

ELIZABETH NICHOLS

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RESEARCH INTERESTS

I am broadly interested in the spatial, functional and epidemiological aspects of animal-invertebrate interactions. I plan on pursuing two related lines of research in my early academic career; the patterns, process and functional consequences of ecological network disassembly, and the functional role of Scarabaeine dung beetles in parasite transmission.

During postdoctoral work, I would like to describe structure in the tripartite ecological network formed by assemblages of mammals, Scarabaeinae dung beetles and vertebrate macroparasites, and combine experimental, observation and simulation approaches to understand how this network disassembles in the face of environmental change. In tandem, and in collaboration with Andrés Gómez (AMNH), I plan to pursue a growing interest in the functional role of Scarabaeine dung beetles in parasite transmission, and the implications of these relationships for network structure and vertebrate epidemiology.

EDUCATION

- 2006 – 12/2011 Doctoral work, Ecology, Evolution and Environmental Biology, Columbia University, USA. 'Community Disassembly in Tropical Forest: Scarabaeine Dung Beetles as a Model System' Supervisors María Uriarte, Sacha Spector. Additional committee members Shahid Naeem, Eleanor Sterling, Paige West.
- 2006 – 2009 Environmental Policy Certificate, Columbia University, USA
- 2006 - 2009 Master of Philosophy, Columbia University, USA.
- 2002 - 2004 Master of Arts, Conservation Biology, Columbia University, USA *Interactions Between Fragment Size and Matrix Type for Dung Beetle Community Structure in an Urbanizing Landscape* Supervisor J. Danoff-Burg
- 1997 - 2002 Bachelor of Science, Ecology, Evolution and Conservation Biology, U. Texas at Austin, USA

SEMESTERS ABROAD AND SHORT COURSES

- 2006 National Center for Ecological Analysis and Synthesis (NCEAS) Distributed Graduate Seminar
- 1998 Tropical Ecology Semester, Organization for Tropical Studies/Duke University, Costa Rica.

AWARDS AND FELLOWSHIPS

- 2008 Brazilian National Research Council with J. Louzada, S. Spector and C. Peres **(\$24,500)**
- 2007 E3B Pre-dissertation travel award **(\$2,500)**
- 2009 NSF Coupled Human and Natural Systems (CHANS) Fellowship **(\$1,000)**
- 2006 Columbia University Faculty Fellowship **(2 years graduate support)**
American Museum of Natural History Fellowship **(3 years graduate support)**

PUBLICATIONS

1. Newton, P., **E. Nichols**, W. Endo, and C. Peres. *In review*. Consequences of actor level livelihood heterogeneity for additionality in an undifferentiated payment-based tropical forest PES program. *Global Environmental Change*.
2. **Nichols, E.**, Gómez A., 2011. Conservation education needs more parasites. *Biological Conservation* 114:937–941.
3. **Nichols, E.**, Gardner, T., Peres, C. A., Spector, S. 2009. Co-declining mammals and dung beetles: an impending ecological cascade. *Oikos* 118(4) 481-487
4. **Nichols, E.**, S. Spector, J. Louzada, T. Larsen, S. Amezcuita, M. Favila and Scarabnet, 2008. Ecological functions and ecosystem services of Scarabaeine dung beetles: a review. *Biological Conservation* 141(6): 1461-1474 *
5. **Nichols, E.**, Larsen, T., Spector, S., Escobar, E., Favila, M.E, Davis, A., Vulinec, K. 2007. Dung beetle response to tropical forest modification and fragmentation: a quantitative literature review and meta-analysis. *Biological Conservation* 137:1-19*

* *Recognized by Biological Conservation as a highly cited article*

BOOK CHAPTERS

- Gómez, A., **Nichols, E.**, Perkins, S., Parasites, Conservation Medicine, and Ecosystem Health. In: Aguirre A. Daszak, P et al. (eds). *2011*. Conservation Medicine, Second Edition.
- Nichols, E.** and Gardner, T. A. Dung Beetles as a Candidate Study Taxon in Applied Biodiversity Conservation Research. *2011*. In: Simmons, L. W. and Ridsdill-Smith, J. (eds.), Dung Beetle Ecology and Evolution. Wiley-Blackwell
- Louzada, J.N.C and **Nichols, E.** Detritivorous Insects. *2011*. In Bioecologia e Nutrição de Insetos: Base Para o Manejo Integrado de Pragas. Embrapa.

EDUCATIONAL MATERIALS

- Gómez, A. and **E. Nichols**. 2010. Biodiversity conservation and human health - Synthesis. Lessons in Conservation 3: 5-24. <http://ncep.amnh.org/linc/>
- Gómez, A. and **E. Nichols**. 2010. Biodiversity conservation and human health - Exercises. Lessons in Conservation 3: 90-97. <http://ncep.amnh.org/linc/>
- Nichols, E.** and S. Spector. *2010*. The Importance of Invertebrate Conservation – Synthesis. Network of Conservation Educators and Practitioners –American Museum of Natural History.
- S. Spector, **E. Nichols**, K. Beucke. *2010*. "Invertebrates: Ecological and Conservation Importance. - Exercise" Network of Conservation Educators and Practitioners –American Museum of Natural History.
- Nichols, E.** and S. Spector. *2010*. The Importance of Invertebrate Biodiversity: Perception Survey Assignment – Exercise. Network of Conservation Educators and Practitioners –American Museum of Natural History.
- Spector, S. and **E. Nichols**. *2008*. "Dirty Work, Done Dirt Cheap." Wings. 31

TEACHING EXPERIENCE

INSTRUCTOR

- 2006 AMNH Environmental Education (preschool age)
- 2005 Graduate level field ecology. Teacher Training Program, Center for Environmental Research and Conservation (CERC), Columbia University (CU). Dominican Republic
- 2004 Graduate level field ecology. Teacher Training Program, CERC, CU, Dominican Republic

ASSISTANT

- 2008 Graduate level Fundamentals of Ecology and Evolution. Ecology, Evolution and Environmental Biology Department (E3B) CU, USA
- 2008 Semester Ecosystem Experience for Undergraduates Program (SEEU). CERC, CU, USA
- 2007 Graduate level Conservation Biology, E3B, CU, USA
- 2007 Undergraduate level Conservation Biology, E3B, CU, USA
- 2004 Undergraduate field ecology. CERC, SEEU Program, Dominican Republic

INVITED PRESENTATIONS AND LECTURES

- 2011 Louzada Lab, Ecology Department, University of Lavras (BR)
Princeton, Rutgers, Penn, Columbia Graduate Retreat, Princeton University (US)
- 2010 Ecology Department, University of Lavras (BR)
Student Conference on Conservation Science (SCCS-NY)
- 2009 NSF Coupled Human and Natural Systems Symposium, US Regional IALE meeting, Utah (US)
University of Lancaster (UK)
Bedford Audubon Society Lecture Series (US)
- 2008 Society for Conservation Biology Meeting, Chattanooga Tennessee (US)
- 2006 Society for Conservation Biology Meeting, San Jose, California (US)
NCEAS Distributed Graduate Seminar, Santa Barbara, California (US)

PREVIOUS POSITIONS AND WORK EXPERIENCE

- 2010 - 2011 Expert Advisor, New Zealand Environmental Risk Management Authority
- *advised on dung beetle-parasite-livestock interactions in scientific risk assessment hearings, towards a national dung beetle species introduction program*
- 2006 – present Visiting Scientist –Center for Biodiversity and Conservation, American Museum of Natural History (CBC/AMNH)
- 2004 Consultant, United Nations Development Programme, Small Grants Programme
- *provided analysis and writing towards the UNDP-SGP 10 year report to the Global Environmental Facility*

2004 – present Project coordinator, NSF RCN Grant DEB-0043443, ‘The Scarabaeinae Research Network’
2004 – 2006 Invertebrate Biodiversity Specialist. Invertebrate Conservation Program, CBC/AMNH

REFEREE WORK

Reviewer for 12 journals, including *Oikos*, *Diversity and Distributions*, *Ecology Letters*, *Biotropica*.

PROFESSIONAL MEMBERSHIPS

Ecological Society of America (ESA), International Association for Landscape Ecology (IALE), American Society of Parasitologists (ASP), Society for Conservation Biology (SCB), Association for Tropical Biology (ATB), New York Academy of Sciences (NYAS).

ADDITIONAL ACTIVITIES

2009 – present Contributor to first global assessment of dung beetle conservation status (IUCN SRLI)
2006 - present Co-founder and contributor to www.biologiadelaconservacion.com
2008 - 2009 Graduate student representative – E3B Dept, Columbia University
2007 – 2009 Organizer of graduate student journal club in theoretical and classic ecology– E3B Dept, CU

PRESS COVERAGE

2011 Upcoming interview with John Neilson, of Conservation Magazine
2010 ‘A Plea for Parasites’ – Conservation Magazine
 - <http://www.conservationmagazine.org/2010/12/plea-for-parasites/>
 CBC Students in the International Year of Biodiversity feature
 - <http://cbc.amnh.org/iyb2010>
 Dung Beetles Help from the Ground Up – a multimedia AMNH Science Bulletins production.
 - http://cbc.amnh.org/iyb2010/biobulletin_dungbeetle.php
2005 Cohn, J. "Urban Wildlife." *BioScience* 55(3): 201-205.

ADDITIONAL SKILLS

Proficient Brazilian Portuguese, basic Spanish, QGIS, ArcGIS, R, basic Dreamweaver, Drupal, Mesquite.