CURRICULUM VITAE

University of Idaho

NAME: Dennis, Brian

DATE: January 16, 2015

RANK OR TITLE: Professor of Wildlife and Statistics

DEPARTMENT: Fish and Wildlife Sciences (60%), Statistical Science (40%)

OFFICE LOCATION AND CAMPUS ZIP: 316 Phinney, 1136

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DATE OF FIRST EMPLOYMENT AT UI: April 1, 1981

DATE OF TENURE: July 1, 1987

DATE OF PRESENT RANK OR TITLE: August 1, 1994

EDUCATION BEYOND HIGH SCHOOL:

Ph.D., Ecology, 1982, Pennsylvania State University. Dissertation: The Dynamics of Low Density Populations (advisor: F.M. Williams)
M.A., Statistics, 1980, Pennsylvania State University (advisor: G.P. Patil)
B.A., Fine Arts, 1973, Roger Williams College (now University), Rhode Island

EXPERIENCE:

Teaching and Research Appointments:

1994-present, Professor, Department of Fish and Wildlife Sciences and Department of Statistical Science, University of Idaho
2009-2010, Visiting Professor, Centro de Investigación en Matemáticas (CIMAT), in Guanajuato, Mexico
1997 (fall), Distinguished Research Fellow, Bodega Marine Laboratory, University of California/Davis
1992-94, Associate Professor, Department of Fish and Wildlife Resources and Department of Mathematics and Statistics, University of Idaho
1989-90 (fall, spring), Visiting Associate Professor (sabbatical), Department of Mathematical Sciences, Montana State University
1987-92, Associate Professor, Department of Forest Resources and Department of Mathematics and Statistics, University of Idaho
1984 (fall), Visiting Assistant Professor, Department of Statistics, Pennsylvania State University
1982-87, Assistant Professor, Department of Forest Resources and Department of Mathematics and Statistics, University of Idaho
1981-82, Assistant Professor, Department of Forest Resources, University of Idaho
1979-80, Graduate Research Assistant, Department of Biology, Pennsylvania State University
1978-79, Graduate Teaching Assistant, Department of Biology, Pennsylvania State University
1977-78, Graduate Fellow, Pennsylvania State University
1976-77, Graduate Research Assistant, Department of Statistics, Pennsylvania State University
1975-76, Graduate Teaching Assistant, Department of Biology, Pennsylvania State University

Consulting:

Expert for Imhoff and Lynch (Boise, ID) law firm concerning Admiral vs. Gulf Resources (Bunker Hill Superfund cleanup).

Expert for Idaho Attorney General concerning Idaho Depart of Fish and Game vs. National Marine Fisheries Service (Snake River salmon protection)

Consulting (cont.):

Reviewer for Plan for Analyzing and Testing Hypotheses (PATH: joint NMFS/BPA/NPPC/USFW project to determine causes of Columbia Basin salmon decline), ESSA Technologies.

Reviewer for Center for Environmental Science, Reliability, & Advocacy (CESAR), Scientific Review of Effects of Sacramento River Pumping on Delta Smelt and other delta species.

Statistical Consulting at UI:

Staff member, Statistical Consulting Center (SCC), University of Idaho, 1982-93, 1998. Extensive consulting experience in statistical problems related to wildlife, forestry, fisheries, entomology, range, and other biological sciences. Average workload assignment of 1-2 three-credit course equivalents per year. The SCC has handled a minimum of 200 consulting requests each semester; approximately 40% FWR, 15% L&S, 10% Education, 15% Agriculture, 4% M&ER, 3% Engineering, 2% B&E, 1% A&A, and 10% other (UI Administration, WSU, US Forest Service, Idaho Fish and Game, US Fish and Wildlife Service, private companies, etc.).

TEACHING ACCOMPLISHMENTS:

Courses Taught:

University of Idaho:

Models for Resource Decisions (For 494, 4 cr.)
Statistical Ecology (Stat/Wlf 555, 3 cr.)
Mathematical Statistics (Math 452, 3 cr.)
Introduction to Statistics (Stat 150, 3 cr.)
Principles of Statistics (Stat 251, 3 cr.)
Probability and Statistics (Stat 301, 3 cr.)
Statistical Analysis (Stat 431, 3 credit)
Analytic Geometry and Calculus I (Math 180, 4 cr.)
Fish and Wildlife Population Ecology (Wlf 448, 4 cr.)
Theoretical Population Biology (For 504: special topics, 3 cr.)
SAS in Natural Resource Management (For 504: special topics, 1 cr.)
Statistics Seminar (Stat 501, various topics)
Ecological Modeling (Wlf 552, 3 cr.)

Pennsylvania State University:

Introductory Biology Laboratory Sections
Introductory Zoology Laboratory Sections
Biostatistics
Engineering Statistics

Students Advised:

Graduate Students Supervised to Completion:

Bryan Stevens, M.S. (2012), Statistics. Thesis: "Wildlife Mortality From Infrastructure Collisions: Statistical Modeling of Count Data From Carcass Surveys."

Kevin White, M.S. (2012), Statistics. Thesis: "Estimability of Parameters in Time Series Population abundance models."

Jose Ponciano, M.S. (2004), Statistics. Thesis: "Estimation of Density Dependence, Process Noise and Observation Error: A Comparison of Modified Maximum Likelihood, Restricted Maximum Likelihood and ML from Replicated Sampling."

Glenn Szerlong, M.S. (2003), Statistics. Thesis: "Time-Series Analysis of Chinook Salmon Redd Counts: Accommodating Density Dependence and Environmental Conditions in Estimates of Annual Recruitment."

Students Advised (cont.):

Zoran Antonijevic, M.S. (1995), Statistics. Thesis: "Sensitivity of First Passage Distribution to Models and Parameters in Population Viability Analysis."

Salman Sabir, M.S. (1994), Statistics. Thesis: "Simulation Study of the Akaike Model Selection Criterion and Three of Its Variants in Logistic Regression."

Moses Chakanga, M.S. (1990), Forest Resources. Thesis: "Optimal Sampling Design for Estimating Household Fuelwood and Charcoal Consumption in Zambia."

Alex Polymenopolous, M.S. (1989), Statistics. Thesis: "Estimation and Evaluation Methods for Population Growth Models with Spatial Diffusion."

Mohamed Khatouri, Ph.D. (1988), Forestry, Wildlife, and Range Sciences. Dissertation: "Growth and Yield Model for Uneven-Aged Cedrus Forests in Morocco."

Mohamed Khatouri, M.S. (1986), Applied Statistics. Thesis: "A Simulation Study of Maximum Likelihood and Maximum Product of Spacing Estimators of the Three-Parameter Weibull Distribution."

El Hassan El Mazzoudi, Ph.D. (1985), Forestry, Wildlife, and Range Sciences (co-advised with Dave Adams). Dissertation: "Growth and Yield of Eucalyptus Using the Weibull Distribution."

Present graduate students:

Brian Quigley, M.S. (expected 2015), Statistics.

Brenda Hanley, M.S. (expected 2016), Statistics.

Amanda Bowe, M.S. (expected 2016), Statistics.

SCHOLARSHIP ACCOMPLISHMENTS:

Publications:

Refereed Journals: (79 published, 3600+ citations, h-index 32, 9 papers with >100 citations each, as of Jan 2015)

Assas, L., S. Elaydi, E. Kwessi, G. Livatiodis, and B. Dennis. A hierarchical stochastic competition model with Allee effect. *Journal of Biological Dynamics*, in press.

Dennis, B. and J.M. Ponciano. 2014. Density-dependent state-space model for population-abundance data with unequal time intervals. *Ecology* 95:2069–2076.

Stevens, B.S. and B. Dennis. 2013. Wildlife mortality from infrastructure collisions: statistical modeling of count data from carcass surveys. *Ecology*, 94:2087-2096.

Stevens, B.S., D.E. Naugle, B. Dennis, J.W. Connelly, T. Griffiths, and K.P. Reese. 2013. Mapping Sage-Grouse Fence-Collision Risk: Spatially-explicit models for targeting conservation implementation. *Wildlife Society Bulletin* 37:409-415.

Dennis, B., J.C. Civille, and D.R. Strong. 2011. Lateral spread of invasive *Spartina alterniflora* in uncrowded environments. *Biological Invasions* 13:401-411.

Dennis, B. and A.M. Ellison. 2010. A reply to Millspaugh and Gitzen. *Frontiers in Ecology and the Environment* 8:515-516

Ellison, A.M., and B. Dennis. 2010. Paths to statistical fluency for ecologists. *Frontiers in Ecology and the Environment* 8:362-370.

Refereed Journals (cont.):

Dennis, B., J.M. Ponciano, and M.L. Taper. 2010. Replicated sampling increases efficiency in monitoring biological populations. *Ecology* 91:610-620.

Humbert, J.-Y., L. S. Mills, J. S. Horne, and B. Dennis. 2009. A better way to estimate trend. *Oikos* 118:1940-1946.

Ponciano, J.M., M.L. Taper, B. Dennis, and S.R. Lele. 2009. Hierarchical models in ecology: confidence intervals, hypothesis testing, and model selection using data cloning. *Ecology* 90:356-362 .

Kramer, A.M., B. Dennis, A Liebhold, and J.M. Drake. 2009. The evidence for Allee effects. *Population Ecology* 51:341-354.

Lele, S.R,, and B. Dennis. 2009. Bayesian methods for hierarchical models: are ecologists making a Faustian bargain? *Ecological Applications* 19:581-584.

Bruce, R.L., C.M. Moffitt, and B. Dennis. 2009. Survival and passage of ingested New Zealand mudsnailsthrough the intestinal tract of rainbow trout. *North American Journal of Aquaculture* 71:287–301.

Hampton, S.E., L.R. Izmest'eva, M.V. Moore, S.L. Katz, B. Dennis, and E.A. Silow. 2008. Sixty years of environmental change in the world's largest freshwater lake – Lake Baikal, Siberia. *Global Change Biology* 14:1947-1958.

Staples, D.F., M.L. Taper, B. Dennis, and R.J. Boik. 2008. Effects of sampling error and temporal correlations in population growth on process variance estimators. *Environmental and Ecological Statistics* (online).

Lele, S.R., B. Dennis, and F. Lutscher. 2007. Data cloning: easy maximum likelihood estimation for complex ecological models using Bayesian Markov chain Monte Carlo methods. *Ecology Letters* 10:551-563.

Henson, S.M., B. Dennis, J.L. Hayward, J.M. Cushing, and J.G. Galusha. 2007. Predicting the dynamics of animal behaviour in field populations. *Animal Behaviour* 74:103-110.

Dennis, B., J.M. Ponciano, S.R. Lele, M.L. Taper, D.F. Staples. 2006. Estimating density dependence, process noise, and observation error. *Ecological Monographs* 76:323-341.

Preisser, E.L., C.J. Dugaw, B. Dennis, and D.R. Strong. 2006. Plant facilitation of a belowground predator. *Ecology* 87:1116-1123.

Desharnais, R.A., R.F. Costantino, J.M. Cushing, S.M. Henson, B. Dennis, and A.A. King. 2006. Experimental support of the scaling rule for demographic stochasticity. *Ecology Letters* 9:537-547.

Hayward, J.L., S.M. Henson, C.J. Logan, C.R. Parris, M.W. Meyer, and B. Dennis. 2005. Predicting numbers of hauled-out harbour seals: a mathematical model. *Journal of Applied Ecology* 42:108-117

Costantino, R.F., R.A. Desharnais, J.M. Cushing, B. Dennis, S.M. Henson, and A.A. King. 2005. Nonlinear stochastic population dynamics: the flour beetle Tribolium as an effective tool of discovery. *Advances in Ecological Research* 37:101-141.

Refereed Journals (cont.):

Preisser, E.L., C.J. Dugaw, B. Dennis, and D.R. Strong. 2005. Long-term survival of the entomopathogenic nematode *Heterorhabditis marelatus*. *Environmental Entomology* 1501-1506.

Staples, D.F., M.L. Taper and B. Dennis. 2004. Estimating population trend and process variation for PVA in the presence of sampling error. *Ecology* 85:923-929.

Kemp, W.P., J. Bosch and B. Dennis, 2004. Oxygen consumption during the life cycle of the prepupa-wintering bee *Megachile rotundata* and the adult-wintering bee *Osimia lignaria* (Hymenoptera: Megachilidae). *Annals of the Entomological Society of America* 97:161-170.

Steinhorst, K., Y. Wu, B. Dennis, and P. Kline. 2004. Confidence intervals for fish out-migration estimates using stratified trap efficiency methods. *Journal of Agricultural, Biological, and Environmental Statistics* 9:284-299.

King, A.A., R.F. Costantino, J.M. Cushing, S.M. Henson, R.A. Desharnais, and B. Dennis. 2004. Anatomy of a chaotic attractor: subtle model-predicted patterns revealed in population data. *Proceedings of the National Academy of Sciences of the United States of America*, 101:408-413.

Henson , S.M., A.A. King , R.F. Costantino, J.M. Cushing, B. Dennis, and R.A. Desharnais. 2003. Explaining and predicting patterns in stochastic population systems. *Proceedings of the Royal Society of London* B 270:1549-1553.

Edmunds, J., J.M. Cushing, R.F. Costantino, S.M. Henson, B. Dennis, and R.A. Desharnais. 2003. Park's Tribolium competition experiments: a non-equilibrium species coexistence hypothesis. *Journal of Animal Ecology* 72:703-712.

Dennis, B. R.A. Desharnais, J.M. Cushing, S.M. Henson, and R.F. Costantino. 2003. Can noise induce chaos? *Oikos* 102:329-339.

Ives, A.R., B. Dennis, K.L. Cottingham, and S.R. Carpenter. 2003. Estimating community stability and ecological interactions from time-series data. *Ecological Monographs* 73: 301-330.

Dennis, B. 2002. Allee effects in stochastic populations. *Oikos* 96:389-401.

King, A.A., R.A. Desharnais, S.M. Henson, R.F. Costantino, J.M. Cushing, and B. Dennis. 2002. Random perturbations and lattice effects in chaotic population dynamics. *Science* 297: 2163a.

Henson, S.M., R.F. Constantino, R.A. Desharnais, J.M. Cushing, and B. Dennis. 2002. Basins of attraction: population dynamics with two stable 4-cycles. *Oikos* 98: 17-24.

Peek, J.M., B. Dennis, and T. Hershey. 2002. Predicting population trends of mule deer. *Journal of Wildlife Management* 66:729-736.

Desharnais, R.A., R.F. Costantino, J.M. Cushing, S.M. Henson, and B. Dennis. 2001. Chaos and population control of insect outbreaks. *Ecology Letters* 4:229-235.

Henson, S.M., R.F. Costantino, J.M. Cushing, R.A. Desharnais, B. Dennis, and A.A. King. 2001. Lattice effects observed in chaotic dynamics of experimental populations. *Science* 294:602-605.

Dennis, B., R.A. Desharnais, J.M. Cushing, S.M. Henson, and R.F. Costantino. 2001. Estimating chaos and complex dynamics in an insect population. *Ecological Monographs*, 71:277-303.

Refereed Journals (cont.):

Cushing, J.M., S.M. Henson, R.A. Desharnais, B. Dennis, R.F. Costantino, and A. King. 2001. A chaotic attractor in ecology: theory and experimental data. *Chaos, Solitons, and Fractals* 12: 219-234.

Dennis, B., and M.R. M. Otten. 2000. Joint effects of density dependence and rainfall on San Joaquin kit fox. *Journal of Wildlife Management* 64:388-400.

Henson, S.M., R.F. Costantino, J.M. Cushing, B. Dennis, and R.A. Desharnais. 1999. Multiple attractors, saddles, and population dynamics in periodic habitats. *Bulletin of Mathematical Biology* 61:1121-1149.

Ives, A.R., S.R. Carpenter, and B. Dennis. 1999. Community interaction webs and zooplankten responses to planktivory manipulations. *Ecology* 80 :1405-1421.

Strong, D.R., A.V. Whipple, A.L. Child, and B. Dennis. 1999. Model selection for a subterranean trophic cascade: root-feeding caterpillars and entomopathogenic nematodes. *Ecology* 80:2750-2761.

Henson, S.M., J.M. Cushing, R.F. Costantino, B. Dennis, and R.A. Desharnais. 1998. Phase switching in population cycles. *Proceedings of the Royal Society of London* B 265:2229-2234.

Cushing, J.M., B. Dennis, R.A. Desharnais, and R.F. Costantino. 1998. Moving toward an unstable equilibrium: saddle nodes in population systems. *Journal of Animal Ecology* 67:298-306.

Costantino, R.F., J.M. Cushing, B. Dennis, R.A. Desharnais, and S.M. Henson. 1998. Resonant population cycles in temporally fluctuating habitats. *Bulletin of Mathematical Biology* 60:247-273.

Zheng, Z., R.M. Nowierski, M.L. Taper, B. Dennis, and W.P. Kemp. 1998. Complex population dynamics in the real world: modeling the influence of time-varying parameters and time lags. *Ecology* 79:2193-2209.

Cushing, J.M., R.F. Costantino, B. Dennis, R.A. Desharnais, and S.M. Henson. 1998. Nonlinear population dynamics: models, experiments, and data. *Journal of Theoretical Biology* 194:1-9.

Dennis, B., W.P. Kemp, and M.L. Taper. 1998. Joint density dependence. *Ecology* 79:426-441.

Costantino, R.F., R.A. Desharnais, J.M. Cushing, and B. Dennis. 1997. Chaotic dynamics in an insect population. *Science* 275:389-391.

Desharnais, R.A., R.F. Costantino, J.M. Cushing, and B. Dennis. 1997. Estimating chaos in an insect population: response. *Science* 276:1881-1882.

Dennis, B., R.A. Desharnais, J.M. Cushing, and R.F. Costantino. 1997. Transitions in population dynamics: equilibria to periodic cycles to aperiodic cycles. *Journal of Animal Ecology* 66:704-729.

Cushing, J.M., B. Dennis, R.A. Desharnais, and R.F. Costantino. 1996. An interdisciplinary approach to understanding nonlinear ecological dynamics. *Ecological Modelling* 92:111-119.

Dennis, B. 1996. Discussion: should ecologists become Bayesians? *Ecological Applications* 6:1095-1103.

Rotella, J.J., J.T. Ratti, K.P. Reese, M.L. Taper, and B. Dennis. 1996. Long-term population analysis of Gray Partridge in eastern Washington. *Journal of Wildlife Management* 60:817-825.

Refereed Journals (cont.):

Dennis, B., R.A. Desharnais, J.M. Cushing, and R.F. Costantino. 1995. Nonlinear demographic dynamics: mathematical models, statistical methods, and biological experiments. *Ecological Monographs* 65:261-281.

Costantino, R.F., J.M. Cushing, B. Dennis, and R.A. Desharnais. 1995. Experimentally induced transitions in the dynamic behavior of insect populations. *Nature* 375:227-230.

Dennis, B., and M.L. Taper. 1994. Density dependence in time series observations of natural populations: estimation and testing. *Ecological Monographs* 64:205-224.

Wolda, H., B. Dennis, and M.L. Taper. 1994. Density dependence tests, and largely futile comments: answers to Holyoak and Lawton (1993) and Hanski, Woiwod and Perry (1993). *Oecologia* 98:229-234.

Wolda, H., and B. Dennis. 1993. Density dependence tests, are they? *Oecologia* 95:581-591.

Kemp, W.P., and B. Dennis. 1993. Density dependence in rangeland grasshoppers (Orthoptera: Acrididae). *Oecologia* 96:1-8.

Kemp, W.P., and B. Dennis. 1992. Toward a general model of rangeland grasshopper (Orthoptera: Acrididae) phenology in the steppe region of Montana. *Environmental Entomology* 20:1504-1515.

Munholland, P.L., and B. Dennis. 1992. Biological aspects of a stochastic model for insect life history data. *Environmental Entomology* 21:1229-1238.

Rubin, S.P., T.C. Bjornn, and B. Dennis. 1991. Habitat suitability curves for juvenile chinook salmon and steelhead development using a habitat-oriented sampling approach. *Rivers* 2:12-29.

Dennis, B., P.L. Munholland, and J.M. Scott. 1991. Estimation of growth and extinction parameters for endangered species. *Ecological Monographs* 61:115-143.

Desharnais, R.A., B. Dennis, and R.F. Costantino. 1990. Genetic analysis of a population of *Tribolium*. IX. Maximization of population size and the concept of a stochastic equilibrium. *Genome* 33:571-580.

Khatouri, M., and B. Dennis. 1990. Growth-and-yield model for uneven-aged *Cedrus atlantica* stands in Morocco. *Forest Ecology and Management* 36:253-266.

Kemp, W.P., and B. Dennis. 1989. Development of two rangeland grasshoppers at constant temperatures: development thresholds revisited. *The Canadian Entomologist* 121:363-371.

Dennis, B. 1989. Allee effects: population growth, critical density, and the chance of extinction. *Natural Resource Modeling* 3:481-538.

Dennis, B., and R.F. Costantino. 1988. Analysis of steady-state populations with the gamma abundance model: application to *Tribolium*. *Ecology* 69:1200-1213.

Dennis, B., and W.P. Kemp. 1988. Further statistical inference methods for a stochastic model of insect phenology. *Environmental Entomology* 17:887-893.

Roeder, K., B. Dennis, and E.O. Garton. 1987. Estimating density from variable circular plot censuses. *Journal of Wildlife Management* 51:224-230.

Refereed Journals (cont.):

Dennis, B., W.P. Kemp, and R.C. Beckwith. 1986. A stochastic model of insect phenology: estimation and testing. *Environmental Entomology* 15:540-546.

Kemp, W.P., B. Dennis, and R.C. Beckwith. 1986. A stochastic phenology model for the western spruce budworm (Lepidoptera: Tortricidae). *Environmental Entomology* 15:547-554.

Berryman, A.A., B. Dennis, K.F. Raffa, and N.C. Stenseth. 1985. Evolution of optimal group sizes in small predators attacking large prey, with particular reference to bark beetles (Coleoptera: Scolytidae). *Ecology* 66:898-903.

Dennis, B., B.E. Brown, A.R. Stage, H.E. Burkhart, and S. Clark. 1985. Problems of modeling growth and yield of renewable resources. *The American Statistician* 39:374-383.

Dennis, B., and G.P. Patil. 1984. The gamma distribution and weighted multimodal gamma distributions as models of population abundance. *Mathematical Biosciences* 68:187-212.

Dennis, B. 1978. Analytical solution to an open-system model of population growth. *Mathematical Biosciences* 40:167-169.

Dennis, B., and G.P. Patil. 1977. The use of community diversity indices for monitoring trends in water pollution impacts. *Tropical Ecology* 18:36-51.

Books:

Dennis, B. 2013. *The R Student Companion.* CRC Press, Boca Raton, Florida, USA.

Cushing, J.M., R.F. Constantino, B. Dennis, R.A. Desharnais, and S.M. Henson. 2003. *Chaos in Ecology: Experimental Nonlinear Dynamics*. Academic Press, San Diego, California, USA.

Refereed Articles in Scholarly Books (refereed anonymously as a condition of publication):

Dennis, B. 1981. Extinction and waiting times in birth-death processes: applications to endangered species and insect pest control. In *Statistical Distributions in Scientific Work*, Vol. 6, C. Taillie, G.P. Patil, and B.A. Baldessari (eds.). D. Reidel Publishing Company, Dordrecht.

Dennis, B., and G.P. Patil. 1979. Species abundance, diversity, and environmental predictability. In *Ecological Diversity in Theory and Practice*, J.F. Grassle, G.P. Patil, W.K. Smith, and C. Taillie (eds.). International Co-operative Publishing House, Fairland, Maryland.

Dennis, B. and O. Rossi. 1979. Community composition and diversity analysis in a marine zooplankton survey. *Ibid*.

Boswell, M.T., and B. Dennis. 1979. Ecological contributions involving statistical distributions. In *Statistical Distributions in Ecological Work*, J.K. Ord, G.P. Patil, and C. Taillie (eds.). International Co-operative Publishing House, Fairland, Maryland.

Dennis, B., G.P. Patil, and O. Rossi. 1979. The sensitivity of ecological diversity indices to the presence of pollutants in aquatic communities. In *Environmental Biomonitoring, Assessment, Prediction, and Management*, J. Cairns, Jr., G.P. Patil, and W.E. Waters (eds.). International Co-operative Publishing House, Fairland, Maryland.

Invited, Peer-Reviewed Articles in Scholarly Books or Journals:

Dennis, B. 2009. Review of *Allee effects in Ecology and Conservation* by Franck Courchamp, Ludek Berec and Joanna Gascoigne. *Environmental Conservation*, 36(1)..

Dennis, B. 2004. Statistics and the scientific method in ecology. In *The Nature of Scientific Evidence*, M.L. Taper, and S.R. Lele (eds.). University of Chicago Press, Chicago.

Dennis, B. 1989. Stochastic differential equations as insect population models. In *Estimation and Analysis of Insect Populations*, L. McDonald, B. Manly, J. Lockwood, and J. Logan (eds.). Springer-Verlag, Berlin.

Kemp, W.P., B. Dennis, and P.L. Munholland. 1989. Modeling grasshopper phenology with diffusion processes. *Ibid*.

Munholland, P.L., J.D. Kalbfleisch, and B. Dennis. 1989. A stochastic model for insect life history data. *Ibid*.

Dennis, B., and G.P. Patil. 1988. Applications in ecology. Chapter 12 in *Lognormal Distributions: Theory and Applications*, E.L. Crow and K. Shimizu (eds.). Marcel Dekker, New York.

Dennis, B. 1986. Review of *Practical Statistics for Experimental Biologists*, by A.C. Wardlaw. *The Quarterly Review of Biology* 61:588.

Invited, Peer-Reviewed Articles in Scholarly Books or Journals (cont.):

Dennis, B., and G.P. Patil. 1985. Profiles of diversity. In *Encyclopedia of Statistical Sciences*, Vol. 7, S. Kotz, N.L. Johnson, and C.B. Read (eds.). John Wiley & Sons, New York.

Dennis, B. 1984. Statistical ecology initiative in graduate training: Penn State University experiences. In *Renewable Resource Inventory for Monitoring Changes and Trends: Proceedings of an International Conference*, J.F. Bell and T. Atterbury (eds.). Oregon State University College of Forestry, Corvallis.

Dennis, B. 1983. Distance methods for evaluating forest regeneration. In *Proceedings of the Society of American Foresters National Convention* (Portland 1983).

Dennis, B., G.P. Patil, O. Rossi, S. Stehman, and C. Taillie. 1979. A bibliography of literature on ecological diversity and related methodology. In *Ecological Diversity in Theory and Practice*, J.F. Grassle, G.P. Patil, W.K. Smith, and C. Taillie (eds.). International Co-Operative Publishing House, Fairland, Maryland.

Dennis, B., G.P. Patil, M.V. Ratnaparkhi, and S. Stehman. 1979. A bibliography of selected books on quantitative ecology and related ecometrics. In *Contemporary Quantitative Ecology and Related Ecometrics*, G.P. Patil and M.L. Rosenzweig (eds.). International Co-Operative Publishing House, Fairland, Maryland.

Prominent Citations/Discussions of My Research:

Mills, L.S. 2013. Conservation of wildlife populations: demography, genetics, and management, second edition. Blackwell.

Feldman, D.P. 2012. Chaos and fractals: an elementary introduction. Oxford University Press.

Brauer, F. and C. Castillo-Chavez. 2010. Mathematical models in population biology and epidemiology. Springer.

Gillman, M. 2009. An introduction to mathematical models in ecology and evolution: time and space. 2nd ed. Wiley-Blackwell.

Prominent Citations/Discussions of My Research (cont.):

Fulbright, T.E. and D.G. Hewitt, eds. 2008. Wildlife science: linking ecological theory and management applications. CRC Press.

May, R.M. and A.R.McLean, eds. 2007. Theoretical ecology: principles and applications, third edition. Oxford University Press.

Hunter, M.L. and J. Gibbs. 2007. Fundamentals of conservation biology, third edition. Blackwell.

Mills, L.S. 2007. Conservation of wildlife populations: demography, genetics, and management. Blackwell.

Owen-Smith, N. 2007. Introduction to modeling in wildlife and resource conservation. Blackwell.

Begon, M., C.R. Townsend, and J.L. Harper. 2006. Ecology: from individuals to ecosystems, fourth edition. Blackwell.

Mangel, M. 2006. The theoretical biologist's toolbox: quantitative methods for ecology and evolutionary biology. Cambridge University Press.

Ellner, S.P. and J. Guckenheimer. 2006. Dynamic models in biology. Princeton University Press.

Tél, T. and M. Gruiz. 2006. Chaotic dynamics: an introduction based on classical mechanics. Cambridge University Press.

de Vries, G., T. Hillen, M. Lewis, J Müller, and B. Schonfisch. 2006. A course in mathematical biology. Society for Industrial and Applied Mathematics.

Burgman, M. 2005. Risks and decisions for conservation and environmental management. Cambridge University Press.

Spellerberg, I.F. 2005. Monitoring ecological change, second edition. Cambridge University Press.

Haefner, J.W. 2005. Modeling biological systems: principles and applications. Springer.

Cuddington, K. and B. Beisner, eds. 2005. Ecological paradigms lost: routes of theory change. Elsevier Academic Press.

Elaydi, S. 2005. An introduction to difference equations., third edition. Springer.

Mauricio, R., ed. 2005. Genetics of adaptation. Springer.

Allman, E.S. and J.A. Rhodes. 2004. Mathematical models in biology: an introduction. Cambridge University Press.

Vandermeer, J.H. and D.E. Goldberg. 2003. Population ecology: first principles. Princeton University Press.

Canham, C.D., J.J. Cole, and W.K. Lauenroth, eds. 2003. Models in ecosystem science. Princeton University Press.

Turchin, P. 2003. Complex population dynamics: a theoretical/empirical synthesis. Princeton University Press.

Thieme, H.R. 2003. Mathematics in population biology. Princeton University Press.

Prominent Citations/Discussions of My Research (cont.):

Cotgreave, P. and I. Forseth. 2002. Introductory ecology. Blackwell.

Morris, W.F. and D.D. Doak. 2002. Quantitative conservation biology: theory and practice of population viability analysis. Sinauer.

Williams, B.K., J.D. Nichols, and M.J. Conroy. 2002. Analysis and management of animal populations: modeling, estimation, and decision making. Academic Press.

Quinn, G.P. and M.J. Keough. 2002. Experimental design and data analysis for biologists. Cambridge University Press.

Krebs, C.J. 2001. Ecology: the experimental analysis of distribution and abundance, fifth edition. Benjamin Cummings.

Caswell, H. 2001. Matrix population models: construction, analysis and interpretations, second edition. Sinauer.

Scheiner, S.M. and J. Gurevitch, eds. 2001. Design and analysis of ecological experiments, second edition. Oxford University Press.

Alstad, D. 2001. Basic populus models of ecology. Prentice-Hall.

Taubes, C.H. 2001. Modeling differential equations in biology. Prentice Hall (this book reprints one of my papers in entirety.)

Stewart, I. 2001. What shape is a snowflake? Freeman.

Gotelli, N.J. 2001. A primer of ecology, third edition. Sinauer.

May, R.M. 2001. Stability and complexity in model ecosystems, with a new introduction by the author Princeton Landmarks in Biology series, Princeton University Press.

Brauer, F. and C. Castillo-Chavez. 2001. Mathematical models in population biology and epidemiology. Springer-Verlag.

McCallum, H. 2000. Population parameters: estimation for ecological models. Blackwell.

Newman, E.I. 2000. Applied ecology and environmental management, second edition. Blackwell.

Southwood, T.R.E. and P.A. Henderson. 2000. Ecological methods, third edition. Blackwell.

Case, T.J. 2000. An illustrated guide to theoretical ecology. Oxford University Press.

Ford, E.D. 2000. Scientific method for ecological research. Cambridge University Press.

Mueller, L.D. and A. Joshi. 2000. Stability in model populations. Princeton University Press.

Boitani, L. and T. K. Fuller, eds. 2000. Research techniques in animal ecology: controversies and consequences. Columbia University Press.

Hochberg, M.E. and A.R. Ives, eds. 2000. Parasitoid population biology. Princeton University Press.

Morin, P.J. 1999. Community ecology. Blackwell.

Starr, C. 1999. Basic concepts in biology, fourth edition. Brooks/Cole (online).

Prominent Citations/Discussions of My Research (cont.):

Krebs, C.J. 1999. Ecological methodology, second edition. Addison-Wesley Educational Publishers.

Dodson, S.I., T.F.H. Allen, S.R. Carpenter, A.R. Ives, R.L. Jeanne, J.F. Kitchell, N.E. Langston, and M.G. Turner. 1998. Ecology. Oxford University Press.

Primack, R.B. 1998. Essentials of conservation biology, second edition. Sinauer.

Gurney, W.S.C. and R. Nisbet. 1998. Ecological Dynamics. Oxford University Press.

Cipra, B.A. 1998. Beetlemania: chaos in ecology. In: What's happening in the mathematical sciences, volume 4, American Mathematical Society.

Hastings, A. 1997. Population biology: concepts and models. Springer-Verlag.

Stewart, I. 1997. Does God Play Dice? Second edition. Penguin.

Coveny, P., and R. Highfield. 1997. Frontiers of complexity: the search for order in a chaotic world. Fawcett Columbine.

Godfray, C., and M. Hassell. 1997. Chaotic beetles. Science (Perspectives section) 275:323-324.

Manly, B.F.J. 1997. Randomization bootstraps and Monte Carlo methods in biology. Chapman and Hall.

Cipra, B.A. 1997. Chaotic bugs make the leap from theory to experiment. SIAM News (July/August), p. 16.

Knight, J. 1997. Boom time for beetles. New Scientist (This Week section) 29, November, p. 19.

Haefner, J.W. 1996. Modeling biological systems: principles and applications. Chapman and Hall.

Alligood, K., J. Sauer, and J.A. Yorke. l996. Chaos: an introduction to dynamic systems. Springer.

Gotelli, N.J. 1995. A primer of ecology. Sinauer.

Kareiva, P. 1995. Predicting and producing chaos. Nature (News and Views section) 375:189.

Johnson, N.L., S. Kotz, and N. Balakrishan. 1995. Continuous univariate distributions, second edition. Wiley.

Kareiva, P. 1995. Predicting and producing chaos. Nature 375:189-190 (News and Views).

Brewer, R. 1994. The science of ecology, second edition. Saunders.

Newman, E.I. 1993. Applied ecology. Blackwell.

Primack, R.B. 1993. Essentials of conservation biology. Sinauer.

Pimm, S.L. 1991. The balance of nature? University of Chicago Press.

News Articles Covering My Research in Magazines and Newspapers:

Science News (1990), *Equinox* (1991), *Sports Afield* (1991), *Washington Post* (p. 2, 1995), *Chicago Tribune* (1995), *Boston Globe* (1995), *Seattle Times* (1995), *Portland Oregonian* (1995),

Montreal Gazette (1995), *Rocky Mountain News* (1995), *Newsday* (1995), *Orange County Register* (1995), *Baltimore Sun* (1995), *Cleveland Plain Dealer* (1995), *New York Times* Tuesday science section (2008).

Grants and Contracts Awarded:

Synchronizing Pollinators with Almond Bloom: Part One, an Environmental Covariate for the Dennis/Kemp Model, USDA-ARS (renewal, $38,500 for 1 yr).

Synchronizing Pollinators with Almond Bloom: Part One, an Environmental Covariate for the Dennis/Kemp Model, USDA-ARS ($35,595 for 1 yr).

Estimating Greater Sage-grouse Fence Collision Rates Using a Hierarchical Statistical Model, USDA Natural Resources (subcontract through Univ Montana) ($46,800 for 1 yr).

Statistical identification of ecosystem and population indicators from salmonid monitoring data (with E. E. Holmes, Northwest Fisheries Science Center). National Marine Fisheries Service ($52,956 for 1 yr).

A risk assessment framework for defining scientifically-defensible recovery goals for listed species (2007), with J.M. Scott, E.O. Garton, L.S. Mills, J. Horne, K. Strickler). Department of Defense Strategic Environmental Research and Development Program (SERDP), BD portion: 1 month summer salary ($8000) per yr for 2 yr

Theory and experiments with a powerful trophic cascade (2003), with D.R. Strong, A. Hastings, University California Davis, National Science Foundation, $87,000 (UI portion), for a 5-year project.

Nonlinear population dynamics (2002), with R.F. Constantino, J.M. Cushing, R.A. Desharnais, and S.M. Henson, National Science Foundation $200,000 for 1 year (UI portion: $33,140 for 1 year).

Nonlinear population dynamics: mathematical models, biological experiments, and data analysis (1999), with R.F. Costantino, J.M. Cushing, R.A. Desharnais, and S.M. Henson, National Science Foundation, $600,000 for 3 years (UI portion: $84,000 for 3 years).

Estimating the chances for persistence of anadromous fish populations in Idaho (1999), Idaho Fish and Game, $35,000 for 2 years.

Nonlinear demographic dynamics: mathematical models, biological experiments, and data analysis (1996), with R.F. Costantino, J. Cushing, and R.A. Desharnais, National Science Foundation, $549,479 for 3 years (UI portion: $79,000 for 3 years).

Implementation of grasshopper stage-development models for IPM (1995: renewal), USDA-ARS, 18,700.

Implementation of grasshopper stage-development models for IPM (1994: renewal), USDA-ARS, $18,700.

Implementation of grasshopper stage-development models for IPM (1993: renewal), USDA-ARS, $18,700.

Collaborative research: nonlinear demographic dynamics (1993), with R.F. Costantino, J. Cushing, and R.A. Desharnais, National Science Foundation, $100,000 per year for 3 years (UI portion: $20,000 per year).

Methods for assessing jeopardy of small populations (1992), USDA Forest Service, $53,235 (over 3 years).

Implementation of grasshopper stage-development models for models for IPM (1992: renewal), USDA-ARS, $18,700.

Grants and Contracts Awarded (cont.)**:**

Nonlinear demographic dynamics: mathematical models, biological experiments, data analysis (1992), with R.F. Costantino, J. Cushing, and R.A. Desharnais, National Science Foundation, $16,000 (UI portion: $4,000).

Implementation of grasshopper stage-development models for IPM (1991: renewal), USDA-ARS, $17,600.

Statistical inference for stochastic models in population ecology (1991), Idaho State Board of Education, $30,767.

Implementation of grasshopper stage-development models for IPM (1990: sabbatical), USDA-ARS, $22,000.

Implementation of grasshopper stage-development models for IPM (1989: renewal), USDA-ARS, $16,500.

Implementation of grasshopper stage-development models for IPM (1988: renewal), USDA-ARS, $16,500.

Implementation of grasshopper stage-development models for IPM (1987), USDA-ARS, $11,554.

The Stochastic Logistic Equation (1985), University of Idaho Research Council, $3,000.

Statistical Methods for Forest Density Estimation (1983), University of Idaho Research Council, $3,000.

Use of Species Abundance Distributions (1982), Idaho Water Resources Research Institute, $2,500.

SERVICE:

Professional and Scholarly Organizations:

Ecological Society of America (elected president of the statistical ecology section, 2001-2003)
National Science Teachers Association
American Association for the Advancement of Science

Editorial:

Associate Editor of *Ecological and Environmental Statistics*
Associate editor of *Journal of Biological Dynamics*
Occasional ad hoc subject matter editor for *Ecology*
Frequent referee for *Ecology, Ecological Applications, The American Naturalist, Environmental Entomology, Canadian Journal of Statistics, Biometrics, Bulletin of Mathematical Biology, Theoretical Population Biology, Journal of Animal Ecology, Conservation Biology, Oikos, The Canadian Entomologist, Forest Science, The Canadian Journal of Forest Research, Journal of Theoretical Biology, Oecologia, Journal of Agricultural, Biological, and Environmental Statistics, Proceedings of the Royal Society of London Series B, Journal of the American Statistical Association, Environmental Toxicology and Chemistry, Ecology Letters, Proceedings of the National Academy of Sciences USA*, and the National Science Foundation.