

**IAN M. MILLER**  
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**Contact Information:**

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**Educational Background:**

Postdoctoral Fellow 2006-2008, Denver Museum of Nature & Science.

Advisor: Kirk R. Johnson.

PhD, May 2007. Yale University, New Haven, CT. Geology and Geophysics.

Advisors: Leo J. Hickey and Mark T. Brandon.

Dissertation Title: *The Taxonomy, Paleoecology and Paleolatitude of the Early Cretaceous (Albian) Winthrop Formation Flora, Washington State, USA*. 1,156 p.

Masters of Philosophy, 2003, Yale University, New Haven CT. Geology and Geophysics.

Civil Engineering M.S. program, 2000-2001, University of New Mexico, Albuquerque, NM.

B.A. with honors in Geology, 1999, Colorado College, Colorado Springs, CO.

**Principle Research Interests:**

(1) paleobotanical proxies for and statistical analysis of paleoclimate, paleolatitude, and paleoelevation; (2) characterization of pre-angiosperm North American ecosystems; (3) evolutionary history and ecology of Cretaceous and Paleocene plants; (4) taxonomic analysis and nomenclature of whole fossil floras; and (5) the tectonic evolution of the Western Cordillera of North America. Complementary methodological research seeks to (a) improve reliability and accuracy of paleoclimate proxies based on leaf physiognomy through statistical analysis of modern climate and living floras, (b) refine existing paleobotanical techniques for estimating paleolatitude and paleoelevation and (c) standardize and advance the rapid publication of large monographic treatments of whole fossil floras.

**Professional and Field Experience:**

Winter 2008–	Curator of Paleontology, Denver Museum of Nature & Science
2006–2008	Postdoctoral Fellow, Denver Museum of Nature & Science
Summer 2006–	Field Geologist/Paleontologist, NSF Denver Basin Project, CO
Spring 2006–	Associate Editor <i>Palaeontologia Electronica</i> <a href="http://palaeo-electronica.org/">http://palaeo-electronica.org/</a>
Fall 2006	EARTHTIME III, Santa Fe Institute, NM
Summer 2005	NSF-funded Paleoelevation Workshop, Lehigh Univ.
Fall 2004	NSF-funded Northeast Russia Tectonics Workshop, Stanford Univ.
Spring 2005	Teaching assistant for Global Environmental Change, Prof. K. Turekian
Fall 2003	Teaching assistant for Paleobotany, Prof. L. Hickey
Summers 2001–2003	Field Geologist and Expedition Organizer, NE Washington State
Fall 2002	Teaching assistant for Sedimentology and Stratigraphy, Prof. L. Hickey
Spring 2002	Teaching assistant for Global Environmental Change, Prof. K. Turekian
1999–2001	Field Geologist, Vineyard & Assoc. Inc., Albuquerque, NM

**Honors and Awards:**

2006	Philip C. Orville Prize for outstanding scholarship in Earth Sciences, Yale University
2006	G. Simpson Prize for outstanding paper on the fossil record, Yale Peabody Museum
2001–2005	Charlton Dows Cooksey Jr. Memorial Fellowship, Yale University
2002–2005	Yale University Teaching Fellowships
2004	Estwing Hammer Prize for outstanding performance in geology, Yale University

2004	Sigma Xi Research Grant
2004	John F. Enders Fellowship Grant, Yale University
2004	GSA Graduate Student Research Grant – Alexander Sisson Award
2004	Evolving Earth Foundation Student Grant
2004	GSA Travel Grant – Northeastern Section
2004	Yale University Graduate Student Assembly Travel Grant
2003	GSA Graduate Student Research Grant
2003	Yale Institute of Biospheric Studies Field Ecology Grant
2002	GSA Outstanding Mention for exceptional student research grant proposal
2002	GSA Graduate Student Research Grant
2002	GSA Travel Grant – Cordilleran Section
2002	Sigma Xi Research Grant
2002	Honorable Mention, National Science Foundation Graduate Fellowship
1999	Estwing Outstanding Senior Geologist, Colorado College, CO
1999	Colorado College Venture Grant
1998	Howard Hughes Undergraduate Research Grant
1995–1996	Dean’s List

### **Publications:**

- Pott, C., **Miller, I. M.**, Kerp, H., van Konijnenburg-van Cittert, J. H. A., & Zijlstra, G. 2007. (1791) Proposal to conserve the name *Pterophyllum* (fossil *Bennettitales*) with a conserved type: *Taxon*, vol. 56(3), p. 966-967.
- **Miller, I. M.** and Prevec, R. 2006. Palaeobotany in the digital age: Unearthing the future of taxonomy: *Palaeontologia Electronica*, vol. 9 (2), editorial.
- **Miller, I. M.**, Brandon, M., and Hickey, L., 2006. Using leaf margin analysis to estimate the mid-Cretaceous (Albian) paleolatitude of the Baja BC block: *Earth and Planetary Science Letters*, vol. 245, p. 95-114. doi: 10.1016/j.epsl.2006.02.022.
- Raynolds, R., Johnson, K. J., Ellis, B., Bowring, S., Dechesne, M., **Miller, I. M.**, 2007. Earth history along Colorado’s Front Range: Salvaging geologic data in the suburbs and Sharing it with the citizens: *GSA Today*, vol. 17, no. 12, doi: 10.1130/GSAT01712A.1
- Peppe, D. J., Hickey, L. J., **Miller, I. M.**, and Green, W. A., (*in review*). A preliminary investigation of the Aspen Shale flora: A catalogue of fossil plant morphotypes: *Yale Peabody Bulletin*.
- Gorman, M.A., **Miller, I. M.**, Pardo, J., Small, B., (*in review*). Fish, Turtles, Plants, and Insects within the Morrison Formation: A Walk through a Late Jurassic Ecosystem: *GSA Field Guide Series*.
- **Miller, I. M.** and Hickey, L. J. (*submitted*). The mid-Cretaceous (Albian) Winthrop Formation flora I: Ferns and fern allies: *Yale Peabody Bulletin*.

**Published Abstracts:**

- **Miller, I. M.**, Johnson, K. J., Ellis, B., Fricke, H., and Raynolds, R. 2007. Evolution of relief on the Colorado Front Range: Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Denver, CO.
- Gorman, M. A. II, **Miller, I. M.**, Small, B., Pardo, J. 2007. A lacustrine Late Jurassic flora in the Morrison Formation: Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Denver, CO.
- Ellis, B., Johnson, K. J., **Miller, I. M.**, Hutton, C., Dunn, R., Barclay, R., Miller, D. M., 2007. Snapshots in Time: Floral change in the Denver Basin from 68-64 Ma: Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Denver, CO.
- Johnson, K., Raynolds, R., Ellis, B., **Miller, I. M.**, 2007. Outreach opportunities related to museum-sponsored research on the urban geology and surprising paleontology of the Laramide strata of the Denver Basin: Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Denver, CO.
- **Miller, I. M.**, Johnson, K. J., and Ellis, B., 2007. A Complete Cycad Plant from the Castle Rock Rainforest: Implications for the Evolution and Paleo-distribution of American Zamiaceae. Mid-Continent Paleobotanical Colloquium, Southern Methodist University, Dallas, TX.
- **Miller, I. M.**, Johnson, K. R., Ellis, B., and Miller, D. M., 2006. An exceptionally preserved Paleocene flora from the Middle Park Formation, Colorado: Implications for the Laramide paleotopography of the Central Rocky Mountain Region. Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Philadelphia, PA.
- Ellis, B., Johnson, K. R., **Miller, I. M.**, and Barclay, R., 2006. The Paleocene enigma: High diversity floras along the Rocky Mountain Front Range. Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Philadelphia, PA.
- Prevec, R., **Miller, I. M.**, and Rumford, J. P., 2006. Palaeontology in the digital age: Taxonomy and the Future of Electronic Publication. Congress of the Palaeontological Society of Southern Africa (PSSA), Grahamston, South Africa.
- **Miller, I. M.**, Green, W., 2006. Using LMA and CLAMP data to build new models for estimating elevation. Mid-Continent Paleobotanical Colloquium (MPC), Gainesville, FL.
- **Miller, I. M.**, Green, W., Zaitchik, B., Brandon, M., and Hickey, L., 2005. Evaluating LMA and CLAMP: Choosing a model for estimating elevation. American Geophysical Union, Abstracts with Programs, San Francisco, CA.
- Green, W. A., **Miller, I. M.**, and Hickey, L., 2005. Taking the climate out of CLAMP: Dealing with spatial autocorrelation under irregular geographical sampling of dicot leaf floras analyzed under the Climate Leaf Analysis Multivariate Program: Paleontological Association Annual Meeting, Oxford, UK.
- **Miller, I. M.**, Brandon, M. T. 2004. Cordilleran magmatic patterns consistent with Baja BC. Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Denver, CO.
- **Miller, I. M.**, Brandon, M. T., and Hickey, L.J. 2003. Paleobotanical method for restoring far-traveled terranes. Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Seattle, WA.
- **Miller, I. M.**, Brandon, M. T., and Hickey, L.J. 2002. Paleofloral tests for a far-traveled Baja BC. Geol. Soc. Am. Abstracts with Programs, 98<sup>th</sup> Cordilleran Section, Corvallis, OR.
- **Miller, I. M.** and Johnson, K. R. 2000. Quantitative analysis of the Winthrop Formation flora of north-central Washington argues for vegetational dominance of angiosperms by the end of the Early Cretaceous: Geol. Soc. Am. Abstracts with Programs, Annual Meeting, Reno, NV.

**Invited Colloquia:**

*Evolution and early diversification of angiosperms.* Colorado College, CO, Colloquia Series, Nov., 2000.  
*Reading the Leaves: Paleofloral Tests for Far-Traveled Terranes.* WIPS monthly speaker, Sept. 2006.  
*The Fossil Record of Land Plants.* Evolution and the Fossil Record, WIPS Symposium, Golden, CO, Mar., 2007.  
*Reading the Leaves: Paleofloral Tests for Far-Traveled Terranes.* DMNS, Lunchtime Lecture, 2007.

*From Paleobotany to Geophysics: Fossil Plants as a Tool in Tectonics.* Washington and Lee University, VA, Nov. 2007.

*Evolution of the Colorado Front Range: A view from the Denver Basin.* University of Colorado Denver, Feb., 2008.

### **Synergistic Activities:**

- Variable Atmosphere Laboratories (VAL) Research Project (NSF), Arizona State University, Feb., 2008.
- Lead convener for the GSA Topical Session (T1): *Denver Then and Now: From Paleontology to Public Policy in the Front Range Urban Corridor.* Geol. Soc. Am. Ann. Meeting, Denver, 2007.
- Co-convener for the GSA Topical Session: *After the last ammonite and before the first horse: patterns of ecological and climatic change during the Paleocene.* Geol. Soc. Am. Ann. Meeting, Houston, 2008.
- *Azolla* Project.  
<http://www.bio.uu.nl/~palaeo/Azolla/Azolla.html>
- Sea Monsters: A Prehistoric Adventure; paleobotanical scientific advisor.
- EARTHTIME III (NSF), Santa Fe Institute, NM.  
<http://www.earth-time.org>
- Paleoelevation Workshop (NSF), Lehigh University.  
<http://www.ei.lehigh.edu:16080/paleoelevation/index.html>
- Northeast Russia Tectonic Workshop (NSF), Stanford University.  
<http://pangea.stanford.edu/research/structure/nerussia/index.html>

### **Recent Collaborators:**

Richard Barclay (Northwestern University), Mark Brandon (Yale), Sam Bowring (MIT), Marieke Dechesne (DMNS), Beth Ellis (DMNS), Henry Fricke (Colorado College), Walton Green (Smithsonian Institute), Leo Hickey (Yale), Jeremy Hourigan (UCSC), Michael Hren (Yale), Kirk Johnson (DMNS), Stefan Little (Smithsonian Institute), Mark Pagani (Yale), Aaron Pan (SMU), Dan Peppe (Yale), Christian Pott (University Muenster), Rose Prevec (Rhodes University), Jeff Rahl (Washington and Lee University), Robert Reynolds (DMNS), Katie Snell (UCSC).

### **Society Memberships:**

American Association of Stratigraphic Palynologists  
American Geophysical Union  
Geological Society of America  
Western Interior Paleontological Society (WIPS)