

Fred M. Stephen

University Professor,
University of Arkansas, Fayetteville



Current Appointment: 65% Research; 25% Teaching; 10% Service.

Education

B.A.	1967.	San Jose State University, San Jose, California.	Entomology
Ph.D.	1974.	University of California, Berkeley, California.	Entomology

Professional Experience

University of Arkansas, Fayetteville, Department of Entomology		
University Professor of Entomology		1992-present
University Professor and Interim Head		2002-2005
Professor of Entomology		1982-1992
Associate Professor, Entomology		1978-1982
Assistant Professor, Entomology		1974-1978

Awards and Honors

Oxford University, Oxford, England. Visiting Scientist, Spring 1987.
 Swedish Agricultural University, Uppsala, Sweden, Visiting Professor, Spring 2001.
 A. D. Hopkins Award for Distinguished Service to Southern Forest Entomology. 1989. Southern Forest Insect Work Conference,
 John W. White Award for Outstanding Contributions in Research. 1990. University of Arkansas, Division of Agriculture,
 Burlington Northern Award: "Outstanding Faculty-Scholar" for Excellence in Research. 1990. University of Arkansas,
 Spitze Land Grant University Faculty Award for Excellence, 1999.
 North American Co-chair, International Union of Forest Research Organizations Working Party on Integrated Control of Scolytid Bark Beetles. 1995-2005.

Areas of Research Specialization

Primary area of research is ecology and dynamics of forest insects. Main insect/forest system has been with southern pine beetle, *Dendroctonus frontalis*, (Coleoptera: Scolytidae). Current research is aimed at biology, population dynamics and impact assessment of red oak borer, *Enaphalodes rufulus*, (Coleoptera: Cerambycidae) in the Ozark Mountains. We also have conducted recent research in the area of applied biological control of southern pine beetle through enhancement of parasitism by providing synthetic food to augment nutrition for parasitoid adults. Additional research in this area involves investigating parasitoid behavior and biology, and biology, behavior and role of Cerambycidae in relation to SPB. We developed a user-oriented computer-based model, SPBMODEL, to predict dynamics and infestation growth of southern pine beetle populations. Through a multidisciplinary research program with Texas A&M University we are now revising this model through object-oriented programming to use as a central component of a landscape level southern pine beetle modeling system.

Publications

Authored or coauthored more than 130 publications.

Selected Publications:

Coulson, R. N., and F. M. Stephen. 2006. Impacts of insects in forest landscapes: implications for forest health management. *in* T. D. Paine, editor. Invasive Forest Insects, Introduced Forest Trees, and Altered Ecosystems: Ecological Pest Management in Global Forests of a Changing World. Springer, New York.

- VanLaerhoven, S. L., F. M. Stephen, and L. E. Browne. 2005. Adult parasitoids of the southern pine beetle, *Dendroctonus frontalis* Zimmermann, feed on artificial diet on pine boles, pine canopy foliage and understory hardwood foliage. *Biocontrol, Science and Technology* 15:243-254.
- Fierke, M. K., D. L. Kinney, V. B. Salisbury, D. J. Crook, and F. M. Stephen. 2005. A rapid estimation procedure for red oak borer (Coleoptera: Cerambycidae) populations in the Ozark Mountains of Arkansas. *For. Ecol. & Mgmt* 215:163-168.
- Fierke, M. K., D. L. Kinney, V. B. Salisbury, D. J. Crook, and F. M. Stephen. 2005. Development and comparison of intensive and extensive sampling methods and preliminary within-tree population estimates of red oak borer (Coleoptera: Cerambycidae) in the Ozark Mountains of Arkansas. *Environ. Entomol* 34:184-192.
- Smith, K. G., and F. M. Stephen. 2005. Potential effects of large-scale elimination of oaks by red oak borers on breeding Neotropical migrants in the Ozarks. Vol. 1. Pp. 312-321. in: C. J. Ralph and T. D. Rich, eds. *Bird Conservation Implementation and Integration in the Americas*. USDA For. Ser. Gen. Tech. Rep. PSW-191.
- VanLaerhoven, S. L., and F. M. Stephen. 2003. Host species influences body size and egg load of the bark beetle parasitoid, *Roptrocerus xylophagorum* (Hymenoptera: Pteromalidae). *Canadian Entomologist* 135:737-740.
- Dodds, K. J., and F. M. Stephen. 2002. Arrival and species complex of Cerambycidae on pines attacked by southern pine beetle. *J. Ent. Sci.* 37:272-274.
- Dodds, K. J., and F. M. Stephen. 2000. Partial age-specific life tables for *Monochamus titillator* in *Dendroctonus frontalis*-infested loblolly pines. *Entomologia Experimentalis et Applicata* 97:331-338.
- Dodds, K. J., C. Graber, and F. M. Stephen. 2001. Facultative intraguild predation by larval Cerambycidae (Coleoptera), *Monochamus carolinensis*, on bark beetle larvae (Coleoptera: Scolytidae). *Environ. Entomol.* 30:17-22.
- Stephen, F. M., V. B. Salisbury, and F. L. Oliveria. 2001. Red oak borer, *Enaphalodes rufulus* (Coleoptera: Cerambycidae), in the Ozark Mountains of Arkansas, USA.: An unexpected and remarkable forest disturbance. *Integrated Pest Management Reviews* 6:247-252.
- Stephen, F. M., and J. C. Gregoire. 2001. Introduction and establishment of exotic bark beetles. *Amer Phytopath. Assn.*, USDA Forest Service, <http://www.apsnet.org/meetings/ExoticPests/top.htm>.
- Stephen, F. M., and L. E. Browne. 2000. Application of EliminateTM parasitoid food to boles and and crowns of pines (Pinaceae) infested with *Dendroctonus frontalis* (Coleoptera:Scolytidae). *Canadian Entomologist* 138:983-985.

Contracts and Grants

During the period 2000-2005, principal or co-investigator on 15 grants totaling \$930,535. Funding agencies include: USDA Forest Service (Forest Research; Forest Health Protection; Forest Health Monitoring); USDA SBIR Competitive Grants Program. USDA, CSREES Special Grants program.

Professional Service

International Union of Forest Research Organizations
 North American Co-Chair of IUFRO Working Party on "Integrated Control of Scolytid Beetles"
 Southern Forest Insect Work Conference, Past Chair
 Entomological Society of America
 Society of American Foresters

Teaching Experience

I have developed and taught senior level/graduate courses in Forest Entomology; Biological Control; Research Methods in Entomology; Issues in Agriculture, and Insect Ecology (which I currently teach). I have served as major advisor to over 30 M.S. and Ph.D. students and currently am major advisor to 2 Ph.D and 3 M.S. students.

January 15, 2006