

Larisa R. G. DeSantis

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PROFESSIONAL OBJECTIVES

Through an interdisciplinary research program I clarify the ecological dynamics of mammalian communities and their environments through time using stable isotopes, dental microwear, and modern ecological studies. With an emphasis on understanding mammalian responses to climate change, my research has applications to modern ecology and relevance to current global warming. I also participate in broader impact activities and actively communicate current research to students and educators.

EDUCATION

Ph.D. in Zoology with a minor in Botany, University of Florida, Department of Zoology/FLMNH (2009; 8/04-8/09)

Advisor: Dr. Bruce MacFadden, Florida Museum of Natural History

Committee Members: Dr. Bruce MacFadden (chair), Dr. Karen Bjorndal, Dr. Jonathan Bloch, Dr. Robert Holt, and Dr. Edward Schuur

Dissertation Title: *Paleoecology of forest environments through time: evidence from stable isotopes of mammalian herbivores in the New World*

M.E.M. in Conservation Biology, Yale University, School of Forestry and Environmental Studies (2003; 8/00-12/02)

B.S. in Resource Management, University of California, Berkeley (2000; 8/98-5/00)

College Honors & Resource Management Honors

B.S. Candidate in Biology, University of Chicago (9/97-6/98)

RELEVANT APPOINTMENTS

Assistant Professor, Vanderbilt University - Department of Earth and Environmental Sciences (8/09-present)

Departmental Chair: Dr. David Furbish

I am currently establishing an interdisciplinary research program that integrates the fields of ecology, paleontology, and geochemistry to understand how past environments and climates have changed over time. With a focus on mammalian communities, I use modern ecology to help constrain paleoecological hypotheses. Additionally, I use the fossil record to inform ecologists and conservationist about the long term effects of climate change on mammalian communities and their environments during the Cenozoic. I teach introductory, major, and graduate level courses pertaining to paleoecology and global climate change, integrating the biological and geological disciplines. Currently, I am teaching an advanced undergraduate/graduate level *Paleoecological Methods* course and an undergraduate writing course, titled, *Ecology, Evolution, and Climates through Time*. Through the mentoring of undergraduate and graduate students I help train future generations of scientists and scientifically literate professionals.

Research Associate, The Don Sundquist Center of Excellence in Paleontology (2/10-present)

Director: Dr. Blaine Schubert

As a research associate, I conduct research on the Gray Fossil Site and on other areas of paleoecological research in collaboration with center associates. Additionally, I take advantage of the close proximity of the Gray Fossil Site for field trip opportunities.

Alumni Fellow, University of Florida - Department of Zoology (8/04-8/09)

Lucy Dickinson Fellow, University of Florida/Florida Museum of Natural History (8/04-7/07, 8/08-8/09)

NSF SEAGEP Fellow, University of Florida (1/06-8/08)

Supervisor: Dr. Bruce MacFadden

As an Alumni Fellow and Lucy Dickinson Fellow I secured four years of fellowship support in the form of three years of research assistantships and one year of teaching assistantships. The Alumni Fellowship is the most prestigious Graduate Fellowship offered at the University of Florida. The Lucy Dickinson Fellowship provided support for exceptional candidates in the field of vertebrate paleontology and the SEAGEP Fellowship is a merit based award for minority students. My dissertation research focused on reconstructing ancient forested environments and quantifying the effects of climate change and environmental perturbations on mammalian community dynamics.

Marine Science Technician, The Nature Conservancy (6/06-2/09)

Supervisor: Stephanie Wear

I communicated marine science to Marine Protected Area (MPA) practitioners and managers. Through the development of a website (www.reefresilience.org) and workspace on conserve on-line, I kept MPA practitioners up to date on recent events, relevant publications, and additional resources. I kept attuned to conservation tools and attended professional meetings on marine conservation and management. I also co-instructed two graduate level seminars on MPA science and management.

Educator, Florida Museum of Natural History (5/04-8/09)

Supervisor: Dr. Bruce MacFadden, Jamie Creola, David Webb, Kurt Auffenberg, Darcie MacMahon

As a Ph.D. student and educator I developed and executed educational programs at the FLMNH on a part-time basis. I educated students of all ages on paleontology through formal classroom visits, museum lectures, and a paleontology field camp. I independently developed and executed a paleontology field camp that has since received rave reviews by students and parents. As a member of the exhibit committee for a traveling exhibit on *Megalodon*, I conducted visitor evaluations, presented results of the front-end evaluation to the exhibit committee and board of directors, participated in a Florida Association of Museums collaborative presentation, developed hands-on educational exhibit activities, and authored and edited the *Megalodon Educator's Guide* (see publications).

Teaching Assistant - Alumni Fellow, University of Florida - Department of Zoology (1/07-5/07)

Supervisor: Dr. Marta Wayne

I assisted with an upper division undergraduate Genetics course by holding weekly discussions, exam reviews, grading exams, and guest lecturing. The discussion sections were designed to help students navigate their way through a series of genetic problem sets related to Mendelian, molecular, and evolutionary genetics. During this experience, I used the Socratic method to slowly guide students through the logic of their problem sets, later having them do the same by teaching their peers.

Teaching Assistant - Alumni Fellow, University of Florida - Department of Zoology (8/05-5/06)

Supervisor: Dr. Jonathan Bloch

I taught the laboratory portion of a two semester vertebrate paleontology course that spanned the origin of vertebrates to human evolution. The course consisted of graduate and advanced undergraduate students. I developed and executed all laboratory activities, including lectures, inquiry-based activities, interactive review sessions, practical exams and participated in the lecture component of the course. Using the inquiry-based methods of K-12 educators, I designed each laboratory activity to engage students and advance critical thinking skills using available teaching specimens.

NSF Gk-12 Fellow, Lincoln Middle School - SPICE Program in collaboration with the University of Florida (5/04-8/05)

Supervisor: Dr. Douglas Levey, Sylvia Brooks

The Science Partners for Inquiry-based Collaborative Education (SPICE) Program is funded under an NSF GK-12 Grant with the primary goal of pairing Graduate Fellows in the STEM disciplines with mentor K-12 teachers. I developed and executed inquiry-based science curriculum in collaboration with an eighth grade science teacher. Lessons focused on increasing inquiry-based methods and classroom-mentoring aimed to increase student interest in science related careers. See resulting educational publications, below.

Educational Consultant/Educator, Yale Outdoor Education Center (6/02-5/05)

Supervisor: Tom Migdalski

I designed and constructed a 2.5 mile brochure guided nature trail. The brochure guide engages visitors in self discovery of what is in their "backyard" through a series of interactive activities (e.g. tree ID, observations, orienteering, etc...). I also served as an instructor for the Yale Physical Education-Skeet and Trap course and provided trap-shooting instruction for Connecticut State Conservation Officers.

Science Instructor, Foote School (9/03-6/04)

Supervisor: Joya Marks

I developed and executed inquiry-based science curriculum emphasizing the development/improvement of science process skills, to three fourth-grade classes. I worked with fourth-grade teachers to maintain a science curriculum that complemented the social studies, reading, and math curriculum.

Laboratory Instructor, Southern Connecticut State University - Nursing Department (9/03-1/04)

Supervisor: Dr. Alexander Turko

I conducted lecture and laboratory instruction for the laboratory portion of a Human Biology course. I educated students on human anatomy through cat dissections, laboratory exams, and lectures. I constructed and graded all practical/non-practical examinations.

Laboratory Instructor, Southern Connecticut State University - Biology Department (9/03-1/04)

Supervisor: Dr. David Avery

I conducted lecture and laboratory instruction for the laboratory portions of Zoology and Botany courses, independently. I educated students on Zoology and Botany through a series of dissections, slide evaluations, laboratory exams, and lectures. I constructed and graded all practical/non-practical examinations.

Museum Educator, American Museum of Natural History - Education Department/Moveable Museum Program (1/03-9/03)

Supervisor: Kevin O'Rangers

I educated children about paleontology through the use of the Paleontology of Dinosaurs Moveable Museum and in-class discussions. I also helped coordinate and run teacher workshops, assisted with program and exhibit development, and drove the 37-ft. Moveable Museum to schools in New York City.

Graduate Fellow, Peabody Museum - Peabody Biodiversity and Human Health Fellows Program (2/02-12/02)

Supervisors: Laura Fawcett, Terri Stern

I assisted teachers with the development of science curriculum, engaged in inquiry and problem based development and instruction, taught science process skills in New Haven Schools (grades 3-8), helped organize and run teacher workshops, and assisted with program and resource development.

Environmental Educator, Solar Youth, Inc. (9/02-12/03)

Supervisors: Joanne Schulli, Stephanie Bergman

I developed curriculum materials and executed an after-school program for children residing in the New Haven Housing Projects. Activities focused on the mission of "Kids Explore, Kids Do, and Kids Teach" and included environmental education, community service projects, and youth development.

Instructor, Kaplan (10/01-12/03)

Supervisors: Anita Sharif, Chad Marcel

I instructed GRE and SAT Test Preparation courses. Teaching experience included instructing courses of variable sizes to students of diverse strengths, private tutoring, and the completion of an extensive teacher training program including continuous performance evaluations.

Research Assistant, Yale University - School of Epidemiology and Public Health (5/01-9/01)

Supervisor: Dr. Durland Fish, Dr. Jean Tsao

Fieldwork consisted of plot design/layout, trapping and processing of small mammals including blood collection and DNA extraction and preparation, tick collection/identification, and data processing. I also assisted with the development of the initial plot design and sampling protocol.

Teaching Fellow, Yale University (9/00-1/01)

Supervisor: Dr. Joseph Chang

I assisted with the instruction of the graduate course, *Statistics: Forestry and Environmental Studies*. I held office hours and helped students design robust experiments with statistical power that were relevant to their research.

Forest Technician - Crew Leader, University of California, Blodgett Forest Research Station (5/00-7/00)

Supervisor: Dr. Jason Mohagadas

I assisted with on-going research projects, data collection, timber cruising, plant identification, fire mitigation, and fire suppression.

Research Assistant, University of California, Berkeley: John Battles Lab (5/00-7/00)

Supervisors: Dr. Anna Levin, Dr. Rob York, Dr. John Battles

I independently monitored research projects including the collection of field data and the communication of data to off site lab personnel.

Museum Preparator, University of California Museum of Paleontology (8/98-6/00)

Supervisor: Dr. Mark B. Goodwin

Fossil preparation included type specimens and Late Cretaceous dinosaurs from the Hell Creek and Judith River Formation, Montana.

Fossil Preparator, University of Chicago (4/98-8/98)

Supervisor: Dr. Paul C. Sereno

Fossil preparation of *Suchomimus tenerensis*, *Sarcosuchus imperator*, and *Jobaria tiguidensis*.

EDUCATIONAL FIELD EXPERIENCES & WORKSHOPS

East Tennessee State University and General Shale Brick Natural History Museum, Johnson City, Tennessee (8/04-present)

I assist with on-site paleontological field work at the Gray Fossil Site. I also bring Vanderbilt graduate and undergraduate students to the site to gain experience in the following: field fossil collecting, taphonomic measurement/fossil inventory, and assisting volunteers with field work.

NEOTOMA Workshop (9/10)

Invited workshop, with the goal of improving the Neotoma database (www.neotomadb.org). I helped contribute to the Geochemical Working Group and am currently serving on the scientific advisory board of both the Geochemical Working Group and the Vertebrate Working Group.

Florida Museum of Natural History, Gainesville, Florida (8/04-8/09)

Supervisor: Dr. Richard Hulbert

I assisted with paleontological field work that was affiliated with the Florida Museum of Natural History. I have experience in the following: prospecting, field fossil collecting, taphonomic measurement/fossil inventory, and assisting volunteers with field work.

University of Florida Paleontology Expedition, Panama City, Panama (3/07)

Supervisor: Dr. Bruce MacFadden

Fossil prospecting, collection, field preparation, geological education, and political networking.

University of Utah - Stable Isotope Ecology Workshop (6/05-7/05)

Competitive lecture and laboratory workshop in stable isotope (C,N,O,H) ecology. During the three-week long workshop, I carried out original research projects involving diverse laboratory preparation techniques.

Yale University – School of Forestry and Environmental Studies (8/00-9/00)

Training modules in technical skills; course work completed in: plant identification, ecosystem measurement, and land measurement and mapping.

University of California Paleontology Expedition, Garfield Co., Montana (7/99-8/99)

Supervisor: Dr. William Clemens

Prospecting, fossil collection, field preparation, and geological education.

University of California Forestry Camp, Meadow Valley, California (6/99-7/99)

Field program in forest management; course work completed in: forest ecology, silviculture, and forest mensuration.

University of Chicago Paleontology Expedition, Big Bend National Park, Texas (6/98)

Supervisor: Dr. Paul Sereno

Prospecting, fossil collection, field preparation, and geological education.

GRANTS, FELLOWSHIPS, AWARDS & HONORS

Vanderbilt University

Collaborative Research: A multi-proxy approach to refine biochronology and document the effects of Pleistocene climate change on the ecology and evolution of mammals in Florida. EAR, Sedimentary Geology and Paleobiology – National Science Foundation, In collaboration with Jonathan Bloch (Florida Museum of Natural History), (Pending, resubmitted 1/11; Requested \$309,000)

Early Career: Acquisition of a White Light Confocal Microscope for Dental Microwear Texture Analysis of Ancient Mammalian Communities. EAR, Instrumentation & Facilities – National Science Foundation (Pending, submitted 7/10; Requested \$270,000)

Establishing direct links between climate, environmental change, and cultural transformations in early Peruvian civilization.

Discovery Grant, Vanderbilt University, In collaboration with Steven Goodbred (VU-EES) and Tom Dillehay (VU-Anthropology), (2010-2013, \$92,500)

Research Travel – presentation of research supported by the following grants:

College of Arts and Sciences (2010, \$1000; 2009, \$2500)

Florida Museum of Natural History Austin Award. This award honors long-time Florida Museum of Natural History curator of ornithology, Oliver Austin and recognizes a University of Florida graduate student for excellent research in the natural sciences, one who has spent a significant portion of his or her scholastic career doing research in the Museum's programs and collections. (2009 recipient, awarded in 2010)

University of Florida

Reconstructing forest environments through time: evidence from stable isotopes of mammalian herbivores and floral communities in the New World – doctoral dissertation research supported by the following grants and fellowships:

University of Florida Alumni Fellowship - Department of Zoology (2005-2009; \$60,000)
Lucy Dickinson Fellowship - FLMNH (2004-2007, 2008-2009; \$24,000)
National Science Foundation SEAGEP Fellowship (2005-2008; \$20,000)
National Science Foundation GK-12 Fellowship - SPICE Program (2004-2005; \$31,000)
University of Florida Graduate Student Council Research Grant (2009; \$250)
Department of Zoology End of Year Research Award (2005; \$700)
Southwest Florida Fossil Club Scholarship (2005; \$500)

Effects of interglacial warming on ancient mammalian communities and their environments. Supported by the following grants:

The Florida Paleontological Society's Gary S. Morgan Student Research Award (2007; \$500)
The Paleontological Society - Stephen J. Gould Grant (2007; \$500)
Sigma Xi Grant-in-Aid of Research (2007; \$400)
American Museum of Natural History - Theodore Roosevelt Award (2007; \$2,500)

Effects of climate change on Australian megafauna from the late Quaternary to the Present. National Science Foundation East Asia and Pacific Summer Institutes for US Graduate Students (2007; ~\$10,000)

Ancient ecology of a Neogene forest from the Appalachians of Tennessee, USA. . Supported by the following grants:

Geological Society of America Grant in Aid of Research (2005; \$2,500)
R. Jerry Britt, Jr. Paleobiology Award (2004; \$500)

Edward S. Deevey Award for the best Paleocology Student Presentation at the Ecological Society of America Meeting (2008; \$300)

Gainesville Women's Club Scholarship (2007; \$1000)

Research Travel Awards – presentation of research supported by the following grants:

Ecological Society of America Travel Grant (2008; \$195)
Society of Vertebrate Paleontology Travel Grant (2006; \$300)
Southeastern Geological Society of America Travel Grant (2006, 2007; ~\$100 per award)
Graduate Student Association Travel Grant (2005, 2006, 2007, 2008; \$250 per award; total of \$1000)
College of Arts and Sciences Travel Grant (2005, 2007, 2008; \$250 per award; total of \$750)
Department of Zoology Travel Grant (2005, 2006, 2007, 2008; \$300-\$500 per award; total of \$1600)

Yale University

Yale School of Forestry and Environmental Studies Merit Scholarship (2001-2003; \$10,000)
Graduate Fellowship - School of Forestry and Environmental Studies (2001-2002; \$5,000)
Charles Wilson Award (2001, 2002; \$2,500 per award)
Yale University Society of American Foresters Research Scholarship (2002; \$500)
Graduate Fellowship - Peabody Museum (2002; \$5000)
Peabody Museum Biodiversity and Human Health Award (2002)
National Captain: Yale Skeet and Trap Team (2001-2002)
National Class Champion Skeet (2003), Trap (2003)

University of California, Berkeley

Honors in the College of Natural Resources (2000)
Honors in the Major of Resource Management (2000)
Honors Thesis Award Recipient (2000)
National Champion in Parliamentary Debate: National Parliamentary Debate Association (2000)
Western States Communication Association Award (2000)
Gamma Phi Beta Carnation Award for Scholarly Achievement and Community Service (2000)
Xi Sigma Pi (Forestry Honor Society) Membership (1999, 2000)

RELEVANT RESEARCH

Publications (Peer-reviewed papers):

- Dillehay, T. et al. (DeSantis, L., 25th author). Cultural Complexity and Coastal Environment at Huaca Prieta, Peru from 9,000 to 4,500 years ago. *PLoS ONE* (In review)
- DeSantis, L.R.G. Stable isotope ecology of extant tapirs from the Americas. *Biotropica* (In press)
- MacFadden, B.J., DeSantis, L.R.G., Labs Hochstein, J., Kamenov, G.D. 2010. Physical properties, geochemistry, and diagenesis of xenarthran teeth: prospects for interpreting the paleoecology of extinct species. *Palaeogeography, Palaeoclimatology, Palaeoecology* 291: 180-189
- Schubert, B.W., Ungar, P.S., DeSantis, L.R.G. 2010. Carnassial microwear and dietary behaviour in large carnivorans. *Journal of Zoology* 280: 257-263
- Prideaux, G.J., Ayliffe, L.K., DeSantis, L.R.G., Schubert, B.W., Murray, P.F., Gagan, M.K., Cerling, T.E. 2009. Extinction implications of a chenopod browse diet for a giant Pleistocene kangaroo. *PNAS* 106: 11646-11650.
- DeSantis, L.R.G., Feranec, R.S., MacFadden, B.J. 2009. Effects of interglacial warming on ancient mammalian communities and their environments. *PLoS ONE* 4: e5750
- DeSantis, L.R.G. 2009. Teaching evolution through inquiry-based lessons of uncontroversial science. *The American Biology Teacher* 71(2): 106-111
- DeSantis, L.R.G. 2009. Straight from the mouths of horses and tapirs: using fossil teeth to clarify how ancient environments have changed over time. *Science Scope* 32(5): 18-24
- DeSantis, L.R.G., Wallace, S.C. 2008. Neogene forest from the Appalachians of Tennessee, USA: geochemical evidence from fossil mammal teeth. *Palaeogeography, Palaeoclimatology, Palaeoecology* 266: 59-68
- DeSantis, L.R.G., MacFadden, B.J. 2007. Identifying forested environments in Deep Time using fossil tapirs: evidence from evolutionary morphology and stable isotopes. *Courier Forschungsinstitut Senckenberg* 258: 147-157 (Special Issue: Advances in Angiosperm Paleobotany and Paleoclimatic Reconstruction – Contributions Honoring David L. Dilcher and Jack A. Wolfe)
- DeSantis, L.R.G., Bhotika, S., Putz, F.E., Williams, K. 2007. Sea-level rise and drought interactions accelerate declines on the Gulf Coast of Florida, USA. *Global Change Biology* 13: 2349-2360
- DeSantis, L.R.G. 2007. Clarifying tropical cyclone activity in centuries past. *Science Teacher* 74(6): 78-84

Publications (In revision/preparation):

- Feranec, R.S., DeSantis, L.R.G. Using carbon isotopes to determine carnivore prey preferences during the Pleistocene of Florida. *Paleobiology* (In revision)
- DeSantis, L.R.G., Field, J.H., Wroe, S. Effects of climate change on Australian megafauna from the late Quaternary to the Present: evidence from stable isotopes of herbivorous mammals at Cuddie Springs. (In preparation)
- DeSantis, L.R.G., Schubert, B.W. Dental microwear texture analysis of *Tapirs polkensis* from the Gray Fossil Site: further evidence of a forest refuge in the Appalachians during the Neogene. (In preparation)

Publications (Non-peer reviewed papers):

- DeSantis, L.R.G. 2007. Reconstructing the ancient ecology of the Gray Fossil Site in Tennessee. *Now & Then* 23(1): 22-24
- MacFadden, B., DeSantis, L.R.G. 2007. No more ivory tower: communicating geoscience to society. *Geotimes* 52: 42-43
- DeSantis, L.R.G. 2007. Megalodon Educator's Guide. Florida Museum of Natural History. Gainesville, FL (available on-line: <http://www.flmnh.ufl.edu/education/guides/megalodon-guide.pdf>)

Publications (Abstracts):

- DeSantis, L.R.G., Schubert, B.W., Field, J., Prideaux, G.J., Wroe, S., Ungar, P.S. In press. Revealing palaeoecology through geochemistry and microwear. A keynote talk at CAVEPS 2011 (Conference on Australasian Vertebrate Evolution Palaeontology and Systematics)
- DeSantis, L.R.G., Schubert, B.W. 2010. The combined use of stable isotopes and dental microwear texture analysis to decipher the paleoecology of Australian marsupials. *Journal of Vertebrate Paleontology* 29: 81A

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- DeSantis, L.R.G.** Bringing current paleontological research to K-12+ classrooms through inquiry-based modules. The Inaugural Society of Vertebrate Paleontology Education and Outreach Poster Session
- DeSantis, L.R.G.** 2010. Assessing effects of climate change on mammals and their environments through time: utilizing stable isotopes from fossil mammal teeth to clarify seasonal dietary resource partitioning. The 95th Annual Ecological Society of America Abstracts: COS 77-10
- DeSantis, L.R.G.,** Feranec, R.S., MacFadden, B.J., Hulbert, R.C., Bloch, J.I. 2010. Determining glacial and interglacial climate conditions using stable isotopes from fossil mammal teeth. *Geochimica et Cosmochimica Acta* 74: A226
- DeSantis, L.R.G.,** Wallace, S.C. 2010. Ancient ecology and climate of the Gray Fossil Site. *Gray Fossil Site Symposium Abstracts with Programs* 1: 21-23 (extended abstract)
- DeSantis, L.R.G.** 2009. Effects of climate change on Australian megafauna during the Pleistocene: evidence from stable isotopes of herbivorous marsupials at Cuddie Springs. *Journal of Vertebrate Paleontology* 29: 87A
- DeSantis, L.R.G.,** MacFadden, B.J. 2008. Stable isotopes and REEs of ungulates and xenarthrans from Haile 7G: elucidating the paleoecology of a late Pliocene fossil site from Florida. *Journal of Vertebrate Paleontology* 28: 71A
- MacFadden, B.J, **DeSantis, L.R.G.** 2008. Physical properties, geochemistry, and diagenesis of fossil Xenarthra teeth: prospects for interpreting stable isotope evidence. *Journal of Vertebrate Paleontology* 28: 109A
- DeSantis, L.R.G.** 2008. Applying stable isotope analyses of extant tapirs to constrain paleoecological hypotheses. *The 6th International Conference on Applications of Stable Isotope Techniques to Ecological Studies*
- Wear, S., **DeSantis, L.R.G.** 2008. Helping coral reef managers build resilience to climate change into marine protected area management with the Reef Resilience Toolkit. The 93rd Annual Ecological Society of America Abstracts: COS 93-8
- DeSantis, L.R.G.,** Feranec, R.S., MacFadden, B.J. 2008. Effects of interglacial warming on ancient mammalian communities and their environments. The 93rd Annual Ecological Society of America Abstracts: PS 75-56
- DeSantis, L.R.G.** 2008. Bringing current ecological research to the classroom through inquiry-based activities that utilize actual scientific methods. The 93rd Annual Ecological Society of America Abstracts: OOS 17-10
- DeSantis, L.R.G.,** Wallace, S.C. 2008. Paleoecology of highly fossiliferous tapir localities in the southeastern United States. Southeastern Vertebrate Paleontology Abstracts
- Feranec, R.S., **DeSantis, L.R.G.** 2008. Identifying resource partitioning among carnivores in the Plio-Pleistocene of Florida using stable isotopes. Southeastern Vertebrate Paleontology Abstracts
- DeSantis, L.R.G.,** MacFadden, B.J. 2007. Fossil tapirs as indicators of forested environments: evidence from evolutionary morphology and stable isotopes. *Journal of Vertebrate Paleontology* 27: 68A
- DeSantis, L.R.G.** 2007. Selection, bugs, and rocks that roll: teaching evolution through inquiry based lessons of uncontroversial science. *Geological Society of America Abstracts with Programs* 39: 3
- DeSantis, L.R.G.,** Bloch, J., Hulbert, R. 2006. Paleoecological dynamics of mammalian communities under glacial and interglacial conditions in Florida. *Journal of Vertebrate Paleontology* 26: 69A
- DeSantis, L.R.G.** 2006. Stable isotopic evidence of the effects of global change and sea-level rise on mammalian community ecology under glacial and interglacial conditions. *The 5th International Conference on Applications of Stable Isotope Techniques to Ecological Studies*
- Bhotika, S., **DeSantis, L.,** Williams, K., Putz, F. 2006. Accelerated decline of *Sabal palmetto* in a Florida coastal forest. *Ecological Society of America – Abstracts with Programs*
- DeSantis, L.R.G.,** Wallace, S.C. 2006. Identifying forest canopies using fossil tapirs and stable isotopes. *Program and Abstracts-Advances in Paleobotany*
- DeSantis, L.R.G.,** Wallace, S.C. 2006. Evidence of a forest refugium at a Neogene fossil site, Gray, TN. *Geological Society of America Abstracts with Programs* 37: 85
- DeSantis, L.R.G.,** Wallace, S.C. 2005. Anomalous Paleoecology of a Neogene Fossil Site, Gray, TN: utilizing stable isotope analyses to interpret canopy density. *Geological Society of America Abstracts with Programs* 37: 340

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- DeSantis, L.R.G.,** Wallace, S.C. 2005. Anomalous Paleocology of a Neogene Fossil Site, Gray, TN: utilizing stable isotope analyses of fossil tooth enamel to reconstruct past environments. *Journal of Vertebrate Paleontology* 25: 51A
- DeSantis, L.R.G.** 2005. Straight from the Tapir's Mouth: applying stable isotope analyses of extant tapirs to constrain paleoecological hypotheses. *Congresso Latino-Americano de Paleontologia de Vertebrados* 2: 94-95
- DeSantis, L.R.G.** 2005. Utilizing stable isotope techniques of extant tapirs from Acapulco Mexico to quantify canopy density and dietary variation. *Association for Tropical Biology and Conservation – Abstracts with Programs*
- Grawe, L.R.,** Wallace, S.C. 2005. The anomalous paleoecology of the Gray Fossil Site: utilizing stable isotope analyses of fossil tapirs to interpret canopy density. *Southeastern Ecology and Evolution Conference – Abstracts with Programs*
- Grawe, L.R.,** Gray, F. 2004. “SPICING” up geoscience education: utilizing innovative partnerships to engage minorities and females in geosciences through inquiry-based collaborative education. *Geological Society of America Abstracts with Programs* 36: 278
- Grawe, L.R.,** DeSantis, D.T. 2004. Achieving educational objectives at the Yale Outdoor Education Center: the construction of an innovative nature trail and supplemental educational materials. *Society of Conservation Biology 2004 Book of Abstracts*
- Grawe, L.R.** 2003. The Paleontology of Dinosaurs Moveable Museum: extending museum educational resources. *Journal of Vertebrate Paleontology* 23: 57A
- Grawe, L.R.** 2002. Paleontological museum exhibits: How effectively are principles of evolution communicated to the public? *Journal of Vertebrate Paleontology* 22: 60A

RELEVANT PRESENTATIONS

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- CAVEPS, Conference on Australasian Vertebrate Evolution Palaeontology and Systematics, Perth, Australia, 2011 – Invited Keynote Speaker (scheduled for April 2011)
- University of New Mexico, Program in Interdisciplinary Biological & Biomedical Sciences – Invited Seminar
- Society of Vertebrate Paleontology, Pittsburgh, PA 2010 – Symposium Co-organizer and Invited Presentation
- Society of Vertebrate Paleontology Inaugural Education and Outreach Poster Session, Pittsburgh, PA 2010 – Organizer and Presenter
- Ecological Society of America, Pittsburgh, PA 2010 – Primary Author Oral Presentation
- Goldschmidt, Knoxville, TN 2010 – Primary Author Oral Presentation
- Australian Museum, Sydney, Australia 2010 – Invited Museum Seminar
- Flinders University, School of Biological Sciences, Adelaide, Australia 2010 – Invited Departmental Seminar
- Gray Fossil Site Symposium, Johnson City, TN 2010 - Invited Presentation
- Society of Vertebrate Paleontology, Bristol, UK 2009 - Primary Author Oral Presentation, Romer Prize Award Session
- University of Florida, Department of Biology, Gainesville, FL 2009 – Ph.D. Exit Seminar
- Vanderbilt University, Department of Earth and Environmental Sciences, Nashville, TN 2009 – Invited Departmental Seminar
- Florida Paleontological Society, Gainesville, FL 2008 - Invited Presentation/Award
- Society of Vertebrate Paleontology, Cleveland, OH 2008 - Primary Author Oral Presentation
- Society of Vertebrate Paleontology Teachers Workshop, Cleveland, OH 2008 - Invited Presentation
- The 6th International Conference on Applications of Stable Isotope Techniques to Ecological Studies, Honolulu, HI 2008 - Primary Author Poster Presentation
- Ecological Society of America, Milwaukee, WI - Two Primary Author Oral Presentations, One Poster Presentation, Moderator
- Southeastern Association of Vertebrate Paleontology, Johnson City, TN - Invited Primary Author Oral Presentation
- University of Utah, Department of Geology and Geophysics, Salt Lake City, UT 2008 - Invited Departmental Seminar
- Utah Museum of Natural History, Salt Lake City, UT 2008 - Invited Museum Seminar
- Society of Vertebrate Paleontology, Austin, TX 2007 - Primary Author Oral Presentation
- Society of Vertebrate Paleontology Teachers Workshop, Austin, TX 2007 - Invited Presentation
- East Tennessee State Museum of Natural History, Johnson City, TN 2007 - Invited Presentation (Inaugural Museum Speaker)
- Southeastern Geological Society of America, Savannah, Georgia 2007 - Primary Author Oral Presentation
- Society of Vertebrate Paleontology, Ottawa, Canada 2006 - Primary Author Oral Presentation
- University of Florida Zoology Department, Gainesville, FL 2006 - Primary Author Oral Presentation
- University of Florida, Evolution Course, Gainesville, FL 2006 - Invited Guest Lecture
- Florida Association of Science Teachers, Gainesville, FL 2006 - Primary Author Oral Presentation
- Florida Association of Museums, Gainesville, FL 2006 - Invited Presentation
- The 5th International Conference on Applications of Stable Isotope Techniques to Ecological Applications, Belfast, Northern Ireland 2006 - Primary Author Oral Presentation

Florida Museum of Natural History – Science Sunday, Gainesville, FL 2006 - Invited Presentation
University of Florida Graduate Forum, Gainesville, FL 2006 - Primary Author Oral Presentation
Advances in Paleobotany, Gainesville, FL 2006 - Primary Author Oral Presentation
Southwest Florida Fossil Club, Punta Gorda, FL 2006 - Invited Presentation/Scholarship Award Winner
Society of Vertebrate Paleontology, Mesa, AZ 2005 - Primary Author Poster Presentation
Geological Society of America, Salt Lake City, UT 2005 - Primary Author Oral Presentation
II Congresso Latino Americano de Paleontologia de Vertebrados, Rio de Janeiro, Brazil 2005 - Primary Author Oral Presentation
Society of Tropical Biology and Conservation, Uberlandia, Brazil 2005 - Primary Author Oral Presentation
University of Florida Graduate Forum, Gainesville, FL 2005 - Primary Author Oral Presentation/Session Organizer
NSF GK-12 National Conference, Washington, D.C. 2005 - Primary Author Poster Presentation
Southeastern Ecology and Evolution Conference, Athens, GA 2005 - Primary Author Oral Presentation
Geological Society of America, Denver, CO 2004 - Primary Author Oral Presentation
Society of Conservation Biology, New York City, NY 2004 - Primary Author Poster Presentation
Society of Vertebrate Paleontology, Minneapolis, MN 2003 - Primary Author Poster Presentation
Society of Vertebrate Paleontology, Norman, OK, 2002 - Primary Author Poster Presentation
NSF GK-12 Southeastern Regional Conference, Gainesville, FL, 2004 - Discussion Leader
American Museum of Natural History, Teacher Workshops, New York City, NY, 2003 - Co-Organizer/Presenter
Peabody Museum of Natural History, Teacher Workshops, New Haven, CT, 2002 - Co-Organizer/Presenter

COLLABORATORS AND OTHER AFFILIATIONS (*FEMALES AND/OR ETHNIC MINORITIES)

Recent Collaborators: Smriti Bhotika* (U. of Florida), Jonathan Bloch (U. of Florida/FLMNH), Tom Dillehay (Vanderbilt U.), Robert Feranec (New York State Museum), Judith Field* (U. of Sydney), Steven Goodbred (Vanderbilt U.), Richard Hulbert (FLMNH), George Kamenov (U. of Florida), Joann Labs Hochstein* (U. of Florida/ FLMNH), Bruce MacFadden (U. of Florida/FLMNH), Gilbert Price (U. of Queensland), Gavin Prideaux (Flinders U.), Francis Putz (U. of Florida), Blaine Schubert (East Tennessee State U.), Peter Ungar (U. of Arkansas), Steven Wallace (East Tennessee State U.), Stephanie Wear* (The Nature Conservancy), Kimberlyn Williams* (California State U., San Bernardino), Stephen Wroe (U. of New South Wales)

Graduate Advisors: Bruce MacFadden, Ph.D. Advisor (U. of Florida/FLMNH); Oswald Schmitz, M.E.M. Advisor (Yale U.)

Graduate Students, Vanderbilt U.: *Primary Advisees:* Ryan Haupt (M.S.), Lindsey Yann* (Ph.D.), Judy Moss (MLAS); *Graduate Committees:* Rachel Beavins*, Colin Brooks, Matt Velasco*, Beverly Walker*

Undergraduate Students: Sara Brandow*, Jason Coby*, Katherine Holmes*, Natalie Jordan*, Lucas Lofrendo, Lisa Modia*, Stoycho Velkovsky

UNIVERSITY & PROFESSIONAL SOCIETIES AND SERVICE

Current and On-going Service (Vanderbilt University and Society Membership)

NEOTOMA (on-line database, www.neotomadb.org) – Science Advisory Committee for the Geochemical Database Group; Science Advisory Board for Vertebrates; Co-organizing the development of a geochemical database hosted by and integrated into NEOTOMA, including communicating these goals via web materials.

Society of Vertebrate Paleontology - Member of the Education and Outreach Committee; Symposium Organizer for the 70th Annual Meeting of the Society of Vertebrate Paleontology titled, *Advances in Paleocology: Geochemistry, Microwear and Beyond*; Organizer of the inaugural *Education and Outreach Poster Session* for the 70th Annual Meeting of the Society of Vertebrate Paleontology and for the 71st Annual Meeting scheduled in November of 2011

Geological Society of America - Member, Former Student Representative of the Education & Outreach Committee

Ecological Society of America - Member

Sigma Xi – Member

Association of Tropical Biology – Member

Geochemical Society - Member

Journal Reviewer - *Biological Reviews*; *Geological Journal*; *Journal of Biogeography*; *Paleobiology*; *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*; *PLoS ONE*; and, *Science*

Grant Reviewer - M.J. Murdock Charitable Trust, National Science Foundation Panelist

Current Educational Outreach

Aside from the educational outreach activities described throughout, I current engage in the following activities:

Tennessee School for the Blind – Annual visit with graduate and undergraduate students to the earth science class for an inquiry-based hands-on discussion of the fossil record, ranging from dinosaurs to mammals to sharks.

Ravenwood High School – I engage students in the AP Biology class in a discussion of evolution, paleoecology, and climate change. I also work with a high school teacher to develop inquiry-based Biology and Anatomy activities that incorporate the fossil record and/or comparative anatomy.

Mentor High School Students in Independent Research – I oversee two high school students in independent research projects through the Vanderbilt School for Science and Mathematics and a local public high school. Students engage in primary research activities, in collaboration with me, other faculty members, graduate students, and undergraduate students.

Former Service (University of Florida, Yale University, University of California, University of Chicago)

Yale University Alumni Schools Committee - Interviewer for Yale University Undergraduate Admissions

University of Florida Graduate Student Council - Executive Officer, Former Department Representative

University of Florida Zoology Department Graduate Committee - Former Student Representative

University of Florida Zoological Society - Member, Committee Representative

Florida Museum of Natural History Fossil Preparator Search Committee - Former Student Representative

Society of Conservation Biology - Former Member

Society of American Foresters - Former Member and President of Yale's Student Chapter

Yale University Skeet and Trap Team - Former Nationals Captain (National Class Champion-American Skeet and Trap 2003)

Xi Sigma Pi - National Forestry Honor Society

Yale/UC Berkeley Chapter of the Society of Conservation Biology - Former Member

University of California, Forensics - National Parliamentary Debate Association Champions (2000)

UC Berkeley Forestry Club - Former Secretary

Gamma Phi Beta Sorority, UC Berkeley - Former Parliamentarian

University of Chicago Debate Society - Former Traveling Competitor

University Theater at the University of Chicago - Former Troupe Member

CURRENT COURSES OFFERED (VANDERBILT UNIVERSITY)

Ecology, Evolution, and Climates through Time (EES 114W, Fall, 3 Credits)

Currently, climate change is occurring at unprecedented rates and affecting biological organisms globally. Understanding the potential causes and consequences of climate change, both today and in past is critical to making informed conservation decisions. The primary goal of this course is to investigate the effects of climate change on the ecology and evolution of organisms, with a focus on terrestrial vertebrates. Specifically, lectures will integrate paleontological research methods, vertebrate evolution and extinction, ancient climates, and the ecology of vertebrates through time. Students will also gain an understanding of how paleontological data is collected, analyzed, interpreted, and scientific hypotheses evaluated - using examples from North America and other globally significant fossil sites. Lectures and discussions will focus on salient time periods (e.g., K/T boundary, PETM, Pleistocene), primarily during the Cenozoic (65 million years to the present), providing the context for learning about fossilization, systematics, evolution, mass extinctions, paleoecology, biogeography, biostratigraphy, and other paleontological research tools. Through the combination of lectures, in-depth discussions of the described texts, written assignments, and weekly quizzes, students will leave the course with a general understanding of how organisms have changed over geologic time in response to changing environments and climates. Scientific writing will be explicitly discussed, including methods for synthesizing scientific literature. This course can help prepare students of broad backgrounds with a deep time perspective on past environmental and climate change, the causes and consequences of extinctions, and the conservation and management implications.

Paleoecological Methods (EES 282, EES 390-4, Spring, 3 Credits)

Understanding ancient ecosystems may never have been as important as it is today, in the face of rapid global climate and subsequent environmental change. The primary goal of this course is to discuss paleoecological tools and methods including the study of ancient floras and faunas, plant macrofossils, pollen, taphonomy, sediments, stable isotopes, rare earth elements, dental microwear and mesowear, vertebrate morphology, paleontological databases, ecological ground truthing, and meta-analyses. Through the combination of lectures, in-depth discussions of the primary literature, and a group project, students will leave the course with a general understanding of a variety of paleoecological methods of use to earth and life scientists. Papers will range from classic methodological works to applications of paleoecological methods. Additionally, these papers will primarily focus on terrestrial Cenozoic environments ranging from the analysis of a local Tennessee fossil site to global syntheses. Students are expected to actively participate in course discussions, lead specified discussions, and synthesize paleoecological literature through a group project that will ideally result in a collaborative paper of publication quality. This course can help prepare students in the earth and environmental sciences and biological sciences with a deep time perspective on past environmental and climate change, while exposing those with academic interests to possible tools and techniques of use to their research.

RELEVANT COURSEWORK

University of Florida

Integrative Principles; Integrative Principles II; Advanced Ecology (Botany); Ecosystem Ecology; Advanced Topics in Ecology; Stable Carbon Isotope Analysis Seminar; Macroevolution and Development; Nutritional Ecology; Food Web Ecology Seminar; Elevation Gradients Seminar; Natural Science and Society; SPICE (Science Partners in Inquiry-based Collaborative Education) Seminar; Departmental Seminar; Vertebrate Paleontology Seminar (audit); Ecological Stoichiometry Seminar (audit); Systematics and the Fossil Record (audit); Independent Research

University of Utah

Stable Isotope Ecology Course (Lecture and Laboratory), Summer 2005

Yale University

Biogeography, Biodiversity and Conservation; Seminar in Conservation Genetics; Lab in Molecular Systematics; Molecular Systematics Seminar (Conservation Genetics/Behavioral Ecology); Genetics; Biological Perspectives of Global Change (Biogeochemistry); Reconstructing Human Evolution: An Ecological Approach; Paleontology & Evolutionary Theory; Fire Ecology; Human Evolution; Cartographic Modeling (GIS); Silviculture; Sampling Methodology and Practice (Advanced Statistics); Wildlife Conservation Ecology; Landscape Ecology; Natural Resource Policy; Plant Identification; Land Measurement and Mapping; Ecosystem Measurement; Issues and Approaches in Environmental Education; A Project Course in Environmental Education

University of California, Berkeley

Principals of Biodiversity; Macroevolutionary Theory; Vertebrate Evolution; Lab in Vertebrate Evolution; Terrestrial Resource Ecology; Wildlife Ecology; Wildlife Policy/Management (Directed Group Study); Grassland/Woodland Management; Wildland Urban Interface Fire Science & Management; Sierra Nevada Ecology; Silviculture; Forest Mensuration; American Environmental History; Resource Economics/Management; Timber Resource Utilization (Supervised Independent Study); Forestry Computing; Resource Policy; Honors Research; Political Science Colloquium (4 semesters); Rhetoric; Philosophy; English Composition (multiple courses)

University of Chicago

Evolution & Paleobiology; Ecology and Evolution; Environmental Politics; Legal History I,II (law course and legal research); Physics; Physiology; Calculus I, II; Sociology; Spanish

University of California, San Diego* & Los Angeles*

American Political Science; Journalism; Theater

Santa Monica College*

Political Philosophy; Speech; Statistics; English Composition; Japanese

*Concurrently enrolled in high school.