

## Curriculum Vitae

NAOMI SUZANNE FRAGA

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### EDUCATION

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- May 2015** PhD Botany, Claremont Graduate University; Dissertation: Diversity, Endemism, and Conservation of California monkeyflowers: a case study in *Erythranthe* section *Paradhantha* (Phrymaceae). Advisor: Dr. Lucinda McDade
- May 2005** MS Botany, Claremont Graduate University; Thesis: A Vascular Flora of the Owens Peak Eastern Watershed, southern Sierra, Kern County, California. Advisor: Dr. J. Travis Columbus
- June 2002** BS Botany & Biology, California State Polytechnic University, Pomona; Senior Thesis: A Short Flora of Short Canyon, Kern County, California. Advisor: Dr. Curtis Clark.

### PROFESSIONAL EXPERIENCE

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**2015-Present** *Director of Conservation Programs, Rancho Santa Ana Botanic Garden (RSABG)* –Provide programmatic leadership and management to the plant conservation programs at RSABG; responsible for preparation of contract and grant proposals, planning and conduction of fieldwork, report preparation, budget management, training and supervision of staff and interns, dissemination of research through publishing of scientific papers and presentations at professional meetings, coordination and collaboration with complementary activities of other RSABG programs.

**2016-Present** *Research Assistant Professor, Claremont Graduate University.*

**2008-2014** *Conservation Botanist, RSABG*–Serves as lead field botanist and directs field research activities in collaboration with federal agencies and other partners.

**2003-2008** *Botanical Field Studies Coordinator, RSABG* – Title changed to Conservation Botanist in 2008.

**2005-2006.** *Lecturer, UCLA Extension*– Taught General Botany for Gardeners and Plant Identification and Taxonomy for the Certificate in Gardening and Horticulture Program.

**2000-2003** *Herbarium Curatorial Assistant, RSABG* - Data entry, maintenance, and development of the RSA–POM specimen database, as well as day-to-day operations of the RSA–POM Herbarium.

**2001** *J. Paul Getty Multicultural Internship, RSABG* – Assisted with curatorial and of the herbarium at Rancho Santa Ana Botanic Garden.

### AWARDS AND FELLOWSHIPS

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- Robert and Patricia Switzer Foundation Fellow (2010)
- California Botanical Society Graduate Student Meeting: *Best Student Presentation* (2010)
- U.S. Fish and Wildlife Service Certificate of Appreciation (2008)

### STUDENT GRANTS RECEIVED

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- Southern California Botanists Graduate Student Award (2002, 2003, 2004, 2012)
- American Society of Plant Taxonomists Graduate Student Research Grant (2010)
- Nevada Native Plant Society Margaret Williams Research Grant (2010)
- California Desert Research Fund, The Community Foundation (2009)
- Torrey Botanical Society Student Fellowship Award (2008)
- California Native Plant Society (CNPS) Education Grant (2007)
- CNPS Bristlecone Chapter, Mary DeDecker Botanical Grant Program (2003, 2008)
- Native Plant Conservation Initiative, National Fish and Wildlife Foundation (2006)
- CNPS Helen Sharsmith Grant (2004)

## **PUBLICATIONS**

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### Published

- Meyer E., N. Jensen, and **N.S. Fraga**. 2014. Seed banking California's rare plants. *California Department of Fish and Game*. 100: 79-85.
- Soza, V.L., S.D. Boyd, L.J. Gross, and **N.S. Fraga**. 2013. Vascular Flora of the Verdugo Mountains and San Rafael Hills, Los Angeles County, California. *Crossosoma* 39: 1-140.
- Fraga N.S.** and D.S. Bell 2012. A new species of *Linanthus* (Polemoniaceae) from San Bernardino County, California. *Aliso* 30: 97-102. [pdf](#)
- Fraga N.S.** 2012. A Revision of *Erythranthe montioides* and *Erythranthe palmeri* (Phrymaceae), with descriptions of five species from California and Nevada, USA. *Aliso* 30: 49-68. [pdf](#)
- Fraga N.S.**, L.J. Gross, E.A. Kempton, and D.S. Bell. 2012. Reappearance of the vanishing buckwheat. A status review of *Eriogonum evanidum* (Polygonaceae). *Madroño* 59: 150-152.
- Barker, W.R., G.L. Nesom, P.M. Beardsley, and **N.S. Fraga**. 2012. A taxonomic conspectus of Phrymaceae: A narrowed circumscription for *Mimulus*, new and resurrected genera, and new names and combinations. *Phytoneuron* 2012-39: 1–60. [pdf](#)
- Fraga N.S.**, L.J. Gross., D.S. Bell, O. Mistretta , J. Wood and T.S. Stoughton. 2011. The Vascular Flora of the Upper Santa Ana River Watershed, San Bernardino Mountains, California. *Crossosoma*.37: 9-111
- Fraga N.S.** 2008. Conservation Status of *Mimulus shevockii* Heckard & Bacig. (Phrymaceae). *Crossosoma* 34: 50–56.
- Fraga N.S.** 2008. The Vascular Flora of the Owens Peak Eastern Watershed, southern Sierra Nevada,, California. *Aliso*. 25: 1-26. [pdf](#)
- Fraga N.S.** 2007. A Conservation Plan for *Mimulus shevockii* Heckard & Bacig. (Phrymaceae). Rancho Santa Ana Occasional Publications #7. 22 p. [pdf](#)
- Fraga N.S.** 2006. A short flora of Short Canyon, Kern County, California. *Crossosoma* 32: 1–30. [pdf](#)
- Porter J.M. and **N.S. Fraga**. 2005. A Quantitative analysis of pollen variation in two southern California perennial *Helianthus* (Heliantheae: Asteraceae). *Crossosoma* 31: 1–12.

### In preparation/revision

- Nesom, G.L. and **N.S. Fraga**. (in review) *Erythranthe* In: Flora of North America, North of Mexico. Vol. 17. Oxford Univ. Press, New York, Oxford.
- Fraga N.S.** (in prep). Phylogeny of *Erythranthe* section *Paradantha* (Phrymaceae), a lineage of monkeyflowers native to western North America. For submission to Systematic Botany.
- Fraga N.S.** and D.S. Bell (in prep). A floristic inventory of the Bighorn Mountain Wilderness, San Bernardino County, California.
- Fraga N.S.** and G.D. Wallace. (in prep). A Flora of Hidden Lake, San Jacinto Mountains, Riverside County, California. To be submitted to *Crossosoma*.

## **SELECTED TECHNICAL REPORTS/PUBLICATIONS**

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- Fraga, N.S.**, T. La Doux, L. Prince, M. Harding, and J. Hoines. 2014. Conservation assessment for Parish's daisy (*Erigeron parishii*, Asteraceae) in Joshua Tree National Park. Natural Resource Report NPS/JOTR/NRR—2014/887. National Park Service, Fort Collins, Colorado.
- Fraga, N.S.**, T. La Doux, L. Prince, M. Harding, and J. Hoines. 2015. Conservation assessment for triple-ribbed milkvetch (*Astragalus tricarinatus*, Fabaceae) in Joshua Tree National Park. Natural Resource Report NPS/JOTR/NRR—2015/999. National Park Service, Fort Collins, Colorado
- Fraga N.S.** and D.S. Bell. 2015. A floristic inventory of the Bighorn Mountain Wilderness, San Bernardino National Forest. Submitted to San Bernardino National Forest. 48p.
- O'Brien B. and **N.S. Fraga**. 2013. Surveys of *Phacelia stellaris* (Brand's phacelis, Boraginaceae) across its historic range in the United States. submitted to USFWS. 43 p.
- Fraga N.S.** and K. Kietzer. 2009. A conservation strategy for *Trichostema austromontanum* subsp. *compactum* (Hidden Lake blue curls; Lamiaceae), submitted to USFWS. 38 p.

## ORAL PRESENTATIONS

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- Fraga N.S. 2016. Wild about monkeyflowers! An exploration of monkeyflower diversity in California. CNPS Orange County Chapter. CNPS San Luis Obispo Chapter.
- Fraga N.S. 2016. Diversity, endemism and conservation of California monkeyflowers (Phrymaceae): a case study in *Erythranthe* section *Paradantha*. Botany 2016, Savannah, GA
- Fraga N.S. 2015. Rescuing California's Rarest Plants at Rancho Santa Ana Botanic Garden. Santa Barbara Botanic Garden's Annual Conservation Symposium, Santa Barbara, CA.
- Soza, V.L., S.D. Boyd, L.J. Gross, and N.S. Fraga. 2015. The Vascular Flora of the Verdugo Mountains. CNPS San Gabriel Mountains Chapter, Pasadena, CA. Theodore Payne Foundation Sun Valley CASouthern California Botanists, Claremont, CA.
- Fraga N.S. 2015. Wild about monkeyflowers (and other California wildflowers): an exploration of monkeyflower diversity and the flora of the southern Sierra Nevada. CNPS Shasta, Redding CA, Maturango Museum, Ridgecrest California.
- Fraga N.S. 2015. Putting California On Your Plate: is a low-water diet in our future, and will any of those foods be California Native Plants? CNPS Conservation Conference, San Jose CA. Tilden Botanic Garden, Berkeley CA.
- Fraga N.S. 2015. A Flora of the Bighorn Mountain Wilderness. CNPS Mojave Desert Chapter.
- Fraga N.S. 2014. Is self-pollination an evolutionary dead end? The evolution of mating systems in *Erythranthe* section *Paradantha* (Phrymaceae). Evolution, Raleigh, NC.
- Fraga N.S. 2014. A rose is still a rose, but is a monkeyflower still a *Mimulus* (Phrymaceae)? Stories from the lab and the field. CNPS San Gabriel Mountains Chapter, Pasadena, CA.
- Fraga N.S. 2013. Monkeyflower (Phrymaceae) diversity in California. Southern California Botanists Symposium, *Origin and Relationships of the California Flora: Was Raven Ravin'?* Claremont, CA.
- Fraga N.S. 2013. RSABG: California's native garden working toward conserving California's plant diversity at Enhancing the Persistence of Narrow Endemic Plant Species: Symposium, San Diego Zoo, Beckman center, Escondido, CA
- Fraga N.S. 2012. Conservation, Taxonomy, and Reproductive Biology of *Erythranthe* Section *Paradantha* (Phrymaceae). The California Desert Research Symposium, Redlands, CA
- Fraga N.S. 2012. Biology, Taxonomy, and conservation of monkeyflowers (Phrymaceae). CNPS Riverside-San Bernardino Chapter, Riverside, CA
- Fraga N.S. 2012. Nevada monkeyflowers (Phrymaceae) news: two resurrected genera, two new species, and one rare species resurrected. Nevada Rare Plant Meeting, Las Vegas, NV
- Fraga N.S. 2012. Patterns of geographic range size and mating systems in *Erythranthe* section *Paradantha* (Phrymaceae). Botany 2012. Columbus, OH.
- Fraga N.S. 2012. *Mimulus* (Phrymaceae) and the California Flora: centers of richness and rarity. CNPS 2012. San Diego, CA.
- Fraga N.S. 2011. Examining diversity in Western *Mimulus* (Phrymaceae): Evidence from morphological and molecular data reveals hidden species. Botany 2011. St. Louis, MO.
- Fraga N.S. 2010. The flora of the upper Santa Ana River Watershed, San Bernardino Mountains,. Southern California Botanists Symposium; *Southern California Mountains: You Say Coastal I say Cistmontane*. California State University, Fullerton, CA.
- Fraga N.S. 2010. Cryptic species diversity in the *Mimulus palmeri* clade (Phrymaceae). Evolution 2010. Portland, OR.
- Fraga N.S. 2010. California's miniature monkeyflowers: small plants with big problems. CNPS Kern County Chapter. Bakersfield, California and CNPS San Gabriel Mountain Chapter. Pasadena, CA
- Fraga N.S. 2009. California's miniature monkeyflowers: an example of cryptic species diversity. University club of Claremont. Claremont, CA.
- Fraga N.S. 2009. Unraveling the *Mimulus montioides* species complex (Phrymaceae). Botany 2009; Snowbird, UT.
- Fraga N.S. 2009. *Mimulus shevockii* (Phrymaceae): A conservation plan in action. CNPS Conference, Sacramento, CA

### **ORAL PRESENTATIONS (CONTINUED)**

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- Fraga N.S. 2009. A conservation strategy for *Trichostema austromontanum* subsp. *compactum* (Lamiaceae). CNPS Conference, Sacramento, CA
- Fraga N.S. 2007. Studies in *Mimulus*: an overview of the *Mimulus palmeri* clade (Phrymaceae). CNPS Bristlecone Chapter, Bishop, CA
- Fraga N.S. 2007. Conservation of the Kelso Creek monkeyflower (Phrymaceae). Maturango Museum, Ridgecrest, CA
- Fraga N.S. 2004. The vascular flora of the Owens Peak eastern Watershed. Botany 2004; Snowbird, UT

### **INVITED SPEAKER**

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- 2016:** California Naturalist Class, Angeles National Forest; CNPS Orange County Chapter; CNPS San Luis Obispo Chapter.
- 2015:** CNPS San Gabriel Mountains Chapter, Pasadena CA; CNPS Shasta Chapter, Redding CA; CNPS Mojave Chapter, Victorville, CA; Maturango Museum, Ridgecrest, CA; Theodore Payne Foundation, Sun Valley, CA; Tilden Regional Park Botanic Garden Berkeley, CA, Santa Barbara Botanic Garden, Santa Barbara CA, Southern California Botanists, Claremont, CA.
- 2014:** Tilden Regional Park Botanic Garden; CNPS San Gabriel Mountains Chapter
- 2013:** Southern California Botanists, Claremont, CA; Enhancing the Persistence of Narrow Endemic Plant Species: Symposium, Escondido, CA
- 2012:** The California Desert Research Symposium, Redlands, CA; CNPS Riverside-San Bernardino Chapter, Riverside, CA
- 2010:** Southern California Botanists, Fullerton, CA; CNPS Kern County Chapter; CNPS San Gabriel Mountains Chapter
- 2009:** University Club, Claremont, CA
- 2008:** CNPS Bristlecone Chapter, Bishop, CA
- 2007:** Maturango Museum
- 2006:** CNPS Mojave Chapter, Joshua Tree National Park, CA
- 2004:** CNPS San Gabriel Mountains Chapter

### **PROFESSIONAL SERVICE**

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- CNPS Southwest Region Reviewer (2004-Present)
- CNPS Rare Plant Program Committee, Alternate (2014-Present)
- CNPS San Gabriel Mountains Program Chair (2015-Present)
- Southern California Botanists; Board Member (2002-Present), Webmaster (2001-present), Secretary (2015-2016), Vice President (2004, 2007- 2009), President (2006, 2013-2014).

### **INTRAMURAL SERVICE**

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- Rancho Santa Ana Botanic Garden*– Center for Plant Conservation, Conservation Officer (2006-Present), *Garden with a View Fundraiser*–Field trip leader for auctioned field trips. Two Trips to the Sierra Nevada (2009), Field trip to Death Valley National Park (2010), Field trips to Baja California (2013, 2015)
- Claremont Graduate University*–Graduate Student Council Botany Representative (2008-2009).

### **RESEARCH INTERESTS**

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- Floristics in western North America (especially California and Nevada)
- Conservation of the native flora
- Rarity and endemism in the California floristic province and Mojave Desert
- Systematics of Phrymaceae
- Pollination biology

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**FIELD EXPERIENCE**

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Mexico: Baja California. United States: Arizona, California (especially in the following physiographic regions: Central Coast, Great Basin Desert, Mojave Desert, Peninsular Ranges, Sonoran Desert, southern and central Sierra Nevada, Transverse Ranges), Nevada, Hawaiian Islands (Hawaii, Maui, Molokai)

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**VOLUNTEER SERVICE TO THE COMMUNITY**

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2015-2016. Career day at Citrus College and La Puente High School

2012-2013. Girl Scouts, Interview with a flower scientist at Rancho Santa Ana Botanic Garden

2003-Present. Led numerous field trips for California Native Plant Society and Southern California Botanists

2007-Present. Maturango Museum, Ridgecrest, CA– Annual Wildflower Show Plant Expert. Serves as primary plant expert, identifying plants and assisting with collecting.

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**MANUSCRIPT AND PROPOSAL REVIEWS**

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Aliso

Biological Conservation

Crossosoma

Madroño

National Science Foundation

Phytoneuron

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**PROFESSIONAL ASSOCIATIONS**

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American Public Gardens Association

American Society of Plant Taxonomists

Botanical Society of America

California Botanical Society

California Native Plant Society (Bristlecone and San Gabriel Mountains chapters)

Nevada Native Plant Society

Northern California Botanists

Society for Conservation Biology

Southern California Botanists