

## *Curriculum Vitae*

### **Shana R. Welles**

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#### **Education and Training**

- Aug 2017 – Present Grand Challenges Initiative Postdoctoral Fellow, Chapman University  
Research Adviser: Jennifer L. Funk
- 2015 - 2017 Postdoctoral Research Associate University of Arizona  
Adviser: Katrina M. Dlugosch
- 2010-2015 PhD Plant Biology, University of California, Riverside  
Committee: Norman C. Ellstrand (Chair). Maureen Stanton, Jodie S. Holt
- 2004-2008 BS Evolution, Ecology and Biodiversity, University of California, Davis
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#### **Awards and Fellowships**

- 2014 W.W. Thomson Award for Outstanding Research, Department of Botany and Plant Science, University of California Riverside
- 2011 - 2014 Graduate Research Fellowship, National Science Foundation
- 2010 Chancellor's Distinguished Fellowship, University of California, Riverside
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#### **Publications**

\* Author for correspondence ^Undergraduate author % Not peer-reviewed

- Welles SR** and NC Ellstrand *In prep.* The role of crop genes in adaptation across a climate gradient in a wild-crop hybrid.
- Durant O<sup>^</sup>, JL Funk, and **SR Welles**\* *In Review.* Hybridization and gene flow patterns in a novel contact zone of native California sunflowers: implications for restoration.
- Welles SR**\* and A Sonnenschein *In Review.* Population genomic structure of the invasive crop-wild hybrid California wild radish reveals differential crop genome contribution across range.
- Welles SR**\* and JL Funk *In Press.* Evolution of drought-related functional traits along a climate gradient. *Annals of Botany*
- One Thousand Plant Transcriptomes Initiative (**SR Welles** - Contributing author) (2019) One thousand plant transcriptomes and the phylogeny of green plants. *Nature*. 574: 679–685.
- Welles SR**\* and NC Ellstrand (2019) Evolution of increased vigor associated with allopolyploidization in the newly formed invasive species *Salsola ryanii*. *AOB Plants*, DOI:<https://doi.org/10.1093/aobpla/plz039>
- Press:** Newsweek, Bloomberg Environment, The Sacramento Bee, The Deserts Sun, Great Lakes Ledger, Atlas Obscura, KCBS Radio, Mountain West Public Radio, ScienceAlert
- Lu-Irving, P, J Harencar, H Sounart, **SR Welles**, S Swope, D Baltrus, and KM Dlugosch (2019) Native and invading yellow starthistle (*Centaurea solstitialis*) microbiomes differ in their composition and diversity of bacteria. *MSphere*, DOI: <https://doi.org/10.1128/mSphere.00088-19>

- Welles SR\*** and NC Ellstrand (2016). Rapid range expansion of a newly formed allopolyploid weed in the genus *Salsola*. *American Journal of Botany*, 103(4): 663-667.
- Press:** Newsweek, Science, Capital Public Radio, Phoenix Public Radio, Sciencenews.org, Takepart.com, Mother Nature Network, Atlas Obscura, KSEE 24
- Welles SR\*** and NC Ellstrand (2016). Genetic structure reveals a history of multiple independent origins followed by admixture in the allopolyploid weed *Salsola ryanii*. *Evolutionary Applications*, 9(7): 771-787.
- Holt JS, **SR Welles\***, K Silvera, IM Heap, SM Heredia, A Martinez-Berdeja, KT Palenscar, LC Sweet, and NC Ellstrand (2013). Taxonomic and life history bias in herbicide resistant weeds: implication for deployment of resistant crops. *PLoS ONE*, 8(9): E71916.
- Chavez NB<sup>^</sup>, JJ Flores <sup>^</sup>, J Martin<sup>^</sup>, NC Ellstrand, R Guadagnuolo, S Heredia, and **SR Welles\*** (2012). Maize x teosinte hybrid cobs do not prevent crop gene introgression. *Economic Botany*, 66: 132-137.
- Welles SR** and KM Dlugosch (2018). Population genomics of colonization and invasion. In *Population Genomics: Concepts, Approaches and Applications*. Ed. Om Rajora. Springer International Publishing. Cham, Switzerland.

## University Teaching Experience

Instructor	FFC 100: Grand Challenges in Science and Technology, Chapman University	Fall 2020
	Developing and employing evidence-based approaches to empowering first semester freshmen (mostly STEM majors) to solve interdisciplinary problems by way of developing the skills necessary to evaluate and synthesize evidence, work effectively as a team, communicate, and develop a professional network.	
	Instructing two sections	
Instructor	SCI 200: Grand Challenges in Science and Technology, Chapman University	Fall 2020
	Facilitated the implementation of interdisciplinary student team projects ranging from preserving global biodiversity to enhancing individualized learning utilizing a course based research framework in an synchronous online setting.	
	Instructing 3 sections.	
Instructor	SCI 150: Grand Challenges in Science and Technology, Chapman University	Spring 2020
	Facilitated the development of four interdisciplinary student team projects including reading primary literature, writing about primary literature, and creating a proposal for research that pushes ideas forward.	
	Instructed one section.	
Instructor	SCI 250: Grand Challenges in Science and Technology, Chapman University	Spring 2020
	Facilitated the conclusion of interdisciplinary team research projects including data analysis and presentation of results in a digital poster session.	
	Instructed one section.	
Instructor	FFC 100: Grand Challenges in Science and Technology, Chapman University	Fall 2019
	Instructed one section. See above	
Instructor	SCI 200: Grand Challenges in Science and Technology, Chapman University	Fall 2019
	Instructed two sections. See above	
Instructor	SCI 150: Grand challenges in Science and Technology, Chapman University	Spring 2019
	Instructed two sections. See above	
Instructor	SCI 250: Grand Challenges in Science and Technology, Chapman University	Spring 2019
	Instructed two sections. See above	
Co-instructor	ENV 227: Darwin and the Galápagos, Chapman University	Interterm 2019
	Instructed a non-major's travel course in the Galápagos Islands. Focused on experiential learning, reflection, and critical thinking about the ecosystem and the impacts of ecotourism.	
Instructor	SCI 200: Grand Challenges in Science and Technology, Chapman University	Fall 2018

Instructor	Instructed eight sections. See above SCI 150: Grand Challenges in Science and Technology, Chapman University	Spring 2018
Instructor	Instructed four sections. See above FFC 100: Grand Challenges in Science and Technology, Chapman University	Fall 2017
Instructor	Instructed two sections. See above BIO 260: Population Ecology, University of Redlands Developed and instructed an upper-division population ecology course utilizing evidence-based approaches. Included content on population theory and population genetics, field-trips to apply theory, and a term paper in which students presented the findings of their field work.	Spring 2015
Teaching Assistant	BIO 002: Biology for non-majors, University of California, Riverside Instructed laboratory sections covering topics in physiology, ecology, and evolution with an emphasis on humans. Included dissections.	Winter 2011

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## Program Coordination Experience

2008-2010 **San Joaquin Regional Coordinator**, Center for Land-Based Learning, Winters, CA  
Coordinated a habitat restoration education program for high school students. Focus was on hands on place-based learning about the process of restoration, sustainable agriculture, leadership, and career exploration. Included training of volunteer mentors, collaboration with teachers, restoration agencies, and farmers, and grant writing.

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## Training in Education

November 2019 **Safe Space Training**, Office of Diversity and Inclusion, Chapman University

August 2018 **Summer Academy on Teaching; Institute for Education, Teaching, and Learning;**  
Chapman University, Orange CA

January 2018 **Saber (Society for the Advancement of Biology Education Research) West Conference;** Irvine, CA

August 2017 **Summer Academy on Teaching, Institute for Education, Teaching, and Learning;**  
Chapman University

Fall 2013 Biology 303 **Philosophy and Pedagogy of Teaching Undergraduate Life-Sciences;**  
University of California, Riverside

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## Highlights of Service and Outreach

**Reviewer:** EcoEd Digital Library, *New Phytologist*, *Proceedings B*, *Annals of Botany*, *Ecology*, *American Journal of Botany*, *Biological Invasions*, *Molecular Ecology*, *Heredity*, *Evolutionary Applications*, *Scientific Reports*

Volunteer, **EARTHS Magnet School** (elementary school in the Conejo Valley Unified School District), Newbury Park, CA: Assisted with acquiring funding for school gardens, designing and planting school gardens, annual (10 years) educational presentations to all second-grade classes, development of science curriculum (specifically a unit on scientific inquiry and experimental design). (2009-present)

**Chair, Botany Graduate Student Association**, UC Riverside (2012-2013)

**Graduate Student Representative, Education Advisory Committee**, UC Riverside, Plant Biology Graduate Program (2012-2013)

**Organizer and Panelist**, How to Get into Graduate School Workshop, UC Riverside, Career Center (2013, 2014, 2015)

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## **Presentations**

Welles SR and A Sonnenschein (2019) Population genetic structure of the crop-wild hybrid California wild radish along a climate gradient. Presented at Botany 2019; Tucson, AZ.

Welles SR and JL Funk (2019) Functional trait variation along a climate gradient in California wild radish. Presented at CAL-IPC Symposium; Monterey, CA

MCCord, CL, SR Welles, A Sonnenschein, ZC Berry, JR Gonzalez Alonso, G Goldsmith and L Lyon (2018) The Grand Challenges Initiative: Inclusion and innovative inquiry-based stem education. Poster presented at SABER West, Irvine, CA.

Welles SR and KM Dlugosch (2016) Genome size variation in an invasive plant. Presented at Evolution 2016, Austin, TX.

\*Welles SR and NC Ellstrand (2016) Genetic structure indicated history of multiple origins in the allopolyploid weed *Salsola ryanii* Presented at Plant and Animal Genome, San Diego, CA.

\*Welles SR (2015) Evolutionary ecology of the allopolyploid neospecies *Salsola ryanii*. Presented to University of Arizona, Department of Ecology and Evolutionary Biology, Tucson, AZ.

Welles SR and NC Ellstrand (2014) Characterization of invasiveness of an allopolyploid neospecies, *Salsola ryanii*. Presented at Botany 2014, Boise, ID.

Welles SR and NC Ellstrand (2013) Evolutionary origins of *Salsola ryanii*, a novel allopolyploid weed. Presented at the annual meeting of the Botanical Society of America, New Orleans, LA.

\*Invited talk

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