

Department of Biology
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EDUCATION

Ph.D. in Botany, University of California, Berkeley, California (1984)
B.A. in Zoology (Magna cum laude), Pomona College, Claremont, California (1980)

PROFESSIONAL EXPERIENCE

Professor, Department of Biology, Brigham Young University (2012-present)
Professor, Department of Horticulture, The Pennsylvania State University (1996-2012)
Associate Professor, Department of Horticulture, The Pennsylvania State University (1992-1996)
Assistant Professor, Department of Biology, The Pennsylvania State University (1986-1992)
Postdoctoral Affiliate, Biological Sciences, Stanford University, with H.A. Mooney (1984-1986)
Teaching Assistant, Department of Botany, University of California, Berkeley (1981-1984)
Research Assistant in Botany, University of California, Berkeley (1982-1984)

NATIONAL and INTERNATIONAL HONORS

Fulbright Senior Scholar Award, Australia (1992-1993)
NSF Presidential Young Investigator Award (1987-1992)

RESEARCH GRANTS and FELLOWSHIPS

The Pennsylvania State University

Current grants:

NSF, Nutrient foraging by mycorrhizal roots of different morphology: are roots and fungi complementary? (D. Eissenstat PI, R Koide co-PI), \$554,473 Total (2011-2014)
USDA, NIFA, Greenhouse gas life cycle analysis of biochar effects on marginal land conversion to switchgrass production (Koide PI, 4 co-PIs), \$963,539 Total (2011-2015)
USDA, NIFA, Precision Zonal Management Systems for Resilient Cereal Yields Under Variable Climates, Koide one of several co-PIs, \$4.3 million Total, \$956,604 to Penn State team including Koide (2011-2015)

Previous grants:

NESARE, Sustainable cropping systems for dairy farms in the northeastern US, Koide one of 8 co-PIs, \$400,000 Total (2009-2013)

SunGrant (DOT), Contrasting soil carbon sequestration by soybean and canola, Koide sole PI, \$99,939 Total (2008-2012)

PA Soybean Promotion Board, Soil carbon sequestration, Koide sole PI, \$20,000 (2008-2010)

NSF, Variation in saprotrophy among ECM fungi, Koide sole PI, \$66,195 (2006-2009)

NSF, Temperature acclimation of roots and mycorrhizal fungi, D. Eissenstat and R. Koide PIs, \$265,187 Total (2003-2006)

NSF, Effects of VAM Infection on Male Function of Plants, A. Stephenson and R. Koide PIs, \$254,414 Total (1995-1999)

NSF, Mycorrhizas and Plant Fitness, Koide sole PI, \$270,000 Total (1992-1996)

NSF, Presidential Young Investigator Award, Koide sole PI, \$312,000 Total (1987-1992)

USDA, Resource partitioning in the forest floor by hyphae of ectomycorrhizal fungi, Koide sole PI, \$270,000 Total (2002-2006)

USDA, Biotic and edaphic controls of ectomycorrhizal community structure and function, Koide one of three co-PIs, \$320,000 Total (1999-2002).

National Geographic Society, Plant-Microbial Symbioses in Maize/Pigeonpea Intercropping Systems in Zimbabwe, Koide sole PI, \$9,000 Total (1999-2004)

A.W. Mellon Foundation, The Role of Ectomycorrhizal Fungi in the Nitrogen Economy of *Pinus resinosa*, Koide sole PI, \$440,000 Total (1998-2004)

A.W. Mellon Foundation, Mycorrhizal Mycelium Persistence, Koide sole PI, \$187,000 Total (1993-2000)

A.W. Mellon Foundation, Plant/Soil Community Biology, Koide sole PI, \$125,000 Total (1990-1995)

A.W. Mellon Foundation, Plant/Soil Ecology, Koide sole PI, \$127,000 Total (1988-1992)

Fulbright Senior Scholarship, Australia (6 mos. study leave, 1992-1993)

American Floral Endowment, Mycorrhizal Fungi in Horticulture, R. Koide and J. Holcomb co-PIs, \$23,630 Total (1997-1998)

American Floral Endowment, Mycorrhizal Fungi in Horticulture, R. Koide and J. Holcomb co-PIs, \$22,513 Total (1996-1997)

Agriculture Experiment Station, Efficiency of Plant Root Systems: A Quantitative Approach, Koide one of three co-PIs, \$100,800 Total (1991-1994)

Agriculture Experiment Station, Efficiency of Carbon Utilization in Mycorrhizal and Non-Mycorrhizal Plants, Koide sole PI, \$6,000 Total (1988-1990)

Penn State Research Initiation Grant, Mycorrhizal Infection on Crop and Wild Plant Growth, Koide sole PI, \$9,474 Total (1988-1989)

Biotechnology Institute Grant, Effects of Mycorrhizal Infections on Roots, Koide sole PI, \$9,747 Total (1987-1988)

University of California, Berkeley

University of California Regents Fellowship in Botany (1984, 1980-1981)

ARCO (Atlantic Richfield) Fellowship in Botany (1983-1984)

University of California Appropriate Technology Grant (1983)

University of California Chancellor's Patent Fund Grant (1982)

OTHER HONORS

Member, Phi Beta Kappa, Pomona College (1980)

ARCS Foundation Scholarship, Pomona College (1979-1980)

Tileston Prize in Physics Pomona College (1979)
Honors at Entrance Pomona College (1976)
National Merit Scholar, El Cerrito High School, California (1976)

SPEAKING ENGAGEMENTS

Invited seminar and symposium talks

- 2014
 - University of Minnesota
 - Mycological Society of America
- 2013
 - Maryland Horticultural Society
 - Chesapeake Conservation Landscaping Council
- 2011
 - Maryland Horticultural Society
 - Tottori University (Japan)
 - Brigham Young University, Department of Biology
- 2010
 - Zhejiang University, College of Life Sciences
 - University of Illinois, Chicago, Department of Biological Sciences
 - Lund University, Sweden, Department of Microbial Ecology
 - Gardenwise, Penn State Extension Conference sponsored by York Master Gardeners
- 2009
 - Tottori University (Japan)
 - INRA-Nancy (France), Workshop on Structure and Function in Ectomycorrhizal Communities
 - Native Plants in the Landscape Conference, Millersville University
- 2008
 - Northeast Renewable Energy Conference, State College, PA
 - University of Georgia, Department of Plant Biology
 - USDA – ARS Pasture Systems and Watershed Management Research Unit
 - Native Plants in the Landscape Conference, Millersville University
- 2007
 - Brigham Young University, Department of Microbiology
 - University of Pennsylvania, Department of Biology
 - Fordham University, Department of Biology
 - West Virginia University, Department of Biology
 - University of Georgia, Department of Plant Biology (cancelled due to illness)
- 2006
 - International Mycological Congress, Cairns, Australia
 - International Conference on Mycorrhizas, Granada, Spain
- 2005
 - Northern Arizona University, Department of Biology
 - Mycological Society of America / Mycological Society of Japan, Hilo, HI
- 2004
 - Hofstra University, Department of Biology
 - Shanghai Jiao Tong University, College of Life Sciences and Technology, Shanghai, China

- Zhejiang University, College of Life Sciences, Hangzhou, China
 Zhong Shan University, College of Life Science, Guangzhou, China
- 2003
 Université Paul Sabatier, Equipe de MYCOLOGIE VEGETALE
 Wageningen University, Department of Soil Quality
- 2002
 Keynote address: Past progress and future perspective in AM research in Europe. AM
 Research in Europe - the Dawning of a Millenium, Meeting of COST 8.38, Pisa, Italy.
 Yokohama National University, Department of Soil Ecology
- 2001
 University of Illinois, Chicago, Department of Biological Sciences
 International Society for Root Research, Nagoya, Japan
- 1998
 Rutgers University, Department of Biology and Institute of Marine and Coastal Sciences
 12th Annual Symposium in Plant Physiology, Phosphorus in Plant Biology, The
 Pennsylvania State University
 National Grassland Research Institute, Department of Ecology, Nishinasuno, Tochigi,
 Japan
 Japan Conference on Mycorrhiza 1998, Nishinasuno, Tochigi, Japan
 Nagoya University, Department of Crop Science, Nagoya, Japan
 Consortium of Japanese Mycorrhiza Inoculum Producers, Tokyo, Japan
- 1997
 Phytochemical Society of North American and Phytochemical Society of Europe,
 Noordwijkerhout, The Netherlands
 11th Annual Symposium in Plant Physiology, Radical Biology, The Pennsylvania State
 University
 Mycological Society of America, University of Montreal
- 1996
 Ohio State University, Department of Plant Science
 Premier Tech (Premier, Riviere-du-Loup, Quebec)
- 1995
 University of Guelph, Department of Botany
- 1994
 Rutgers University, Department of Biology
 Millersville University, Department of Biology (canceled due to weather)
 Lycoming College, Department of Biological Sciences
- 1993
 University of Queensland, Brisbane, Queensland, Australia, Department of Botany
 University of Queensland, Brisbane, Queensland, Australia, Department of Agriculture
 University of Sydney, Sydney, New South Wales, Australia, School of Biology
 University of Western Australia, Nedlands, Western Australia, Department of Soils and
 Plant Nutrition
 University of Adelaide, Adelaide, South Australia, Department of Botany
 Waite Agricultural Research Institute, Glen Osmond, South Australia
 Ninth North American Conference on Mycorrhiza, University of Guelph
- 1992
 International Symposium on Management of Mycorrhizas in Agriculture, Horticulture and
 Forestry, Perth, Western Australia (did not attend)

University of Nevada, Las Vegas, Department of Biology
 Utah State University, Department of Range Science

1991

The Pennsylvania State University, Department of Plant Pathology
 The Pennsylvania State University, Department of Agronomy (Soils group)
 USDA Appalachian Soil and Water Conservation Research Laboratory, Beckley, WV
 Lebanon Valley College, Department of Biology
 University of Arizona, Department of Ecology and Evolutionary Biology
 Third European Symposium on Mycorrhizas, Sheffield, England
 USDA ARS, Eastern Regional Research Laboratory, Philadelphia
 The Pennsylvania State University, Department of Biology

1990

Eighth North American Conference on Mycorrhiza, Jackson Hole (2 invited symposium talks)

The Pennsylvania State University, Program in Ecology

1988

University of Georgia, Department of Botany
 The Pennsylvania State University, Department of Plant Pathology

1984

University of California, Department of Botany
 University of Utah, Department of Biology
 Harvard University, Department of Organismic and Evolutionary Biology
 University of Missouri, St. Louis. Department of Biology

Other Oral or Poster Presentations

Tri-Societies (ASA, SSSA, CSSA) annual meeting (2013), Tampa FL (R.H. Skinner et al.)
 ESA (2013) Minneapolis, MN (L Cheng et al.)
 Tri-Societies (ASA, SSSA, CSSA) annual meeting (2013), Tampa, FL (K Haider et al.)
 SES (2013) Rutgers University (C. Fernandez first author). Towards a mechanistic understanding of ectomycorrhizal litter decomposition dynamics.
 Tri-Societies (ASA, SSSA, CSSA) annual meeting (2012), Cincinnati, OH, 2 posters
 International Biochar Initiative, Fourth annual Conference (2012), Beijing (Nguyen et al.)
 ESA (2012) Portland, OR (Chris Fernandez, speaker) Melanin: a functional trait conferring tolerance to water stress in ectomycorrhizal fungi.
 ESA (2011) Austin, TX (Chris Fernandez, speaker)
 ESA (2009) Albuquerque, NM (Hoeksema JD et al.)
 ESA (2008) Milwaukee, WI. (Malcolm GM (speaker) with López-Gutiérrez JC, Koide RT, Eissenstat DM)
 Penn State University, Scranton, Biology, GM Malcolm, speaker, with co-authors López-Gutiérrez JC, Koide RK, Eissenstat DM
 Cambridge University, Department of Zoology, Ecology Lunchtime Series, GM Malcolm, speaker, with co-authors López-Gutiérrez JC, Koide RK, Eissenstat DM
 MEEC (Midwest Ecology & Evolution Conference, 2007) Kent, OH, GM Malcolm, speaker, with co-authors López-Gutiérrez JC, Koide RK, Eissenstat DM
 ASPB (2007) Chicago (JN Sharda, RT Koide)
 ESA (2006) Memphis (G Malcolm, RT Koide)
 ICOM 5 (2006) Granada (G Malcom, RT Koide)
 ICOM 5 (2006) Granada (Y Lekberg, RT Koide)

ESA (2005) Montreal (G Malcolm, RT Koide)
 SES (2005) Chicago, IL (YL Besmer, RT Koide, J Rohr, L Aldrich-Wolfe, J Morton)
 ICOM4 (2003) Montreal, Quebec, Canada (YL Besmer, RT Koide, SJ Twomlow)
 ICOM4 (2003) Montreal, Quebec, Canada (B Xu, JN Sharda, RT Koide)
 ICOM4 (2003) Montreal, Quebec, Canada (T Wu, JN Sharda, RT Koide)
 ICOM4 (2003) Montreal, Quebec, Canada (L Jonsson, J Dighton, J Lussenhop, RT Koide)
 SES (2003) Palm Springs, CA (YL Besmer, RT Koide, SJ Twomlow)
 SES (2003) Palm Springs, CA (N Kaneko, TM Ito, A Toyota, M Hashimoto, RT Koide)
 SES (2003) Palm Springs, CA (B Xu, JN Sharda, RT Koide)
 Fertility in Southern Africa (2002) Zimbabwe (YL Besmer, RT Koide, SJ Twomlow)
 ESA (2002) Tucson, AZ (with LM Jonsson, J Dighton, J Lussenhop)
 ESA (2002) Tucson, AZ (with YK Besmer & RJK Meyers)
 ESA (2001) Madison Wisconsin (with L. Jonsson, J. Dighton, J Lussenhop)
 ICOM 3 (2001) Adelaide, Australia (with Ian Dickie)
 ICOM 3 (2001) Adelaide, Australia (with Y. Besmer)
 ICOM 3 (2001) Adelaide, Australia (with A Nakano, K Takahashi, M Kimura)
 Soil Ecology Society (2001), Georgia, (with T. Wu)
 Soil Ecology Society (2001), Georgia, (with I Dickie)
 Soil Ecology Society (2001), Georgia, (with Y. Besmer)
 Ecological Society of America (2001) (with I. Dickie & K. Steiner)
 Ecological Society of America (2001) (with L. Jonsson, J. Dighton, J. Lussenhop)
 Undergraduate and Graduate Student Research Exhibition, College of Agricultural Sciences,
 Penn State University, March 14-15, 2000 (posters by A. Fayish, I. Dickie, K. Steiner, R.
 Koide; and I. Dickie, K. Steiner, R. Koide)
 Sustainable Management of Soil Organic Matter, British Society of Soil Scientists, September
 1999, Edinburgh, Scotland
 International Conference on Mycorrhiza, 5-10 July 1998, Uppsala, Sweden
 Department of Biological Sciences, Stanford University, 5 March 1996
 Department of Integrative Biology, University of California, Berkeley, 4 March 1996
 Soil Ecology Society (1995) Colorado State University
 Ecological Society of America (1991) San Antonio, Texas
 Ecological Society of America (1990) Snowbird, Utah
 Ecological Society of America (1989) University of Toronto
 Ecological Society of America (1988) University of California, Davis
 American Society of Plant Physiologists (1984) University of California, Davis

PUBLICATIONS

Regular Peer-reviewed Research Articles

1. **Koide RT** (1985) The nature of growth depressions in sunflower caused by vesicular-arbuscular mycorrhizal infection. *New Phytologist* 99:449-462.
2. **Koide RT** (1985) The effect of VA mycorrhizal infection and phosphorus status on sunflower hydraulic and stomatal properties. *Journal of Experimental Botany* 36:1087-1098.
3. **Koide RT** (1985) The nature and location of variable hydraulic resistance in *Helianthus annuus* L. (Sunflower). *Journal of Experimental Botany* 36:1430-1440.
4. **Koide RT** and Mooney HA (1987) Revegetation of serpentine substrates: response to phosphate application. *Environmental Management* 11:563-567.

5. **Koide RT**, Huenneke LF and Mooney HA (1987) Gopher mound soil reduces growth and affects ion uptake of two annual grassland species. *Oecologia* 72:284-290.
6. **Koide RT** and Mooney HA (1987) Spatial variation in inoculum potential of vesicular-arbuscular mycorrhizal fungi caused by formation of gopher mounds. *New Phytologist* 107:173-182.
7. **Koide RT**, Huenneke LF, Hamburg S and Mooney HA (1988) Effects of fungicide, phosphorus and nitrogen applications on annual serpentine grassland communities. *Functional Ecology* 2:335-344.
8. **Koide RT**, Li M, Lewis J, and Irby C (1988) Role of mycorrhizal infection on growth and reproduction of wild vs. cultivated plants. I. Wild vs. cultivated oats. *Oecologia* 77:537-542.
9. **Koide RT** and Elliott G (1989) Cost, benefit and efficiency of the vesicular-arbuscular mycorrhizal symbiosis. *Functional Ecology* 3:252-255.
10. **Koide RT** and Li M (1989) Appropriate controls for vesicular-arbuscular mycorrhiza research. *New Phytologist* 111:35-46.
11. **Koide RT** and Li M (1990) On host regulation of the vesicular-arbuscular mycorrhizal symbiosis. *New Phytologist* 114:59-64.
12. Huenneke LF, Hamburg SP, **Koide RT**, Mooney HA and Vitousek PM (1990). Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478-491.
13. Lewis J and **Koide RT** (1990) Phosphorus supply, mycorrhizal infection and offspring vigor in two annual plant species. *Functional Ecology* 4:695-702.
14. Bryla D and **Koide RT** (1990) Regulation of reproduction in wild and cultivated *Lycopersicon esculentum* Mill. by vesicular-arbuscular mycorrhizal infection. *Oecologia* 84:74-81.
15. Bryla D and **Koide RT** (1990) The role of mycorrhizal infection in the growth and reproduction of wild vs. cultivated plants. II. Eight wild accessions and two cultivars of *Lycopersicon esculentum* Mill. *Oecologia* 84:82-92.
16. **Koide RT** (1991) Density-dependent response to mycorrhizal infection in *Abutilon theophrasti* Medic. *Oecologia* 85:389-395.
17. **Koide RT** and Li M (1991) Mycorrhizal fungi and the nutrient ecology of three oldfield annual plant species. *Oecologia* 85:403-412.
18. Lu X and **Koide RT** (1991) *Avena fatua* L. seed and seedling nutrient dynamics as influenced by mycorrhizal infection of the maternal generation. *Plant, Cell and Environment* 14:931-939.
19. Haynes B, **Koide RT** and Elliott G (1991) Phosphorus uptake and utilization in wild and cultivated oats (*Avena spp*). *Journal of Plant Nutrition* 14:1105-1118.
20. **Koide RT** and Lu X. (1992) Mycorrhizal infection of wild oats: maternal effects on offspring growth and reproduction. *Oecologia* 90:218-226.
21. Schreiner R and **Koide RT** (1993) Antifungal compounds from roots of mycotrophic and nonmycotrophic plant species. *New Phytologist* 123:99-105.
22. Schreiner R and **Koide RT** (1993) Mustards, mustard oils and mycorrhizas. *New Phytologist* 123:107-113.
23. Schreiner R and **Koide RT** (1993) Streptomycin reduces plant response to mycorrhizal infection. *Soil Biology and Biochemistry* 25:1131-1133.
24. Stanley MR, **Koide RT** and Shumway DL (1993) Mycorrhizal symbiosis increases growth, reproduction and recruitment of *Abutilon theophrasti* Medic. in the field. *Oecologia* 94:30-35.

25. **Koide RT** and Schreiner RP (1994) Alteration of nyctinastic leaf movement of *Abutilon theophrasti* Medic. (Malvaceae) by mycorrhizal infection. *Functional Ecology* 8:384-388.
26. Sanders I and **Koide RT** (1993) Nutrient acquisition and community structure in co-occurring mycotrophic and nonmycotrophic old field annuals. *Functional Ecology* 8:77-84.
27. Schreiner RP and **Koide RT** (1993) Stimulation of vesicular-arbuscular mycorrhizal fungi by mycotrophic and nonmycotrophic plant root systems. *Applied and Environmental Microbiology* 59:2750-2752.
28. Sanders I, **Koide RT** and Shumway DL (1993) Mycorrhizal stimulation of plant parasitism. *Canadian Journal of Botany* 71:1143-1146.
29. **Koide RT**, Shumway DL and Mabon SA (1994) Mycorrhizal fungi and reproduction of field populations of *Abutilon theophrasti* Medic. (Malvaceae). *New Phytologist* 126:123-130.
30. Shumway DL and **Koide RT** (1994) Within season variability in mycorrhizal benefit to reproduction in *Abutilon theophrasti* Medic. *Plant Cell and Environment* 17:821-827.
31. Shumway DL and **Koide RT** (1994) Seed preferences of *Lumbricus terrestris* L. *Applied Soil Ecology* 1:11-15.
32. Lu X and **Koide RT** (1994) The effects of mycorrhizal infection on components of plant growth and reproduction. *New Phytologist* 128:211-218.
33. Shumway DL and **Koide RT** (1994) Reproductive responses to mycorrhizal colonization of *Abutilon theophrasti* Medic. plants grown for two generations in the field. *New Phytologist* 128:219-224.
34. Smith SE, Gianninazzi-Pearson V, **Koide RT** and Cairney JWG (1994) Nutrient transport in mycorrhizas: structure, physiology and consequences for efficiency of the symbiosis. *Plant and Soil* 159:103-114.
35. Shumway DL and **Koide RT** (1995) Size and reproductive inequality in mycorrhizal and non-mycorrhizal populations of *Abutilon theophrasti*. *Journal of Ecology* 83:613-620.
36. Lau T-C, Lu X, **Koide RT** and Stephenson AG (1995) Effects of soil fertility and mycorrhizal infection on pollen production and pollen grain size of *Cucurbita pepo* (Cucurbitaceae). *Plant Cell and Environment* 18:169-177.
37. Snapp S, **Koide RT** and Lynch J (1995) Exploitation of localized phosphorus-patches by common bean roots. *Plant and Soil* 177:211-218.
38. **Koide RT** and Lu X (1995) On the cause of offspring superiority conferred by maternal mycorrhizal infection. *New Phytologist* 131:435-441.
39. Heppell KB, Shumway DL and **Koide RT** (1998) The effect of mycorrhizal infection of *Abutilon theophrasti* on competitiveness of offspring. *Functional Ecology* 12:171-175.
40. Boswell EP, **Koide RT**, Shumway DL and Addy HD (1998). Winter wheat cover cropping, VA mycorrhizal fungi and maize growth and yield. *Agriculture Ecosystems and Environment* 67:55-65.
41. Addy HD, Boswell EP and **Koide RT** (1998) Low temperature acclimation and freezing resistance of extraradical VA mycorrhizal hyphae. *Mycological Research* 102:582-586.
42. Dickie IA, **Koide RT** and Stevens CM (1998) Tissue density and growth response of ectomycorrhizal fungi to nitrogen source and concentration. *Mycorrhiza* 8:145-148.
43. **Koide RT**, Suomi L, Stevens CM and McCormick L (1998) Interactions between needles of *Pinus resinosa* (Ait.) and ectomycorrhizal fungi. *New Phytologist* 140:539-547.
44. Bryla DR and **Koide RT** (1998) Mycorrhizal response of two tomato genotypes relates to their ability to acquire and utilize phosphorus. *Annals of Botany* 82:849-857.

45. **Koide RT**, Dickie IA, Goff MD (1999) Phosphorus deficiency, plant growth and the phosphorus efficiency index. *Functional Ecology* 13: 733-736.
46. **Koide RT**, Landherr LL, Besmer YL, Detweiler JM and Holcomb EJ (1999) Strategies for mycorrhizal inoculation of six annual bedding plant species. *HortScience* 37: 1217-1220.
47. Besmer YL and **Koide RT** (1999) Effect of mycorrhizal colonization and phosphorus on ethylene production of snapdragon flowers. *Mycorrhiza* 9: 161-166.
48. Kabir Z and **Koide RT** (1999) The effect of dandelion or a cover crop on mycorrhiza inoculum potential, soil aggregation and yield of maize. *Agriculture, Ecosystems and Environment* 78: 167-174.
49. **Koide RT** and Shumway DL (2000) On variation in forest floor thickness across four red pine plantations in Pennsylvania, USA. *Plant and Soil* 219:57-69.
50. **Koide RT**, Shumway DL and Stevens CM (2000) Soluble carbohydrates of red pine (*Pinus resinosa* Ait.) mycorrhizas and mycorrhizal fungi. *Mycological Research* 104:834-840.
51. **Koide RT**, Goff MD, Dickie IA (2000) Component growth efficiencies of mycorrhizal and nonmycorrhizal plants. *New Phytologist* 148:163-168.
52. **Koide RT** and Kabir Z. (2000) Extraradical hyphae of the mycorrhizal fungus *Glomus intradices* can hydrolyze organic phosphate. *New Phytologist* 148:511-517.
53. Nakano A, Takahashi K, **Koide RT**, Kimura M (2001) Determination of the nitrogen source for arbuscular mycorrhizal fungi by ¹⁵N application to soil and plants. *Mycorrhiza* 10:267-273.
54. **Koide RT** and Kabir Z (2001) Nutrient economy of red pine is affected by interactions between *Pisolithus tinctorius* and other forest floor microbes. *New Phytologist* 150:179-188.
55. Dickie IA, **Koide RT**, Fayish AC (2001) Vesicular-arbuscular mycorrhizal infection of *Quercus rubra* seedlings. *New Phytologist* 151:257-264.
56. Poulton JL, **Koide RT**, Stephenson AG. (2001) Effects of mycorrhizal infection and soil phosphorus availability on *in vitro* and *in vivo* pollen performance in *Lycopersicon esculentum* (Solanaceae). *American J Botany* 88:1786-1793.
57. Poulton JL, **Koide RT**, Stephenson AG. (2001) Effects of mycorrhizal infection, soil phosphorus availability and fruit production on the male function in two cultivars of *Lycopersicon esculentum* Mill. *Plant Cell and Environment* 24:841-849.
58. Dickie IA, **Koide RT**, Steiner K. (2002) Influences of established trees on mycorrhizas, nutrition, and growth of *Quercus rubra* seedlings. *Ecological Monographs* 72:505-521.
59. Kabir Z, **Koide RT**. (2002) Effect of autumn and winter mycorrhizal cover crops on soil properties, nutrient uptake and yield of maize in Pennsylvania, USA. *Plant and Soil* 238:205-215.
60. **Koide RT**, Dickie IA. (2002) Kit-based, low-toxicity method for extracting and purifying fungal DNA from ectomycorrhizal roots. *BioTechniques* 32:52-56.
61. Poulton JL, Bryla D, **Koide RT**, Stephenson AG. (2002) Mycorrhizal infection and high soil phosphorus improve vegetative growth and the female and male functions in tomato. *New Phytologist* 154:255-264.
62. Dickie IA, Xu B, **Koide RT** (2002). Vertical niche differentiation of ectomycorrhizal hyphae in soil as shown by T-RFLP analysis. *New Phytologist* 156:527-535.
63. **Koide RT**, Dickie IA (2002) Effects of mycorrhizal fungi on plant populations. *Plant and Soil* 244:307-317.
64. Dickie IA, **Koide RT**, Steiner KC (2002) Influences of established trees on mycorrhizas, nutrition, and growth of *Quercus rubra* seedlings. *Ecological Monographs* 72:505-521.

65. **Koide RT**, Wu T (2003) Ectomycorrhizas and retarded decomposition in a *Pinus resinosa* plantation. *New Phytologist* 158:401-407.
66. Wu T, Sharda JN, **Koide RT** (2003) Exploring interactions between saprotrophic microbes and ectomycorrhizal fungi using a protein-tannin complex as an N source by red pine (*Pinus resinosa*). *New Phytologist* 159:131-139.
67. **Koide RT**, Xu B, Sharda J, Lekberg Y, Ostiguy N (2005) Evidence of species interactions within an ectomycorrhizal fungal community. *New Phytologist* 165: 305-316.
68. Wu T, Kabir Z, **Koide RT** (2005) A possible role for saprotrophic microfungi in the N nutrition of ectomycorrhizal *Pinus resinosa*. *Soil Biology and Biochemistry* 37:965-975.
69. **Koide RT**, Xu B, Sharda J (2005) Contrasting belowground views of an ectomycorrhizal fungal community. *New Phytologist* 166: 251-262.
70. Lekberg Y, **Koide RT** (2005) Arbuscular mycorrhizal fungi, rhizobia, available soil P and nodulation of groundnut (*Arachis hypogaea*) in Zimbabwe. *Agriculture, Ecosystems and Environment* 100:143-148.
71. Jonsson LM, Dighton J, Lussenhop J, **Koide RT** (2005) The effect of mixing ground leaf litters to soil on the development of pitch pine ectomycorrhizal and soil arthropod communities in natural soil microcosm systems. *Soil Biology and Biochemistry* 38:134-144.
72. Lekberg Y, **Koide RT** (2005) Is plant performance limited by abundance of arbuscular mycorrhizal fungi? A meta-analysis of studies published between 1988 and 2003. *New Phytologist* 168: 189-204.
73. Johnson NC et al. (2006) From lilliput to brobdingnag: extending models of mycorrhizal function across scales. *BioScience* 56:889-900.
74. Lekberg Y, **Koide RT**, Rohr JR, Aldrich-Wolfe L, Morton JB (2007) Role of niche restrictions and dispersal in the composition of arbuscular mycorrhizal fungal communities. *Journal of Ecology* 95:95-105.
75. **Koide RT**, Shumway DL, Xu B, Sharda JN. (2007) On temporal partitioning of a community of ectomycorrhizal fungi. *New Phytologist* 174:420-429.
76. Malcolm GM, López-Gutiérrez JC, **Koide RT**, Eissenstat DM (2008) Acclimation to temperature and temperature sensitivity of metabolism by ectomycorrhizal fungi. *Global Change Biology* 14:1169-1180.
77. Lekberg Y, **Koide RT**, Twomlow SJ (2008) Effect of agricultural management practices on arbuscular mycorrhizal fungal abundance in low-input cropping systems of southern Africa: A case study from Zimbabwe. *Biology and Fertility of Soils* 44:917-923.
78. **Koide RT**, Sharda JN, Herr JR, Malcolm GM (2008) Ectomycorrhizal fungi and the biotrophy-saprotrophy continuum. *New Phytologist* 178:230-233.
79. Lekberg Y, **Koide RT** (2008) Effect of soil moisture and temperature during fallow on survival of contrasting isolates of arbuscular mycorrhizal fungi. *Botany* 86: 1117-1124.
80. López-Gutiérrez JC, Malcolm GM, **Koide RT**, Eissenstat DM (2008) Ectomycorrhizal fungi from Alaska and Pennsylvania: adaptation of mycelial respiratory response to temperature? *New Phytologist* 180:741-744.
81. Sharda JN, **Koide RT** (2008) Can hypodermal passage cell distribution limit root penetration by mycorrhizal fungi? *New Phytologist* 180:696-701.
82. Malcolm GM, López-Gutiérrez JC, **Koide RT** (2009) Little evidence for respiratory acclimation by microbial communities to short-term shifts in temperature in red pine (*Pinus resinosa*) litter. *Global Change Biology* 15, 2485–2492

83. Malcolm ,GM, Lopez-Gutierrez JC, **Koide RT** (2009) Temperature sensitivity of respiration differs among forest floor layers in a *Pinus resinosa* plantation. *Soil Biology and Biochemistry* 41:1075-1079.
84. **Koide RT**, Malcolm GM (2009) N concentration controls decomposition rates of different strains of ectomycorrhizal fungi. *Fungal Ecology* 2:197-202.
85. Sharda JN, **Koide RT** (2010) Exploring the role of root anatomy in P-mediated control of colonization by arbuscular mycorrhizal fungi. *Botany* 88: 165-173.
86. Hoeksema JD, Chaudhary VB, Gehring CA, Johnson NC, Karst J, **Koide RT**, Pringle A, Zabinski C, Bever JD, Moore JC, Wilson GWT, Klironomos JN, and Umbanhowar J. (2010) A meta-analysis of context-dependency in plant response to inoculation with mycorrhizal fungi. *Ecology Letters* 13: 394-407.
87. **Koide RT**, Fernandez CW, Peoples MS. 2011. Can ectomycorrhizal colonization of *Pinus resinosa* roots affect their decomposition? *New Phytologist* 191: 508-514.
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89. Fernandez CW, **Koide RT**. 2012. The role of chitin in the decomposition of ectomycorrhizal fungal litter. *Ecology* 93:24-28.
90. **Koide RT**, Peoples M. 2012. On the nature of temporary yield loss in maize following canola. *Plant and Soil* 360: 259-269.
93. Peoples MS, **Koide RT**. 2012. Considerations in the storage of soil samples for enzyme activity analysis. *Applied Soil Ecology* 62:98-102
94. **Koide RT**, Peoples MS, Matheson ET. 2013. Variation in soil carbon under contrasting biodiesel feedstock crops. *Pedobiologia* 56: 61-67.
95. **Koide RT**, Peoples MS. 2013. Behavior of Bradford-reactive substances is consistent with predictions for glomalin. *Applied Soil Ecology* 63:8-14.
96. Fernandez CW, McCormack ML, Pritchard SG, **Koide RT**. 2013. On the persistence of *Cenococcum geophilum* ectomycorrhizas and its implications for forest carbon and nutrient cycles. *Soil Biology and Biochemistry* 65:141-143.
97. Fernandez CW, **Koide, RT**. 2013. The function of melanin in the ectomycorrhizal fungus *Cenococcum geophilum* under water stress. *Fungal Ecology* 6:479-486.
98. **Koide RT**, Fernandez CW, Malcolm GM. 2014. Determining place and process: functional traits of ectomycorrhizal fungi that affect both community structure and ecosystem function. *New Phytologist* 201:433-439.
99. Smith RG and 15 others. Structural equation modeling facilitates transdisciplinary research on agriculture and climate change. *Crop Science*, in press.
100. Nguyen BT, **Koide RT**, Drohan PJ, Skinner RH, Dell CJ, Adler PR, Nord AN. Turnover of soil carbon pools following addition of switchgrass-derived biochar to four soils. *Soil Science Society of America Journal*, in press.
101. Zhang Q, Sun Q, Koide RT, Peng Z, Zhou J, Gu X, Gao W, Yu M. 2014. Arbuscular mycorrhizal fungal mediation of plant-plant interactions in a marshland plant community. *The Scientific World Journal*, 2014: <http://dx.doi.org/10.1155/2014/923610>

Invited Chapters and Articles

1. **Koide RT**, Robichaux R, Morse S and Smith C (1989) Plant water status, hydraulic resistance and capacitance. In: RW Pearcy, JR Ehleringer, HA Mooney and P Rundel (eds),

- Physiological Plant Ecology: Field Methods and Instrumentation, pp 161-184. Chapman and Hall.
2. **Koide RT** (1991) Nutrient supply, nutrient demand and plant response to mycorrhizal infection (Sir Arthur Tansley Review). *New Phytologist* 117:365-386.
 3. **Koide RT** and Schreiner RP (1992) The regulation of the vesicular-arbuscular mycorrhizal symbiosis. *Annual Review of Plant Physiology and Plant Molecular Biology* 43:557-581.
 4. **Koide RT** and Lu X. (1992) Mycorrhizal infection of wild oats: parental effects on offspring nutrient dynamics, growth and reproduction. In: IJ Alexander, AH Fitter, DH Lewis, DJ Read (eds), *Mycorrhizas in Ecosystems*, pp 55-58. Commonwealth Agricultural Bureau, International.
 5. **Koide RT** (1993) The physiology of the mycorrhizal plant. In: IC Tommerup (ed), *Advances in Plant Pathology*, Vol. 9, *Mycorrhiza: A Synthesis*, pp 33-54. Academic Press.
 6. Smith SE, Gianinazzi-Pearson V, **Koide RT** and Cairney JWG (1994) Nutrient transport in mycorrhizas: structure, physiology and consequences for efficiency of the symbiosis. In: AD Robson, LK Abbott, N Malajczuk (eds), *Management of Mycorrhizas in Agriculture, Horticulture and Forestry*, pp 103-113. Kluwer, Dordrecht.
 7. Sanders I, **Koide RT** and Shumway DL (1995) Community level interactions between plants and vesicular-arbuscular mycorrhizal fungi. In: A Varma, B Hock (eds), *Mycorrhiza: Structure, Function, Molecular Biology and Biotechnology*, pp 607-626. Springer-Verlag, Heidelberg.
 8. Boswell EP, **Koide RT** and Shumway DL (1997) The effects of winter wheat cover crop on vesicular-arbuscular mycorrhizal inoculum potential. In: H Flores, D Eissenstat, J Lynch (eds), *Radical Biology: Advances in Perspectives on the Function of Plant Roots*, pp 509-512. American Society of Plant Physiologists, Rockville, MD.
 9. **Koide RT** and Boswell, EP (1997) Ecophysiology of mycorrhizal roots. In: H Flores, D Eissenstat, J Lynch (eds), *Radical Biology: Advances in Perspectives on the Function of Plant Roots*, pp 178-186. American Society of Plant Physiologists, Rockville, MD.
 10. **Koide RT** and Shumway DL (1998) Characterizing effects of mycorrhizal fungi on plant population structure. In: A Varma (ed), *Mycorrhiza Manual*, pp. 65-75. Springer-Verlag, Berlin.
 11. **Koide RT**, Suomi L and Berghage R (1998) Tree-fungus interactions in ectomycorrhizal symbiosis. In: JT Romeo, KR Downum, R Verpoorte (eds), *Phytochemical Signals and Plant-Microbe Interactions, Recent Advances in Phytochemistry vol 32*, pp 57-70. Plenum Press, New York.
 12. **Koide RT** (1998) Ecological considerations of mycorrhizal symbioses. In: JP Lynch, J Deikman (eds), *Phosphorus in plant biology: regulatory roles in molecular, cellular, organismic, and ecosystem processes*, pp 17-25. American Society of Plant Physiologists, Rockville, MD.
 13. Stephenson AG, Poulton JL, Lau T-C and **Koide RT** (1998) Effects of soil phosphorus level and mycorrhizal infection on the male function of plants, In: JP Lynch, J Deikman (eds), *Phosphorus in Plant Biology: Regulatory Roles in Molecular, Cellular, Organismic, and Ecosystem Processes*, pp 52-70. American Society of Plant Physiologists, Rockville, MD.
 14. Sanders I, **Koide RT** and Shumway DL (1998) Diversity and structure in natural communities: the role of the mycorrhizal symbiosis. In: A Varma, B Hock (eds), *Mycorrhiza: Structure, Function, Molecular Biology and Biotechnology*, second edition. Springer-Verlag, Heidelberg.
 15. **Koide RT** (2000) Mycorrhizal symbiosis and plant reproduction, pp 19-46. In: Y Kapulnik & DD Douds (eds) *Arbuscular mycorrhizas: physiology and function*. Kluwer, Dordrecht.

16. **Koide RT** (2000) Functional complementarity in the arbuscular mycorrhizal symbiosis. *New Phytologist* 147:233-235.
17. **Koide RT** and Dickie IA (2002) Mycorrhizal fungi and plant populations. In: Smith SE and Smith A (Eds.), *Diversity and integration in mycorrhizal symbioses*. Kluwer, Dordrecht.
18. Besmer YL, **Koide RT**, Twomlow SJ (2003). Role of phosphorus and arbuscular mycorrhizal fungi on nodulation and shoot nitrogen content in groundnut and lablab bean. In: Waddington SR (ed), *Grain legumes and green manures for soil fertility in southern Africa: Taking stock of progress*. Proceedings of a conference held 8-11 October 2002 at the Leopard Rock Hotel, Vumba, Zimbabwe. Soil Fert Net and CIMMYT-Zimbabwe, Harare, Zimbabwe. Pp 43-46.
19. **Koide RT** (2004) Mycorrhizal symbioses. In: RM Goodman, *Encyclopedia of Plant and Crop Science*, pp 770-772, Marcel Dekker.
20. **Koide RT**, Mosse B (2004) A history of research on arbuscular mycorrhiza. *Mycorrhiza* 14: 145-163.
21. Besmer Y, **Koide RT**, Twomlow SJ (2004) Role of phosphorus and arbuscular mycorrhizal fungi on nodulation and shoot nitrogen content in groundnut and lablab bean. In: *Grain legumes and green manures for soil fertility in Southern Africa: Taking stock of progress*, edited by Waddington SR. Soil Fertility Management and Policy Network for Maize-Based Cropping Systems in Southern Africa. Harare, Zimbabwe, pp 43-46.
22. **Koide RT** (2005) Nucleic acid isolation from ecological samples-fungal associations, mycorrhizae. In: Zimmer E, Roalson E, eds. *Methods in enzymology, volume 395, Molecular evolution: producing the biochemical data, Part B*, pp.58-72.
23. **Koide RT**, Courty P-E, Garbaye J (2007) Research perspectives on functional diversity in ectomycorrhizal fungi. *New Phytologist* 174: 240-243.
24. **Koide RT**, Fernandez C, Petprakob K. 2011. General principles in the community ecology of ectomycorrhizal fungi. *Annals of Forest Science* 68:45-55.
25. **Koide RT**. 2012. Context-dependent interaction hierarchies and the organization of ectomycorrhizal fungal communities. In: *The Mycota, Vol. IX (Fungal Associations)*, B. Hock (Ed.), Berlin: Springer-Verlag, pp 181-196. SBN: 978-3-642-30825-3
26. Lekberg Y, **Koide RT**. 2013. Integrating physiological, community and evolutionary perspectives of the arbuscular mycorrhizal symbiosis. *Botany*, 10.1139/cjb-2013-0182
27. Dickie IA, **Koide RT**. 2014. Deep thoughts on ectomycorrhizal fungal communities. *New Phytologist* 201: 1083-1085.

Book Reviews

- Symbiosis. An Introduction to Biological Associations*, by V Ahmadjian and S Paracer. *The Bryologist* 89:318-319 (1987).
- The Biology of Symbiosis*, by DC Smith and AE Douglas. *The Bryologist* 90:197 (1987).
- Management of Mycorrhizas in Agriculture, Horticulture and Forestry*, Eds. AD Robson, LK Abbott, N Malajczuk. *New Phytologist* 129:165 (1995)
- Mycorrhizal Symbiosis*, 2nd Edition, by SE Smith and DJ Read, Academic Press. *Trends in Plant Science* 2:282 (1997).

SUPERVISION OF RESEARCH (students and postdoctorals)

Postdoctoral researchers

- Mingguang Li, 1991, currently Professor, Sun Yatsen University, Biology Department
- Ian Sanders, 1991-1992, currently Professor, University of Lausanne, Institute of Ecology
- Durland Shumway, 1991-1996, currently Professor, Frostburg State U, Department of Biology

Sieglinde Snapp, 1992-1993 (with J. Lynch), currently Professor, Michigan State U, Plant and Soil Science
 Julie Whitbeck, 1993-1995 (with D. Eissenstat), currently Research Professor, University of New Orleans, Biological Sciences
 Heather Addy, 9/95 - 12/96, currently Senior Instructor, Dept. Biological Sciences, University of Calgary
 Zangahir Kabir, 8/97 - 7/00, formerly Research Manager, Sustainable Agriculture Farming Systems Project, Dept. Land Air and Water Resources, University of California, Davis; currently Associate Environmental Research Scientist, California EPA, Sacramento, CA
 Lena Jonsson, 2/00 – 12/03
 Ian Dickie, 9/00 - 6/01, former postdoc at U Minnesota, currently Landcare Research, New Zealand
 Bing Xu, 9/01 – 6/04, currently postdoc at U. Manitoba
 Ylva Lekberg, 7/04 – 3/05, currently scientist, MPG Ranch, Montana
 Juan Carlos Lopez Gutierrez, 7/04 – 6/07
 Glenna Malcolm, 1/08 – 8/08, currently postdoc PSU Plant Sciences
 Binh Nguyen, 4/11 – 8/13
 Andrea Nord, 9/11 – 7/13, currently assistant professor Greenville College
 Lei Cheng, 4/12 – 9/13, currently assistant professor Zhejiang University, College of Life Sciences, Hangzhou

Graduate students

David Bryla, MS 1989, Ecology, currently Scientist, USDA, ARS, Corvallis, OR
 James Lewis, MS 1989, Ecology, currently Professor, Fordham U, Biological Sciences
 Roger Paul Schreiner, PhD 1992, Plant Physiology, Scientist, USDA ARS Horticultural Crops Research, Corvallis, OR
 Lynn Staszak, MS 1991, Biology
 Xiaohong Lu, PhD 1993, Plant Physiology
 Margot Stanley Bram, MS 1992, Biology
 Karen Baker, MS 1995, Plant Physiology
 Edward Boswell, MS 1996, Biology
 Jennifer Poulton, PhD 2000, Biology (with A. Stephenson), currently Professor, Graceland U (Iowa), Biology
 Laura Suomi, MS 1998, Ecology, currently District Manager Oxford County Soil and Water Conservation
 Tiehang Wu, PhD 2002, Horticulture, currently Asst. Professor Georgia Southern University
 Melissa Goff, MS 2000, Horticulture, Agricultural Research Technician, USDA-ARS Pasture Research Lab
 Ian Dickie, PhD 2000, Ecology, Professor Lincoln University (New Zealand)
 Ylva Lekberg, PhD 2004, Ecology, Research scientist at MPG Ranch, Montana.
 Jori Murchie, PhD (2003-2008), Plant Physiology, editor for ProEditJapan (Scientific Editing)
 Glenna Malcom, (2003-2008), PhD 2008, Ecology, currently postdoc PSU Crop and Soil Science
 Christopher Fernandez, PhD (2008-2013), Ecology (Penn State University)
 Krittika Petprakob, PhD (2008-2012, withdrawn), Ecology (Penn State University)
 Kristin Haider, MS (2010-2013), Ecology (Penn State University), currently lab tech., USDA/ARS, Vegetable Crops Unit, University of Wisconsin, Madison.

Undergraduate students

Jim Lewis, BS 1989 (Biology)
 Brent Haynes, BS 1990 (Biology)
 Jonathan Riches, BS 1991 (Biology)
 Carla Picardo, BA 1994, Harvard College
 Stephen Mabon, BS 1992 (Biology)
 Barbara Prah, BS 1993 (Biology)
 Edward Boswell, BS 1994 (Biology)
 Michael O'Connell, BS 1996 (Biology)
 Tara Feinberg, BS 1998, Wellesley College
 Jamie Detweiler, BS 1999 (Biology)
 Aaron Fayish, BS 2003 (Agricultural Engineering)
 Erin Wakefield, BS 2002 (Biology)
 Tara Chrzanowski, BS 2007 (Ecotoxicology)
 Franz Lichtner, BS 2009 (Biology)
 Carrie Knoop, BS 2007 (Horticulture)
 Kyle Ashby, BS 2008 (Biology)
 Kemuel Polydore, BS 2012 (Biology)
 Jeffrey Seward, BS 2014 (Biology)

 Meg Licht, BS 2014 (Biology) BYU
 Monica Boyer, BS 2014 (Food Science) BYU
 David Castellanos, BS 2014 (Biology) BYU
 Emily Ryan Davis, BS 2013 (Biology) BYU
 Rachel Nettles, BS 2014 (Environmental Science) BYU
 John Watkins, BS 2015 (Conservation Biology) BYU

Other dissertation committees:

Tak-Cheung Lau, PhD, Biology (1993)
 David Cox, PhD, Entomology (1992)
 James Loughran, PhD, Agronomy (withdrawn)
 Wilella Burgess, MS, Ecology (1987)
 James Strauss, MS, Biology (1989)
 Edward Dix, MS, Botany (1990)
 Durland Shumway, PhD, Forestry (1991)
 Charles Barden, PhD, Forestry (1989)
 Michelle Briggs, PhD, Entomology (1988)
 Mark Kubiske, MS, PhD, Forestry (1993)
 Greg Nowacki, PhD, Forestry (1993)
 Colin Nicols-Orians, PhD, Entomology (1990)
 Philip Hammer, PhD, Plant Physiology (1993)
 Kerry Campbell, PhD, Agronomy (withdrawn)
 Eva Katherine Rauser Gounaris, MS, Biology (1990)
 Brian Kloeppe, MS, Forestry (1991)
 Simon McQueen-Mason, PhD, Plant Physiology (1993)
 Scott Subler, PhD, Ecology (1993)
 Brian Joyce, MS, Forestry (1992)
 David Orwig, PhD, Forestry (1993)

Marilyn L. Schroeder, PhD, Horticulture (withdrawn)
 Callie Pickens, PhD, Ecology (1995)
 Joseph A. Ciardi, PhD, Horticulture (1996)
 George Jing, PhD, Plant Pathology (1996)
 Mark W. Goodson, PhD, Agronomy (withdrawn)
 Irene Mbugua, PhD, Horticulture (1997)
 Kai L. Nielsen, PhD, Horticulture (1997)
 Elvira Keller, PhD, Plant Physiology (1996)
 Sunyo Jung, MS, Plant Physiology (1994)
 Wei Qiang Yang, MS, Horticulture (1996)
 Neal Barto, PhD, Horticulture (withdrawn)
 Laura Phillips, MS, Forestry (1997)
 Michael Demchik, PhD, Forestry (1998)
 Michael Dockry, MS, Forestry (1996)
 Carlos Mendez, MS, Horticulture (1997)
 Andrea Nord, MS, Ecology (1998)
 Eric Nord, MS, Ecology (1998)
 Campbell Plowden, PhD, Ecology (2001)
 Jeff Gerwing, PhD, Ecology (2002)
 Bryan Black, PhD, Forestry (2003)
 John Freytag, PhD, Biology (2003)
 Lisa Kelso, PhD, Forestry (2003)
 Jessica Smith, MS, Forestry (2002)
 Leslie Long, MA, Plant Pathology (2004)
 Taryn Bauerle, PhD, Horticulture (2007)
 Zaneta Hough, MS, Ecology (2006)
 Jenny Edwards, MS, Ecology (2005)
 Ann Widrig, MS, Horticulture (2005)
 Magalhaes Miguel, MS, Horticulture (2004)
 Maagalhaes Miguel, PhD, Horticulture (2011)
 Patrick Ryan, MS, Ecology (2005)
 Genevieve (Gennie) A. Romanello, M.S., Ecology (2009)
 Robert Duncan Cameron, PhD, Horticulture (anticipated 2013)
 Kevin Mueller, PhD, Ecology (2010)
 Benjamin Hoover, PhD, Horticulture (anticipated 2011)
 Rachel Melnick, PhD, Plant Pathology (2010)
 Marshall D. McDaniel, PhD, Crop and Soil Sciences (2011)
 Carla Rosenfeld, PhD, Biogeochemistry (co-advisor, anticipated 2013)
 Claire Keene, PhD, Agronomy (anticipated 2015)
 Anna Testen, MS, Plant Pathology (2012)

Rory O'Connor (MS, Biology, BYU, anticipated 2014)
 Lafe Connor (PhD, Biology, BYU, anticipated 2014)

International Dissertation Examiner for:

Megan Ryan, PhD, Botany (Australian National University, 1998)
 Evelina Facelli, PhD, Soil Science (University of Adelaide, 1998)
 Mayra Gavito, PhD, Land Resource Science (University of Guelph, 1996)

Patrick O'Connor, PhD, Soil Science (University of Adelaide, 2001)
Gafur Sutarman, PhD, Soil Science and Plant Nutrition (University of Western Australia, 2002)
Renske Landeweert, PhD, Soil Science (Wageningen University, 2003)
Huiying Li, PhD, Earth and Environmental Sciences (University of Adelaide, 2005)
Edith Hammer, PhD, Microbial Ecology (Lund University, 2010)
Sheetal Maruti Rhatwal, Botany (University of Pune, India, 2011)

DEPARTMENT, COLLEGE AND UNIVERSITY SERVICE (Penn State University)

Graduate Program in Ecology

Chair, Curriculum Committee (2008 - 2012)
Chair, Candidacy Exam Committee (2003-2008)
Candidacy Committee (2002-2003)
Admissions Committee (1987-1992)

Horticulture Department

Curriculum Committee (2000- 2012)
Student Recruitment Committee (2006- 2012)
Advisory Committee to the Head (2008- 2012)
Promotion and Tenure Committee (1995-2001, 2008-2012)
Graduate Student Admissions Committee (1992-2001, 2011-2012)
Chairman, Promotion and Tenure Committee (2000-2001)
Exploratory Committee for Plant Physiologist (1999)
Growth Chamber Committee (1992-1995, 1999-2003)
Strategic Planning Committee (1998-1999)
Search Committees for Head (1995-1996, 1996-1997)
Awards Committee (1994-1995)
Graduate Student Seminar (1992-1995)
Social Committee (1994-1995)
Search Committee for Pomologist (1994)

College of Agricultural Sciences

Advisory Committee to the Dean (1995-1998)
AGECO Advisory Committee (2006 - 2012)
College Strategic Planning Committee (1995-1996)
Landscape Ecologist Search Committee (2009)
Global Ecologist Search Committee (2010)
Integrated Crop Management Committee (1990-1991)

Graduate Program in Plant Biology

Admissions Committee (1995-1997)
Candidacy Committee (1989-1990, 1997-1998)

Biology Department

Committee for Fundraising for Biology Laboratory Courses (1991-1992)
Physiological Ecologist Search Committee (1991-1992)
Student Awards Committee (1991-1992)
Advisory Committee (1989-1991)

Strategic Planning Committee (1989-1990)
 Eberly Chair in Biology Search Committee (1987)
 Plant Developmental Biologist Search Committee (1989)
 Editor of Booklet: Graduate Study in Biology, Penn State (1987)
 Greenhouse/Herbarium Committee Chairman (1987-1989)
 Seminar Series Committee Chairman (1987-1988)
 Space Committee (1988-1989)
 Hammond, Hill and Popp Scholarship Awards Committee Chairman (1988-1990, 1991-1992)
 Plant Molecular Biologist Search Committee (1990-1991)
 Faculty Awards Committee Chairman (1991-1992)

College of Science

College of Science Research Initiation Grant Selection Committee (1990-1992)

DEPARTMENT, COLLEGE AND UNIVERSITY SERVICE (Brigham Young University)

Biology Curriculum Assessment Committee (2012 -)
 Biology Committee for Student Outreach (2013 -)
 Chair, Biology Activities Committee (2013 -)

PROFESSIONAL SERVICES

Panel Member, NSF, Ecosystem Studies, 2013
 Board of Advisors to the Editors, *New Phytologist* April 2002 - present
 Ad hoc reviewer for various journals including *American Naturalist*, *Annals of Botany*, *Annals of Forest Science*, *Biotropica*, *BioEnergy Research*, *Canadian J. Botany (Botany)*, *Canadian J. Forest Research*, *Ecography*, *Ecology*, *Ecology Letters*, *Ecological Monographs*, *Evolution*, *Experimental Mycology*, *Functional Ecology*, *Fungal Ecology*, *International Journal of Plant Sciences*, *JASHS*, *J. Applied Microbiology*, *J. Ecology*, *J. Plant Physiology*, *Microbial Ecology*, *Mycological Research*, *Mycorrhiza*, *Oecologia*, *Plant Ecology and Diversity*, *Plant Physiology*, *Plant and Soil*, *Planta*, *PLoS ONE*, *Physiologia Plantarum* and others
 Panel Member, NSF, Ecosystem Studies, 2003 - 2007
 Panel Member, USDA Soils and Soil Biology, NRI Grants Program, April 2003
 Declined invitation for panel membership, USDA NRI Managed Ecosystems, March 2003
 Declined invitation for panel membership, USDA NRI Soils and Soil Biology, April 2001
 Panel Member, USDA Soils and Soil Biology, NRI Grants Program, April 1998
 Ad hoc reviewer for various USDA competitive grants programs
 Ad hoc reviewer for various NSF competitive grants programs
 Ad hoc reviewer for NSERC (Canada)
 Ad hoc reviewer for The Israel Science Foundation
 Ad hoc reviewer for National Environment Research Council (UK)
 Ad hoc reviewer for American Floral Endowment

COURSES OFFERED (Penn State University)

Plant Ecology (HORT 445) 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011
 Plants in the Human Context (HORT 150), 2008, 2009, 2010, 2011, 2012
 Plant Water Relations (HORT 440W) 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2007
 Plant Water Relations (BIOL 444) 1988, 1989, 1991

Physiological Ecology (BIOL 446/544) 1986, 1988, 1990, 1992
Physiology of Mycorrhizal Plants (BIOL 597b/PLPHY 597b) 1987
Introductory Biology (BIOL 102) 1988, 1989, 1990, 1991, 1992
Classical Ecology (ECLGY 497a), 2007

COURSES OFFERED (Brigham Young University)

General Biology (BIO 100)
Biological Diversity of Plants (BIO 220B)
Plant Ecology (BIO 455)

KOIDE STUDENT AWARDS

Roger Paul Schreiner received the Popp Award in botanical sciences from the Department of Biology.

Ian Dickie placed 1st in the graduate division (biological sciences) in the 2000 College of Agricultural Sciences Research Exhibition. Ian also received the Gerald T. Gentry Award for Excellence in Graduate Research (Awarded by Gamma Sigma Delta and the College of Agricultural Sciences). He received the Horton Award in Ecology in April 2000 and the outstanding teaching assistant award from the LSC in 2000.

Ylva Besmer received a PSU Alumni Association Dissertation Award in 2004.

Glenna Malcolm received best student Oral Presentation Award at the Midwest Ecology and Evolution Conference (Kent, Ohio) in 2007.

Chris Fernandez received a Sloan Fellowship in 2010. Chris also received the second place award for oral presentations by a graduate student at the 2013 Soil Ecology Society Conference at Rutgers University.