CURRICULUM VITAE

LUCINDA A. McDADE

# Executive Director

# Judith B. Friend Director of Research

Rancho Santa Ana Botanic Garden

1500 N. College Avenue

Claremont CA 91711, USA

**(**Professor of Botany, Claremont Graduate University - CGU)

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# EDUCATION

Duke University, Durham, NC

Degree: Ph.D., September, 1980; Major: Botany; Minor: Zoology

Dissertation Title: Systematics and reproductive biology of the Central American species of the

 *Aphelandra* *pulcherrima* complex (Acanthaceae)

Newcomb College of Tulane University, New Orleans, LA

Degree: B.S., May 1975; Major: Biology

## PROFESSIONAL HONORS

B.S. Degree, Magna cum laude (1975)

Phi Beta Kappa (1975)

James B. Duke Graduate Fellow, Duke University (1975‑1979)

Sigma Xi (1980)

Nominated for University of Arizona Distinguished Professor (1994)

President, Association for Tropical Biology (1995)

Melinda F. Denton Memorial Lecturer, University of Washington (1998)

President, American Society of Plant Taxonomists (2003-2004)

Merit Award honoree, Botanical Society of America (2013)

## POSITIONS

###### Executive Director, RSABG, June 2013 to present.

## Interim Executive Director, RSABG, November 2012 to May 2013.

###### Judith B. Friend Director of Research, RSABG, and Professor of Botany, Claremont Graduate University, Claremont, CA, Fall 2006 to present.

###### Associate Curator and Chair of Botany, Academy of Natural Sciences, Philadelphia, 2001 - 2006

Adjunct Associate Professor, University of Pennsylvania, 2001-2006.

Associate Professor and Curator of the Herbarium, Departments of Ecology and Evolutionary

 Biology, and Plant Sciences, University of Arizona, 1992‑2000 (promotion with tenure

 earned 1998).

Adjunct Assistant Professor, Duke University, 1988-1994.

Visiting Researcher, University of the Witwatersrand, Johannesburg, South Africa, 2000.

Scientific Coordinator, Organization for Tropical Studies, Durham, NC, 1985‑1992.

Instructor, Department of Botany, Duke University, 1983‑1985.

Postdoctoral Fellow, Smithsonian Tropical Research Institute, Apartado 2072, Balboa, Panama,

 1980‑1981.

**PUBLICATIONS** (peer reviewed; single authored by L. A. McDade unless noted; I am co-author on my students’ publications only when the work is fully collaborative.)

2018. McDade, L.A., T. F. Daniel, & C. A. Kiel. The *Tetramerium* Lineage (Acanthaceae, Justicieae) revisited: phylogenetic relationships reveal polyphyly of many New World genera accompanied by rampant evolution of floral morphology. Systematic Botany, 43:97-116. DOI 10.1600/036364418X697003

2018. Kiel, C. A., T. F. Daniel, L. A. McDade. Unraveling Relationship Among the Species-rich and Morphologically Diverse New World ‘justicioid’ Lineage (Acanthaceae). Systematic Botany 43:459-484. DOI 10.1600/036364418X697201

2017. Kiel, C.A., T.F. Daniel, I. Darbyshire, L.A. McDade. Unraveling relationships in the morphologically diverse and taxonomically challenging ‘justicioid’ lineage (Acanthaceae, Justicieae). Taxon 66: 645-674.

2017. Johnson, M. A., J. R. Clark, W. L. Wagner, L. A. McDade. A molecular phylogeny of Pacific *Cyrtandra* (Gesneriaceae) reveals recent diversification, a Fijian origin, and a history long-distance dispersal. Molecular Phylogenetics & Evolution 116: 30-48. DOI: 10.1016/j.ympev.2017.07.004

2015. Chumchim, N., L. A. McDade, A. E. Fisher. Phylogeny of *Dyschoriste* (Acanthaceae). Aliso 33: 77-89. DOI: 10.5642/aliso.20153302.02

2015. Fisher, A. E., L. A. McDade, C. A. Kiel, R. Khoshravesh, M. A. Johnson, M. Stata, T. L. Sage, R. F. Sage. 2015. Evolutionary history of *Blepharis* (Acanthaceae) and the origin of C4 photosynthesis in section *Acanthodium*. *International Journal of Plant Sciences* 176: 770–790. http://www.jstor.org/stable/10.1086/683011

2014. Tripp, E. A. and L. A. McDade. A rich fossil record yields calibrated phylogeny for Acanthaceae (Lamiales) and evidence for marked biases in timing and directionality of intercontinental disjunctions. Systematic Biology 63: 660-84. doi: 10.1093/sysbio/syu029

2014. Kiel, C. A. and L. A. McDade. The *Mirandea* Clade: Taxonomic and Morphological Heterogeneity in a small clade. Systematic Botany 39: 950-964. DOI 10.1600/036364414X681446

2014. Vanderplank, S., E. Ezcurra, J. Delgadillo, R. Felger, and L.A. McDade. Conservation challenges in a threatened hotspot: agriculture and plant biodiversity losses in Baja California, Mexico. Biodivers. Conserv. 23: 2173-2182. DOI: 10.1007/s10531-014-0711-9

2014. Vanderplank, S., E. Ezcurra, J. Delgadillo, and L.A. McDade. Vegetation patterns in the Mediterranean-Desert ecotone of Baja California, Mexico. Journal of the Botanical Research Institute of Texas 8: 567-584.

2013. Tripp, E. A. and L. A. McDade. Time-calibrated phylogenies of hummingbirds and hummingbird-pollinated plants reject a hypothesis of diffuse co-evolution. Aliso 31: 89-103.

2013. Krosnick, S. E., K. E. Porter-Utley, J. M. MacDougal, P. M. Jorgensen, and L. A. McDade. New insights into the evolution of *Passiflora* subgenus *Decaloba* (Passifloraceae): Phylogenetic relationships and morphological synapomorphies. Systematic Botany 38: 692-713.

2013. Tripp, E. A., T. F. Daniel, S. Fatimah, and L. A. McDade. Phylogenetic relationships within Ruellieae (Acanthaceae) and a revised classification. International Journal of Plant Science 174: 97-137.

2013. Tripp, E. A., S. Fatimah, I. Darbyshire, and L. A. McDade. Origin of African *Physacanthus* (Acanthaceae) via Wide Hybridization. PLoS One 8: e55677.

2012. Tripp, E. A. and L. A. McDade. New synonymies for *Ruellia* (Acanthaceae) of Costa Rica and notes on other neotropical species. Britonnia 64: 305-317.

2012. Daly, M., P.S. Herendeen, R.P. Guralnick, M.W. Westneat, and L.A. McDade. Systematics Agenda 2020: The Mission Evolves. Systematic Biology 61: 549-552.

# 2012. Guralnick, R. P., L.A. McDade, and D.R. Maddison. 2012. It's not about technology, but community practice: a response to Scotland and Wood. Trends in Ecology & Evolution 27: 417-418.

2012. Maddison, D. R. R. Guralnick, A. Hill, A.-L. Reysenbach, and L. A. McDade. Ramping up biodiversity discovery via online quantum contributions. Trends in Ecology & Evolution 27: 72-77.

2012. McDade, L.A., T. F. Daniel, C. A. Kiel, and A. J. Borg. Phylogenetic placement, delimitation, and relationships among genera of the enigmatic Nelsonioideae (Lamiales: Acanthaceae). Taxon 61: 637-651.

2011. McDade, L. A., D. R. Maddison, R. Guralnick, H. A. Piowar, M. L. Jameson, K. M. Helgen, P. S. Herendeen, A. Hill, M. L. Vis. A challenge to biologists to create and embrace a new assessment system for modern professional productivity. BioScience 61: 619-625.

2011. McDade, L. A. The multifaceted contributions to conservation of California plants from Rancho Santa Ana Botanic Garden. Pp. 153-161 in J.W. Willoughby, B.K. Orr, K.A. Schierenbeck and N. Jensen, [eds.], *Proceedings of the California Native Plant Society Conservation Conference: Strategies and Solutions, 17-19 January 2009*. CNPS, Sacramento, CA.

2011. McIntosh, M. E., A. E. Boyd, P. D. Jenkins, and L.A. McDade. Growth and mortality in the endangered Nichol's turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii* (Cactaceae)) in southeastern Arizona, 1995-2008. The Southwestern Naturalist 56: 333-340.

2010. Ellstrand, N. C., D. Biggs, A. Kaus, P. Lubinsky, L. A. McDade, K. Preston, L. M. Prince, H. M. Regan, V. Rorive, O. A. Ryder, and K. A. Schierenbeck. Got hybridization? A multidisciplinary approach for informing science policy. BioScience 60: 384-388.

2009. Tripp, E. A., T. F. Daniel, J. C. Lendemer, and L. A. McDade. New molecular and morphological insights prompt transfer of *Blechum* to *Ruellia* (Acanthaceae). Taxon 58: 893-906.

2008. Daniel, T.F., L. A. McDade, M. Manktelow, and C. A. Kiel. The “*Tetramerium* Lineage” (Acanthaceae: Acanthoideae: Justicieae): Delimitation and Infra-lineage Relationships Based on cp and nrITS Sequence Data. Systematic Botany 33: 416-436.

2008. Borg, A. J., L. A. McDade, and J. Schönenberger. Molecular phylogenetics and morphological evolution of Thunbergioideae (Acanthaceae). Taxon 57: 1-12.

2008. McDade, L. A., T. F. Daniel, and C. A. Kiel. Toward a comprehensive understanding of phylogenetic relationships among Acanthaceae s.l. (Lamiales). American Journal of Botany 95: 1136-1152.

2007. Raguso, R. A., A. Kelber, M. Pfaff, R.A. Levin, and L. A. McDade. Floral biology of North American *Oenothera* sect. *Lavauxia*: Advertisements, rewards and extreme variation in floral depth. Annals of the Missouri Botanical Garden 94: 236-257.

2007. McDade, L. A. and E. A. Tripp. A synopsis of Costa Rican *Ruellia* (Acanthaceae), with descriptions of four new species. Brittonia 59: 199-216.

2007. Mittelbach, G. G., D. W. Schemske, H. V. Cornell, A. P. Allen, J. M. Brown, M. B. Bush, S. P. Harrison, A. H. Hurlbert, N. Knowlton, H. A. Lessios, C. M. McCain, A. R. McCune, L. A. McDade, M. A. McPeek, T. J. Near, T. D. Price, R. E. Ricklefs, K. Roy, D. F. Sax, D. Schluter, J. M. Sobel, M. Turelli. Evolution and the latitudinal diversity gradient: speciation, extinction and biogeography. Ecology Letters 10: 315-331.

2007. Mcintosh, M. E., L. A. McDade, A. E. Boyd and P. D. Jenkins. Patterns of growth and mortality in the endangered Nichol's Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholii* L. Benson; Cactaceae) in Southeastern Arizona. Pp. 77-82 in*Southwestern rare and endangered plants: Proceedings of the fourth conference; March 22-26, 2004; Las Cruces, New Mexico. Proceedings RMRS-P-XX*, Barlow-Irick, P., J. Anderson and C. McDonald (tech. eds.). Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

2006. Kiel, C.A., L. A. McDade, T. F. Daniel, and D. Champluvier. Phylogenetic delimitation of Isoglossinae (Acanthaceae: Justicieae) and relationships among constituent genera. Taxon 53: 683-694.

2005. McDade, L.A., C. A. Kiel, T. F. Daniel, and K. Vollesen. Phylogenetic relationships among Acantheae (Acanthaceae): Major Lineages Present Contrasting Patterns of Molecular Evolution and Morphological Differentiation. Systematic Botany 30: 834-862.

2004. McDade, L. A., and J. A. Weeks. Nectar in hummingbird-pollinated Neotropical plants I: Patterns of production and variability in twelve species. Biotropica 36: 196-215

2004. McDade, L. A., and J. A. Weeks. Nectar in hummingbird-pollinated Neotropical plants II: Interactions with flower visitors. Biotropica 36: 216-230.

2003. Raguso, R.A., R.A. Levin, S.E. Foose, M.W. Holmberg, and L.A. McDade. Fragrance chemistry, nocturnal rhythms and pollination “syndromes” in *Nicotiana* (Solanaceae). Phytochemistry 63: 265-284.

2003. Levin, R. A., L. A. McDade, and R. A. Raguso. The Utility of Floral and Vegetative Fragrance for Phylogenetic Studies in two Genera of Nyctaginaceae. Systematic Biology 52: 334-351.

2002. Schwarzbach, A. E. and L. A. McDade. Phylogenetic relationships of the mangrove family Avicenniaceae based on chloroplast and nuclear ribosomal DNA sequences. Systematic Botany 27: 84-98.

2001. Manktelow, M., L. A. McDade, B. Oxelman, C. A. Furness, and M.-J. Balkwill. The enigmatic tribe Whitfieldieae (Acanthaceae): Delimitation and phylogenetic relationships based on molecular and morphological data. Systematic Botany 26: 104-119.

2001. Faivre, A. E. and L. A. McDade. Population level variation in the expression of heterostyly in three species of Rubiaceae: Does reciprocal placement of anthers and stigmas characterize heterostyly? American Journal of Botany 88: 841-853.

2001. Levin, R. A., R. A. Raguso, and L. A. McDade. Fragrance chemistry and pollinator affinities in Nyctaginaceae. Phytochemistry 57: 835-846.

2000. McDade, L. A., S. E. Masta, M. L. Moody, and E. Waters. Phylogenetic relationships among Acanthaceae: Evidence from two genomes. Systematic Botany 25: 105-120.

2000. Hybridization and phylogenetics: Special insights from morphology. Pp. 146-164in *Morphological Data in Phylogenetic Analysis: Recent Progress and Unresolved Problems*, J. Wiens (ed.), Smithsonian Institution Press.

2000. McDade, L. A., T. F. Daniel, S. E. Masta, and K. M. Riley. Phylogenetic relationships among the tribe Justicieae (Acanthaceae): Evidence from molecular sequences, morphology, and cytology. Annals of the Missouri Botanical Garden 87: 435-458.

1999. McDade, L. A. and M. L. Moody. Phylogenetic relationships among Acanthaceae and their closest relatives: Evidence from noncoding chloroplast DNA sequences. American Journal of Botany 86: 70-80.

1999. Slentz, S., A. E. Boyd, and L. A. McDade. Patterns of morphological differentiation among Madrean Sky Island populations of *Castilleja austromontana* (Scrophulariaceae). Madroño 46: 100-111.

1997. McDade, L. A. and M. D. Turner. Extrafloral nectaries in *Aphelandra*: Anatomy, development and systematic implications. American Journal of Botany 84: 1-15.

1997. Hybrids and phylogenetic systematics III. Comparison with distance methods. Systematic Botany 22: 669-683.

1996. Durkee, L. H. and L. A. McDade. Three new species of *Justicia* from Costa Rica. Novon 6: 13-21.

1995. Hybridization and phylogenetics. Pp. 305-331 in *Experimental and Molecular Approaches to Plant Biosystematics*, P. C. Hoch and A. G. Stephenson, eds. Monographs in Systematic Botany, Missouri Botanical Garden Press.

1995. Daniel, T. F. and L. A. McDade. Additions to the Acanthaceae of Panama. Annals Missouri Botanical Garden 82: 542-548.

1995. Species concepts and problems in practice: Insight from botanical monographs. Systematic Botany 20: 606-622.

1994. McDade, L. A., K. S. Bawa, H. A. Hespenheide, G. S. Hartshorn, eds., *La* *Selva: Ecology and Natural History of a Tropical Rainforest,* Chicago Univ. Press, Chicago, IL.

1994. Bawa, K. S., L. A. McDade, and H. A. Hespenheide. Introduction. Pp. 3-5 in *La Selva: Ecology and Natural History of a Tropical Rainforest*, L. A. McDade, K. S. Bawa, H. A. Hespenheide, G. S. Hartshorn (eds.), Chicago Univ. Press, Chicago, IL.

1994. Bawa, K. S. and L. A. McDade. The Plant Community: Composition, Dynamics and Life History Processes—Commentary. Pp. 67-72 in *La Selva: Ecology and Natural History of a Neotropical Rain* *Forest*, L. A. McDade, K. S. Bawa, H. A. Hespenheide, G. S. Hartshorn (eds.), University of Chicago Press.

1994. McDade, L. A., and K. S. Bawa. Appendix 1. Patterns of research productivity 1951-1991. Pp. 341-344 in *La Selva: Ecology and Natural History of a Neotropical Rain Forest*, L. A. McDade, K. S. Bawa, H. A. Hespenheide, G. S. Hartshorn (eds.), Univ. of Chicago Press.

1994. McDade, L. A. Appendix 2. Administration and governance. Pp. 345-349 in *La Selva: Ecology and Natural History of a Neotropical Rain Forest*, L. A. McDade, K. S. Bawa, H. A. Hespenheide, G. S. Hartshorn (eds.), Univ. of Chicago Press.

1992. Hybrids and phylogenetic systematics II. The impact of hybrids on cladistic analysis. Evolution 46: 1329-1346.

1992, Pollinator relationships, biogeography, and phylogenetics. BioScience 42: 21-26.

1990. Hybrids and phylogenetic, systematics I. Patterns of character expression in hybrids and their implications for cladistic analysis. Evolution 44: 1685-1700.

1989. Lundberg, J. G. and L. A. McDade. "Chapter 3, Systematic Ichthyology," in *Methods in Fish Biology, P.* B. Moyle and C. B. Schrock (eds.), Special Publication of the American Fisheries Society.

1988. Recognition of *Aphelandra glabrata* (Acanthaceae) from Western South America, with notes on phylogenetic relationships. Systematic Botany 13: 235-239.

1986. Lundberg, J. G. and L. A. McDade. On the South American catfish *Brachyrhamdia imitator* Myers (Siluriformes, Pimelodidae), with phylogenetic evidence for a large intrafamilial lineage. Notulae Naturae 463: 1-25.

1986. Protandry, synchronized flowering and sequential phenotypic unisexuality in Neotropical *Pentagonia macrophylla* (Rubiaceae). Oecologia 68: 218-223.

1985. Breeding systems of Central American *Aphelandra* (Acanthaceae). American Journal of Botany 72: 1515-1521.

1984. McDade, L.A. and P. Davidar. Determinants of fruit and seed set in *Pavonia dasypetala* (Malvaceae). Oecologia 64: 61-67.

1984. Systematics and reproductive biology of the Central American members of the *Aphelandra pulcherrima* complex (Acanthaceae). Annals Missouri Botanical Garden 71:104-165.

1983. Long-tailed hermit hummingbird visits to inflorescence color morphs of *Heliconia irrasa* (Heliconiaceae). Condor 85: 360-364.

1983. Pollination intensity and fruit set in *Trichanthera gigantea* (Acanthaceae). Biotropica 15: 122-124.

1982. Sherry, T. W. and L. A. McDade. Prey selection and handling in two neotropical hover gleaning birds. Ecology 63: 1016-1028.

1982. McDade, L. A. and J. G. Lundberg. A new tabular and diagrammatic method for displaying artificial hybridization data, with an example from *Aphelandra* (Acanthaceae). Systematic Botany 7: 13-25.

1982. New species of *Justicia* and *Razisea* (Acanthaceae) from Costa Rica, with taxonomic notes. Systematic Botany 7: 489-497.

1982. Three new species of *Aphelandra* (Acanthaceae from Central America. Annals Missouri Botanical Garden 69: 402-411.

1980. McDade, L. A. and S. Kinsman. The impact of floral parasitism in two Neotropical hummingbird pollinated plant species. Evolution 34: 944-958.

1973. Simmons, D. C. and L. A. McDade. Contribution on the spawning of *Auxis* spp. (Pisces, Scombridae) in the Atlantic Ocean. Fishery Bulletin 61: 321-324.

**PUBLICATIONS IN PRESS**

**MANUSCRIPTS IN REVIEW**

McDade, L.A., B.E. Hammel, C.A. Kiel. New Species, New Combinations and New Synonymies Towards a Treatment of Acanthaceae for the Manual de Plantas de Costa Rica. Aliso.

Darbyshire, I. C.A. Kiel, T.F. Daniel, Lucinda A. McDade, W. R. Quentin Luke. Two new genera of Acanthaceae from tropical Africa. Kew Bulletin.

Fisher, A. E., I. Darbyshire, C. A. Kiel, L. A. McDade. A phylogeny of the genus *Barleria* (Acanthaceae: Lamiales) indicates long distance dispersal and evolution of complex morphological variation. Taxon.

McIntosh, M. E., A. E. Boyd, A. E. Arnold, R. J. Steidl, L. A. McDade. Demography of a declining, endangered cactus in the Sonoran Desert. Plant Species Biology.

**MANUSCRIPTS IN PREPARATION**

Justicieae revisited: Clades, grades and contrasting rates of molecular evolution (with C. A. Kiel and T. F. Daniel).

Acanthaceae of Costa Rica (treatment for the *Manual of the Flora of Costa Rica* project, B. E. Hammel and M. Grayum [eds.], (with C.A. Kiel and B. E. Hammel).

**WEB PUBLICATIONS**

2006 and onwards. McDade, L.A. and C. A. Kiel. Acanthaceae. Tree of Life Web project. <http://www.tolweb.org/Acanthaceae>

2005. McDade, L. A. and E. A. Tripp (with T. F. Daniel). Acanthaceae of La Selva Biological Station, Costa Rica. PDF available at: <http://rsabg.org/content/view/166/69>

2011. McDade, L. A. and E. A. Tripp. Spanish version of Acanthaceae for the Vascular Flora of La Selva Biological Station).

**BOOK REVIEWS**

1991. Lundberg, J. G. and L. A. McDade. Approaches to Systematics (Review of *Principles of Systematic Zoology* by E. Mayr and P. D. Ashlock). Science 253:458‑459.

1994. McDade, L. A., M. Fishbein, and P. D. Jenkins. Review of *The Families of Flowering Plants: Interactive identification and information retrieval,* Version 1.0, by L. Watson and M. J. Dallwitz. Quarterly Review of Biology 69:579‑580.

1998. Hedin, J., and L.A. McDade. Review of *Flórula de las Reservas Biológicas de Iquitos, Perú*. Tropinet 9:3.

1998. McDade, L.A. Review of *Flora of the Venezuelan Guayana, Volume 4 Caesalpiniaceae - Ericaceae*. Tropinet 9: 3-4.

1999. Johnson, K.J., and L.A. McDade. Review of *Horticultural Flora of South-Eastern Australia*. Quarterly Review of Biology 74:228-229.

2002. McDade, L.A. Biotechnology in agriculture: Good or bad? (Review of *Lords of the Harvest*, by D. Charles). BioScience 52: 532-534.

2009. McDade, L. A. (Review of *Nature of the Rainforest: Costa Rica and Beyond*). *Quarterly Review of* *Biology* 84: 427–428.

**GRANT SUPPORT** (In addition to the following research grants, I submitted, was awarded, and administered numerous grants on behalf of the Organization for Tropical Studies during my career with that organization.)

Current:

National Science Foundation. 2018-2023. Collaborative Research: New World Justicia s.l.: A microcosm for understanding covariation of floral traits and pollinators in a phylogenetic context. $558,163. (co-PI, PI C. Kiel). Collaborate with A. Fisher, CA State U. Long Beach, CA and E.A. Tripp, U. Colorado, Boulder, CO.

National Science Foundation. 2016–2019. CSBR: Natural History: Engaging Our Future to Preserve Our Past: Curation and Preservation of Historically Significant Collections through Student Participation at the Rancho Santa Ana Botanic Garden Herbarium. $346,030. (co-PI, PI M. Nazaire)

National Science Foundation. 2014–2019. Collaborative Research: Understanding constraints on floral evolution: a phylogenetic approach to comparative anthocyanin evolution in *Ruellia* (Acanthaceae) $309,981 (RSABG portion only). Collaborative with E.A. Tripp, U. Colorado, Boulder, CO.

National Science Foundation. 2014–2019. The future of comparative biology in a phylogenetic age: Enabling the power and potential of the genealogy of life (co-PI, grant sited at University of Chicago) $650,000.

National Science Foundation. 2016-2018. Phylogenetic analysis of the Neotropical plant genus Clusia (Clusiaceae). (Doctoral Dissertation Improvement Grant for Mr. Manuel Lujan). $17,301

Past (last fifteen years only):

The Andrew W. Mellon Foundation. 2012–2017. A proposal to digitize and make available the most botanically and historically valuable components of the archives of Marcus E. Jones. $150,000.

National Science Foundation. 2014-2016. Systematics and biogeography of Sabiaceae with emphasis on *Meliosma* (DDIG support for Jose Zúñiga) $15,000.

National Science Foundation. 2010-2016. Harnessing the power of herbaria to understand the changing flora of California: A biodiversity hotspot in peril (RSA collaboratively with multiple institutions). $567,862.

National Science Foundation. 2009-2012. Broad to fine scale phylogenetic pattern and character evolution in Ruellieae (Acanthaceae) (RSA) (co-PI; E. Tripp PI). $540,505.

National Science Foundation. 2009–2012. Future directions in biodiversity and systematics research (co-PI; P. Herendeen PI). $99,817.

National Science Foundation. 2009-2013. Securing the Scientific Legacy of Dr. Robert F. Thorne: Curating the Thorne Plant Collections, Rancho Santa Ana Botanic Garden (RSA). $117,000.

The Andrew W. Mellon Foundation. 2008–2014. Digitization of the types held at the herbarium of Rancho Santa Ana Botanic Garden (RSA-POM) and partnering institutions in southern California. Series of four grants totaling ca. $270,000.

Fletcher Jones Foundation. 2008-2012 Pre-doctoral and Post-doctoral Scholars at Rancho Santa Ana Botanic Garden. $250,000.

National Science Foundation. 2007-2013. REVSYS Collaborative Research: Untangling the passionflower vines: phylogeny, species diversification, and character evolution in *Passiflora* subg. *Decaloba* (Passifloraceae). $526,405 (RSABG portion only).

National Science Foundation. 2008-2011. REVSYS Collaborative Research:  Relationships, Character Evolution, and Biogeographic Patterns in the Phylogenetically Pivotal Lineage Nelsonioideae (Acanthaceae s.l.). $80,000 (RSABG portion only).

Global Biodiversity Information Facility. 2008. GBIF data content development from the Consortium of California Herbaria: Advancing the international effort to monitor and control non-native taxa. $26,000 (RSABG portion only).

National Science Foundation. 2006-2009. Virtual Types: A project to digitize and image the types and authentic specimens at the Herbarium of the Academy of Natural Sciences (PH). $263,959.

Institute of Museum and Library Services. 2003-2005. Provision of optimum environment for the plant collection at the Academy of Natural Sciences, Philadelphia (PH). $49,788.

National Science Foundation. 2002-2005. Behind closed doors: New cabinetry for the herbarium of the Academy of Natural Sciences, Philadelphia (PH). $462,016. (+ REU & RET supplements, $18,750).

National Science Foundation, 2001-2005. Phylogenetics of Acanthaceae: A nested approach to resolving relationships of Acanthaceae and their closest relatives. $166,954.

**Memberships**: American Society of Plant Taxonomists, Association for Tropical Biology and Conservation, Botanical Society of America, California Botanical Society, California Native Plant Society, International Association of Plant Taxonomists, National Center for Science Education, Society for Conservation Biology, Society for the Study of Evolution, Society for Systematic Biology, Southern California Academy of Sciences, Southern California Botanists

**TEACHING** *(not including independent studies, undergraduate honors independent research, or graduate research)*

Duke University:

Fall, Spring1983-1985: *Ecology and Society* (lecture course for non-majors); Fall, 1989: *Gender and Science* (seminar course)

Organization for Tropical Studies:

*Tropical Biology: An Ecological Approach,* Costa Rica, 1979, 1982, 1983, 1984, 1988, 1989 (2 courses), 1990 (2 courses), 1991 (2 courses), 1993, 1995, 2002, 2004, 2005; *Tropical Plant Systematics*, 1994, 2002, 2004

University of Arizona:

Fall 1993-2000: *Analysis of Biological Diversification* (lecture course), *Plant Evolutionary Biology* (seminar course); Spring 1993-2000: *Systematic Botany* (lecture + lab course), *Plant Evolutionary Biology* (seminar course)

University of Pennsylvania:

Spring 2004:  *Phylogenetic Biology* (lecture + computer workshop course)

RSABG & CGU:

2006 to present: *Angiosperm Families: What happened to Cronquist’s Dilleniidae* (lecture + lab); *Seminar in Systematic Botany* (guide student participation in Program seminar series); *Plant Reproductive Biology* (seminar or practicum course); *Plant Families* (seminar course); *Readings in Plant Systematics* (seminar course); *Advanced Botanical and Evolutionary Research* (team taught); *Advanced Seed Plant Phylogenetic Systematics* (lecture + lab).

**ADVISING, STUDENTS**

**Master’s Students**

Current: None

Degree Completed:

Mr. David Shindelman (M. Sc. in Biology, August 1996; Currently a secondary school science teacher in Navajo Co., AZ)

Dr. Michelle McMahon (M. Sc. in EEB, December 1996) (Ph.D., Washington State Univ., 2002; currently Assistant Professor, University of Arizona)

Mr. Philip Jenkins (M. Sc. in EEB, May 1999) (deceased)

Ms. Carrie Kiel (M.Sc., CGU, August 2010; currently postdoctoral researcher, RSABG)

Ms. Sula Vanderplank (M.Sc., CGU, August 2010; currently self-employed)

Ms. Larissa Yates (M.Sc., CGU, June 2015; current location unknown)

**Ph.D. Students**

Current: Mr. Dylan Cohen (CGU)

Degree Completed:

Dr. Amy E. Faivre (EEB, 1998) (Currently Professor, Cedar Crest College, PA)

Dr. Rachel A. Levin (EEB, 2000) (Currently Assistant Professor, Amherst College, MA)

Dr. Amy Boyd (EEB; 2001) (Currently Professor, Warren Wilson College, NC)

Dr. A. Elizabeth Arnold (EEB, 2002) (Currently Professor, University of Arizona)

Dr. David Hearn (EEB, 2004) (Currently Associate Professor, Towson State University)

Dr. José Zúñiga (CGU, 2014) (Currently Visiting Scientist, US National Herbarium)

Dr. Naomi Fraga (CGU, 2015) (Currently Staff Scientist, RSABG)

Dr. Kristen Hasenstab-Lehman (CGU, 2015) (Currently Staff Scientist, Sta. Barbara Botanic Garden)

Dr. Carrie Kiel (CGU, 2016) (Currently Postdoctoral Fellow at RSABG, Claremont, CA)

Dr. Melissa Johnson (CGU, 2016) (Currently Postdoctoral Fellow, USDA, Hawaii)

Dr. Manuel Lujan (CGU, 2018) (Currently Postdoctoral Fellow, CA Academy of Sciences)

**ADVISING,** **POSTDOCTORAL ASSOCIATES**

Dr. Carrie A. Kiel (RSABG Postdoctoral Fellow, 2016 to present)

Dr. Amanda Fisher (NSF Research Grant, RSABG postdoctoral fellow, 2012-2015; Current position: Assistant Professor, CA State University Long Beach)

Dr. Alice Hempel (NSFMinority Postdoctoral Fellowship, 1997-1998; Current position: Associate Professor, Texas A. & M. Kingsville)

Dr. Shawn Krosnick (NSF Research Grant, RSABG, 2007-2009)

Dr. Mariette Manktelow (Fulbright plus several forms of support from the Swedish government, 1998-2000; Current position: Research Associate, Uppsala University).

Dr. Jeffery Morawetz (Fletcher Jones Postdoctoral Fellow, RSABG, 2009-2011; NSF funded 2012-present)

Dr. Robert Raguso (NSF RTG Postdoctoral Fellow, 1998; funded on NSF grant, McDade & Raguso co-PIs, 1999; Current position: Associate Professor, Cornell University).

Dr. Erin Tripp (Fletcher Jones Postdoctoral Fellow, RSABG, 2008–2009; NSF funded 2009–2012; Current position: Assistant Professor and Herbarium Curator, University of Colorado, Boulder)

Dr. Michelle Zjhra (NSF Postdoctoral Fellowship, 1998-2000; Current position: Assistant Professor, Georgia State University)

**Eponymy**

*Adenia mcdadiana* D. J. Hearn. Brittonia 59: 315.

*Justicia lucindae* T. F. Daniel & V. W. Steinmann. Contrib. Univ. Michigan Herb. 25: 202.

*Agrilus lucindae* Hespenheide. Zootaxa 2545: 443-44.

*Snellenius lucindamcdadeae* Fernandez-Triana & Whitfield. Dtsch. Entomol. Z. 62: 173.

**BOARD MEMBERSHIPS:**

Trustee, Center for Plant Conservation

Public Member, Landscape Architecture Accreditation Board

Member, US National Science Foundation, BIO-Advisory Committee

**OTHER PROFESSIONAL EXPERIENCE AND SKILLS**

Fieldwork (1976-present): Collectingand studying reproductive biology of tropical and subtropical Acanthaceae, Arizona, Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Venezuela, Colombia, Ecuador, Brazil, South Africa, Madagascar, Namibia.

Administration

Rancho Santa Ana Botanic Garden, Claremont CA, Executive Director; Director of Research and Chair of the Botany Program, Claremont Graduate University (includes managing the graduate program, Botany Department, RSA library and RSA-POM herbarium; budgetary responsibility for all of the above).

Academy of Natural Sciences, Philadelphia, Curator of the Herbarium and Chair, Department of Botany (included managing budget and staff).

University of Arizona, Curator the Herbarium (included managing two fulltime assistant curators).

Organization for Tropical Studies, Scientific Coordinator, 1985-1992 (responsibilitiesincluded preparation, submission and administration of grants from private foundations; administration of research awards to graduate students; hiring of faculty for, and coordination of, OTS' educational programs in Costa Rica; development andediting of newsletter fortropical biologists, Tropinet).

Station Manager, La Selva Biological Station, Organization for Tropical Studies, Costa Rica, 1977-1978.

Languages: Spanish, French, Portuguese (reading, comprehension, limited speaking), German (some reading)