

## Rebecca Hufft

Denver Botanic Gardens, 909 York Street, Denver, CO 80206  
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### Education

- 2006 Ph.D., Ecology and Evolutionary Biology, University of California Santa Cruz  
Major Professor: Ingrid M. Parker
- 2000 Bachelor of Arts, Honors in Ecology and Evolutionary Biology Department of Biology,  
University of Chicago

### Professional Experience

- 2017 – present Associate Director of Applied Conservation, Denver Botanic Gardens
- 2014 - present Affiliate Faculty, Department of Integrative Biology, University of Colorado Denver
- 2011 – 2016 Manager of Conservation Programs, Denver Botanic Gardens
- 2011 – 2015 Ecologist, Neptune and Company
- 2009 - 2013 Curator Adjoint, Entomology Section, University of Colorado Museum
- 2009 - 2011 Senior Supervising Scientist, National Ecological Observatory Network, Inc.
- 2008 - 2009 Affiliate Researcher, Institute for Arctic and Alpine Research, University of Colorado
- 2007 - 2009 Staff Scientist, National Ecological Observatory Network, Inc.
- 2006 - 2007 PRIMES Postdoctoral Research Associate with Dr. Ruth Hufbauer, Department of Bioagricultural Sciences and Pest Management and the PRogram for Interdisciplinary Mathematics, Ecology, and Statistics at Colorado State University.

### Relevant Research Experience

- 2011-present Manager of Conservation Programs and Associate Director of Applied Conservation,  
Denver Botanic Gardens

I manage the research component of the Gardens responsible for conservation efforts. The main focus of this work is on the conservation of biodiversity. For rare species, we focus on collection and preservation of seeds from endangered Colorado species as well as demographic studies of rare populations. Additional programs include studies of biodiversity, invasive species, restoration, urban ecology, and phenology.

- 2007-2011 Staff Scientist and Senior Supervising Scientist, NEON, Inc.

I managed the science team within NEON that is responsible for the terrestrial organismal sampling. My team designed the long-term standardized data collection for birds, small mammals, insects, plants, and soil microbes at 60 sites across the continental US, AK, HI and Puerto Rico in relatively pristine to urban to agroecosystems. The mission of NEON is to enable understanding and forecasting of the impacts of climate change, land-use change and invasive species on continental-scale ecology by providing infrastructure and consistent methodologies to support research and education in these areas.

- 2006-2007 Postdoctoral Researcher, Colorado State University

I studied the demography and population genetics of an annual selfing invasive plant, *Bromus tectorum* (cheatgrass), in the introduced range, with a focus on the ecological and evolutionary changes associated with its recent expansion into high elevation habitat in the Rocky Mountains.

### Recent Grants and Budgets Managed

- 2018-2020 Colorado Water Conservation, \$69,847
- 2016-2017 Colorado Department of Agriculture Noxious Weed Fund, \$12,000
- 2016 Jefferson County Open Space Research Grant, \$4055

- 2015-2017 National Fish and Wildlife Foundation, Denver Botanic Gardens at Chatfield Riparian Restoration (CO), \$35,000
- 2014-2019 US BLM, up to \$275,000 to support research on native plants in Colorado, including population genetics, rare plant monitoring, and restoration
- 2014-2016 Borgen Family Foundation, \$100,000 gift to support *Native Plant Restoration Project*
- 2014 Pulling for Colorado, Noxious weed education and removal at Denver Botanic Gardens Chatfield as part of a statewide event, \$1061
- 2014 US BLM, \$50,000, Demographic monitoring of rare plants in Colorado and development of restoration strategies
- 2013 Black Hills Exploration & Production, \$40,000, Impacts of development on *Sclerocactus glaucus*
- 2013 US BLM, \$40,000, Demographic monitoring of rare plants in Colorado
- 2012 Black Hills Exploration & Production, \$36,000, Impacts of development on *Sclerocactus glaucus*
- 2012 US BLM, \$40,000, Demographic monitoring of rare plants in Colorado

#### Awards and Honors

- 2006-2007 PRIMES Postdoctoral Research Fellowship, Colorado State University
- 2006 Conservation Research Award, Elkhorn Slough National Estuarine Research Reserve and the Elkhorn Slough Foundation, \$200. In recognition of spear-heading a number of high caliber conservation research projects on coastal prairie habitat in the Elkhorn Slough watershed.
- 2005 Botanical Society of America Graduate Student Research Award, \$500
- 2003 California Botanical Society Graduate Student Meeting, Award for Best Talk on Research in Progress
- 2001 Dean's Fellowship, University of California Santa Cruz
- 2000 NSF Pre-Doctoral Fellowship

#### Publications

- Hufft RA**, ME DePrenger-Levin, RA Levy, MB Islam. *Accepted*. Using herbarium specimens to select indicator species for climate change monitoring. Biodiversity and Conservation.
- Elmendorf, SC, KD Jones, BI Cook, JM Diez, CAF Enquist, **RA Hufft**, MO Jones, SJ Mazer, AJ Miller-Rushing, DJP Moore, MD Schwartz, JF Weltzin. **2016**. The plant phenology monitoring design for the national ecological observatory network. Ecosphere 7(4): e01303.
- Springer, Y. P., D. Hoekman, P. T. J. Johnson, P. A. Duffy, **R. A. Hufft**, et al. **2016**. Tick-, mosquito-, and rodent-borne parasite sampling designs for the National Ecological Observatory Network. Ecosphere 7(5): e01271.
- Hufft, RA** and TJ Zelikova. **2016**. Ecological Genetics, Local Adaptation, and Phenotypic Plasticity in *Bromus tectorum* in the context of a changing climate. In M Germino, J Chambers, C Brown, eds., Exotic Brome Grasses in Rangeland Ecosystems of the Western US. Springer International Publishing, New York.
- Davies, N, D Field, L Amaral-Zettler, MS Clark, J Deck, A Drummond, DP Faith, J Geller, J Gilbert, FO Glöckner, PR Hirsch, J-A Leong, C Meyer, M Obst, S Planes, C Scholin, AP Vogler, RD Gates, R Toonen, V Berteaux-Lecellier, M Barbier, K Barker, S Bertilsson, M Bicak, MJ Bietz, J Bobe, L Bodrossy, A Borja, J Coddington, J Fuhrman, G Gerdts, R Gillespie, K Goodwin, PC Hanson, J-M Hero, D Hoekman, J Jansson, C Jeanthou, **R Kao**, et al. **2014**. The founding charter of the Genomic Observatories Network. GigaScience 3:2. <http://www.gigasciencejournal.com/content/3/1/2>.
- Kao, RH**, C Gibson, R. Gallery, C Meier, D Barnett, K Docherty, Y Springer, E Azuaje, K Blevins, P Travers, K Thibault, V McKenzie, M Keller, L Alves, E Hinckley, J Parnell, D Schimel. **2012**. NEON Terrestrial Field Sampling: Designing Large-Scale, Standardized Sampling. Ecosphere 3(12): 115. <http://dx.doi.org/10.1890/ES12-00196.1>.

- Gibson CM, **RH Kao**, KK Blevins, PD Travers. **2012**. Integrative taxonomy for continental-scale terrestrial insect observations. PLoS ONE. 7(5): e37528. doi:10.1371/journal.pone.0037528.
- Davies, N, D Field, **The Genomic Observatories Network**. **2012**. A genomic network to monitor Earth. Nature 481: 145.
- Kanarek, AR and **RH Kao**. **2011**. The relationship among plant cover, density, seed rain and dispersal of *Bromus tectorum* in high elevation populations. Western North American Naturalist. 71(1): 131-136.
- Kao, RH** and IM Parker. **2010**. Coexisting Cytotypes of *Arnica cordifolia*: Morphological differentiation and local scale distribution. International Journal of Plant Sciences. 171(1): 81-89.
- Kao, RH**, C Brown, RA Hufbauer. **2008**. High Phenotypic and Molecular Variation in Downy Brome (*Bromus tectorum*). Invasive Plant Science and Management. 1: 216-225.
- Kao, RH**. **2008**. Implications of polyploidy in the host plant of a Dipteran seed parasite. Western North American Naturalist. 68(2): 225-230.
- Kao, RH**. **2008**. Origins and widespread distribution of coexisting polyploids in *Arnica cordifolia*. Annals of Botany. 101:145-152. doi: 10.1093/aob/mcm271
- Kao, RH**. **2007**. Asexuality and the coexistence of cytotypes. New Phytologist. 175 (4): 764-772. doi: 10.1111/j.1469-8137.2007.02145.x.
- Hufft, R.** and J. Richardson. **2006**. The evolution of pink: Morphological and genetic variation among three *Lithophragma* (Saxifragaceae) species. Madroño 53 (1): 25-35.
- CentTread Working Group**. **2005**. Making Parks Work: A thought provoking argument, but not a guide. Conservation Biology 19(1): 279-281.

#### Recent Technical Reports

- DePrenger-Levin, M, **R Hufft**. **2017**. Demographic monitoring of *Sclerocactus glaucus*, an endemic species of western Colorado. Population Monitoring 2007-2017, Technical Report to Bureau of Land Management, U.S. Department of Interior, Colorado State Office.
- DePrenger-Levin, M, **R Hufft**. **2017**. Life history and demography of *Astragalus microcymbus* Barneby (Fabaceae). Population Monitoring 1995-2017, Technical Report to Bureau of Land Management, U.S. Department of Interior, Colorado State Office.
- DePrenger-Levin, M, **R Hufft** **2017**. Population Monitoring of *Penstemon harringtonii* (Scrophulariaceae), an Endemic Species of Colorado, USA. Population Monitoring 1996-2017, Technical Report to Bureau of Land Management, U.S. Department of Interior, Colorado State Office.
- DePrenger-Levin, M, **R Hufft**. **2016**. *Eriogonum brandegeei* Demographic Monitoring Study 2004-2016. Technical Report to Bureau of Land Management, U.S. Department of Interior, Colorado State Office.
- Kenney, M.A, Janetos, A.C, et. al, National Climate Indicators System Report, National Climate Assessment and Development Advisory Committee, **2014**.
- Schimel, D, M Keller, S Berukoff, **B Kao**, H Loeschner, H Powell, T Kampe, D Moore, W Gram. **2011**. 2011 Science Strategy: Enabling Continental-Scale Ecological Forecasting. [http://www.neoninc.org/sites/default/files/NEON\\_Strategy\\_2011u2.pdf](http://www.neoninc.org/sites/default/files/NEON_Strategy_2011u2.pdf)

#### Recent Presentations

- 2017 **Hufft R**. Ecological Stewardship: Restoration at Denver Botanic Gardens Chatfield Farms, Department of Integrative Biology, University of Colorado Denver, Denver, CO.
- 2017 **Hufft R**, A Seglias. Ecological Stewardship: Restoration at Denver Botanic Gardens Chatfield Farms. Natural Areas Conference, Fort Collins, CO.
- 2017 **Hufft RA**, ME DePrenger-Levin, RA Levy, M Islam. Using herbarium records to assess shifts in phenology in alpine plants and select indicator species for climate change. Botany, Fort Worth, TX.
- 2017 **Hufft R**. Ecological Stewardship: Restoration at Denver Botanic Gardens Chatfield Farms. Front Range Open Space Research Symposium, Boulder, CO.

- 2016 **Hufft R**, TJ Zelikova, SY Atkinson, CS Brown, RN Mack, SJ Novak. Adaptation and invasiveness in annual brome grasses. Organized oral session, Ecological Society of America, Fort Lauderdale, FL.
- 2016 **Hufft R**. Ecological Stewardship: Restoration at Chatfield Farms. Denver Botanic Gardens Café Botanique, Denver, CO.
- 2014 **Kao RH**. Phenology as an indicator for climate variation and change. Denver Botanic Gardens Meet Our Scientist Series, Denver, CO.
- 2013 **Kao RH**, JR Neale, M DePrenger-Levin, M. Goshorn. Longer long-term data collection in rare plant monitoring is needed. International Congress for Conservation Biology, Baltimore, MD.
- 2013 **Kao RH** and JR Neale. Native Plants Count: Understanding the botanical value of your land. Colorado Coalition of Land Trusts, Denver, CO.
- 2012 **Kao RH**. Plant responses to climate change. Denver Botanic Gardens Meet Our Scientist Series, Denver, CO.

#### Recent Teaching Experience

- 2018 Advisor, Special Topics in Plant Ecology, UC Denver
- 2017 Advisor, Special Topics in Plant Ecology, UC Denver
- 2016 Lecturer, Conservation Biology, University of Denver

#### Graduate Training

Current advisees: Katherine Fu (UCD, PhD, main advisor), Liam Cullinane (UCD, MS, main advisor)  
 Previous advisees: Carla DeMasters (UCD, MS 2017, main advisor, currently at Westervelt Ecological Services); Jared Mastin (UCD, MS 2017, committee member)

#### Professional Service

- 2016-present CeRSER outreach committee
- 2012-present NEON Plant Phenology Working Group
- 2014-2015 2015 HAR-CeRSER Restoration Meeting technical committee
- 2013-2016 Expert on the Phenology Indicators Technical Team to develop a prototype indicator system for the US Global Change Research Program, National Climate Assessment
- 2012-2016 Coordinator, Colorado Rare Plant Conservation Initiative
- 2012 USA National Phenology Network Data Products Working Group
- 2011-2012 Organizing Committee, iEvoBio 2012

#### Reviewer

American Journal of Botany, Annales Botanici Fennici, Austrian Science Fund, Conservation Genetics, Current Biology, Frontiers in Ecology and the Environment, NSF Cyberenabled Discovery and Innovation (CDI), NSF Experimental Program to Stimulate Competitive Research (EPSCoR), NSF International Research Fellows Award