

PAUL F. GUGGER

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Education

- 2010 Ph.D., Ecology, Evolution and Behavior, University of Minnesota
 Advisors: Jeannine Cavender-Bares and Shinya Sugita
 Dissertation: Phylogeography of Douglas-fir: testing hypotheses from the fossil record
- 2003 B.S., Biology with Distinction, Duke University

Professional Appointments

- 2015 – Assistant Professor, University of Maryland Center for Environmental Science, Appalachian Laboratory, Frostburg, MD
- 2016 – Graduate Faculty, Marine, Estuarine & Environmental Sciences, University of Maryland, College Park, MD
- 2014 – 2015 Assistant Researcher, Ecology and Evolutionary Biology, U. California, Los Angeles
- 2010 – 2014 Postdoctoral Scholar, Ecology and Evolutionary Biology, U. California, Los Angeles
 Advisor: Victoria L. Sork

Publications (Researcher ID: A-4005-2010)

30. **Gugger PF***, Peñaloza-Ramírez JM*, Wright JW, Sork VL (Submitted) Whole-transcriptome response to water stress in a California endemic oak, *Quercus lobata*. *Tree Physiology*. *equal contributors
29. Zhao J-L, Werth S, Ikegami M, **Gugger PF**, Sork VL (Submitted) Comparative analysis of historical and future responses of an epiphytic lichen and its phorophytic tree species to climate changes. *Landscape Ecology*.
28. Ortego J, **Gugger PF**, Sork VL (In press) Impacts of human-induced environmental disturbances on hybridization between two ecologically differentiated Californian oak species. *New Phytologist*.
27. Sork VL, Fitz-Gibbon ST, Puiu D, Crepau MW, **Gugger PF**, Sherman R, Stevens K, Langley CH, Pellegrini M, Salzberg SL (In press) First draft assembly and annotation of the genome of a California endemic oak, *Quercus lobata* Née (Fagaceae). *G3: Genes, Genetics, Genomes*.
26. Fetter K, **Gugger PF**, Keller SR (In press) Landscape genomics in angiosperm trees: from historic roots to discovering new branches of adaptive evolution. In: *Comparative and Evolutionary Genomics of Angiosperm Trees* (eds. Groover A, Cronk Q).
25. Sork VL, Ortego J, Riordan E, **Gugger PF**, Fitz-Gibbon S, Wei X (In press) Phylogeny and introgression of California scrub white oaks (*Quercus* sect. *Quercus*). *International Oaks*.
24. Llanderal-Mendoza J, **Gugger PF**, Oyama K, Uribe-Salas D, González-Rodríguez A (In press) Climatic determinants of acorn size and germination rate of *Quercus rugosa* (Fagaceae) along a latitudinal gradient. *Botanical Sciences*.
23. Sun S-S, **Gugger PF**, Wang Q-F, Chen J-M (In press) Identification of a R2R3-MYB gene regulating anthocyanin biosynthesis and relationships between its variation and flower color difference in lotus (*Nelumbo* Adans.). *PeerJ*.
22. Zhao J-L, **Gugger PF**, Xia Y-M, Li Q-J (2016) Ecological divergence of two closely related *Roscoea* species associated with late Quaternary climate change. *Journal of Biogeography*, doi: 10.1111/jbi.12809.
21. Sork VL, **Gugger PF**, Chen J-M, Werth S (2016) Evolutionary lessons from California plant phylogeography. *Proceedings of the National Academy of Sciences*, 113(29):8064–8071.
20. **Gugger PF**, Fitz-Gibbon S, Pellegrini M, Sork VL (2016) Species-wide patterns of DNA methylation variation in *Quercus lobata* and their association with climate gradients. *Molecular Ecology*, 25(8):1665–1680.
19. **Gugger PF**, Cokus SJ, Sork VL (2016) Association of transcriptome-wide sequence variation with climate gradients in valley oak (*Quercus lobata*). *Tree Genetics & Genomes*, 12(2):15.
18. Sork VL, Squire K, **Gugger PF**, Levy E, Steele S, Eckert AJ (2016) Landscape genomic analysis of candidate genes for climate adaptation in a California endemic oak, *Quercus lobata* Née

- (Fagaceae). *American Journal of Botany*, 103(1):33–46.
17. Riordan EC, **Gugger PF**, Ortego J, Smith C, Gaddis K, Thompson P, Sork VL (2016) Association of genetic and phenotypic variability with geography and climate in three southern California oaks. *American Journal of Botany*, 103(1):73–85.
 16. Ortego J, Noguerales V, **Gugger PF**, Sork VL (2015) Evolutionary and demographic history of the Californian scrub white oak species complex: an integrative approach. *Molecular Ecology*, 24: 6188–6208.
 15. Cokus SJ*, **Gugger PF***, Sork VL. (2015) Evolutionary insights from *de novo* transcriptome assembly and SNP discovery in California white oaks. *BMC Genomics*, 16:552. *equal contributors
 14. Delfino-Mix A, Wright JW, **Gugger PF**, Liang CF, Sork VL (2015) Establishing a range-wide provenance test in valley oak (*Quercus lobata* Née) at two California sites. In: *Proceedings of the seventh oak symposium: managing oak woodlands in a dynamic world*. USDA Forest Service General Technical Report PSW-GTR-251, 413–424.
 13. Albarrán-Lara AL, Wright JW, **Gugger PF**, Delfino-Mix A, Peñaloza-Ramírez JM, Sork VL (2015) Phenotypic variation in California populations of valley oak (*Quercus lobata* Née) sampled along elevational gradients. In: *Proceedings of the seventh oak symposium: managing oak woodlands in a dynamic world*. USDA Forest Service General Technical Report PSW-GTR-251, 433–445.
 12. Platt A, **Gugger PF**, Pellegrini M, Sork VL (2015) Genome-wide signature of local adaptation linked to variable CpG methylation in valley oaks. *Molecular Ecology*, 24(15):3823–3830.
*Highlighted in News and Views section of that issue (Robertson & Richards 2015 Mol Ecol 24(15):3799-3801)
 11. Ortego J, **Gugger PF**, Sork VL. (2015) Climatically stable landscapes predict patterns of genetic structure and admixture in the Californian canyon live oak. *Journal of Biogeography*, 42(2):328–338.
 10. Gavin DG, Fitzpatrick M, **Gugger PF**, et al. (2014) Climate refugia: joint inference from fossil records, species distribution models, and phylogeography. *New Phytologist*, 204(1):37–54.
 9. Ortego J, **Gugger PF**, Riordan EC, Sork VL (2014) Influence of climatic niche suitability and geographic overlap on hybridization patterns among southern Californian oaks. *Journal of Biogeography*, 41(10):1895–1908.
 8. **Gugger PF**, Ikegami M, Sork VL (2013) Influence of late Quaternary climate change on present patterns of genetic variation in valley oak, *Quercus lobata* Née. *Molecular Ecology*, 22(13):3598–3612.
 7. **Gugger PF**, Cavender-Bares J (2013) Molecular and morphological evidence for a Florida origin of the Cuban oak. *Journal of Biogeography*, 40(4):632–645.
 6. Ortego J, Riordan EC, **Gugger PF**, Sork VL (2012) Influence of environmental heterogeneity on genetic diversity and structure in an endemic southern Californian oak. *Molecular Ecology*, 21(13):3210–3223.
 5. **Gugger PF**, González-Rodríguez A, Rodríguez-Correa H, Sugita S, Cavender-Bares J (2011) Southward Pleistocene migration of Douglas-fir into Mexico: phylogeography, ecological niche modeling and conservation of ‘rear edge’ populations. *New Phytologist*, 189(4):1185–1199.
*Highlighted in Commentary section of that issue (Eckert 2011 New Phytol 189(4):894–897)
 4. **Gugger PF**, Sugita S, Cavender-Bares J (2010) Phylogeography of Douglas-fir based on mitochondrial and chloroplast DNA sequences: testing hypotheses from the fossil record. *Molecular Ecology*, 19(9):1877–1897.
 3. **Gugger PF**, Sugita S (2010) Glacial populations and postglacial migration of Douglas-fir based on fossil pollen and macrofossil evidence. *Quaternary Science Reviews*, 29(17-18):2052–2070.
 2. Arnold AE, Miadlikowska J, Higgins KL, Sarvate SD, **Gugger P**, Way A, Hofstetter V, Kauff F, Lutzoni F (2009) A phylogenetic estimation of trophic transition networks for Ascomycetous fungi: are lichens cradles of symbiotrophic fungal diversification? *Systematic Biology*, 58(3):283–297.
 1. **Gugger PF**, McLachlan JS, Manos PS, Clark JS (2008) Inferring long-distance dispersal and topographic barriers during postglacial colonization from the genetic structure of red maple (*Acer rubrum* L.) in New England. *Journal of Biogeography*, 35(9):1665–1673.

Grants

Sork VL, **Gugger PF**, Pellegrini M, Salzberg S (2015–2018) National Science Foundation, Plant Genome Research Program, Program *Sequencing and annotating the valley oak genome*, \$1,976,532 (UMCES Subaward: \$92,769).

Gugger PF, Nelson DM, Fitzpatrick MC, Gates JE (2015–2018) Maryland Department of Natural Resources, *Population genomics of bats killed by wind turbines in the central Appalachians*, \$40,000.

Nelson DM, **Gugger PF** (2015–2019) US Fish and Wildlife Service, *Geographic origins and population genetics and genomics of bats killed at wind-energy facilities in the Midwest*, \$20,786.

Martins KM, de Oliveira-Wadt LH, Rennó-Azevedo VC, **Gugger PF**, Thomas E *et al.* (2016–2019), Empresa Brasileira de Pesquisa Agropecuária, *Ecology and genetics of the Brazil nut tree (Bertholletia excelsa Bonpl.) as a tool to support its conservation and sustainable use*, ~\$64,000 (\$0 to UMCES; Role: Investigator).

Small grants (before 2015), American Philosophical Society, UC-MEXUS/CONACyT, University of Minnesota, Travel grants, Sigma Xi, \$56,724.

Fellowships and Awards

2011	Best Dissertation Award in Biological and Medical Sciences, University of Minnesota
2010	Hamm Memorial Scholarship, Monsanto Agricultural Company (\$1,500)
2008 – 2009	Doctoral Dissertation Fellowship, University of Minnesota (\$22,000)
2005 – 2008	Graduate Research Fellowship, National Science Foundation (\$121,500)
2004 – 2005	Graduate Student Fellowship, University of Minnesota (\$16,000)

Teaching and Training

Courses and workshops

2015	Instructor	<i>Landscape Genomics</i> , graduate workshop, UNAM-Morelia, Mexico
2014 & 2015	Co-instructor	<i>Conservation Genomics</i> , graduate workshop, UCLA
2013	Instructor	<i>Methods in Molecular Ecology/Genomics</i> , undergrad. lab seminar, UCLA
2010	Invited Lecture	<i>Ecology</i> , undergraduate, University of Minnesota
2009	Teaching Assistant	<i>Ecology</i> , writing-intensive undergraduate course with lab, U. Minnesota
2008	Teaching Assistant	<i>Evolution</i> , undergraduate course with lab, University of Minnesota
2007	Co-organizer	<i>Phenology and Seasonality</i> short course, University of Minnesota
2006	Teaching Assistant	<i>Ecology: Theory and Concepts</i> , graduate with recitation, U. Minnesota
	Invited Lectures (2)	<i>Ecology of Vegetation</i> , undergraduate, University of Minnesota
2005	Co-organizer	<i>Phylogeography</i> , graduate seminar, University of Minnesota
	Invited Lectures (2)	<i>Ecological Biogeography</i> , undergraduate, University of Minnesota

Mentorship

Committee Member	Andy Gougherty (Ph.D., MEES), Caitlin Campbell (M.S., FSU)
Mentor	International student and lab volunteers, UCLA (2012–2015)
Mentor	<i>Directed Research</i> of undergraduate student, U. Minnesota (2010)

Presentations/Abstracts (*Invited)

Conference (as presenter/lead)

Benefits of a draft genome sequence for landscape genomics studies. *International Biogeography Society Special Meeting*, Beijing, China, 6 May 2016.

High diversity in candidate genes underlying local adaptation to climate: evidence from whole-transcriptome sequencing. *Evolution Annual Meeting*, Raleigh, NC, 23 June 2014.

Identifying genetic variation under selection by climate in valley oak (*Quercus lobata*). *Evolution Annual Meeting*, Snowbird, UT, 22 June 2013.

*Late Quaternary demography and selection shape modern genetic structure of valley oak. *Ecological Society of America 97th Annual Meeting*, Portland, OR, 8 August 2012.

Evolutionary history of a California endemic oak, *Quercus lobata*. *MEDECOS XII: Linking Science with Resource Management*, University of California, Los Angeles, CA, 6 September 2011.

- *Evolutionary response of California valley oak to late Quaternary climate change. *International Union for Quaternary Research (INQUA) Congress*, Bern, Switzerland, 23 July 2011.
- *Ecological genomics of California valley oak: implications of climate-associated adaptive variation for conservation. *Linking Molecular Information to Environmental Sciences*, Tallinn University, Tallinn, Estonia, 25 October 2010.
- *Phylogeography of Douglas-fir: testing hypotheses from the fossil record. *Linking Molecular Information to Environmental Sciences*, Tallinn University, Tallinn, Estonia, 25 October 2010.
- Synergy of fossil and molecular data for understanding late Quaternary history of Douglas-fir. *Ecological Society of America 95th Annual Meeting*, Pittsburgh, PA, 3 August 2010.
- Comparing range-wide phylogeography of Douglas-fir to the fossil record. *Evolution Annual Meeting*, Moscow, ID, 13 June 2009.
- Postglacial migration of Douglas-fir: paleoecological and phylogeographic evidence. [Poster] *Doctoral Dissertation Fellows Research Symposium*, University of Minnesota, Minneapolis, MN, 2009.
- Phylogeography of Douglas-fir based on mitochondrial and chloroplast DNA sequences. [Poster] *American Institute of Biological Sciences Annual Meeting*, Washington, DC, 14 May 2007.
- Phylogeography of Douglas-fir based on mitochondrial and chloroplast DNA sequences. [Poster] *Ecological Society of America 91st Annual Meeting*, Memphis, TN, 8 August 2006.

Conference (as co-author)

- Martins K, **Gugger PF**, Llanderal-Mendoza J, González-Rodríguez A, Fitz-Gibbon S, Zhao JL, Oyama K, Sork VL. Detecting selection by climate in Mexican populations of *Quercus rugosa*. *IUFRO Genomics and Forest Tree Genetics Conference*, Arcachon, France, 1 June 2016.
- Campbell CJ, **Gugger PF**, Nelson DM. A continent-wide approach to link movement ecology and genetic structure of migratory foliage-roosting bats. *Northeast Bat Working Group*, Baltimore, MD, January 2016.
- Sork VL, Salzberg SL, Pellegrini M, **Gugger PF**, Fitz-Gibbon S, Cokus SJ, Puiu D, Perteau G, Sack L, Wright JW. Sequencing and annotating the valley oak genome. *NSF Plant Genome Research Annual PI Meeting*, Arlington, VA, September 2015.
- Sork VL, **Gugger PF**. Associations of climate with DNA methylation polymorphisms provide evidence of local response to environment in a California oak, *Quercus lobata*. *European Society for Evolutionary Biology*, Lausanne, Switzerland, 14 August 2015.
- Martins K, **Gugger PF**, Llanderal Mendoza J, González Rodríguez A, Oyama K, Sork VL. Using a landscape genomic analysis to detect selection by climate in natural populations of a Mexican endemic oak, *Quercus rugosa*. [Poster] *European Society for Evolutionary Biology*, Lausanne, Switzerland, 10 August 2015.
- Sork VL, **Gugger PF**, Wright JW. Using genomic data to delineate valley oak seed transfer guidelines for valley oak. *7th California Oak Symposium*, Visalia, CA, 5 November 2014.
- Wright JW, Liang CT, **Gugger PF**, Dudley N, Jones T, Yeh A, Rai H, Hodgskiss P, Sork VL. Landscape genomic analysis of single-nucleotide polymorphisms (SNPs) associated with geographic and climate variables in Hawaiian koa (*Acacia koa*). [Poster] *Ecological Society of America Annual Meeting*, Sacramento, CA, August 2014.
- Sork VL, **Gugger PF**, Liang CT, Rai H, Mix AD, Wright JW. Genetic differentiation for morphological and DNA sequence polymorphisms among species-wide seedling populations of a foundation California oak, *Quercus lobata*, grown in a common garden. *Ecological Society of America Annual Meeting*, Sacramento, CA, August 2014.
- Platt A, **Gugger PF**, Pellegrini M, Sork VL. Genome-wide signature of local adaptation linked to variable CpG methylation in valley oaks. *Society for Molecular Biology and Evolution Annual Meeting*, San Juan, Puerto Rico, 9 June 2014.
- Wright JW, Liang CT, **Gugger PF**, Dudley N, Jones T, Yeh A, Rai H, Hodgskiss P, Sork VL. Associations between environment and genetics in Hawaiian koa, *Acacia koa*. and valley oak, *Quercus lobata* in California. *Pacific Southwest Science Seminar Series*, 15 May 2014.
- Liang CT, Wright JW, **Gugger PF**, Dudley N, Jones T, Yeh A, Hodgskiss P, Rai H, Sork VL. Associations between environment and genetics in Hawaiian koa, *Acacia koa*. [Poster] *IUFRO Sustaining the Future of Acacia Plantation Forestry Meeting*, Hue, Vietnam, March 2014.
- Liang CT, Wright JW, Rai H, Dudley N, Jones T, Yeh T, **Gugger PF**, Sork VL. Associating genetic

- variation with climate variables in Hawaiian koa (*Acacia koa*). [Poster] *21st Annual Hawaii Conservation Conference*, Honolulu, HI, 16–18 July 2013.
- Liang CT, Wright JW, Rai H, Dudley N, Jones T, Yeh T, **Gugger PF**, Sork VL. Landscape genomics of (*Acacia koa*) in Hawaii. *Hawaii Ecosystems Meeting*, Hilo, HI, July 2013.
- Sork VL, **Gugger PF**, Cokus SJ. Genome-wide associations with climate and geography in valley oak (*Quercus lobata*). *Evolution Annual Meeting*, Snowbird, UT, 22 June 2013.
- Platt A, **Gugger PF**, Sork VL. Population epigenomics of valley oaks. *Evolution Annual Meeting*, Snowbird, UT, 22 June 2013.
- Sork VL, **Gugger PF**, Cokus SJ, Squire K, Eckert AJ. Landscape genomics of adaptive genetic variation in long-lived populations of a California oak, *Quercus lobata*. *Forest Genetics*, Western Forest Genetics Society and IUFRO group on Population, Ecological and Conservation Genetics, Whistler, British Columbia, Canada, 22–25 July 2013.
- Sork VL, Squire K, **Gugger PF**, Cokus SJ, Platt A, Eckert AJ. Inferring gene flow and natural selection from landscape genetic and genomic studies in *Quercus lobata*. *IUFRO International Congress on the Genetics of Fagaceae and Nothofagaceae*, University of Bordeaux, Talence, France, 9–12 October 2012.
- Wright JW, Liang CT, Dudley N, Jones T, Rai H, **Gugger PF**, Eckert AJ, Sork VL. Using landscape genomics to evaluate population responses to climate change in two ecologically important tree species in California and Hawaii. [Poster] *Western International Forest Disease Work Conference*, Lake Tahoe, CA, 8–12 October 2012.
- Ortego J, **Gugger PF**, Riordan E, Smith C, Sork VL. Landscape genetics of *Quercus engelmannii* and two sympatric hybridizing shrub oaks. *MEDECOS XII: Linking Science with Resource Management*, Los Angeles, CA, 6 September 2011.
- Miadlikowska J, Arnold AE, Higgins KL, Sarvate S, **Gugger P**, Way A, Hofstetter V, Lutzoni F. Endolichenic fungi: random inhabitants or symbiotic partners. *Proceedings of the Annual Meeting of the Mycological Society of Japan*, 2005.

Seminars

- Geographic origins and population genetics of bats killed at wind-energy facilities in North America, *Advanced Topics in Conservation Genetics Webinar Series*, US Fish & Wildlife Service, 26 May 2016. [<http://nctc.fws.gov/topic/online-training/webinars/advanced-conservation-genetics.html>]
- *Ecological genomics of *Quercus*, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Menglun, Yunnan, China, 28 April 2016.
- Ecological genomics of oaks, Center for Computational Genetics and Genomics, Temple University, Philadelphia, PA, 18 April 2016.
- Evolutionary response of tree populations to climate change, Horn Point Laboratory, University of Maryland, Cambridge, MD, 30 March 2016.
- Evolutionary response of tree populations to climate change, Chesapeake Biological Laboratory, University of Maryland, Solomons, MD, 9 December 2015.
- Evolutionary response of tree populations to climate change, Institute of Marine and Environmental Technology, University of Maryland, Baltimore, MD, 18 November 2015.
- *Evolutionary response of tree populations to climate change, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD, 9 March 2015.
- *Evolutionary response of tree populations to climate change, Department of Ecology, Evolution, and Environmental Biology, Columbia University, New York, NY, 20 January 2015.
- *How can tree populations survive rapid climate change? Biology Department, Pace University, New York, NY, 18 February 2014.
- *Response of tree populations to past, large-scale climate change inferred from molecular, fossil, and climate data. *Department of Plant Biology Colloquium*, University of Illinois, Urbana, IL, 15 November 2012.
- Phylogeography of Douglas-fir: testing hypotheses from the fossil record. *Ph.D. Defense Seminar*, University of Minnesota, St. Paul, MN, 8 June 2010.
- Geographic and adaptive consequences of past climate warming for Douglas-fir. *Prethesis Seminar*, University of Minnesota, St. Paul, MN, 19 February 2007.

Other Conferences and Workshops

Expert Panel Member, *Mid-Atlantic Forest Ecosystem Vulnerability Assessment*, Climate Change Response Framework, USDA Forest Service, Awbury Arboretum, Philadelphia, PA, 17 November 2015.

Systems Biology Analysis Methods for Genomic Data, University of California, Los Angeles, CA, 7 October 2014.

Active Learning Workshops, Center for Education Innovation in Life Sciences, University of California, Los Angeles, CA, February and June 2014.

Computational Biosciences Initiative Collaboratory Workshop Series, University of California, Los Angeles, CA, 2011 – 2014. <http://collaboratory.lifesci.ucla.edu/workshops>

PAGES: Climate Refugia: Joint Inference from Fossils, Genetics, and Models, University of Oregon, Eugene, OR, 1–3 August 2012.

Plant and Animal Genome Conference XIX, San Diego, CA, 14–19 January 2011.

Co-organizer, *North American Oak Genome Workshop*, Sedgwick Reserve, CA, 20–22 November 2010.

Professional Service

Reviewer (<http://publons.com/author/613879>)

Journals: *Ecology Letters*, *Proceedings of the National Academy of Sciences*, *Global Change Biology*, *New Phytologist*, *Molecular Ecology* (Top 300 Reviewer), *Proceedings of the Royal Society B: Biological Sciences*, *Ecography*, *Evolution*, *Journal of Biogeography*, *Heredity*, *BMC Plant Biology*, *Molecular Ecology Resources*, *PLoS ONE*, *Annals of Botany*, *Landscape Ecology*, *Forest Ecology and Management*, *Organisms Diversity & Evolution*, *American Journal of Botany*, *Botanical Journal of the Linnean Society*, *Biological Journal of the Linnean Society*, *Tree Genetics & Genomes*, *Plant Biology*, *BMC Genetics*, *Journal of Plant Research*, *AoB PLANTS*, *Ecology and Evolution*, *Journal of Heredity*, *Journal of Plant Ecology*, *Canadian Journal of Forest Research*, *Plant Systematics and Evolution*, *Biochemical Systematics and Ecology*, *American Midland Naturalist*, *Silvae Genetica*, *African Journal of Biotechnology*, *Frontiers in Genetics*, *Axios Review*, *Forestry Ideas*

Funding agencies: German Research Foundation (DFG), Minnesota Environment and Natural Resources Trust Fund, NPS George Wright Climate Change Youth Initiative Fellowships

Professional Societies

Member of *Ecological Society of America*, *Society for the Study of Evolution*, *International Biogeography Society*, *Society of Systematic Biologists* (2009)

Public Outreach

- Presentation to informal educators on “Considering intraspecific variation in climate change management,” MadeClear ICCE, New Germany State Park, MD, September 2015
- Organizer for departmental visit of local high school students, UCLA, December 2014
- Presentation of oak genetics research to Laytonville High School *Biology* class, CA, April 2011
- Wikipedia contributor: Major contributions to six articles on various tree taxa
- Popular press: Interviewed for Hawkmoth Magazine, <http://hawkmoth.us/oaks>

Language

- English, native
- Spanish, intermediate written and spoken fluency
- Computer: UNIX shell scripting, R, HTML