

## Curriculum Vitae

### Christopher Irwin Smith

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### Education:

- (2003) Harvard University, Ph.D. in Biology. Dissertation: The Evolution of the Longhorn Cactus Beetles *Moneilema* Say (Coleoptera: Cerambycidae) and the Biogeographic History of the North American Deserts.
- (1996) University of Arizona, B.S. in Ecology and Evolutionary Biology. Minor 1: Spanish. Minor 2: Split minor in Math/Chemistry/ Physics. Graduated Cum Laude.

### Appointments:

- (August 2008 - ) Assistant Professor. *Willamette University*. Salem, Oregon.
- (August 2008 - ) Affiliate Faculty. *University of Idaho*. Moscow, Idaho.
- (2003-2008) Post-doctoral Research Fellow. *University of Idaho*, Department of Biological Sciences. Studying ecology, biogeography and coevolutionary interactions of yuccas (Agavaceae) and yucca moths (Lepidoptera: Prodoxidae). Olle Pellmyr, Principal Investigator.
- (1997-2003) Ph.D. Student. *Harvard University*, Department of Organismic and Evolutionary Biology. Studied phylogenetics and biogeography of the longhorn cactus beetles *Moneilema* spp. (Coleoptera: Cerambycidae). Brian D. Farrell, Advisor.
- (1996- 1997) Intern. *US Department of Energy, Argonne National Laboratory*, Environmental Research Division. Studied the evolutionary ecology of vesicular-arbuscular mycorrhizae, annual herbs, and terrestrial ecosystems under global change. R. Michael Miller, Advisor.
- (Summer, 1996) Volunteer Field Assistant. *Oregon State University*, Department of Forest Science. Studied foraging behavior and roost preference of the Little Brown Bat *Myotis evotis* (Chiroptera: Vespertilionidae) using radio telemetry. David Waldien, Supervisor.
- (1993-1995) Student Research Assistant. *University of Arizona*, Department of Entomology. Studied the evolution of pesticide resistance in the Tarnished Plant Bug *Lygus hesperus* (Hemiptera: Miridae). Tim Dennehy, Principal Investigator.

### Teaching Experience:

- (2008 - ) Assistant Professor in Biology, *Willamette University*. Courses: Ecology, Evolution, and Diversity (Biology 125), Evolutionary Biology (Biology 376),

- Introduction to Molecular Ecology (Biology 470), Research Methods in Molecular Ecology (Biology 353)
- (Fall, 2006) Instructor in Biological Sciences, *University of Idaho*. Course: Advances in the Ecology of Adaptive Radiations.
- (1999-2003) Resident Tutor in Biology, *Cabot House, Harvard University*. Designated Advisor for Bisexual, Gay, Lesbian, and Transgender Students. Designated Advisor for Undergraduate Fellowships and Scholarships.
- (1997 - 2003) Teaching Fellow in Biology, *Harvard University*. Courses Included: Biological Sciences 55: Ecology (**Teaching Award**); Biological Sciences 51: Introductory Biology (**Teaching Award**); Biological Sciences 54: Genetics and Genomics; Biology 95hfa: Conceptual Issues in Evolutionary Biology; Biological Sciences 53: Animal Behavior; Biological Sciences 124: Species and Speciation; Biological Sciences 2: Introductory Biology (**Teaching Award**)
- (Summer, 1999) Teaching Assistant, *Columbia University*, Biosphere II Center. Earth Systems Field School. Drs. K Gregory and R. Brusca, Professors.

### Field Experience:

- (2003-2009) Mojave Desert: Death Valley National Park, Desert National Wildlife Refuge, Joshua Tree National Park, Mojave National Preserve. Studying pollination biology and population structure of the Joshua Tree (*Yucca brevifolia*). Funded by the National Science Foundation.
- (April, 2002) Dominican Republic: Parque Nacional Del Este. Surveying and inventorying of insect species diversity for Harvard University's Museum of Comparative Zoology.
- (August, 2001) Mexico: Cuatro Ciénegas, Queretaro, Oaxaca. Studying the phylogeny and distribution of the Longhorn Cactus Beetles (*Moneilema*). Funded by the Putnam Expedition Grant.
- (August, 2000) Mexico: Baja California, Jalisco, Aguas Calientes, Chihuahua, Sonora, Barrancas Del Cobre National Park. Studying the phylogeny and distribution of the Longhorn Cactus Beetles (*Moneilema*). Funded by the Putnam Expedition Grant.
- (July, 2000) Navajo and Ute Reservations, New Mexico & Colorado. Studying diet breadth of the Longhorn Cactus Beetle and its role as a predator of the endangered Mesa Verde cactus *Sclerocactus mesae-verdae*. Funded by the Colorado Natural Areas Program.
- (1998) Arizona and New Mexico: Coronado National Forest, Organ Pipe Cactus National Monument. Studying the historical biogeography of Longhorn Cactus Beetles. Funded by the Harvard Student Research Grant.
- (1996) Oregon: Willamette National Forest. Performing mist-netting and radio telemetry to examine the foraging behavior and roost preference of the Little Brown Bat (*Myotis evotis*). Funded by Bat Conservation International.

**Grants Submissions:**

- (Submitted) Population Ecology of Joshua trees Under Global Change. **National Fish and Wildlife Foundation**. Pre Proposal Submitted July 1, 2009. Invitation to submit full proposal received Aug 10. Full proposal submitted by Sept 11, 2009. (Requested: \$62,000)
- (Submitted) An Integrated Approach to Determining Conservation Priorities in Mojave Desert Ecosystems. **Charles A. and Anne Morrow Lindbergh Foundation**. (Requested: \$10,580)
- (2009) Identifying Best Practices for Integrating Scholarship and Pedagogy in the Sciences: How do we do Great Science at a Small School? Grant for the Exploration of Faculty Vocation. **Lilly Project, Willamette University**. (Requested: \$30,800).
- (2009) RUI: Quantifying natural selection in a contact zone in an obligate pollination mutualism, **National Science Foundation**. (Requested: \$304,624; Awarded: \$149,674).
- (2009) Enhancing Inquiry-based Learning and Guided Research in the Introductory Biology Laboratory Sequence. College of Liberal Arts Hewlett Grant for Curriculum Development. Collaborative with Biology Department Faculty, **Willamette University** (Awarded: \$4500).
- (2008) RUI: Quantifying natural in an obligate pollination mutualism, **National Science Foundation**. (Requested: \$304,624; Declined by NSF).
- (2008) Integrating demography and biotic interactions into ecological niche models to predict responses of Mojave Desert ecosystems to global change. **US Department of Energy, National Institute of Climate Change Research**. (Requested: \$250,000; Declined by DOE)
- (2005) The role of geographically structured coevolution in long-term diversification: a test using Joshua Tree and its pollinator moths, **National Science Foundation** (Awarded: \$446,978).
- (2004) Consequences of life habit specialization in yucca moths: population structure and community genetics in a highly coevolved system **National Science Foundation**. (Requested: \$304,624; Declined by NSF).
- (2001) Ernst Mayr Grant, **Museum of Comparative Zoology, Harvard University** (Awarded: \$1500).
- (2000) Putnam Expedition Grant, **Harvard University** (Awarded: \$7060).
- (2000) Doctoral Dissertation Improvement Grant, **National Science Foundation** (Awarded: \$9491).
- (2000) Small Grant, **Colorado Natural Areas Program** (Awarded: \$3500).
- (1996) Student Research Grant, **Harvard University** (Awarded: \$2500).

**Fellowships and Awards:**

- (2003, 2002, 1998) Certificate of Distinction in Teaching. Bok Center, *Harvard University*.
- (1997- 1998) Graduate Research Training Grant in Plant Systematics. *Harvard University*.
- (1997) Honorable Mention. *National Science Foundation* Graduate Research Fellowship.
- (1997) Regent's Fellowship. *University of Michigan* (Declined by CIS).
- (1992-1996) Dean's List With Distinction. *University of Arizona*.
- (1991) *National Merit Commended Scholar*.

**Service:**

- (Ad Hoc) Invited Reviewer: *The American Naturalist, Evolution, Current Biology, Journal of Biogeography, Journal of Heredity, Journal of Molecular Evolution, Journal of the New York Entomological Society, Molecular Ecology, Molecular Phylogenetics and Evolution, Proceedings of the National Academy of Sciences, Systematic Biology, Proceedings of the Royal Society of London*.
- (2009-2010) Institutional Review Board. *Willamette University*.
- (Spring 2009) Advisor, BBB Biology Honors Society. *Willamette University*.
- (2008) Search Committee, Assistant Professor in Animal Physiology. *Willamette University*.
- (2009) Advisor, Willamette University Climbing Club. *Willamette University*.
- (1998-1999) Coordinator. Harvard Ethnobiological Society. *Harvard University*.
- (1996) Coordinator. First Year Graduate Student Seminars. *Department of Organismic and Evolutionary Biology, Harvard University*.

**Public Outreach:**

- (2009) Program Organizer. 2009 Darwin Day Celebration. *Willamette University* and *Oregonians For Rationality*.
- (1999-2003) Coordinator. Small Faculty Dinners in Biology. *Cabot House, Harvard University*.
- (1999) Consultant. *Fulbright Memorial Fund* Master Teacher Program. Helped design online insect identification guide. Gave lectures in Massachusetts elementary schools teaching fifth graders about insects and biological diversity.

**Invited Talks and Seminars:**

- (October, 2009) 150 Years of Coevolution. Mini-University Session, Parents and Family Weekend. *Willamette University*.
- (February, 2009) 150 Years of Coevolution. Darwin Day Celebration. *Pacific University*
- (October, 2008) Phylogeography of the Yucca / Yucca Moth Interaction: Connecting Microevolutionary Processes to Macroevolutionary Patterns. Departmental Seminar. *Portland State University*.
- (March, 2007) The Role of Population Structure in the Evolutionary Process: From Local Demes to Adaptive Radiation. Departmental Seminar. *Willamette University*.
- (February, 2006) The Role of Population Structure in the Evolutionary Process: From Local Demes to Adaptive Radiation. Departmental Seminar. *University of New Mexico*.
- (May, 2004) Historical biogeography of the longhorn cactus beetles: The influence of Pleistocene climate changes on American desert communities. *Biodiversity and Management of the Madrean Archipelago II*. Tucson, Arizona.

**Presentations at Professional Meetings:**

- (June, 2009) Pollinator host specificity reflects chloroplast introgression between host plants in and obligate pollination mutualism. Joint Annual Meeting, *Society for the Study of Evolution*, and the *Society of Systematic Biologists*. University of Idaho, Moscow, Idaho.
- (June, 2006) Population Structure of Joshua Trees and their Pollinating Moths. Joint Annual Meeting, *Society for the Study of Evolution*, and the *Society of Systematic Biologists*. Stony Brook University, Stony Brook, New York.
- (June, 2003) Evolution of the Longhorn Cactus Beetles *Moneilema* (Coleoptera: Cerambycidae) and the Biogeographic History of the North American Deserts. Joint Annual Meeting, *Society for the Study of Evolution* and *Society of Systematic Biologists*. California State University, Chico.
- (June, 2002) Recent Range Expansions in the Flightless Longhorn Cactus Beetles *Moneilema gigas* and *M. armatum* in Response to Pleistocene Climate Changes. Joint Annual Meeting, *Society for the Study of Evolution* and *Society of Systematic Biologists*. University of Illinois, Champaign.
- (June, 2001) Was the Differentiation of Sky-Island Insect Populations Contemporaneous with Pleistocene Climate Changes? Joint Annual Meeting, *Society for the Study of Evolution* and *Society of Systematic Biologists*. University of Tennessee, Knoxville.

**Research Publications:**

1. \* **Smith, C. I.**, J. B. Yoder, W. K. Godsoe, O. Pellmyr. In Press. Host specificity and reproductive success of yucca moths (*Tegeticula* spp. Lepidoptera: Prodoxidae) mirror patterns of gene flow between host plant varieties of Joshua tree (*Yucca brevifolia*: Agavaceae). *Molecular Ecology*. **To be profiled in a News and Views in *Molecular Ecology*. Journal Impact Factor 5.2.**
2. \* Godsoe, W, E. Strand, **C. I. Smith**, J. B. Yoder, T. C. Esque, and O. Pellmyr. 2009. Divergence in an obligate mutualism is not explained by divergent fundamental niches. *New Phytologist*. 183: 589-599. **Journal Impact Factor 5.2.**
3. \*Drummond, C., **C. I. Smith**, and O. Pellmyr. 2009. Species identification and sibship assignment of sympatric larvae in the yucca moths *Tegeticula synthetica* and *T. antithetica* (Lepidoptera: Prodoxidae) *Molecular Ecology Resources*. 9 (5): 1369-1372 **Journal Impact Factor 1.3.**
4. \***Smith, C.I**, W.K.W. Godsoe, S. Tank<sup>∞</sup>, J.B.Yoder, and O. Pellmyr. 2008. Distinguishing coevolution from covariance in an obligate pollination mutualism: Asynchronous divergence in Joshua tree and its pollinators. *Evolution*. 62 (10): 2676-2687. **Selected for the Cover. Journal Impact Factor: 4.3. Cited Three Times.**
5. \*Godsoe, W., J. B. Yoder, **C. I. Smith**, O. Pellmyr. 2008. Coevolution and diversification in the Joshua tree yucca moth mutualism. *American Naturalist*. 171 (6) 816-823 **Journal Impact Factor: 4.6. Cited Twice.**
6. \***Smith, C. I.**, O. Pellmyr, D. M. Althoff, M. Balcazar-Lara, J. Leebens-Mack, K. A. Segraves. 2008. Pattern and timing of diversification in *Yucca* (Agavaceae): Specialized pollination does not escalate rates of diversification. *Proceedings of the Royal Society of London Series B: Biological Sciences*. 275: 249-258. **Journal Impact Factor: 3.5. Cited Five Times.**
7. \***Smith, C. I.** and B. D. Farrell. 2006. Evolutionary consequences of dispersal ability in cactus-feeding insects. *Genetica*. 126: 323-334. **Journal Impact Factor: 2.1. Cited Twice.**
8. \***Smith, C. I.** and B. D. Farrell. 2005. Recent range expansions in the flightless longhorn cactus beetles *Moneilema gigas* and *M. armatum* in response to Pleistocene climate changes. *Molecular Ecology*. 14: 1025-1044. **Journal Impact Factor 3.9. Article Cited 22 times.**
9. \***Smith, C. I.** and B. D. Farrell. 2005 Phylogeography of the longhorn cactus beetle *Moneilema appressum* LeConte (Coleoptera: Cerambycidae) Was the differentiation of the Madrean sky-islands driven by Pleistocene climate changes? *Molecular Ecology*. 14: 3049-3065. **Journal Impact Factor 3.9. Article Cited 19 times.**
10. \***Smith, C. I.** and B. D. Farrell. 2005. Historical biogeography of the longhorn cactus beetles: The influence of Pleistocene climate changes on American desert communities. Pp 135- 139 in *Biodiversity and Management of the Madrean Archipelago II: Connecting Mountain Islands and Desert Seas*. G. Gottfried et al. Editors. 2004 May 11-15; Tucson, AZ. Proceedings RMRS-P-36. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. **Cited Once.**

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\* Peer-reviewed item. 13 peer-reviewed papers published or in press, with an average of 12 citations per publication, ISI H-index of 5. Manuscripts in review and in revision are excluded from this count.

<sup>∞</sup> Undergraduate co-author.

11. \*Miller, R.M., **C. I. Smith**, J. Jastrow, and J. D. Bever. 1999. The mycorrhizal status of the genus *Carex* (Cyperaceae). *American Journal of Botany*. 86: (4) 547-553. **Journal Impact Factor: 2.4. Article Cited 51 times.**
12. \*Yun, W., S. T. Pratt, R. M. Miller, Z. Cai, D. B. Hunter, A. G. Jastfer, K. M. Kemner, B. Lai, H.-R. Lee., D. G. Leegnini, W. Rodrigues, and **C. I. Smith**. X-ray imaging and microspectroscopy of plants and fungi. *Journal of Synchrotron Radiation*. 5: 1390-1395. **Journal Impact Factor: 1.1. Article Cited 31 times**

### Commentaries and Invited Reviews:

13. **Smith, C I**. 2007. Historical biogeography: The new synthesis. *Current Biology*.17: R598-R600. **Journal Impact Factor: 11.9**
14. \*R. Gomulkiewicz, D. M. Drown, M. F. Dybdahl, W. Godsoe, S. L. Nuismer, K. M. Pepin, B. J. Ridenhour, **C. I. Smith**, and J. B. Yoder. 2007. Do's and Don'ts of testing the geographic mosaic theory of coevolution. *Heredity*. 98: 249–258. **Journal Impact Factor: 2.9. Article Cited 27 times.**
15. **Smith, C. I.** 2005. Re-wilding: introductions could reduce biodiversity. *Nature*. 437 (7057): 318. **Journal Impact Factor: 27.1. Article Cited 5 times.**

### Manuscripts in Prep:

1. **Smith, C. I.**, S. Tank<sup>∞</sup>, W.K. Godsoe, J. B. Yoder, E. Strand, T. Esque, O. Pellmyr. Plants and herbivorous insects are holistic communities: correlated range changes in Joshua trees and four yucca moths. Target: *Ecology Letters*. Projected submission September 31, 2009.
2. Godsoe, W. Drummond C. Yoder, J. B. **Smith, C. I.** and O. Pellmyr. Trait matching in an obligate mutualism, a population level or species level phenomenon? Target: *Proceedings of the Royal Society*. Projected submission October 15 2009.
3. Yoder, J. B., **C. I. Smith**, and O. Pellmyr. How to become a yucca moth: Minimal trait evolution needed to establish obligate pollination mutualism. Target: *Proceedings of the Royal Society*. Projected submission November 2009.

### Professional References:

- Brian D. Farrell. Professor of Biology, Harvard University. (Doctoral Advisor). Museum of Comparative Zoology. Harvard University. 26 Oxford Street. Cambridge, Massachusetts 02138. Ph: 617 496 1057. bfarrell@oeb.harvard.edu.
- N. Olle Pellmyr. Professor of Biology, University of Idaho. (Post-doctoral Advisor). Department of Biological Sciences. Life Sciences South, Room 252. Moscow, Idaho 83844. Ph: 208 885 6807. pellmyr@uidaho.edu.
- John (Jack) Sullivan. Professor of Biology, University of Idaho. Editor, Journal of Systematic Biology. Department of Biological Sciences. Life Sciences South, Room 252. Moscow, Idaho 83844. jacks@uidaho.edu
- Kerry Shaw. Professor of Neurobiology and Behavior, Cornell University. Tower Road W317 Seeley G. Mudd Hall. Ithaca, NY 14853. kls4@cornell.edu