

Camilla Crifò

Ph.D. Candidate
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Research interests

- *Paleobotany and Paleoecology, evolution of plants and terrestrial ecosystems in South America*
- *Early evolution of Angiosperm, angiosperm leaf traits, and ecophysiology*
- *Phytolith analysis in deep-time paleoecology and modern analogue studies*

Education

- Ph.D.** since 2013 University of Washington, Department of **Biology**
Research: *Using fossil phytolith assemblages to infer changes in vegetation and habitat heterogeneity in response to the Miocene Climatic Optimum in southern Patagonia, Argentina*
Advisor: **Caroline Strömberg**
- M.Sc.** 2011-2013 Miami University, Department of **Geology and Environmental Earth Sciences**
Research: *Variations in angiosperm leaf vein density have implications for interpreting life form in the fossil record*
Advisor: **Ellen Currano**
- M.Sc.** 2008- 2010 Université Montpellier 2 (France), **Palentology, Phylogeny, Paleobiology**, with honors
a) *Vein density variations on the tropical specie *Brosimum alicastrum* (Moraceae) from Panama and its possible application to the fossil record*
Advisors: **Carlos Jaramillo** (Smithsonian Tropical Research Institute, Panama), and **Paul Roiron** (CNRS, UMR CBAE)
b) *Chronology of the vegetation in the Déoule valley, thanks to the study of vegetal rests included in the travertine of Barcillonnette*
Advisors: **Paul Roiron, Laurent Bremont**
- B.S.** 2005-2008 Université Montpellier 2 (France), **Organismal Biology**
Advisors: **Claude Edelin**, and **J. Francois Barczi** (CNR, UMR AMAP)

Appointments

- 2013- present **Teaching Assistant**, University of Washington, Department of Biology for the following courses:
- BIOL 220 Introductory Biology Course – Animal and plant physiology
 - BIOL 180, Introductory Biology Course – Mendelian genetics, evolution, biodiversity, ecology, conservation biology.
 - BIOL 317, Plant Identification and Classification.
 - BIOL 447, The Greening of the Earth – Influence of plants on the evolution of past ecosystems
- 2015-2016 **Project manager**, and **Research Assistant** (*Tracking the evolution of grasses and grasslands: Using phytoliths to unravel evolution-ecology links in deep time*) – University of Washington, Department of Biology, Strömberg lab.
- 2012 **Teaching Assistant** GLG112 Understanding the Earth, Miami University, Department of Geology and Environmental Earth Science.
- 2011 **Teaching Assistant** GLG204 Survival on an Evolving Planet, Miami University, Department of Geology and Environmental Earth Science.

2010-2011 **Research Fellow and Intern** at SMITHSONIAN TROPICAL RESEARCH INSTITUTE, Center for Tropical Paleocology and Archeology, Panama.

Grants, fellowships, awards

2018 **Graduate School Conference Travel Award**, University of Washington (\$500).

2018 **Graduate & Professional Student Senate Travel Award**, University of Washington (\$500).

2017 **Frye-Hotson-Rigg Graduate Fellowship**, University of Washington (1 quarter support).

2017 **Steve Porter Award**, Quaternary Research Center (\$1,879).

2015 **Graduate Research Fellowship**, Organization for Tropical Studies (\$4,200).

2015 **Lewis and Clark Fund**, American Philosophical Society (\$1200).

2015 **Graduate Student Research Grant**, Geological Society of America (\$1,250).

2015 **Ellis L. Yochelson Award**, Paleontological Society (\$800).

2014 **OTS Outstanding Student Paper Award**, Honorable mention, Organization for Tropical Studies.

2014 **Washington Research Foundation and Benjamin Hall Graduate Fellowship** (1 quarter support, plus \$4,500-funding to attend a 5-weeks Tropical Plant Systematics field course in Costa Rica).

2013 **Plant Royalty Research Assistantship**, University of Washington (3 quarters of support).

2012 **Graduate Student Research Grant**, Geological Society of America (\$2,500).

2012 **Kenneth E. & Annie Caster Award**, Paleontological Society (\$800)

2010 **Short Term Research Fellowship**, Smithsonian Tropical Research Institute (3 months support).

2010 **Fellowship for International Mobility**, CROUS Montpellier, French Minister of National Education (4 months of support).

Publications

- 4) **Crifò, C.**, and Strömberg, C.A.E. Small-scale spatial resolution of the soil phytolith record in a Neotropical rainforest and a dry forest in Costa Rica – applications to the deep-time fossil phytolith record. *Paleogeography, Paleoclimatology, Paleoecology*. Under review.
- 3) Baresch, A., **Crifò, C.**, and Boyce, C.K., (2018). Competition for epidermal space in the evolution of leaves with high physiological rates. *New Phytologist*, published online. doi:10.1111/nph.15476
- 2) Strömberg, C.A.E., Dunn, R.E., **Crifò, C.**, Harris, E.B., (2018). Phytoliths in paleoecology: analytical considerations, current use, and future directions. To be published in D.A. Croft, S.W. Simpson, and D.F. Su (eds.), *Methods in Paleocology: Reconstructing Cenozoic Terrestrial Environments and Ecological Communities*. Springer (Vertebrate Paleobiology and Paleoanthropology Series), Cham, Switzerland.
- 1) **Crifò, C.**, Currano, E.D., Baresch, A., and Jaramillo, C., (2014). Variations in angiosperm leaf vein density have implications for interpreting life form in the fossil record. *Geology* 42(10): 919-922. doi:10.1130/G35828.1

Presentations

*invited talk, **undergraduate mentee

- Aug 2018 Crifò, C., and C.A.E. Strömberg. Refining phytolith analysis in deep-time paleoecology through modern analogue studies. 10th European Paleobotany and Palynology Conference (Dublin, Ireland).
- July 2018 Crifò, C., Bargo, M.S., Cuitiño, J.I., Kay, R.F., Kohn, M.J., Trayler R.B., Vizcaíno, S.F., Zucol, A.F., and C.A. E. Strömberg. Habitat shift during the Middle Miocene Climatic Optimum of Southern Patagonia recorder in phytolith assemblages. 5th International Paleontological Congress, (Paris, France).
- Oct 2017 Grant, C.A.**, **Crifò, C.**, and C.A.E. Strömberg. Reconstructing a modern tropical rainforest using soil phytolith assemblages: Implications for phytolith studies in paleoecology. Geological Society of America Annual Meeting & Exposition (Seattle, WA). Geological Society of America, *Abstracts with Programs* Vol.49, No.6. doi: 10.1130/abs/2017AM-307218
- Oct 2017 **Crifò, C.**, Bargo, M.S. Cuitiño, J.I., Kay, R.F., Kohn, M.J., Trayler, R.B., Vizcaíno, S.F., Zucol, A.F., and C.A. E. Strömberg. Fossil phytolith assemblages from Southern Patagonia indicate changing habitats during the Middle Miocene Climatic Optimum. Geological Society of America Annual Meeting & Exposition (Seattle, WA). Geological Society of America, *Abstracts with Programs* Vol.49, No.6. doi: 10.1130/abs/2017AM-298212
- Aug 2016 Strömberg, C.A.E., Aboulaflia, E.**, Brightly, W., **Crifò, C.**, McManus, B.**, O'Keefe, C.**, Schorr, A.**, Senske, A.** Grass phytolith shape: towards a key to the evolution and paleoecology of grasses and grasslands. Botany 2016, (Savannah, GA). Poster
- Nov 2016 **Crifò, C.**, M.S. Bargo, R.F. Kay, M.J. Kohn, S.F. Vicaiño A.F. Zucol, and C.A.E. Strömberg. Using phytolith to attest vegetation changes during the MMCO of the Santa Cruz Formation, Patagonia (Argentina). XIV International Palynological Congress & X International Organization of Paleobotany Conference, (Salvador, Bahia, Brazil).
- Oct 2016 **Crifò, C.** & C.A.E. Strömberg. Phytoliths in Paleoecology: a tool for reconstructing habitat structure and heterogeneity. GSA Annual Meeting & Exposition (Denver, CO). Geological Society of America, *Abstracts with Programs* Vol.48, No.7. doi: 10.1130/abs/2016AM-288001
- Oct 2016 Baresch A, **C. Crifò**, C. Jaramillo, and C.K. Boyce. The role of developmental constraints on leaf architecture and the evolution of uniquely high leaf vein densities in angiosperms. Geological Society of America Annual Meeting & Exposition (Denver, CO). Geological Society of America, *Abstracts with Programs* Vol.48, No.7. doi: 10.1130/abs/2016AM-28703
- Oct 2016 **Crifò, C.***, E. D. Currano, A. Baresch, and C. Jaramillo. Vein density: why should we access the forest canopy? (**Invited presentation**) GSA Annual Meeting & Exposition (Denver, CO). Geological Society of America, *Abstracts with Programs* Vol.48, No.7. doi: 10.1130/abs/2016AM-287876
- Aug 2014 **Crifò, C.**, E. D. Currano, A. Baresch, and C. Jaramillo. Variations in angiosperm leaf vein density have implications for interpreting life form in the fossil record. 9th European Paleobotany and Palynology Conference (Padova, Italy).
- Oct 2012 **Crifò, C.**, & A. Baresch. Leaf vein density as a proxy to characterize forest structure; possible applications to the fossil record. GSA Annual Meeting & Exposition (Charlotte, NC). Geological Society of America, *Abstracts with Programs* Vol.44, No.7, p 265.
- May 2012 **Crifò, C.** Leaf vein density, a trait to assess forest structure in the fossil record. 29th Mid-Continent Paleobotanical Colloquium, Yale University, (New Haven, CT).
- June 2012 Baresch, A., T.S. Field, **C. Crifò**, and C. Jaramillo. Similar venation densities on two fossil tropical forests before and after the K/T boundary, implications for the evolution of this ecosystems and the water cycle. 8th European Paleobotany and Palynology Conference (Budapest, Hungary).

Languages

ENGLISH, FRENCH, SPANISH, and ITALIAN: Excellent reading, conversing, writing

Mentorship

- 2018-present **Kailyn Zard:** *“Measuring changes in grass phytolith size in response to increased aridity during the onset of the Middle Miocene Climatic Optimum in the Santa Cruz formation, Patagonia (Argentina)”*.
- 2017-2018 **Claire A. Grant:** *“Modern palm phytoliths from a Neotropical Rainforest (La Selva, Costa Rica)”*.
- 2015-2016 **Elie Aboulaflia, Brittany McManus, Casey O’Keefe, Anna Schorr, Ashly Senske.** *“Tracking the evolution of grasses and grasslands: Using phytoliths to unravel evolution-ecology links in deep time”*.

Undergraduate Research Assistants:

Thy Huyhn, Erin Sofinoski, Sarah Larson, Kevin Jackson, Matt Butrim, Una O’Connell, Matt Bloch, Gabrielle Alampay, Kirsten Olson, Kristen Hamel, Claire Grant, Kailyn Zard, Alexander Arrendale, Keylin Tobin, Katie Hill, Xu Ziqi.

Service

- Oct. 2017 **Organizer, Topical Session.** GSA Annual meeting & Exposition 2017 (Session title: Ancient Ecosystems of North America).
- 2016-2017 **Senator, Graduate Professional and Student Senate,** University of Washington, Department of Biology.
- Apr. 2015/2018 **Speaker, Graduate Student Symposium.** University of Washington, Department of Biology.
- Apr. 2014 **Volunteer, Graduate Student Symposium.** University of Washington, Department of Biology.
- 2014-2015 **Student member, Diversity Committee.** University of Washington, Department of Biology.

Outreach & Science Education

- 2014-present **Presenter and assistant.** Girls In Science high school and middle school programs. Burke Museum of natural History and Culture, University of Washington.
- 2016 **Presenter.** NESSP Summer Camp 2016: Mission Earth Scout One/Misión Exploración Tierra. Summer field camp for bilingual (English/Spanish) K-2 students. Washington NASA Space Grant Consortium, University of Washington.

Media

[*Costa Rican plants: Studying the present to understand the past.*](#) Blog for the Burke Museum of Natural History and Culture. (2016)

[Blog post,](#) Science Positive. (2014)

[Plant Life Forms in the Fossil Record: When Did the First Canopy Flowers Appear?](#) Geological Society of America release No. 14-58 (2014)

[New Clues to Evolution of Flowering Forests.](#) Live Science.com (2014)

[Plant life forms in the fossil record: When did the first canopy flowers appear?](#) (2014) ScienceDaily.com

[Leaf vein density to trace the origin of forests.](#) STRI NEWS (2011)