

PATI VITT
Chicago Botanic Garden
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Glencoe, IL 60022
pvitt@chicagobotanic.org

EDUCATION

Ph.D. Botany, (1997). Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut. Dissertation: Functional Ecology of Gender Change in *Arisaema triphyllum* (Araceae): An Interdisciplinary Approach.
M.S., Botany & Plant Pathology (1991). University of Maine, Orono, Maine. Thesis: Conservation Biology of *Isotria medeoloides*, a Federally Endangered terrestrial Orchid.
B.A., Human Ecology (1985). College of the Atlantic, Bar Harbor, Maine.

PROFESSIONAL EXPERIENCE

POSITIONS HELD

Roger and Susan Stone Curator of the Dixon National Tallgrass Prairie Seed Bank, Manager of Conservation Programs, Associate Scientist, Department of Plant Biology and Conservation, Chicago Botanic Garden, Glencoe, IL (Present).
Adjunct Assistant Professor, Department of Plant Biology and Conservation, Northwestern University, Evanston, IL (Present).
Manager of Conservation Programs and Assistant Scientist, Chicago Botanic Garden, Glencoe, IL (2007-2009).
Conservation Scientist and Manager of Ex Situ Conservation and Restoration Programs, Chicago Botanic Garden, Glencoe, IL (2006-2007).
Conservation Scientist, Chicago Botanic Garden, Glencoe, IL (2001-2006).
Adjunct Lecturer, Weinberg College, Program in Biological Sciences, Northwestern University, Evanston, IL. (2003-2005).
Conservation Botanist, Chicago Botanic Garden Glencoe, IL (1999-2001).
Postdoctoral Research Associate, Department of Ecology and Evolutionary Biology, University of Connecticut (1998-1999). Zoe G. Cardon advisor.
Lecturer, Department of Ecology and Evolutionary Biology, Yale University (1998).
Graduate Research Training Fellow, Center for Conservation and Biodiversity, Department of Ecology and Evolutionary Biology, University of Connecticut. 1993-1994.
Research Assistant, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut (1991-1992).

TEACHING

Adjunct Assistant Professor, Plant Biology and Conservation, Northwestern University (current).

Adjunct Lecturer, Undergraduate Program in Biology, Northwestern University (Spring 2003). Conservation Biology.

Lecturer, Department of Ecology and Evolutionary Biology, University of Connecticut Summer 1998, 1999). Summer Flora.

Lecturer, Department of Ecology and Evolutionary Biology, Yale University (Spring 1998). Evolutionary Plant Morphology.

Lecturer, Department of Ecology and Evolutionary Biology, University of Connecticut (Fall 1997). Evolutionary Biology: Writing Component

Graduate Assistant, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut (1992-1993, 1994-1997), teaching laboratory sections of Developmental Plant Morphology, Plant Anatomy, General Genetics, General Biology and Botany.

Instructor, Department of Biology, Eastern Connecticut State University, Willimantic, Connecticut (Fall 1994) General Ecology.

Graduate Assistant, Department of Botany & Plant Pathology, University of Maine, Orono, Maine (1988-1991), General Biology, The Plant Kingdom and Plant Biology.

Teaching Assistant, College of the Atlantic, Bar Harbor, Maine (1986), Plant Taxonomy course.

PUBLICATIONS

Havens, K., C. Jolls, J. Marik, P. Vitt, A. K. McEachern, and D. Kind. Effects of an introduced biocontrol weevil, *Larinus planus*, and other emerging threats on populations of the federally threatened Pitcher's thistle, *Cirsium pitcheri*. In review. Biological Conservation.

Havens, K., P. Vitt and S. Masi. Citizen Science on a Local Scale: The "Plants of Concern" Program Undertakes Rare Plant Monitoring. In review, Frontiers in Ecology and the Environment.

Schwartz, M.W.¹, Hellmann, J.J.², McLachlan, J.M.², Sax D.F.³, Borevitz, J.O.⁴, Brennan, J.⁵, Camacho, A.E.⁶, Ceballos, G.⁷, Doremus, H.⁸, Early, R.³, Etterson, J.R.⁹, Gill, J.¹⁰, Gonzalez, P.¹¹, Green, N.¹², Hannah, L.¹³, Jamieson, D.W.¹⁴, Javeline, D.², Minter, B.A.¹⁵, Odenbaugh, J.¹⁶, Polasky, S.¹⁷, Richardson, D.M.¹⁸, Root, T.L.¹⁹, Safford, H.D.^{1,20}, Sala, O.¹⁵, Schneider, S.H.²¹, Thompson, A.R.²⁴, Williams, J.W.¹⁰, Vellend, M.²³, Vitt, P.²⁴, Zellmer, S.²⁵. Integrating the scientific, regulatory and ethical challenges posed by managed relocation. In review BioScience.

Knight, T.M., K. Havens and P. Vitt. 2011. Will the use of less fecund cultivars reduce the invasiveness of perennial plants? BioScience 61(10): 816-822.

Fant, J.B., A. Banai and P. Vitt. Morphological and molecular evidence of hybridization between the federally threatened *Lespedeza leptostachya* Englem. and its co-occurring congener *Lespedeza capitata* Michx. Conservation Genetics 11(6): 2195-2205.

Vitt, P. K. Havens, A.T. Kramer, D. Sollenberger, and E. Yates. 2010 Assisted Migration of Plants: Changes in Latitudes, Changes in Attitude. Biological Conservation 143 (1): 18-27.

Vitt, P. K. Havens and O. Hoegh-Guldberg. 2009. Assisted migration: part of an integrated conservation strategy. Trends in Ecology and Evolution 24: 473-474.

Vitt, P., T. Knight, and B.P. Kendall. 2009. Effects of Community Level Management on *Agalinis auriculata*, a Rare Non-Target Prairie Annual. Biological Conservation 142 (4): 798-805.

- Schwarz, J., K. Havens, P Vitt. 2008. Understanding Climate Change through Citizen Science. *Roots*. V.5(1)
- Havens, K., Vitt, P.,Maunder, M., Guerrant, E.O., Dixon, K. 2006. *Ex Situ* Plant Conservation and Beyond. *BioScience* (56) 6: 525-531.
- Havens, K., L.V. Jefferson and P. Vitt. 2004. Chicago Botanic Garden Reaches Beyond Its Borders. *Public Garden* 18: 35-36.
- Havens, K., M. Maunder, E.O. Guerrant, and P. Vitt. 2004. Conservation Research at Botanic Gardens and Arboreta. *Public Garden* 19: 40-43.
- Havens, K., E.O. Guerrant, M. Maunder and P. Vitt. 2004. Managing genetic risks: guidelines for *ex situ* plant collection maintenance. In: *Saving the Pieces: The value, limits, and practice of off-site plant conservation*, E.O. Guerrant, K. Havens, M. Maunder (eds).
- Vitt, P. and K. Havens. 2004. Integrating quantitative genetics into *ex situ* conservation practices. In: *Saving the Pieces: The value, limits, and practice of off-site plant conservation*, E.O. Guerrant, K. Havens, M. Maunder (eds).
- Vitt, P., K.E. Holsinger, and C.S. Jones, 2003. Local differentiation and phenotypic plasticity of size and gender change in *Arisaema triphyllum*. *Am. J. Bot.*
- Bell, T. J., M. Bowles, J. McBride, K. Havens, P. Vitt and K. McEachern. 2002. Reintroducing Pitcher's Thistle. *Endangered Species Bulletin* 27(3): 14-15.
- Cardon, Z.G. A.D. Czaja, J.L. Funk, and P. Vitt. 2002. Periodic carbon flushing to roots of *Quercus rubra* saplings affects soil respiration and rhizosphere microbial biomass. *Oecologia*: 133: 215-223.
- Vitt, P. 2001. Gender-related and genotypic differences in gas exchange of male and female clones of the gender-switching species *Arisaema triphyllum* (Araceae). *Rhodora*. 103: 387-404.
- Vitt, P. 1997. Functional Ecology of Gender Change in *Arisaema triphyllum* (Araceae): An Interdisciplinary Approach. Doctoral Dissertation. University of Connecticut, Storrs, CT.
- Vitt, P. and C.S. Campbell, 1997. The Reproductive Biology of *Isotria medeoloides* (Pursh) Raf. Orchidaceae. *Rhodora*.
- Holsinger, K.E. and P. Vitt, 1996. The future of conservation biology: what's a geneticist to do? *in* Enhancing the Ecological Basis of Conservation: Heterogeneity, Ecosystem Function and Biodiversity. Proceedings from the Carey Conference VI, 1995.
- Vitt, P. 1991. Conservation of *Isotria medeoloides*: A Federally Endangered Terrestrial Orchid. Masters Thesis. University of Maine, Orono, ME.

ABSTRACTS AND POSTERS

- Vitt, P. (Abstract) Using Species Distribution Models to Assess Seed Collection Strategies of Rare Plants in the Midwestern United States. Kew Gardens 2009.
- Vitt, P. (Abstract) The effects of climate change on the range of rare grassland species in the Midwest." Ecological Society of America 2008.
- Havens, K., J. Schwarz and P. Vitt. (Abstract) Using phenology to engage public audiences in climate change issues. Kayri Havens, Jennifer Schwarz, and Pati Vitt. Ecological Society of America 2008.
- Vitt, P. and E. Yates. (Abstract) Assessing range shifts of rare grassland species in response to climate change. Botanical Society of America 2007.

- Kornfeind, J., Yates E. and P.Vitt 2007. (Abstract) Assessing Range Shifts of Rare Grassland Species in Response to Climate Change. Botanical Society of America, Chicago, IL.
- Allen, B. P. Vitt and K. Havens 2006. (Poster Abstract) Seed banking the tallgrass prairie. Botanical Society of America, Chico CA.
- Knight, T. P. Vitt, and B.P. Kendall 2006. (Poster Abstract) Control of invasive shrubs and deer required to conserve and endangered annual plant. Botanical Society of America, Chico, CA.
- Vitt, P., B.P.Kendall, and K. Havens 2006. (Abstract) An *Ex Situ* approach to managing species range shifts under global climate change: Refuge in a bottle. Botanical Society of America, Chico, CA.
- Vitt, P. B.P. Kendall and K. Havens 2006. (Poster) Rare plant management in the face of global climate change. Ecological Society of America. Merida, Mexico January 2006.
- Kendall, B. P., P. Vitt, and T. Knight. 2006. (Poster) Control of invasive shrubs and herbivores required to conserve an endangered annual plant, *Tomanthera auriculata* (Scrophulariaceae), in prairie fragments near Chicago, Illinois, USA. Ecological Society of America. Merida, Mexico January 2006
- Kendall, B., P. Vitt, K. Havens, and L. Jefferson 2003. (Poster) Do invasive plants exhibit increased variance in relative growth rates? 7th International Conference on the Ecology and Management of Alien Plant Invasions, Ft. Lauderdale, FL
- Bell, T. J., M. Bowles, J. McBride, K. Havens and P. Vitt, 2001. (Abstract). Viability analysis of a restored Illinois population of the Federally Threatened Pitcher's Thistle. Botany 2001, August 12 - 16, 2001, Albuquerque Convention Center, Albuquerque, New Mexico
- Bell, T. J., M. Bowles, J. McBride, K. Havens and P. Vitt, 2001. (Abstract). Viability analysis of a restored Illinois population of the Federally Threatened Pitcher's Thistle. Ecological Society of America, 86th Annual Meeting, August 6-10, 2001, Madison, Wisconsin
- Wagenius, S., P. Kopf, J. Taylor and P. Vitt, 2001. (Poster). Population size and breeding system effects of fluctuation asymmetry. Midwest Rare Plant Conference, Chicago, IL.
- Havens, K. R. Weaver and P. Vitt. 2001 (Poster). Effect of crossing distance in two species of *Lobelia*: the first generation. Midwest Rare Plant Conference, Chicago, IL.
- Vitt, P., K. Bradford, J. Taylor, K. Skogen, and A. Tietmeyer, 2001. (Poster). Using demographic and genetic indicator to investigate the effects of woodland restoration on the sate-threatened *Viola conspersa*. Midwest Rare Plant Conference, Chicago, IL.
- Cardon, Z.G., J.L. Funk, A.D. Czaja, and P. Vitt, 1999. (Abstract) Periodic carbon flushing to roots of *Quercus rubra* seedlings affects soil respiration and rhizosphere microbial biomass. Ecology Vol 80:(Supplement).
- Vitt, P. & C.S. Jones, 1997. Phenology of Inflorescence Initiation and Shoot Architecture in *Arisaema triphyllum*. Am. J. Bot. Vol. 84:6 (Supplement).
- Vitt, P., S.C. Gawler, A.C. Dibble, T. Vining, W.A. Wright, C.S. Campbell and K.E. Holsinger, 1996. Reproductive patterns and the cost of reproduction in a threatened orchid, *Isotria medeoloides*: a ten year retrospective. Ecology Vol 77:3 (Supplement).
- Vitt, P., S.C. Gawler and C.S. Campbell, 1990. Regional monitoring of *Isotria medeoloides*, an Endangered orchid. Am. J. Bot. Vol. 77:6 (Supplement).

TECHNICAL REPORTS

- Vitt, P. and E. Yates. (2008) Assessing Range Shifts of Rare Grassland Species in Response to Climate Change. (National Geographic Conservation Grant Report.)
- Masi, S. P. Vitt, R. Mann, K. Theiss, M. Stickler and M. Dunning (2005). Plants of Concern: Training Volunteers to Conduct Rare Plant Monitoring on a Regional Scale. (Chicago Wilderness and the Illinois Conservation Foundation Grant FWS 0313).
- Masi, S. and P. Vitt (2004). Plants of Concern: A Volunteer Based Rare Plant Monitoring Program in the Chicago Wilderness Region of Illinois. (Illinois Endangered Species Board).
- Vitt, P. and Kathryn Theiss (2005). Patterns of pollen removal and deposition in the western prairie fringed orchid on the Sheyenne Grassland (North Dakota). (National Fish & Wildlife Foundation).
- Vitt, P. and Kathryn Theiss (2005). Introduced moth pollinates the western prairie fringed orchid. (American Orchid Society).
- Vitt, P. and Kathryn Theiss (2004). Pollination patterns in the eastern and western prairie fringed orchids. (National Fish & Wildlife Foundation).
- Vitt, P. , Mercedes Stickler and Kathryn Theiss (2004). Moth mediated pollination in the eastern and western prairie fringed orchid. (American Orchid Society).
- Stickler, Mercedes, Kathryn Theiss and Pati Vitt (2004) Pollen tube growth in selfed versus outcrossed flowers of *Platanthera leucophaea*: a tale of self-incompatibility? (American Orchid Society).
- Susanne Masi and Pati Vitt (2004). Plants of Concern: A Volunteer Based Rare Plant Monitoring Program in the Chicago Wilderness Region of Illinois. (Illinois Endangered Species Board).
- Vitt, P. (2004) . Using hand-pollination as a management tool in *Platanthera leucophaea*: the effects on subsequent plant size, mortality, and reproduction. (US Fish & Wildlife Service).
- Susanne Masi and Pati Vitt (2003). Plants of Concern: A Volunteer Based Rare Plant Monitoring Program in the Chicago Wilderness Region of Illinois. (Illinois Endangered Species Board).
- Vitt, P. (2003) The costs of reproduction and hand pollination in *Platanthera praeclara*. (American Orchid Society).
- Susanne Masi and Pati Vitt (2002). Plants of Concern: A Volunteer Based Rare Plant Monitoring Program in the Chicago Wilderness Region of Illinois. (Illinois Endangered Species Board).
- Vitt, P. 1993. *Isotria medeoloides*: Demographic Monitoring in the State of Maine: An application of Maximum Likelihood Analysis to Estimate Rates of Individual Re-Emergence from Dormancy. 1991 Results. Maine Natural Areas Program, Department of Economic and Community Development, Augusta, ME.
- Vitt, P. 1991. Demographic monitoring *Isotria medeoloides* in Maine: 1990 results. Critical Areas Program, Maine State Planning Office, Augusta, ME.
- Vitt, P. and S.C. Gawler, 1990. Demographic monitoring of *Isotria medeoloides* in Maine: 1989 Results. Critical Areas Program, Maine State Planning Office, Augusta, ME.

PUBLICATIONS IN PREPARATION

- P. Vitt. Costs and benefits of reproduction in the prairie fringed orchids, *Platanthera leucophaea* and *P. praeclara*. (To be submitted to Am. J. of Bot.).
- K. Fox, M. Harris and P. Vitt. Nectar robbing in *Platanthera praeclara* does not reduce fruit set (To be submitted American Midland Naturalist).

P. Vitt and T. Bittner. Experimental demography to increase juvenile recruitment in *Lespedeza leptostachya*, the federally threatened prairie bush clover. (In prep).

INVITED PRESENTATIONS

- “Plant Ranges: Big And Little Are Not The Same, Using Species Distribution Modeling To Determine Seed Transfer Zones.” Janet Meakin Poor Symposium, Chicago Botanic Garden, June 2010.
- “Is Assisted Migration an Appropriate Conservation Strategy in the Face of Climate Change?” National Native Seed Conference, Snowbird, UT May 2010.
- “The Role of Seed Banks in Climate Change Adaptation.” North Dakota State University, Fargo, ND September 2009.
- “Impacts of Climate Change on Midwestern Plant Species.” Economic Valuation of Ecosystem Services, University of Chicago, May 2009.
- “Range Shifting in *Platanthera praeclara*, a rare expansion of territory for a rare plant.” U.S. Fish & Wildlife Meeting. Iowa, March 2009.
- “Collecting and Banking Seeds of the Tallgrass Prairie: Sowing the Seeds of Assisted Migration.” University of Eastern Illinois, March, 2009.
- “Using Species Distribution Models to Assess Seed Banking as a Strategy for Climate Change Adaptation.” Notre Dame University – Graduate Seminar on Assisted Migration, November 2008.
- “Sustainable Gardening: The Case for Native Plants.” Highland Park Earth Day Festival, Highland Park, IL. 20 April 2008.
- “Plants: A Few of my Favorite Things” After dinner lecture, Colburn residence. Forest Park, IL. 11 July 2008.
- “Native Plants in the Home Landscape”. HSBC Bank World Environment Day, 5 June 2008.
- “Range Shifting as a Response to Climate Change.” Chicago Wilderness Conference 2008.
- “Using Range Shift Models to Assess the Recovery Potential of the Prairie Fringed Orchids.” Recovery Team Meeting, April 2007.
- “Hand Pollination As A Management Tool In The Prairie Fringed Orchids” *Platanthera praeclara* Recovery Team meeting, Omaha, NE. November 2004
- “Costs of Reproduction in the Prairie: A Tale of Two Orchids” Host: Department of Biology, University of Illinois Chicago, Chicago, IL. October 2004.
- “Integrating science and management in the conservation of rare plants” Host: Department of Ecology and Evolutionary Biology, Indiana University, Bloomington, IN. December 2002.
- “Conservation Science at the Chicago Botanic Garden.” Alternative Career Seminar, Host: Department of Ecology and Evolutionary Biology, Indiana University, Bloomington, IN. December 2002.
- “Orchid Conservation at Chicago Botanic Garden.” Host: OrchidMania Exhibition, Brookfield Zoo, Brookfield, IL. March 2002.
- “Population level consequences of functional morphology.” Host: Loyola University, Chicago, IL, February, 2000.
- “Plant Reproduction and Population Stability.” Host: Alumni in Science Symposium. College of the Atlantic, Bar Harbor, ME. October, 1998.

- “Functional ecology of gender change in *Arisaema triphyllum*.” Host: University of Tennessee, Knoxville, TN. August, 1998.
- “Jack or Jill in the Pulpit: exploring gender change in a woodland plant.” Host: Roanoke College, Roanoke, VA. March, 1998.
- “Population viability of *Isotria medeoloides* in Maine: What do we know after 10 years?” U.S. Fish and Wildlife Service, Concord, NH. February, 1997.
- “A comparison of the reproductive ecology of an orchid and an aroid, and the conservation consequences to spring-flowering geophytes.” Host: Department of Ecology & Evolutionary Biology, University of Kentucky, Lexington, KY. February 1996.
- “The reproductive ecology of two spring-flowering geophytes: a comparison of an orchid (*Isotria medeoloides*) and an aroid (*Arisaema triphyllum*).” Host: Department of Biology, SUNY Brockport, Brockport, NY. February, 1996.
- “Maximum Likelihood Analysis of Dormancy Rates in *Isotria medeoloides*, or, I know when a plant has died.” Natural Areas Conference, Orono, Maine. June 1993.
- “Conservation biology of *Isotria medeoloides* in Maine.” Monday Evening Seminar Series, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut. April 1992.
- “The status of *Isotria medeoloides* in Maine.” Critical Areas Advisory Board, Maine State Planning Office, Augusta, Maine. March 1991.
- “The decline of *Isotria medeoloides* in Maine.” National Fish & Wildlife Service, Northeast Regional Meeting on Endangered Species, Greenville, Massachusetts. March 1991.

PRESENTATIONS

- “Using Species Distribution Models to Assess Seed Collection Strategies of Rare Plants in the Midwestern United States” at the 250th anniversary science symposium at Royal Botanic Gardens, Kew, Richmond, UK. October 2009
- “Assisted Migration of Plants: Changes in Latitudes, Changes in Attitudes” at the 250th anniversary science symposium at Royal Botanic Gardens, Kew, Richmond, UK. October 2009.
- “Seed Banking for Assisted Migration” Center for Plant Conservation, Reintroduction Symposium, October 2009.
- “The effects of climate change on the range of rare grassland species in the Midwest.” Ecological Society of America, Milwaukee, WI 3-8 August 2008.
- “Using phenology to engage public audiences in climate change issues.” Kayri Havens, Jennifer Schwarz, and Pati Vitt. Ecological Society of America (ESA) Conference, Milwaukee, WI, August, 2008.
- “Sustainable gardening: what is it? Who can do it? YOU!” 2008 Flower and Garden Show, Chicago, IL. 8 March 2008.
- “Assessing range shifts of rare grassland species in response to climate change.” Pati Vitt and Emily Yates. Botany 2007, Botanical Society of America, Chicago, IL. July 2007.
- “An *Ex Situ* approach to managing species range shifts under climate change: Refuge in a bottle.” Pati Vitt, Bruce Kendall, Kayri Havens. Botany 2006, Botanical Society of America, Chico, CA. August 2006.

- “The effects of management on population rank in four regionally rare plant species.” Pati Vitt, Leslie, Brandt, Lailah Reich, Kathryn Theiss and Susanne Masi. Natural Areas Conference, Chicago. October 2004.
- “Preliminary results of the effects of hand pollination of the Federally threatened Western prairie fringed orchid (*Platanthera praeclara*).” Kathryn E. Theiss, Pati Vitt and Kathleen Edmonds. Natural Areas Conference, Chicago. October 2004.
- “Responses of the Federally-threatened prairie bush clover (*Lespedeza leptostachya*) to experimental grazing and burning at Nachusa Grasslands, Lee County Illinois.” R. Todd Bittner, Pati Vitt, and Bill Kleiman. Natural Areas Conference, Chicago. October 2004.
- “Effects of hand-pollination in *Platanthera leucophaea*: cost or benefit?” Science in Plant Conservation, Botanic Gardens International, Dublin, Ireland. July 2002.
- “The costs and consequences of increasing fruit set by hand pollination in the eastern prairie fringed orchid, *Platanthera leucophaea*.” First International Orchid Conservation Congress, Perth, WA, Australia. September 2001.
- “Transexuality in the Pulpit: Preaching on Gender-Change.” Ph.D. defense seminar, November, 1997. University of Connecticut, Storrs, CT.
- “Phenology of Inflorescence Initiation and Shoot Architecture in *Arisaema triphyllum*.” The Botanical Society of America. Montreal, Quebec, Canada. August 1997.
- “Reproductive patterns and the cost of reproduction in a threatened orchid, *Isotria medeoloides*: a ten year retrospective.” The Ecological Society of America. Providence, R.I. August, 1996.
- “Transexuality in the Pulpit: an examination of the morphological basis of gender choice.” Population Biologists of New England, University of Connecticut - Host, Storrs, CT October, 1995.
- “Transexuality in the Pulpit: an examination of gender choices.” The Society for the Study of Evolution, Montreal, Quebec, Canada. July, 1995.
- “Plant Architecture and Reproduction, an integrated approach to Plant Reproductive Ecology.” Graduate Student Symposium, Department of Ecology and Evolutionary Biology, University of Connecticut. October, 1994.
- “Local patterns in gender switching of *Arisaema triphyllum*.” Society for the Study of Evolution, Athens, Georgia. June, 1994.
- “Local adaptation of size at gender switching in *Arisaema triphyllum*.” Graduate Student Symposium, Department of Ecology and Evolutionary Biology, University of Connecticut. October, 1993.
- “Reproductive biology and conservation of *Isotria medeoloides* in Maine.” Thesis defense seminar, Department of Botany & Plant Pathology, University of Maine. May 1991.
- “Regional Monitoring of *Isotria medeoloides* in Maine.” American Institute of Biological Sciences, Richmond, Virginia. August, 1990.
- “Demographics and monitoring of *Isotria medeoloides* in Maine.” New England Botany Graduate Students, Orono, Maine. April, 1990.
- “*Isotria medeoloides*: Factors contributing to its rarity.” New England Botany Graduate Students, Burlington, Vermont. April 1989.

GRANTS AND CONTRACTS

“Collecting the Seeds of Regional Forester Sensitive Species.” U.S. Forest Service, 2011. Principal Investigator (PI) \$60,000.

“MRI Acquisition of Seed X-Ray Equipment,” National Science Foundation, 2011. Co-PI \$135,000.

“Using Species Distribution Models to Generate Seed Banking Strategies and Delimit Seed Transfer Zones.” Bureau of Land Management, 2010. PI \$992,000.

“Seed Collecting the Flora of Wyoming.” Bureau of Land Management – Wyoming Field Office. 2010. \$90,000.

NSF MRI: “MRI: Acquisition of a Conservation Geographic Information Systems (GIS) Laboratory.” PI \$305,000.

Illinois Department of Natural Resources “Population Genetic Diversity of *Lespedeza leptostachya*” 2008. \$4300.

National Geographic Conservation Grant “Using Species Distribution Models to Predict Range Shifts of Rare Plants Species in Response to Climate Change” 2008. \$10,400.

Illinois Department of Natural Resources “Increasing Juvenile Recruitment In *Lespedeza leptostachya* (Prairie Bush Clover) as a Tool in Species Recovery.” 2007-2008 \$11, 768.”

NSF MRI: “MRI: Acquisition of a Seed Biology Laboratory DBI-0521245 .” 2005 – 2007. Co-PI. \$300,000.

National Fish & Wildlife Foundation “Comparative Pollination in the Eastern and Western Prairie Fringed Orchids.” 2004-2005. \$23,500.

American Orchid Society: “Using Hand-Pollination in the Recovery of *Platanthera leucophaea* and *P. praeclara*.” 2003. \$7,300.00.

BLM. Bureau of Land Management Intern Training Grant, 2002-2004. Co-PI. \$300,000.

IMLS. “Vplants, a Virtual Herbarium.” 2000-2003. Co-PI. \$420,000.

U.S. Fish & Wildlife Service contract, title: The impact of hand-pollination on the population stability of *Platanthera leucophaea*. 2000. \$7000.00

Maine State Planning Office contract; title: Demographic Analysis of Mortality in *Isotria medeoloides*. 1991. \$1000.

The Nature Conservancy, Maine Chapter - Small Grants Program; title: Reproductive Biology of *Isotria medeoloides*. 1990. \$1300.

Maine State Planning Office contract; title: Demographic Monitoring of *Isotria medeoloides*. 1990. \$1000.

Maine State Planning Office contract; title: Demographic Monitoring and Inventory of *Isotria medeoloides*. 1989. \$2500.

SCHOLARSHIPS AND AWARDS

Summer Research Fellowship, Department of Ecology and Evolutionary Biology, University of Connecticut, Summer 1997. \$1020.

Summer Research Fellowship, Department of Ecology and Evolutionary Biology, University of Connecticut, Summer 1996. \$890.

University of Connecticut Predoctoral Fellowship, The Graduate School, University of Connecticut, Storrs, CT 06269. 1995-1996. \$7,150.00.

Doctoral Dissertation Preparation Fellowship, Research Foundation, University of Connecticut, Storrs, CT 06269. Summer, 1995, \$2500.

Graduate Research Training Fellowship, Center for Conservation and Biodiversity, Department of Ecology and Evolutionary Biology, University of Connecticut. 1993-1994. \$14,000 + benefits. NSF Grant # BIR-9256616.

Summer Research Fellowship, Department of Ecology and Evolutionary Biology, University of Connecticut, Summer 1993. \$1200.

Andrews Fund, Connecticut State Museum, University of Connecticut, Travel Award, Summer 1993. \$200.

Bamford Fund, Department of Ecology and Evolutionary Biology, University of Connecticut, Research Award, Summer 1993. \$660.

Association of American University Professors, Tuition Reimbursement, Spring 1992. \$1255.

Association of Graduate Student, University of Maine, Research Award, Dec., 1989. \$90.

George Kirk Scholarship, Joselyn Botanical Society. July, 1989. \$115.

Bob Jones Memorial Fund, Joselyn Botanical Society. Book Award, July 1989. \$100.

Association of Graduate Students, University of Maine, Travel Award, March 1989. \$130.

AFFILIATIONS AND COLLABORATIONS

Amy Ando, University of Illinois, Urbana- Champaign. Champaign, IL.

Alona Banai, Graduate Student, Northwestern University, Evanston, IL (graduated).

Timothy J. Bell, Professor. Chicago State University. Chicago, IL.

Marlin Bowles, Conservation Biologist, The Morton Arboretum, Lisle, IL.

Anthony Endress, University of Illinois, Urbana- Champaign. Champaign, IL.

Courtney Gill, Graduate Student, Northwestern University, Evanston IL (graduated).

Bruce Kendall, Associate Professor, Donald Bren School of Environmental Science and Management, University of California, Santa Barbara.

Tiffany Knight, Assistant Professor, Department of Biology, Washington University in St. Louis.

Glen Medeja, Graduate Student, Northwestern University, Evanston, IL (graduated).

Rachel Olson, Graduate Student, Northwestern University, Evanston IL (graduated).

Jennifer Steinbachs, Deputy Director, Center for Bioinformatics and Genomics, Indiana University, Bloomington, IN.

Melissa Tienes, Graduate Student, Northwestern University, Evanston IL.

COMMUNITY SERVICE

Lespedeza leptostachya USFW Recovery Team member, 2009

Platanthera praeclara USFW Recovery Team advisor 2004, 2009

Member, Orchid Specialist Group, IUCN, 2003-2009.

US Delegate, Gran Canaria Group 2006.

Board Member, Illinois Native Plant Society. 2001-2004.

Center for Plant Conservation Endangered Plants Website Computer Technology Planning Subcommittee, Conservation Science Department, Chicago Botanic Garden.

VPlants Planning Committee Member, Conservation Science Department, Chicago Botanic Garden.

IT Officer, Conservation Science Department, Chicago Botanic Garden.

Volunteer Services Strategic Planning Committee, Chicago Botanic Garden.

Invasive Species Initiative, Committee Member, Chicago Botanic Garden.
Conservation Committee, Botanical Society of America, 2000-2003.
Reviewer, Ecology, Ecological Society of America
Reviewer, Conservation Biology, Society for Conservation Biology
Reviewer, American Journal of Botany, American Botanical Society
Organizer, 1995 Meeting of the Population Biologists of New England, Department of Ecology and Evolutionary Biology, University of Connecticut, Fall 1995.
Vice President, University of Connecticut Dog Obedience Club. 1995-1996.
Greenhouse Tour Guide, Department of Ecology & Evolutionary Biology Greenhouse, for the Connecticut State Museum of Natural History. 1991-1998.
Representative, Graduate Student Association of the Department of Ecology and Evolutionary Biology, University of Connecticut, to the Center for Conservation and Biodiversity, University of Connecticut. 1995.
Representative, Graduate Student Association of the Department of Ecology and Evolutionary Biology, University of Connecticut, to the Seminar Committee, Department of Ecology and Evolutionary Biology, University of Connecticut. 1994.
Member of the Endangered Plant Technical Advisory Committee, State Planning Office - Maine. 1990-1992.