, "Phylogenetics of South American stingrays", Los Angeles, CA
- 31) 1993, American Society of Ichthyologists and Herpetologists, "Historical biogeography of the Great American Interchange", Los Angeles, CA.
- 32) 1992, Evolution Society Meetings, "Slow rates of mtDNA evolution in sharks".
- 33) 1991, American Elasmobranch Society Meetings, "Rates of mtDNA evolution in sharks", Univ. Illinois.
- 34) 1990, Evolution Society Meetings, "Life cycle switching in periodical cicadas inferred using molecular markers".
- 35) 1990, American Elasmobranch Society Meetings, "Rates of mtDNA evolution in sharks", New York City, NY.
- 36) 1990, American Elasmobranch Society Meetings, "Identifying species of sharks using DNA sequences", New York City, NY.
- 37) 1989, Evolution Society Meetings, "Life cycle changes in 13- and 17-year periodical cicadas", Asilomar, CA.

TEACHING



Grants

- 1) 2022-2027, University of Colorado, “ Innovative and renovation of large, first-year biology courses”, \$50K.
- 2) 2015-2016, CU Chancellor’s Award, “Experimental evaluation of a difficult to assess learning goal: effective communication and productive collaboration towards a common goal”, \$10K, PI
- 3) 2011-2015, Science Education Initiative, “Transforming teaching in EBIO”, \$480K, PI

Consultant/collaborator

- 1) 2018-2022, Collaborator, STeLLA project, funded by NSF
- 2) 2015-2017, Collaborator, Automated Answer to Constructed Response (AACR), J. Knight, PI

Published peer-reviewed education articles

- 1) Buck, S. and A. P. Martin. 2023. Iterative drawing reveals diversity and change in student thinking about evolution. *International Journal of Higher Education* 12: 17-35..
- 2) Carscadden, K. C. & A. P. Martin. 2022. To tidy or not: choosing among R environments for advancing quantitative and computational thinking of undergraduate biology students. *International Journal of Higher Education* 10: 39-50.
- 3) Fried, E, A. P. Martin, A. Esler, A. Tran, and L. Corwin. 2020. Design-based learning for a sustainable future: student outcomes resulting from a biomimicry curriculum in an evolution course. *Evolution Education and Outreach* 13: 2-22. <https://doi.org/10.1186/s12052-020-00136-6>.
- 4) Carscadden, KA., M. T. McDermott, S. P. Turbek, S. B. Tittes and A. P. Martin. 2019. Building bridges: An active learning lesson in evolution and collaboration. *Journal of College Science Teaching* 48: 46-58.
- 5) Martin, A. P. 2018. A quantitative framework for the analysis of two-stage exams. *International Journal of Higher Education* 7: 33-54.
- 6) Martin, C. B., and R. DiMartino, and A. P. Martin. 2017. Measuring student interactions using networks: insights into the learning community of a large active learning course. *Journal of College Science Teaching* 46: 90-99.
- 7) Love Stowell, S. 2016. Cutthroat trout in Colorado: a case study connecting evolution and conservation. CourseSource <http://www.coursesource.org/courses/cutthroat-trout-in-colorado-a-case-study-connecting-evolution-and-conservation>
- 8) Hoskinson, A. M, L. Conner, S. Hester, A. P. Martin, T. Powers. 2014. Coevolution or not? Crossbills, squirrels and pinecones. CourseSource <http://www.coursesource.org/courses/coevolution-or-not-crossbills-squirrels-and-pinecones#tabs-0-content=1>
- 9) Hoskinson, A. M, N. Barger, and A. P. Martin. 2014. Keys to a successful student-centered classroom: Three recommendations. *Bull. Ecol. Soc. America* 95: 281-292.

Invited talks

- 1) 2020, Ecological Society of America, “Harnessing data: teaching quantitative thinking”, Utah (declined due to Covid complications)
- 2) 2020, “Practicing scientific teaching”, ESA-LDC, Online
- 3) 2016, Keynote speaker, Ecological Society of America’s 3rd Life Discovery – Doing Science Education, Baltimore, MD
- 4) 2016, “Course transformation”, TRESTLE meeting, University of Kansas
- 5) 2015, SASC, University of Colorado, “Advice for adopting active learning strategies in the classroom”
- 6) 2015, GTP intensive workshop, University of Colorado, “Active learning and student interactions”.
- 7) 2015, Teaching Controversial Topics workshop, University of Colorado, targeted audience is high school teachers
- 8) 2015, Center for STEM Learning, Workshop on student motivation, University of Colorado, “Strategies for motivating students”,
- 9) 2015, SASC, University of Colorado, “Measuring student interactions”
- 10) 2013, Keynote address, CSL Annual Meeting, University of Colorado (w/ N Barger and AM Hoskinson), "Transforming Undergraduate Teaching: Three Recommendations”
- 11) 2012, Keynote address at a medical education meeting, University of Colorado Medical School "Flipping Out in the Classroom"

Presentations at local, regional and national meetings

- 1) 2022, “Using STeLLA in a teaching and learning biology course at a research University”, ASTE Annual Meetings, Greenville, SC.
- 2) 2021, “Leveraging exams to practice and promote collaboration”, Ecology Society of America Education Conference, Estes Park, CO
- 3) 2019, “Emphasizing Department-Level Data-Driven Reflection for Directing Revision of Curricula and Teaching Strategies with Ali Oran, Robert Stubbs, and Michael Klymkowsky, Gordon Research Conference, Bates College, Maine
- 4) 2019, “Visualizing student flow through departments to guide educational reform”, with Ali Oran, Robert Stubbs, and Michael Klymkowsky, Association for Institutional Research Annual Meeting, Denver, CO.
- 5) 2019, “Quantitative and algorithmic thinking in biology: gaining confidence using R”, Ecology Society of America Education Meetings, Gainesville, FL. Talk and 2-hour workshop leader.
- 6) 2018, “Rationally: Making evidence-based claims using scientific thinking”, Colorado Learning and Teaching with Technology (COLTT), CU
- 7) 2018, “Using Rationally for constructing and sharing scientific arguments”, SABER, University of Minnesota.
- 8) 2015, “Testing the educational effectiveness of jigsaw curriculum”, DBER, CU
- 9) 2014, “Network analysis in the classroom”, Evolution meetings, UNC, Chapell-Hill, NC.
- 10) 2014, “Using SITAR: An observational protocol for describing active learning in the classroom”, Evolution meetings, UNC, Chapell-Hill, NC.

- 11) 2014, "Measuring hard to measure learning goals using network analysis", DBER, CU
- 12) 2013, "Cultural traits as the focus for student demonstration of evolutionary analysis process skills", Evolution Meetings, Snowbird UT.

Training

- 1) 2018-2020, STeLLA training, BCSC Colorado Springs, CO
- 2) 2013, Evolution Society Education Workshop, Snowbird, UT
- 3) 2013, CREATE workshop, Hobart and Smith College, NY
- 4) 2013, HHMI Summer Science Institute Workshop, Boulder, CO
- 5) 2009, FTEP workshop on Assessment, University of Colorado
- 6) 2008, FTEP workshop on Learning Goals, University of Colorado
- 7) 2007, FTEP workshop on Using Clickers, University of Colorado

Workshop/meeting organizer

- 1) 2021, ESA Education meeting, Estes Park, CO
- 2) 2020, ESA Education meeting, Gainesville, FL
- 3) 2019, ESA Education meeting, Gainesville, FL
- 4) 2017, CIRTL Active Learning workshop, Boulder CO (co-leader)
- 5) 2014, SEI Summer Education Workshop, CU, CO (organizer/leader)
- 6) 2013, SEI Summer Education Workshop, CU, CO (organizer/leader)
- 7) 2012, SEI Summer Education Workshop, CU, CO (organizer/leader)

Courses developed and taught

- 1) Principles of genetics, spring 2023 (co-developer of curricula)
- 2) Teaching and learning biology, fall 2020
- 3) New first year course for fall 2019: Biology and Society
- 4) Introduction to Quantitative Thinking, University of Colorado, 2015-present
- 5) Evolutionary Biology, University of Colorado, 1998-present
- 6) The Meaning of Life, University of Colorado, 2000-2007
- 7) Molecular Evolution and Systematics, University of Colorado, 1998-2004
- 8) Molecular Ecology, Friday Harbor Marine Lab, University of Washington, 1994-1998
- 9) Ichthyology, University of Nevada, 1994-1998
- 10) Population Genetics, University of Nevada, 1996
- 11) Evolution, University of Nevada, 1994-1998

Archived course materials

- 1) Original curricula for Biology and Society
- 2) Original curricula for Teaching and Learning Biology
- 3) Original curricula for Evolutionary Biology (archived and used through Dropbox by multiple instructor at multiple institutions)
- 4) Original curricula for Intro to Quantitative Thinking for Biologists (archived) with Brett Melbourne and Lisa Corwin

MENTORING



Faculty mentoring

- 1) Alicia Quandt, 2022-
- 2) Warren Sconiers, 2022-
- 3) Laura Dee, 2020-
- 4) Luke Evans, 2019-
- 5) Nicole Jobin, 2018-2019
- 6) Lisa Corwin, 2017-2022
- 7) Eve Hinckley, 2017-2018
- 8) Nancy Emery, 2015-2018
- 9) Nolan Kane, 2013-2015
- 10) Sam Flaxman, 2010-2011

Postdoctoral mentoring (current occupation of scientist)

- 1) Joanna Hubbard, 2015 (Assistant Professor, Truman State University)
- 2) Sarah Wise, 2012-2015 (Education researcher, University of Colorado)
- 3) Gabrielle Katz, 2014-2015 Associate Professor, Metro State, Denver CO)
- 4) Sarah Seiter, 2013-2014 (Curator, Oakland Natural History Museum)
- 5) Anne-Marie Hoskinson, 2012-2013 (Associate professor, North Dakota State University)
- 6) Jessica Metcalf, 2010-2012 (Associate Professor, Colorado State University)
- 7) Brian Kreiser (Associate Professor, University of S. Mississippi)
- 8) Theresa Burg (Full Professor, University of Lethbridge, Canada)

Graduate students: Primary mentor (current occupation)

- 1) Micaela Seaver (MA), “Alpine ecology and education”, 2020-2022
- 2) Spencer Buck (MA), “Teaching and learning evolution”, 2020-2022 (Air Force pilot)
- 3) Streich, Sean (MA), “Conservation genetics of prairie dogs”, 2015-
- 4) Paulsen, Abbey (MA, PhD), “Community and restoration ecology of desert springs”, 2013-2016, (Assistant Teaching Professor)
- 5) Love-Stowell, Sierra (MA, PhD), “Evolutionary genetics of greenback cutthroat trout”, 2012-2016, (Staff scientist at Archer Genomics)
- 6) Cheng, Evelyn (MA), “Metapopulation dynamics of pothole pools”, 2012-2014, (Data Scientist at Kin + Carta)
- 7) Sackett, Loren (PhD), “Evolutionary and landscape genetics of prairie dogs”, 2007-2012, (Assistant Professor, University of Louisiana)
- 8) Eaton, Mitch (PhD), “Population genetics and phylogenetics of African crocodiles”, 2002-2006, (USGS Scientist, Raleigh, NC)
- 9) Jones, Ryan (PhD), “Microbiome of vectors”, 2001-2006, (Vice Chancellor or International Education, University of Arizona)
- 10) Metcalf, Jessica (PhD), “Evolutionary genetics of native trout”, 2000-2005, (Associate Professor, Colorado State University)

- 11) DeChaine, Eric (PhD), “Historical biogeography of alpine butterflies and their host plants”, 1999-2004 (Associate Professor, Western Washington University, Bellingham, WA)
- 12) Strife, Susan (M), “Environmental issues in Boulder County”, 2000-2003, (Boulder County Commissioner’s Office)
- 13) Wilcox, Jennifer (PhD), “Evolutionary genetics of pupfish”, 1998-2003, (Veterinarian Pathologist, Tucson, AZ)
- 14) Ronshaugen, Matt (M), “Gene duplication and the origin of vertebrates”, 1995-1998, (Professor, University of Manchester, UK)

Graduate students: Committee member and/or mentor (incomplete list)

- | | |
|---|---|
| 1) Javan Carter (PhD), 2018- | 26) Bai, Ying (CM,CSU, PhD), 2006 |
| 2) Kelly Carscadden (PhD), 2017- | 27) Anthony, James (PhD), 2001-2007 |
| 3) Molly McDermott (PhD), 2017- | 28) Brinkerhoff, Jory (PhD), 2002-2007 |
| 4) Keeper, Kyle (PhD), 2013- | 29) Kreiger, Jonathan (PhD), |
| 5) Wacholder, Aaron (PhD), 2012-2018 | 30) Sims, Kate (PhD), 2001-2006 |
| 6) Kueneman, Jordan (PhD),
2009-2015 | 31) Wise, Sarah (PhD), 2001-2006 |
| 7) Stucky, Brian (PhD), 2009-2015 | 32) Breland, Brianca (PhD), 2000-2006 |
| 8) Mihaljevic, Joe (PhD), 2010-2015 | 33) Costello, Elizabeth (PhD),
2000-2005 |
| 9) Naff, Courtney (PhD), 2010-2014 | 34) Markeson, Amy (M), 2002-2004 |
| 10) Lynch, Ryan (PhD), 2010-2015 | 35) Weaver, Pable (PhD), 2001-2015 |
| 11) Thomas, Evan (PhD), 2010- | 36) Carlo, Tomas (PhD), 2001-2006 |
| 12) Joseph, Maxwell (PhD), 2010- | 37) Piaggio, Toni (PhD), 2001-2006 |
| 13) Comeault, A (PhD), 2010-2012 | 38) Ramp, Jennifer (PhD), 2001-2006 |
| 14) Square, Tyler (PhD), 2010- | 39) Meyer, Allen (PhD), 2000-2005 |
| 15) Hubbard, Joanna (PhD), 2010-2015 | 40) McGrath, Claire (PhD), 2000-2005 |
| 16) Doherty, Jacob (PhD), 2010-2014 | 41) Brinkerhoff, Jory (PhD), 2002-2006 |
| 17) Wilkins, Matt (PhD), 2009-2014 | 42) Duran, Kristy (PhD), 1998-2004 |
| 18) Song, Sejin (PhD), 2009-2014 | 43) Feldhelm, Kevin (PhD), 1997-2003 |
| 19) Hill, Andrew (PhD), 2008-2013 | 44) Nemergut, Diane (PhD), 1998-2003 |
| 20) Krishnan, Sarada (PhD), | 45) Geiger, Jennifer (PhD), 1998-2003 |
| 21) Islam, Rebecca (PhD), | 46) Larson, Gregor (PhD), 1998-2002 |
| 22) Robeson, Mike (PhD), 2003-2012 | 47) Oliver, Jeffrey (PhD), 1998-2002 |
| 23) Kyslera, Robert (PhD), | 48) Goldstein, Nate (M), 1998-2002 |
| 24) McClure, Katherine (MS),
2002-2005 | 49) Cavolina, Jason (PhD), 1998-2001 |
| 25) Schutz, Heidi (PhD), 2001-2006 | 50) Ashton, Kyle (PhD), 1998-2001 |

Undergraduate honors students (primary mentor) (incomplete list)

- 1) Patricia Todd, 2020, “Geospatial analysis of prairie dogs”
- 2) Lisa Hasan, 2019, “Geospatial analysis of prairie dogs”
- 3) Anders Newgard, 2019, “Distance gradient of vocalization discrimination and aggression in neighborhoods of rufous-and-white wrens (*Thryophilus rufalbus*)”
- 4) Katie Ryan, 2019, “Drawing to learn”

- 5) Nora Lazerus, 2019, "Evolution of connectedness among undergraduates in an active learning class"
- 6) Torrey Davis, 2018, "Population genetics of bison"
- 7) Trevor Hartwig, 2017-2018, "Native fish meets the department of transportation: a mitigation case study"
- 8) Marley Loomis, 2015-2017, "Ecology of subsidence fishing in the Amazon Basin: a case study"
- 9) Paulina Acuri, 2015-2017, "Biology of primates in Brazil"
- 10) Holtz, Spencer, 2015-2016, "Population genetics of pika"
- 11) Zahra, Sarah, 2015-2016, "Food web ecology of Yellowstone cutthroat trout"
- 12) Beran, Madison, 2014-2015, "Behavioral biology of baboons."
- 13) Tittes, Silas, 2013-2014, "Phylogenetic diversity of fleas infecting prairie dogs"
- 14) Mazzella, Maxwell, 2011-2012, "Population genetics of prairie dogs"
- 15) Arnold, Erin, 2009-2012, "Biogeography of flea genotypes among prairie dog colonies"

Undergraduate students: mentor for honors (H), UROP (U), and independent research (IR), learning assistant (LA), undergraduate research assistant (URA) (incomplete list)

- | | |
|---|--|
| 1) Micaela Seaver, 2020 | 28) Kelly McCahill, 2017-2018 (I) |
| 2) Ellen Scherner (LA), 2019 | 29) Taylor Marino, 2016-2017 (I) |
| 3) Jillian Wetzel (LA), 2019 | 30) Emily Volk, 2016-2017 (I) |
| 4) Lauren Kennedy (LA), 2019 | 31) Francis Saunders, 2016-2017 (I) |
| 5) Jade Munsinger (LA), 2019 | 32) Levi Dodge, 2016-2017 (LA) |
| 6) Elizabeth McGary (LA), 2019 | 33) Claire Mastralango, 2016-2018 (LA) |
| 7) Patty Todd, 2019 (URA) | 34) Marley Loomis, 2016-2017 (H) |
| 8) Kristen Plonsky, 2019, (LA, URA) | 35) Dakota Andeson, 2016-2017 (H) |
| 9) Briana Wall, 2019 (IR) | 36) Jennifer Reding, 2016-2017, U |
| 10) Brett Pilkington, 2019 (LA) | 37) Tess Rudd, 2015-2016, CC (I) |
| 11) Micaela Seaver, 2019 (LA) | 38) Marchand, Amadee, 2015-2016, H |
| 12) Samantha Amato, 2019 (LA) | 39) Zahra, Sarah, 2015-2016, H |
| 13) Courtney Garner, 2019 (LA, IR, URA) | 40) Coohill, Diana, 2015-2017, IR |
| 14) Katie Ryan, 2019 (LA, H) | 41) Pena, Ewalina, 2015-2016, IR |
| 15) Chris Manning, 2018 (LA) | 42) Turk, Tyler, 2015, LA |
| 16) Nora Lazerus, 2019 (H) | 43) Springett, Lucy, 2015, LA |
| 17) Anders Newgard, 2019 (H) | 44) Jones, Emma, 2015, LA |
| 18) Torrey Davis, 2018 (H) | 45) Lee, David, 2015-2016, IR |
| 19) Jason Roberts, 2018 (IR) | 46) Michael Carlson, 2015-2016, IR |
| 20) Elise Castle, 2018 (IR) | 47) Robin Sollner, 2015-2016, IR |
| 21) Micaela Jackson, 2018 (LA) | 48) Decamillis, Anthony, 2015-2016, IR |
| 22) Taylor Ramsey, 2018 (IR, URA) | 49) Robinson, Spencer, 2015-2016, IR |
| 23) Nitin Beri, 2018 (URA, IR) | 50) Beran, Madison, 2014-2015 |
| 24) Hannah Ghasemi, 2018 (LA) | 51) Brooke, Palmer, 2014-2015 |
| 25) Matthew Arnold, 2018, 2019 (LA, URA) | 52) Nelson, Samantha, 2014-2015 |
| 26) Chiara Dart, 2018, 2019 (IR, UROP) | 53) Monroe, Evan, 2014-2015 |
| 27) Elizabeth Hasan, 2017-2019 (LA, I, H) | 54) Lee, David, 2014-2015 |
| | 55) Tomcyk, Addie, 2014-2015 |

- 56) O'Masta, Peter, 2014-2015
- 57) Dowd, Elizabeth, 2014
- 58) Christoph, Gretchen, 2014
- 59) Tynan, Amanda, 2014
- 60) Grundy, James , 2014
- 61) Kunis, Genevieve, 2014
- 62) Hiershman, Clarie, 2012-2013
- 63) Tolley, Sarah, 2012-2013
- 64) Gallagher, Evan, 2012-2013
- 65) Vest, Margaret, 2012
- 66) Zator, Kate, 2012
- 67) Schoolman, Shane, 2012-2015
- 68) White, Kristin, 2012-2014
- 69) DeSouza, Helena, 2012-2013
- 70) Winters, Carly, 2012-2013
- 71) Gray, Jared, 2012
- 72) Mesa, Kyle, 2012
- 73) Rojas, Xavier, 2012
- 74) Wise, Ben, 2011,2013
- 75) Tittes, Silas, 2011-2014
- 76) Gul, M, 2011
- 77) Vinciguerra, Nick 2010-2013
- 78) Franklin, Jaclyn, 2010
- 79) Protheroe, Jojo, 2010-2013
- 80) Mutkus, Nate, 2010
- 81) Frazier, Annie, 2010-2012
- 82) Hefferman, Scott, 2010-2012
- 83) Mickol, Rebecca, 2010-2012
- 84) Manley, Kate, 2010-2011
- 85) Crane, Lucie, 2009-2011
- 86) Keepers, Kyle, 2009,2013
- 87) Phatak, Sumira, 2009
- 88) Hale, Sarah, 2009
- 89) Mitchem, Dale, 2009
- 90) Buckner, Stuart, 2009
- 91) Graham, Riley, 2008
- 92) Mazzella, Maxwell, 2008-2013
- 93) Arnold, Erin, 2009-2012
- 94) Zawaki, Jon 2008
- 95) Lim, Douglas, 2006-2008
- 96) Fitzhugh, Conner, 2007
- 97) McClure, M
- 98) Rangel, Erica, 2007
- 99) Gainan,
- 100) Rubi, Patricia, 2006-2008
- 101) O'Connell, Brendan, 2006
- 102) McCormick, Katie, 2005-2007
- 103) Jenkins, Jazzmin, 2006-2007
- 104) Maahs, Tyler, 2006
- 105) Forte, Michael, 2005
- 106) Montez, Callie, 2004-2005
- 107) Bromfield, Alex, 2004-2005
- 108) Wylie, Sarah, 2004-2005
- 109) Greenberg, Noah, 2004-2005
- 110) Siegle, Matt, 2003-2004
- 111) Eberhard, Brent, 2003-2004
- 112) Mitchell, Adam, 2003-2004
- 113) Wolanin, Kate, 2003
- 114) Ballare, Kim, 2002-2004
- 115) Eberhard, Brent, 2003-2005
- 116) Yelenick, Jonathan, 2002-2004
- 117) Howard, Elizabeth, 2002-2004
- 118) Haloin, Jonathan, 2002-2003
- 119) Wiktor, Aaron, 2001-2002
- 120) Kieswetter, Charles, 2001-2003
- 121) Lewallen, Eric, 2001-2003
- 122) Gordon, Shira, 2001-2003
- 123) McCoulough, Jamie, 2001-2003
- 124) Farnell, Brian, 2001-2002

High school student mentor (incomplete list)

- 1) Todd, Patty, 2015-2016

SELECTED POPULAR PRESS



2016 Helping students and imperiled wildlife, one at a time, Boulder Daily Camera

- 2014 There's no longer a doubt about this cutthroat trout, National Public Radio, <http://www.npr.org/blogs/thetwo-way/2014/08/14/340362193/there-s-no-longer-a-doubt-about-this-cutthroat-trout>
- 2013 Teaching evolution outreach, <http://artsandsciences.colorado.edu/magazine/2013/04/cu-program-aims-to-improve-teaching-of-evolution/>
- 2012 Attack of the mutant pupfish, by Hilary Rosner, Wired Magazine, winner of the AAAS Kavli and SEJ awards for science journalism <http://www.wired.com/2012/11/mf-mutant-pupfish/all/>
- 2012 How flipping the classroom can improve the traditional lecture, Chronicle of Higher Education, <http://chronicle.com/article/How-Flipping-the-Classroom/130857/>
- 2011 Sharks gone walkabout—how Australian great white sharks ended up in the Mediterranean, <http://phenomena.nationalgeographic.com/2010/11/16/sharks-gone-walkabout-how-australian-great-whites-ended-up-in-the-mediterranean/>
- 2010 Hammerhead shark study shows cascade of evolution affected size, head shape, Science Daily <http://www.sciencedaily.com/releases/2010/05/100518113132.htm>
- 2009 First DNA barcodes of commonly traded bushmeat: A new tool for tracking global trade in wildlife, <http://www.sciencedaily.com/releases/2009/09/090904165105.htm>
- 2007 After possible 'oops', a trout rescue project regroups, New York Times, http://www.nytimes.com/2007/10/14/us/14fish.html?_r=0

SERVICE



University of Colorado-Boulder University Service

- 1) 2019- Teaching data analyst for Institutional Research
- 2) 2015- Presidential Teaching Scholar
- 3) 2017-2018 Participant in Futures Initiative
- 4) 2017-2018 Center for Teaching and Learning committee
- 5) 2016-2017 FCQ revision committee
- 6) 2016- Teaching Evaluation Task Force
- 7) 2015-2016 Program Review, Chair, Jewish studies
- 8) 2014-2016 Chancellors grant and fellowship review panel
- 9) 2015-2018 Faculty consult for teaching, TRESTLE program
- 10) 2014-2019 Fellow, Center for Stem Learning
- 11) 2008-2009 Boulder Faculty Assembly (member)
- 12) 2008-2009 Biofrontiers Search committee (member)

- 13) 2007-2008 Biofrontiers Search committee (member)
- 14) 2007-2010 Biofrontiers Steering committee (member)
- 15) 2001 PhD Dissertation Committee (member)

University of Colorado-Boulder College of Arts and Sciences Service

- 1) 2017-2018 Search committee (2), ASSETT
- 2) 2016-2019 Faculty Advisor, ASSETT
- 3) 2016- FTEP promotion and tenure workshop
- 4) 2015-2017 A & S Personnel committee (chair)
- 5) 2015-2016 A & S Council, Executive committee (member)
- 6) 2014-2015 A & S Personnel committee (member)
- 7) 2014-2015 Seed grant panel reviewer
- 8) 2014-2015 Arts and Science Council (member)
- 9) 2013-2014 Seed grant panel reviewer
- 10) 2009-2013 Arts and Science Council (member)
- 11) 2011-2013 College Grievance committee (chair)
- 12) 2012-2013 Teaching Evaluator (advisory)
- 13) 2010-2011 Boulder Faculty Assembly (member)
- 14) 2010-2011 Space Committee (member)

University of Colorado-Boulder EBIO Department Service

- 1) 2019-2022 Department chair
- 2) 2020- Committee for advancing DEI (directed by external facilitator)
- 3) 2019 P&T personnel committee chair
- 4) 2017-2019 Outcomes committee
- 5) 2017-2019 Executive committee
- 6) 2017-2019 Curriculum committee
- 7) 2017 Merit committee
- 8) 2017 P&T personnel committee chair
- 9) 2016 Teaching consultation and evaluation
- 10) 2016 Teaching consultation and evaluation
- 11) 2015-2016 DBER search committee chair
- 12) 2015-2016 P&T personnel committee chair
- 13) 2015-2016 Teaching learning community member
- 14) 2015-2016 Teaching department action team (associated with AAU)
- 15) 2014-2015 Merit committee (member)
- 16) 2014-2015 Teaching consultation and evaluation: Harrison Carpenter
- 17) 2014-2015 Teaching consultation and evaluation: Brett Melbourne
- 18) 2014-2015 Teaching consultation and evaluation: Thomas Detmer
- 19) 2014-2015 Evolution search committee (chair): hired Scott Taylor
- 20) 2014-2015 Reappointment committee, Stacey Smith (chair)
- 21) 2013-2014 -----SABBATICAL-----
- 22) 2013-2014 Teaching consultation and evaluation: Nolan Kane
- 23) 2013-2014 Teaching consultation and evaluation: Daniel Medeiros
- 24) 2012-2013 Evolution search committee (chair): hired Nolan Kane and Stacey Smith

- 25) 2012-2013 Teaching consultation and evaluation: Piet Johnson
- 26) 2012-2013 Teaching consultation and evaluation: Kendi Davies
- 27) 2012-2013 Teaching consultation and evaluation: Kendi Davies
- 28) 2010-2013 Executive committee (member)
- 29) 2007-2013 Curriculum committee (member)
- 30) 2011-2012 Merit review committee
- 31) 2011-2013 Reappointment committee, Sam Flaxman (chair)
- 32) 2007-2008 Evolution search committee (member), hired Patrick Nosil
- 33) 2006-2007 Evolution search committee (member), hired Daniel Medeiros
- 34) 2005-2006 -----SABBATICAL-----
- 35) 2004-2005 Evolution search committee (member)
- 36) 2004-2005 Executive committee (member)
- 37) 2004-2005 Associate chair, undergraduate
- 38) 2004-2005 Curriculum committee (chair)
- 39) 2003-2004 Evolution search committee (member)
- 40) 2003-2004 Graduate committee (member)
- 41) 2003-2004 Merit review committee
- 42) 2002-2003 Graduate committee (member)
- 43) 2002-2003 Evolution search committee (member)

Professional Service

Editorial service (current)

- 1) Associate editor, Southwestern Association of Naturalists
- 2) Senior editor, CourseSource (SOTL journal)

Faculty promotion and tenure peer evaluation

- 1) Department of Biology, University of Nevada-Las Vegas (2020)
- 2) Department of Wildlife and Conservation, University of Florida (2019)
- 3) Department of Fisheries and Wildlife, University of Montana (2018)
- 4) Department of Biology, University of Nevada-Reno (2018)
- 5) Department of Biology, University of Fairbanks (2017)
- 6) Department of Animal Science, Univ California Davis (2017)
- 7) Department of Biology, Univ California Davis (2017)

USFWS consultant for endangered species review

- 1) USBR, Rio Grande Silvery Minnow, 2015-2016
- 2) USFWS, Greenback cutthroat trout, 2014-2016
- 3) USFWS, Gunnison prairie dog, Durango, Colorado. 2013
- 4) USFWS & NPS, Devils Hole Pupfish, Ft Collins, CO, 2008
- 5) USFWS, Devils Hole Pupfish Management plan, 2006
- 6) USFWS, Lahontan cutthroat trout, Reno, NV, 2005
- 7) USGS, Preble's jumping mouse, 2005

Manuscript/meeting abstract reviews (in order of frequency)

- 1) Southwestern Naturalist
- 2) SABER meetings

- 3) Molecular ecology
- 4) Proceedings of the Royal Society
- 5) Microbial ecology
- 6) Conservation genetics
- 7) Applied and Environmental Microbiology
- 8) Journal of Biogeography
- 9) Evolution
- 10) Biological Conservation
- 11) Science
- 12) Animal Conservation
- 13) Genetica
- 14) Biological Journal of the Linnean Society
- 15) Nature Genetics
- 16) Molecular Biology and Evolution
- 17) American Fisheries Society
- 18) Journal of Molecular Evolution
- 19) Genome Biology
- 20) Genetics
- 21) American Fisheries Society
- 22) Canadian Journal of Zoology
- 23) Proceedings of the Royal Academy
- 24) Ecology
- 25) Aquatic Conservation
- 26) Scientific reports (a division of Nature publishing)

Grant review panelist

- 1) IMF, Government panel on Endangered Species, 2018
- 2) National Science Foundation, Genealogy of Life panel, Washington DC, 2014
- 3) National Science Foundation, Systematics panel, Washington DC, 2013
- 4) National Science Foundation, Systematics panel, Washington DC, 2012
- 5) National Science Foundation, Systematics panel, Washington DC, 2010
- 6) National Science Foundation, GK12 Education panel, Washington DC, 2008

Grant agency reviewer: outside member

- 1) National Science Foundation
- 2) Marsden Fund, New Zealand
- 3) Israel Science Foundation
- 4) Smithsonian Institution
- 5) NSERC
- 7) National Geographic