

CURRICULUM VITAE

TOM A. RANKER

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Degrees: Ph.D. Botany, University of Kansas, 1987
M.A. Biology, Humboldt State University, 1982
B.A. Environmental Studies, California State University, Sacramento, 1974

PROFESSIONAL EXPERIENCE

2004-present: Professor, University Museum and Department of Ecology and Evolutionary Biology, and Curator of Botany, University Museum, University of Colorado at Boulder

2005/2006: Gerrit Parmile Wilder Chair of Botany, Department of Botany, University of Hawaii at Manoa, Honolulu (Sabbatical leave from CU Boulder)

1/2004-6/2005: Interim Curator of Museum & Field Studies Graduate Program, University of Colorado at Boulder

Summer, 2003: Interim Director, University Museum, University of Colorado at Boulder (summer replacement)

2001-2002: Interim Director, University Museum, University of Colorado at Boulder (sabbatical replacement for 1 academic year)

1997-2004: Associate Professor, University Museum and Department of Ecology and Evolutionary Biology (formerly EPOB), and Curator of Botany, University Museum, University of Colorado at Boulder

1990-1997: Assistant Professor, University Museum and Department of Environmental, Population and Organismic Biology, and Curator of Botany, University Museum, University of Colorado at Boulder

1988-1990: Junior Researcher, Hawaiian Evolutionary Biology Program, University of Hawai'i at Manoa

1987-1988: Postdoctoral Research Associate, Botany Department, Washington State University

1982-1987: Research Assistant, Botany Department, University of Kansas

1981-1982: Teaching Assistant, Botany Department, University of Kansas

1979-1981: Teaching Assistant, Biology Department, Humboldt State University

CURRENT PRIMARY EXTRAMURAL SERVICE DUTIES

American Fern Society:

- President, 2004-2006

American Society of Plant Taxonomists:

- Editorial Committee Member for Systematic Botany Monographs, 2004-2007
- Associate Editor for Systematic Botany, 2004-2007

International Association of Pteridologists:

- President, 2005-2011

RESEARCH INTERESTS

The origin and evolution of the flora of the Hawaiian Islands and of other island floras in the Pacific region. Phylogenetic systematics and evolution of vascular plants, especially lycophytes and ferns; evolutionary and ecological genetics of plant populations; conservation biology; historical biogeography. Field experience: Canada, Costa Rica, Cuba, Hawaiian Islands, Jamaica, La Réunion, México, Papua New Guinea, Puerto Rico, Society Islands, Taiwan, continental USA.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Association for the Advancement
of Science
American Fern Society
American Society of Plant Taxonomists
Association for Tropical Biology &
Conservation
Botanical Society of America
Ecological Society of America

International Association for Plant Taxonomy
International Association of Bryologists
International Association of Pteridologists
Nordic Bryological Society
Society for Conservation Biology
Society for the Study of Evolution
Society of Systematic Biologists

EXTRAMURAL RESEARCH GRANTS AWARDED SINCE 1990

National Science Foundation. **1990-1993**. \$170,000. Conservation and Restoration Biology: Evolutionary and Conservation Genetics of Native Hawaiian Ferns. PI.

National Science Foundation. **1994-1996**. \$10,000. Dissertation Research for Chrissen Gemmill: Population Genetics and Phylogenetic Systematics of the Native Hawaiian Palm Genus *Pritchardia*. PI.

National Science Foundation. **1993-1995**. \$11,000. Dissertation Research for Anna Arft: Population Biology, Phylogenetic Systematics, and Conservation Management of *Spiranthes diluvialis*. PI.

National Science Foundation. **1998-2001**. \$75,000 plus \$6,563 REU Supplement. Collaborative Research: Morphological and molecular systematics of the Polypodiaceae and Grammitidaceae. (PI) (Collaborative project with A. R. Smith, University of California-Berkeley and C. H. Haufler, University of Kansas; total budget: \$212,000.)

National Science Foundation. **2001-2003**. \$9,814. Dissertation Research for Jennifer Geiger: Phylogenetic Systematics and Biogeography of Hawaiian *Dryopteris* (Dryopteridaceae). (PI)

National Science Foundation. **2002-2004**. \$9,991. Dissertation Research for Jennifer Ramp: Microevolutionary dynamics and population genetics of the endangered California vernal pool sunflower *Lasthenia conjugens* (Asteraceae). (PI)

National Geographic Society. **2003-2005**. \$27,921. Historical biogeography and origin of the fern flora of Hawaii. (PI)

National Science Foundation. **2004-2006**. \$210,728. Collaborative Research: Origin of the Hawaiian pteridophyte flora. (PI) (Collaborative project with J. M. O. Geiger, Carroll College, Helena, MT. Total budget \$311,674.)

National Science Foundation. **2004-2006**. \$8,530. Dissertation Research for Jonathan Krieger: The evolution of developmental modules and lability of leaf form in the fern genus *Pleopeltis* (Polypodiaceae). (Co-PI; PI: R. Guralnick)

National Science Foundation. **2004-2006**. \$9,905. Dissertation Research for Shannon Kuchel Fehlberg: Evolutionary diversification of *Encelia* (Asteraceae: Heliantheae) in the Sonoran and Mohave Deserts based on multiple DNA sequences. (PI)

Neale, R., J. M. Ramp, T. A. Ranker, and B. Mapes. **2005-2006**. \$25,401. Using an adapted atmospheric trajectory model to identify the dominant source regions for the colonization of Hawaiian fern species. NOAA-CIRES Climate Diagnostics Center. (Awarded but declined.)

EXTRAMURAL EQUIPMENT & FACILITY GRANTS AWARDED SINCE 1990

- National Science Foundation. **1991**. \$20,695. Proposal for a shared ultracentrifuge to serve combined needs in physiology and molecular systematics. (Co-PI)
- National Science Foundation. **1994-1995**. \$202,500. Replacement and modernization of greenhouse facilities. (Co-PI) (Chair of EPOB Greenhouse Construction Committee)
- National Science Foundation. **1996**. \$12,315. Upgrade of storage facilities for the Colorado gymnosperm collection. (PI)
- National Science Foundation. **1999-2000**. \$50,000. From Grassland to Glacier: Planning for an interactive exhibit on biodiversity. (Project Curator)
- National Science Foundation. **2003-2006**. \$67,847. Collaborative Research: Linked Databases and Interactive Key for the Vascular Flora of the Southern Rocky Mountain Region. (PI) [Collaborative project with Colorado State University, University of Northern Colorado, and University of Wyoming; total budget \$450,000.]

PEER-REVIEWED PUBLICATIONS (59 TOTAL)

(* = CU undergraduate student; ** = CU graduate student at time of research)

1985

- Haufler, C. H. and T. A. Ranker. 1985. Effects of differential antheridiogen response on evolutionary mechanisms in *Cystopteris*. *American Journal of Botany* 72: 659—665.

1986

- Ranker, T. A. and A. F. Schnabel. 1986. Allozymic and morphological evidence for a progenitor-derivative species pair in *Camassia* (Liliaceae). *Systematic Botany* 11: 433—445.
- Ranker, T. A. and C. R. Werth. 1986. Active enzymes from herbarium specimens: Electrophoresis as an afterthought. *American Fern Journal* 76: 102—113.
- Barrington, D. S., C. Paris, and T. A. Ranker. 1986. Systematic inferences from spore and stomate size in the ferns. *American Fern Journal* 76: 149—159.
- Windham, M. D., P. G. Wolf, and T. A. Ranker. 1986. Factors affecting prolonged spore viability in herbarium collections of three species of *Pellaea*. *American Fern Journal* 76: 141—148.

1988

- Spivak, M., T. Ranker, O. R. Taylor, Jr., W. Taylor, and L. Davis. 1988. Discrimination of Africanized honey bees using cell size, morphometrics, and a newly discovered isozyme polymorphism. In: "Africanized Honey Bees and Bee Mites", G. R. Needham, R. E. Page, Jr., M. Delfinado-Baker, and C. E. Bowman (eds). Horwood, Chichester, U. K., and Wiley, New York

1989

- Ranker, T. A. 1989. Spore morphology and generic delimitation in New World *Hemionitis*, *Gymnopteris*, and *Bommeria* (Adiantaceae). *American Journal of Botany* 76: 297—306.
- Ranker, T. A., C. H. Haufler, P. S. Soltis, and D. E. Soltis. 1989. Genetic evidence for allopolyploidy in the neotropical fern *Hemionitis pinnatifida* (Adiantaceae) and the reconstruction of an ancestral genome. *Systematic Botany* 14: 439—447.
- Sheffield, E., P. G. Wolf, C. H. Haufler, T. A. Ranker, and A. C. Jermy. 1989. A re-evaluation of plants referred to as *Pteridium herediae* (Colmeiro) Löve & Kjellqvist. *Botanical Journal of the Linnean Society* 99: 377—386.
- Soltis, D. E., P. S. Soltis, T. A. Ranker, and B. D. Ness. 1989. Chloroplast DNA variation in a wild plant, *Tolmiea menziesii*. *Genetics* 121: 819—826.

1990

- Haufler, C. H., M. D. Windham, and T. A. Ranker. 1990. Biosystematic analysis of the *Cystopteris tennesseensis* complex. *Annals of the Missouri Botanical Garden* 77: 314—329.

- Ranker, T. A. 1990. Phylogenetic systematics of neotropical *Hemionitis* and *Bommeria* (Adiantaceae) based on morphology, allozymes, and flavonoids. *Systematic Botany* 15: 442—453.
- Ranker, T. A. and C. H. Haufler. 1990. A new combination in *Bommeria* (Adiantaceae). *American Fern Journal* 80: 1—3.
- Ranker, T. A., D. E. Soltis, P. S. Soltis, and A. J. Gilmartin. 1990. Subfamilial phylogenetic relationships of the Bromeliaceae: Evidence from chloroplast DNA restriction site variation. *Systematic Botany* 15: 425—434.
- Schneller, J. J., C. H. Haufler, and T. A. Ranker. 1990. Antheridiogen and natural gametophyte populations. *American Fern Journal* 80: 143—152.
- 1991**
- Aradhya, K. M., D. Mueller-Dombois, and T. A. Ranker. 1991. Genetic evidence for recent and incipient speciation in the evolution of Hawaiian *Metrosideros*. *Heredity* 67: 129—138.
- 1992**
- Ranker, T. A. 1992. Genetic diversity, mating systems, and interpopulation gene flow in neotropical *Hemionitis palmata* L. (Adiantaceae). *Heredity* 69: 175—183.
- Ranker, T. A. 1992. Genetic diversity of endemic Hawaiian epiphytic ferns: Implications for conservation. *Selbyana* 13: 131—137.
- Ranker, T. A. 1992. *Adenophorus x carsonii* hyb. nov. (Grammitidaceae): A new endemic hybrid from the Island of Hawaii. *Novon* 2: 408—410.
- 1993**
- Aradhya, K. M., D. Mueller-Dombois, and T. A. Ranker. 1993. Genetic structure and differentiation in *Metrosideros polymorpha* (Myrtaceae) along altitudinal gradients in Maui, Hawaii. *Genetical Research* 61: 159—170.
- Sheffield, E., P. G. Wolf, F. J. Rumsey, D. J. Robson, T. A. Ranker, and S. M. Challinor. 1993. Spatial distribution and reproductive behaviour of a triploid bracken (*Pteridium aquilinum*) clone in Britain. *Annals of Botany* 72: 231—237.
- 1994**
- Brunsfeld, S. J., P. S. Soltis, D. E. Soltis, P. A. Gadek, C. J. Quinn, D. Strenge, and T. A. Ranker. 1994. Phylogenetic relationships among genera of the conifer families Taxodiaceae and Cupressaceae: Evidence from *rbcL* sequences. *Systematic Botany* 19: 253—262.
- Ranker, T. A. 1994. Evolution of high genetic variability in the rare Hawaiian fern *Adenophorus periens* and implications for conservation management. *Biological Conservation* 70: 19—24.
- Ranker, T. A. and A. M. Arft**. 1994. Allopolyploid species and the U. S. Endangered Species Act. *Conservation Biology* 8: 895—897.
- Ranker, T. A., S. K. Floyd**, and P. G. Trapp. 1994. Multiple colonizations of *Asplenium adiantum-nigrum* onto the Hawaiian Archipelago. *Evolution* 48: 1364—1370.
- Ranker, T. A., S. K. Floyd**, M. D. Windham, and P. G. Trapp. 1994. Historical biogeography of *Asplenium adiantum-nigrum* in North America and implications for speciation theory in homosporous pteridophytes. *American Journal of Botany* 81: 776—781.
- 1995**
- Haufler, C. H. and T. A. Ranker. 1995. *rbcL* sequences provide phylogenetic insights among sister species of the fern genus *Polypodium*. *American Fern Journal* 85: 361—374. (Invited contribution)
- Ranker, T. A. 1995. DNA sequence data in phylogeny reconstruction: an overview of techniques and analyses. *American Fern Journal* 85: 123—133. (Invited contribution)
- Ranker, T. A. 1995. Systematic treatment of the genus *Hemionitis* (Adiantaceae). Pp. 131—133 in Moran, R. C. and R. Riba (eds), *Vol. 1, Psilotaceae a Salviniaceae*; Davidse, G., M. Sousa, and S. Knapp (eds), *Flora Mesoamericana*.
- Ranker, T. A. and C. H. Haufler. 1995. Systematic treatment of the genus *Bommeria* (Adiantaceae). Pp. 120—121 in Moran, R. C. and R. Riba (eds), *Vol. 1, Psilotaceae a Salviniaceae*; Davidse, G., M. Sousa, and S. Knapp (eds), *Flora Mesoamericana*.

- Sheffield, E., P. G. Wolf, and T. A. Ranker. 1995. Genetic analysis of bracken in the Hawaiian Islands. Pp. 19—32 (Chapter 5), in "Bracken: An Environmental Issue", R. T. Smith and J. A. Taylor (eds). International Bracken Group, Special Publication No. 2.
- 1996**
- Ranker, T. A., C. E. C. Gemmill**, P. G. Trapp, A. Hambleton*, and K. Ha*. 1996. Population genetics and reproductive biology of lava-flow colonising species of Hawaiian *Sadleria* (Blechnaceae). In: J. M. Camus, M. Gibby, and R. J. Johns (editors). Pteridology in Perspective, pp. 581—598, Royal Botanic Gardens, Kew.
- 1997**
- Johnston, J.*, M. D. Bowers, and T. A. Ranker. 1997. Iridoid glycoside and allozyme variation within and among populations of *Plantago rhodosperma* Decne. (Plantaginaceae). *Biochemical Systematics and Ecology* 25: 581—590.
- 1998**
- Arft, A. M.** and T. A. Ranker. 1998. Population genetics and the allopolyploid origin of the rare orchid *Spiranthes diluvialis* (Orchidaceae). *American Journal of Botany* 85: 110—122.
- Chiou, W.-L., D. R. Farrar, and T. A. Ranker. 1998. Gametophyte morphology and reproductive biology in *Elaphoglossum* Schott. *Canadian Journal of Botany* 76: 1967—1977.
- Diggle, P. K., S. Lower*, and T. A. Ranker. 1998. Clonal diversity in alpine populations of *Polygonum viviparum* (Polygonaceae). *International Journal of Plant Science* 159: 606—615.
- Floyd, S. K.** and T. A. Ranker. 1998. Analysis of a transition matrix model for *Gaura neomexicana* ssp. *coloradensis* (Onagraceae) reveals spatial and temporal demographic variability. *International Journal of Plant Science* 159: 853—863.
- Gemmill, C. E. C.**, T. A. Ranker, D. Ragone, S. P. Perlman, and K. Wood. 1998. Conservation genetics of the endangered endemic Hawaiian genus *Brighamia* (Campanulaceae). *American Journal of Botany* 85: 528—539.
- 1999**
- Chiou, W. L., D. R. Farrar, and T. A. Ranker. 1999. Gametophyte growth and sexual reproduction of some epiphytic ferns. Pp. 303—315. In X. C. Zhang & K. H. Shing (eds.). Ching Memorial Volume, A collection of pteridological papers published to commemorate the centenary of the birth of Professor Ren-Chang Ching. China Forestry Publishing House, Beijing.
- Russell, A. E., T. A. Ranker, C. E. C. Gemmill**, and D. R. Farrar. 1999. Patterns of clonal diversity in *Dicranopteris linearis* on Mauna Loa, Hawaii. *Biotropica* 31: 449—459.
- 2000**
- Bingham, R. A.** and T. A. Ranker. 2000. Genetic diversity in alpine and foothill populations of *Campanula rotundifolia* (Campanulaceae). *International Journal of Plant Science* 161: 403—411.
- Ranker, T. A., C. E. C. Gemmill**, and P. G. Trapp. 2000. Microevolutionary patterns and processes of the native Hawaiian colonizing fern *Odontosoria chinensis* (Lindsaeaceae). *Evolution* 54: 828—839.
- 2001**
- Korb, J. E.** and T. A. Ranker. 2001. Changes in stand composition and structure between 1981 and 1996 in four Front-Range plant communities in Colorado. *Plant Ecology* 157: 1—11.
- Wolf, P. G., H. Schneider, and T. A. Ranker. 2001. Distributions of fern taxa: does dispersal obscure evidence of vicariance? *Journal of Biogeography* 28: 263—270.
- 2002**
- Chiou, W.-L., D. R. Farrar, and T. A. Ranker. 2002. The mating systems of some Polypodiaceae species. *American Fern Journal* 92: 65—79.
- Ranker, T. A. and T. Hogan. 2002. Systematic treatment of the genus *Camassia* (Liliaceae). *Flora of North America*. Volume 26. Pp. 303—307.
- Ranker, T. A. and H. A. Houston.** 2002. Is gametophyte sexuality in the lab a good predictor of sexuality in nature? *Sadleria* as a case study. *American Fern Journal* 92: 112—118.
- Schneider, H., A. R. Smith, R. Cranfill, C. H. Haufler, T. A. Ranker, T. Hildebrand. 2002. *Gymnogrammitis dareiformis* is a polygrammoid fern (Polypodiaceae) – Resolving an

apparent conflict between morphological and molecular data. *Plant Systematics and Evolution* 234: 121–136.

Wise, C. A.**, T. A. Ranker, and Y. B. Linhart. 2002. Modeling problems in conservation genetics with *Brassica rapa*: I. Genetic variation and fitness in plants under mild, stable conditions. *Conservation Biology* 16: 1542–1554.

2003

Haufler, C. H., W. A. Grammer, E. Hennipman, T. A. Ranker, and A. R. Smith. 2003. Systematics of the Ant-Fern Genus *Lecanopteris*: Testing Phylogenetic Hypotheses using DNA Sequences. *Systematic Botany* 28: 217–227.

Ranker, T. A., J. M. O. Geiger**, S. C. Kennedy*, A. R. Smith, C. H. Haufler, and B. S. Parris. 2003. Molecular phylogenetics and evolution of the endemic Hawaiian genus *Adenophorus* (Grammitidaceae). *Molecular Phylogenetics and Evolution* 26: 337–347.

2004

Schneider, H., A. R. Smith, R. Cranfill, T. E. Hildebrand, C. H. Haufler, T. A. Ranker. 2004. Unraveling the phylogeny of polygrammoid ferns (Polypodiaceae & Grammitidaceae): exploring aspects of the diversification of epiphytic plants. *Molecular Phylogenetics and Evolution* 31: 1041-1063.

Ranker, T. A., A. R. Smith, B. S. Parris, J. M. O. Geiger**, C. H. Haufler, S. C. K. Straub*, and H. Schneider. 2004. Phylogeny and evolution of grammitid ferns (Grammitidaceae): a case of rampant morphological homoplasy. *Taxon* 53: 415-428.

Schneider, H., T. Janssen, P. Hovenkamp, A. R. Smith, C. H. Haufler, and T. A. Ranker. 2004. Phylogenetic relationships of the enigmatic Malesian genus *Thylacopteris* (Polypodiaceae, Polypodiidae). *International Journal of Plant Sciences* 165: 1077-1087.

2005

Schneider, H., T. A. Ranker, S. J. Russell, R. Cranfill, J. M. O. Geiger**, R. Agurauja, K. R. Wood, M. Grundmann, K. Kloberdanz*, and J. C. Vogel. 2005. Origin and diversification of the Hawaiian fern genus *Diellia* Brack. (Aspleniaceae, Polypodiidae). *Proceedings of the Royal Society of London Series B-Biological Sciences* 272: 455-460.

Geiger, J. M. O.** and T. A. Ranker. 2005. Molecular phylogenetics and historical biogeography of Hawaiian *Dryopteris* (Dryopteridaceae). *Molecular Phylogenetics and Evolution* 34: 392-407.

Ranker, T. A., P. G. Trapp, A. R. Smith, R. C. Moran, and B. S. Parris. 2005. New Records of Lycophytes and Ferns from Moorea, French Polynesia. *American Fern Journal*. *In press*.

2006

Ramp Neale, J. M.**, S. K. Collinge, and T. A. Ranker. *In Press*. Restoration genetics of the vernal pool endemic *Lasthenia conjugens*. *Conservation Genetics*. *Accepted pending revision*.

Smith, A. R., H.-P. Kreier, H. Schneider, C. H. Haufler, and T. A. Ranker. *In Press*. *Serpocaulon* (Polypodiaceae), a new genus segregated from old *Polypodium*. *Taxon*. *Accepted pending revision*.

PEER REVIEWED MANUSCRIPTS – IN REVIEW

(** = CU graduate student at time of research)

Ramp Neale, J. M.**, T. A. Ranker, S. K. Collinge. *In Review*. Genetic diversity in natural populations of the endangered vernal pool plant *Lasthenia conjugens* (Asteraceae): predicting the genetic impact of population extinction. *Molecular Ecology*.

INVITED REVIEWS OF RESEARCH AND BOOKS

1991

Ranker, T. A. 1991. Natural selection and the plastid genome of parasitic angiosperms. *Trends in Ecology and Evolution* 6: 205.

1993

Ranker, T. A. 1993. Review of "Spores of the Pteridophyta: surface, wall structure, and diversity based on electron microscope studies" by A. F. Tryon and B. Lugardon. *Systematic Botany* 18: 377.

1996

Ranker, T. A. 1996. Review of "Ferns of Hawai'i" by K. Valier. *The Quarterly Review of Biology* 71: 410.

PUBLISHED SYMPOSIUM PROCEEDINGS (NON-PEER-REVIEWED)

(** = CU graduate student at time of research)

1993

Arft, A. M.** and T. A. Ranker. 1993. Population genetics and phylogenetic systematics of the rare orchid *Spiranthes diluvialis*: Implications for conservation. Pp. 264—269 in Sivinski, R. and K. Lightfoot (eds), *Southwestern Rare and Endangered Plant Conference*.

Ranker, T. A., S. K. Floyd**, and M. D. Windham. 1993. Historical biogeography and population genetics of the rare fern, *Asplenium adiantum-nigrum* L. Pp. 221—226 in Sivinski, R. and K. Lightfoot (eds), *Proceedings of the Southwestern Rare and Endangered Plant Conference*.

POPULAR ARTICLES (NON-PEER-REVIEWED)

(** = CU graduate student at time of research)

1993

Gemmill, C. E. C.**, T. A. Ranker, and D. Ragone. 1993. Conservation of the native Hawaiian palm genus *Pritchardia*. *The Bulletin of the National Tropical Botanical Garden*. 23: 141—146.

TECHNICAL REPORTS (NON-PEER-REVIEWED)**2002**

Jermy, C. and T. A. Ranker. 2002. IUCN Species Survival Commission Pteridophyte Specialist Group Update. *Species* 38: 29—30.

Jermy, C. and T. A. Ranker. 2002. Epilogue—The way forward. *Proceedings of the International Symposium: Fern Flora Worldwide: Threats and Responses*. *The Fern Gazette*. 16: 417—424.

PUBLISHED ABSTRACTS AND PAPERS PRESENTED AT PROFESSIONAL MEETINGS (72 TOTAL)

(* = CU undergraduate student; ** = CU graduate student at time of research)

1982

Ranker, T. A. and M. R. Mesler. 1982. The origin of tetraploidy in *Polypodium californicum*: an autopolyploid hypothesis. *Botanical Society of America, Misc. Publ. No. 162*: 77.

1984

Ranker, T. and A. F. Schnabel. 1984. A systematic study of eastern *Camassia*. *American Journal of Botany* 70 (Part 2): 184.

1985

Ranker, T. A. 1985. Reassessing the generic relationships of *Hemionitis*. *American Journal of Botany* 72: 925—926.

1986

Ranker, T. A., C. H. Haufler, and M. D. Windham. 1986. Biosystematic studies of Gymnogrammoid-Cheilantheid ferns. *American Journal of Botany* 73: 731—732.

1987

Ranker, T. A. 1987. Variance in breeding systems and its effect on populational genetic structure in species of *Hemionitis* and *Gymnopteris*. *American Journal of Botany* 74: 711—712.

1988

- Ranker, T. A. 1988. The origin of the tetraploid *Hemionitis pinnatifida*. American Journal of Botany 75: 384.
- Ranker, T. A., D. E. Soltis, P. S. Soltis, and A. J. Gilmartin. 1988. Molecular systematics of subfamilial relationships in the Bromeliaceae: Restriction site analyses of cpDNA. American Journal of Botany 75: 200.
- Schneller, J. J., C. H. Haufler, and T. A. Ranker. 1988. Antheridiogen and natural gametophyte populations. American Journal of Botany 75: 136.

1989

- Ranker, T. A. 1989. Populational genetic structure and mating systems of endemic Hawaiian epiphytic ferns. American Journal of Botany 76: 206.

1990

- Alverson, E. R., R. J. Meinke, and T. A. Ranker. 1990. Reproductive biology and allozyme variation in *Luina serpentina*, a clonal endemic plant. Bulletin of the Ecological Society of America.
- Ranker, T. A. 1990. Evolutionary and ecological aspects of genetic endemism, gene flow, and mating system evolution in species of native Hawaiian ferns. Fourth International Congress of Systematics and Evolutionary Biology.
- Ranker, T. A. 1990. Genetic endemism, gene flow, and mating systems in native Hawaiian ferns. Annual meeting of the Guild of Rocky Mountain Population Biologists.

1991

- Ranker, T. A. 1991. Genetic diversity of endemic Hawaiian epiphytic ferns: Implications for conservation. Plenary Session of Symposium on The Biology and Conservation of Epiphytes, Marie Selby Botanical Gardens.
- Ranker, T. A. 1991. Ecological genetics and evolution of Hawaiian ferns. Symposium of the Society for the Study of Evolution on "Evolution of Hawaiian Organisms".
- Ranker, T. A. 1991. Evolutionary patterns and processes in Mexican species of *Bommeria*, *Hemionitis*, and *Cheilanthes*. Symposium of the Botanical Society of America and the American Fern Society on "Pteridophytes of Mexico". American Journal of Botany 78: 149.

1992

- Arft, A. M.** and T. A. Ranker. 1992. Population genetics and phylogenetic systematics of the rare orchid *Spiranthes diluvialis*: Implications for conservation. Southwestern Rare and Endangered Plant Conference, Santa Fe, NM. March, 1992.
- Gemmill, C. E. C.**, T. A. Ranker, and D. Ragone. 1992. Conservation genetics of the native Hawaiian palm genus *Pritchardia* Seem. & Wendl. (Arecaceae). American Journal of Botany 79(supplement): 62.
- Ranker, T. A. 1992. Genetic diversity in relation to biogeography and colonization of native Hawaiian ferns. Symposium of the Botanical Society of America and the American Fern Society on "Island Biogeography of Pteridophytes". American Journal of Botany 79(supplement): 116.
- Ranker, T. A., S. K. Floyd**, and P. G. Trapp. 1992. Genetic evidence for multiple colonizations of *Asplenium adiantum-nigrum* onto the Hawaiian Archipelago. American Journal of Botany 79 (supplement): 119. *Recipient of the Edgar T. Wherry Award for the Best Contributed Paper presented to the Pteridological Section of the Botanical Society of America at the annual meeting in Honolulu.*
- Ranker, T. A., S. K. Floyd**, and M. D. Windham. 1992. Historical biogeography and population genetics of the rare fern, *Asplenium adiantum-nigrum*. Southwestern Rare and Endangered Plant Conference, Santa Fe, NM. March, 1992.
- Ranker, T. A., S. K. Floyd**, and M. D. Windham. 1992. Historical biogeography and population genetics of the rare fern, *Asplenium adiantum-nigrum*. Annual meeting of the Guild of Rocky Mountain Population Biologists.

1993

- Ranker, T. A. and S. K. Floyd**. 1993. Historical biogeography and systematics of the rare fern, black spleenwort (*Asplenium adiantum-nigrum*). Second Annual Boulder County Ecosystem Research Symposium.
- Ranker, T. A. 1993. Evolution and conservation of genetic diversity in tropical ferns. Symposium of the Association for Tropical Biology on "Genetic Variation in Tropical Plants - Implications for Understanding the Evolution of Diversity and Its Conservation".

1994

- Diggle, P. K., S. S. Lower*, T. A. Ranker. 1994. Clonal diversity and phenotypic plasticity in three alpine populations of *Polygonum viviparum* (Polygonaceae). *American Journal of Botany* 81: 22.
- Haufler, C. H. and T. A. Ranker. 1994. *rbcL* provides phylogenetic insights among sister species of the *Polypodium vulgare* complex. Symposium of the Botanical Society of America and the American Fern Society on "Use of Molecular Data in Evolutionary Studies of Pteridophytes". *American Fern Journal* 81: 121.
- Ranker, T. A. and R. G. Olmstead. 1994. Overview of molecular techniques and phylogenetic analyses of molecular data. Symposium of the Botanical Society of America and the American Fern Society on "Use of Molecular Data in Evolutionary Studies of Pteridophytes". *American Journal of Botany* 81: 122—123.
- Sheffield, E., P. G. Wolf, and T. A. Ranker. 1994. Genetic analysis of bracken in the Hawaiian Islands. Bracken '94 Conference, Aberystwyth, UK.

1995

- Arft, A.** and T. A. Ranker. 1995. Demography of the rare orchid *Spiranthes diluvialis*: Implications for conservation management. Annual meeting of the Society for Conservation Biology. Ft. Collins, CO.
- Bingham, R. A.** and T. A. Ranker. 1995. A preliminary assessment of self-compatibility, autogamy, and pollinator limitation in alpine and foothill populations of *Campanula rotundifolia* L. (Campanulaceae) in the Colorado Front Range. Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Gemmill, C. E. C.**, D. Ragone, S. Perlman, K. Wood, and T. A. Ranker. 1995. Conservation genetics of the endangered endemic Hawaiian genus *Brighamia* (Campanulaceae). *American Journal of Botany*, Supplement to 82: 131—132.
- Gemmill, C. E. C.**, D. Ragone, S. Perlman, K. Wood, and T. A. Ranker. 1995. Conservation genetics of the endangered endemic Hawaiian genus *Brighamia* (Campanulaceae). Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Gemmill, C. E. C.**, A. M. Arft**, S. K. Floyd**, K. A. Mingo**, and T. A. Ranker. 1995. Systematics of the rare Hawaiian *Sesbania tomentosa* complex (Fabaceae). *American Journal of Botany*, Supplement to 82: 131.
- Ranker, T. A., C. E. C. Gemmill**, P. G. Trapp, A. Hambleton*, and K. Ha*. 1995. Population genetics and reproductive biology of lava-flow colonising species of Hawaiian *Sadleria* (Blechnaceae). Pteridophyte Symposium '95, The Royal Botanic Gardens, Kew.

1996

- Bingham, R. A.** and T. A. Ranker. 1996. Genetic structure and gene flow in alpine and foothill populations of *Campanula rotundifolia* L. (Campanulaceae) along the Colorado Front Range. *American Journal of Botany*, Supplement to 83: 95.
- Duff, M.** and T. A. Ranker. 1996. Population structure and isozymic diversity of *Lyonothamnus floribundus* (Rosaceae). *American Journal of Botany*, Supplement to 83: 64.
- Haufler, C. H., T. A. Ranker, and J. Li. 1996. Using *rbcL* sequences to test hypotheses of phylogenetic relationship in the fern families Polypodiaceae and Grammitidaceae. *American Journal of Botany*, Supplement to 83: 126.
- Macias, M.*, and T. A. Ranker. 1996. An assessment of RAPD inheritance using gametophytes of *Sadleria* species (Blechnaceae). *American Journal of Botany*, Supplement to 83: 128.

- Macias, M.* and T. A. Ranker. 1996. An assessment of RAPD inheritance using gametophytes of *Sadleria* species (Blechnaceae). Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Ranker, T. A. 1996. Are pteridophyte mating systems correlated with habitat? *American Journal of Botany*, Supplement to 83: 121.
- Wilk, J.* and T. A. Ranker. 1996. Population genetics of Colorado populations of *Asplenium septentrionale* (Aspleniaceae). Annual meeting of the Guild of Rocky Mountain Population Biologists.
- 1997**
- Bingham, R. A.**, K. Howe*, and T. A. Ranker. 1997. High levels of inbreeding depression after one generation of selfing in the autotetraploid *Campanula rotundifolia* L. (Campanulaceae). Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Ranker, T. A., C. E. C. Gemmill**, and P. G. Trapp. 1997. Mixed mating, gene flow, and founder effects in the native Hawaiian colonizing fern *Odontosoria chinensis* (Lindsaeaceae). Joint annual meeting of American Society of Naturalists, Society for the Study of Evolution, and Society of Systematic Biologists.
- Ranker, T. A., C. H. Haufler, A. R. Smith, and J. Li. 1997. Merging morphology and molecules to modify models of parphyly and polyphyly in the 'Polygrammaceae'. *American Journal of Botany*, Supplement to 84: 165—166.
- Ranker, T. A. and S. Krier*. 1997. Evolution of gametophytic mechanisms controlling mating behavior in the Hawaiian endemic genus *Sadleria* (Blechnaceae). Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Wise, C. A.**, Y. B. Linhart, and T. A. Ranker. 1997. The role of genetic variation in stress tolerance and population persistence: an experimental study with *Brassica rapa*. Joint annual meeting of American Society of Naturalists, Society for the Study of Evolution, and Society of Systematic Biologists.
- 1998**
- Ranker, T. A. and C. E. C. Gemmill**. 1998. Population genetics of Hawaiian ferns and implications for conservation management. *American Journal of Botany* 85: 97.
- 1999**
- Gemmill, C. E. C. and T. A. Ranker. 1999. Hawaiian perspectives on the origin and diversification of pteridophyte species. Symposium of the XVI International Botanical Congress entitled "Species and speciation in Pteridophytes".
- Hildebrand, T., C. H. Haufler, M. Gabel, and T. A. Ranker. 1999. Population differentiation using two nuclear marker systems in Lycopodiaceae. Poster presented at the XVI International Botanical Congress.
- Ranker, T. A. 1999. Ecological genetics and conservation of tropical ferns. XIII Simposio de Botánica Criptogámica.
- Ranker, T. A. 1999. Evidence for founder-effect speciation in Hawaiian ferns? Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Ranker, T. A. and H. J. Houston. 1999. The value of voucher specimens from research greenhouse collections. Annual meeting of the Association of Education and Research Greenhouse Curators.
- Ranker, T. A., C. H. Haufler, A. R. Smith, J. Therrien, and H. A. Houston. 1999. Phylogeny of Polypodiaceae and Grammitidaceae, two derived and closely related fern families. Symposium of the XVI International Botanical Congress entitled "Fern phylogeny with emphasis on relationships of basal lineages".
- Wolf, P. G., H. Schneider, and T. A. Ranker. 1999. The roles of vicariance and long-distance dispersal in the origin of fern distributions. Symposium of the XVI International Botanical Congress entitled "Pteridophyte biogeography".
- 2000**
- Smith, A. R., H. Schneider, B. S. Parris, C. H. Haufler, T. A. Ranker, J. P. Therrien, J. Geiger. 2000. Phylogeny of Grammitidaceae and Polypodiaceae inferred from two large data sets: *rbcL* and morphology. *American Journal of Botany*, Supplement to 86: 97.

2001

- Geiger, J. M. O.*, T. A. Ranker, and D. D. Palmer. 2001. Phylogenetic systematics and biogeography of Hawaiian *Dryopteris* (Dryopteridaceae). Botany 2001 meetings, Albuquerque, NM.
- Haufler, C. H., A. R. Smith, H. Schneider, T. Hildebrand, R. Cranfill, and T. A. Ranker. 2001. *Polypodium* redefined: Morphology, biogeography, and DNA sequences provide clues to lineages. Botany 2001 meetings, Albuquerque, NM.
- Ramp, J.***, T. A. Ranker, and S. Collinge. 2001. Microevolutionary dynamics and population genetics of the endangered California vernal pool sunflower *Lasthenia conjugens*. Annual meeting of the Guild of Rocky Mountain Population Biologists.
- Ranker, T. A., A. R. Smith, J. M. O. Geiger**, S. C. Kennedy*, C. H. Haufler, and B. S. Parris. 2001. Phylogenetic systematics of the Hawaiian endemic genus *Adenophorus* (Grammitidaceae). Botany 2001 meetings, Albuquerque, NM.
- Ranker, T. A. 2001. The way forward: An action plan for the IUCN/Species Survival Commission - Pteridophyte Specialist Group. Fern Flora Worldwide: Threats and Responses, An International Symposium, University of Surrey, Guildford, UK.
- Ranker, T. A. and J. M. O. Geiger**. 2001. Molecular phylogenetics of ferns: using molecules to infer patterns and processes of evolution and historical biogeographical. Invited Keynote Speaker. Annual Meeting of the Queenstown Molecular Biology Society, Queenstown, New Zealand.

2002

- Ramp, J. M.** and T. A. Ranker. 2002. Conservation genetics of the vernal pool annual *Lasthenia conjugens* (Asteraceae). Botany 2002 meetings, Madison, WI.

2003

- Ramp, J. M.,** T. A. Ranker, and S. K. Collinge. 2003. A comparative study of population genetic variability in eight populations of the endangered vernal pool annual *Lasthenia conjugens* (Asteraceae). Botany 2003 meetings, Mobile, AL.
- Ranker, T. A. and J. M. O. Geiger**. 2003. Molecular evidence for the phylogenetic placement of Asiatic *Hemionitis arifolia* (Pteridaceae). Botany 2003 meetings, Mobile, AL.
- Ranker, T. A. and J. M. O. Geiger**. 2003. Phylofloristics of the Hawaiian fern flora: preliminary studies on the origins of Hawaiian ferns and testing climate-based models of dispersal. Botany 2003 meetings, Mobile, AL.

2004

- Fehlberg, S. D.** and T. A. Ranker. 2004. Diversification of *Encelia* (Asteraceae) in the Sonoran and Mojave Deserts. Botany 2004 meetings, Snowbird, UT.
- Geiger, J. M. O.**, T. A. Ranker, and J. M. Ramp**. 2004. The origins and biogeography of Hawaiian Ferns. Botany 2004 meetings, Snowbird, UT.
- Haufler, C. H., A. R. Smith, T. A. Ranker, and H. Schneider. 2004. A tale of two mechanisms: Discovering how dispersal and vicariance contributed to the pattern of species diversity in the "polygrams." Botany 2004 meetings, Snowbird, UT.
- Ramp, J. M.,** T. A. Ranker, and S. K. Collinge. 2004. The use of genetics to monitor restoration of endangered species: The vernal pool annual *Lasthenia conjugens* (Asteraceae) as a model system. Society for Ecological Restoration annual meeting, Vancouver, B.C.
- Ranker, T. A., A. R. Smith, B. S. Parris, J. M. O. Geiger**, C. H. Haufler, S. C. K. Straub*, H. Schneider. Phylogeny and evolution of grammitid ferns (Grammitidaceae): a case of rampant morphological homoplasy. Ferns for the 21st Century Conference, Royal Botanic Garden Edinburgh, Scotland, UK. Sponsored by the Linnean Society of London, the British Pteridological Society and the Royal Botanic Garden Edinburgh
- Schneider, H., T. A. Ranker, S. J. Russell, R. Cranfill, J. M. O. Geiger**, R. Agurajuja, K. R. Wood M. Grundmann, J. C. Vogel. 2004. Origin of the endemic fern genus *Diellia* (Aspleniaceae) coincides with the renewal of Hawaiian terrestrial life in the early Miocene. Botany 2004 meetings, Snowbird, UT.

2005

- Geiger, J. M. O. and T. A. Ranker. 2005. Diversification of Hawaiian ferns. Symposium of the XVII

International Botanical Congress, Vienna, entitled "Diversification of seed-free vascular plants in the shadow of angiosperms".

Ranker, T. A., J. M. O. Geiger, J. M. Ramp**, and S. T. Klimas**. 2005. Molecular biogeography and origins of the Hawaiian fern flora. Symposium of the XVII International Botanical Congress, Vienna, entitled "Modern phylogenetic studies in the Pteridophyta".

**INVITED PRESENTATIONS AT SYMPOSIA & PROFESSIONAL
MEETINGS ET AL.
(25 TOTAL)**

(* = CU undergraduate student; ** = CU graduate student at time of research)

1986

Ranker, T. A., C. H. Haufler, and M. D. Windham. 1986. Biosystematic studies of gymnostrid-cheilanthoid ferns. Symposium of the Botanical Society of America and the American Fern Society on "Problems in the Evolution and Systematics of the Cheilanthoid Ferns".

1988

Schneller, J. J., C. H. Haufler, and T. A. Ranker. 1988. Antheridiogen and natural gametophyte populations. Symposium of the Botanical Society of America and the American Fern Society on "Population Biology of Pteridophytes".

1991

Ranker, T. A. 1991. Ecological genetics and evolution of Hawaiian ferns. Symposium of the Society for the Study of Evolution on "Evolution of Hawaiian Organisms".

Ranker, T. A. 1991. Evolutionary patterns and processes in Mexican species of *Bommeria*, *Hemionitis*, and *Cheilanthes*. Symposium of the Botanical Society of America and the American Fern Society on "Pteridophytes of Mexico".

Ranker, T. A. 1991. Biological diversity in Hawaii: Origin, evolution, and problems of conservation. Annual meeting of the Guild of Rocky Mountain Population Biologists.

1992

Ranker, T. A. 1992. Genetic diversity in relation to biogeography and colonization of native Hawaiian ferns. Symposium of the Botanical Society of America and the American Fern Society on "Island Biogeography of Pteridophytes".

Ranker, T. A. 1992. Quantitative methods for decision making in gene resource management: Case study of native Hawaiian ferns. Symposium of the Quantitative Forest Genetics Group, Western Forest Genetics Association.

1993

Ranker, T. A. 1993. Evolution and conservation of genetic diversity in tropical ferns. Symposium of the Association for Tropical Biology on "Genetic Variation in Tropical Plants - Implications for Understanding the Evolution of Diversity and Its Conservation".

1994

Ranker, T. A. and R. G. Olmstead. 1994. Overview of molecular techniques and phylogenetic analyses of molecular data. Symposium of the Botanical Society of America and the American Fern Society on "Use of Molecular Data in Evolutionary Studies of Pteridophytes".

Haufler, C. H. and T. A. Ranker. 1994. *rbcL* sequences provide phylogenetic insights among sister species of the fern genus *Polypodium*. Symposium of the Botanical Society of America and the American Fern Society on "Use of Molecular Data in Evolutionary Studies of Pteridophytes".

1996

Ranker, T. A. 1996. Are pteridophyte mating systems correlated with habitat? Symposium of the Botanical Society of America and the American Fern Society on "Ecological Adaptations of Ferns".

1998

Ranker, T. A. and C. E. C. Gemmill**. 1998. Population genetics of Hawaiian ferns and implications for conservation management. Invited Keynote Speaker. Symposium of the Botanical Society of America and the American Fern Society on "Conservation Biology of Pteridophytes".

1999

Gemmill, C. E. C. and T. A. Ranker. 1999. Hawaiian perspectives on the origin and diversification of pteridophyte species. Symposium of the XVI International Botanical Congress entitled "Species and speciation in Pteridophytes".

Ranker, T. A. 1999. Ecological genetics and conservation of tropical ferns. XIII Simposio de Botánica Criptogámica. Invited Keynote Speaker. Madrid, Spain.

Ranker, T. A., C. H. Haufler, A. R. Smith, J. Therrien, and H. A. Houston**. 1999. Phylogeny of Polypodiaceae and Grammitidaceae, two derived and closely related fern families. Symposium of the XVI International Botanical Congress entitled "Fern phylogeny with emphasis on relationships of basal lineages".

Wolf, P. G., H. Schneider, and T. A. Ranker. 1999. The roles of vicariance and long-distance dispersal in the origin of fern distributions. Symposium of the XVI International Botanical Congress entitled "Pteridophyte biogeography".

2001

Ranker, T. A. 2001. The way forward: An action plan for the IUCN/Species Survival Commission - Pteridophyte Specialist Group. Fern Flora Worldwide: Threats and Responses, An International Symposium, University of Surrey, Guildford, UK.

Ranker, T. A. and J. M. O. Geiger**. 2001. Molecular phylogenetics of ferns: using molecules to infer patterns and processes of evolution and historical biogeographical. Invited Keynote Speaker. Annual Meeting of the Queenstown Molecular Biology Society, Queenstown, New Zealand.

2004

Geiger, J. M. O.**, T. A. Ranker, and J. M. Ramp. 2004. The origins and biogeography of Hawaiian Ferns. Botany 2004 meetings, Snowbird, UT. Symposium of the Botanical Society of America and the America Fern Society on "The Power of Two: Marrying Phylogeny and Biogeography to Reconstruct the Evolutionary History of Pteridophytes".

Haufler, C. H., A. R. Smith, T. A. Ranker, and H. Schneider. 2004. A tale of two mechanisms: Discovering how dispersal and vicariance contributed to the pattern of species diversity in the "polygrams." Botany 2004 meetings, Snowbird, UT. Symposium of the Botanical Society of America and the America Fern Society on "The Power of Two: Marrying Phylogeny and Biogeography to Reconstruct the Evolutionary History of Pteridophytes".

Ranker, T. A. 2004. The origins and biogeography of Hawaiian Ferns. Special presentation to the Hawaiian Botanical Society, Honolulu, HI.

Ranker, T. A. 2004. The origins and biogeography of Hawaiian Ferns. Special presentation at the National Tropical Botanical Garden, Kalaheo, HI.

Ranker, T. A. 2004. The origins and biogeography of Hawaiian Ferns. Special presentation to the Taiwan Forestry Research Institute, Taipei, Taiwan.

2005

Geiger, J. M. O. and T. A. Ranker. 2005. Diversification of Hawaiian ferns. Symposium of the XVII International Botanical Congress, Vienna, entitled "Diversification of seed-free vascular plants in the shadow of angiosperms".

Ranker, T. A., J. M. O. Geiger, J. M. Ramp**, and S. T. Klimas**. 2005. Molecular biogeography and origins of the Hawaiian fern flora. Symposium of the XVII International Botanical Congress, Vienna, entitled "Modern phylogenetic studies in the Pteridophyta".

TEACHING: UNIVERSITY OF COLORADO

Spring, 1991: Plant Systematics, EPOB 3520 (51 students)
Independent Study – Graduates, EPOB 7840 (2 students)

- Master's Thesis, EPOB 6950 (1 student)
 Independent Study – Seniors, EPOB 4840 (2 students)
 Museum Intern – Botany, Museum 4933 (1 student)
- Fall, 1991:** Origin of Species, Graduate Seminar, EPOB 6200 (31 students)
 Doctoral Dissertation, EPOB 8990 (1 student)
 Independent Study – Seniors, EPOB 4840 (2 students)
 Independent Research – Seniors, EPOB 4870 (2 students)
- Spring, 1992:** Plant Systematics, EPOB 3520 (60 students)
 Independent Study – Graduates, EPOB 5840 & 7840 (2 students)
 Independent Study – Seniors, EPOB 4840 (2 students)
- Summer, 1992:** Plants of Colorado, EPOB 4520 (19 students)
- Fall, 1992:** Independent Research – Seniors, EPOB 4870 (4 students)
 Independent Study – Seniors, MUSM 5840 (1 student)
 Doctoral Dissertation, EPOB 8990 (1 student)
- Spring, 1993:** Plant Systematics, EPOB 3520 (63 students)
 Independent Research – Sophomores, EPOB 2840 (1 student)
 Independent Research – Seniors, EPOB 4870 (2 students)
 Independent Study – Graduates, EPOB 5840 (2 student)
 Independent Study – Graduates, EPOB 7840 (2 students)
 Independent Study, Museum, MUSM 4900 (1 student)
 Museum Intern – Botany, MUSM 4933 (1 student)
 Master's Thesis, EPOB 6950 (1 student)
 Doctoral Dissertation, EPOB 8990 (3 students)
- Summer, 1993:** Plants of Colorado, EPOB 4520 (19 students)
 Independent Research – Seniors, EPOB 4870 (3 students)
 Doctoral Dissertation, EPOB 8990 (2 students)
- Fall, 1993:** Independent Research – Juniors, EPOB 3870 (2 students)
 Independent Study – Seniors, EPOB 4840 (1 student)
 Independent Research – Seniors, EPOB 4870 (3 students)
 Master's Thesis, EPOB 6950 (3 students)
 Independent Research – Graduates, EPOB 8840 (2 students)
 Independent Study – Graduates, EPOB 7840 (2 students)
 Doctoral Dissertation, EPOB 8990 (4 students)
- Spring, 1994:** Plant Systematics, EPOB 3520 (62 students)
 Independent Study – Junior, EPOB 3840 (1 student)
 Independent Research – Junior, EPOB 3870 (2 students)
 Teaching Biology (Plant Systematics), EPOB 4010 (1 student)
 Independent Research – Senior, EPOB 4870 (2 students)
 Independent Study – Graduate, EPOB 5840 (1 student)
 Independent Research – Graduate, EPOB 6840 (1 student)
 Master's Candidate, Plan 2, EPOB 6940 (1 student)
 Master's Thesis, EPOB 6950 (1 student)
 Independent Study – Graduate, EPOB 7840 (1 student)
 Doctoral Dissertation, EPOB 8990 (4 students)
- Summer, 1994:** Independent Research – Junior, EPOB 3870 (1 student)
 Independent Research – Senior, EPOB 4870 (1 student)
 Independent Research – Graduate, EPOB 6860 (1 student)
- Fall, 1994:** Independent Research – Junior, EPOB 3870 (1 student)
 Independent Study – Senior, EPOB 4840 (1 student)
 Independent Research – Senior, EPOB 4870 (3 students)
 Independent Study – Graduate, MUSM 5900 (1 student)
 Topics in Evolution, Graduate Seminar, EPOB 6110 (10 students)
 Biology/Evolution of Polyploidy, Graduate Seminar, EPOB 6300 (8 students)
 Master's Candidate, Plan 2, EPOB 6940 (1 student)

- Master's Thesis, EPOB 6950 (2 students)
 Doctoral Dissertation, EPOB 8990 (5 students)
- Spring, 1995:** Plant Systematics, EPOB 3520 (40 students)
 Teaching Biology (Plant Systematics), EPOB 4010 (1 student)
 Independent Research – Senior, EPOB 4870 (3 students)
 Independent Study – Graduate, MUSM 5900 (1 student)
 Master's Thesis, EPOB 6940 (2 students)
 Independent Study – Graduate, EPOB 7840 (3 students)
- Fall, 1995:** Doctoral Dissertation, EPOB 8990 (5 students)
 Independent Research – Senior, EPOB 4870 (1 student)
 Independent Research – Graduate, EPOB 6880 (1 student)
- Spring, 1996:** Doctoral Dissertation, EPOB 8990 (5 students)
 Plant Systematics, EPOB 3520 (18 students)
 Teaching Biology (Plant Systematics), EPOB 4010 (1 student)
 Independent Research – Senior, EPOB 4870 (1 student)
 Independent Study – Senior, MUSM 4900 (1 student)
 Independent Study – Graduate, EPOB 5840 (1 student)
 Independent Study – Graduate, EPOB 7840 (1 student)
 Doctoral Dissertation, EPOB 8990 (4 students)
- Summer, 1996:** Independent Research – Senior, EPOB 4870 (2 students)
- Fall, 1996:** Independent Research – Junior, EPOB 3870 (1 student)
 Independent Research – Senior, EPOB 4870 (1 student)
 Origin of Species, Graduate Seminar, EPOB 6200 (8 students)
 Museum Practicum in Botany, MUSM 5913 (1 student)
 Master's Thesis, MUSM 6950 (1 student)
 Doctoral Dissertation, EPOB 8990 (3 students)
- Spring, 1997:** Plant Systematics, EPOB 3520 (49 students)
 Independent Research – Junior, EPOB 3870 (2 students)
 Teaching Biology (Plant Systematics), EPOB 4010 (1 student)
 Master's Thesis, MUSM 6950 (1 student)
 Museum Practicum in Botany, MUSM 5913 (1 student)
 Doctoral Dissertation, EPOB 8990 (3 students)
- Fall, 1997:** Independent Research – Senior, EPOB 4870 (1 student)
 Master's Thesis, EPOB 6950 (1 student)
- Spring, 1998:** Plant Systematics, EPOB 3520 (47 students)
 Independent Study – Senior, EPOB 4840 (1 student)
 Independent Research – Senior, EPOB 4870 (1 student)
 Independent Study – Graduate, EPOB 7840 (2 students)
- Summer, 1998:** Independent Study – Graduate, MUSM 5900 (1 student)
- Fall, 1998:** *Sabbatical Leave*
 Doctoral Dissertation, EPOB 8990 (1 student)
 Master's Thesis, MUSM 6950 (1 student)
- Spring, 1999:** *Sabbatical Leave*
 Doctoral Dissertation, EPOB 8990 (1 student)
 Master's Thesis, MUSM 6950 (1 student)
- Summer, 1999:** Biological Field Studies, EPOB 4350 (1 student)
- Fall, 1999:** Doctoral Dissertation, EPOB 8990 (2 students)
 Independent Research – Senior, EPOB 4870 (1 student)
 Independent Study – Senior, MUSM 4900 (1 student)
- Spring, 2000:** Plant Systematics, EPOB 3520 (69 students)
 Teaching Biology (Plant Systematics), EPOB 4010 (1 student)
 Independent Study – Graduate, EPOB 5840 (1 student)
 Independent Study – Graduate, EPOB 7840 (1 student)
 Scientific Survival, Graduate Seminar, EPOB 6000 (24 students)

- Fall, 2000:** Doctoral Dissertation, EPOB 8990 (2 students)
 Doctoral Dissertation, EPOB 8990 (2 students)
 Museum Practicum/Botany, MUSM 5913 (1 student)
- Spring, 2001:** Collections Management, MUSM 5051 (10 students)
 Independent Study, MUSM 4900 (1 student)
 Doctoral Dissertation, EPOB 8990 (1 student)
- Fall, 2001:** Doctoral Dissertation, EPOB 8990 (4 students)
- Spring, 2002:** Independent Study, ENVS 4840 (1 student)
 Doctoral Dissertation, EPOB 8990 (4 students)
- Summer, 2002:** Doctoral Dissertation, EPOB 8990 (1 student)
- Fall, 2002:** Collections Management, MUSM 5051 (13 students)
 Doctoral Dissertation, EPOB 8990 (4 students)
 Independent Research – Graduate, EPOB 8840 (1 student)
- Spring, 2003:** Independent Research – Senior, EPOB 4870 (1 student)
 Island Biology Graduate Seminar, EPOB 6100 (7 students)
 Doctoral Dissertation, EPOB 8990 (4 students)
- Fall, 2003:** Collections Management, MUSM 5051 (8 students)
 Doctoral Dissertation, EPOB 8990 (3 students)
- Spring, 2004:** Independent Study – Senior, EPOB 4840 (1 student)
 Independent Study – Graduate, EPOB 7840 (1 student)
 Doctoral Dissertation, EPOB 8990 (3 students)
- Fall, 2004:** Doctoral Dissertation, EBIO 8990 (3 students)
- Spring, 2005:** Plant Systematics, EBIO 3520 (20 students)
 Grant Writing Graduate Seminar, MUSM 6110 (11 students)
 Independent Research – Senior, EBIO 4870 (1 student)
 Independent Study – Graduate, EBIO 5840 (1 student)
 Doctoral Dissertation, EBIO 8990 (2 students)
 Master's Thesis, MUSM 6590 (1 student)
- Fall, 2005:** Sabbatical leave from CU Boulder.
University of Hawaii: Graduate seminar on Darwin's Origin of Species (8 students)
- Spring, 2006:** Sabbatical leave.

GRADUATE STUDENT ADVISING/MENTORING

Ecology and Evolutionary Biology

Ph.D. Dissertation Advisor of students with completed degrees:

- Anna M. Arft, Ph.D., 1995. Genetics, demography, and conservation management of the rare orchid *Spiranthes diluvialis* (Orchidaceae). Current position: private consultant.
- Chrissen E. C. Gemmill, Ph.D., 1996. Population genetics and systematics of the Hawaiian taxa *Pritchardia* (Arecaceae) and *Brighamia* (Campanulaceae). Current position: Senior Lecturer, University of Waikato, Hamilton, New Zealand.
- Robin A. Bingham, Ph.D., 1997. Reproductive biology and genetic structure in foothill and alpine populations of *Campanula rotundifolia* L. (Campanulaceae). Current position: Associate Professor, Western State College, Gunnison, Colorado.
- Carla A. Wise, Ph.D. 1997. The importance of genetic factors in the persistence of plant populations: Modeling problems in conservation biology with *Brassica rapa*. (Co-advisor with Y. Linhart) Current position: Conservation Biologist, Institute for Applied Ecology, Corvallis, Oregon.

- Jennifer M. O. Geiger, Ph.D. 2003. Origin and diversification of Hawaiian *Dryopteris* (Dryopteridaceae). Current position: Assistant Professor, Carroll College, Helena, Montana.
- Laura Mujica-Crapanzano, Ph.D. 2004. Landscape analysis of vegetation and diversity patterns across the forest-tundra ecotone of Niwot Ridge, Colorado. (Co-advisor with P. Bourgeron). Current position: Botanist, U.S. Forest Service, Forest Inventory Analysis Lab, Anchorage, AK.
- Jennifer Ramp Neale, Ph.D. 2005. Microevolutionary dynamics and population genetics of the endangered California vernal pool sunflower *Lasthenia conjugens* (Asteraceae). (Co-advisor with S. Collinge). Current position: Post-Doctoral Research Associate, University of Colorado Museum.

Current Ph.D. Dissertation Advisor of:

Ecology and Evolutionary Biology

- Susan Klimas, Ph.D. expected 2008. Molecular phylogenetics and historical biogeography of the Indo-Pacific tree fern genus *Sphaeropteris* (Cyatheaceae).
- Jonathan Krieger, Ph.D. expected May, 2006. The evolution of developmental modules and lability of leaf form in the fern genus *Pleopeltis* (Polypodiaceae). (Co-advisor with R. Guralnick)
- Shannon Kuchel Fehlberg, Ph.D. expected May, 2006. Evolutionary diversification of *Encelia* (Asteraceae: Heliantheae) in the Sonoran and Mohave deserts.
- Sarada Krishnan, Ph.D. New student Fall 2005. Project to be determined.
- Melissa Islam, Ph.D. New student Fall 2005. Project to be determined.

Master's Thesis Advisor of students with completed degrees:

Museum and Field Studies

- Jan I. Bernstein, M.S., 1994. Open Storage: A Survey. Current position: NAGPRA Consultant, Denver, CO.
- Dina A. Clark, M.S., 1995. Floristic survey of the Mesa de Maya region of southeastern Colorado. Current position: Botanical Consultant, Denver, CO.
- Mark Duff, M.S., 1994. Population genetics of the Channel Island endemic *Lyonothamnus floribundus* (Rosaceae). Last known position: Biology Instructor at Weber State University, Ogden, UT.
- Julie E. Korb, M.S., 1997. Vegetation dynamics in four ecosystems along an elevational gradient in the Front Range, Colorado. Current position: Assistant Professor, Ft. Lewis College, Durango, CO.
- Andrea Orthner, M.S., 1999. Flora of the Buffalo Peaks Wilderness Area and vicinity, Mosquito Range, Colorado. Current position: Field Botanist, Western Ecological Resource, Inc., Boulder, CO.
- Erin (Schaaf) Robertson, M.S., 2000. Limits to female reproductive success in the bottle gentian *Pneumonanthe bigelovii* (Gentianaceae). Current position: Staff Biologist, Center for Native Ecosystems, Boulder, CO.
- Monique McHenry, M.S. 2005. Ferns and lycophytes of the Southern Rocky Mountain Region. Current position: Biologist, Massachusetts Audubon Society, Boston, MA.

Ecology and Evolutionary Biology

- Sandra K. Floyd, M.A., 1995. Population structure, dynamics, and genetics of *Gaura neomexicana* ssp. *coloradensis* (Onagraceae), a rare semelparous perennial. Current position: Post-Doctoral Research Associate, University of California, Davis, CA.
- Kendra A. Mingo, M.A., 1997. Phylogenetic systematics and conservation genetics of the *Sesbania tomentosa* complex (Fabaceae) in Hawaii. Current position: Assistant Director, Community Outreach and Education Program, Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

Current Master's Thesis Advisor of:**Ecology and Evolutionary Biology**

- Margaret Wright, M.A. expected 2006. Genetic differentiation of bog and forest populations of *Metrosideros polymorpha* (Myrtaceae) in the Hawaiian Islands.

Museum and Field Studies

- Pamela Regensberg, M.S. New student Fall 2005. Project to be determined.

Current Graduate Certificate Advisor of:**Museum and Field Studies**

Benjamin Degrow, Patrice Gibson

Member of Graduate Committees of students with completed degrees:**EPO/EE Biology**

Jonathan Friedman – Ph.D., 1993
 Steve Chischilly – M.A., 1994
 Andrea Premoli – Ph.D., 1994
 Hsiu-Ping Liu – Ph.D., 1994
 John Philip Gibson – Ph.D., 1995
 Sandra Floyd – Ph.D., 2001
 David Remucal – Ph.D., 2002
 Caroline Mitchell – M.A., 2003
 Ruth Heisler – M.A., 1995
 Anna Goebel – Ph.D., 1996

Ron Millen – M.A., 1996
 William Gould – Ph.D., 1998
 Brian Kreiser – Ph.D., 1999
 Norman Clippinger – Ph.D., 2002
 Tara Forbis – Ph.D., 2003
 Kristy Duran – Ph.D., 2004
 Nehalem Brieter – M.A., 2005
 Pablo Weaver – M.A., 2005

Museum and Field Studies

Linda Clement – M. S., 1993
 Caroline McLean – M. S., 1993
 Jack Watson – M.S., 1997
 Mary Damm – M.S., 2002

Molly O'Malley – M.S., 1998
 Elizabeth Wall – M.S., 2005
 David Hunzicker – M.S., 2005
 Sarah Price – M. S., 2005

Geological Sciences

Jared Morrow – Ph.D., 1997

Current Member of Graduate Committee of:Museum and Field Studies

Heather McKeown

Ecology and Evolutionary Biology

Erin Bissell, Kasey Barton, Alicia Pardo, Heidi Schutz, Jennifer Winther

University of Denver – Biology

Ana Luisa Child

ADVISOR OF UNDERGRADUATE HONORS STUDENTS

- Nancy Bordelon, *cum laude*, 1994: Population genetics of *Washington filifera*.
- Jeffie Morehart, *magna cum laude*, 1994: A phylogenetic investigation of Hawaiian Palms.
- Brittany A. Wilson, *magna cum laude*, 1994: Phylogenetic relationships of *Adenophorus*.
- Keri Howe, *summa cum laude*, 1995: The mating system of *Campanula rotundifolia*. (Nominated "Outstanding Graduate in College of Arts and Sciences", Fall, 1995)
- Lara Sims, *cum laude*, 1995: Phylogenetic history of the rare orchid *Spiranthes delitescens*.
- Chi Yang, *magna cum laude*, 1995: Genetic basis for isozyme variability in *Brassica rapa*.
- Stephanie Arenales, *magna cum laude*, 1996: Phylogenetic systematics of Western North American *Scutellaria* (Lamiaceae). (Co-advised with R. G. Olmstead)
- Janine Johnston, *magna cum laude* 1996. Iridoid glycoside and allozyme variation within and among populations of *Plantago rhodosperma* Decne. (Plantaginaceae) in Kansas. (Co-advised with M. D. Bowers)
- Jemma Wilk, *magna cum laude*, 1996: Population genetics and historical biogeography of Coloradan populations of *Asplenium septentrionale* (Aspleniaceae)
- Amy Tanner, *summa cum laude*, 1998: The impact of genetic variation on reproductive fitness.
- Shannon Kennedy, *summa cum laude*, 2001: Molecular systematics of the Grammitidaceae based on the chloroplast gene *atpβ*.
- Keelie Klobberdanz, *magna cum laude*, 2002: Molecular systematics of Hawaiian *Asplenium*.

COMMITTEE MEMBER FOR UNDERGRADUATE HONORS STUDENTS**2003: Spring:** Janice Forbis (EEB), Mindi Manes (EEB)**2004: Spring:** Sara Desplaines (EEB), Colleen Kenney (EEB), Kira Krend (EEB), Anjali Subbarao (Psychology)**Fall:** Matthew Metzger (EEB)**2005: Spring:** Mary Shannon Clow (EEB), Stephanie Kemp (EEB), Erin Posthumus (EEB), Matthew Siegle (EEB)**HUGHES INITIATIVE UNDERGRADUATE RESEARCH ASSISTANTSHIPS PROGRAM (URAP) AND CU UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM (UROP) STUDENTS****URAP****1994:** Nancy Bordelon**1995:** Chi Yang**2000:** Keelie Klobberdanz

UROP

- 1993:** Vicki Frey
1994: Laura Carsten, Mignon Macias, Jeffie Morehart, Brittany Wilson, Eric Wilson
1995: Pamela Delboy, Tara Doughty, Heather Locke
1996: Susie Geer, Mignon Macias
1999: Natalie Triplett, Lauren Whiteside
2001/2002: Keelie Kloberdanz

**SUMMER MULTICULTURAL ACCESS TO RESEARCH AND
TRAINING STUDENTS**

- 1994:** Mignon Macias
1995: Veronica Rodriguez
1996: Amy Tanner
1999: Eric Wada

**EEB RESEARCH EXPERIENCE FOR UNDERGRADUATES
PROGRAM - NSF**

- 1996:** Jemma Wilk
1997: Sara Krier
1999: Elizabeth Twieg
2001: Kimberly van Exel
2002: Rachel Prunier

UNIVERSITY SERVICE

University of Colorado

- 1991-present:** Ad-hoc reviewer of UROP proposals; 5-10 per year
1993-1996: Boulder Faculty Assembly representative
1993-1996: Council for Research and Creative Work-Graduate School
1996-1998,
2000-2004: Graduate Student Research and Creative Work Awards Committee - Graduate School
1996-1997: Sussman Environmental Internship Committee - Graduate School
1997, 1999,
& 2000: Dean's Small Grants Review Committee - Graduate School
2003-2006: University Undergraduate Honors Council

College of Arts & Sciences

- 1992-1993:** Presentation to A & S 50th Reunion, Class of 1942, entitled "Plants of Hawaii"

University of Colorado - University Museum

- 1990-1991:** Collections Committee; Museography Review Committee
1991-1992: Chair, Collections Committee; Tenure Review Committee
1992-1993: Chair, Collections Committee
1993-1994: Chair, Collections Committee; Search Committee, Vertebrate Zoologist; Task Force, Masters of Basic Science Program Review
1994-1995: Co-Chair, Curriculum Committee; Collections Committee; Yellow Jacket Archeological Site Advisory Committee; Museum Space Committee
1995-1996: Co-Chair, Curriculum Committee; Collections Committee; Yellow Jacket Archeological Site Advisory Committee; Museum Space Committee

- 1996-1997:** Co-Chair, Curriculum Committee; Collections Committee; Yellow Jacket Archeological Site Advisory Committee; Museum Space Committee
- 1997-1998:** Co-Chair, Curriculum Committee; Collections Committee; Yellow Jacket Archeological Site Advisory Committee; Museum Space Committee; Project Curator for NSF planning grant proposal: "From Grassland to Glacier" exhibit; Museum Web Page Committee
- 1998-1999:** *Sabbatical leave*; Project Curator for NSF-funded exhibit renovation project: "From Grassland to Glacier" exhibit
- 1999-2000:** Curriculum Committee; Collections Committee; Museum Space Committee; Project Curator for NSF-funded exhibit renovation project: "From Grassland to Glacier" exhibit; Chair, Search Committee for Coordinator of Museum & Field Studies Program. Member of standing, low-level activity committees: Yellow Jacket Archeological Site Advisory Committee.
- 2000-2001:** Curriculum Committee; Collections Committee; Project Curator for NSF-funded exhibit renovation project: "From Grassland to Glacier" exhibit; Search Committee for Coordinator of Museum & Field Studies Program. Member of standing, low-level activity committees: Yellow Jacket Archeological Site Advisory Committee. Presented lecture on "Assessing changes in biological diversity over time" to workshop of K-12 teachers sponsored by the CU Museum and the National Wildlife Federation.
- 2001-2002:** Interim Director of CU Museum; Project Curator for exhibit renovation and biodiversity science education project ("BioHall Committee"); de Queiroz Tenure and Reappointment Committee
- 2002-2003:** Chair, Collections Committee; BioHall Committee; Participant in "Science After School" workshop for 4th-grade girls; ad hoc Zoology Section Review Committee; Emergency Planning Committee
- 2003-2004:** Chair, Collections Committee; Chair, Grants Committee; Zoology Collection Manager Search Committee; Chair, Guralnick Comprehensive Review Committee; Emergency Planning Committee; Curator of Vertebrate Zoology Search Committee; Bowers Post-Tenure Review Committee; Curator for exhibit "Remains of a Rainbow"; Cordell Post-Tenure Review Committee; Cordell Reappointment Committee
- 2004-2005:** Chair, MFS Curriculum Committee; Chair, Student Fees Committee; Co-Chair, PRP Committee; Bowers Post-Tenure Review Committee
- 2005-2006:** *Sabbatical leave.*

University of Colorado - Department of Ecology and Evolutionary Biology

- 1990-1991:** Search Committee for Assistant Director of Plant Facilities; General Biology Laboratory Evaluation Committee; EPOB Graduate Fellowship applications (*ad hoc* reviewer)
- 1991-1992:** Executive Committee; Undergraduate advising; Environmental Rooms co-coordinator; Chair, Greenhouse Construction Committee
- 1992-1993:** Chair, Greenhouse Construction Committee; Environmental Rooms co-coordinator
- 1993-1994:** Chair, Greenhouse Construction Committee; Chair, Environmental Rooms; Search Committee, Field Biologist
- 1994-1995:** Instructor Reappointment Committee; Undergraduate advising
- 1995-1996:** Undergraduate Curriculum/Advising Committee; Undergraduate advising
- 1996-1997:** Undergraduate Curriculum/Advising Committee; Evolutionary Biology Committee; Undergraduate advising
- 1997-1998:** Graduate Committee; Search Committee for Evolutionary Biologist
- 1998-1999:** *Sabbatical leave*

- 1999-2000:** Graduate Committee; Greenhouse Committee; Search Committee for Evolutionary Biologist
- 2000-2001:** Greenhouse Committee; Chair, Reappointment Committee for an instructor
- 2001-2002:** Strategic Planning and Hiring Committee; de Queiroz Tenure and Reappointment Committee
- 2002-2003:** Executive Committee; Salary and Evaluation Committee
- 2003-2004:** Guralnick Comprehensive Review Committee; Departmental Honors Committee
- 2004-2005:** Graduate Committee; Departmental Honors Committee; Noyes Comprehensive Review Committee; Sequencing Facility Committee
- 2005-2006:** Sabbatical leave.

University of Colorado – Institute of Arctic and Alpine Research

- 2002:** Member of *ad hoc* review committee of Mountain Research Station

PROFESSIONAL SERVICE

Reviews of Manuscripts/Books for Peer-Reviewed Journals and Publishers and Grant Proposals (1990-present):

Manuscripts/books: 122

Acta Botanica Mexicana; American Fern Journal; American Journal of Botany; American Naturalist; Annals of Botany; Arctic, Antarctic, and Alpine Research; Biological Conservation; Biological Journal of the Linnean Society; Botanical Journal of the Linnean Society; Brittonia; Canadian Journal of Botany; Chapman & Hall Publishers; Conservation Biology; Conservation Ecology; Conservation Genetics; Ecology Letters; Evolution; The Fern Gazette; Grammitidaceae for *Nuevo Catálogo de la Flora de Venezuela*; Genetica; Heredity; International Journal of Plant Sciences; Journal of Plant Research; Journal of the Torrey Botanical Society; Madroño; Molecular Ecology; Molecular Phylogenetics and Evolution; Monocots III/Grasses IV Proceedings, Rancho Santa Ana Botanic Garden; New England Wild Flower Society (*Peterson Field Guide to the Ferns*); New Zealand Journal of Botany; Novon; Pacific Science; Plant Ecology; Plant Genetic Resources; Plant Systematics and Evolution; Journal of The Society for the Advancement of Breeding Researches in Asia and Oceania (SABRAO); Review of Palaeobotany & Palynology; Smithsonian Institution Press; Systematic Botany; Taxon; University of California Press; Western North American Naturalist

Grant Proposals:

- National Science Foundation, Smithsonian Institution: 130
(including 88 reviewed as a member of five panels since 1996)
- The Charles A. and Anne Morrow Lindbergh Foundation: 57
- Colorado Natural Areas Program: 6
- Idaho Board of Education: 2
- University of Hawaii, College of Tropical Agriculture and Human Resources: 1
- Canon National Parks Science Scholars Program for the Americas/AAAS, 2002: 15
- The Vermont Agricultural Experiment Station 1
- National Geographic Society 1

National Science Foundation:

- Panel Member, Doctoral Dissertation Improvement Grants, January, 1996
- Panel Member, Research Collections in Systematics and Ecology, April, 1997

- Panel Member, Population Biology, October, 2000
- Panel Member, Systematic Biology, October, 2001
- Panel Member, Systematic Biology, October, 2004

American Fern Society:

- President-Elect, 2001-2004
- President, 2004-2006

American Society of Plant Taxonomists:

- Environment and Public Policy Committee, Member, 1996-1999
- Editorial Committee Member for Systematic Botany Monographs, 2004-2007
- Associate Editor for Systematic Botany, 2004-2007

American Society of Naturalists, Society of Systematic Biologists, Society for the Study of Evolution:

- Member of Organizing Committee for joint annual meeting, 1997

Botanical Society of America:

- Secretary/Treasurer, Pteridological Section of BSA, 1998-2001
- Committee on Committees, BSA, 2000-2002
- Conservation Committee, Chair, BSA, 2001-2003
- Conservation Committee, Member, BSA, 2001-2004

Botanical Society of America and American Fern Society:

- Chair of contributed paper session at joint annual meeting, August 1992
- Organized symposium on "Conservation Biology of Pteridophytes", August 1998
- Program officer for AFS & Pteridological Section contributed paper session at annual meeting in Portland, OR, 2000
- Program officer for AFS & Pteridological Section contributed paper session at annual meeting in Mobile, AL, 2003
- Program officer for AFS & Pteridological Section contributed paper session at annual meeting in Snowbird, UT, 2004

The Field Museum, Chicago

- Outside reviewer for faculty reappointment, 1999.

Green Plant Phylogeny Coordinating Group (NSF/USDA/DOE):

- Invited participant in workshop, Montreal, Canada, August, 1997.

International Association of Pteridologists:

- President, 2005-2011

International Organization of Plant Biosystematists:

- Co-Host and Organizer of five one-day field trips in the Rocky Mountains following the annual meeting of IOPB in St. Louis, June 1992

IUCN/Species Survival Commission - Pteridophyte Specialist Group:

- Invited Member, 1994-present
- Co-Chair, 2001-2005

IUCN/Species Survival Commission - Pteridophyte Specialist Group & British Pteridological Society:

- Member of Organizing Committee for "Fern Flora Worldwide: Threats and Responses, An International Symposium", University of Surrey, Guildford, UK, 23-26 July 2001.

Organization for Tropical Studies

- Resource Faculty for Tropical Ecology class, February, 2003.

XIII Simposio de Botánica Criptogámica, Universidad Complutense

- Member of Scientific Committee, 1999-2000.

Universidad de Havana, Cuba

- Outside reviewer of Ph.D. dissertation, 1996.

The New York Botanical Garden

- Outside reviewer for faculty reappointment, 2001.

Colorado Native Plant Society

- 1991:** Presentation of workshop on "Systematics, Ecology, and Conservation of Native Hawaiian Ferns"
- 1992:** Co-host for workshop on Brassicaceae
- 1992-1996:** Board of Directors
- 1993:** Co-host for workshops on *Agave*, Brassicaceae, and Gentianaceae
- 1993-1996:** President
- 1994:** Presentation on "Ferns of Hawaii" (Denver Chapter)
- 1995:** Co-host for workshop on Cucurbitaceae
- 1996:** Co-host for workshop on trichomes; presentation of two workshops on "Basic Plant Identification"
- 1996:** Co-host for workshop on the genus *Haplopappus* and related genera
- 1997:** Co-host for workshop on "The Chihuahuan Element in the Colorado Flora"
- 1997:** Co-host for workshop on "The Orchids of Colorado"
- 1997:** Co-host for workshop on "The Cacti of Colorado and Adjacent Areas"
- 1998:** Co-host for workshop on "The Brassicaceae: *Physaria* and *Lesquerella*"
- 1999:** Co-host for workshop on "The genus *Chenopodium*"
- 2000:** Presentation of two workshops on "Basic Plant Identification"
- 2003:** Presentation of two workshops on "Basic Plant Identification"
- 2004:** Presentation of two workshops on "Lycophytes and Ferns of Colorado"
- 2004:** Host for workshop on "Xeriscaping"
- 2005:** Presentation of two workshops on "Basic Plant Identification"

Other Organizations and Agencies

- 1990:** Hawaiian Botanical Society, President
- 1991-1992:** Boulder Valley School District, Science Fair Judge
- 1992:** Green Mountain United Methodist Church, workshop on biodiversity
- 1992-2004:** Technical Committee for Rare Plants in Colorado, U. S. Fish & Wildlife Service, founding member
- 1994:** U.S. Forest Service: two workshops on plant identification at University of Colorado
- 1994-1995:** Consultant to Colorado Bureau of Investigation, Department of Public Safety
- 1995-2000:** Member Native Plant Policy Group, State of Colorado Dept. of Natural Resources
- 1996-present:** Member, Science Advisory Network, Nature Conservancy of Colorado
- 2000:** Colorado/Wyoming Junior Academy of Science – Herbarium tours and discussions of botanical science to two groups of 15 students

[Updated: October 2005]