

## OSCAR M VARGAS

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<http://oscarmvargas.com> / <https://bitbucket.org/oscarvargash> / <https://github.com/oscarvargash>

### EDUCATION

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2016 Ph.D. Plant Biology, The University of Texas at Austin, Austin, TX, USA  
2008 M.S. Biological Sciences, Universidad de los Andes, Bogotá, Colombia  
2005 B.S. Biology, Universidad de los Andes, Bogotá, Colombia

### APPOINTMENTS

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2020– Assistant Professor, Herbarium Director, Humboldt State University  
2018–2020 Postdoctoral Fellow, University of California, Santa Cruz  
2016–2018 Postdoctoral Fellow, University of Michigan  
2013–2016 Research Assistant, The University of Texas at Austin  
2009–2013 Teaching Assistant, The University of Texas at Austin  
2008–2009 Assistant Curator, ANDES Natural History Museum, Universidad de los Andes  
2008 Interim Curator of Asteraceae, Instituto de Investigaciones Alexander von Humboldt, Villa de Leyva, Colombia  
2006–2007 Assistant Instructor: Universidad de los Andes

### AWARDS

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#### *Academic*

2018 Pan-American Scholar, Botanical Society of America and the Latin American Botanical Society \$1,500

#### *Teaching*

2013 Outstanding Teaching Award, The University of Texas at Austin  
2012 Outstanding Teaching Award, The University of Texas at Austin  
2006 Recognition award for outstanding teaching, Universidad de los Andes

### TEACHING EXPERIENCE

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2020– Plant Taxonomy, plant diversity and systematics with an emphasis on Californian flora  
2020 Introduction to computational tools for biologist, bash and python.  
2010–2013 *Genetics Laboratory*, Teaching Assistant, The University of Texas at Austin  
2010 (spring) *Genetics*, Teaching Assistant, The University of Texas at Austin  
2009 (fall) *Introductory Biology*, Teaching Assistant, The University of Texas at Austin  
2006–2007 *General Botany Laboratory*, Assistant Instructor, Universidad de los Andes  
2006 (fall) *Systematic Botany Laboratory*, Assistant Instructor: Universidad de los Andes

### GRANTS

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2021 NSF CAREER. “Plant speciation in temperate hotspots: testing for budding speciation in the California floristic province.” *Pending*  
2021 HSU-Incentives Program for Faculty Research Grant Development \$4,000  
2021 HSU-Emeritus and Retired Faculty and Staff Association Grant \$500

- 2019 Sponsored symposium “Evolution in the tropics: 70 years since Dobzhansky” (co-written with Kathleen Kay), Society for the Study of Evolution \$9,000 (differed to an unknown date because of COVID-19)
- 2015 Graduate Student Summer Fellowship, The University of Texas at Austin \$ 1,894
- 2015 Graduate Student Travel Support, The University of Texas at Austin US\$ 400
- 2015 Jean Andrews Faculty Fellow Intern, Plant Biology Program, The University of Texas at Austin US\$ 1000
- 2014 Graduate Student Summer Fellowship, The University of Texas at Austin \$ 1,894
- 2014 Graduate Student Travel Support, The University of Texas at Austin US\$ 430
- 2013 Graduate Student Summer Fellowship, The University of Texas at Austin US\$ 2,200
- 2013 Graduate Student Travel Support, The University of Texas at Austin US\$ 800
- 2012 Linda Escobar Travel Award, The University of Texas at Austin US\$ 1,000
- 2012 Garden Club of America award in Tropical Botany US \$5,500
- 2012 Plant Biology Graduate program summer research award, The University of Texas at Austin US\$ 1,200
- 2011 The Sigma Xi Grant-in-Aid of Research \$US 400
- 2011 Plant Biology Graduate program summer research award, The University of Texas at Austin US\$ 1,200
- 2010 Linda Escobar Travel Award, The University of Texas at Austin US\$ 800
- 2010 Plant Biology Graduate program summer research award, The University of Texas at Austin US\$ 1,000
- 2006 Cuatrecasas Award, Smithsonian Institution US\$ 3,000
- 2006 Seed Project, Universidad de los Andes, Bogotá, Colombia US\$ 1,500

## PEER-REVIEWED PUBLICATIONS

<https://scholar.google.com/citations?user=iVvAnggAAAAJ&hl=en>

### *Published*

- DÍAZ-VASCO O., BACA-GAMBOA AE, CALDERÓN-ARIAS AM, RAMÍREZ-PADILLA BR, IDÁRRAGA-P Á, PIZANO-GÓMEZ C, CASTELLANOS-CASTRO C, CASTRO C, MENDOZA H, POSADA JM, VARGAS OM, VIEIRA-URIBE S, VELÁSQUEZ-HURTADO A, SALINAS NR, GARCÍA N. 2021. *Lista Roja de Plantas Vasculares Endémicas de la Alta Montaña de Colombia*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, Unión Europea., Bogota, Colombia.  
<http://hdl.handle.net/20.500.11761/35749>
- VARGAS OM, GOLDSTON B, GROSSENBACHER DL, KAY MK. 2020. Patterns of speciation are similar across mountainous and lowland regions for a Neotropical plant radiation (Costaceae: *Costus*). *Evolution* 74: 2644–2661. <https://doi.org/10.1111/evo.14108>
- LARSON DA, WALKER JF, VARGAS OM, SMITH SA. 2020. A consensus phylogenomic approach highlights paleopolyploid and rapid radiation in the history of Ericales. *American Journal of Botany* 107:1–17. <https://doi.org/10.1002/ajb2.1469>
- BAKER PA, FRITZ SC, DICK CW, PRATES I, BATTISTI DS, VARGAS OM, ASNER GP, MARTIN RE, WHEATLEY A. 2020. Beyond Refugia: New insights on Quaternary climate variation and the evolution of biotic diversity in tropical South America, in Rull V, Carnaval A. *Neotropical Diversification: Patterns and Processes*. Springer, 51–70. [https://doi.org/10.1007/978-3-030-31167-4\\_3](https://doi.org/10.1007/978-3-030-31167-4_3)
- VARGAS OM, DICK CW. 2020. Diversification history of Neotropical Lecythidaceae, an ecologically dominant tree family of Amazon rain forest, in Rull V, Carnaval A. *Neotropical Diversification : Patterns and Processes*. Springer, 791–809. [https://doi.org/10.1007/978-3-030-31167-4\\_29](https://doi.org/10.1007/978-3-030-31167-4_29)
- WALKER JW, WALKER-HALE N, VARGAS OM, LARSON DA, STULL GW. 2019. Characterizing gene tree conflict in plastome-inferred phylogenies. *PeerJ* 7: e7747 <https://doi.org/10.7717/peerj.7747>
- VARGAS OM, HEUERTZ M, SMITH SA, DICK CW. 2019. Target sequence capture in the Brazil nut family (Lecythidaceae): marker selection and in silico capture from genome skimming data. *Molecular*

- Phylogenetics and Evolution* 135: 98–104. <https://doi.org/10.1016/j.ympev.2019.02.020>
- SALDIVIA P, VARGAS OM, ORLOVICH DA, LORD JM. 2019. Nomenclatural priority of the genus *Linochilus* over *Piofontia* (Asteraceae: Astereae). *Phytotaxa* 424 (3): 158–166. <http://dx.doi.org/10.11646/phytotaxa.424.3.3>
- VARGAS OM. 2018. Reinstatement of the genus *Piofontia*: a phylogenomic-based study reveals the biphyletic nature of *Diplostephium* (Asteraceae: Astereae). *Systematic Botany* 43: 485–496. <http://dx.doi.org/10.1600/036364418X697210>
- THOMSON AM\*, VARGAS OM\*, DICK CW. 2018. Complete plastome sequences from *Bertholletia excelsa* and 23 related species yield informative markers for Lecythidaceae. *Applications in Plant Sciences* 6: e1151. <https://doi.org/10.1002/aps3.1151>
- BROWN JW, PARINS-FUKUCHI C, STULL GW, VARGAS OM, SMITH SA. 2017. Bayesian and likelihood phylogenetic reconstructions of morphological traits are not discordant when taking uncertainty into consideration. A comment on Puttick et al. *Proceedings of the Royal Society B*. 284: 20170986. <http://dx.doi.org/10.1098/rspb.2017.0986>
- VARGAS OM, ORTIZ EM, SIMPSON BB. 2017. Conflicting phylogenetic signals reveal a pattern of reticulate evolution in a recent high-Andean diversification (Asteraceae: Astereae: *Diplostephium*). *New Phytologist* 214: 1736–1750. <http://dx.doi.org/10.1111/nph.14530>
- AVILA F, FUNK VA, DIAZGRANADOS M, DÍAZ-PIEDRAHITA S, VARGAS OM. 2016. Asteraceae. in: BERNAL R, GRADSTEIN SR, CELIS M, eds. *Catálogo de líquenes y plantas de Colombia* v. 1. Bogotá, Colombia: Editorial Universidad Nacional de Colombia, 795–908.
- VARGAS OM, MADRIÑÁN S. 2012. Preliminary phylogeny of *Diplostephium* (Asteraceae): speciation rate and character evolution. *Lundellia* 15: 1–15.
- VARGAS OM. 2011. A nomenclator of *Diplostephium* (Asteraceae: Astereae): a list of species with their synonyms and distributions by country. *Lundellia* 14: 32–51.
- VARGAS OM, MADRIÑÁN S. 2006. Clave para la indentificación de las especies de *Diplostephium* (Asteraceae, Astereae) en Colombia. *Revista de la Academia Colombiana de Ciencias Exactas Físicas y Naturales* 30: 489–494.
- \* Denotes equal authorship

## TECHNICAL REPORTS

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- Díaz-Vasco O, Pizano C, Cerón J, Calderón AM, Velásquez WA, Mendoza H, Contreras MP, Madriñán S, VARGAS OM, Posada JM, Baca A, Idárraga A, Castellanos C. 2018. La construcción de la lista roja de plantas endémicas de los páramos. In Andrade GI, Moreno LA. Biodiversidad 2017. *Estado y Tendencias de la Biodiversidad Continental de Colombia*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, 103.
- VARGAS OM. 2005. Guía Botánica de los Bosques de Yerbabuena.

## MENTORSHIP

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| 2020–2021 | Sarah A., Cameron J., Alexander H., Crystal M. Jade D. undergraduate students trained in plant systematics and taxonomy through a herbarium on-line volunteering. |
| 2019–2020 | Sarah Ashklock, undergraduate student trained in comparative phylogenetics and R coding.  |
| 2018–2019 | Jaycee Favela & Hannah Thacker, undergraduate students trained in DNA extraction and phylogenomics.   |
| 2018      | Bruno Garcia, Brazilian PhD student trained in DNA extraction and phylogenetics.  |
| 2017      | Michel Ribeiro, Brazilian PhD student trained in DNA extraction and amplification.  |
| 2017      | Ina Gjorka, trained in DNA extraction and amplification, and R coding.  |
| 2012      | Arman Allabakhshizadeh, trained in research collections and mentored about graduate school and career choices.  |

- 2011 Renee Chamberlain, undergraduate student trained in research collections and mentored about graduate school and career choices.  
2006 Rafael García, undergraduate Honor's dissertation co-advisor.

#### ORAL PRESENTATIONS AND POSTERS

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##### *Invited talks*

- 2019 What woody daisies, spiral gingers, and the Brazil nut family can tell us about speciation in the Neotropics. Botany Lunch, University and Jepson Herbaria, University of California, Berkeley, USA.  
2019 Exploring plant speciation in the Neotropics using phylogenomics, biogeography, and ecology. Departmental seminar, Biological Sciences. California Polytechnic State University. San Luis Obispo, California, USA.  
2019 Exploring plant speciation in Biodiversity hotspots using phylogenomics, biogeography, and ecology. Departmental seminar, Biological Sciences. Humboldt State University. Arcata, California, USA.  
2019 Using phylogenetics to understand the generation of biodiversity in the Neotropics. Departmental seminar, Department of Ecology and Evolutionary Biology, University of California, Santa Cruz, California, USA.  
2018 Understanding the origin of plant diversity in the Andes and the Amazon combining phylogenetics, traits, and biogeography. XII Latin American Botanical Congress. Quito, Ecuador.  
2011 The tribe Astereae in Colombia. Instructor at the Asteraceae Workshop. VI Botany Congress, Cali, Colombia. (*Invited talk*)

##### *Contributed talks*

- 2019 Floral flip-flopers: the evolution of floral traits in a genus of plants with repeated evolution from bee to hummingbird pollination. 17th Annual UCSC/Stanford Species Interactions Workshop. Stanford University, California, USA.  
2019 Understanding tropical plant diversity in the Americas. STEM Postdoctoral Symposium.  
2019 Understanding plant diversification in the Neotropics. 9th Biennial Plant Science Symposium, University of California, Santa Cruz, California, USA.  
2018 Hibridación, especiación alopátrica y convergencia morfológica en la región altoandina: patrones evolutivos y espacio-temporales en el género *Diplostephium* s.l. (Asteraceae). XII Latin American Botanical Congress. Quito, Ecuador.  
2017 Conflicting Phylogenetic Signals Reveal a Pattern of Reticulate Evolution in a Recent High-Andean Diversification (Asteraceae: Astereae: *Diplostephium*) Evolution 2017. Portland, OR, USA.  
2016 Reticulate evolution and recent diversification in Andean Compositae (Astereae: *Diplostephium*) Botany 2016. Savannah, GA, USA.  
2016 Drivers of rapid speciation in high Andean Plants (Asteraceae: *Diplostephium*) Evolution 2016. Austin, TX, USA. (*Mayr Award Symposium*).  
2015 Explosive radiation phylogeny of the Andean genus *Diplostephium* elucidated by high-throughput sequencing. Botany 2015, Edmonton, Canada.  
2015 Genome skimming elucidates the phylogeny of the recent *Diplostephium* radiation in the Andes and uncovers a new genus. Society of Systematic Biologists 2015, Ann Arbor, MI, USA.  
2014 Use of genome skimming to resolve phylogenies of recent radiations: a case of an Andean Compositae. Botany 2014, Boise, ID, USA.  
2013 How are shrubs adapted to the páramos? Anatomical evidence from *Diplostephium* (Asteraceae, Astereae). Botany 2013, New Orleans, LA, USA.

2007 Contribución al estudio del género *Diplostephium* Kunth (Asteraceae). IV Botany Congress in Colombia, Medellín, Colombia.

*Contributed posters*

2013 Revision of the genus *Diplostephium* (Asteraceae, Astereae) for Colombia. Botany 2013, New Orleans, LA, USA.

2007 Monophyly and relationships of the series of *Diplostephium* based on molecules and morphology: an adaptive radiation in the high Andes. Botany and Plant Biology, Chicago, IL, USA.

#### ACADEMIC SERVICE

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- Reviewer for: *Acta Botanica Mexicana*, *Alpine Botany*, *Applications in Plant Sciences*, *Annals of Botany*, *Biota Colombiana*, *BMC Genomics*, *Global and Planetary Change*, *Heredity*, *Journal of Systematics and Evolution*, *International Journal of Plant Sciences*, *Molecular Ecology*, *Molecular Phylogenetics and Evolution*, *Nature Communications*, *PCI Evol Biol*, *PeerJ*, *Phytokeys*, *Plos One*, *Revista de Biología Tropical*, *Systematic Biology*.
- Grant reviewer: American Society of Plant Taxonomists (2017–present), National Science Foundation (2019).
- Committee member for the Early Career Scientist Symposium, Department of Ecology and Evolutionary Biology, University of Michigan (2018)

#### SOCIETIES AND RESEARCH GROUPS

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- American Society of Plant Taxonomist (since 2011)
- Botanical Society of America (since 2011)
- California Native Plant Society (since 2021)
- Instituto Científico Michael Owen Dillon – IMOD, Perú (since 2012)
- Society for the Study of Evolution (since 2019)
- Sigma Xi (since 2011)

#### OUTREACH, DIVERSITY AND INCLUSION

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2020 TOK talk invited guest. On-line interview about science and knowledge for high school students in Colombia

2019 EEB diversity and inclusion reading group organizer. A book club dedicated to reading literature about diversity and inclusion at the Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

2018 Science consultor for Jacana-Jacana, a collective of musicians, artists, and scientist that use music as medium of pedagogy for environmental education for children in local communities in Colombia. I advised their project on high montane ecosystems <http://jacanajacana.com/team-view/jacana-de-la-sierra-espanol/>

2018 Volunteer subtitling for “Ciencia, Café Pa’ Sumercé.”

2014–2016 Social media outreach of the Plant Biology Program at The University of Texas at Austin. Along with other grad-students, I developed a program to make the research associated with the plant biology program at the university accessible and understandable to the public using social media.

2013–2014 Volunteer at “Science Under the Stars.” I helped to organize and maintain a monthly public outreach lecture series organized by graduate students at The University of Texas at Austin.

- 2011 Invited speaker, *what do Biologists do?* Antonio Nariño High School, Bogotá, Colombia. I participated in a series of talks designed to help high school students choose career paths.

#### **MEDIA AND PRESS**

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- 2018 Video interview for “Ciencia, Café Pa’ Sumercé,” on-line resource to connect the public with scientist in Colombia. <https://youtu.be/J-H7qs-FoLQ>
- 2018 Video interview for a “science myth-buster,” on-line series aimed to the general public lead by the Colombian Administrative Department of Science, Technology and Innovation.
- 2017 *New Phytologist* blog interview about my research, which was featured in the cover of the volume 214 of the *New Phytologist* journal. <https://www.newphytologist.org/blog/behind-the-cover-new-phytologist-2144-june-2017/>

#### **LANGUAGES**

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Spanish (native) and English, spoken and written fluently; basic Portuguese.