

Richard S. Inouye Associate Vice President for Research and Associate Dean of Graduate Studies,
Utah State University, 1450 Old Main Hill
Logan, UT 84322-1450
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EDUCATION

Ph.D. 1982. University of Arizona, Tucson. Ecology and Evolutionary Biology

B.A. 1975. Reed College, Portland, Oregon. Biology

PROFESSIONAL EXPERIENCE & AWARDS

Associate Vice President for Research and Associate Dean of Graduate Studies, Utah State University: 2/2013 – present, with responsibilities that include:

- Day-to-day management of the Graduate School (FY2018 budget: \$625K), budget & staffing, graduate recruitment, communication with and support of departmental Graduate Program Coordinators in 8 colleges that offer graduate degrees.
- Part of the Research & Graduate Studies Executive team, with input into all aspects of RGS operations
- High performance computing resources
- Coordination of RGS DC Faculty Fellows: annual trip of early career faculty to visit funding agencies
- Award management: Graduate Mentor of the Year, Dissertation Fellowships, Dissertation Enhancement Awards (modeled after DDIG), Martin Luther King Fellowship, Patel Fellowship, Art-STEM Fellowship, X-STEM Assistantships, Doctoral and Master's Researcher of the Year Awards
- Additional activities: Innovation Campus Planning Committee; Ad Hoc committee to rewrite the USU Student Code of Conduct; Tsukuba University (Japan) Double Degree program MOU; Caine Graduate Scholars program development; Teton Science School graduate training MOU

Program Director, National Science Foundation Division of Environmental Biology (DEB): Population and Community Ecology, Rotator: 7/2007 – 2/2010; Ecosystem Science, Permanent: 9/2010 – 1/2013

- Cluster leader for both PCE and ES programs, including proposal and budgetary management
- DEB lead on Undergraduate Biology Education track in Research Coordination Network program (RCN-UBE); collaborative with EHR
- DEB lead on Dimensions of Biodiversity (DoB) program; cross-directorate, inter-agency (NASA) and international (China, Brazil)
- NSF Director's Award for Collaborative Integration (DoB Program): 8/2010
- Commendable Service Award, 7/2008

Faculty Member, Department of Biological Sciences, Idaho State University: 1986 – 2010

- Emeritus Professor of Ecology, 2010; Professor, 1998 – 2010; Associate Prof., 1994 – 1998; Assistant Prof., 1989 – 1994; Visiting Assistant Prof., 1987, 1988.; Affiliate Assistant Prof., Lecturer, 1986 - 1989.
- Interim Department Chair, 11/2003 – 8/2004; Ass't Chair Graduate Programs, 8/02 - 11/03; 9/04 - 6/07
- ISU Representative for Idaho EPSCoR II
- ISU Representative on INRA Executive Committee developing Water Resources Program: 2005 -2007
- Commendation for Individual Achievement, Intermountain Conference on the Environment - 2005
- Idaho State University Outstanding Researcher – 2001, 2002, 2003; Distinguished Researcher – 2003
- Director, Center for Ecological Research, 1989 – 2007

Post-Doctoral Researcher, University of Minnesota Cedar Creek Natural History Area, 1982 – 1986; Resident Ecologist, 1984 - 1986.

Teaching Intern & Assist. Prof. of Biology, Earlham College, 1981 - 1982.

GRANTS FUNDED

- 1977: R.I.A.S. Fellowship. (co-principal investigators M. Fisher, A. Sauer, R. Voss) *Epidendron adicans*, *Lantana camara*, and *Asclepias curassavica*: a case of floral mimicry?
 R.I.A.S. Fellowship. Floral biology of *Monina sp.* (Polygalaceae). (declined for lack of travel funds)
- 1980: University of Arizona Graduate College. funds for publication costs.
 University of Arizona Graduate College. Seed utilization by desert granivores.
 SIGMA XI. Resource utilization by desert rodents and ants.
- 1981: SIGMA XI. The importance of ants in reducing predation on fruits of the Organpipe Cactus.
- 1983: National Academy of Sciences. Grasshopper populations and feeding preferences along gradients of succession and productivity in Minnesota old fields. (with Nancy J. Huntly)
- 1986: Idaho State University Faculty Research Committee. The timing of nutrient addition and plant responses.
- 1987: Idaho State University Research Committee. Herbivores, soil nitrogen, and the invasion of old fields by trees.
 Idaho State University Faculty Research Committee. Competition, predation, and the evolution of seed size.
- 1988: NSF LTER. Successional dynamics and spatial patterning in ecosystems at the prairie-forest border. subcontract through Idaho State University (with N. Huntly) (1988 – 1993)
 Pocket gophers, plant resources, and montaine vegetation. Idaho State Board of Education. (with N. Huntly and J. Anderson)
- 1989: Department of Energy. Vegetation dynamics at the Idaho National Engineering Laboratory. (with J. Anderson)
- 1990: Department of Energy. Variability in ecosystems.
- 1991: Department of Energy. Vegetation dynamics at the Idaho National Engineering Laboratory. (with J. Anderson)
 Environmental Protection Agency. EPA EPSCoR Planning Grant (with Ron Crawford and Jack Pelton)
- 1992: Environmental Protection Agency. Water quality and education.
 National Science Foundation. Animal-generated patterning of plant communities. (with N. Huntly, O.J. Reichman, D. Hartnett) (\$320,000)
- 1994: NSF LTER. Succession, biodiversity, and ecosystem functioning at the prairie-forest border. subcontract through Idaho State University (\$49,000)
- 1995: NSF LTER. Succession, biodiversity, and ecosystem functioning at the prairie-forest border. subcontract through Idaho State University (\$45,000)
- 1996: NSF LTER. Succession, biodiversity, and ecosystem functioning at the prairie-forest border. subcontract through Idaho State University (\$39,000)
- 1997: Murdock Charitable Trust. Equipment and addition to Botanical Sciences Research Facility. (\$120,000)
- 1999: Idaho State Board of Education. Center for Ecological Research and Education. (with J. Anderson, N. Huntly, W. Minshall, M. Watwood) (\$1,026,000 over three years)
- 1999: Lockheed Martin Idaho. Center for Integrated Environmental Analysis. (with J. Anderson, W. Minshall, M Watwood, and K. Weber) (\$185,000)
- 2000: Bechtel BWXT Id, LLC. Center for Integrated Environmental Analysis. (with J. Anderson, W. Minshall, M Watwood, and K. Weber) (\$235,000)
- 2001: Bechtel BWXT Id, LLC. Center for Integrated Environmental Analysis. (with W. Minshall, M Watwood, and K. Weber) (\$230,500)
- 2002: City of Pocatello. Gathe Pit stormwater runoff wetland. (\$8,028)
 Idaho Dept. Environmental Quality. Quantifying sediment loads in the Portneuf River. (\$6,155)
 BLM. Water quality treatment impact of the Ted Trueblood Wildlife Refuge Constructed Wetland. (\$26,788)
 Idaho NSF EPSCoR: Instrument acquisition. (\$17,538)
 Bechtel BWXT Id, LLC. Integrated Environmental Analysis, Education Outreach. (with D. Delehanty, N. Glenn, R. Holmer, D. McGinnis, W. Minshall, K. Weber, V. Winston) (\$350,000)
 Bechtel BWXT Id, LLC. LDRD. (with M. Watwood) (\$100,000)

GRANTS FUNDED (cont.)

- 2003: Bechtel BWXT Id, LLC. Integrated Environmental Analysis, Education Outreach. (with D. Delehanty, N. Glenn, R. Holmer, D. McGinnis, V. Winston) (\$350,000)
City of Pocatello. Portneuf River Water Quality (\$1,300)
NSF UMEB: Undergraduate training in Ecological and Evolutionary Analyses of Micro and Macrobiotic Systems. (with J. Cook, M. Matocq, P. Sheridan, M. Watwood) (\$390,000) (3 years)
NSF: Track 1 GK-12: Enhancing science literacy in southeast Idaho with community-based projects and university/K-12 partnerships. (with R. Smith, S. Adkison, M. Ellis, E. Nuhfer, S. Shropshire, R. Wabrek) (\$1,900,000) (3 years)
- 2004: Bechtel BWXT Id, LLC. Integrated Environmental Analysis, Education Outreach. (with D. Delehanty, N. Glenn, R. Holmer, D. McGinnis, M. Shields) (\$204,000)
Three Rivers. Portneuf Ecosystem web site development. (\$3,000)
- 2005: ID DEQ: Post construction Erosion Control (with A. Ray) (\$4,073)
ID DEQ: Testing for Contaminated Groundwater Inputs to Mink Creek – Caffeine and Optical Brighteners as Tracers. (with A. Ray) (\$18,377)
- 2005: ID DEQ: Improvements at Fairview Wetland. (\$10,000)
ID DEQ: Wetland protection and improvement at the O’Neal Ecological Reserve. (\$35,000)
NSF EPSCoR RII: (with C. Baxter, D. Ames) (ISU component: \$1,006,000 over three years)
- 2006: USDA NRI: Land use effects on persistence of exotic forbs in semiarid rangelands: Are loss of foundation species and disruption of soil resource partitioning the causal links? (\$323,764 over two years)
Inland Northwest Research Alliance. Collaborative water resources program development. (with D. Ames) (\$24,000)
NSF GK-12: Enhancing science literacy in southeast Idaho with community-based projects and university/K-12 partnerships. (with R. Smith, L. Stout, P. Bearden, S. Adkison) (\$1,799,792) (3 years)
- 2007: Inland Northwest Research Alliance. Collaborative water resources program development. (with D. Ames, R. Van Kirk) (\$56,040)
- 2009: NSF DDIG: Dissertation Research: Nonlinear effects of nutrient loading on stream nutrient processing: Are they driven by shifts in biofilm community dynamics? (with Heather Bechtold) (\$15,000)

PUBLICATIONS

- Inouye, R.S. 1980. Stabilization of a predator-prey equilibrium by the addition of a second 'keystone' victim. *American Naturalist* 115:300- 305.
- Davidson, D.W., J.H. Brown, and R.S. Inouye. 1980. Competition and the structure of granivore communities. *Bioscience* 30:233-238.
- Inouye, D.W. and R.S. Inouye. 1980. The amino acids of extra-floral nectar from *Helianthella quinquenervis* (Asteraceae). *American Journal of Botany* 67:1394-1396.
- Voss, R., M. Turner, R.S. Inouye, M. Fisher, and R. Court. 1980. Floral biology of *Markea neurantha* (Solanaceae), a bat-pollinated epiphyte. *American Midland Naturalist* 103:262-268.
- Inouye, R.S. 1980. Density-dependent germination response by seeds of desert annuals. *Oecologia* 46:235-238.
- Inouye, R.S., G.S. Byers, and J.H. Brown. 1981. Effects of predation and competition on survivorship, fecundity, and community structure of desert annuals. *Ecology* 61:1344-1351.
- Inouye, R.S., N.J. Huntly, and D.W. Inouye. 1981. Non-random orientation of nest entrances in Saguaro cacti. *Condor* 83:88-89.
- Inouye, R.S. 1981. Competition between unrelated taxa: Granivorous rodents and a parasitic fungus. *Oecologia* 49:425-427.
- Inouye, R.S. and W.M. Schaffer. 1981. On the ecological meaning of ratio (de Wit) diagrams in plant ecology. *Ecology* 62:1679-1681.
- Schaffer, W.M., R.S. Inouye, and T.S. Whittam. 1982. The dynamics of energy allocation for an annual plant in a seasonal environment. *American Naturalist* 120:787-815.
- Davidson, D.W., R.S. Inouye, and J.H. Brown. 1984. Granivory in a desert ecosystem: Experimental evidence for indirect facilitation of ants by rodents. *Ecology* 65:1780-1786.

PUBLICATIONS (cont.)

- Davidson, D.W. D.A. Samson, and R.S. Inouye. 1985. Experimental studies of granivory in the Chihuahuan Desert: interactions within and between trophic levels. *Ecology* 66:486-502.
- Brown, J.H., D.W. Davidson, J.C. Munger, and R.S. Inouye. 1985. Experimental community ecology: the desert granivore system. In T.J. Case and J.M. Diamond, editors. *Community Ecology*. Harper and Row, New York.
- Inouye, R.S., N.J. Huntly, G.D. Tilman, K.Z. Zinnel, M. Stillwell, and J.R. Tester. 1987. Old field succession on a Minnesota sand plain. *Ecology* 68:12-26.
- Inouye, R.S., N.J. Huntly, G.D. Tilman, and J.R. Tester. 1987. Gophers (*Geomys bursarius*), vegetation, and soil nitrogen along a successional sere in east central Minnesota. *Oecologia* 72:178-184.
- Huntly, N.J. and R.S. Inouye. 1987. Occurrence of small mammals along a grassland chronosequence: successional patterns and correlations with vegetation. *Journal of Mammalogy* 68:739-745.
- Inouye, R.S., N.J. Huntly, and D. Tilman. 1987. Response of *Microtus pennsylvanicus* to vegetation fertilized with various nutrients with particular emphasis on sodium and nitrogen concentrations in plant tissues. *Holarctic Ecology* 10:110-113.
- Inouye, R.S., and G.D. Tilman. 1988. Convergence and divergence in vegetation along experimentally created gradients of resource availability. *Ecology* 69:995-1004.
- Huntly, N. and R.S. Inouye. 1988. Effects of pocket gophers in grassland ecosystems. *BioScience* 38:786-793.
- Inouye, R.S. 1991. Population Biology of Desert Annual Plants. In, G.A. Polis (ed), *The Ecology of Desert Communities*. University of Arizona Press. pp 27-54.
- Inouye, R.S., T.Allison, and N.C. Johnson. 1994. Old field succession on a Minnesota sand plain: effects of deer and other factors on invasion by trees. *J. Torrey Bot. Club* 121:266-276.
- Frank, D.A., and R.S. Inouye. 1994. Temporal variation in actual evapotranspiration of terrestrial ecosystems: patterns and ecological implications. *J. Biogeography* 21:401-411.
- Frank, D.A., R.S. Inouye, N. Huntly, G.W. Minshall, and J.E. Anderson. 1994. The biogeochemistry of a north-temperate grassland with native ungulates: nitrogen dynamics in Yellowstone National Park. *Biogeochemistry* 26:163-188.
- Inouye, R.S. and D. Tilman. 1995. Convergence and divergence of old-field vegetation after 11 years of nitrogen addition. *Ecology* 76:1872-1887.
- Shelton, A.L. and R.S. Inouye. 1995. The effect of browsing by deer on the growth and reproductive success of *Lactuca canadensis* (Asteraceae). *American Midland Naturalist* 134:332-339.
- Inouye, R.S., N. Huntly, and G.A. Wasley. 1997. Effects of pocket gophers (*Geomys bursarius*) on microtopographic variation. *Journal of Mammalogy* 78(4):1144-1148.
- Inouye, R.S. 1998. Species-area curves and estimates of total species richness in an old-field chronosequence. *Plant Ecology* 137:31-40.
- Lawson, R.D., R.S. Inouye, N. Huntly, and W..P Carson. 1999. Patterns of woody plant abundance, recruitment, mortality, and growth in a 65-year chronosequence of old-fields. *Plant Ecology* 145:267-279.
- K.L. Gross, M.R. Willig, L. Gough, R.S. Inouye, and S.B. Cox. 2000. Patterns of species density and productivity at different spatial scales in herbaceous plant communities. *Oikos* 89:417-427.
- Roach, W.J., N. Huntly, and R. Inouye. 2001. Talus fragmentation mitigates the effects of pikas, *Ochotona princeps*, on high alpine meadows. *Oikos* 92(2):315-324.
- Anderson, J.E. and R.S. Inouye. 2001. Long term vegetation dynamics in sagebrush steppe at the Idaho National Engineering and Environmental Laboratory. *Ecological Monographs* 71:531-556.
- Inouye, R.S. 2001. Sampling effort and vegetative cover estimates in sagebrush steppe. *Western North American Naturalist* 62:360-364.
- Ostrow, D.G., N. Huntly, and R.S. Inouye. 2002. Plant-mediated interactions between the northern pocket gopher, *Thomomys talpoides*, and above-ground herbivorous insects. *Journal of Mammalogy* 83:991-998.
- Tripler, C.E., C.D. Canham, R.S. Inouye and J.L. Schnurr. 2002. Soil Nitrogen Availability, Plant Luxury Consumption, and Herbivory by White-tailed Deer. *Oecologia* 133:517-524.
- Kreuzer, M. Jr., A.M. Ray, R.S. Inouye, and H.L. Ray. 2003. The use of data loggers to monitor environmental state changes: snow melt and loss of surface water. *ESA Bulletin* 84:27-29.
- Dunham, R.M., A.M. Ray, and R.S. Inouye. 2003. Growth, physiology, and chemistry of mycorrhizal and nonmycorrhizal *Typha latifolia* plants. *Wetlands* 23:890-896.

PUBLICATIONS (cont.)

- Schnurr, J.L., C.D. Canham, R.S. Ostfeld, and R.S. Inouye. 2004. Neighborhood analyses of small mammal dynamics: Implications for seed predation and seedling establishment. *Ecology* 85:741-755.
- Tripler, C.E., C.D. Canham, R.S. Inouye, and J.L. Schnurr. 2005. Competitive Hierarchies of Temperate Tree Species: Interactions Between Resource Availability and White-Tailed Deer. *Ecoscience* 12:494-505.
- Reale-Munroe, K. and R.S. Inouye. 2005. Soil Hydrocarbon Concentrations in the South First Street Storm water Runoff Basin, Pocatello, Idaho. *Journal of Idaho Academy of Science* 41:1-7.
- Inouye, R.S. 2006. Effects of shrub removal and nitrogen addition on soil moisture in sagebrush steppe. *Journal of Arid Environments* 65:604-618.
- Ray, A. M. and R. S. Inouye. 2006. Effects of water-level fluctuations on the arbuscular mycorrhizal colonization of *Typha latifolia* L. *Aquatic Botany* 84:210-216.
- Ray, A.M. and R.S. Inouye. 2006. Nutrient pools in above and below ground plant biomass in a constructed wetland receiving irrigation return flows. *Journal of Freshwater Ecology* 21:593-601.
- Bechtold, H.A. and R.S. Inouye. 2007. Distribution of carbon and nitrogen in sagebrush steppe after six years of nitrogen addition and shrub removal. *Journal of Arid Environments* 71:122-132.
- Ray, A.M. and R.S. Inouye. 2007. Development of vegetation in a constructed wetland in southeastern Idaho receiving irrigation return flows. *Agriculture, Ecosystems, and Environment* 121:401-406.
- Cook, L.L., R.S. Inouye, T.P. McGonigle, and G.J. White. 2007. The distribution of stable cesium in soils and plants of the eastern Snake River Plain in southern Idaho. *Journal of Arid Environments* 69:40-64.
- Wenninger, E.J. and R.S. Inouye. 2007. Insect community response to plant diversity and productivity in a sagebrush-steppe ecosystem. *Journal of Arid Environments* 72:24-33.
- Cook, L.L., T.P. McGonigle, and R.S. Inouye. 2009. Titanium as an indicator of residual soil on arid-land plants. *Journal of Environmental Quality* 38:188-199.
- Marcarelli, A.M., H.A. Bechtold, A.T. Rugenski, and R.S. Inouye. 2009. Nutrient limitation of biofilm biomass and metabolism in the Upper Snake River basin, southeast Idaho, USA. *Hydrobiologia* 620:63-76.
- Cook, L.L., R.S. Inouye, and T.P. McGonigle. 2009. Evaluation of four grasses for use in phytoremediation of Cs-contaminated arid land soil. *Plant and Soil*. 324:169-184.
- Prevey, J.S., M.J. Germino, N.J. Huntly, and R.S. Inouye. 2010. Exotic plants increase and native plants decrease with loss of foundation species in sagebrush steppe. *Plant Ecology* 207:39-51.
- Bechtold, H.A., A.M. Marcarelli, C.V. Baxter, and R.S. Inouye. 2012. Effects of N, P, and organic carbon on stream biofilm nutrient limitation and uptake in a semi-arid watershed. *Limnology and Oceanography* 57(5):1544-1554.
- Inouye, R.S., H. Gholz, M. Kane, S. Chandra, and L. Deegan. 2013. Outcomes of co-review in the National Science Foundation's Ecosystem Studies Program. *Bulletin of the Ecological Society of America* 94:165-169.

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

Reviewer: Ecology, Quarterly Review of Biology, Southwestern Naturalist, American Midland Naturalist, NSF, OIKOS, Plant Ecology, Annals of Botany, Journal of Arid Lands

Memberships: Society for the Study of Evolution, American Society of Naturalists, Ecological Society of America, British Ecological Society, INTECOL, Sigma Xi, NABS

Invited Participant:

SCOPE Workshop on Effects of Increased UV Radiation on Global Ecosystems, Sardinia, 1992.

DOE Terrestrial Ecosystem Research Facility workshop & writing team, 2000.

NSF Advisory Panels: 2002, 2003, 2013, 2015, 2017

INRA Water Workshop & Writing Panel, Fall 2003, Spring 2004.

Advisors: Dr. J.H. Brown (PhD), Dr. D. Tilman (Post-Doctoral)

Graduate Students:

P. Woutat (MS, 1994. Biogeography of avian communities in the Hebrides, Orkney, and Shetland.)

D. Gianotto (MS, 1995. Nutrient loading and water quality on the Snake River between American Falls and Minidoka Dams.)

G. Wasley (MS: 1995. The effects of productivity on mound production and burrow geometry of the plains pocket gopher (*Geomys bursarius*) in an old-field in east-central Minnesota.)

R. D. Lawson (MS: 1996. Patterns of woody plant encroachment on a Minnesota sandplain.)

P. Buckwalter (MS: 1998. Habitat selection and population distributions of small mammals in central Minnesota)

J. Schnurr (PhD: 2000. The relationships among habitat distribution, small mammal activity patterns, seed survival, and seedling recruitment in temperate deciduous forests.)

C. Tripler (PhD: 2001. Linkages between soil nitrogen dynamics, herbivory by white-tailed deer (*Odocoileus virginianus*), and forest dynamics of southern New England)

E. Wenninger (MS: 2001. Effects of irrigation and plant diversity on a sagebrush steppe insect community)

J. Landmesser (MS: 2001. Relationships between plant and small mammal communities on an experimental hazardous waste burial site)

J. Sauder (MS: 2002 co-advised with Dr. C. Trost: Habitat and bird communities in SE Idaho)

J. Pappani (MS: 2003. Water treatment impact of the Ted Trueblood Wildlife Area, Grandview, Idaho.)

K. Pappani (MS: 2003. Hydraulic lift and competition in a sagebrush steppe community)

S. Stacey (MS: 2005. Analysis of the Natural physical and biological processes affecting the long-term performance of the compacted soil barriers on the central facility area landfills)

L. Safford (MNS: 2005)

H. Bechtold (MS: 2005. Resource islands and nutrient cycling in sagebrush steppe)

A. Ray (PhD: 2005. Role of mycorrhizae in wetlands.)

L. Cook (PhD: 2007. Use of native plants for cesium uptake.)

H. Bechtold (PhD: 2010. A mechanistic understanding of the influence of land use change on nutrient dynamics and organic matter processing using a process-based approach in streams in the Portneuf River watershed)