

**Sara B. Hoot**

**CURRICULUM VITAE**

**Employment:**

- 2000- Associate Professor  
Department of Biological Sciences  
University of Wisconsin-Milwaukee
- 1994- Assistant Professor  
2000 Department of Biological Sciences  
University of Wisconsin-Milwaukee
- 1991- Research Associate/Postdoc  
1994 Department of Geology  
Field Museum  
Chicago, IL 60605
- 1993 Research Associate  
Jodrell Laboratory, Molecular Systematics Group  
Royal Botanic Gardens  
Kew, Surrey (four month appointment)

**Education:**

- 1985-91 Ph.D., Systematic Botany  
Department of Biology, University of Michigan  
Dissertation: Phylogenetic Relationships in *Anemone* (Ranunculaceae) Based on Morphology and Chloroplast DNA Variation  
Co-advisors: Dr. A. Reznicek, Dr. J. Palmer, Dr. W. Anderson
- 1983-85 M.S., Botany  
Department of Biology, The Pennsylvania State University.  
Master's Thesis: A Numerical Analysis of Foliar Microcharacters in the Ranunculaceae  
Co-advisors: Dr. C. Keener and Dr. C. Hillson

**Professional Service:**

- 2003- Systematic Botany, Associate Editor  
2006
- 1997, National Science Foundation, Division of Environmental Biology, Systematic  
2000 Biology Spring Advisory Panel

**Grants:**

- 2006- National Science Foundation (Phylogenetic Systematics), \$200,001.00.  
Phylogenetic and evolution of Ranunculales: an integrative approach
- 2005 National Science Foundation (Supplemental Award), \$41,114.00.  
Collaborative research: Species delimitation and phylogenetic relationships within *Isoetes* (Isoëtaceae) using multiple data sets.
- 2000- National Science Foundation (Systematic Biology), \$200,000.00.  
2004 Collaborative research: Species delimitation and phylogenetic relationships within *Isoetes* (Isoëtaceae) using multiple data sets.

- 1997- U.S. Fish and Wildlife Service, Atlanta, GA, \$24,104.00.  
1999 Genetic Variation and Phylogenetic Relationships of *Isoëtes louisianensis*, Louisiana Quillwort.
- 1996 Graduate Student Research Committee, University of Wisconsin Milwaukee, \$9,958.00.  
Evolutionary and Phylogeographic Patterns in the Proteaceae Based on Molecular Data.
- 1993- National Science Foundation, Biotic Systems and Resources (Systematic  
1996 Biology), \$124,645.00.  
Phylogenetic Relationships of the Ranunculidae and Basal Hamamelidae: Implications for the Early Evolution of Non-Magnoliid Dicotyledons

### **Publications:**

- Hoot, S. B., W. C. Taylor, and N. S. Napier. 2006. Phylogeny and biogeography of *Isoëtes* based on nuclear and chloroplast DNA sequence data. *Systematic Botany* 31: 449-460.
- Schuettpelz, E. and S. B. Hoot. 2006. Inferring the root of *Isoëtes*: Exploring the alternatives in the absence of an acceptable outgroup. *Systematic Botany* 31: 258-270.
- Weigend, M., M. Gottschling, S. Hoot, and M. Ackermann. 2004. A preliminary phylogeny of Loasaceae subfam. Loasoideae (Angiospermae: Cornales) based on *trnL*(UAA) sequence data, with consequences for systematics and historical biogeography. *Organisms, Diversity and Evolution* 4: 73-90.
- Hoot, S. B., N. S. Napier, and W. C. Taylor. 2004. Revealing unknown or extinct lineages within *Isoëtes* (Isoëtaceae) using DNA sequences from hybrids. *American Journal of Botany* 91:899-904.
- Schuettpelz, E. and S. B. Hoot. 2004. Phylogeny and biogeography of *Caltha* (Ranunculaceae) based on chloroplast and nuclear DNA sequences. *American Journal of Botany* 91: 247-253.
- Taylor, W. C., A. R. Lekschas, Q. F. Wang, X. Liu, N. S. Napier, and S. B. Hoot. 2004. Phylogenetic relationships in *Isoëtes* (Isoëtaceae) in China revealed by nucleotide sequences of the nuclear ribosomal ITS region and the second intron of a *LEAFY* homolog. *American Fern Journal* 94: 196-205.
- Schuettpelz, E., S. B. Hoot, R. Samuel, and F. Ehrendorfer. 2002. Multiple origins of Southern Hemisphere *Anemone* (Ranunculaceae) based on plastid and nuclear sequence data. *Plant Systematics and Evolution* 231: 142-151.
- Walsh, B. M. and S. B. Hoot. 2001. Phylogenetic relationships of *Capsicum* (Solanaceae) using DNA sequences from two noncoding regions: The chloroplast *atpB-rbcL* spacer region and nuclear waxy introns. *International Journal of Plant Sciences* 162: 1409-1418.
- Hoot, S. B. and W. C. Taylor. 2001. The utility of nuclear ITS, a *LEAFY* homolog intron, and chloroplast *atpB-rbcL* spacer region data in phylogenetic analyses and species delimitation in

*Isoëtes*. American Fern Journal 91: 166-177.

Soltis, D. E., P. S. Soltis, M. W. Chase, M. E. Mort, D. C. Albach, M. Zanis, V. Savolainen, W. H. Hahn, S. B. Hoot, M. F. Fay, M. Axtell, S. M. Swenson, K. C. Nixon, and J. S. Farris. 2000. Angiosperm phylogeny inferred from a combined data set of 18S rDNA, *rbcL*, and *atpB* sequences. Botanical Journal of the Linnean Society 133: 381-461.

Savolainen, V., M. W. Chase, S.B. Hoot, C. M. Morton, D. E. Soltis, C. Bayer, M. F. Fay, A. de Bruijn, S. Sullivan, and Y.-L. Qiu. 2000. Phylogenetics of flowering plants based upon a combined analysis of plastid *atpB* and *rbcL* gene sequences. Systematic Biology 49: 306-362.

Hoot, S. B., S. Magallón, and P. R. Crane. 1999. Phylogeny of basal eudicots based on three molecular data sets: *atpB*, *rbcL*, and 18S nuclear ribosomal DNA sequences. Annals of the Missouri Botanical Garden 86: 1-32.

Angiosperm Phylogeny Group (consists of 29 plant systematists, including S. B. Hoot). 1998. An ordinal classification for the families of flowering plants. Annals of the Missouri Botanical Garden 85: 531-567.

Hoot, S. B. and A. W. Douglas. 1998. Phylogeny of the Proteaceae based on *atpB* and *atpB-rbcL* spacer region sequences. Australian Systematic Botany 11: 301-320.

Qiu, Y.-L., M. W. Chase, S. B. Hoot, E. Conti, P. R. Crane, K. J. Sytsma, and C. R. Parks. 1998. Phylogenetics of the Hamamelidae and their allies: Parsimony analyses of nucleotide sequences of the plastid gene *rbcL*. International Journal of Plant Sciences 159: 881-890.

Soltis, D. E., P. S. Soltis, M. Mort, M. W. Chase, V. Savolainen, S. B. Hoot, and C. M. Morton. 1998. Inferring complex phylogenies using parsimony: An empirical approach using three large DNA data sets for angiosperms. Systematic Biology 47: 32-42.

Hoot, S. B., J. W. Kadereit, F.R. Blattner, K. B. Jork, A. E. Schwarzbach, and P. R. Crane. 1997. Data congruence and phylogeny of the Papaveraceae s. l. based on four data sets: *atpB* and *rbcL* sequences, *trnK* restriction sites, and morphological characters. Systematic Botany 22: 575-590.

Soltis, D. E., P. S. Soltis, D. L. Nickrent, L. A. Johnson, W. J. Hahn, S. B. Hoot, J. A. Sweere, R. K. Kuzoff, K. A. Kron, M. W. Chase, S. M. Swenson, E. A. Zimmer, S.-M. Chaw, L. J. Gillespie, W. J. Kress, and K. J. Sytsma. 1997. Angiosperm phylogeny inferred from 18S ribosomal DNA sequences. Annals of the Missouri Botanical Garden 84:1-49

Gadek, P. A., E. S. Fernando, C. J. Quinn, S. B. Hoot, T. Terrazas, M. C. Sheahan, and M. W. Chase. 1996. Sapindales: Molecular delimitation and infraordinal groups. American Journal of Botany 83: 802-811.

Hoot, S. B. 1995. Phylogeny of the Ranunculaceae based on preliminary *atpB*, *rbcL* and 18S

nuclear ribosomal DNA sequence data. *Plant Systematics and Evolution* (Suppl.) 9: 241-251.

Hoot, S. B., Culham, A., and P. R. Crane. 1995. The utility of *atpB* gene sequences in resolving phylogenetic relationships: Comparisons with *rbcL* and 18S ribosomal DNA sequences in the Lardizabalaceae. *Annals of the Missouri Botanical Garden* 82:194-207.

Hoot, S. B. and P. R. Crane. 1995. Inter-familial relationships in the Ranunculidae based on molecular systematics. *Plant Systematics and Evolution* (Suppl.) 9: 119-131.

Hoot, S. B. 1995. Phylogenetic relationships in *Anemone* (Ranunculaceae) based on DNA restriction site variation and morphology. *Plant Systematics and Evolution* (Suppl.) 9: 295-300.

Hoot, S. B., A. Culham, and P. R. Crane. 1995. Evolutionary relationships of the Lardizabalaceae and Sargentodoxaceae: Chloroplast and nuclear DNA sequence evidence. *Plant Systematics and Evolution* (Suppl.) 9: 195-199.

Jensen, U., S. B. Hoot, J. T. Johansson, and K. Kosuge. 1995. Systematics and phylogeny of the Ranunculaceae - a revised family concept on the basis of molecular data. *Plant Systematics and Evolution* (Suppl.) 9: 273-280.

Chase, M. W., M. R. Duvall, H. G. Hillis, H. G. Conran, A. V. Cox, L. E. Eguiarte, J. Hartwell, M. F. Fay, L. R. Caddick, K. M. Cameron, and S. B. Hoot. 1995. Molecular phylogenetics of Liliales. In P. J. Rudall, P. J. Cribb, D. F. Cutler & C. J. Humphries (Eds.). *Monocotyledons: Systematics and evolution*, pp. 109-137.

Hoot, S. B., J. D. Palmer, and A. A. Reznicek. 1994. Phylogenetic relationships in *Anemone* based on morphology and chloroplast DNA variation. *Systematic Botany* 19: 169-200.

Hoot, S. B. and J. D. Palmer. 1994. Structural rearrangements, including parallel inversions, within the chloroplast genome of *Anemone* and related genera. *Journal of Molecular Evolution* 38: 274-281.

Drinnan, A. N., P. R. Crane, and S. B. Hoot. 1994. Patterns of floral evolution in the early diversification of non-magnoliid dicotyledons (eudicots). *Plant Systematics and Evolution* (Suppl.) 8: 93-122.

Hoot, S. B. 1991. Phylogeny of the Ranunculaceae based on epidermal microcharacters and macromorphology. *Systematic Botany* 16: 741-755.

#### **Invited Research Presentations:**

2005 Hoot, S. B. Biogeography of the early eudicots. Symposium: Understanding the Early Diversification of the Eudicots. XVII International Botanical Congress, Vienna, Austria.

2004 Taylor, W. C., S. B. Hoot, and N. S. Napier. Phylogeny and biogeography of Isoetes on oceanic and terrestrial islands. Presented by W. C. Taylor and S. B. Hoot. Symposium: The Power of Two: Marrying Phylogeny and Biogeography

to Reconstruct the Evolutionary History of Pteridophytes. Botany 2004, American Fern Society and Biological Society of America, Pteridological Section, Annual Meetings, Snowbird, UT.

Hoot, S. B., W. C. Taylor, and N. S. Napier. Presented by S. B. Hoot. Unraveling a Tangled Web: Phylogeny and hybrid origins in *Isoetes*. The Field Museum Seminar Series, Chicago, IL

Hoot, S. B., W. C. Taylor, and N. S. Napier. Presented by S. B. Hoot. Unraveling a Tangled Web: Phylogeny and hybrid origins in *Isoetes*. Special invitation, Cornell University, Ithaca, NY.

2003 Hoot, S. B. Promiscuity in *Isoetes*: Why can't they just say "No"? University of Wisconsin-Milwaukee, Department of Biological Sciences Colloquium Series.  
Hoot, S. B. Phylogeny and biogeography of alpine *Anemone* species. Colloquium: Biogeography of Alpine Plants on the Large Scale: Current Stage and Prospects. Botany 2003, American Society of Plant Taxonomists, Annual Meetings, Mobile, AL.

2002 Hoot, S. B., W. C. Taylor, and N. S. Napier. Presented by S. B. Hoot. Unraveling a Tangled Web: Phylogeny and hybrid origins in *Isoetes*. Systematic Biology Colloquium Series, Duke University, Durham, NC.  
Hoot, S. B., W. C. Taylor, and N. S. Napier. Presented by S. B. Hoot. Unraveling a Tangled Web: Phylogeny and hybrid origins in *Isoetes*. Presented during sabbatical at following locations:

- Institute of Systematic Botany, University of Zurich, Zurich, Switzerland
- Western Australia Herbarium, Perth, Australia
- Royal Botanic Gardens, Sydney, Australia
- Department of Botany and Zoology, Australian National University, Canberra, Australia.

2000 Phylogeny of the basal eudicots. University of Colorado (Boulder), Department of Environmental, Population, and Organismic Biology Colloquium Series.

1999 Phylogeny of the basal eudicots based on three sequence data sets: *atpB*, *rbcL*, and 18S DNA. Coauthors: S. B. Hoot, S. Magallón, and P. R. Crane, presented by S. B. Hoot. XVI International Botanical Congress, St. Louis.

Flower evolution in Proteaceae and its relatives. A. W. Douglas and S. B. Hoot. Presented by A. W. Douglas. XVI International Botanical Congress, St. Louis.

Relationships of basic diploid and allotetraploid *Isoetes* species from nuclear ITS and *LFY* sequences. S. Hoot first author, to be presented by W. C. Taylor. Symposium on "Evolution and Diversification of the Lycopods". XVI International Botanical Congress, St. Louis.

- Systematics of *Cocculus* (Menispermaceae). Poster to be presented by P. J. White and S. Hoot at XVI International Botanical Congress, St. Louis
- 1998 The use of AFLP data in the conservation of an endangered plant species, *Isoetes louisianensis*. Symposium on "Conservation Biology of Pteridophytes". Botanical Society of America, Annual Meetings, Baltimore, MD.
- The flowering plant family Proteaceae revisited: What molecular sequence data tell us. UW-Milwaukee Department of Biological Sciences Colloquium
- 1997 Evolutionary relationships of *Isoetes* species based on ITS sequences. Symposium on "Changing Perceptions on Quillworts". Presented jointly by S. B. Hoot and W. C. Taylor, Botanical Society of America, Annual Meetings, Montreal, Canada.
- Phylogenetic patterns in Proteaceae based on *atpB* and *atpB/rbcL* spacer region sequence data. L. H. Bailey Hortorium Colloquium, Cornell University, Ithaca.
- Phylogenetic patterns in Proteaceae based on *atpB* and *atpB/rbcL* spacer region sequences. UW-Madison Botany Colloquium.
- Patterns of floral evolution in the early diversification of eudicots. Coauthors: P. R. Crane and S. B. Hoot, presented by P. R. Crane. Keystone Symposia, Evolution of Plant Development, Taos, New Mexico.
- 1996 Phylogeny of the Proteaceae based on *atpB* and *atpB/rbcL* spacer region sequence data. International Symposium on the Biology of Proteaceae, The 1996 Commemorative Conferences of the Royal Botanic Gardens, Melbourne, Australia.
- A comparison of results from 18S nuclear ribosomal DNA sequences with two chloroplast genes (*atpB* and *rbcL*). Symposium on "The Use of 18S rRNA Sequences in Plant Phylogeny". Botanical Society of America, Annual Meetings, Seattle, WA.
- 1994 Phylogeny of the Ranunculaceae based on *rbcL* and *atpB* gene sequences. International symposium on "The Systematics and Evolution of the Ranunculiflorae", Universität Bayreuth, Bayreuth, Germany.
- An overview of ranunculid evolution, including phylogenies based on *rbcL*, *atpB*, and 18S ribosomal DNA gene sequences. International symposium on "The Systematics and Evolution of the Ranunculiflorae", Universität Bayreuth, Bayreuth, Germany.
- Phylogenetic relationships in *Anemone* (Ranunculaceae) based on DNA restriction site variation and morphology. International symposium on "The Systematics and Evolution of the Ranunculiflorae", Universität Bayreuth, Bayreuth, Germany.
- Phylogeny of the Lardizabalaceae based on *rbcL*, *atpB*, and 18S ribosomal DNA

gene sequences. Joint presentation by A. Culham, S. Hoot and P. Crane at the international symposium on "The Systematics and Evolution of the Ranunculiflorae", Universität Bayreuth, Bayreuth, Germany.

1993 Phylogeny of the Lardizabalaceae based on *rbcL*, *atpB*, and 18S ribosomal DNA gene sequences. Department of Biology Seminar Series, Indiana University.  
Phylogenetic relationships of the Lardizabalaceae based on *rbcL*, *atpB*, and 18S ribosomal DNA gene sequences. Symposium on "Alternative Genes in Phylogenetic Reconstruction". American Society of Plant Taxonomists, Annual Meeting, Ames, IA.

Phylogeny of the buttercup family (Ranunculaceae) based on molecular and morphological data. Biology Seminar Series, DePaul University, Chicago, IL.

Paleobotanical and floral developmental insights into the early diversification of nonmagnoliid dicotyledons. Presented by A. N. Drinnan, coauthors P. R. Crane and S. B. Hoot. International Botanical Congress, Tokyo.

#### **Contributed Papers at National Meetings:**

2006 Hoot, S. B., Taylor, W. C., and N. S. Napier. Presented by S. B. Hoot. The key players in Isoetes hybridization events in North America. Botany 2006, American Society of Plant Taxonomists, Annual Meetings, Chico, CA.

Taylor, W. C. and S. B. Hoot. Presented by W. C. Taylor. Phylogeny and biogeography of Isoetes. Botany 2006, American Fern Society, Annual Meetings, Chico, CA.

2004 Taylor, W. C. and S. B. Hoot. Presented by W. C. Taylor. Phylogeny of *Isoëtes* taxa based on nucleotide sequences of the nuclear ribosomal ITS region and the second intron of a *LEAFY* homologue. Ferns for the 21st Century, Royal Botanic Garden, Edinburgh, Scotland.

2003 Taylor, W. C., A. R. Lekschas, N. T. Luebke, Q.-F. Wang, X. Liu, S.B. Hoot, N. Napier. Presented by W. C. Taylor. Phylogeny of Chinese *Isoëtes* species as indicated by chromosome numbers and nucleotide sequences of the nuclear ribosomal ITS region and second intron of a *LEAFY* homolog. Botany 2003, American Fern Society, Annual Meetings, Mobile, AL.

2002 Napier, N. S., S. B. Hoot, and W. C. Taylor. Presented by S. B. Hoot. Unraveling a tangled web: hybrid and allopolyploid origins in *Isoëtes*. Coauthors: Botany 2002, American Society of Plant Taxonomists, Annual Meetings, Madison, WI.

Taylor, W. C., N. T. Luebke, and S. B. Hoot. Presented by W. C. Taylor. Phylogeny and allopolyploidy of South American *Isoëtes* based on morphology, chromosome counts, and DNA sequences. Botany 2002, American Fern Society, Annual Meetings, Madison, WI.

2001 Parental species of *Isoëtes* allotetraploids, including "dead-beat" parents. Coauthors: S. B. Hoot, W. C. Taylor, and N. S. Napier, presented by S. B. Hoot. Botany 2001, American Fern Society, Annual Meetings, Albuquerque,

NM.

- Phylogenetic relationships within *Caltha* (Ranunculaceae) based on three molecular data sets and morphology. Coauthors: E. J. Schuettpelz and S. B. Hoot, presented by E. J. Schuettpelz. Botany 2001, American Society of Plant Taxonomists, Annual Meetings, Albuquerque, NM.
- 2000 Species delimitation and hybrid origins in North American *Isoëtes* based on *LEAFY* intron data. Coauthors: S. B. Hoot, W. C. Taylor, and E. Wagner, presented by S. B. Hoot.
- Evolutionary relationships and biogeography of *Isoëtes* based on nucleotide sequences. Coauthors: W. C. Taylor and S. B. Hoot, presented by W. C. Taylor. American Society of Plant Taxonomists, Annual Meetings, Portland, OR.
- Phylogeny and biogeography of *Anemone* (Ranunculaceae) in the Southern Hemisphere based on molecular data. Coauthors: E. J. Schuettpelz and S. B. Hoot, presented by E. J. Schuettpelz. American Society of Plant Taxonomists, Annual Meetings, Portland, OR. American Society of Plant Taxonomists, Annual Meetings, Portland, OR.
- 1998 Origin of the Louisiana Quillwort *Isoëtes louisianensis*. Coauthors: W. C. Taylor and S. B. Hoot, presented by W. C. Taylor. American Fern Society, Annual Meetings, Baltimore, MD.
- 1997 Evolutionary relationships of the “basal” eudicots based on three sequence data sets: *atpB*, *rbcL*, and 18S ribosomal DNA. Coauthors: S. B. Hoot, S. Magallon-Puebla, and P. R. Crane, presented by S. B. Hoot. American Society of Plant Taxonomists, Annual Meetings, Montreal, Canada.
- Inferring complex phylogenies: an empirical approach using three large DNA data sets for angiosperms. Coauthored with six other authors, presented by M. D. Mort. American Society of Plant Taxonomists, Annual Meetings, Montreal, Canada.
- Large DNA sequence matrices, phylogenetic signal, and feasibility: an empirical approach. Coauthored with seven other authors, presented by M. W. Chase. American Society of Plant Taxonomists, Annual Meetings, Montreal, Canada.
- 1996 Species relationships in North American *Isoëtes* (Isoëtaceae) using ITS sequences. Coauthors: S. B. Hoot and W. C. Taylor, presented by W. C. Taylor. American Fern Society, Annual Meetings, Seattle, WA.
- An examination of phylogenetic patterns of plastid *atpB* gene sequences among eudicots. Coauthors: V. Savolainen, C. M. Morton, S. B. Hoot, and M. W. Chase, presented by V. Savolainen. American Society of Plant Taxonomists, Annual Meetings, Seattle, WA.
- 1995 Phylogenetic relationships and floral morphology in the family Circaeasteraceae (*Circaeaster* and *Kingdonia*). American Society of Plant Taxonomists and American Society of Biological Sciences Annual Meetings, San Diego,

California.

- 1994 Phylogenetic relationships within the Ranunculaceae based on *rbcL* and *atpB* gene sequences. American Society of Plant Taxonomists and American Society of Biological Sciences Annual Meetings, Knoxville, Tennessee.
- 1992 Phylogenetic relationships of the Ranunculaceae and related families based on two chloroplast DNA gene sequences. American Society of Plant Taxonomists and American Society of Biological Sciences Annual Meetings, Honolulu, Hawaii.
- Phylogenetic relationships of the Buxaceae and related families based on two chloroplast DNA gene sequences. International Organization of Plant Systematists, V International Symposium, St. Louis, Missouri.
- 1990 Evolutionary relationships among the sections of *Anemone* and closely related genera (Ranunculaceae) based on molecular evidence. American Society of Plant Taxonomists and American Society of Biological Sciences Annual Meetings, Richmond, Virginia.
- 1989 Evolutionary relationships among the sections of *Anemone* and closely related genera (Ranunculaceae). American Society of Plant Taxonomists and American Society of Biological Sciences Annual Meetings, Toronto, Canada