

Kenneth Robert Hobson

Department of Zoology
University of Oklahoma
Norman, OK. 73019 USA

phone: (405) 325-8136
FAX: (405) 325-6202
e-mail: khobson@ou.edu

EDUCATION

Ph.D. Entomology University of California, Berkeley 1992
M.S. Forest Resources University of Washington, Seattle 1987
A.B. Zoology & Botany University of North Carolina, Chapel Hill 1976

DISSERTATION

Studies on Host Selection and Biology of *Dendroctonus valens* and Fungal Host Interactions of *Dendroctonus brevicomis*

RESEARCH EXPERIENCE

University of Oklahoma, Department of Zoology
Scientist / Researcher II July 2001 to present

University of Oklahoma, Sam Noble Oklahoma Museum of Natural History,
Staff Curator of Invertebrates. Invertebrate biodiversity and ecology of wood borers. December 2000 – July 2001 (half time appointment).

- Curation of University Invertebrate Collection with a focus on the terrestrial insect fauna of Oklahoma
- Preparation of specimen level data from collection for web presentation
- Ecology of southern wood boring insects (current developing interests):
 - response of longhorn and ambrosia beetles to ice storm forest damage in southern Oklahoma
 - red oak borer outbreak in Ozark oaks: finding host plant attractants for *Enaphalodes*, the red oak borer

University of Canterbury , School of Forestry, Lecturer (US equivalent Assistant Professor, full time, permanent) March 1997 – Dec. 2000.

- Pheromonal behavior of *Platypus* pinhole borers in Nothofagus forests;
- Invertebrate biodiversity as an index of sustainability of single tree harvesting in mixed podocarp/ Nothofagus forests;
- Vector ecology of *Arhopalus* (Cerambycidae) carrying sapstain fungi in fire damaged stands of Monterey pine.

University of Wisconsin, Dept. of Entomology; Post-Doctoral Research Associate Chemical ecology of predators of *Ips pini*. October 1994- June 1997.

Utah State University & USDA Forest Service; Post-Doctoral Research Fellow Population dynamics, behavior and chemical ecology of early and late epidemic populations of *Dendroctonus ponderosae* - June 1992 - Oct. 1994.

University of California Berkeley; Research Assistant Doctoral thesis research: Studies on host selection and biology of *Dendroctonus valens* and fungal host interactions of *Dendroctonus brevicornis*. - summers 1986-1991.

University of California Berkeley; Research Assistant CA. State Parks contract preparing a stand analysis, pest survey, and recommendations for a thinning program to reduce hazard to campground trees from bark beetles and forest pathogens. - summer 1985. McArthur Burney Falls

University of Washington; Research Assistant Master's thesis: Stand history and host selection of the mountain pine beetle in a climax lodgepole ecosystem. - summers 1982-83. S. Central Oregon

EXTRACURRICULAR FUNDING

"Evaluation of Broad Spectrum Attractants for Use in Monitoring and Surveillance of Beetles of Quarantine Interest in New Zealand." 1999. New Zealand Ministry of Agriculture and Forests \$60,000 NZ P.I.: Kenneth R Hobson

"Development of an electronic database for the University Insect Teaching Collection" University of Canterbury Teaching Development Grant Competition \$5,000 NZ P.I. Kenneth R. Hobson.

"Chemical Ecology of New Zealand Forest Insects." 1998 University of Canterbury Competitive Research Grant \$48,000 NZ P.I. Kenneth R. Hobson

"Microscopy and Audiovisual Refurbishment" 1997 University of Canterbury Internal Grants Competition" \$100,000 NZ

"Bark Beetle, Fungus and Host Interactions Involved in the Death of Pines". 1989. USDA CSRS. \$150,000. P.I.: David L. Wood (Co-authored)

"Role of the Red Turpentine Beetle in Predicting the Survival of Monterey Pine in the Landscape". 1988. Elvenia J. Slosson Endowment Fund for Ornamental Horticulture; State of California. \$74,700. P.I.: David L. Wood (Co-authored)

TEACHING EXPERIENCE

Senior Capstone Seminar "The Blank Slate and Human Nature" Zoology 4983 Spring 2003

Introductory Zoology Lab Zoology 1121 (teaching assistant) Spring 2003

University of Oklahoma, OU Biological Station
Field Insect Ecology Zoology 4970/5970 August 2002

University of Canterbury, Lecturer in Forest Protection 1997 - 2000.
Major advisor for three Ph.D. students and 3 M.S. students.

Course work instruction:

1. Forest Protection - lectures and labs in entomology and pathology
2. Insect Biology - lectures and labs with overview of insect taxonomy (team taught)
3. Forest Biology - lectures and labs in introductory forest ecology, biodiversity and protection (team taught)
4. Ecology and Management of Native Forests – lectures in autecology of forest species and forest entomology (team taught)
5. Continuing Education for Professional Foresters - short course in New Zealand forest protection.

Utah State University, Lecturer 1993.

- 1) Perturbation Ecology - lectured on ecology of forest pest outbreaks

University of California Berkeley, Teaching Assistant. 1989, 1992.

- 1) General Entomology - conducted twice weekly labs with lectures.
- 2) Introductory Biology Bio1B - conducted twice weekly labs and discussion section.

University of California Santa Barbara, Teaching Assistant. 1984-1985.

- 1) Plant Ecology - designed and conducted weekly labs, led field trips.
- 2) Natural History of the Channel Islands - conducted weekly field trips and labs, and gave guest lectures.
- 3) The Biological Environment - conducted weekly labs and discussion section.

University of Washington Teaching Assistant. 1981-1982.

- 1) Biology of Insects - conducted weekly labs, gave lectures.
- 2) Forest Protection - led discussion section and graded papers.
- 3) Evolution, Systematics and Ecology - conducted weekly labs.

ADDITIONAL EXPERIENCE - National Park Service:

Wrangell-St. Elias National Park, Alaska, Botanist, mapping vegetation and soils survey, summer 1984.

Olympic National Park, Washington, Park Naturalist, summer 1980-1981.

North Cascades National Park, Washington, Park Ranger, summer 1978.

Great Smoky Mountains National Park, Tennessee. Park Naturalist, summers 1973-1977.

PUBLICATIONS

Denholm P.M., Hobson K.R. 2000. Impacts of intensive forest management using municipal sewage sludge on the biodiversity of soil and litter fauna in *Pinus radiata* plantations in Canterbury. In: Eason, C.T., Tremblay, L.A. editors Proceedings of the Christchurch Conference on Biomarkers in Ecotoxicology, Christchurch, New Zealand, 14–16 July 1999.

Hobson K.R. 1996. Interruption of Bark Beetle Aggregation by a Vigor-Dependent Pinus Host Compound. pp. 228-233. In, Mattson, W.J., Niemela, P. & Roussi, M. Dynamics of Forest Herbivory: Quest for Pattern and Principle. USDA Forest Service Gen. Tech. Report NC-183; 286 pp.

Hobson, K.R. 1995. Host compounds as semiochemicals for bark beetles. In Salom, S.M. and Hobson, K.R. (eds) Application of Semiochemicals for Management of Bark Beetle Infestations. USDA Forest Service Gen. Tech. Report INT-GTR 318. pp 48-51.

Nebeker, T.E., R.F. Schmitz, R.A. Tisdale and K.R. Hobson. 1995. Chemical and nutritional status of dwarf mistletoe, Armillaria root rot and Comandra blister rust infected trees which may influence tree susceptibility to bark beetle attack. Can. J. Botany 73: 360-369.

Hobson, K.R., J.R. Parmeter, D.L. Wood. 1994. Studies of the role of fungi vectored by *Dendroctonus brevicornis* in xylem occlusion. Canadian Entomologist 126: 277-282.

Hobson, K.R., D.E. Bright. 1994. Notes concerning occurrence of *Xyleborus* spp. in California (Coleoptera: Scolytidae). Pan-Pacific Entomologist: 70 (4) 267-268.

Hobson, K.R., D.L. Wood, L.G. Cool, P.R. White, T. Ohtsuka, I. Kubo and E. Zavarin. 1993. Chiral specificity in responses by the bark beetle *Dendroctonus valens* to host kairomones. J. Chem. Ecol. 19: 1837-1846.

White, P.R., K.R. Hobson. 1993. Stereospecific antennal response by the red turpentine beetle, *Dendroctonus valens* to chiral monoterpenes from ponderosa pine resin. J. Chem. Ecol. 19: 2193-2202.

Hobson, K.R., O. Edwards. 1992. Novel bark beetle research possible with new genetic techniques. pp. 23-24 in Hayes, J.L. and Robertson, J.L. (eds) Proc. of a Workshop on Bark Beetle Genetics: Current Status of Research. USDA Forest Service Gen. Tech. Report PSW-GTR-138. 31 p.

Himejima M., K.R. Hobson, T. Otsuka, D.L. Wood. 1992. Antimicrobial terpenes from oleoresin of ponderosa pine trees *Pinus ponderosa* - defense mechanism against microbial invasion. J. Chem. Ecol. 18: 1809-1818.

Koeppel, J.K., S. Wellman, K.R. Hobson. 1980. Juvenile hormone regulation of structural changes and DNA synthesis in the follicular epithelium of *Leucophaea maderae*. J. Insect Physiol. 26: 229-240.

PUBLICATIONS – non-refereed:

Hobson, K.R. , S.D. Reay, P.J. Walsh. 2001. Evaluation of Broad Spectrum Attractants for Use in Monitoring and Surveillance of Beetles of Quarantine Interest in New Zealand. Final report to Ministry of Agriculture and Forestry. 35 p.

PUBLICATIONS IN PREPARATION

Jones, Diane C., Kenneth R. Hobson and Eckehard G. Brockerhoff. Effects of small-coupe harvesting on Coleoptera diversity in a *Nothofagus* forest in New Zealand. (*accepted Forest Ecology and Management*)

Hobson, K.R. and A.J. Storer. Methyl chavicol; an olfactory and ecological link between host tree stress and bark beetles? Evidence from field bioassays and electroantennograms. (*in review pending submission to Canadian J. Forest Res.*)

Hobson, K.R. and K.R. Raffa. Predators chase *Ips pini* in semiochemical arms race.

Hobson, K.R. and G.D. Amman. Shifts in response to verbenone by mountain pine beetle from early to late epidemic stage.

PRESENTATIONS

Insect problems with early establishment in second rotation forests in New Zealand (2000 IUFRO World Congress Kuala Lumpur poster with Stephen D. Reay and Patrick J. Walsh)

Effects of disturbance on Coleoptera biodiversity in New Zealand *Nothofagus* forests (2000 Southern Connection Congress, Canterbury, NZ poster with D. Jones and E. Brockerhoff)

Regional and seasonal shifts in bark beetle aggregation pheromones as an escape from predation. (1996 Ecological Society of America, Providence, RI.)

Ips pini aggregation pheromone: variation as an escape from predation. (1996 North American Forest Insect Work Conference. San Antonio, TX.)

Effect of *Ips pini* pheromones on bark beetle natural enemies. (1995 USDA W-187 meeting Estes Park, CO.)

Size and behavioral ecology of *Dendroctonus valens*. (1994 Workshop on Evolutionary Perspectives on Bark Beetle Ecology. Calgary, Alberta)

Interruption of bark beetle aggregation by a vigor-dependent *Pinus* host compound. (Sept. 1994 Dept. of Botany, Brigham Young University)

Factors that trigger bark beetle outbreaks. (1994 W. Forest Insect Work Conf., Albuquerque, NM.)

Interruption of bark beetle aggregation by a vigor-dependent *Pinus* host compound. (1994 International Union For. Res. Org., Wailea, HI.)

Host compounds as semiochemicals for bark beetles. (1993 Entomological Society of America meeting, Indianapolis, Indiana.)

Stereospecific attraction of the red turpentine beetle to host volatiles of ponderosa pine. (1991 Entomological Society of America meeting, Reno, Nevada.)

Stereospecific attraction of *D. valens* to host monoterpenes. (1991 Int'l. Soc. Chem. Ecol. meeting, Dijon, France.)

Attraction and interruption of attraction of *Dendroctonus valens* to enantiomers of alpha - pinene from two pine hosts. (1990 Entomological Society of America meeting, New Orleans, LA.)

Host selection behavior of *Dendroctonus valens* and insect associates. (1989 Entomological Society of America meeting, San Antonio, TX.)

Is tree death required for bark beetle success?: a reconsideration of the role of vectored fungi. (1989 W. Forest Insect Work Conf., Bend, OR.)

Identification of primary attractants for *Dendroctonus valens* from *Pinus ponderosa* (1988 XVIII Int. Cong. Ent., Vancouver, B.C. Canada.)

Biology of the Red Turpentine Beetle. (1987 USDA W-110 meeting, Denver, Colorado.)

Bark beetles as indicators of and contributors to stress in ponderosa pines. (1986 USDA. W-110 meeting, Seattle, Washington.)

Host colonization behavior of *Dendroctonus valens*. (1986 Entomological Society of America meeting, Reno, Nevada.)

AWARDS

National Science Foundation Graduate Fellow 1979-1982.

Bloedel Graduate Fellowship University of Washington 1981.

Xi Sigma Pi National Forestry Honor Society 1987.

F.P. Keen Fellowship in Forest Entomology University of California, Berkeley 1985-1988.

Freitag Outstanding Graduate Award in Entomology University of California, Berkeley 1990.

PROFESSIONAL ACTIVITIES

Supervision of graduate students:

Principal supervisor for:

3 Masters students U. Canterbury

3 Ph.D. students U. Canterbury

External examiner for:

2 Ph.D. students Lincoln University

Reviewer for:

Community Ecology

Canadian Journal of Forest Research

Journal of Chemical Ecology

Review grant applications for:

Canada National Science and Engineering Research Council

New Zealand Foundation for Research, Science and Technology

Membership

Member Entomological Society of America

Member Ecological Society of America

Member Oklahoma Academy of Science

Member Oklahoma Native Plant Society

Participant USDA, Regional Research Project W-187