

JENNIFER HELEN RICHARDS

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Curriculum Vitae

PROFESSIONAL EXPERIENCE

- Professor, Department of Biological Sciences, Florida International University, Miami, FL, 1995-present.
- Secretary, Botanical Society of America. 2000-2003
- Associate Editor, American Journal of Botany. 2000-2004; 2005-present.
- Chairperson, Department of Biological Sciences, Florida International University, Miami, Florida, 1991-1994.
- Associate Professor, Florida International University, Department of Biological Sciences, Miami, Florida, 1987-1995.
- Assistant Professor, Florida International University, Department of Biological Sciences, Miami, Florida, 1982-1987.
- Assistant Professor, Wellesley College, Department of Biology, Wellesley, MA., 1981-1982.

EDUCATION

- High School:* High School Diploma, Tates Creek High School, Lexington, Kentucky, 1967.
- Undergraduate:* A.B. in Biology, Radcliffe College, Harvard University, 1972.
- Graduate:* Indiana University, Department of Plant Sciences, 1973-1974.
University of California, Berkeley, 1974-1979; Ph.D. in Botany with Dr. D.R. Kaplan, 1980.
- Postdoctoral:* Research associate with Dr. P.R. Larson, U.S.D.A., Forest Service, North Central Forest Experiment Station, Rhinelander, Wisconsin, 1979-1980.

PUBLICATIONS

Refereed Articles:

In Press:

- Troxler, T. and **J.H. Richards**. $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, carbon, nitrogen and phosphorus as indicators of plant ecophysiology and organic matter pathways in Everglades deep slough, Florida, USA. *In Press*. Aquatic Botany.
- Wilsdon, W.K. and **J.H. Richards**. Variation in southern Florida and Bahamian *Aletris* (Nartheciaceae): morphology, phenology, and putative hybridization. *In Press*. Journal of the Torrey Botanical Society.
- Liu, G., Cai, Y., Scheidt, D., Kalla, P., Richards, J., Scinto, L.J. and Appleby, C. Spatial variability in mercury cycling and relevant biogeochemical controls in the Florida Everglades. *In Press*. Environmental Science and Technology.

Refereed Articles:

Published:

- Doren, R.F., **J.H. Richards** and J.C. Volin. 2009. A conceptual ecological model to facilitate understanding the role of invasive species in large-scale ecosystem restoration. *Ecological Indicators* 9(6): S150-S160.
- Doren, R.F., J.C. Volin and **J.H. Richards**. 2009. Invasive exotic plant indicators for ecosystem restoration: An example from the Everglades restoration program. *Ecological Indicators* 9 (6): S29-S36.
- Gaiser, E.E. R.F. Doren, P.V. McCormick, S. Newman, **J.H. Richards** and J.C. Trexler. 2008. Comment on “Estimating Ecological Thresholds for Phosphorus in the Everglades”. *Environmental Science and Technology* 42: 6770-6771.
- Liu, G., Y. Cai, P. Kalla, D. Scheidt, **J. Richards**, L. Scinto, E. Gaiser and C. Appleby. 2008. Mercury mass budget estimates and cycling seasonality in the Florida Everglades. *Environmental Science and Technology* 42: 1954-1960.
- Liu, G., Y. Cai, T. Philippi, P. Kalla, D. Scheidt, L. Scinto, **J. Richards** and J. Trexler. 2008. Distribution of total and methylmercury in different ecosystem compartments in the Everglades: Implications for mercury accumulation. *Environmental Pollution* 153: 257-265.
- Richards, J.H.**, J.J. Bruhl and K.W. Wilson. 2006. Morphology and development of reproductive structures in *Exocarya* (Cyperaceae, Mapanioideae, Chrysitricheae). *American Journal of Botany* 93(9): 1081-1090.
- Gottlieb, A., **J.H. Richards** and E.E. Gaiser. 2006. Comparative study of periphyton community structure in long and short hydroperiod Everglades marshes. *Hydrobiologia* 569(1): 195-207.
- Baksh, S.I. and **J.H. Richards**. 2006. An architectural model for *Eleocharis*: Morphology and development of *Eleocharis cellulosa* (Cyperaceae). *American Journal of Botany* 93: 707-715.
- Gottlieb, A., **J.H. Richards**, and Gaiser, E.E. 2005. The effects of desiccation duration on the community structure of short and long hydroperiod Everglades periphyton mats. *Aquatic Botany*: 82: 99-112.
- Gaiser, E.E., D.L. Childers, R.D. Jones, **J.H. Richards**, L.J. Scinto and J.C. Trexler. 2005. Periphyton responses to eutrophication in the Florida Everglades: cross-system patterns of structural and compositional change. *Limnology and Oceanography*: 50: 342-355
- Gaiser, E.E., J.C. Trexler, **J.H. Richards**, D.L. Childers, D. Lee, A.L. Edwards, L.J. Scinto, K. Jayachandran, G.B. Noe, R.L. Jones. 2005. Cascading effects of low-level phosphorus enrichment in the Florida Everglades. *Journal of Environmental Quality* 34: 717-723.
- Snyder, J.M. and **J.H. Richards**. 2005. Floral phenology and compatibility of sawgrass, *Cladium jamaicense* (Cyperaceae). *American Journal of Botany* 92: 738-745.
- Richards, J.H.** and C.T. Ivey. 2004. Morphological plasticity of *Sagittaria lancifolia* L. in response to phosphorus. *Aquatic Botany* 80: 53-67.

- Edwards, A.L., **J.H. Richards** and D.W. Lee. 2003. Responses to a fluctuating environment: Effects of water depth on growth and biomass allocation in *Eleocharis cellulosa* Torr. (Cyperaceae). *Canadian Journal of Botany* 81: 964-975.
- Gaiser, E.E., L.J. Scinto, **J.H. Richards**, K. Jayachandran, D.L. Childers, J.C. Trexler, and R.D. Jones. 2003. Phosphorus in periphyton mats provides the best metric for detecting low-level P enrichment in an oligotrophic wetland. *Water Research* 38(3): 507-516.
- Richards, J.H.** 2002. Flower and spikelet morphology in sawgrass, *Cladium jamaicense* Crantz (Cyperaceae). *Annals of Botany* 90: 361-367.
- Noe, G.B., D.L. Childers, A.L. Edwards, E. Gaiser, K. Jayachandran, D. Lee, J. Meeder, **J. Richards**, L.J. Scinto, J. Trexler, and R.D. Jones. 2002. Short-term changes in phosphorus storage in an oligotrophic Everglades wetland ecosystem receiving experimental nutrient enrichment. *Biogeochemistry* 59: 239-267.
- Ivey, C. and **J.H. Richards**. 2001. Genotypic diversity and clonal structure of Everglades sawgrass, *Cladium jamaicense* (Cyperaceae). *International Journal of Plant Science* 162: 1327-1335.
- Ivey, C. and **J.H. Richards**. 2001. Genetic diversity of Everglades sawgrass (*Cladium jamaicense*, Cyperaceae). *International Journal of Plant Science* 162: 817-825.
- Childers, D.L., R.D. Jones, J. Trexler, C. Buzzelli, S. Dailey, A. Edwards, E. Gaiser, K. Jayachandran, A. Kenne, D. Lee, J. Meeder, M.Nair, J. Pechman, A. Renshaw, **J. Richards**, M. Rugge, L. Scinto, P. Sterling, and W. Van Gelder. 2002. Quantifying the effects of low-level phosphorus enrichment on unimpacted Everglades wetlands with *in situ* flumes and phosphorus dosing. Pp. 127-152 *In* The Everglades Hydroscape (K.Porter and J.Porter, eds.), St. Lucie Press.
- Richards, J.H.** 2001. Bladder function in *Utricularia purpurea* (Lentibulariaceae): is carnivory important? *American Journal of Botany* 88: 170-176.
- Richards, J.H.** and S. Koptur. 1993. Floral variation and distyly in *Guettarda scabra* (Rubiaceae). *American Journal of Botany* 80: 31-40.
- Imbert, F.M. and **J.H. Richards**. 1993. Protandry, incompatibility, and secondary pollen presentation in *Cephalanthus occidentalis* (Rubiaceae). *American Journal of Botany* 80: 395-404.
- Richards, J.H.** and S.C.H. Barrett. 1992. The development of heterostyly. *In*: *Monographs on Theoretical and Applied Genetics* 15: Evolution and function of heterostyly (S.C.H. Barrett, ed.). Springer-Verlag, Berlin Heidelberg. pp. 85-127.
- Lee, D.W. and **J.H. Richards**. 1991. Heteroblastic development in vines. *In*: *The biology of vines* (F.E. Putz and H.A. Mooney, eds.). Cambridge Univ. Press, Cambridge. pp. 205-243.
- Barrett, S.C.H. and **J.H. Richards**. 1990. Heterostyly in tropical plants. *In*: *Modes of reproduction and evolution of woody angiosperms in tropical environments* (G.T. Prance and G.K. Gottsberger, eds.). *Memoirs of the New York Botanical Garden* 55: 35-61.
- Raven, J.A., L.L. Handley, J.J. MacFarlane, S. McInroy, L. McKenzie, **J.H. Richards** and G. Samuelsson. 1988. The role of CO₂ uptake by roots and CAM in

acquisition of inorganic C by plants of the isoetid lifeform: a review, with new data on *Eriocaulon decangulare* L. *New Phytologist* 108: 125-148.

- Richards, J.H.** and S.C.H. Barrett. 1987. Development of tristylly in *Pontederia cordata* L. (Pontederiaceae). I. Mature floral structure and patterns of relative growth of reproductive organs. *American Journal of Botany* 74: 1831-1841.
- Richards, J.H.** and D.W. Lee. 1986. Light effects on leaf morphology in water hyacinth (*Eichhornia crassipes* Solms.). *American Journal of Botany* 73: 1741-1747.
- Richards, J.H.** and S.C.H. Barrett. 1984. The developmental basis of tristylly in *Eichhornia paniculata* (Pontederiaceae). *American Journal of Botany* 71: 1347-1363.
- Richards, J.H.** 1983. Heteroblastic development in the water hyacinth, *Eichhornia crassipes* Solms. *Botanical Gazette* 144: 247-259.
- Richards, J.H.**, J.Z. Beck and A.M. Hirsch. 1983. Structural investigations of asexual reproduction in *Nephrolepis exaltata* and *Platyserium bifurcatum*. *American Journal of Botany* 70: 993-1001.
- Richards, J.H.** 1982. Developmental potential of axillary buds of water hyacinth, *Eichhornia crassipes* Solms. *American Journal of Botany* 69: 615-622.
- Richards, J.H.** and P.R. Larson. 1982. The initiation and development of secondary xylem in *Populus deltoides* axillary branches. *Annals of Botany* 49: 149-163.
- Larson, P.R. and **J.H. Richards**. 1982. Lateral branch vascularization: its circularity and its relation to anisophylly. *Canadian Journal of Botany* 59: 2577-2591.
- Richards, J.H.** and P.R. Larson. 1981. Morphology and development of *Populus deltoides* branches in different environments. *Botanical Gazette* 142: 383-393.

Technical Reports:

- Philippi, T.E. and **J.H. Richards**. 2007. Hydrologic constraints on establishment of *Lygodium microphyllum*. Final project report for Critical Ecosystem Studies Initiative (CESI) #Q528404CESI.
- Stober, Q.J., K. Thornton, R. Jones, **J. Richards**, C. Ivey, R. Welch, M. Madden, J. Trexler, E. Gaiser, D. Scheidt and S. Rathbun. 2001. South Florida Ecosystem Assessment: Phase I/II—Everglades stressor interactions: Hydropatterns, eutrophication, habitat alteration, and mercury contamination (Summary). Athens, Georgia, USA. United States Environmental Protection Agency, Region 4 Science and Ecosystem Support Division, Water Management Division and Office of Research and Development. 63 pp.
- Richards, J.H.** and J.W. Fourqurean. 2000. Benthic macrophyte distribution and seasonality in the Everglades-Florida Bay ecotone: Pattern and processes. Final Report, Cooperative Agreement #5280-8-900, Everglades National Park.

Abstracts, Symposia Papers, and Posters:

- Richards, J.H.**, T.E. Philippi, P. Kalla and D. Scheidt. 2009. Defining subtropical marsh plant communities: Characterization of Everglades marsh vegetation using a landscape-scale random sample. Botanical Society of America annual meeting, Snowbird, UT, Jul. 2009.

- Bruhl, Jeremy J., Christina J. Prychid, **Jenny H. Richards**, Dave A. Simpson, Karen L. Wilson, Paula J. Rudall. Floral Development in *Lepironia* (Cyperaceae): Are 'Reproductive Units' Flowers or Synanthia? Fourth International Conference on The Comparative Biology of the Monocotyledons, Copenhagen, Denmark, Aug. 2008.
- Lee, D., J. Kelley, and **J. Richards**. Blue leaf iridescence as the by-product of photoprotection in tropical rainforest understory plants. Botanical Society of America annual meeting, Vancouver, BC, Aug. 2008.
- Zimmerman, Michael S., **J.H. Richards**, G. Reynolds, T. Troxler, and A. LoGalbo. Developing an Everglades slough performance measure: Integrating slough vegetation hydrologic optima from scientific literature, experimentally determined plant species responses and hydrologic model. Greater Everglades Ecosystem Restoration (GEER) meeting, Naples, FL, Jul. 2008.
- Richards, J.H.**, T.E. Philippi, P. Kalla and D. Scheidt. Characterization of southern Florida marsh vegetation using a landscape scale random sample: R-EMAP Phase III Vegetation Sampling. Greater Everglades Ecosystem Restoration (GEER) meeting, Naples, FL, Jul. 2008.
- Madden, Marguerite, Thomas R. Jordan, James T. Trice III, Peter Kalla and **Jennifer Richards**. Everglades vegetation community analysis at the landscape scale: R-EMAP. Greater Everglades Ecosystem Restoration (GEER) meeting, Naples, FL, Jul. 2008.
- Kline, Michael, Michael S. Ross, Leonard J. Scinto and **Jennifer H. Richards**. A comparison of adjacent ridge and slough vegetative communities. Greater Everglades Ecosystem Restoration (GEER) meeting, Naples, FL, Jul. 2008.
- Scinto, Leonard J., **Jennifer Richards**, Peter Kalla, Evelyn Gaiser, Yong Cai, Daniel Scheidt, Tom Philippi. Trends in biogeochemical processes across the Greater Everglades Landscape – Results of R-EMAP III. Greater Everglades Ecosystem Restoration (GEER) meeting, Naples, FL, Aug. 2008.
- Philippi, T., **J. Richards**, J. Taylor and P. Groff. Management implications of environmental constraints on establishment of the invasive exotic Old World climbing fern, *Lygodium microphyllum*. Florida Exotic Pest Plant Council's 23rd Annual Symposium, Jacksonville, FL, Apr. 21-24, 2008.
- Richards, J.H.**, T. Troxler-Gann, M.H. Dow and D.W. Lee. Morphology and growth of *Nymphoides aquatica* (Menyanthaceae) in response to water depth. Botanical Society of America annual meeting, Chicago, IL, July 2007
- Doren, R., J.C. Volin, and **J. Richards**. Strategies for integrating invasive exotic plants into large-scale ecosystem restoration programs. Florida Exotic Pest Plant Council's 22nd Annual Symposium, Cocoa Beach, FL, Apr. 30-May 3rd, 2007.
- Chormanski, T.M. and **J. Richards**. Morphology and anatomy of three common Everglades *Utricularia* species: *U. gibba*, *U. subulata*, and *U. cornuta*. Botanical Society of America annual meeting, Chico, CA, July 2006.
- Richards, J.H.** and S.I. Baksh. An architectural model of morphology for *Eleocharis* (Cyperaceae): Theme and variations. Botanical Society of America annual meeting, Chico, CA, July 2006.

- Philippi, T. and **J.H. Richards**. Spore rain and environmental effects on gametophyte growth in the invasive exotic Old World climbing fern, *Lygodium microphyllum*. Botanical Society of America annual meeting, Chico, CA, July 2006.
- Lee, D.L., A.E. Edwards, T. Philippi and **J.H. Richards**. Effects of clipping and shading on shoot growth in *Eleocharis cellulosa* Torr. (Cyperaceae). Botanical Society of America annual meeting, Chico, CA, July 2006.
- Richards, J.H.**, D.L. Childers, A.E. Hartley, D.W. Lee, M.S. Ross and T.G. Troxler-Gann. Determining hydrological restoration requirements for slough vegetation in the Everglades ridge and slough landscape: Overview and initial results. Greater Everglades Ecosystem Restoration (GEER) meeting, Lake Buena Vista, FL, June 2006.
- Richards, J.H.** and T. Philippi. Quantitative analysis of Everglades wetland plant communities and their distribution of across the ecosystem. Greater Everglades Ecosystem Restoration (GEER) meeting, Lake Buena Vista, FL, June 2006.
- Philippi, T. and **J.H. Richards**. Potential hydrologic and environmental constraints on establishment of the invasive exotic Old World climbing fern, *Lygodium microphyllum*. Ecological Society of America annual meeting, Memphis, TN, August 2006.
- Philippi, T., **J.H. Richards** and P. Kalla. Sampling Design and Implementation Issues for R-EMAP 2005. Greater Everglades Ecosystem Restoration (GEER) meeting, Lake Buena Vista, FL, June 2006.
- Philippi, T. and **J.H. Richards**. Potential hydrologic and environmental constraints on establishment of the invasive exotic Old World climbing fern, *Lygodium microphyllum*. Greater Everglades Ecosystem Restoration (GEER) meeting, Lake Buena Vista, FL, June 2006.
- Philippi, T. and **J.H. Richards**. Potential hydrologic and environmental constraints on establishment of the invasive exotic Old World climbing fern, *Lygodium microphyllum*. Loxahatchee Scientific meeting, Davie, FL, May 1, 2006.
- Richards, J.H.**, J.J. Bruhl, and K.L. Wilson. Understanding floral homology of mapaniid Cyperaceae: Development of reproductive structures in *Exocarya sclerioides*. Botanical Society of America Annual Meeting, Austin, TX, Aug. 2005.
- Bruhl, J.J., **J.H. Richards** and K.L. Wilson. It's a flower, it's a spikelet: the guessing game in Cyperaceae—How do we resolve floral homology in the sedges? International Botanical Congress, Vienna, Austria, July, 2005.
- Richards, J.H.**, D.L. Childers, A.E. Hartley, D.W. Lee and M.S. Ross. Restoring the Everglades ridge and slough landscape: Determining hydrological restoration requirements for slough vegetation. Invited symposium S6, "Everglades Ecology and Restoration". Society for Wetland Scientists Annual Meeting, Charlottesville, SC, June 2005
- Richards, Jennifer** and Christopher Ivey. Applied Morphology: The relevance of morphology to ecosystem ecology. Botanical Society of America Annual Meeting, Snowbird, UT, Aug. 2004.
- Trexler, J. C., E. Gaiser, **J. Richards**, D. Childers, K. Jayachandran, L. Scinto, R. Jones. Phosphorus load-dependent limitation of aquatic consumers in an oligotrophic

- wetland. Ecological Society of America Annual Meeting, Portland, OR, Aug., 2004.
- Evelyn E. Gaiser, Joel C. Trexler, **Jennifer H. Richards**, Daniel L. Childers, David Lee, Adrienne L. Edwards, Leonard J. Scinto, Krish Jayachandran, Gregory B. Noe and Ronald D. Jones. Cascading Ecological Effects of Low-Level Phosphorus Enrichment and Abatement in the Florida Everglades. NCER 2004.
- Jenise M. Snyder and **Jennifer Richards**. Spikelet phenology and floral compatibility of sawgrass, *Cladium jamaicense* (Cyperaceae) in the south Florida Everglades. Botanical Society of America Annual Meeting, Mobile, AL, July, 2003.
- Jennifer H. Richards**. Understanding population structure in large, perennial, wind-pollinated wetland species: Insights from sawgrass (*Cladium jamaicense*). Botanical Society of America Annual Meeting, Mobile, AL, July, 2003.
- David W. Lee, Adrienne Edwards, and **Jennifer Richards**. Effects of water depth on growth and biomass allocation in *Eleocharis cellulosa* Torr. Botanical Society of America Annual Meeting, Mobile, AL, July, 2003.
- David Lee and **Jennifer Richards**. Approaches to teaching botany to non-majors. Botanical Society of America Annual Meeting, Mobile, AL, July, 2003.
- Richards, J.H.** Everglades community invasibility and facilitation of invasion by native plant species. Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem, Palm Harbor, FL, April, 2003.
- Evelyn E. Gaiser, Adrienne Edwards, Krish Jayachandran, Ronald Jones, David Lee, Thomas Philippi, **Jennifer Richards**, Leonard Scinto, Joel Trexler. Experimental phosphorus enrichment in Everglades National Park: I. Approach and Methods. Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem, April, Palm Harbor, FL, 2003.
- Evelyn E. Gaiser, Adrienne Edwards, Krish Jayachandran, Ronald Jones, David Lee, Thomas Philippi, **Jennifer Richards**, Leonard Scinto, Joel Trexler. Experimental phosphorus enrichment in Everglades National Park: II. Results. Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem, Palm Harbor, FL, April, 2003.
- Evelyn E. Gaiser, Adrienne Edwards, Krish Jayachandran, Ronald Jones, David Lee, Thomas Philippi, **Jennifer Richards**, Leonard Scinto, Joel Trexler. Experimental phosphorus enrichment in Everglades National Park: III. Application to large-scale pattern of enrichment in Everglades Marshes. Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem, Palm Harbor, FL, April, 2003.
- Jenise M. Snyder and **Jennifer Richards**. The pollination ecology of Everglades sawgrass, *Cladium jamaicense* (Cyperaceae). Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem, Palm Harbor, FL, April, 2003.
- Richards, J.H.** Flower sex expression, spikelet morphology and spikelet phenology in sawgrass, *Cladium jamaicense* Crantz (Cyperaceae). Botanical Society of America meetings, Madison, WI, Aug. 2002
- Richards, J. H.**, Q.J. Stober, R.D. Jones, and S.L. Rathbun. A quantitative analysis of wetland plant communities in south Florida Everglades. Abstracts for the Botanical Society of America, Albuquerque, NM, Aug., 2001.

- Richards, J.H.** 2000. Macrophyte species distributions and community structure across the Everglades ecosystem. Greater Everglades Ecosystem Restoration meetings, Naples, FL, Dec., 2000.
- Ivey, C. and **J.H. Richards.** 2000. Leaf morphology and tissue nutrients of two Everglades macrophytes with respect to soil physiochemistry. Greater Everglades Ecosystem Restoration meetings, Naples, FL, Dec., 2000.
- Ivey, C. T. and **J. H. Richards.** 2000. Genetic diversity and clonal structure of sawgrass (*Cladium jamaicense*) in the Florida Everglades. Society for the Study of Evolution, June, 2000.
- Richards, J.H.** Trap function in *Utricularia purpurea* Walter. 1999. International Botanical Congress, St. Louis, MO, Aug. 1999.
- Gaiser, E.E., S. DeCelles, and **J. Richards.** 1999. Seasonality and succession of periphyton communities in Everglades National Park, Florida. Abstracts for American Society of Limnologists and Oceanographers, Santa Fe, Feb., 1999.
- Gaiser, E.E., **J.H. Richards** & R.D. Jones. 1999. Effects of low-level phosphorus enrichment on Everglades periphyton. Abstract #1099, Ecological Society of America, 1999.
- Bern, A.L., **J.H. Richards**, and B. Fry. 1998. Is carnivory a significant source of nitrogen and phosphorus for growth in the aquatic carnivorous bladderwort, *Utricularia foliosa*? American Society of Limnology and Oceanography meetings, poster, June, 1998, St. Louis, MO.
- Richards, J.H.** and B. Fry. 1996. ¹⁵N model for nutrient uptake in the carnivorous bladderworts *Utricularia foliosa* and *U. purpurea*. Assoc. of Applied Biologists, Society for Experimental Biology, and British Ecological Society symposium "Stable isotopes and the integration of biological, ecological and geochemical processes", Newcastle upon Tyne, UK.
- Richards, J.H.** and D.N. Kuhn. 1996. Genetic diversity and autogamy in *Utricularia foliosa* L. Supplement to American Journal of Botany 83: 48.
- Richards, J.H.** and B. Fry. 1996. Nitrogen acquisition by the aquatic bladderworts, *Utricularia foliosa* L. and *U. purpurea* Walt Supplement to American Journal of Botany 83: 75.
- Koptur, S. and **J.H. Richards.** 1996. Comparative floral biology and breeding systems of smooth- and rough-leaved velvet seed, *Guettarda elliptica* Sw. and *G. scabra* (L.) Vent., in the Everglades. Supplement to American Journal of Botany. 83: 70.
- Gudi, V., **J.H. Richards**, and D.N. Kuhn. 1993. The use of RAPD's to evaluate outcrossing in distylous *Guettarda scabra*. Association for Tropical Biology meetings, Puerto Rico, June, 1993.
- Richards, J.H.** 1991. Developmental comparisons among heterostylous species: Testing hypothesized evolutionary pathways. Supplement to American Journal of Botany 78: 16.
- Imbert, F.M. and **J.H. Richards.** 1991. Protandry and self-incompatibility in the buttonbush, *Cephalanthus occidentalis* L. (Rubiaceae). Supplement to American Journal of Botany 78: 57.
- Richards, J.H.**, P.K. Diggle and S.C.H. Barrett. 1990. A comparison of floral

- development among tristylous taxa of *Lythrum*, *Oxalis*, and the Pontederiaceae. Supplement to American Journal of Botany 76 (6): 53.
- Richards, J.H.** and F. Imbert. 1990. Floral phenology and the development of protandry in the buttonbush, *Cephalanthus occidentalis* L. Supplement to American Journal of Botany (6): 21-22.
- Richards, J.H.** and S.C.H. Barrett. 1988. Stamen growth in selfing variants of *Eichhornia paniculata* (Spreng.) Solms (Pontederiaceae). Supplement to American Journal of Botany 75: 43.
- Koptur, S. and **J.H. Richards**. 1988. Breeding system of rough-leaved velvetseed (*Guettarda scabra* (L.) Vent.). Supplement to American Journal of Botany 75: 77.
- Lee, D.W. and **J.H. Richards**. 1988. Heteroblastic development in vines. A paper read by J.B. Fisher at symposium on "The biology of vines.", Chamela, Mexico, Sept., 1988.
- Richards, J.H.** and S. Koptur. 1987. Definition and development of unusual heterostyly in *Guettarda scabra* (L.) Vent. Rubiaceae. Supplement to American Journal of Botany 74(5): 624.
- Barrett, S.C.H. and **J.H. Richards**. 1987. Variation and evolution of heterostylous breeding systems in tropical Angiosperms. Proc. of the 14th International Botanical Congress, p. 307.
- Richards, J.H.** and S.C.H. Barrett. 1986. The development of tristily in *Pontederia cordata* (Pontederiaceae). Supplement to American Journal of Botany 73(5): 641.
- Richards, J.H.** and D.W. Lee. 1985. Environmental controls on leaf morphology in *Eichhornia crassipes* Solms. Supplement to American Journal of Botany 72(6), part 2: 828.
- Richards, J.H.** and S.C.H. Barrett. 1983. Developmental basis of tristily in *Eichhornia paniculata* Spreng. (Pontederiaceae). Supplement to American Journal of Botany 70(5), part 2: 30.
- Richards, J.H.** 1983. Developmental basis of leaf plasticity in *Eichhornia crassipes* Solms. (Pontederiaceae). Supplement to American Journal of Botany 70 (5), part 2: 10.
- Richards, J.H.**, J. Zenk and A.M. Hirsch. 1982. Structural investigations of asexual reproduction in *Nephrolepis exaltata* and *Platyterium bifurcatum*. Botanical Society of America Miscellaneous Series 162: 21-22.
- Richards, J.H.** and P.R. Larson. 1981. Initiation and development of wood in *Populus deltoides* axillary branches. Botanical Society of America Miscellaneous Series. 160: 7.
- Richards, Jennifer**. 1979. Alternatives in bud development in *Eichhornia crassipes* Solms. Botanical Society of America Miscellaneous Series 157: 17.
- Richards, Jennifer**. 1979. The effect of nutrient supply on shoot development in *Eichhornia crassipes* Solms. Botanical Society of America Miscellaneous Series 157: 17.
- Richards, Jennifer**. 1977. A comparison of foliage leaf and prophyll development in the adult leaves of the water hyacinth, *Eichhornia crassipes* Solms. Botanical Society of America Miscellaneous Series 154: 17.

Dissertation:

Richards, Jennifer Helen. 1980. The developmental basis of morphological plasticity in the water hyacinth, *Eichhornia crassipes* Solms. Ph.D. dissertation, University of California, Berkeley.

Popular Articles:

Richards, J.H. 1989. The plant breeding system, heterostyly. Fairchild Tropical Garden Bull. 44: 20-30.

Book Reviews:

Richards, J.H. 1997. Review of "*Floral Biology: Studies on floral evolution in animal-pollinated plants*" (D.G. Lloyd and S.C.H. Barrett, eds.). American Scientist 85: 380-381.

Richards, J.H. and D.W. Lee. 2002. "To see ... Heaven in a Wild Flower ...": Teaching botany in the 21st century. American Journal of Botany 89 (1): 172-176.

Press Coverage:

Milius, S. Science News 164 (7), Aug. 16, 2003, p. 110. "Everglades plant is he, then she, then he."

Milius, S. Science News 159 (5), Feb. 3, 2001, pp. "The bladderwort: No ruthless microbe killer."

RESEARCH AND INSTITUTIONAL SUPPORT GRANTS (> \$5000)

Research Grants, Awarded:

2009. Determining the effectiveness of automated vegetation classification for color infra-red aerial photography for the Greater Everglades. Daniel Gann and **J.H. Richards**. South Florida Water Management District. \$102,860.

2008. An interactive mapping application for sampling data retrieval of Regional Environmental Monitoring Assessment Program (REMAP); modification to REMAP Phase III. **J.H. Richards**, D. McGillicuddy, D. Gann and Z.J. Fu. \$53,584

2008. Determining plant community depth and hydroperiod optima and tolerances. **J.H. Richards** and Daniel Gann. South Florida Water Management District. \$48,891.

2007-2009. The South Florida and Caribbean Inventory and Monitoring Network Ecologist Postdoctoral Position for Vital Signs Indicators. **J.H. Richards**. U.S. Dept. of the Interior, National Park Service South Florida/Caribbean CESU. \$131,560.

2007-2009. Paleoecological and physiological impacts of reduced water flow on estuarine ecotone communities: developing research guidelines for potential restoration impacts. T. Troxler, **J.H. Richards**, S.M.L. Ewe, C.J. Saunders, and V. Engel. Everglades National Park (CESI). \$65,231.

2007-2010. Experimental hydrological regime relationships with vegetation and soils for the development of predictive models for creation and restoration of tree islands and freshwater wetlands. L. Scinto, **J. Richards**, Tiffany Troxler. EPA (Federal Appropriation). \$183,000.

- 2006-2007. Establishment of management guidelines for STA emergent vegetation. **J. Richards**. South Florida Water Management District. \$57,375.
- 2005-2008. Monitoring, modeling and assessment of the Everglades ecosystem: R-EMAP Phase III; FIU subcontract. **J.H. Richards** (PI), Yong Cai, Dan Childers, Evelyn Gaiser, Tom Philippi, Len Scinto. DOI/National Park Service. \$781,000 .
- 2005 Macrophyte sampling, South Florida R-EMAP project, 2005 dry season. **J.H. Richards** (P.I.) and Tom Philippi. Florida Department of Environmental Protection. \$40,710.
- 2004-2008. Determining the hydrological restoration requirements of aquatic slough vegetation. **J.H. Richards** (PI), David Lee, Dan Childers, Mike Ross, Anne Hartley. Everglades National Park. \$500,000.
- 2004-2006. Hydrologic constraints on establishment of *Lygodium microphyllum*. **J.H. Richards** Co-PI with Tom Philippi. Everglades National Park Critical Ecosystem Studies Initiative. \$77, 000.
- 2003-2004. Linking hydrology to biological recovery after cessation of long-term phosphorus enrichment at the experimental dosing facility in Everglades National Park. **J.H. Richards** Co-PI with Evelyn Gaiser, Joel Trexler. DOI/National Park Service. \$67,000.
- 2002-2003. Numerical interpretation of Class III narrative nutrient water criteria for Everglades wetlands. **J.H. Richards** Co-PI with Evelyn Gaiser, Joel Trexler. DOI/National Park Service. \$280,000.
- 2001-present. Singeltary Restoration Project. Collaborator (with Jack Meeder). RMC-Singeltary, Inc. App. \$25 K/yr.
- 1999-2001. Periphyton stormwater treatment areas (PSTA): Research Integration: Natural Advanced Treatment Technologies. South Florida Water Management District. Collaborator on macrophyte work. \$570,000.
2001. ILTER International Caribbean Initiative. National Science Foundation Long-term Ecological Research Program. Collaborator. \$10,000 to sponsor networking and planning meeting.
- 2000-present. LTER-COERCE: Coastal oligotrophic ecosystem research, the Everglades. National Science Foundation Long-term Ecological Research Program. Collaborator.
- 1999-2000. Genetic structure and diversity of sawgrass (*Cladium jamaicense*). FIU Sponsored Research. **J.H. Richards** (PI). \$5000 for 1 year.
- 1999-2001. REMAP II: South Florida Ecological Risk Assessment. SERC and U.S. Environmental Protection Agency. Collaborator. Multi-million dollar research effort for which I headed the macrophyte survey and macrophyte bioindicator research.
- 1996-2002. Numerical interpretation of Class III narrative nutrient water criteria for Everglades wetlands. DOI/National Park Service and South Florida Water Management District. **J.H. Richards** Co-PI with R. Jones, D. Childers, J. Trexler, E. Gaiser, D. Lee, L. Scinto, K. Jayachandran. \$4,600,000.
- 1998-1999. Benthic macrophyte distribution and seasonality in the Everglades-Florida Bay ecotone: Pattern and Processes. **J.H. Richards** (PI) and J.W. Fourqurean. Dept. of the Interior, Everglades National Park. \$63,914.

- 1999-2000. Using transect sampling to relate a P-addition flume study to long-term water quality impacts in Everglades marshes. Childers, D., C. Buzzelli, E. Gaiser, R. Jones, **J. Richards**, L. Scinto, and J. Trexler. Dept. of the Interior, Everglades National Park. \$260,098 over 2 years.
1989. A developmental test of hypotheses for the evolution of distyly in the Rubiaceae. F.I.U. Summer Research Support, A term. **J.H. Richards** (PI). \$8963.98 funded.
- 1986-1988. A developmental analysis of the breakdown of tristly in *Eichhornia paniculata* (Spreng.) Solms. (Pontederiaceae). National Science Foundation, Developmental Section. 1986-1988, extended to 1989. **J.H. Richards** (PI). \$82,000 plus \$9,000 in F.I.U. matching funds + \$4625 in supplementary funds.
- 1986-1987. Defining the unique features of south Florida's flora: Breeding systems in three pineland species. F.A.U.-F.I.U. Joint Center for Environmental and Urban Affairs. **J.H. Richards** (PI). \$5700.
- 1985-1986. Minority Junior Faculty Development Fellowship. McKnight Foundation. **J.H. Richards** (PI). Full-time release from teaching.
- 1983-1984. Phenotypic plasticity in two species of *Eichhornia*. F.I.U. Drinking Water Research Center. **J.H. Richards** (PI). Half-time research appointment.

Institutional Support and Teaching Grants, Awarded

- 2006-2007. Project S.M.A.R.T. – South Florida Marsh Applied Research Training. Dr. K. Petrova (PI); **J.H. Richards** collaborator. Toyota Tapestry Grant; this project was one of 50 successful projects for K-12 educators awarded nationwide. \$10,000.
- 1996-1997. Acquisition of an advanced isotope ratio mass spectrometer for ecosystems studies at Florida International University. Brian Fry (PI), **J.H. Richards**, Mike Roblee, and Joel Trexler. \$202,000 with equal match of \$202,000 by FIU.
- 1994-1996. Repair and renovation of Biological Science space in the Owa Ehan building of Florida International University. National Science Foundation Academic Infrastructure Program. **J.H. Richards** (PI). \$3 million total: \$1,500,000 NSF-funded plus \$1,500,000 matched by the State of Florida.
- 1988-1990. Growth Chambers: Instrumentation for botanical research. K.R. Downum (P.I.), **J.H. Richards**, D.W. Lee, and S. Koptur. National Science Foundation Biological Instrumentation Program. \$54,212 + \$13,554 F.I.U. matching.
- 1988-1990. Improving experimental laboratories in undergraduate plant sciences. **J.H. Richards**, (P.I.), D.W. Lee and S. Koptur. National Science Foundation Instrumentation and Laboratory Improvement Program. \$31,001 + \$31,001 F.I.U. matching.

HONORS, AWARDS, AND FELLOWSHIPS

- Everglades Restoration Task Force Indicators Research Award, 2008
 F.I.U. Excellence in Research Award, 2007
 F.I.U. Excellence in Research Award: Departmental nominee, 2007
 Botanical Society of America Centennial Award, 2006
 F.I.U. Excellence in Teaching Award, 2006

F.I.U. Excellence in Teaching Award: Departmental nominee, 2005, 2006
F.I.U. Faculty Sabbatical Leave Award, 2003
F.I.U. Teaching Incentive Program (TIP) Award, 1999
F.I.U. Faculty Sabbatical Leave Award, 1990
F.I.U. Excellence in Research Award, 1988
McKnight Fellow, 1985-1986.
F.I.U. Drinking Water Research Fellow, 1983-1984.
Sigma-Xi Grant-in-Aid of Research, 1977.
University of California Regents Fellow, 1976-1977
Cum Laude in General Studies, Harvard University, 1972.
National Merit Scholar 1967-1971.
National Honor Society Scholar, 1967.
Presidential Scholar, 1967.

COURSES TAUGHT

Lower Division Undergraduate

General Biology 1 (BSC 1010) with lab (BSC 1010L)
Introductory Botany (BOT 1010) and Introductory Botany Lab (BOT 1010L)

Upper Division Undergraduate

Plant Morphology (BOT 3353) and Plant Morphology Lab (BOT 3353L)
Cooperative Education in Biology (BSC 3949)
Freshwater Ecology (PCB 4301)
Plant Development (with lab) (BOT 4374C)
Applied Horticultural Physiology (ORH 4411)
Plant Physiology (BOT 4504) with lab (BOT 4504L)
Evolution (PCB 4674)
Honors Thesis (BSC 4790)
Senior Seminar (BSC 4931): The Biology of Sex. Light and Life
Topics in Biology: Modern Plant Systematics (BSC 4935)

Graduate

Evolution of Plant Mating Systems (BOT 5665, Topics)
Workshop in Aquatic Plants (BOT 5648)
Evolution and Development (PCB 5677)
Workshop on Grasses and Sedges (BOT 5928)
Plant Breeding Systems (BOT 6275)
Plant Structure and Function (BOT 6585C)
Graduate Student Research (BSC 6913, 6916)
Workshop: Video Image Analysis (BOT 6922)
Workshop: Techniques in Plant Reproductive Biology (BOT 6923)
Master's Thesis (BSC 6971), Ph.D. Dissertation (BSC 7980)

POST-DOCTORAL SUPERVISION AND COLLABORATION

- Dr. Stephen Wathen, 2008-2010, working with the South Florida and Caribbean Inventory and Monitoring Network to establish vegetation vital signs indicators
- Dr. Jed Redwine, 2006-2007, establishment of management guidelines for Storm Water Treatment Area emergent vegetation.
- Dr. Tiffany Troxler-Gann, 2005-2007, determining hydrological requirements of Everglades slough vegetation; characterization of nutrient sources and sinks in Everglades sloughs.
- Dr. Chris Ivey, 1999-2000, sawgrass population biology; *Sagittaria lancifolia* plasticity and response to nutrients

GRADUATE STUDENT SUPERVISION

Completed:

- Theresa Meis. Comparative morphology of three southern Florida bladderworts: *Utricularia gibba*, *U. cornuta* and *U. subulata* (Lentibulariaceae). M.Sc. 2007
- Wendy Wilsdon. The biology of the Florida endangered species *Aletris bracteata* (Nartheciaceae). M.Sc. 2007
- Shanaz Baksh. Shoot architecture and growth in the south Florida wet prairie macrophyte, *Eleocharis cellulosa*. M.Sc. 2005
- Jenise Snyder. The effectiveness of anemophily: Pollination biology of sawgrass, *Cladium jamaicense* Crantz (Cyperaceae). M.Sc. 2004
- Andy Gottlieb. Periphyton mat structure and function in short and long hydroperiod marshes of the Florida Everglades. Ph.D. 2003.
- Jin Zhang. The self-incompatibility reactions in *Piriqueta caroliniana*. M.Sc. 1997.
- B. Jacqueline Jacobs. The expression of heterostyly in *Piriqueta caroliniana*. M.Sc. 1993.
- Fiona Imbert. The pollen-stigma interaction in *Cephalanthus occidentalis*: A functional look at protandry. M.Sc. 1992.

I serve on the thesis or dissertation committees of an additional 10 to 15 students per year.

UNDERGRADUATE STUDENT RESEARCH SUPERVISION

In Progress:

- Gustavo Bobadilla. An experimental approach to understanding *Eleocharis elongata*'s response to water depth.
- Nicole Chaverry. The functional significance in sedge tubercles and bristles.

OTHER PROFESSIONAL ACTIVITIES

Collaborator with Dr. Kitchka Petrova, Ponce de Leon Middle School science educator, in design and writing of a successful Toyota TAPESTRY proposal, "Project S.M.A.R.T. – South Florida Marsh Applied Research Training"; this project was

one of 50 successful projects for K-12 educators nationwide--Dr. Petrova was awarded \$10,000 to run this project, 2006-2007.

Mentor in Botanical Society of America SIP program (Scientific Investigation through Plants), 2005-2006, 2007.

Reviewer for National Science Foundation, American Journal of Botany, Anales del Real Jardin Botanico de Madrid, Annals of Botany, Annals of the Missouri Botanical Garden, Aquatic Botany, Australian Journal of Ecology, Biotropica, Botanical Journal of the Linnean Society, Canadian Journal of Botany, Florida Fish and Wildlife Conservation Commission, Ecological Research, Evolution, Folia Geobotanica, Functional Ecology, International Journal of Plant Sciences, Journal of the American Society for Horticultural Science, Journal of Ecology, Journal of Evolutionary Biology, Maydica, National Institute for Climate Change Research, Phytopathology, Plant Ecology, Rhodora, Wetlands

Panelist, National Research Council's Graduate Fellowship Evaluation, 1988, 1989, 1990, 1996, 1997, 1999.

Panelist, National Science Foundation Research Experience for Undergraduates, 1991.

Chairperson-elect (1987-1988) and *Chairperson* (1988-1989), Developmental and Structural Section, Botanical Society of America.

Co-organizer of symposium: A developmental and structural perspective on phenotypic plasticity, BSA meetings, Grand Forks, N.D., 1983.

Participant and group leader at NSF-sponsored Flora of North America workshop, "Floristics for the 21st Century", Alexandria, VA, May, 1988.

Judge for Katherine Esau Award for Best Graduate Student Paper presented at American Botanical Society national meetings, 1989, 1990, 1991, 2007.

Member ex officio, of the Education Committee and Election Committee, Botanical Society of America, 2000-2003.

Member, Conservation Committee, Botanical Society of America, 2003-present.

Judge, INTEL International Science Fair, 2004.

UNIVERSITY SERVICE

Departmental:

Chair: Library Committee (1982-1984); Darkroom Supervisor (1982-1987); Tenure and Promotion Committee (1984-1985); Budget Committee (1988-1990; 1997-1998); Ecologist Search and Screen Committee (1984-1985); Plant Physiologist Search and Screen Committee (1987-1988); Plant Developmental Biologist Search and Screen Committee (1994-1995, 1996-1997); Evolution and Development Search and Screen Committee (2003-2004); Curriculum Committee (1995-1996); Undergraduate Honors Committee (1999-2002, 2003-2006, 2007-2008); Van Committee (2000-2004); Kelly Foundation Committee (2006-2009); Biological Sciences Hiring Strategy Task Force (2007-2008); Personnel Committee (2008-2009)

Member: Curriculum Committee (1982-83, 1984-1985); Laboratory Committee (1982-1983); Graduate Committee (1983-1984; 1997-2000; 2004-2007); Distinguished Speakers Committee (1984-1985); Comparative Animal Physiologist Search and Screen Committee (1985-1986); Molecular Biologist Search and Screen

Committee (1985-1986); Budget Committee (1986-1987, 1991, 1997-1999); Space Committee (1986-1987); Tenure and Promotion Committee (1986-1990, 2007-2008); Greenhouse Committee (1986-1987; 1989-1991; 1996-1999; 2000-present); Electron Microscopy Committee (1988-1991); Tissue Culture Committee (1988-1990); Phycologist Search and Screen Committee (1988-1989); Women Studies Center Joint Position Search and Screen (1988-1989); Plant Developmental Biologist Search and Screen Committee (1997-1998); Cell Biology Search and Screen Committee (1997-1998); Tropical Molecular Systematist Committee (1997-1998); Kelly Foundation Committee (2004-2006); Wetlands Ecologist Search and Screen Committee (2007-2008); Plant Population Geneticist Search and Screen Committee (2007-2008); Population Geneticist Search and Screen Committee (2008-2009)

College:

Chair: Budget Committee (1989-1990; 1997-1998).

Member: Women's Faculty Development Seminars (1985-1986); Pope Impact Committee (1986-1987); Budget Committee (1988-1990); Procedural Committee (1988-1990); Women's Studies Advisory Group (1989-1991); NIH MBRS Fact Finding Committee (1989-1990); Curriculum Committee (1995-1996).

University:

Chair: Financial Aid Committee (1991)

Member: Faculty Senate (1984-1985; 1990-1992); SACS Self-Study Steering Council (1988-1990); Computer Allocation Committee (1988-1990); Financial Aid Committee (1989-1991); University Research Council, which deals with IAUAC (1990-1992, 1996-1998); Provost's Faculty Summer Grants Review Committee (1996, 1997, 2001); Director of the Library Search and Screen Committee (2005-2007); *ad hoc* Academic Misconduct Committee (2007).