

## Christopher Emil Bernhardt

Dept. Earth & Environmental Science  
University of Pennsylvania  
240 South 33rd Street  
Philadelphia, PA USA 19104-6316  
[bechrist@sas.upenn.edu](mailto:bechrist@sas.upenn.edu)

U.S. Geological Survey  
MS926A  
12201 Sunrise Valley Drive  
Reston, VA 20192  
[cbernhardt@usgs.gov](mailto:cbernhardt@usgs.gov)

---

### Education:

University of Pennsylvania  
PhD candidate, Department of Earth and Environmental Sciences (Jan '09)  
*Dissertation:* Wetland response to natural and anthropogenic forcing in the United States and Egypt

University of Akron  
Master of Science, Biology (2000)  
*GPA:* 3.82  
*Thesis:* Effects of *Lupinus perennis* density and population size on plant-pollinator interactions

Baldwin Wallace College  
Bachelor of Science *cum laude* (1998)  
*Major:* Biology *Minor:* Chemistry

### Current Position:

United States Geological Survey  
*Position:* Biologist, Student Career Enhancement Program (SCEP)  
*Date:* September 2001–September 2005 (Term Appointment; GS-9)- Present (SCEP; GS-11)

### Research Experience:

Technische Universitaet Dresden (Germany)  
*Practicum:* The effect of electromagnetic fields and changing temperatures on proliferation of R1 cells  
*Date:* June 28 – October 1, 1998

NASA Glenn Research Center at Lewis Field (formally NASA Lewis Research Center)  
*Position:* Industrial Hygiene Intern  
*Date:* June 14, 1997 – January 5, 1998

Caparo Forestry Reserve (Venezuela)  
*Project:* Sexual selection in the racerunner lizard (*Cnemidophorus lemniscatus*) (Senior Thesis)  
*Date:* November 28 – December 19, 1997

## **Publications:**

### ***Journals:***

**Bernhardt, C.E.**, R. J. Mitchell, H. J. Michaels. 2008. Effect of *Lupinus perennis* population size and local density on pollinator behavior. *International Journal of Plant Sciences*. 169: 944-953.

Culver, S.J., Farrell, K., Mallinson, D.J., Horton, B.P., Willard, D.A., Thieler, E.R., Riggs, S.R., Snyder, S.W., Wehmiller, J.F., **Bernhardt, C.E.**, and Hillier, C. 2008. Micropaleontologic record of Late Pliocene and Quaternary paleoenvironments in the northern Albemarle Embayment, North Carolina, U.S.A. *Palaeogeography, Palaeoecology, Palaeoclimatology* 264: 54-77.

Willard, D.A., **Bernhardt, C.E.**, Brooks, G.R., Cronin, T.M., and Edgar, T., 2007. High-resolution pollen record of deglacial climate variability from central Florida, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* 251: 366-382.

Willard, D.A., **Bernhardt, C.E.**, Holmes, C.W., Landacre, B., and Marot, M. 2006. Response of Everglades tree islands to environmental change. *Ecological Monographs*, 76: 565-583.

Willard, D.A., **Bernhardt, C.E.**, Korejwo, D.A., and Meyers, S.R.. 2005. Impact of millennial-scale Holocene climate variability on eastern North American terrestrial ecosystems: pollen-based climatic reconstruction. *Global and Planetary Change* 47: 17-35.

Willard, D.A., **Bernhardt, C.E.**, Cooper, S.R., Jensen, J., and Weimer, L.M. 2004. Atlas of South Florida Pollen. *Palynology*, 28: 175-227.

### ***USGS Open File Reports:***

**Bernhardt, C.E.**, and Willard, D.A. 2006. Marl prairie vegetation response to 20<sup>th</sup> century hydrologic change. U.S. Geological Survey Open-File Report 2006-1355.

**Bernhardt, C.E.**, D.A. Willard, M. Marot, C. Holmes. 2004. Anthropogenic and Natural Variation in the Ridge and Slough Pollen Assemblages. U.S. Geological Survey Open-File Report 2004-1448.

Willard, D.A., T.M. Cronin, **C.E. Bernhardt**, J. Damon, 2004. Sediment transport in Pocomoke Sound, Maryland inferred from microfossils in surface sediments. In: Cronin, T.M. (Ed.), Pocomoke Sound sedimentary and ecosystem history. U.S. Geological Survey Open-File Report 2004-1350.

Willard, D.A., **Bernhardt, C.E.**, 2004. Pollen stratigraphy and land-use change, Pocomoke Sound, Maryland. In: Cronin, T.M. (Ed.), Pocomoke Sound sedimentary and ecosystem history. U.S. Geological Survey Open-File Report 2004-1350.

Wingard G.L., Thomas M. Cronin, Charles W. Holmes, Debra A. Willard, Gary Dwyer, Scott E. Ishman, William Orem, Christopher P. Williams, Jessica Albietz, Christopher E. **Bernhardt**, Carlos A. Budet, Bryan Landacre, Terry Lerch, Marci Marot, Ruth E. Ortiz, 2004, Ecosystem History of Southern and Central Biscayne Bay: Summary Report on Sediment Core Analyses - Year Two: U.S. Geological Survey Open File Report 2004-1312.

Wingard, G L; Cronin, T C; Dwyer, G S; Ishman, S E; Willard, D A; Holmes, C W; **Bernhardt, C E**; Williams, C P; Marot, M E; Murray, JB; Stamm, R G; Murray, J H; Budet, C. Ecosystem history of southern and central Biscayne Bay; summary report on sediment core analyses. Open-File Report - U. S. Geological Survey, Report: OF 03-0375, 2003 [URL:<http://sofia.usgs.gov/publications/ofr/03-375/>]

**Bernhardt, C.E.**, D.A Willard, and C.W. Holmes. 2003. Development and Stability of the Everglades Ridge and Slough Landscape. USGS Open-File Report 03-54.

Willard D.A., W.H. Orem, **C.E. Bernhardt**, and C.W. Holmes. 2003. Everglades Tree-Island Response to Hydrologic Change. USGS Open-File Report 03-54.

**Other Publications:**

Cover photograph for *Frontiers in Ecology and the Environment* 9(5) 2007.

***In Review:***

**Bernhardt, C.E.**, and Willard, D.A. Climate variability and anthropogenic impacts on wetland development: the sawgrass ridge and slough landscape, Everglades, Florida. IN REVIEW *Ecological Applications*

**Bernhardt, C. E.**, Stanley, J-D., and Horton, B.P. Rapid responses of a wetland plant community to 20th century anthropogenic pressures, Manzala Lagoon, Nile Delta, Egypt.

***In Preparation:***

**Bernhardt, C. E.**, and B.P. Horton. Geologic and sea level history of Augustan Alexandria, Egypt. in *Mapping Roman Alexandria*. L. Hasselberger (ed). Supplement of *Journal of Roman Archaeology*.

**Bernhardt, C.E.**, and D.A., Willard. Pollen atlas of Mid-Atlantic wetlands, United States of America.

***Abstracts:***

**Bernhardt, C.E.** 2008. Palynological evidence of anthropogenic activity on tree islands. Greater Everglades Ecosystem Restoration Conference.

**Bernhardt, C.E.**, and Stanley, J-D. 2008. Palynological documentation of rapid wetland vegetation response to 20<sup>th</sup> century anthropogenic forcing, Manzala Lagoon, Nile Delta, Egypt. International Palynological Congress X-II, Bonn, Germany.

Willard, D., **Bernhardt, C.**, Brown, R., Landacre, B., and Townsend, P. 2008. Pollen-vegetation calibration from forested wetlands: Roanoke River Basin, North Carolina, United States. International Palynological Congress X-II, Bonn, Germany.

Willard, D.A., **Bernhardt, C.E.**, and Saunders, C. 2008. Vegetation and hydrologic history of Everglades' marl prairies: paleoecological evidence from Big Cypress National Preserve. Greater Everglades Ecosystem Restoration Conference.

Willard, D.A., **Bernhardt, C.E.**, and Brandt, L.A. 2008. Response of Loxahatchee wetlands to hydrologic changes: anthropogenic and climate impacts. Greater Everglades Ecosystem Restoration Conference.

Larsen, L., Aumen, N., **Bernhardt, C.**, Engel, V., Givnish, T., Hagerthey, S., Harvey, J., Leonard, L., McVoy, C., Noe, G., Nungesser M., Rutchey, K., Sklar, F., Troxler, T., Volin, J., Willard, D. 2008. The role of flow and transport processes in ridge/slough/tree island pattern dynamics. Greater Everglades Ecosystem Restoration Conference.

**Bernhardt, C.E.**, and D.A. Willard. 2007. Independent wetland vegetation response to climate variability and anthropogenic hydrologic control, Everglades, FL, USA. Eos Trans. AGU, 88(52), Fall Meet. Supplement, Abstract B33B-1213.

**Bernhardt, C.E.**, Willard, D.A., B.P. Horton, and Schwadron, M. 2006. Climate variability, Native American tree island occupation, and wetland development in the Florida Everglades. Philadelphia Annual Meeting Geological Society of America Abstracts with Programs, Vol. 38, No. 7, p. 215.

Willard, D.A., **Bernhardt, C.E.**, Brooks, G.R., and Larson, R.A. 2006. Subtropical climatic record of the last deglaciation from Florida. Philadelphia Annual Meeting Geological Society of America Abstracts with Programs, Vol. 38, No. 7, p. 323.

**Bernhardt, C.E.**, and Willard, D.A. 2006. Tree island paleoecology and their response to hydrologic change, Arthur R. Marshall Loxahatchee National Wildlife Refuge, Florida. Northeastern Section-41st Annual Meeting Geological Society of America Abstracts with Programs, Vol. 38, No. 2, p. 66.

Willard, D.A., **Bernhardt, C.E.**, Holmes C.W., and Marot M. 2006. Impacts of 20th century hydrologic change on Everglades tree islands. Greater Everglades Ecosystem Restoration Conference, p 245.

Willard, D.A., **Bernhardt, C.E.**, Brandt, L.A., and Marot M. 2006. Response of Loxahatchee Tree Islands and Marshes to 20th Century Hydrologic Change. Greater Everglades Ecosystem Restoration Conference, p 246.

Willard, D.A., and **Bernhardt, C.E.**, 2005. Everglades Wetland Response to Climatic and Anthropogenic Hydrologic Change: Implications for Management of the Everglades Ecosystem. 2005 George Wright Society Meeting.

**Bernhardt, C.E.**, D.A. Willard, P. Townsend, R. Brown. Impacts of Land Use on Wetland Vegetation in Eastern United States: Timing and Scale. Eos Transactions, AGU, 85 (47), Fall Meeting Supplement, Abstract B11B-0145.

**Bernhardt C.E.**, D. A. Willard Influence of 20<sup>th</sup> Century Water Management on Plant Communities in the Everglade's Marl Prairies. Abstracts and Program, 1<sup>st</sup> National Conference on Ecosystem Restoration (NCER), p. 38.

Willard, D.A., **C.E. Bernhardt**, T. Edgars. High-Resolution Pollen Record of Deglacial Climate Variability in Central Florida. Eos Transactions, AGU, 85 (47), Fall Meeting Supplement, Abstract PP13A-0595.

Willard, D.A., **Bernhardt, C.E.**, Landacre, B., and Marot, M., 2004. Impacts of 20<sup>th</sup> century anthropogenic changes on strand tree islands in Arthur R. Marshall (A.R.M.) Loxahatchee National Wildlife Refuge. A.R.M. Loxahatchee Science Conference, May 18-19, 2004, Deerfield Beach, FL. (Invited).

**Bernhardt, C.E.**, D.A. Willard, Marot, M. 2004. Susceptibility of the Ridge and Slough Landscape to Hydrologic Change. Northeast/Southeast Geological Society of America Sectional Meeting, March 27, 2004, Paper 65-8.

Willard, Debra A., **Bernhardt, C.E.**, Holmes, C.W., Marot, M. 2004. Response of Everglades Wetlands to 20<sup>th</sup> Century Water Management – Implications for Future Everglades Plant Communities. Northeast/Southeast Geological Society of America Sectional Meeting, March 27, 2004.

Willard, D.A., **Bernhardt, C.E.**, Brown, R., Damon, J., Hupp, J., Landacre, B., and Townsend, P., 2003. Pollen Representation of Forested Wetland Plant Communities, Atlantic Coastal Plain Rivers (USA). XVI INQUA Congress Programs with Abstracts, p. 211.

Willard, D.A., **Bernhardt, C.E.**, and Cronin, T.M. 2002. Subtropical Glacial, Deglacial and Holocene Millennial Climate Variability from Tampa Bay, Florida. Eos Transactions, AGU, 83 (47), Fall Meeting Supplement, Abstract PP71A-0373.

**Bernhardt, C.E.**, R. J. Mitchell, H. J. Michaels. 2001. Effect of *Lupinus perennis* population size and local density on pollinator behavior. Abstract Ecological Society of America.

Michaels H. J, R. J. Mitchell, X. Shi, **C. E. Bernhardt**. 2001. Effect of population size and density on reproduction and genetic variation in *Lupinus perennis*. Abstract Ecological Society of America.

**Oral Conference Presentations and Seminars:**

Smithsonian-University of Pennsylvania Geobiology Symposium (2007 & 2008)  
 University of Pennsylvania Geolunch Seminar Series (2006)  
 First National Conference on Ecosystem Restoration (2004)  
 Geologic Society of America NE SE Meeting (2004)  
 Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem (2003)  
 Ecological Society of America (2001)  
 Invited Seminar at University of Wuerzburg, Germany (2000)  
 Midwest Ecology and Evolution Conference (2000)  
 University of Akron Ecology Lunch Seminar Series (1999 & 2000)  
 Baldwin Wallace College Senior Seminar (1998)  
 NASA LeRC and Ohio Aeronautic Institute Intern Conference (1997)

### **Grants and Awards**

Dept. of Environment and Climate Change, New South Wales, Australia (2007): **\$20,000**  
 University of Pennsylvania Paleontology Summer Stipend (2002): **\$2,500**  
 Cove Point Land Trust (2006-7): **\$4,000**  
 University of Pennsylvania Paleontology Summer Stipend (2006): **\$2,000**  
 University of Akron Biology Summer Research Award (1999): **\$2,000**  
 Alice and Walter Macior Award in Plant Sciences, University of Akron (1999): **\$1,500**  
 Dr. Acquarone Award in Plant Sciences, University of Akron (1999): **\$1,000**

### **Teaching:**

#### ***University of Pennsylvania***

Developed and presented lectures and labs on palynology for a Paleobotany class and on biostratigraphy for a Stratigraphy class.

Environmental Analysis (2006-7)     *Duties:* Teach recitation, grade assignments and exams

#### ***University of Akron Teaching Assistantship***

Introduction to Botany (2000)     *Duties:* Lab assistant

Flora and Taxonomy (2000)     *Duties:* Developed and presented lecture on pollination ecology, assisted in labs

Natural Sciences (1999)     *Duties:* Responsible for teaching labs

Ecology (1999/2000)     *Duties:* Assist in classes, grade exams, quizzes, and homework

Entomology (1999)     *Duties:* Assist in labs and field trips, curator

### **Unique Work Experiences:**

Assisted in examination of hurricane deposits post-Katrina in AL and MS (2005)

Forensic palynologic investigation for FBI (2005)

*Marion-Dufresne* Picasso Cruise: Leg Miami-Port of Baltimore (2003)

NASA Florida Space Center Elevated CO<sub>2</sub>, field hand (2001)

**Society Affiliations:**

American Association of Stratigraphic Palynologists, AASP

Geologic Society of America, GSA

American Geophysical Union, AGU

North American Micropaleontology Section of the Society for Sedimentary Geology (SEPM)

**Languages:**

English (native)

German (Second language)

**Extracurricular Interests:**

Roman history; Ethnobotany; Brewing and Culinary arts; Dystopian literature; Works of V.Nabokov; Fishing; Soccer

**References:** Available upon request.