

REGAN ELIZABETH DUNN, Ph.D.

Integrative Research Center
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Current position

July 2016- Present Negaunee Interdisciplinary Postdoctoral Fellow, Integrative Research Center, Field Museum of Natural History Chicago, IL

Education

Dec. 2013 Ph.D. Department of Biology, University of Washington, Seattle, WA.
Dissertation committee: Caroline Strömberg (chair), Greg Wilson, Roger de Moral, and Jody Bourgeois

Dec. 2003 M.S. Department of Botany, University of Wyoming, Laramie, WY. *Thesis Committee:* Stephen A. Jackson (chair), Greg K. Brown, Paul L. Heller, Kirk R. Johnson (Denver Museum of Nature & Science)

May 1995 B.S., Colorado State University, Fort Collins, CO. *Major:* Biological Sciences with concentration in cellular and molecular biology; *Minor:* Anthropology

Employment History

2015-2016 Postdoctoral Researcher, Department of Botany, University of Wyoming, WY

2014-2015 Geology & Paleontology Collections Manager, University of Washington Burke Museum, Seattle, WA

2008-2013 Research and Teaching Assistant, University of Washington

2003-2008 Geologist (Paleobotanist), National Park Service, John Day Fossil Beds National Monument, Kimberly, OR.

2002-2003 Excavation Crew Chief, Castle Rock Rainforest, Denver Museum of Nature & Science

2001 Contract Paleobotanist, Colorado Department of Transportation

1999 Ecological Field and Lab Technician, Colorado State University, Ft. Collins, CO.

1999 Core Logger and Geological Intern, Denver Museum of Nature & Science

1997-2000 Whitewater River Guide, Rocky Mountain Adventures, Fort Collins, CO

1997-1999 Ski Instructor, Steamboat Ski Resort, Steamboat Springs, CO

1996-1997 Aquatic Toxicology Lab Technician, ENSR, Fort Collins, CO

1995-1996 Lab Assistant, Maize Genetics Research Lab, Colorado State University, Fort Collins, CO

Research Awards, Fellowships and Grants

2017 Field of Dreams Application, Women's Council of the Field Museum

2016 Negaunee Interdisciplinary Postdoctoral Fellowship, Field Museum

2016 EPSCoR Wyoming Women in Science & Engineering Summer Travel Grant

2015 National Geographic Society Explorers Grant

2014 Nominee for UW Graduate School Distinguished Dissertation Award

2012 Denton Writing Fellowship (University of Washington, Dept. of Biology)

2011 NSF Doctoral Dissertation Improvement Grant (DEB-1110354)

2011 Geological Society of America Graduate Field Grant

2010 Giles Botanical Field Work Award

2009 Evolving Earth Grant Award

2008-2012 Ben Hall Molecular Plant Systematics Fellowship, University of Washington

- 2002 H.T. Northern Fellowship, University of Wyoming, Dept. of Botany
2001 Geological Society of America Graduate Field Grant
2001 University of Wyoming College of Arts and Sciences Independent Study Award
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Publications

- Field, D.J., Bercovici, A., Berv, J.S., **Dunn, R.E.**, Fastovsky, D., Lyson, T.R., Vajda, V., Gauthier, J.A., 2018, Early evolution of modern birds structured by global forest collapse at the end-Cretaceous mass extinction: *Current Biology*, v. 28, p. 1825-1831.
- Bush, R.T., Wallace J.R., Currano, E.D., Jacobs, B.F., McInerney, F., **Dunn, R.E.**, Tabor, N. J., 2017, Leaf $\delta^{13}\text{C}$ and cell anatomy reveal shading and canopy structure in a Miocene forest from Ethiopia: *Palaeogeography, Palaeoclimatology, Palaeoecology*, <https://doi.org/10.1016/j.palaeo.2017.07.015>
- Strömberg, C.A.E., **Dunn, R.E.**, Crifò, C., Harris, E.B. Accepted, 2017. 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), Dordrecht
- Dunn, R.E.**, Strömberg, C.A.E., Madden, R.H., Kohn, M.J., Carlini, A.A. 2015, Linked canopy, climate and faunal change in the Cenozoic of Patagonia: *Science*, v. 347, p. 258–261.
- Dunn, R.E.**, Le, T., Strömberg, C.A.E. 2015, Light environment and epidermal cell morphology in grasses: *International Journal of Plant Sciences*, DOI 10.1086/683278.
- Selkin, P.A., Strömberg, C.A.E., **Dunn, R.E.**, Kohn, M.J., Carlini, A.A., Davies-Vollum, S., Madden, R.H., 2015, Climate, dust, and fire across the Eocene-Oligocene transition, Patagonia: *Geology*: G36664-1.
- Kohn, M. J., Strömberg, C.A.E., Madden, R.H., **Dunn, R.E.**, Evans, S., Palacios, A., Carlini, A., 2015, Quasi-static Eocene-Oligocene climate in Patagonia promotes incremental faunal evolution and mid-Cenozoic global cooling: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 435, p. 24–37.
- Dunn, R.E.**, Madden, R.H., Kohn, M.J., Schmitz, M.D., Strömberg, C.A.E., Carlini, A.A., Ré, G.H., Crowley, J., 2013, A new chronology for middle Eocene–early Miocene South American Land Mammal Ages: *GSA Bulletin*, v. 125, p. 539–555.
- Strömberg, C.A.E., **Dunn, R.E.**, Madden, R.H., Kohn, M.J., Carlini, A.A., 2013, Decoupling the spread of grasslands from the evolution of "grazers" in South America: *Nature Communications*. DOI: 10.1038/ncomms2508.
- Dillhoff, R.M., Dillhoff, T.A., **Dunn, R.E.**, Myers, J.A., Strömberg, C.A.E., 2009, Cenozoic paleobotany of the John Day Basin, central Oregon: *Geological Society of America Field Guide* 15, p. 135-164.
- Ellis, B., Johnson, K.R., **Dunn, R.E.**, 2003, Evidence for an *in situ* early Paleocene rainforest from Castle Rock, Colorado: *Rocky Mountain Geology*, v. 38, p. 73–100.
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Meeting Abstracts

- Dunn, R.E.**, Currano, E.D., Dechesne, M., 2017, Canopy change during the PETM, Hanna Basin, WY. *Climate and Biota of the Early Paleogene, Snowbird, UT*
- Dunn, R.E.**, Barclay, R.S., Currano, E.D., 2016. Using leaf epidermis to unlock the ancient forest reconstruction enigma. *Geological Society of America Annual Meeting Abstract, Denver, CO*.
- Bercovici A., **Dunn, R.E.**, Fastovsky, D.E. 2016. Direct evidence of canopy density loss associated to the Cretaceous-Paleogene boundary Chicxulub impact in southwestern North Dakota. *Geological Society of America Annual Meeting Abstract, Denver, CO*.
- Bush, R. T., Wallace, J.R., Currano, E.D., Jacobs, B.F., McInerney, F., **Dunn, R.E.**, and Tabor, N. J., 2016, Leaf carbon isotopes and cell anatomy as indicators of shading and canopy structure in a Miocene forest from Ethiopia. *Geological Society of America Annual Meeting Abstract, Denver, CO*.

- Fetter, K.C., Jud, N.A., Barclay, R. S., Bashforth, A.R., **Dunn, R.E.**, France, C.L., Lini, A., and Wing, S.L., Reconstruction of paleoecology and whole-plant habit using stable carbon isotopes from dispersed leaves of *Laurozamites powellii*, an upper Triassic bennettitalean. *Geological Society of America Annual Meeting Abstract, Denver, CO.*
- Dunn, R.E.**, Madden, R.H., 2015, Leaf Area Index, mammalian species richness and mammalian community structure in South America today and in the middle Cenozoic, *Geological Society of America Annual Meeting Abstract, Baltimore, MD.*
- Dunn, R.E.**, 2014, How open is “open habitat”? Quantifying and reconstructing the environmental context for vertebrate evolution during the Cenozoic using the Leaf Area Index, *SVP Annual Meeting, Romer Session, Berlin, Germany.*
- Dunn, R.E.**, Stromberg, C.A.E., 2014, A new proxy for estimating Leaf Area Index (LAI) in the fossil record, *Geological Society of America Annual Meeting, Vancouver B.C., Canada.*
- Dunn, R.E.**, 2014, A middle Miocene phytolith record from western North America, the Mascall Formation of eastern Oregon, *Botanical Society of America annual meeting, Boise, ID*
- Dunn, R.E.**, Strömberg, C.A.E, 2013, Seeing the light through cell morphology: A new proxy for estimating Leaf Area Index (LAI) from anticlinal epidermal phytoliths. Abstract, *North American Paleontological Conference Annual Meeting, Gainesville, FL.*
- Dunn, R.E.**, Strömberg, C.A.E., Le, T., Loeser, A.C., 2012, Seeing the forest through the trees: Reconstructing vegetation structure from the cellular level. GSA Abstracts with Programs Vol. 44, *Geological Society of America annual meeting, Charlotte, NC.*
- Madden, R.H., **Dunn, R.**, Strömberg, C, Kohn, M., 2012, The Miocene of equatorial South America and the biotic consequences of Andean uplift: *Journal of Vertebrate Paleontology, Program and Abstracts 2012.*
- Madden, R.H., **Dunn, R.E.**, Kohn, M.J., Strömberg, C.A.E., Carlini, A.A., 2010, Geochronology and timescales in the evolution of mammalian tooth shape: the Paleogene of Patagonia: *X Congreso Argentino de Paleontología y Bioestratigrafía-VII Congreso Latinoamericano de Paleontología.*
- Stromberg, C., **Dunn, R.**, Kohn, M., Madden, R., Carlini, A., 2010, Was the evolution of hypsodonty in South America a response to the spread of grassland vegetation?: New phytolith records from Gran Barranca, Argentina: *Society of Vertebrate Paleontology 2010 Program and Abstracts*, p. 171A.
- Dunn, R.**, Kohn, M.J., Madden, R.H., Strömberg, C.E., Carlini, A.A., 2009, High precision U/Pb geochronology of Eocene-Miocene South American Land Mammal Ages at Gran Barranca, Argentina, *Eos Trans. AGU, 90(52), Fall Meeting Suppl. Abstract GP23B-0791.*
- Dunn, R.**, 2008, Palynology of the Hanna Basin, friend or foe? Geological Society of America Abstracts with Programs, v. 40, p. 231. *Geological Society of America annual meeting, Houston, TX.*
- Dunn, R.**, 2007, Climatically induced floral change across the Eocene-Oligocene transition in the John Day and Clarno Formations of eastern Oregon, *Geological Society of America Annual Meeting, Denver, CO.*
- Dunn, R.E.**, & Fremd, T., 2004, Stratigraphic framework of floral localities in the John Day Basin, *Geological Society of America Annual Meeting, Denver, CO.*
- Fremd, T., **Dunn, R.E.**, Rickabaugh, S. J., Graham, D. B., & Rosenkrans, D., 2003, Reconnaissance of the Frederika Formation, Wrangell-St. Elias National Park and Preserve, Southeastern Alaska. *Geological Society of America Annual Meeting, Seattle, WA.*
- Ellis, B., Johnson, K. R., & **Dunn, R.E.**, 2003, Comparison of qualitative and quantitative collecting methods at the *in situ* Castle Rock Rainforest Site, Colorado. *Geological Society of America Annual Meeting, Seattle, WA.*
- Dunn, R.E.**, 2002, Paleobotanical assessment of the Hanna Basin, south-central Wyoming: Correlating Paleocene leaf megafossils and palynological data with North American Land Mammal Ages, *Geological Society of America Annual Meeting, Denver, CO.*

Dunn, R.E., 2000, Using paleobotanical data with NALMAs for high-resolution Paleocene biostratigraphy in the Hanna Basin, Wyoming: *Journal of Vertebrate Paleontology*, v. 20(3), 39A.

Ph.D. Dissertation

From Cells to Canopies: Reconstructing Vegetation Structure and its Response to Climate Change in the Middle Cenozoic of Patagonia Using Phytolith Morphology. 2013. University of Washington, Seattle, WA

M.S. Thesis

Correlation of leaf megafossil and palynological data with North American Land Mammal Ages from Paleocene-aged strata of the Ferris and Hanna Formations, Hanna Basin, south-central, Wyoming. 2003. University of Wyoming, Laramie, WY

Teaching Experience

2018 Guest Lecture for Paleontology, Colorado College
2015-2016 Guest Lectured for Introductory Biology (U Wyoming); Plant Systematics and Greening of the Earth courses (U Washington)
2014 Instructor for *Girls in Science*, Burke Museum, Seattle
2008-2013 Graduate Student Instructor U Washington for “Introduction to Plant & Animal Physiology” BIOL220); “Foundations in Evolution and Systematics (BIOL 354) for *Greg Wilson*; “Greening of the Earth” (BIOL447) for *Caroline Strömberg*.
2000-2002 Graduate student instructor “Biology for non-majors”, “Biology for majors”, “Field Ecology” (U Wyoming)

Invited Professional Talks and Guest Lectures

2018 Paläontologisches Institut und Museum, Universität Zürich^{UZH}
2018 Field Museum Invited Seminar
2018 Colorado College, Geology Seminar
2017 Baylor University, Geology Seminar
2016 Watson Seminar, Field Museum of Natural History
2016 University of Chicago, Dept. of Geophysical Sciences
2016 Escuela Politécnica, Quito, Ecuador
2016 Denver Museum of Nature & Science Geoscience Colloquium
2015 University of Wyoming, Dept. of Botany Seminar Speaker
2015 Cleveland Museum of Natural History Invited Speaker
2015 University of Colorado, Dept. of Geological Sciences Colloquium
2015 University of Oregon, Dept. Geological Sciences Seminar
2014 University of Washington, Plant Systematics course guest lecture
2013 Escuela Politécnica Nacional, Quito, Ecuador
2012 University of Washington Greening of the Earth course guest lecture
2012 University of Washington Tacoma Environmental Science Seminar
2012 Symposium on Gran Barranca research, Museo de La Plata, La Plata, Argentina
2010 USGS Cascade Volcano Observatory, Vancouver, WA
2010 Stonerose Fossil Beds National Fossil Day Celebrations, Republic, WA
2009 Northwest Paleontological Society Meeting
2007 Oregon Public Lands Institute Earth Day Series, Bend, OR
2003 University of Oregon Geology Department Seminar
2002 University of Wyoming Introduction to Paleontology course guest lecture

Other Professional Activities

- 2017 Serving on International Scientific Committee Revista del Museo de La Plata
- 2017 Co-chair topical symposium T62: Ancient Environments of South America Geological Society of America Annual Meeting, Seattle, WA.
- 2016 Co-chair topical symposium T147: Height, the elusive third dimension of terrestrial ecosystems: New approaches for determining structure and complexity of ecosystems on land in deep time. Geological Society of America Annual Meeting, Denver, CO.
- 2014 Co-chair Miocene Floras of North America session Annual Botanical Society of America meeting, Boise, ID.
- 2009 Field Trip Leader: Co-organized and co-led a 4-day field trip to the John Day Basin for the Geological Society of America Annual Meeting in Portland, OR.
- 2003-2008 Led field trips of the John Day Basin for geology and paleontology classes from the U Oregon, U Washington, Whitman College, Western Oregon U, and UC Berkeley.
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Public Outreach: Designed and provided content including graphics, text and designs for exhibits and guide book materials at the Thomas Condon Paleontology Center at John Day Fossil Beds National Monument (<http://www.nps.gov/joda/photosmultimedia/Thomas-Condon-Paleontology-Center.htm>). Botanical consultant to artists creating full-sized murals for museum exhibit. Docent museum exhibits, preparatory lab, and collections facility for elementary through high school students at John Day Fossil Beds National Monument. Designed Outreach Kits for high school biology classes that were mailed out from John Day F. B. Provided interviews and support for Oregon Public Broadcasting program “Oregon Field Guide”, and for popular articles in Via Magazine, Bend Bulletin, and Oregonian newspapers. UW Burke Museum activities include annual Dino Day coordination and participation, Girls Science Camp Instruction, designed a paleoecology program for Girls in Science (middle school-aged students), designed an exhibit on grasslands in South America, conducted collections tours, created displays for special events, coordinated and participated in Member’s Night activities, and mentored high school students in collections based paleontology projects.

Referee experience

Rocky Mountain Geology, PaleoBios, The Mountain Geologist, New Mexico Geology, Palaeobiodiversity and Palaeoenvironments, Ecography, Palaios, PLOS ONE, Silicon, Palaeogeography, Palaeoclimatology, Palaeoecology, Systematic Biology, Paleobiology, Quaternary Research

Field Experience

- 2017 Field work in Paleocene–Eocene sections in the Hanna Basin, WY
- 2017 Phytolith collection and geological characterization of Paleogene-Neogene strata, Patagonia, Argentina
- 2016 Field work in Paleocene–Eocene sections in the Hanna Basin, WY
- 2016 Collected modern soils & fossil plants from Ecuador, Bolivia & Argentina
- 2015 Paleocene–Eocene-focused fieldwork in Hanna, Bighorn and Piceance basins
- 2015 Soil collection in New Zealand
- 2014 Collected cuticle samples from the Hell Creek area in MT and Hanna Basin, WY
- 2013 Collected phytolith, pollen and geochronology samples from intermontane basins in southern Ecuador
- 2012 Collected phytolith samples from several Miocene-aged outcrops in western Patagonia, Argentina

- 2011 Collected phytolith samples from Puna Plateau, NW Argentina
- 2011 Collected modern soil samples from biological stations in Costa Rica including La Selva, Palo Verde and various sites within the Area Conservación de Guanacaste
- 2009-2011 Collected phytolith samples from various sites in Patagonia, Argentina
- 2003-2008 Collected geologic, paleobotanical and vertebrate fossils at various sites in the John Day Basin
- 2003 Paleobotanical field work in Wrangell-St. Elias National Park, Alaska
- 2002-2003 Extensive excavation of megafloras from Castle Rock Rainforest Locality, CO
- 2000-2003 Geologic and Paleobotanical field work in the Hanna Basin of south-central, WY
- 2001 Excavation and mitigation of megafloral sites along the I-25 near Lone Tree, CO
- 1999 Geologic intern, Denver Museum of Nature & Science (DMNS) logged a research core drilled in Kiowa, CO

Collaborations

T. Dillhoff & R. Dillhoff, (Evolving Earth Foundation) *Paleobotanical projects in the Northwest*; J Crowley, M Kohn, M Schmitz (Boise State U) *Geochronology and stable isotope geochemistry of South American sites*, R Madden (U of Chicago) *Paleontology of South America and New Zealand*; A Carlini, M Ciancio, G Vucetich (Museo de La Plata, Argentina, CONICET) *Argentina Paleontology*; F Anaya (U Autonoma Tomas Frias) *Paleontology in Bolivia*; B Horton & T Shanahan (U Texas) *Uplift, climate and vegetation change in southern Ecuador*; I Miller (DMNS), *Paleocene leaf sites in the Western Interior*; E Currano (U Wyoming), P Higgins (U Rochester), M Deschesne (USGS), B Foreman (Western Washington U), R Barclay & S Wing (Smithsonian Institution) *PETM in the Hanna, Bighorn and Piceance basins*; S Davies-Vollum (Sheffield Hallum U), P Selkin (UW Tacoma), *Grain size and magnetic susceptibility studies at Gran Barranca*; J Samuels & T Fremd (U of Oregon & John Day Fossil Beds National Monument) *Co-evolution of plants and mammalian faunas Oregon*; R Barclay (Smithsonian Institution) *Leaf cuticles and phylogeny*; J Meachen (Des Moines U) *Phytoliths of Natural Trap Cave, WY*; D Peppe (Baylor U) *Pleistocene phytoliths from Kenya*; G Wilson (U Washington) & Antoine Bercovici (Smithsonian Institution) *Vegetation change across K-Pg extinction, Hell Creek MT and Marmarth ND*; C Strömberg (U Washington) *Multiple phytolith projects*; J Sepulveda, K Snell, P Molnar (U Colorado) *Late Miocene-Pleistocene climate and vegetation change in the Colombian Andes*; B Patterson (Field Museum) & Shannon Albeke (U Wyoming) *Modern mammal diversity and distributions in relation to vegetation complexity in South America*.

Society Memberships

Geological Society of America
 Society of Vertebrate Paleontology
 Botanical Society of America
 Paleontological Society
 AAAS