

Felicia Keesing

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Education

- 1983-87 B.S., Symbolic Systems, Stanford University, Stanford, CA.
1991-97 Ph.D., Integrative Biology, University of California, Berkeley, CA. Thesis:
Ecological interactions among small mammals, large mammals, and vegetation in a tropical savanna of central Kenya. Advisor: W. Z. Lidicker, Jr.

Professional experience

- 1997-2000 Assistant Professor, Department of Biology, Siena College, Loudonville, NY.
1998- Visiting Scientist, Institute of Ecosystem Studies, Millbrook, NY.
2000-2003 Assistant Professor, Department of Biology, Bard College, Annandale-on-Hudson, NY.
2003- Associate Professor, Department of Biology, Bard College, Annandale-on-Hudson, NY.

Grants

- 1995 American Society of Mammalogists Grant-in-Aid of Research.
1995 Sigma Xi Grant-in-Aid of Research.
1995 Vice Chancellor's Award for Research, University of California at Berkeley.
1997-98 National Geographic Society. "Small mammals: an unexplored component of savanna ecosystems."
1998-03 National Science Foundation. "Linking dispersal dynamics of white-footed mice to tree seed predation in a patchy landscape." With R. S. Ostfeld and C. D. Canham.
1999-06 National Science Foundation. "CAREER: Investigating biodiversity cascades in an East African savanna".
1999-03 National Institutes of Health. "Forecasting Lyme disease risk: the roles of host dispersal and diversity." With R.S. Ostfeld.
2000-03 National Science Foundation. "Ecology in context: Research strategies and applications for undergraduates." With A.R. Berkowitz, S.E.G. Findlay, and R.S. Ostfeld.
2003-07 National Institutes of Health. "Biodiversity, habitat fragmentation, and Lyme disease risk". With R.S. Ostfeld, K. Schmidt, K. LoGiudice, R. Winchcombe, and H. John-Alder.
2003-06 National Science Foundation. "Ecology in context: Research strategies and applications for undergraduates." With A.R. Berkowitz, S.E.G. Findlay, and R.S. Ostfeld.
2004-05 Doris Duke Charitable Foundation. "Infectious disease ecology: effects of ecosystems on disease and of disease on ecosystems". With R.S. Ostfeld and V. Eviner. Conference support.
2004-05 National Science Foundation. "Infectious disease ecology: effects of ecosystems on disease and of disease on ecosystems". With R.S. Ostfeld and V. Eviner. Conference support.

- 2004-05 United States Department of Agriculture. "Infectious disease ecology: effects of ecosystems on disease and of disease on ecosystems". With R.S. Ostfeld and V. Eviner. Conference support.
- 2004-05 Dutchess County Legislature. "Infectious disease ecology: effects of ecosystems on disease and of disease on ecosystems". With R.S. Ostfeld and V. Eviner. Conference support.

Awards, fellowships, and honors

- 1983-87 National Merit Scholar
- 1991-96 Patricia Robert Harris Fellowship, University of California at Berkeley
- 1995 Outstanding Graduate Student Instructor, University of California at Berkeley
- 1996 Achievement Rewards for College Scientists (ARCS) Fellowship
- 1997 Anna M. Jackson Award, American Society of Mammalogists (best student paper)
- 1997 Summer Dissertation Writing Fellowship, University of California at Berkeley
- 1999 Participant, "Frontiers in Ecology" workshop, National Science Foundation, in which 13 scientists were invited to outline the research frontiers in ecology, Arlington, VA.
- 2000 United States Presidential Early Career Award for Scientists and Engineers (PECASE).
- 2001 Member, Committee of Visitors, National Science Foundation. Participated in external review of NSF programs in long-term ecological research, Arlington, VA.
- 2005 Featured ecologist, "Profiles of Ecologists" series at the annual Ecological Society of America meeting.

Presentations at meetings

- 1997 Keesing, F. "Indirect interactions between ungulates and small mammals in a tropical savanna of central Kenya", American Society of Mammalogists, Stillwater, OK. Plenary session.
- 1997 Keesing, F. "Interactions between large and small mammals in a savanna ecosystem of central Kenya". International Theriological Congress, Acapulco, Mexico.
- 1998 Keesing, F. "Interactions between ungulates and small mammals in a savanna ecosystem". Euro-American Mammal Congress, Santiago de Compostela, Spain. Invited presentation at symposium on "The role of ungulates as keystone species for conservation".
- 1998 Keesing, F. "Herbivory by East African small mammals and its consequences for savanna vegetation." American Society of Mammalogists, Blacksburg, VA.
- 1998 Metz, M., F. Keesing, and R. S. Ostfeld. "Dietary choices by the pouched mouse, *Saccostomus mearnsi*, and their implications for savanna vegetation." American Society of Mammalogists, Blacksburg, VA.
- 1999 Keesing, F. "Compensation by small mammals for the experimental removal of ungulates in an African savanna." Third European Congress of Mammalogy, Jyvaskyla, Finland.
- 1999 Pusenius, J., R.S. Ostfeld, and F. Keesing. "Patch selection and tree seedling predation by resident vs. immigrant meadow voles". Third European Congress of Mammalogy, Jyvaskyla, Finland.
- 1999 Keesing, F. "Cryptic consumers and the ecology of an African savanna." Ecological Society of America, Spokane, Washington.
- 1999 Ostfeld, R.S. and F. Keesing. "Biodiversity and disease risk: the case of Lyme disease". Ecological Society of America, Spokane, Washington.

- 2000 Keesing, F. "Cryptic consumers and the ecology of an African savanna", German Society for Tropical Ecology, Würzburg, Germany. Plenary address.
- 2000 Keesing, F. "Small mammals as predators on tree seeds and seedlings in an African savanna", American Society of Mammalogists, Durham, New Hampshire.
- 2000 Keesing, F. "Facilitating scientific thinking: the role of ecology in the epistemological development of college students", Ecological Society of America, Vice President's Symposium on "Defining ecological thinking as a goal for ecology education". Invited symposium address.
- 2001 Ostfeld, R.S., F. Keesing, K. Schmidt, & K. LoGiudice. "The dilution effect in disease ecology: The search for Host X." Invited symposium presentation, Ecological Society of America, Madison, WI.
- 2001 Keesing, F., B. Allan, and R.S. Ostfeld. "Habitat fragmentation increases Lyme disease risk." Ecological Society of America, Madison, WI.
- 2002 Ostfeld, R.S., F. Keesing, and B. Allan. "Habitat fragmentation increases Lyme disease risk." Healthy Ecosystems Healthy People Conference, Washington, D.C.
- 2002 Misurelli, D. and F. Keesing. "Large ungulate impacts on bird diversity and abundance in an East African savanna". Society for Conservation Biology, United Kingdom.
- 2002 Allan, B. and F. Keesing. "Diurnal questing behavior of *Rhipicephalus pulchellus* (Acari: Ixodidae) and implications for livestock management", Ecological Society of America, Tucson, AZ.
- 2003 Keesing, F., J. Goheen, R. Ostfeld, B. Allan, and D. Misurelli. "Net effects of large mammal exclusion on Acacia seedling survival in an African savanna", Ecological Society of America, Savannah, GA.
- 2003 Ostfeld, R.S., F. Keesing, and K. LoGiudice. "Community ecology meets epidemiology: biodiversity loss and elevated Lyme disease risk in fragmented landscapes", Ecological Society of America, Savannah, GA.
- 2004 Ostfeld, R.S., F. Keesing, and E. M. Schaubert. "Effects of acorns on Lyme disease risk". Emory University. Symposium on disease ecology.
- 2004 Ostfeld, R.S. and F. Keesing. "Missing weapons of mouse destruction: Effects of habitat fragmentation on Lyme disease risk". Society for Conservation Biology, New York, NY.
- 2004 Keesing, F., R.S. Ostfeld, and R.D. Holt. "Modes of the dilution effect in disease ecology. Annual meeting of Ecological Society of America, Portland, OR.
- 2004 Ostfeld, R.S., F. Keesing, et al. "Effects of acorns on Lyme disease risk in the northeastern U.S.". Annual meeting of Ecological Society of America, Portland, OR.
- 2004 Young, T.P., M. Huntzinger, and F. Keesing. The pathology of no large herbivores. Annual Meeting of Ecological Society of America, Portland, OR.
- 2004 Goheen, J. R., F. Keesing, B. F. Allan, R. S. Ostfeld, and T. P. Young. Effects of large mammals on woody plant encroachment in an African savanna. Southwestern Association of Biologists, Portal, AZ.
- 2004 Goheen, J. R., F. Keesing, B. F. Allan, R. S. Ostfeld, and T. P. Young. Effects of large mammals on woody plant encroachment in an African savanna. EPA Graduate Fellowship Conference, Washington DC, 10/11-10/13.
- 2005 McCauley, D., F. Keesing, T.P. Young, and B. F. Allan. Effects of large mammalian herbivores on snakes in an African savanna. Annual Meeting of Ecological Society of America, Montreal, Canada.
- 2005 Ostfeld, R.S., C. D. Canham, E. Schaubert, K. Schmidt, and F. Keesing. Linearities, nonlinearities, and thresholds in the ecology of Lyme disease. Annual Meeting of Ecological Society of America, Montreal, Canada.

2005 Price, A., F. Keesing, R.S. Ostfeld. Effects of guineafowl on blacklegged ticks in eastern New York. Annual Meeting of Ecological Society of America, Montreal, Canada.

Invited seminars

1997 "Research abroad", Forum on Opportunities in Ecology, Institute of Ecosystem Studies, Millbrook, NY.

1998 "Indirect interactions between large and small mammals in central Kenya." Siena College, Loudonville, NY.

1998 "Ecological interactions between large and small mammals in a tropical savanna of central Kenya." Institute of Ecosystem Studies, Millbrook, NY.

1998 "Research abroad", Forum on Opportunities in Ecology, Institute of Ecosystem Studies, Millbrook, NY.

1998 "The ecology of an African savanna", Shippensburg University, Shippensburg, PA.

1999 "Cryptic consumers and the ecology of an African savanna", SUNY Albany, Albany, NY.

1999 "Research abroad", Forum on Opportunities in Ecology, Institute of Ecosystem Studies, Millbrook, NY.

2000 "Cryptic interactions in African savannas and eastern forests", Bard College, NY.

2000 Guest lecture, Ecology: "The ecology of an African savanna", Williams College, MA.

2000 "Biodiversity and disease risk: the case of Lyme disease", Duke University, NC.

2000 "Investigating biodiversity cascades in an East African savanna", Columbia University, NY.

2001 "Cryptic consumers and the ecology of an African savanna", Archbold Biological Station, FL.

2001 Lecture/discussion with Hastings-on-Hudson high school teachers through Institute for Writing and Thinking. "Conceptual and mathematical modeling in complex systems", Bard College.

2002 "Integrating educational and scientific research in biocomplexity", invited presentation at the National Academy of Sciences, April 2002.

2002 "Global change and human health", Bard College. Lecture to incoming students.

2002 "Community consequences of the loss of ungulates in an African savanna", Rutgers University. (December 2002)

2003 "Global change and human health", Bard College. Lecture to students in Johns Hopkins University's program for gifted and talented youth, April 2003.

2003 "Science and the educated mind", Bard College. Keynote presentation at conference on "The educated mind: Where science fits in", April 2003.

2004 "Global change and human health", Bard College. Lecture to incoming students.

2004 "Science, inquiry, and epistemology", Dutchess Community College. January 2004.

2004 "Biodiversity", Bard College. Lecture to incoming students.

2004 "The dilution effect: how biodiversity can reduce disease risk". New York Academy of Sciences. November 2004.

2005 "Effects of species diversity on disease risk: modes of the dilution effect in disease ecology". Columbia University. February 2005.

2005 "Effects of species diversity on disease risk". U. of Maryland. April 2005.

2005 "The biology of intersexuality". Bard College. April 2005.

Publications

* indicates undergraduate student

1. Keesing, F. 1998. Ecology and behavior of the pouched mouse, *Saccostomus mearnsi*, in central Kenya. *Journal of Mammalogy* 79:919-931.
2. Keesing, F. 1998. Impacts of ungulates on the demography and diversity of small mammals in central Kenya. *Oecologia* 116:381-389.
3. Ostfeld, R. S., F. Keesing, C. G. Jones, C. D. Canham, and G. Lovett. 1998. Integrative ecology and the dynamics of species in oak forests. *Integrative Biology* 1:178-186.
4. Keesing, F. and R. S. Ostfeld. 1999. Linking dispersal and population dynamics of white-footed mice to community dynamics in patchy landscapes: a prospectus for research. *Siberian Journal of Ecology*.
5. Keesing, F. 2000. Cryptic consumers and the ecology of an African savanna. *BioScience* 50:205-215.
6. Ostfeld, R.S. and F. Keesing. 2000. Biodiversity and disease risk: the case of Lyme disease. *Conservation Biology* 14(3): 1-7.
7. Ostfeld, R.S. and F. Keesing. 2000. Pulsed resources and generalist consumers. *Trends in Ecology and Evolution* 15: 232-237.
8. Pusenius, J., R.S. Ostfeld, and F. Keesing. 2000. Patch selection and tree seedling predation by resident vs. immigrant meadow voles. *Ecology* 81(11):2951-2956.
9. Ostfeld, R.S. and F. Keesing. 2000. The function of biodiversity in the ecology of vector-borne zoonotic diseases. *Canadian Journal of Zoology* 78:2061-2078.
10. *Metz, M. and F. Keesing. 2001. Dietary preferences of the pouched mouse, *Saccostomus mearnsi*, and their consequences for savanna vegetation. *Biotropica* 33(1):182-187.
11. Keesing, F. and T. Crawford*. 2001. Impacts of density and large mammals on space use by pouched mice (*Saccostomus mearnsi*) in central Kenya. *Journal of Tropical Ecology* 17(3):465-472.
12. Ostfeld, R.S., E. Schaubert, C.D. Canham, F. Keesing, C.G. Jones, and J.O. Wolff. 2001. Effects of acorn production and mouse abundance on abundance and *Borrelia burgdorferi* infection prevalence of nymphal *Ixodes scapularis* ticks. *Vector-Borne and Zoonotic Diseases* 1(1):55-63.
13. Thompson, J., O.J. Reichman, P.J. Morin, G.A. Polis, M.E. Power, R.W. Sterner, C.A. Couch, L. Gough, R. Holt, D. Hooper, F. Keesing, C. Lovell, B.T. Milne, M.C. Molles, D.W. Roberts, and S.Y. Strauss. 2001. Frontiers of ecology. *BioScience* 51(1):15-24.
14. Ostfeld, R.S., F. Keesing, E.M. Schaubert, and K.A. Schmidt. 2002. The ecological context of infectious disease: diversity, habitat fragmentation, and Lyme disease risk in North America. In: A. Aguirre, R.S. Ostfeld, C.A. House, G. Tabor, and M. Pearl, eds. *Conservation medicine: ecological health in practice*. Oxford University Press; New York.
15. *Shaw, M.T., F. Keesing (corresponding author), and R.S. Ostfeld. 2002. Herbivory on *Acacia* seedlings in an African savanna. *Oikos* 98(3): 385-392.
16. *Allan, B.F., F. Keesing (corresponding author), and R.S. Ostfeld. 2003. The effect of habitat fragmentation on Lyme disease risk. *Conservation Biology* 17:267-272.
17. LoGiudice, K., R.S. Ostfeld, K. Schmidt, and F. Keesing. 2003. The ecology of infectious disease: Effects of host diversity and community composition on Lyme disease risk. *Proceedings of the National Academy of Sciences* 100: 567-571.
18. *Shaw, M., F. Keesing, R. McGrail, and R.S. Ostfeld. 2003. Factors influencing the distribution of larval blacklegged ticks on rodent hosts. *American Journal of Tropical Medicine and Hygiene* 68(4): 447-452.
19. Ewing, H., K. Hogan, F. Keesing, H. Bugmann, A. Berkowitz, L. Gross, J. Oris, and J. Wright. 2003. The role of modeling in undergraduate education. Pages 413-427 in: C.D. Canham and J. Cole, eds., *Models in Ecosystem Science*. Princeton University Press.

20. Goheen, J., F. Keesing (corresponding author), B. Allan, D. Ogada, and R.S. Ostfeld. 2004. Net effects of large-mammal exclusion on *Acacia* seedling survival in an East African savanna. *Ecology* 85:1555-1561.
21. Ostfeld, R.S., P. Roy*, W. Haumaier, L. Canter, F. Keesing, and E. Rowton. 2004. Sandfly (*Lutzomyia vexator*) populations in upstate New York: abundance, microhabitat, and phenology. *Journal of Medical Entomology* 41(4): 774-778.
22. Ostfeld, R.S. and F. Keesing. 2004. Oh the locusts sang, then they died. *Science* 306:1488-1489. [Perspective]
23. Ostfeld, R.S., G.E. Glass, and F. Keesing. 2005. Spatial epidemiology: an emerging (or re-emerging discipline). *Trends in Ecology and Evolution*.
24. Ostfeld, R.S., F. Keesing, and K. LoGiudice. In review. Community ecology meets epidemiology: the case of Lyme disease. Edited volume on *Community ecology and epidemiology*, S. Collinge and C. Ray.
25. *O'Reilly, L., D. Ogada, T.M. Palmer, and F. Keesing (corresponding author). In press. Effects of fire on bird diversity and abundance in an African savanna. *African Journal of Ecology*.
26. Ostfeld, R.S., A. Price*, V. Hornbostel, M. Benjamin, and F. Keesing. In review. Controlling ticks with biological agents. *BioScience*.
27. **McCauley, D.M., F. Keesing, T.P. Young, J. Peters*, and B.F. Allan**. In review. The indirect effects of large herbivores on snakes in an African savanna. *Ecology*.
28. Keesing, F., R.D. Holt, and R.S. Ostfeld. In review. Effects of species diversity on disease risk. *Ecology Letters*.