**Joseph Braasch, Ph.D.** Dept. of Biological Sciences

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**Education**

2019 **PhD** Ecology and Evolutionary Biology, University of Arizona

*Thesis*: “Ecological and genetic contributions to species responses to environmental change.” *Advisor:* Dr. Katrina Dlugosch

2012 **MS** Entomology, Purdue University

*Thesis*: “Insect responses to synthetic herbivore-induced plant volatiles in an ecological framework: evidence for context-dependent attraction based on varying odor blends, crop systems, and spatial scales.”

*Advisor:* Dr. Ian Kaplan

2009 **BS** Ecology and Evolutionary Biology, University of California Santa Cruz

**Professional Experience**

*Postdoctoral Researcher* Current

Department of Biology, Rutgers University-Camden

*Advisor* – Dr. Angélica Gonzalez

*Postdoctoral Researcher* 2020 - 2021

Department of Biology, North Dakota State University.

*Advisor* – Dr. Jill Hamilton

Other Appointments

University of Arizona Sky School Instructor                             2015 – 2019

Research Technician, USDA Exotic and Invasive Weeds Unit                 2008 – 2010

**Publications**

**Braasch, J.**, Johnson, M.A., and Dlugosch, K.M. Functional differences between introduced and native species revealed by responses of grassland communities to extreme drought. *In revision.* previous version available at bioRxiv; doi: <https://doi.org/10.1101/844886>.

**Braasch, J.**, Di Santo, L., Tarble, Z., Prasifka, J., and Hamilton, J. Testing for evolutionary change in restoration: a genomic comparison between ex situ, native and commercial seed sources of *Helianthus maximiliani*. *In Press.* DOI: 10.1111/eva.13275

Early version available at bioRxiv; <https://doi.org/10.1101/2021.03.17.435854>

**Braasch, J.**, Barker, B.S., and Dlugosch, K.M. (2019) Expansion history and environmental suitability shape effective population size in a plant invasion. *Molecular Ecology* 28: 2546-2558.

Barker, B.S., Cocio, J.E., Anderson, S.R., **Braasch, J.**, Cang, F.A., Gillette, H.D., and Dlugosch, K.M. (2019) Potential limits to the benefits of admixture during biological invasion. *Molecular Ecology* 28: 100-113. <https://doi.org/10.1111/mec.14958>

Dlugosch, K., Anderson, S., **Braasch, J.**, Cang, F.A., and Gillette, H. (2015) The devil is in the details: genetic variation in introduced populations and its contributions to invasion. *Molecular Ecology* 24: 2095-2111.

**Braasch, J.**, Wimp, G., and Kaplan, I. (2012) Testing for phytochemical synergism: arthropod community responses to induced plant volatile blends across multiple crops. *Journal of Chemical Ecology* 38:1264-1275.

**Braasch, J.** and Kaplan I. (2012) Over what distance are plant volatiles bioactive? Estimating the spatial dimensions of attraction in an arthropod assemblage. *Entomologia Experimentalis et Applicata* 145:115-123.

Rodriguez-Saona, C., Kaplan, I., **Braasch, J**., Chinnasamy, D., and Williams, L. (2011) Field response of predaceous arthropods to methyl salicylate: A meta-analysis and case study in cranberries. *Biological Control* 59:294-303.

Kaplan, I., Angelella, G., Blubaugh, C., **Braasch, J.**, Cacer

es, V., Prado, J., Quesada, C.,  Sadof, C.S., Spigler, S., and Thompson, S. (2011) Book Review - Relationships of Natural Enemies and Non-Prey Foods Progress in Biological Control. *American Entomologist* 52.

**Grants, Honors, and Awards**

2018 – University of Arizona GPSC travel grant, $750

2017 – University of Arizona GPSC REAP award, $997

2017 – Robert E Tindall and Linda B Lynn Galileo Circle Scholarship, $1,000

**2017 – USDA ELI Graduate Fellowship, $94,830**

2016 – University of Arizona GPSC travel grant, $750

2016 – RMBL Graduate Research Fellowship, $580

2015 – RMBL Graduate Research Fellowship, $150

2014 – FACE/PUF International Scholar, $3820

2013 – Purdue Entomology 2012 Outstanding Masters Student, $1000

2008 – University of Santa Cruz, Ecology and Evolution Honors in the Major

**Presentations**

Contributed Talks

**Braasch, J.**, Hamilton, J. (2021) Combining PopUpPoplar gardens, common gardens of *Populus balmsamifera* and *P. trichocarpa* hybrids, with an R shiny app for lessons in plant genetics and the scientific method in middle- and high-school classrooms. Botanical Society of America Annual Meeting, Virtual Meeting

**Braasch, J.,** Johnson, M., Dlugosch, K. (2019) Climate driven community change is attributable to introduced species in a California grassland. Botanical Society of America Annual Meeting, Tucson, AZ

Swope, S. and **Braasch, J.** (2019) Covariation in genotype and soil chemistry in a rare serpentine endemic. Botanical Society of America Annual Meeting, Tucson, AZ.

**Braasch, J.,** Johnson, M., Dlugosch, K. (2018) Climate associated patterns of compositional change in a California grassland are attributable to exotic species. Ecological Society of America Annual Meeting, New Orleans, LA

**Braasch, J.,** Dlugosch, K. (2016) Effective population size variation and local adaptation in invasion. Evolution Annual Meeting, Austin, TX

**Braasch, J.**, Kaplan, I. (2012) Context dependent responses across arthropod communities to herbivore induced plant volatiles in complex environments.  The Entomological Society of America Annual Meeting, Knoxville, TN

**Braasch, J.**, Kaplan, I. (2011) How plant volatile blends, field borders, and crop matrix interactively shape natural enemy communities.  The Entomological Society of America Annual Meeting, Reno, NV

Invited Seminars

Rutgers University-Camden Biology Department Seminar, Camden, NJ (2021)

Northern Arizona University Biological Sciences Departmental Seminar, Flagstaff, AZ (2021)

North Dakota State University Biology Department Seminar, Fargo, ND (2020)

Appleton-Whittell Research Ranch, National Audubon Society, Elgin, AZ (2019)

Mt. Lemon SkyCenter Speaker Series, Summerhaven, AZ (2019)

Posters

**Braasch, J.**, Hamilton, J. (2021) PopUpPoplars: Common gardens for science education. Western Forest Genetics Annual Meeting, Virtual Meeting

Black, J. (*Undergraduate Mentee)*, **Braasch, J.** (2018) Patterns of long-term change in the composition of a community of desert annual plants differ between open and covered habitats. Ecological Society of America Annual Meeting. New Orleans, LA

**Braasch, J.**, Johnson, M., and Dlugosh, K. (2018) Directional change in plant community composition depends on soil type. The American Society of Naturalist Meeting. Pacific Grove, CA

**Braasch, J.,** Barker, B., and Dlugosch, K. (2017) Subsampling population genomic data to estimate contemporary effective population size. Evolution Meeting, Portland, OR

**Teaching and Mentoring Experience**

**Instructor**, University of Arizona Sky School 2015 – 2019

**Invited Guest Lecturer**

Ecology – invasion ecology, 2 lectures April 2020

Genetics – CRISPR and gene drives November 2015

**Undergraduate students mentored**:

Jackson Gentile (NDSU) 2020

Maria Johnson\* (SNRE) 2016 – 2019

Joseph Black\* (Ecology and Evolution) 2015 – 2019

Ashley Davis (Ecology and Evolution) 2016 – 2017

Jake Wilke (Physiology) 2016 – 2017

Christina Winkler (Ecology and Evolution) 2016 – 2017

\* Undergraduate co-author or poster presenter

**Teaching Assistant,** the University of Arizona 2013 – 2016, 2019

Animal behavior

Introductory Biology Lab

Ecology

Evolution

Genetics

Bioinformatics

**Supplemental Instruction Leader,** Mira Costa College 2005 – 2006

Organismal and Evolutionary Biology

**Service, Memberships, and Other Outreach**

Informal publications

**Braasch, J**. 2007. Environmental cues tell flowers when it’s time to bloom.  Symbiosis: A Quarterly Newsletter for Mountains Recreation and Conservation Authority Volunteers. 2:8.

**Braasch, J.**, Langhans W. 2007. Earth, wind, and fire.  Symbiosis: A Quarterly Newsletter for Mountains Recreation and Conservation Authority Volunteers. 4:10.

Professional Memberships

Society for the Study of Evolution 2014 – Present

The American Society of Naturalists 2017 – Present

The Ecological Society of America 2018 – Present

Entomological Society of America 2010 – 2013

Science Outreach

2020 - NATURE (Nurturing American Tribal Undergraduate Research and Education) Summer Camps

2018 – University of Arizona Mt. Lemon Sky Center Open House

2017 - University of Arizona Insect Festival volunteer

2016 – 2019 - University of Arizona Science City Volunteer at the Tucson Festival of Books

2011 – 2012 – Purdue Insecteganza elementary school outreach event, volunteer

2011 - Indiana State Fair Purdue Entomology outreach booth, volunteer

2011 - Lafayette Butterfly Encounter, participant, 2011

2011 - The Very Hungry Caterpillar pre-show educational period, volunteer,

Service

2019 - 2020 – Arizona Future Farmers of America Agriscience Fair Judge

2018 - Society for the Advancement of Chicanos/Hispanics and Native Americans in Science University of Arizona chapter Treasurer

2017-2018 - Southern Arizona Research, Science and Engineering Foundation Science Fair Judge

2013 – Kankekee Sands bioblitz participant

2011 – 2013 - Purdue Entomology Graduate Journal Club Leader

Manuscript Review

Molecular Ecology, Oecologia, Heredity, American Journal of Botany, Plant Ecology and Diversity, Folia Geobotanica