Curriculum vitae
Thomas J. Givnish

Education

1969-1973	Princeton University, Department of Mathematics: A. B. summa cum laude
1973-1976	Princeton University, Department of Biology: M. A., Ph. D.

Professional experience

1976	Instructor of Biology, Harvard University
1976-1981	Assistant Professor of Biology, Harvard University
1981-1984	Associate Professor of Biology, Harvard University
1984-1985	Lecturer on Biology, Harvard University
1985-1986	Assistant Professor of Botany, University of Wisconsin-Madison
1986-1990	Associate Professor of Botany, University of Wisconsin-Madison
1990-present	Professor of Botany, University of Wisconsin-Madison
1992-present	Professor of Environmental Studies, University of Wisconsin-Madison
1999-2003	Visiting Professor of Botany, University of Hawaii
2003-present	Henry Allen Gleason Professor of Botany, University of Wisconsin-Madison
2004-2005	Visiting Fellow, Research School of Biological Sciences, Australian National University

Courses taught

HARVARD	Population biology: evolution; Patterns in the structure and diversity of plant communities; Speciation and adaptation; Plant population biology; Tropical ecology; Topics in population and community ecology
YALE SCHOOL OF FORESTRY & ENV. AFFAIRS	Tropical forest ecology
ORGANIZATION FOR TROPICAL STUDIES	Fundamentals of ecology field course (resource person)
UNIVERSITY OF WISCONSIN	General ecology (Botany/Forestry/Zoology 460); Advanced topics in plant ecology (Botany 950); Vegetation of Wisconsin (Botany 455); Advanced plant community ecology (Botany 801); co-taught Plants and man (Botany 240), Population genetics (Botany 575), Tropical field biology capstone course (Botany/Zoology 639/640: 1995/6 - Venezuela; 1998/9 - Hawaii), Plant physiological ecology (Botany 802); Geology, ecology, human evolution & ethnobotany in the Pacific (UW Extension)

Awards and Distinctions

1973-1976	NSF Graduate Fellow
1973-1976	Danforth Graduate Fellow
1998- present	Fellow, Linnean Society of London
1999-2001	Vilas Research Associateship, University of Wisconsin ($60,000)
2003-present	Fellow, American Association for the Advancement of Science
2006	Distinguished Ecologist Lecture series, Colorado State University

Awards and Grants

1971-1972	NSF grant GY-9110. Ecology of Atlantic white cedar (*Chamaecyparis*

thyoides) and related species in the Pine Barrens of New Jersey

1976-1978 Milton Fund Grants: studies of leaf form, temporal community structure in forest herbs, serotiny in *Pinus rigida*

1978-1982 Clark Fund Grants: allometry and adaptive patterns of leaf shape in forest herbs; carnivory in *Brocchinia* (Bromeliaceae)

1981-1982 Atkins Garden Grant: transition between shrubby and arboreal growth forms along rainfall and edaphic gradients in sw Australia and New Caledonia

1981-1983 Milton Fund Grant: mechanical constraints on evolution of plant form

1983-1984 Grants from the Maria Moors Cabot Foundation, E. I. Dupont de Nemours, Pfeizer-Dekalb, Monsanto Corporation, and Cambridge University Press to support an international symposium on Evolutionary Constraints on Primary Productivity: Adaptive Strategies of Energy Capture in Plants ($11,000)

1984-1986 National Geographic Society Grant: Adaptive radiation and evolution of carnivory in the bromeliad genus *Brocchinia* of the Guayana Highlands ($19,600)

1986-1987 Wisconsin Alumni Research Foundation Grant: Ecological causes of depth zonation in aquatic plants ($12,407)

1986-1987 Nave Fund, University of Wisconsin [with K. J. Sytsma]: Molecular evolution in the plant family Rapateaceae endemic to the Guayana Shield ($4,780)

1987-1988 Wisconsin Alumni Research Foundation Grant: Causes of depth zonation in emergent and floating-leaved macrophytes ($11,599)

1988-1991 National Science Foundation Grant BSR-8806520 (PI, with K. J. Sytsma as co-PI): Molecular evolution and adaptive radiation in the bromeliad genus *Brocchinia* ($93,689) (including a $4,000 REU grant)

1988-1990 National Geographic Society 133-N680 (PI, with K. J. Sytsma as co-PI): Molecular evolution, adaptive radiation, and speciation in the fleshy-fruited Hawaiian lobelioids ($20,674)

1990-1992 National Science Foundation BSR-9007293 (PI, with K. J. Sytsma as co-PI): Molecular evolution in *Brocchinia,* the Pitcairnioideae, and allied monocots ($142,200) (including a $10,800 supplement)

1990-1992 National Science Foundation (co-PI, with P. Reich (PI) and J. Volin (co-PI)): Effects of elevated levels of carbon dioxide and ozone on plant growth and photosynthesis ($80,000)

1991 Nave Fund, University of Wisconsin: Molecular evolution in the Pitcairnioideae ($4,000)

1991-1992 Hilldale Committee (PI): The role of competition in determining depth zonation in aquatic plants ($4,000 award to support undergraduate research)

1991-1994 National Science Foundation (PI): Causes of depth zonation in emergent and floating aquatic plants ($165,000) DEB-9107379

1992-1993 National Science Foundation (PI): Trends in the stature, allocation to support tissue, and diversity of submersed aquatic plants along a natural fertility gradient ($6,500 Research Experience for Undergraduates Award)

1992-1993 National Science Foundation (PI, with K, J. Sytsma as co-PI): Molecular evolution and adaptive radiation in the monocot family Rapateaceae, endemic to the Guayana Shield ($5,000 Research Experience for Undergraduates Award)

1992-1993 Hilldale Committee (PI): Energetic costs of simple vs. compound leaves ($4,000 award to support undergraduate research)

1992-1993 Hilldale Committee (PI): Competition between the waterlilies *Brasenia schreberi* and *Nymphaea odorata* ($4,000 to support undergraduate research)

1992-1993 Hilldale Committee (co-PI, with PI K. J. Sytsma) Phylogenetic reconstruction using cpDNA sequencing from the *rbc*L-*atp*β spacer region ($4,000 to support undergraduate research)

1992-1995 Friends of the University of Wisconsin Arboretum (PI): Experimental reconstruction of oak savannas ($55,000)

1993-1996 Department of Defense - U. S. Fish and Wildlife Service (PI): Ecology of the

endangered Karner Blue Butterfly ($150,000)

1993-1994 Hilldale Committee (PI): Molecular evolution and adaptive radiation in Pacific Coast lilies ($4,000 to support undergraduate research)

1993-1994 Hilldale Committee (PI): Dominance by shrubs vs. herbs in relation to light availability along a forested gradient in southern Wisconsin ($4,000 to support undergraduate research)

1993-1995 National Science Foundation (PI, with K. J. Sytsma as co-PI): Molecular evolution in the Rapateaceae and allied monocot families ($120,000)

1994-1997 U. S. Forest Service (PI): Trends in the composition, structure, and diversity of forest understories along climatic and edaphic gradients in the Upper Great Lakes ($85,000)

1995-1997 American Orchid Society (PI, J. Hapeman as co-PI): Molecular evolution and adaptive radiation in the rein orchids (*Platanthera:* Orchidaceae) ($10,800)

1995-1998 National Science Foundation (PI, with K. J. Sytsma as co-PI): Molecular evolution, adaptive radiation, and geographic speciation in the Hawaiian lobelioids ($180,000)

1995-1997 National Science Foundation (PI, withT. Patterson as co-PI): Molecular evolution and adaptive radiation in *Calochortus* (Liliaceae) ($10,000)

1998-2000 National Science Foundation (PI, with A. Mast as co-PI): Molecular evolution and adaptive radiation in *Banksia* (Proteaceae) ($10,000)

1998-1999 Hilldale Committee (PI): Evolution of leaf anatomy in relation to shade tolerance in the Hawaiian lobeliads ($4,000 to support undergraduate research)

1998-1999 Hilldale Committee (PI): Molecular systematics of *Clermontia* (Campanulaceae) ($4,000 to support undergraduate research)

1998-1999 Wisconsin Alumni Research Foundation (PI): Quantification of light regimes and photosynthetic rates in the Hawaiian lobeliads ($26,000)

1999-2003 National Science Foundation (PI, with G. Goldstein as co-PI): Ecology and evolution of photosynthetic light responses in the Hawaiian lobeliads ($430,000)

2000-2006 National Science Foundation (co-PI, with P. Berry as PI and K. Sytsma as co-PI): Molecular evolution and biogeography of endemic elements of the Guayana Highlands flora ($260,000)

2001-2005 Andrew W. Mellon Foundation (PI): Leaf phenology and hydraulic conductance as determinants of shade tolerance in southern Appalachian trees. ($370,000 direct costs)

2001-2003 National Park Service (co-PI, with J. Volin as PI): Development of a simulation model relating hydrology, topography and edaphic factors to landscape variation in plant community structure in the Florida Everglades ($295,796)

2001-2002 National Science Foundation (PI, with F. Landis as co-PI): The effects of light and arbuscular mycorrhizae on oak savanna plant community composition ($5,224)

2002-2003 University of Wisconsin, retention package - $100,000 flexible funds

2002-2012 University of Wisconsin, gift funds - $20,000/yr

2002-2007 National Park Service (T. Givnish and J. Volin [Florida Atlantic University] PIs, Paul Glaser [University of Minnesota] co-PI): Landscape model of ridge and slough topography: integration of hydrology and biological processes ($800,000)

2003-2005 National Science Foundation (PI, with J. D. Coop as co-PI): Environmental determinants of subalpine forest-grassland ecotones in the southern Rockies ($9,626)

2004-2005 Wisconsin Alumni Research Foundation (PI): Phylogenography, geographic cohesion, speciation, and the scale of genetic differentiation in *Calochortus* (Liliaceae) ($31,410)

2005-2008 National Science Foundation (PI): Phylogeography and spatial scales of genetic differentiation and incipient mating barriers in *Calochortus* ($449,938)

2008-2013 National Science Foundation (Lead PI): From *Acorus* to *Zingiber:* Assembling the phylogeny of the monocotyledons ($2,895,000 total; $500,005 UW budget)

2010 National Science Foundation (PI): REU Supplement – Amplification and next-generation sequencing of whole plastid genomes ($7,500)

2010-2015 National Science Foundation (coPI, with PI Don Waller, coPI Ken Cameron, and coPI

	Ken Sytsma): Dimensions: roles of functional, phylogenetic, and genetic diversity in structuring and sustaining plant communities through environmental change ($2,934,940)
2011-2013	National Science Foundation (PI, with coPI Emily Sessa): Dissertation research: investigating phylogeny, reticulate evolution, and gene tree discordance in New World *Dryopteris* (Dryopteridaceae) ($14,864)
2011-2013	National Science Foundation (PI, with coPI Stephanie Lyon): Dissertation research: molecular systematics, evolution, and historical biogeography of *Corybas* (Orchidaceae) ($14,950)

Participation in invited international symposia

1975	Symposium on Theoretical Plant Morphology XIIth International Botanical Congress, Leningrad
1976	Cabot Symposium on Tropical Trees as Living Systems Harvard Forest, Petersham MA
1977	Symposium on Plant Population Biology Ithaca College, New York
1981	Symposium on the Evolutionary Biology of Plants XIIIth International Botanical Congress, Sydney
1982	Symposium on Recent Advances in Plant Community Ecology Ecological Society of America, State College PA
1983	Symposium on Physiological Ecology of Plants in the Wet Tropics Universidad Autonoma Nacional, Mexico City
1983	Cabot Symposium on Evolutionary Constraints on Primary Productivity (Convener) Harvard Forest, Petersham, MA
1986	Symposium on Comparative Plant Ecology University of Sheffield, Sheffield, Great Britain
1987	Robertson Symposium on Ecology of Photosynthesis in Sun and Shade Australian National University, Canberra
1987	Symposium on Adaptive Aspects of Vegetation Structure (Co-convener) Utrecht, Netherlands
1987	Symposium on Species Diversity Patterns in Vegetation Utrecht, Netherlands
1988	Symposium on Predictive Theory and Empirical Testing Davis, California
1990	Symposium on The Use of Phylogeny in Understanding the Evolution of Tropical Plant-Animal Interactions Richmond, Virginia
1991	Symposium on Hawaiian Evolution Hilo, Hawaii
1992	Symposium on Evolution of the Hawaiian biota Honolulu, Hawaii
1993	Symposium on the Ecology of Aquatic Plants XVth International Botanical Congress, Tokyo
1994	Symposium on the Ecology of Plant Stems Newport, Oregon
1994	Symposium on the Ecology of Lupine Bodega Bay Biological Station, California
1995	Symposium on Molecular Evolution and Adaptive Radiation (joint convener, with K. J. Sytsma) Montreal, Canada
1997	Plant Evolution on Islands (Willi Hennig Society) Washington, D. C.
1998	International Workshop on Plant Plasticity

Tel Aviv, Israel

1998 2nd International Symposium on Monocotyledons
Sydney, Australia

1998 Symposium on Adaptive Radiation and Molecular Systematics
Kyoto, Japan

1998 Symposium in Conjunction with the International Prize in Biology
Hayama, Japan

1999 Plant Evolution on Islands: Classical Patterns, Molecular Data, New Insights
(Convener, with co-convener U.-R. Böhle)
XVI International Botanical Congress, St. Louis

2000 Optimality in Plant Ecology: Prospects and Challenges
Hyttäla Field Station, University of Helsinki

2001 Evolution of Plant Physiology
Kew Botanical Gardens, Surrey

2001 Adaptive Radiation
National Center for Ecological Analysis and Synthesis, Santa Barbara

2001 Deep Morphology: Toward a Renaissance in the Use of Morphology in Systematics
Institute of Botany, University of Vienna

2001 Molecular and Morphological Data in Modern Systematics
University of São Paolo

2002 Hawaiian Biogeography
Stanford University

2002 Tropical Biogeography (co-convener, with Susanne Renner)
Botanical Society of America / American Society of Plant Taxonomists

2002 Plant species-level systematics: patterns, processes and new applications
Nationaal Herbarium Nederlands, Leiden

2002 Molecular genetics and ecology of plant adaptation
University of British Columbia Botanical Gardens, Vancouver

2003 Monocots III
Rancho Santa Ana Botanic Gardens

2003 Science and Restoration of the Greater Everglades and Florida Bay Ecosystem
Palm Harbor, Florida

2003 Plant Speciation (New Phytologist Trust)
Canadian Association of Botany, St. Francis Xavier University

2003 Why Are There So Many Different Kinds of Tropical Plants?
Association for Tropical Biology and Conservation, University of Aberdeen

2004 Origin, adaptive radiation, and geographic diversification of the bromeliads
Bromeliad Society International, Chicago

2005 Evolution of the Bromeliaceae
XVII International Botanical Congress, Vienna

2005 Maximum tree height and hydraulic integration
University of New South Wales, Sydney

2007 Tree islands of the Central Everglades
Florida Atlantic University, Boca Raton

2008 Monocots IV – Phylogeny of Poales *and* Phylogeny of Bromeliaceae
Natural History Museum of Denmark, Copenhagen

2009 Angiosperm Phylogeny and Biotic Evolution
56th Annual Fall Symposium, Missouri Botanical Garden

2011 Monocot Phylogeny and Evolution (organizer)
XVIII International Botanical Congress, Melbourne

2011 Bromeliad Evolution (co-organizer)
XVIII International Botanical Congress, Melbourne

Seminars (1980-2005) – Australian National University 2004, 2005; Boston University 1980; Cambridge University 1982, 1998; Colorado State University 2006abc; CSIRO Canberra 2008; Duke University 2003; Florida Atlantic University 2001, 2007; Harvard University 1983; Indiana University 1985; Iowa State University 1988; Liverpool University 1982; Miami University of Ohio 1997; Michigan State University 1997, 2005; National Park Service, Miami 2007; National Tropical Botanical Garden 1999, 2005; Northern Illinois University 2009; Ohio University 2001; Oxford University 1982, 1998; Princeton University 1982, 1985; Royal

Botanical Gardens, Kew, 1998; Royal Botanical Gardens, Sydney 2005; Rutgers University 1985; Sheffield University 1982; Stanford University 1982; Universidad de los Andes 1982, 1995; University of California at Berkeley 1982; University of California at Davis 1986; University of California at Santa Barbara 2008; University of Canterbury 2005; University of Cape Town 2004; University College of North Wales 1982; University of Connecticut at Storrs 1980, 2007; University of Florida 2002; University of Georgia 1983; University of Hawaii 1997; University of Minnesota 1985, 2008; University of Missouri-St. Louis 1997; University of Oslo 2003; University of New Hampshire 1989; University of New South Wales, 2005; University of North Carolina 1988; University of Rochester 1983; University of Toronto 1980; University of Uppsala 1998; University of Utah 1997; University of Washington 1982; University of Wisconsin-Madison 1985, 1986, 1988, 1992, 2004, 2005, 2006abc; University of Wisconsin-Stevens Point 1997; University of Wisconsin-Whitewater 2008; University of Zürich 2001; Vanderbilt University 1991; Washington University 1982, 1997; Wellesley College 1980; Yale University 1982.

American Society of Plant Taxonomists 1990, 1992, 1994, 1995, 1996, 1998, 2000, 2002, 2006; Association for Tropical Biology 1990, 1992, 2003; Botanical Society of America 1982, 1998, 2001, 2002, 2004, 2007, 2009; Canadian Botanical Association 2003; Ecological Society of America 1982, 1988, 1990, 1992, 1996, 2001, 2002, 2007; Greater Everglades Ecological Restoration Conference 2003, 2006, 2008; International Botanical Congress 1982, 1993, 1999, 2005; International Congress on Systematic and Evolutionary Biology 1980; International Society for Ecological Modelling 1988; Midwest Symposium on Population Biology 1987 (speaker), 1988 (convener); Society for the Study of Evolution 1982, 1984, 1991, 1995, 1999, 2007, 2008; US Park Service (Homestead FL) 2007; Willi Hennig Society 1997.

PUBLICATIONS

Givnish, T. J., and G. J. Vermeij. 1976. Sizes and shapes of liane leaves. American Naturalist 110: 743-778.

Givnish, T. J. 1978. On the adaptive significance of compound leaves, with particular reference to tropical trees. Pp. 351-380 *in* P. B. Tomlinson and M. H. Zimmermann (eds.), Tropical trees as living systems. Cambridge University Press, Cambridge.

Givnish, T. J. 1978. Ecological aspects of plant morphology: leaf form in relation to environment. Acta Biotheoretica 27: 83-142.

Givnish, T. J. 1979. On the adaptive significance of leaf form. Pp. 375-407 *in* O. T. Solbrig, S. Jain, G. B. Johnson, and P. H. Raven (eds.), Topics in plant population biology. Columbia University Press, New York.

Givnish, T. J. 1980. Ecological constraints on the evolution of breeding systems in seed plants: dioecy and dispersal in gymnosperms. Evolution 34: 959-972.

Givnish, T. J. 1980. Evolution of form and function [a review of T. H. Frazetta, Complex adaptations in evolving populations]. BioScience 30: 839.

Givnish, T. J. 1981. Serotiny, geography, and fire in the Pine Barrens of New Jersey. Evolution 35: 101-123.

Givnish, T. J. 1982. Outcrossing vs. ecological constraints in the evolution of dioecy. American Naturalist 119: 849-865.

Aronson, R. B., and T. J. Givnish. 1982. Optimal central place foraging: a comparison with null hypotheses. Ecology 64:395-399.

Givnish, T. J. 1982. On the adaptive significance of leaf height in forest herbs. American Naturalist 120: 353-381.

Givnish, T. J. 1982. Quantitative plant geography [a review of E. O. Box's Macroclimate and plant form: an introduction to predictive modeling in phytogeography]. BioScience 33: 392-393.

Givnish, T. J. 1983. Convergent evolution of crown form in woody plants of southwestern Australia and New Caledonia. American Philosophical Society Yearbook 1983: 136.

Givnish, T. J. 1984. Leaf and canopy adaptations in tropical forests. Pp. 51-84 *in* E. Medina, H. A. Mooney, and C. Vásquez-Yánes (eds.), Physiological ecology of plants of the wet tropics. Dr. Junk, The Hague.

Givnish, T. J., E. L. Burkhardt, R. E. Happel, and J. W. Weintraub. 1984. Carnivory in the bromeliad *Brocchinia reducta*, with a cost/benefit model for the general restriction of carnivorous plants to sunny, moist, nutrient-poor habitats. American Naturalist 124: 479-497.

Benzing, D. H., T. J. Givnish, and D. L. Bermudez. 1985. Absorptive trichomes in *Brocchinia reducta* (Bromeliaceae) and their evolutionary significance. Systematic Botany 10: 81-91.

Givnish, T. J. 1986. Biomechanical constraints on self-thinning in plant populations. Journal of Theoretical Biology 119: 139-146.

Givnish, T. J. (ed.). 1986. **On the Economy of Plant Form and Function.** Cambridge University Press, Cambridge.

Givnish, T. J. 1986. On the use of optimality arguments. Pp. 3-9 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J. 1986. Economics of gas exchange. Pp. 11-24 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J. 1986. Optimal stomatal conductance, allocation of energy between leaves and roots, and the marginal cost of transpiration. Pp. 171-213 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J. 1986. Economics of support. Pp. 413-420 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J. 1986. Biomechanical constraints on canopy geometry in forest herbs. Pp. 525-583 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J. 1986. Economics of biotic interactions. Pp. 667-680 *in* T. J. Givnish (ed.), On the economy of plant form and function. Cambridge University Press, Cambridge.

Givnish, T. J., R. W. McDiarmid, and W. R. Buck. 1986. Fire adaptation in *Neblinaria celiae* (Theaceae), a high-elevation rosette shrub endemic to a wet equatorial tepui. Oecologia 70: 481-485.

Givnish, T. J. 1987. Comparative studies of leaf form: assessing the relative roles of selective pressures and phylogenetic constraints. New Phytologist 106(Suppl.): 131-160.

Givnish, T. J. 1987. Comparative studies of leaf form: assessing the relative roles of selective pressures and phylogenetic constraints. Pp. 131-160 *in* I. H. Rorison, J. P. Grime, R. Hunt, G. A. F. Hendry, and D. H. Lewis (eds.), Frontiers of Comparative Plant Ecology. Academic Press, London. [Reprint of preceding paper]

Givnish, T. J. 1988. Adaptation to sun vs. shade: a whole-plant perspective. Australian Journal of Plant

Physiology 15: 63-92.

Givnish, T. J. 1988. Adaptation to sun vs. shade: a whole-plant perspective. Pp. 63-92 *in* C. B. Osmond, D. B. Hall, and S. von Caemmerer (eds.), Ecology of Photosynthesis in Sun and Shade. CSIRO Press, Canberra. [Reprint of preceding paper]

Ashton, P. S., Givnish, and S. Appanah. 1988. Staggered flowering in the Dipterocarpaceae: new insights into floral induction in the aseasonal tropics. American Naturalist 132: 44-66.

Givnish, T. J., E. S. Menges, and D. F. Schweitzer. 1988. Minimum-area requirements for long-term conservation of the Albany Pine Bush and the Karner Blue Butterfly. 120 pp. Published report to Malcolm Pirnie, Inc. and the City of Albany, NY.

Givnish, T. J. 1989. The roots of modern approaches to macroevolution. Ecology 70: 1552-1553.

Givnish, T. J. 1989. Ecology and evolution of carnivorous plants. Pp. 243-290 *in* W. G. Abrahamson (ed.), Plant-animal interactions. McGraw-Hill, New York.

Givnish, T. J. 1990. Leaf mottling: relation to growth form and leaf phenology, and possible role as camouflage. Functional Ecology 6: 463-474.

Givnish, T. J. 1991. Leafy canopies [a review of Plant Canopies: Their Growth, Form and Function, edited by G. Russell, B. Marshall, and P. G. Jarvis, Cambridge University Press]. BioScience 41:178-179.

Givnish, T. J. 1992. Nature green in leaf and tendril. Science 256: 1339-1341.

Givnish, T. J. 1993. From plant to planet. Science 261: 115-117.

Sytsma, K. J., T. J. Givnish, J. F. Smith, and W. J. Hahn. 1993. Obtaining and storing land plant samples for macromolecular comparisons. In E. A. Zimmer, T. J. White, R. L. Cann, and A. C. Wilson (eds.), Molecular Evolution: Producing the Biochemical Data. Methods in Enzymology 224: 23-37.

Givnish, T. J., K. J. Sytsma, J. F. Smith, and W. S. Hahn. 1994. Thorn-like prickles and heterophylly in *Cyanea:* adaptations to extinct avian browsers on Hawaii? Proceedings of the National Academy of Sciences, U. S. A. 91: 2810-2814.

Lammers, T. G., T. J. Givnish, and K. J. Sytsma. 1994. Merger of the endemic Hawaiian genera *Cyanea* and *Rollandia* (Campanulaceae: Lobelioideae). Novon 3: 437-441.

Givnish, T. J. 1994. Does diversity beget stability? Nature 371: 113-114.

Givnish, T. J. 1994. The golden bough. Science 266: 1590-1591.

Givnish, T. J., K. J. Sytsma, J. F. Smith, and W. S. Hahn. 1995. Molecular evolution, adaptive radiation, and geographic speciation in *Cyanea* (Campanulaceae, Lobelioideae). Pp. 288-337 *in* W. L. Wagner and V. Funk (ed.), Hawaiian Biogeography: Evolution on a Hot Spot Archipelago. Smithsonian Institution Press, Washington, D. C.

Givnish, T. J. 1995. Plant stems: biomechanical adaptations for energy capture and influence on species distributions. Pp. 3-49 *in* B. L. Gartner (ed.), Plant Stems: Physiology and Functional Morphology. Chapman and Hall, New York.

Hahn, W. J., T. J. Givnish, and K. J. Sytsma. 1995. Evolution of the monocot chloroplast inverted repeat: I. Evolution and phylogenetic implications of the ORF 2280 deletion. Pp. 579-587 *in* P. J. Rudall, P.

J. Cribb, D. F. Cutler, and C. J. Humphries (eds.), Monocots: Systematics and Evolution. Kew Botanical Gardens, England.

Givnish, T. J. 1995. Botanical scaling [review of K. Niklas – Plant Allometry]. Science 268: 313-314.

Leach, M. K., and T. J. Givnish. 1996. Ecological determinants of species loss in prairie remnants. Science 273: 1555-1558.

Montague, T. G., and T. J. Givnish. 1996. Distribution of black spruce vs. eastern larch along peatland gradients: relationship to relative stature, growth rate, and shade tolerance, and the significance of larch's deciduous habit. Canadian Journal of Botany 74: 1514-1532.

Givnish, T. J., and T. E. Dawson. 1996. Nutrients in senesced leaves – keys to the search for potential resorption proficiency. Ecology 77: 1716.

Peters, R., D. Waller, B. Noon, S. Pickett, T. Givnish, D. Murphy, R. Kiester, J. Cracraft, W. Kuhlman, and O. Houk. 1997. Standard scientific procedures for implementing ecosystem management on public lands. Pp. 320-336 in S. Pickett (ed.), Enhancing the Ecological Basis of Conservation. Island Press, New York.

Givnish, T. J., and K. J. Sytsma. 1997. Consistency, characters, and the likelihood of correct phylogenetic inference. Molecular Phylogenetics and Evolution 7: 320-330.

Sun, C., T. C. Moermond, and T. J. Givnish. 1997. Nutritional determinants of diet in three turacos in a tropical montane forest. Auk 114: 200-211.

Givnish, T. J., and K. J. Sytsma (eds.). 1997. **Molecular Evolution and Adaptive Radiation.** Cambridge University Press, New York.

Givnish, T. J. 1997. Adaptive radiation and molecular systematics: aims and conceptual issues. Pp. 1-54 *in* T. J. Givnish and K. J. Sytsma (eds.), Molecular Evolution and Adaptive Radiation. Cambridge University Press, New York.

Givnish, T. J., and K. J. Sytsma. 1997. Homoplasy in molecular vs. morphological data: the likelihood of correct phylogenetic inference. Pp. 55-101 in T. J. Givnish and K. J. Sytsma (eds.), Molecular Evolution and Adaptive Radiation. Cambridge University Press, New York.

Givnish, T. J., K. J. Sytsma, J. F. Smith, W. J. Hahn, D. H. Benzing, and E. M. Burkhardt. 1997. Molecular evolution and adaptive radiation in *Brocchinia* (Bromeliaceae: Pitcairnioideae) atop tepuis of the Guayana Shield. Pp. 259-311 *in* T. J. Givnish and K. J. Sytsma (eds.), Molecular Evolution and Adaptive Radiation. Cambridge University Press, New York.

Givnish, T. J. 1998. Adaptive radiation of plants on oceanic islands: classical patterns, molecular data, new insights. Pp. 281-304 *in* P. Grant (ed.), Evolution on Islands. Oxford University Press, New York.

Leach, M. K., and T. J. Givnish. 1998. Identifying highly restorable savanna remnants. Transactions of the Wisconsin Academy of Sciences, Arts and Letters 86: 119-128.

Volin, J. C., P. B. Reich, and T. J. Givnish. 1998. Elevated CO_2 ameliorates the effects of ozone on photosynthesis and growth: species respond similarly regardless of photosynthetic pathway or plant functional group. New Phytologist 138: 315-325.

Vázquez, J. A., G., and T. J. Givnish. 1998. Altitudinal gradients in tropical forest composition, structure,

and diversity in the Sierra de Manantlán. Journal of Ecology 86: 999-1020.

Givnish, T. J. 1999. On the causes of gradients in tropical tree diversity. Journal of Ecology 87: 193-210.

Leach, M. K., and T. J. Givnish. 1999. Gradients in the composition, structure, and diversity of remnant oak savannas in southern Wisconsin. Ecological Monographs 69: 353-374.

Givnish, T. J., T. M. Evans, J. C. Pires, and K. J. Sytsma. 1999. Polyphyly and convergent morphological evolution in Commelinales and Commelinidae: evidence from *rbc*L sequence data. Molecular Phylogenetics and Evolution 12: 360-385.

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Givnish, T. J., M. S. Ames, M. R. McKain, P. R. Steele, C. W. dePamphilis, S. W. Graham, J. C. Pires, D. W. Stevenson, W. B. Zomlefer, B. Briggs, M. R. Duvall, M. Moore, D. F. Soltis, P. S. Soltis, K. Thiele, and J. H. Leebens-Mack. 2011. Plastome sequence phylogeny of commelinid monocots implies five origins of wind pollination in Poales. Botanical Society of America 2010 meeting – http://2010.botanyconference.org/engine/search/index.php?func=detail&aid=222

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Davis, J. I., D. W. Stevenson, C. Ané, C. W. dePamphilis, T. J. Givnish, S. W. Graham, J. H. Leebens-Mack, J. C. Pires, G. Petersen, O. Seberg, M. Thadeo, A. Cuenca, M. Ames, J. R. McNeal, and P. R. Steele. 2010. Botanical Society of America 2010 meeting – http://2010.botanyconference.org/engine/search/index.php?func=detail&aid=638

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Leebens-Mack, J., N. Wickett, S. Ayyampalayam, M. Barker, M. B. Gonzales, T. J. Vision, J. McNeal, R. Steele, M. McKin, J. Duarte, J. C. Pires, D. Stevenson, W. R. McCombie, W. Zomlefer, T. Givnish, C. Ané, J. I. Davis, M. A. Gandolfo, M. Chase, A. Pineyro, E. Alvarez, R. Barrett, K. Thiele, G. K.-S. Wong, and C. dePamphilis. 2011. Phylogenomic analysis of transcriptomes sampled across monocot orders. XVIII International Botanical Congress, Melbourne, Abstract Book (http://www.ibc2011.com/downloads/IBC2011_Abstract_Book.pdf), p. 291.

Sessa, E., E. Zimmer, and T. Givnish. 2011. Phylogeny, physiology, and reticulate evolution: an integrated approach to North American *Dryopteris* (Dryopteridaceae). XVIII International Botanical Congress, Melbourne, Abstract Book (http://www.ibc2011.com/downloads/IBC2011_Abstract_Book.pdf), p. 307.

Ames, M., N. Williams, J. Leebens-Mack, M. Whitten, K. Neubig, M. Clements, and T. Givnish. 2011. Phylogeny and evolution of Orchidaceae: a phylogenomic perspective. XVIII International

Botanical Congress, Melbourne, Abstract Book (http://www.ibc2011.com/downloads/IBC2011_Abstract_Book.pdf), p. 311.

GRADUATE STUDENTS (1990 - present):

Timothy Montague (M.A., Botany) Comparative growth and performance of black spruce and eastern larch along peatland gradients in northern Wisconsin – M.A. awarded, 1992

Brian Pruka (M.S., IES) Distribution of savanna and woodland herbaceous species along light and soil depth gradients – M.S. awarded, 1993

Kristin Westad (M.S., IES) Adaptive management plan for the New Jersey Pine Plains – M.S. awarded, 1995

Antonio Vázquez (Ph.D., Botany) Ecology of montane rain forests in the Sierra de Manantlán, Mexico (co-advisor with H. H. Iltis) – Ph.D. awarded, 1995

Peter Hujik (M.S., IES) Ecology of lowland Midwestern oak savannas – M.S. awarded, 1995

Thomas Celebrezze (M.S., IES) Ecology of the endangered Karner Blue Butterfly (Rotary Foundation Fellow) – M.S. awarded, 1996; **designated outstanding Master's Thesis of 1996 at the University of Wisconsin.**

Mark Leach (Ph.D., Botany) Experimental reconstruction of oak savannas and compositional turnover along sun-shade gradients in remnant savannas – Ph.D. awarded, 1996

David Foster (Ph.D., Botany) Trends in the composition, structure, and diversity of forest understories along climatic and edaphic gradients in the Upper Great Lakes region (Support through USFS grant) – Ph.D. awarded, 1997

Laurie Stockmeier (M.A., Botany) Vegetational patterning and the distribution of rare plant species in fens: test of a biogeochemical hypothesis – M.A. awarded, 1998

Thomas Patterson (Ph.D., Botany) Molecular evolution and adaptive radiation in *Calochortus* (**NSF doctoral dissertation improvement grant**) Ph.D. awarded, 1998

Austin Mast (Ph.D., Botany) Adaptive radiation and molecular evolution in Australian Proteaceae **(NSF Graduate Fellow; NSF doctoral dissertation improvement grant)** Ph.D. awarded, 2000 -> post-doctoral appointment, University of Zürich -> Assistant Professor, Florida State University

Jeffrey Hapeman (Ph.D., Botany) Molecular evolution and adaptive radiation in the rein orchids (Orchidaceae: *Platanthera*) of North America **(NSF Graduate Fellow; AOS grant)** M.A. awarded, 2004

Erica Cochrane (Ph.D., Botany/Zoology) Population dynamics and elephant seed dispersal in African rainforest trees (co-advisor with T. Moermond) (Support through **World Conservation Society grant**) Ph.D.'s awarded, 2001

Melissa Chung (M.A., Botany) Genetic differentiation in endangered *Oxytropis* (**University of Wisconsin AOF fellowship**) M. S. awarded, 2001

Frank Landis (Ph.D., Botany) Ecology of prairie and savanna mycorrhizae (**NSF doctoral dissertation improvement grant**) Ph.D. awarded, 2004

Jonathan Coop (Ph.D., Botany) Causes of subalpine treelines in the Valles Caldera National Preserve (**University of Wisconsin Fellowship; NSF doctoral dissertation improvement grant**) Ph.D. awarded, 2005

Tara Suring (M.A., IES) Metapopulation dynamics of the federally endangered Pitcher's thistle (*Cirsium pitcheri*) M. A. awarded, 2005

Kendra Millam (Ph.D., Botany) Molecular systematics and phylogeography of the *Trillium erectum* complex. Ph.D. awarded, 2006

Terra Theim (Ph.D., Botany) Geographic scale of genetic differentiation in gap-phase vs. understory species of *Psychotria* (Rubiaceae): relation to vagility of seed dispersers (**Nave Fund grant**) Ph.D. awarded, 2006

Jillian Henss (M.A., Botany) Spatial scales of gene flow in *Calochortus* (Liliaceae) M.S. awarded, 2006

Philip Gonsiska (Ph.D., Botany) Phylogeny and adaptive divergence in photosynthetic light responses in *Catopsis* (Bromeliaceae) Ph.D. awarded, 2010.

Robert Wernerehl (Ph.D., Botany) Causes of the distributions of dominant prairie grasses along dry-wet landform gradients

Emily Sessa (Ph.D., Botany) Phylogeny and adaptive radiation in North American *Dryopteris*

(**Smithsonian summer research grant; NSF doctoral dissertation grant**)

Kathryn Gerndt (M.S., IES) Structural habitat of the endangered pine marten in northern Wisconsin

Stephanie Pimm Lyon (Ph.D., Botany) Phylogeny and geography of Australian *Corybas* (Orchidaceae) (**NSF Graduate fellowship; NSF doctoral dissertation grant)**

Post-doctoral fellows

Rebecca A. Montgomery (1999-2003) Physiological adaptations to sun and shade in the Hawaiian lobeliads – Dr. Montgomery is now an Assistant Professor of Forest Resources at the University of Minnesota-Twin Cities

Omar R. Lopez (2003-2006) Leaf phenology and hydraulic conductivity as determinants of shade tolerance in temperate forest trees – Dr. Lopez currently holds the prestigious 3-year Tupper Fellowship at the Smithsonian Tropical Research Institute in Panamá.

Benjamin Van Ee (2006) Origin and radiation of the North American lilies – Dr. Van Ee held a Junior Fellowship at Harvard University, and now is an assistant professor at Spearfish College, Spearfish S. D.

Mercedes Ames (2009-2011) Phylogeny of the monocotyledons; plastome phylogeny of tribes of Orchidaceae

Recent service on Departmental and University committees:

Department of Botany	
Awards Committee (Chair)	2002-2008, 2010-present
Awards Committee (member)	2008-2010
Budget	1998-2000, 2008-2010
Endowment Fund (Chair)	1986-2008
Finance and Development (Chair)	2008-2010
Finance and Development (member)	2010-present
Graduate Admissions	2011-present
Sara Hotchkiss Mentor and Tenure Review Committee (Chair)	2005-2009
University of Wisconsin	
Hilldale Undergraduate Research Awards (Chair, Biological Division)	1991-2004
Organization for Tropical Studies, Board	1994-2008
Recreational Sports Board (member)	2005-2011
Recreational Sports Board (chair)	2008-2010
Faculty Rights & Responsibilities	2011-present