

EVENTS 2008



T-REX ALIVE IV GALA **SEPTEMBER 27, 2008**



ITHACA'S DARWIN DAYS FEBRUARY 7-14, 2009

EVENTS 2009



DINO EGGSTRAVAGANZA APRIL 11, 2009



SUMMER CAMP 2008

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DECEMBER 6, 2008



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STATEMENT OF FINANCIAL ACTIVITY

UNRESTRICTED NET ASSETS:	FOR THE YEARS ENDING JUNE 30	,
Revenue, gains and other support:	2009	2008
Grants, contributions, and gifts	\$1,158,944	\$1,147,889
Programs	21,653	16,637
Publications	49,675	41,396
Dues and memberships	29,658	31,510
Museum admissions	104,676	80,880
Merchandise sales, net costs of goods	20.075	26042
sold Investment income	39,965 7,480	36,043
(Loss) on investments	(26,863)	6,662 (8,205)
Gifts in kind	10,036	(0,203)
Gain on legal settlement	663,993	_
Other	47,997	27,894
	2,107,214	1,380,706
NET ASSETS RELEASED FROM RESTRICTIONS:		
Grants	603,247	492,892
Specific uses	227,036	188,661
	830,283	681,553
TOTAL REVENUE, GAINS, AND OTHER SUPPORT	2,937,497	2,062,259
EXPENSES AND LOSSES:		
Payroll and related benefits	1,158,167	934,117
Depreciation and amortization	363,283	401,376
Interest expense	234,091	279,829
Professional fees	199,073	55,999
Other	180,117	142,179
Building and maintenance Grant subcontracts	153,568 99,025	196,093
Publications and printing	62,811	80,131
Exhibit expense	33,215	13,899
Supplies	18,621	37,342
Travel and workshops	13,968	24,340
Postage	13,343	23,814
TOTAL EXPENSES AND LOSSES	2,529,282	2,189,119
CHANGE IN UNRESTRICTED NET ASSETS	408,215	(126,860)
TEMPORARILY RESTRICTED NET ASSETS:		
Grants, contributions, and gifts	508,955	2,090,580
NET ASSETS RELEASED FROM RESTRICTIONS:		
Grants, contributions, and gifts	(830,283)	(681,553)
CHANGE IN TEMPORARILY RESTRICTED NET ASSETS	(321,328)	1,409,027
CHANGE IN NET ASSETS	86,887	1,282,167
NET ASSETS, BEGINNING OF YEAR	5,254,669	3,972,502
NET ASSETS, END OF YEAR	5,341,556	5,254,669

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MESSAGE FROM THE PRESIDENT | RODNEY FELDMANN

This has been quite a year to be PRI's Board President! I can best characterize the events of the year as making more with less. Thanks largely to the PRI staff, we have come through a brutal global economic crisis in far better condition than most not-for-profit organizations, and certainly better than the economy in general. The key has been planning and that will also be the key that will assure our continued success.

To highlight just a few of this year's successes, we have come through the year essentially meeting the austere budget approved last year. Part of that success was due to a very generous gift from the estate of William Grover of Ithaca, but it was also due to careful fiscal management throughout the year. The bleak possibility of staff reductions was averted, although a slight reduction in staff numbers resulted from attrition. Even in these difficult economic times, there seems to be light at the end of our fiscal tunnel.

The settlement of some long-standing HVAC issues in the Museum has put us in the position of being able to decide the best course of action to assure proper, economical heating and cooling. This has been a long process and I believe it has resulted in a reasonable settlement. It certainly was the result of the best combination of efforts by key Board members and the PRI staff.

Marketing activity in the past year has resulted in several high-profile pieces, including one in a national in-flight magazine. It is always difficult to measure the direct effects of such efforts, but it is not coincidental that annual attendance in the Museum and facilities rentals were substantially above the previous year.

Consistent with the central focus of the Paleontological Research Institution, research activity and grant acquisition have increased well above previous years. Grants received include acquisition of compactors to increase and modernize storage for the fossil collection, acquisition of a scanning electron microscope – an essential tool for conducting modern studies--and a grant to develop a major climate change exhibit. All this activity documents the research component in the Institution and was to some degree the stimulus for the donation of the largest single collection of Antarctic fossils to PRI by Dr. William Zinsmeister. Success breeds success.

Concluding with the theme of planning as the key to continued stability, the Board, in collaboration with key staff members, is currently engaged in examining the future outlook for the Institution. We are examining the experiences of the past, the realities of the present, and the prospects for a strong future. Together, we will assure that PRI will remain strong.

Rodney Feldmann

President PRI Board of Trustees



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MESSAGE FROM THE DIRECTOR | WARREN D. ALLMON

One of the great joys of my job is hearing from people who, having visited PRI's Museum of the Earth for the first time, say something like "I thought you were just a rock and dinosaur place, but there's so much more!" Such statements prove that PRI is making a small contribution toward solving a widespread and ironic problem.

Earth scientists like to consider themselves part of the widest and most applicable discipline. Their field, after all, includes literally the whole world, from oceanography to seismology, from volcanology to the search for oil, from the study of groundwater to the study of the atmosphere. And, of course, it includes paleontology -- the study of the history of life -- and paleontology includes consideration of essentially all of biology, everything from genetics to ecology -- and especially evolution.

Yet the public's perception of Earth science in general, and paleontology in particular, is frequently just the opposite of this expansive view. Earth science in middle and high school is still too often presented as a memorization exercise. College students, if they encounter it at all, think of it as "Rocks for Jocks." Outside of school, dinosaurs and rocks are, for most people, kid stuff.

When PRI first conceived of building a public museum facility almost 20 years ago, we chose a name -- the Museum of the Earth -- that would communicate the comprehensiveness of the stories we wanted to help visitors explore. We wanted to show that paleontology and Earth science are not arcane, obscure, or juvenile topics, nor are they luxuries irrelevant to "real life." We wanted to show that these subjects are fundamental to the most pressing and important challenges facing modern society.

This message is more important now than ever, for even - -perhaps especially -- in these difficult times, when so many are worried about financial survival, adequate understanding of the Earth is essential. There can be no long-term economic security without adequate scientific literacy, and solutions to many of the most urgent economic problems we face -- from clean water to energy to climate change -- depend on such understanding.

The Museum is just one way that PRI tries to address these challenges. Our education staff also develop programs -- on climate change, evolution, and regional geology -- that reach thousands of teachers and students across the nation. Our staff scientists pursue research on the longterm interaction between the Earth and its life. And our huge specimen collections and scientific journals are used by scientists around the world for their own similar studies. We are truly a local, regional, national, and international resource.

We live in an age of limits, in which we cannot do everything and must choose carefully where we invest our time and resources. PRI is indeed a "rock and dinosaur place," but it is also so much more. It is helping to address some of the most critical needs of civilization. And that's worth investing in.

Warren D. Allmon. Director



RESEARCH

The Paleontological Research Institution was in part originally conceived as a place for scientists and students to conduct original research. As such, its collections and library are essential, world-class resources that attract numerous visitors each year. Today, PRI is home to nine Ph.D. scientists and two formally affiliated Ph.D. graduate students out of Cornell University. We continue to build on our resources for research and have seen good success in 2008-2009 in acquiring external funding in support of staff research projects. Following are some of the active research projects by current staff members:

Dr. Warren Allmon's (Director) major research interest is the ecology of the origin and maintenance of biological diversity and the application of the geological record to the study of these problems. He is particularly interested in the systematics, ecology, and evolution of Cenozoic mollusks, especially the marine snail family Turritellidae, their patterns of origination and extinction over the last 100 million years, and the environmental and ecological contexts of these patterns. Most recently, Allmon has been working on the patterns and processes of evolution in fossil gastropods from Paleocene and Eocene (65 - 35 million-years-old) rocks in the U.S. Gulf and Atlantic coastal plains.

Dr. Paula Mikkelsen (Associate Director for Science and Director of Publications) is a marine biologist and malacologist interested in the diversity, anatomy, and evolution of living clams and snails. Following publication of her successful book Seashells of Southern Florida: Bivalves (Princeton University Press) in Fall 2008, she and coauthor Dr. Rüdiger Bieler (The Field Museum, Chicago) are actively writing the gastropod companion volume similarly based on their field research in the Florida Keys. Mikkelsen is also principle investigator on a National Science Foundation grant to study the evolution of bivalves in collaboration with scientists at The Field Museum, Harvard University, and other international institutions. The PRI-based part of "BivAToL" (Assembling the Bivalve Tree of Life, www.bivatol.org) will produce a traveling exhibit, teacher development resources, and an undergraduate course, all aimed at teaching the principles of evolution using familiar, inexpensive, edible clams as model organisms. Complimenting BivAToL is new 3-year NSF grant called BiTS ("Bivalves in Time and Space") that will look closely at the evolution of two large clades of marine bivalves, from molecular, morphological, and paleontological viewpoints; Mikkelsen is part of the morphological team on this grant.

Dr. Gregory Dietl's (Director of Collections) research approach is at the interface between ecology and evolutionary paleoecology, integrating research interests across diverse fields of organismal biology. He focuses on the evolution of ecological interactions using the molluscan fossil record of the last few million years due to its unrivaled preservation and diversity,







and because the biology of fossil species this age is reasonably well understood. His research activities this past year included two research trips to Florida supported by an NSF-EAR grant to study the effects of a regional Plio-Pleistocene mass extinction event in the western Atlantic on the ecology and evolution of strombid gastropods. He also traveled to conduct field work in the Pliocene Agueguexquite Formation in Veracruz, Mexico, for clues to understanding the dynamics of the recovery of Florida's benthic fauna following an end-Pliocene extinction event. He also co-organized and led, in collaboration with Dr. Patricia Kelley (University of North Carolina, Wilmington), the second year (of three) of an NSF-Research Experiences for Undergraduates Program in Biodiversity Conservation. He also was invited to participate in the Paleontological Society's Centennial Short Course on research questions driving paleontology at the start of a new century at the Annual Geological Society of America Meeting in Houston,

Dr. Judith Nagel-Myers' (Collections Manager) ongoing research on Paleozoic bivalves produced two systematic reviews of major groups of Late Devonian bivalves. Furthermore, she compiled pioneer information on the morphology, phylogeny, paleoecology, and biostratigraphy of these mid-Paleozoic mollusks. Nagel-Myers started a new project in collaboration with Drs. Gregory Dietl (PRI) and Carl Brett (University of Cincinnati) focusing on predation on mid-Paleozoic bivalves, in which she focuses on predatorinduced shell damage. Data on durophagous (shell-breaking) predation found in Paleozoic bivalve associations provides a new and exciting perspective on the mid-Paleozoic Marine Revolution. Bivalves are an untapped resource to provide information on the influence of predation in early benthic communities.

Ursula Smith (Ph.D. student, Cornell University) is a paleobiology graduate student in Cornell's Department of Earth and Atmospheric Sciences. Her research focuses on macroevolutionary patterns of turritelline gastropods of New Zealand for which she has been developing new methodologies for incorporating continuous character data into phylogenetic analysis. This year, Ursula was invited to participate in a prestigious Exxon-Mobil Short Course as a follow--up to a large research grant she obtained from the company in 2008. She presented two papers at the American Malacological Society of America's Annual Meeting held in Ithaca, one of which is an ongoing collaboration between PRI staff and students and staff at the Smithsonian Tropical Research Institution. She also presented at PRI's third Annual Summer Symposium and will be attending the Geological Society of America's Annual meeting in Houston, Texas, to present her Ph.D. research.

morphological evolution in the Lightning Whelk (Busycon carica), a

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Sarah Reidinger	Dorottiy Zillillici
Mariana Rhoades	Adopt-a-Bone
Beverly Robinson	Adopt-a-Done
Frank &	Martin Tang in honor
Margaret Robinson	of Catheryn Obern
Laurie Robinson	and Richard
Mark Roeder	Robinson - R12 Rib
Rick Rogers	RODHISOH - RTZ RID
Anne Roth-Blizzard	Corey Earle in honor of
James Rothenberg &	Evan Fay Earle -
Mariana Wolfner	R13 Rib
Shirley Roy	K13 Kib
Robert Ruda	Sarah Maxwell - L15 Rib
Karl & Ursula Russ	(Community Bone)
Edith Schmeiser	(Community Bone)
	In-Kind
Dorothy Sellers H. David Sheets	Contributions
Gail Sherman &	Contributions
	A
Eric Berger	Academy of
Madeleine Short	Natural Sciences
Robert Short	Arnold Printing
Robert &	Bookery II
Christine Slocum	Borders
Ronald Somogyi	Camille Doucet
Jed Sparks	Cayuga Chamber
George Stephens	Orchestra
Alycia Stigall	Cayuga Lake Cruises
talan V I Valaanda Ctorana	Comment Nickense Charles

John & Deborah Strong

Cayuga Radio Group Cornell Concert Series Cornell Store Cornell University Athletic Ticket Office Ramanda Inn Ithaca Cornell University Schwartz Center for the Performing Arts Corning Museum of Glass Gary Dye **Emerson Power** Transmission Fenimore Art Museum Frame Shop George Eastman House Gimme! Coffee Glimmerglass Opera Greek Peak Green Cuisine Michael Griswold Hangar Theatre Herbert F. Johnson Museum of Art Hilton Garden Inn Ithaca History Center of Tompkins County Holiday Inn Ithaca **HOLT Architects IBM** Inn on Columbia Island Health & Fitness Ithaca College Theatre Ithaca Courtyard Marriot William Kappel Kitchen Theatre La Tourelle Bonnie Lefkowitz-White In Honor of Malcolm Light in Winter Marla Coppolino Martin's Landscape Gardening Maxie's Supper Club Moosewood National Baseball Hall of Fame Northeast Classic Car Museum

Lucia Cowles

Pennsylvania Anthracite

Cayuga Nature Center

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Richard G. Harrison:

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Anurag Agrawal & Police Department Jennifer Thaler First Platoon Steven Gilbert William Bemis & Sharon Heffner Betty McGuire Brian Chabot & Jerry & Judith Hunsinger Kathleen Rasmussen Beverly Kelchner Stephen Ellner & Pamela Kopen Nancy Saltzman Deborah Koss Paul Feeny & Marie Kumiega Mary Berens Steven & Alex Flecker & Pamela McAuliff Alison Power Walter Mease Monica Geber Dunia Ortiz Robert Ruda Christine Goodale Harry Greene & Helen Unguarsky Daniel & Linda Woehrle Kelly Zamudio Nelson Hairston Laura Jones & In Memory of Paul Ginsparg Homer McCune: Kenneth & David & Cynthia Margaret Kennedy Bouldin Andre Kessler Jane Crawford Irby & Heidi Lovette Catherine Hollerman Peter & Beth Marks Madeline Johnson James Morin & Beth & Peter Marks Myra Shulman Amy McCune & David Winkler Saskya VanNouhys Bruce McCune John McCune In Honor of Catheryn Virginia McCune Obern & Sarah Reidinger Richard Robinson: Peter & Dorothy Rinaldo Martin Tang James Rothenberg & Mariana Wolfner In Honor of George Shirley Roy & Kay Ross: Madeleine Short Tom & Carolyn Neal Robert Short Mary Winkler In Honor of Joseph Zappala: In Memory of

RESEARCH (CONTINUED)

marine gastropod which ranges from Cape Cod to Cape Canaveral along the east coast of the United States. Her current research focuses on morphological clines within this species, and the role of morphology as an anti-predatory adaptation. Timing and appearance of theoretically anti-predatory adaptations in the fossil record, as well as investigation of anti-predatory advantages associated with specific features, will help determine the functional basis and ecological drivers behind *B. carica's* variant morphology. Mary's research is funded by the Cornell Department of Earth and Atmospheric Sciences and the Lerner Gray Grant for Marine Research.

Staff and Student Publications

Between July 1, 2008, and June 30, 2009, PRI scientists and affiliated students published a record 43 titles (plus numerous presentation abstracts and newspaper articles not listed here). (* = peer-reviewed)

Allmon, W. D. 2008. Everything is paleontology. *American Paleontologist*, 16(4):1.

Allmon, W. D. 2008. Mastodons in their backyards: the natural and not-so-natural history of three discoveries. *American Paleontologist*, 16(3): 23-29

Allmon, W. D. 2008. Mastodons, science, and education. *American Paleontologist*, 16(3):1.

Allmon, W. D. 2009. Afterword: What did Darwin do? Pages 135-140, in: *Charles Darwin: After the Origin*, by S. A. Dean. Paleontological Research Institution Special Publication No. 34. Cornell University Library and The Paleontological Research Institution, Ithaca, NY.

Allmon, W. D. 2009. Bibliography of Stephen Jay Gould. Pages 335-379, in: *Stephen Jay Gould: Reflections on his View of Life*, W. D.Allmon, P. H. Kelley, & R. M. Ross (eds.). Oxford University Press, New York.

Allmon, W. D. 2009. Darwin at 200. American Paleontologist, 17(1): 1. Allmon, W. D. 2009. Evolution and Creationism: a Very Short Guide, 2nd ed. Paleontological Research Institution Special Publication No. 35, 128 p.

Allmon, W. D. 2009. The natural (and not-so-natural) history of "Turritella agate." *Rocks and Minerals*, 84(2): 160-165.

*Allmon, W. D. 2009. Tertiary period. *Encyclopedia Britannica*. http://www.britannica.com/EBchecked/topic/588461/Tertiary-Period/69989/Correlation-of-Tertiary-strata

*Allmon, W. D. 2009. The "God spectrum" and the uneven search for a consistent view of the natural world. Pages 180-239, in: For the Rock Record: Geologists Confront Intelligent Design, J. S. Schneiderman & W. D. Allmon (eds.). University of California Press, Berkeley.

*Allmon, W. D. 2009. The structure of Gould: history, happenstance, humanism, and the unity of his view of life. Pages 3-68, in: *Stephen Jay Gould: Reflections on his View of Life*, W. D.Allmon, P. H. Kelley, & R. M. Ross (eds.). Oxford University Press, New York.

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Gould: Reflections on his View of Life. Oxford University Press, New York, 400 pp.
*Allmon, W. D., P. J. Morris, & L. C. Ivany. 2009. A tree grows in

*Allmon, W. D., P. J. Morris, & L. C. Ivany. 2009. A tree grows in Queens: Stephen Jay Gould and ecology. Pages 147-170, in: *Stephen Jay Gould: Reflections on his View of Life*, W. D.Allmon, P. H. Kelley, & R.M. Ross (eds.). Oxford University Press, New York.

Allmon, W. D., & P. Nester (eds.). 2008. Mastodon paleobiology, taphonomy, and paleoenvironment in the Late Pleistocene of New York State: studies on the Hyde Park, Chemung, and North Java sites. *Palaeontographica Americana*, 61, 476 pp.

Allmon, W. D., P. L. Nester, & J. C. Chiment. 2008. New York State as a locus classicus for the American mastodon. *Palaeontographica Americana*, 61:5-12.

Allmon, W. D., & U. E. Smith, 2009, Darwin and paleontology. *American Paleontologist*, 17(1): 23-25. (extended version at www.priweb.org)

*Auer, S. L., I. Bindeman, P. Wallace, V. Ponomareva, & M. Portnyagin, 2009. The origin of hydrous, high ¹⁸O voluminous volcanism: diverse oxygen isotope values and high magmatic water contents within the volcanic record of Klyuchevskoy Volcano, Kamchatka, Russia. *Contributions to Mineralogy and Petrology*, 157(2): 209-230.

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*Hodgson, J.A., W. D. Allmon, J. Sherpa, & P. L. Nester. 2008. Geology and taphonomy of the North Java mastodon site, Wyoming County, New York. *Palaeontographica Americana*, 61:385-415.

05

Tracy Rozelle

Vauda Allmon

Harriet Eisman

Bruce &

Marion Barush

City of Bethlehem

Barry & Margaret Adams

Claudia Lewenstein

RESEARCH (CONTINUED)

*Hodgson, J.A., W. D. Allmon, P. L. Nester, J. Sherpa, & J. J.

Chiment. 2008. Osteology of Late Pleistocene proboscidean remains at the Gilbert Site, Chemung County, New York. Palaeontographica Americana, 61:301-367

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Kissel, R. A. 2008. What's new, pussycat? *American Paleontologist*, 16(3):

Kissel, R.A. 2008. Dining in the garden of Eden. American Paleontologist, 16(4): 30-32.

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PUBLICATIONS

82(6): 1150-1160.

Scientific publications remain at the heart of PRI's mission. Bulletins of American Paleontology, first published in 1895, is today the nation's oldest paleontological journal. PRI also produces three other series: Paleontographica Americana, our occasional monograph; American Paleontologist, our quarterly membership magazine; and Special Publications, including the Darwin @ Cornell series and other standalone volumes.

During the year, electronic subscriptions to BAP were activated, we saw the back issues of BAP and PA added to the online Biodiversity Heritage *Library*, and *PA* was reactivated with a redesigned cover after a 10-year hiatus. At year's end, 218 institutions and one individual were subscribed to BAP, and 85 institutions had standing orders for PA. Book sales are extremely healthy, both from our much-enhanced online bookstore and from online retailers. Issues published during the 2008-2009 fiscal year were:

Bulletins of American Paleontology

- no. 374, August 2008 (for subscription year 2005), Late Devonian Goniatites from New York State, by Michael House and William T. Kirchgasser, 288 pp., 35 pls.
- no. 375, December 2008 (for subscription year 2006), The genus Conus (Mollusca: Neogastropoda) in the Plio-Pleistocene of the southeastern United States, by Jonathan R. Hendricks, 178 pp., 20 pls.
- no. 376, May 2009 (for subscription year 2006), Neogene Paleontology of the Northern Dominican Republic. 23. Strombid Gastropods (Genera Strombus and Lobatus; Mollusca: Gastropoda: Strombidae) of the Cibao Valley, by James Robert Freiheit and Dana H. Geary, 2009, 54 pp., 9 pls.

*Nagel-Myers, J., G. P. Dietl, & C. E. Brett. 2009. First report of breakage-induced shell repair on Devonian bivalves. Palaios, 24: 460-465. *Ross, R. M. 2009. Stephen Gould as a science educator. Pages 243-262, in: Stephen Jay Gould: Reflections on his View of Life, W. D. Allmon, P. H. Kelley, & R. M. Ross (eds.). Oxford University Press, New York. *Ross, R. M., F. Allaby, C. S. Buckler, E. Y. Butler, D. Gabreski, L. M. Paciulli, K. J. Gremillion, & W. D. Allmon. 2008. The Hyde Park Mastodon Matrix Project: public outreach through specimen and data collection by non-specialists. Palaeontographica Americana, 61: 111-134. *Sartori, A. F., C. Printrakoon, P. M. Mikkelsen, and R. Bieler. 2008. Siphonal structure in the Veneridae (Bivalvia: Heterodonta) with an assessment of its phylogenetic application and a review of venerids of the Gulf of Thailand. Raffles Bulletin of Zoology, Suppl. 18: 107-129. Schneiderman, J. S., & W. D. Allmon. 2009. For the Rock Record: Geologists Confront Intelligent Design. University of California Press, Berkeley, 261 pp.

*Thompson, L. M., G. C. McIntosh, & W. D. Allmon. 2008. Discoveries of the American mastodon (Mammut americanum) in New York State: 1921-2005. Palaeontographica Americana, 61:25-41. *Vermeij, G. J., G. P. Dietl, & D. G. Reid. 2008. The Trans-Atlantic history of diversity and body size in ecological guilds. *Ecology*, 89(11, suppl.) S39-S52.

Palaeontographica Americana

- no. 61, July 2008, Mastodon paleobiology, taphonomy, and paleoenvironment in the Late Pleistocene of New York State: studies on the Hyde Park, Chemung, and Java Sites, edited by Warren D. Allmon & Peter L. Nester, 476 pp.
- no. 62, March 2009, Conodont studies commemorating the 150th anniversary of the first conodont paper (Pander, 1856) and the 40th anniversary of the Pander Society, edited by D. Jeffrey Over, 152 pp.

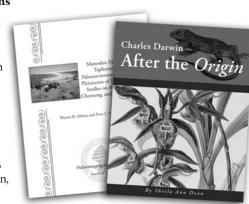
American Paleontologist

- vol. 16, no. 3, Fall 2008, Mastodons
- · vol. 16, no. 4, Winter 2008, Living Fossils
- vol. 17, no. 1, Spring 2009, Darwin at 200
- vol. 17, no. 2, Summer 2009, New York Paleontology

Special Publications

• no. 34, February 2009, Charles Darwin: After the Origin, by Sheila Ann Dean, 156 pp., color illus.

• no. 35, February 2009, Evolution & Creationism: a Very Short Guide, 2nd ed., by Warren D. Allmon 128 pp.



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COLLECTIONS

The 2008-2009 fiscal year saw significant progress in specimen curation, making PRI's research collections--which at about 2-3 million specimens are among the largest in the United States--more accessible to researchers, students, and educators. This success is due in large part to the ongoing efforts of PRI's collections staff--Dr. Gregory Dietl, Director of Collections, and Dr. Judith Nagel-Myers, Collections Manager--and the hard work of a dedicated group of volunteers and student interns.

Over the last fiscal year, with the completion of the three--year National Science Foundation-funded project to computerize and physically curate the PRI Type and Figured Collection--one of the ten largest invertebrate paleontology collections of type specimens in the nation--the process of curatorial integration of the Cornell University Malacology Collection began. This project will make the important Wesley Newcomb collection, with its extensive collection of land snails from Pacific islands collected between 1845 and 1868, more available to the research and educational communities.

The trend of increasing scientific use of PRI's collections that began in 2007 continued over the last year. The number of scientific specimen loans in 2008 was the highest (46) in PRI's history. The average number of loans (39) for 2007 and 2008 is nearly four times the average (10) for 2004-2006, and the first half of 2009 is on track to match or exceed this level of usage. Thirty-six professional and student researchers from around the U.S. also visited the collections in the 2008 calendar year, with 2009 numbers on target to match this level of activity. PRI's collections were also cited in 15 professional and student publications appearing in the 2008 calendar year--a level that is equal to or greater than reported use at several much larger peer institutions.

The PRI collections continued to grow throughout the year. A major highlight was the donation of the collection of Dr. William Zinsmeister from Purdue University, which contains approximately 5,510 lots (ca 22,000 specimens) of Cretaceous-Eocene fossil mollusks from Seymour Island, Antarctica, and vicinity, including bulk samples from measured Cretaceous-Tertiary (K-T) boundary sections. The collection was assembled over more than four decades by Dr. Zinsmeister and is widely recognized as among the largest and finest in the world from this region. The collection also contains important material collected on the Princeton University expeditions to Patagonia in 1896-1899, including a number of type specimens.



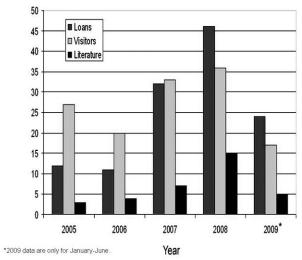


The following individuals donated specimens to the PRI collections between 7/1/08 and 6/30/09:

James Brower Austin Budnick Pat Charwat John Cisne Whit and Nelson Hairston James W. (Whitey) Hagadorn Linda Howell Linda Ivany William Klose III Richard King Paul Krohn David Linsley Dan Short George Stone C. F. Sturm Jr. Alessadro Vescoani Cathy Whalen Karl Wilson

William Zinsmeister

Scientific Use of PRI's Collections, 2005-2009







ADOPT-A-TILE

With its breathtaking renditions of life's evolutionary history, the mural Rock of Ages, Sands of Time by Barbara Page, on permanent display in the Museum of the Earth, continues to be a favorite exhibit for our donors and visitors alike. PRI's adopt a tile program allows donors to adopt a tile of the mural for \$1000 per tile. We would like to recognize those who adopted a tile from July 1, 2008 to June 30, 2009.

- Merle Adelman Tiles 256 & 257
- · Cornell's Department of Ecology & Evolutionary Biology in honor of Richard G. Harrison - Tile 114
- · David & Synnova Gooding Tile 264
- Gwen Lubey Tiles 383 & 384
- · Jane, Tom, Jim, and Margaret Johnston in memory of Thomas F. Johnston -Tiles 517 & 518
- Robert & Anne Rosé Tile 372



VOLUNTEERS

Throughout the 2008-2009 fiscal year, our volunteers donated more than 8,000 hours of their time to PRI and the Museum of the Earth. Volunteers contribute to the organization by working with our collections, education, development, exhibits, publications, and operations staff on a regular basis. They give their time generously and in a variety of ways, including graphic design, creating education programs and brochures, evaluating and developing temporary exhibits, interacting with Museum visitors, identifying and cataloging fossils, helping with our membership mailings, taking care of our many unique plants, and reorganizing our library. We are extremely grateful for the contributions that these volunteers have made to our institution. Thank you, volunteers, for everything you do for us! The following individuals volunteered regularly during the 2008-2009 fiscal year:

volunteers, for everything y
The following individuals volunteered during the 2008-2009 fiscal year:
Elizabeth Altier
Maria Altier
Teal Arcardi
Darlene Armstrong
Curt Banta
Sarah Berry
Maureen Bickley
Janice Brown
David Brown
Al Burkhardt
Dick Burlew
Peg Burlew
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Jordan Decker

Brian Dennison Barbara Dimock Lenore Durkee Vern Durkee Alexis Erwin Eniko Farkas Jeremy Gardner Walter Gates Michael Grenier Betty Harris Barb Heaslip Graham Heaslip George Hebben Ian Hilburger Adrianna Hirtler Jean Houghton John Hultberg Mickie Sanders-Jauquet Bill Klose Mary Kosloski Frank Kozlowski Ben Landes

Curt Lindy Lauren Maistros Mike Marano III DeShawn McBride Phyllis McNeill Zach Montague Erica Morgan Elizabeth Munson Lamar Parsons Lamis Perez-Bradley Carlie Pietsch Carli Pritser Jeff Reardon Olivia Rebert Marciana Rhodes Paul Rice Curtis Roddy Kelly Rowland Erica Sloma Aurora Solla Leah Solla Ursula Smith

Adam Tagliamonte Josh Tashman Keenan Taylor James Tien Petra Tremblay Tom Vigliotta Steven Wallace Cathy Whalen Marcus Whalen Don Wilson Joseph Zappala

Jane Zimmer

Dorothy Zimmer

and contributions to our

Broome Developmental

Ithaca College Community

organization!

Disabilities

Cornell Plunge

Cornell Public

Service Center Cornell Traditions

Into the Streets

Ithaca College

and Polar Plunge

Environmental Society

Ithaca Youth Bureau

Landmark Volunteers

Onsite Volunteer Services

The Learning Web

Upward Bound

Workforce NY

We work with a number of agencies within the community. The Ithaca community provides excellent resources to local non-profit organizations. Thank you for your efforts

DEVELOPMENT



The past fiscal year has been exceptional in many ways. With economic uncertainty came a number of difficult decisions to be made in our households, not the least of which dealt with how to continue supporting those causes and institutions that we hold most dear in the face of tighter personal budgets. Many institutions were forced to grapple with the problem of how to continue to operate in the midst of declining giving.

At PRI, ours was a conscious decision to not pull back on the educational programming, exhibits, research, and publications that have helped PRI gain a foothold in

laboratories, classrooms, and households throughout Central New York and beyond. In the year covered by this report, PRI's friends and supporters provided over \$1.1 Million in support of the Institution. Far from simply allowing us to continue keeping the lights on and operating a scaled-down version of a natural history museum, our supporters met the challenge and found a way to continue providing PRI the means to do what it does best--inspire, exhibit, and educate.

To all of our supporters: For everything you have done to help PRI continue leading the way in Earth science education, thank you!

Development Committee, Fiscal Year 2008-2009:

Percy Browning, Chair Dave Flinn Howard Hartnett Jennifer Liber Raines David & Marisue Taube







EDUCATION | PUBLICATIONS & PRESENTATIONS

Allmon, W. D., R. A. Kissel, R. M. Ross, S.L. Sands, and T.A. Smrecak. 2009. Teaching evolution in America: a status report on Darwin's 200th birthday.

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Chicone, S.J. Uncovering America's deserving: working class poverty and the 1913-14 southern Colorado coal strike, *Program of the Conference on Historical and Underwater Archeology*, 2009.

Chicone, S.J. Reimagining America's deserving: poverty, materiality, and the 1913-14 Southern Colorado coal strike, 6th Annual Material Culture Symposium for Emerging Scholars: University of Delaware, the Center for Material Culture Studies, and the Winterthur Museum & Country Estate.

Chicone, S.J. Archaeology and the "great moral issue of our time": working-class poverty and the 1913-14 Southern Colorado coal strike, George Mason University Public Symposia on Archaeology, 2008.

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Duggan-Haas, D. (2009).

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Research.htm#reading_science
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Kissel, R.A. 2009. Volcanoes, death, and the dawn of the dinosaurs. *American Paleontologist*, 17:2.

Kissel, R. A. 2009. Man making man. *American Paleontologist*, 17:1.

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Buckler, E.Y. Butler, D.
Gabreski, L Paciulli, K.J.
Gremillion, W.D. Allmon, 2008.
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Taphonomy, and Paleoenvironment
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State: Studies on the Hyde Park,
Chemung, and North Java Sites,
W.D. Allmon & P.L. Nester (eds),
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Smrecak, T.A., R.A. Kissel, R.M. Ross, and B.A. Crawford, 2009, Paleontological Teaching Initiatives at the Paleontological Research Institution, North American Paleontological Convention, Cincinnnati, Ohio, June 2009.

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EDUCATION | INTRODUCTION

PRI makes the history of the Earth and its life accessible to audiences of all ages and background.

we...

- put people in contact, literally, with the **stuff of the Earth**--rocks, fossils, landscapes.
- help people understand how scientists study the past and make predictions about the future. We help people ask questions, and to seek answers themselves.
- make the Earth's history accessible to all audiences, including underserved communities, through our Earth 101 Education Program. Everyone can have a role in science and the study of the Earth.
- help people understand that the history of the Earth and its life is global change on the largest scale. Our Global Change Education Project helps people understand the science behind climate change and the loss of biodiversity.
- show that the history of life tells the story of biological evolution. Our **Evolution Education Project** helps people understand what evolution is, what it's not, and the science behind it.















EDUCATION | KIDS DISCOVER THE TRAIL!

Kids Discover the Trail!

program, a partnership between Ithaca's Discovery Trail and the Ithaca Public Education Initiative, includes student visits to a Discovery Trail institution, like the Museum of the Earth or the Tompkins County Public Library, where they receive instruction from the museum or library educator. In addition to the special curricular programming that is planned to suit respect and connection. In the

the grade level state standards, learning experiences also have a social component. Visits to Discovery Trail sites are made by two classrooms from different elementary schools at the same time. The goal is that students get to know those from different geographic and cultural parts of our district so when they meet in middle school, there is more understanding, fourth year of the program, over 2,500 students participated. At the Museum of the Earth, first grade classes visit and participate in a Dinosaur Science program led by a Museum educator. Before coming to the museum, the children are met by a Museum educator visiting each of the classes for a pre-visit to get them acquainted with the Museum as well as to receive a copy of an age appropriate dinosaur book. By

further establishing the link between the Museum and classroom, we are providing students with a more comprehensive and engaging learning experience that will create lasting memories and make science fun for learners of all ages.



Discovery Trail

EDUCATION | GRANT FUNDING

National Science Foundation Discovery Research K-12

(FY2008): Enhanced Earth system teaching through Real Earth Inquiry: NSF DRL 733303, Aug 15, 2007--Aug 14, 2012, \$1,763,588 (PI: Ross; co-PIs: D. Duggan-Haas, S.E. Humbert).

National Science Foundation Discovery Research K-12

(FY2008): Fossil Finders: Using Fossils to Teach about Evolution, Inquiry and Nature of Science: NSF DRL 733223, Jan 1, 2008--Dec 31, 2011, \$1,491,746, \$266,951 to PRI. (PI: B. Crawford, Cornell Dept of Education; co-PIs: R. Ross, W. Allmon).

National Science Foundation AToL--Program (FY2008) AToL: Phylogeny on the Half-shell - Assembling the Bivalve Tree of

Life, NSF DEB 732860, Sep 15, 2007--Aug 31, 2012, \$499,990 (PI: Paula Mikkelsen; co-PIs R. Ross, S.J. Chicone).

Earth System Science Education Alliance (pass-

through for NASA and NSF Geoscience Education) (FY2008) Global Climate Change and Informal Earth System Science [online professional development for informal educators], June 1, 2008 - May 31, 2010, \$39,945 (PI: Carlyn Buckler: co-PI; R. Ross, Rusanne Low of GLOBE).

National Science Foundation

(FY2008): Temporary Museum exhibit on speciation and biodiversity associated with speciation research; DEB 0639904, \$41,974 (PI: Rick Harrison of Cornell University).

National Science Foundation

(FY2008) Traveling exhibit and teacher professional development on evolution of maize, associated with maize genetics research. (DBI 0820619, \$110,000 (PI: Ed Buckler of Cornell University)

National Science Foundation Geosciences Division (FY2007):

Expansion of hands-on inquirybased interactive labs in Museum of the Earth. GEO 608062, Oct 1, 2006--Sep 30, 2008, \$141,903 (PI: R. Ross, co-PIs: M.A. Sax, S.E. Humbert).

National Science Foundation EHR Division (FY2007):

Integration of PaleoPortal Website, a Paleontology Website for both Researchers and the Public, into Museum Exhibits and Classrooms. EAR 552201, Jun 6, 2006--Jun 5, 2008, \$56,535 (PI: R. Ross).

National Science Foundation Geosciences Division (FY2008):

Tracking Climate in Your Backyard: Climate education for 4-H educators & youth., GEO 808122, Sep 15, 2008--Sep 14, 2010, \$148,455 (PI: R. Ross, co-PI: S. Sands, A. DeGaetano, B. Schirmer)

Triad Foundation (FY2009) A collaboration between the

Paleontological Research Institution and Cayuga Nature Center. Jun 15, 2008--Jun 14, 2010, \$132, 200 (PI: W. Allmon, co-PI: R. Ross, S. Sands).

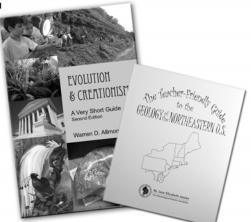


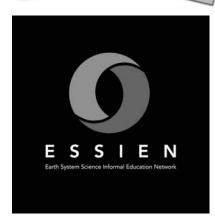
EDUCATION | NATIONAL RELEVANCE

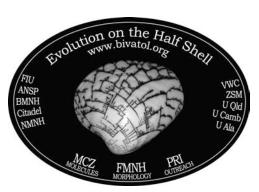
Recognizing that we exist in an increasingly "smaller" world, PRI's education programs are designed to bridge the gap from what's local to what's global, with a significant portion of our outreach being nationally relevant.

Among our most nationally relevant programs, PRI is involved in:

- Teacher professional development such as the publication of our *Teacher Friendly Guides* on regional geology, encouraging Earth science teachers to use the local environment as a primary teaching tool for all regions of the country.
- Leading the charge in informal Earth science education by training
 museum docents on how to most effectively teach evolution to a wide
 range of audiences, by offering graduate-level courses for informal
 Earth science educators from around the world, and creating a central
 website for resources at www.informalearthscience.org.
- Collaborating with nationally recognized institutions like Cornell
 University, the Denver Museum of Nature and Science, the Field
 Museum, and Harvard University Museum of Comparative Zoology
 on a variety of education initiatives, many of which are funded by the
 National Science Foundation.
- Innovation in approaches to education, local implementation of national models such as development of hands-on Discovery Labs in the Museum, the use of "Virtual Fieldwork Experiences," and research partnerships with students and teachers.
- Focusing on major issues in science education through our Global Climate Change project and our Evolution Education project, sharing best practices with formal and informal educators from across the United States and beyond.
- Bringing Earth science to all by reaching under served audiences through exposure to science and natural history collections, helping all gain a better appreciation of the world we share.
- * Involvement in national efforts to improve and expand Earth science education, such as the Earth Science Literacy Initiative and research on "Big Ideas" in Earth science. PRI hosted the Coalition for Earth System Education meeting, which focused on Earth System Literacy in fall 2008.









National Science Foundation

EDUCATION | **OVERVIEW**

	EARTH 101	CLIMATE CHANGE EDUCATION	EVOLUTION EDUCATION
LOCAL	 Permanent and temporary exhibits at the Museum of the Earth School and community group presentations Girl Scout and Boy Scout workshops Teacher Resource Day Cornell University and Ithaca College students use of the Museum and collections 	Climate change exhibits Earth Day activities	 Exhibits and Museum tours on evolution and the history of life Darwin Days celebration Museum docent training
STATE	 Earth science teacher workshops New York State Fair outreach education with 4-H Earthquake education programs 	 4-H climate change curriculum development Talks on climate change to community groups throughout the state Teacher workshops 	Teacher workshops and curriculum materials
NATIONAL	 Fossil Finders Climate Change in Your Backyard program Teacher-Friendly Guides to Geology Virtual Field Experiences Earth System Science Informal Education Network Mastodon Matrix project Earth science education reform initiatives 	 Global Change website and blog Online professional development for informal educators 	 Fossil Finders Evolution & Creationism guide for museum docents Teacher-Friendly Guide to teaching evolution Traveling exhibit and teacher kit on bivalve evolution Traveling exhibit and Teacher-Friendly Guide on maize evolution

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EDUCATION | EARTH 101



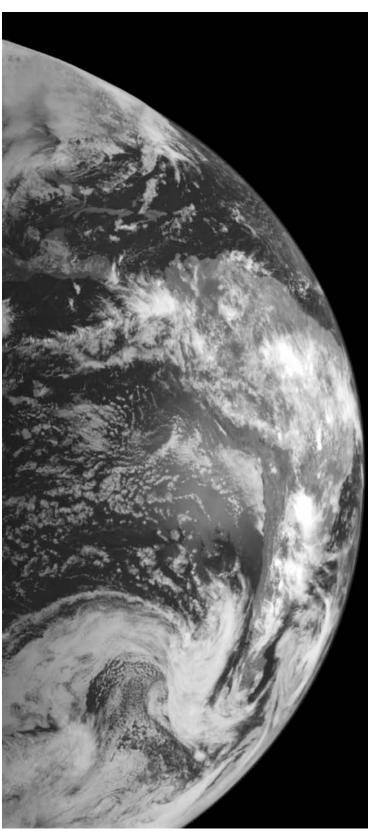
A basic understanding of the history of the Earth, its life, and the science by which we study it, plays a vital role in shaping an informed public ready to tackle the next set of global challenges. These Earth science basics--what we call **Earth 101**--are at the core of our educational outreach mission and many of PRI's education programming and exhibits.

With programs for all ages, students can learn about topics ranging from ancient reptiles in our "Dinosaur Science" program, to the evolution of plant life and ecosystems in "Botany through the Ages." Using fossils from PRI's collections, these hands-on programs introduce students to basic scientific concepts used in the study of past organisms. Our program "Ancient Seas over New York State" emphasizes the ways that scientist draw conclusions, while highlighting the global changes that have occurred in our own backyards over many centuries. "Ice Age Life" uses the fossil-rich sediments from PRI's Hyde Park mastodon excavation to explore how different life was "only" 13,000 years ago.

Programming at PRI goes beyond K-12 with additional public programs that vary from our annual James Potorti Memorial Interpretive Walks in the local State Parks to public fossil collecting fieldtrips. These excursions teach the story of the past several hundred million years of New York history through the exploration of local gorges and outcrops.

Our Ithaca is Gorges booklet shares that story in an accessible 28 pages, while the Teacher-Friendly Guide to the Geology of the Northeastern U.S. gives more detail of the geology of New York in 200 pages of text developed for Earth Science educators. The permanent exhibit of the Museum of the Earth, "Journey through Time," invites visitors to explore the history of the Northeast through spectacular fossil specimens, video, original artwork, and interactive stations.

Through a wide variety of hands-on and interactive approaches, we provide Earth 101 information that is relevant from a local to a global level, improving public literacy in Earth science for all ages.



EXHIBITS | LONG - AND SHORT - TERM EXHIBITS

Temporary Art Exhibitions

Rover Landings: Cornell on Mars

(September 9--December 9, 2008)
In the Mastodon Reflective Area, we featured a special exhibition of images from two Mars Rover missions. Cornell Mars Rover team members chose the images on display for their scientific significance and their artistic power.

Sculpting Human History

(October 1, 2008--August 1, 2009) PRI's Artist - in - Residence, paleoartist John Gurche, had a major commission to create a series of life-sized bronze sculptures of ancient hominins for the Smithsonian Institution's National Museum of Natural History. John set up a working studio in the lobby of the Museum, where visitors could watch the process of creating the clay models for these sculptures. The studio was a fantastic opportunity to explore human evolution and showcase the science/ art relationship.

Barbara Page Water Colors

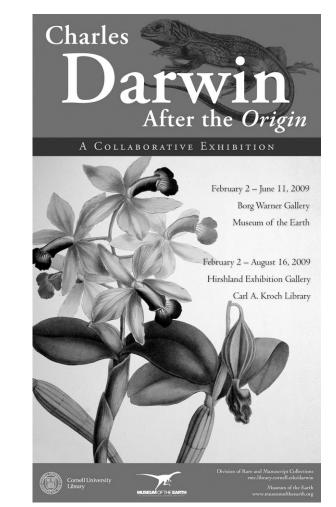
(October 4, 2008--January 18, 2009) A series of watercolors by local artist Barbara Page featured specimens of petrified wood from PRI's permanent collection. The exhibition complemented our fall exhibition "Missing the Forest for the Trees: Exploring the Beauty of Petrified Wood." Wood Sculpture by June Szabo

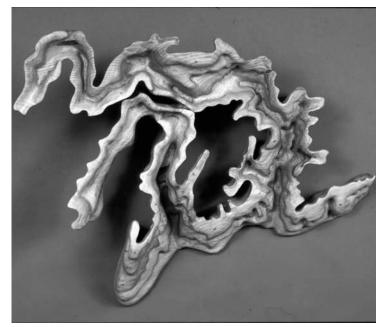
(June 20--September 20, 2009) Local Artist June Szabo's work was displayed in the Borg Warner and Education Gallery. The show featured three-dimensional representations of landscapes and complemented the summer's temporary exhibition "A Forest Journey." According to the artist, "We are bound and interwoven into the living process of the Earth. Inexplicably, we are intertwined and unable to escape those connections any more than we can escape breathing air. Art is my way of examining our relationship to nature, to the Earth and to each

New Temporary Off-Site Exhibition

Day Hall Exhibit: March1, 2009--July 1, 2009 A small off-site exhibition in Day Hall just outside of Cornell University President David Skorton's office featured eight fabulous fossils from PRI's collections. The fossils included modern and fossil nautiloids, and a range of impressive ammonoids. The fossils complemented reprints of tiles from Barbara Page's Rock of Ages Sands of Time mural on permanent display at Museum of the Earth and text developed to highlight the "Charles Darwin: After the Origin" exhibition on display at Museum of the Earth and the Carl A. Kroch Library on Cornell

University's campus.





EXHIBITS | NEW LONG - AND SHORT - TERM EXHIBITS

Permanent Exhibit Upgrades

Rock of Ages Sands of Time Audio Tour

Several restricted gifts allowed us to implement our first audio tour. Visitors can borrow listening devices from the admissions desk and enjoy artist Barbara Page give a guided tour of the mural Rock of Ages Sands of Time.

Discovery Lab Renovations

The NSF-supported rehabilitation of DinoLab was nearly completed during the past year, with an addition of comfortable cushions for children playing on the floor, the revision of a large dinosaur magnet board, addition of drawing stations, repositioning of dinosaur sculptures to make them easier to interpret for visitors, and a computer with NASA World Wind showing the global positioning of continents in geologic history.

Borg Warner Gallery Temporary Exhibitions

Missing the Forest for the Trees: Exploring the Beauty of Petrified Wood (October 4, 2008-January 18,

2009)
During the fall of 2008 we invited

visitors to celebrate the changing of the seasons with a journey to a different kind of forest, one where the trees were no longer living, but where they were just as colorful!

Our fall exhibition was designed and developed in-house, featuring

world-class specimens from our outstanding petrified wood collection. The exhibition focused on the beauty of petrified wood and also included a collection of watercolors by local artist Barbara Page.

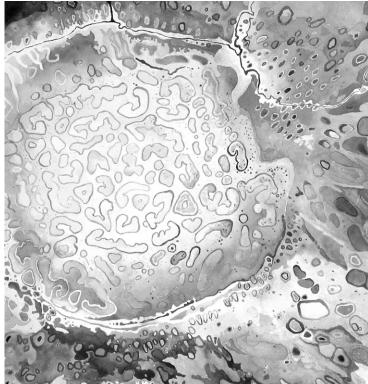
Charles Darwin: After the Origin

(February 2--June 11, 2009) In celebration of the 200th birthday of Charles Darwin and the 150th anniversary of the publication of *On* the Origin of Species, Museum of the Earth and the Division of Rare and Manuscript Collections at Cornell's Kroch Library developed this collaborative exhibition. Under the guidance of guest curator and Darwinian scholar, Dr. Sheila Ann Dean, both venues explored Charles Darwin's life and work in the twenty-two years following the publication of *On the Origin of* Species in 1859. The text for both parts of the exhibition was drawn from the writing of Sheila Dean, whose book of the same title was edited and published by PRI.

A Forest Journey

(June 20--September 20, 2009) This exhibit, designed and developed by the Franklin Institute Science Museum, was our 2009 summer exhibition. The hands-on exhibition, based on the book *A Forest Journey* by John Perlin, offered a look at the science behind the trees and about our relationships (past, present, and future) with our forests.





EDUCATION | CLIMATE CHANGE EDUCATION

Global climate change remains at the forefront of current environmental concerns, and is one of the central points of focus of PRI's informal Earth science education efforts. The Global Change Project at PRI has been working to promote educational outreach on climate change, energy and sustainability, biodiversity loss, and other related issues.

The Global Change Project currently consists of a comprehensive website, found at www.priweb.org/globalchange, as well as:

- Museum exhibits on climate change, climate throughout geologic time, the 6th mass extinction, and alternative energy sources.
- Outreach, as part of a collaborative NSF-funded project with New York State 4-H and the Community Collaborative Rain. Hail, and Snow Network (CoCoRaHS). Youth monitor and record precipitation data, and use that data as a catalyst for understanding weather, climate, and the effects of a changing climate on ecosystems. The curriculum associated with the project is being piloted by 4-H educators throughout NYS, and activities within the curriculum have been chosen to become one in a series of 4-H Science Toolkits, which highlight science education.
- A blog called Climate Change 101, which features daily posts reflecting on current news and offers tips for living a low carbon footprint/sustainable lifestyle.



- A monthly published article in the *Ithaca Journal* on Earth Science topics of interest to the public, many involving topics relevant to climate change education.
- Climate change education to rural communities of Tompkins County, surveying the needs of different communities throughout Tompkins County and New York State.

The Global Change Project is also a part of the outreach education arm of the Tompkins County Climate Protection Initiative, a consortium of local businesses, government,

educational institutions, and notfor-profits dedicated to improving energy efficiency in and around Ithaca.

Vistit us on the web at: www.museumoftheearth.org/ outreach.php

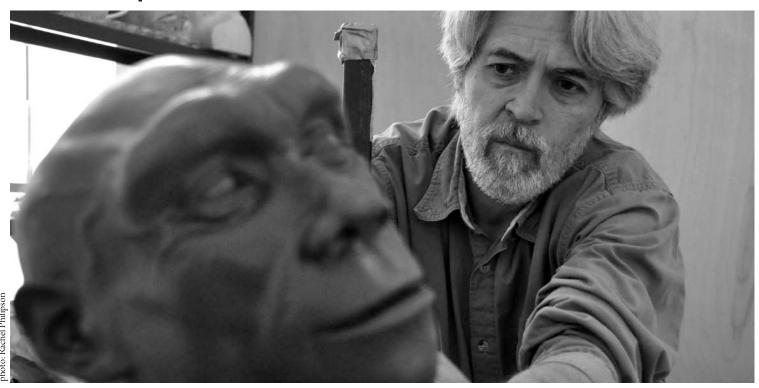




Paleontological Research Institution

GLOBAL CHANGE PROJECT

EDUCATION | **EVOLUTION EDUCATION**



The evolution of life is a central unifying principle of modern science, and it is integrally connected to our understanding of how Earth systems work and evolve. Through our vast collection of specimens, our museum facility, and our outreach programs, PRI encourages and facilitates improved public understanding of what evolution is, and how scientists study it. PRI's Evolution Project includes some of these very popular events, outreach activities, and publications:

• PRI co-hosted a weeklong Darwin Days Celebration, commemorating the 200th birthday of Charles Darwin and the 150th anniversary of the publication of *On the Origin of Species*. This marks the 4th annual Darwin Days celebration co-hosted by PRI and Cornell

University, with record attendance of numerous talks, panel discussions, and activities.

- As a part of this year's Darwin Days celebration, the gallery space in the Museum of the Earth was home to an exhibit called "Charles Darwin: After the Origin" which highlighted many of Darwin's research interests after his publication *On the Origin of Species*. This exhibit was shared between the Museum of the Earth and Cornell University's Kroch Library.
- PRI published a second edition of Evolution and Creationism: A Very Short Guide by Warren Allmon.
- PRI staff continue to work with the Field Museum and Harvard University on a five-year National

Science Foundation-funded "Assembling the Tree of Life" grant to develop the evolutionary tree of clams (bivalves). Outreach for this project includes a traveling exhibit, "Evolution on the Half-Shell," a website, and a *Teacher-Friendly Guide To Evolution*.

• PRI, partnering with Cornell University Department of Education, has completed the first year of the four-year NSF-funded grant, Fossil Finders, which sends Devonian fossil samples out to classrooms to teach the nature of science and science inquiry. This past year, we brought ten teachers from across New York State to Ithaca for a week-long immersion in Devonian fossils and innovative teaching techniques.

- The Museum of the Earth is visited by college and university students who use the Museum of the Earth exhibits to better understand evolution and the history of life through time.
- PRI displayed artist-in-residence, and noted paleoartist, John Gurche's progress on early hominid sculptures throughout the year in the entry of the Museum of the Earth. John also gave several lectures throughout the year about his work and the evolution of humans.



EDUCATION | ONLINE PROFESSIONAL DEVELOPMENT

In an effort to address the need for quality Earth system science professional development for the thousands of informal venues across the United States, PRI has developed an online, ten-week, one-credit graduate-level course for museum and science center educators. The course, entitled "Global Climate Change and Informal Earth System Science," is supported by a grant from the Earth System Science Education Alliance (ESSEA), an NSF/NASA-funded organization that supports educational institutions across the country by offering a series of online Earth system science courses for K-12 teachers. This course represents ESSEA's first professional development for informal educators in the U.S., and includes two modules, "Global Climate Change" and "Earth System Science in Your Backyard."

Participants in the course develop a Virtual Fieldwork Experience (VFE) program. Examples of VFE's by 2007 participants include: "Baltimore's Inner Harbor;" "Urban Sprawl and the Loss of Backyard Trees;" and "Lake of Fire: Methane Emissions from Canoe Lake, Alaska."





EDUCATION | FOSSIL FINDERS

The Fossil Finders project, in collaboration with Cornell's Department of Education, engages students in classrooms across the country in an authentic investigation of central New York Devonian fossils in an attempt to answer the question "Do the organisms in the shallow Devonian sea stay the same during times of environmental change?" The project develops curriculum and resources, as well as an interactive website, for upper elementary and middle level students and their teachers. Fossil Finders emphasizes learning about evolutionary concepts through an authentic, inquiry-based investigation of rocks and fossils. Ten middle school teachers from across New York State participated in the project. Teachers visited several outcrops in upstate New York, and learned to collect, identify, and measure local fossils. Evaluation comments from teachers included "The fieldwork helped to connect the information and make it more concrete," and "I would have never thought that learning about fossils could be so *much fun!*" Find out more at www.fossilfinders.org.







EDUCATION | SCHOOL & COMMUNITY GROUPS



The following groups participated in programs or tours at Museum of the Earth during fiscal year 2008-2009.

ADT American Astronomical Society American Mineralogical Society Apalachin Elementary ASSE International Student Exchange Program Belle Sherman Elementary Ben Franklin Elementary Beverly J. Martin Elementary Beverly J. Martin Elementary Lego League Blue Ridge Middle School **BOCES Earth Science Teachers BOCES ESL Boy Scouts Bright Horizons** Candor Elementary Cass Park Summer Camp Cayuga Addiction Recovery Services Cayuga Heights Elementary Chapin School Charles O. Dewy Middle School Chemung Valley Montessori Chenango Cooperative Extension

Chenango Forks High School

Clark Forks Middle School

Coalition for Earth Science Education Coddington Road Community Center Cornell Adult University Cornell Adult University Youth Program Cornell Anthropology Department Covington Elementary Cub Scouts DeWitt Community Library DeWitt Middle School Dryden Elementary Dryden Head Start Dryden Middle School Dundee Summer Camp Elderhostel Elizabeth Ann Clune Montessori School Elmira College **Enfield Elementary** Fall Creek Elementary Fayetteville Science Olympiad Fingerlakes Montessori School George Jr. Republic Girl Scouts Greater Ithaca Activities Center Guild of Natural Science Illustrators Harpursville Central School Homer Brink Elementary Hornell Concern for Youth Integrative Montessori School

held at the Museum of the Earth for school and community groups. These programs, led by PRI educators and volunteer docents, focused on a variety of topics, from the science of dinosaurs to the ancient seas once covering New York State and the mastodons that roamed during the Ice Age. Over 4,800 students participated in these programs. In addition to the educational programs, Museum docents and educators led 155 tours of the Museum.

PRI offered Dinosaur Science programs to nearly every first grade class in the Ithaca City School District. These were offered as part of the "Kids Discover the Trail!" program, which links each grade, Pre-K through 5th grade, to a specific organization from the Ithaca "Discovery Trail". Trips to each site combine students from two of

the district's elementary schools, to improve student relationships

In the period covered by this report, 180 educational programs were

across the community. Ithaca College Ithaca Youth Bureau Kendal at Ithaca Lifelong Lincoln Street Elementary Longview Main Street Elementary Maine Endwell Science Olympiad Marathon High School Mineral Society of NE Pennsylvania National Science Teachers Association New York Dairy Farmers Newfield Elementary Northeast Elementary Northside-Blodgett Middle School Oneida County 4H Onondaga Community College Onondaga Cortland Madison BOCES Ontario 4H Orange County 4H Orange County Community College Orange County Cooperative Extension Owego Elementary Parley Coburn Elementary Phoenix High School Romulus Central School Rosamond Gifford Zoo Science Leadership Academy

Science Olympiad Smith Elementary Smithsonian Marine Station SouthHill Elementary Spencer Van Etten Middle School ST. Lawrence University SUNY Cortland SUNY New Paltz Syracuse Academy of Science The New School Tompkins Cortland Community College Tompkins County Climate Protection Initiative Tompkins County Convention and Visitors Bureau Trumansburg Middle School Tuscarora Elementary Van Dyke Addiction Treatment Center Vestal Glenwood Elementary Watkins Glen Afterschool Watkins Glen High School Zion School

EDUCATION | **TEACHER PROGRAMS: OVERVIEW**



Empowering educators with the

latest scientific theories and

research--as well as the best

practices for presenting that

research in the classroom--is a

primary mission of PRI outreach.

Scientific literacy is increasingly

important in today's society, and

there is no better way to reach large

numbers of students than to reach

of programs dedicated to bringing

York and across the nation. In this

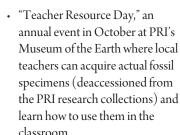
real science to teachers in New

role, PRI is actively engaged in

nurturing future generations of

scientists and science literate

their teachers. PRI facilitates a series



- Teacher-Friendly Guides to regional Earth system science, approaches using virtual fieldwork, and associated teacher professional development and associated teacher workshops.
- Teacher-Friendly Guide to evolution and associated teacher kits using clams (bivalves) to demonstrate





evolutionary principles and another guide on the evolution of maize through domestication.

Fossil Finders teacher

- Fossil Finders teacher professional development and curriculum resources, in collaboration with the Cornell Department of Education.
- "Climate Change in Your Backyard," in collaboration with Cornell Cooperative Extension
 4-H and Cornell Department of Earth and Atmospheric Sciences.
- Science Leadership
 Academy, in collaboration with
 Cornell University to work with
 teachers from New York City on
 developing virtual field

experiences for their classrooms.

- Darwin Days Teacher Workshop, in collaboration with Cornell Undergraduate Biology.
- Teacher workshops with the Cornell Institute for Biology Teachers.
- "Trilobites and Treetops" teacher workshop, in collaboration with the Cayuga Nature Center.

EDUCATION | **TEACHER-FRIENDLY GUIDES AND VIRTUAL FIELDWORK EXPERIENCES**



photo: Sara Auer

Teaching Earth science in the field - beyond classroom walls -- is not only very effective, but also necessary in order for students to properly understand our planet and the forces that shape it.

The national series of regional Teacher-Friendly Guides is a curriculum supplement that provides teachers with the content and background to introduce local Earth system science to their students, increasing the relevance of Earth science in their lives. The Northeast and Southeast Guides are complete, the South Central Guide is nearing completion, and the Western, Midwestern, Rocky Mountain, and Southwest guides will be completed in the coming years. Go to teacherfriendlyguide.org to use these resources.

Virtual fieldwork experiences (VFEs) are virtual re-creations of geologic field sites that allow students to do real science at a distance; VFEs bring the field into the classroom. By creating VFEs, teachers are not only collaboratively

building rich curriculum resources, they are also engaged in the careful study of their local Earth system science with an eye toward field-based inquiry for their students. The creation and use of VFEs is being incorporated into a range of PRI's outreach activities.

To get input from master teachers as we develop these approaches and resources, and to train teachers to use them effectively, we began working with teachers from around the south central region. We will ultimately involve teachers from

every region of the country. See www.virtualfieldwork.org for more information.





EDUCATION | THE CAYUGA NATURE CENTER COLLABORATION

Collaboration between PRI and the Cayuga Nature Center, located just a few miles from the PRI campus in Ithaca, began in June 2008 with the arrival of a full-time outreach educator working as liaison between the two organizations. Perhaps the most successful program to come out of

the collaboration has been the Summer Day Camp, with campers spending time at both the Nature Center exploring the outdoor world and at the Museum of the Earth learning about the ancient world. Other collaborations include day camps in the fall, winter, and spring, a series of programs entitled "Family

Adventures in Nature;" teacher professional development opportunities; and the publication of *A Field Guide to the Cayuga Lake Region*, by PRI-CNC staff member James Dake.

