

## Gabrielle F.S. Boisramé

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### EDUCATION:

#### **University of California, Berkeley, CA**

Ph.D., Civil & Environmental Engineering, Dec 2016

Area of Emphasis: Hydrology

Minors in Numerical Analysis and Statistics

M.S., Civil & Environmental Engineering, May 2012

GPA: 3.9

Research Advisor: Dr. Sally Thompson

Dissertation: Wildfire Effects on the Ecohydrology  
of a Sierra Nevada Watershed

#### **Whitman College, Walla Walla, WA**

B.A., Applied Mathematics, May 2010

Minor in Chemistry

GPA: 3.9, Summa Cum Laude

Senior Thesis: The Use of Linear Algebra to  
Determine the Probabilities of Predicted  
Future Occurrences

### RESEARCH/WORK EXPERIENCE:

#### **Desert Research Institute, Las Vegas, NV**

##### **Assistant Research Professor – Environmental Engineer, Division of Hydrologic Sciences**

May 2020 to Present

40 hours/week

- Model impact of changing climate on agricultural water supplies.
- Study impact of disturbances on watershed resilience in snow-dominated systems.
- Lead project quantifying water balance at Amargosa River headwaters.
- Publish original research.
- Supervise student research assistants.
- Submit original research proposals to funding agencies.

#### **Desert Research Institute, Las Vegas, NV**

##### **Postdoctoral Fellow, Division of Hydrologic Sciences**

November 2018 to April 2020

40 hours/week

- PI on project quantifying water balance at Amargosa River headwaters.
- Collect and analyze data relevant to desert soil properties.
- Model the hydrologic response of Sierra Nevada watersheds to wildfire.
- Train machine learning algorithms to predict groundwater quality.
- Publish original research.

#### **Delta Stewardship Council Delta Science Program, Sacramento, CA**

##### **Environmental Scientist**

August 2017 - November 2018

40 hours/week

- Manage the creation, editing, and dissemination of a publicly available framework document for using adaptive management to increase water supply reliability.
- Compile data from multiple sources to create a comprehensive water budget for the Sacramento-San Joaquin Delta watershed. Evaluate uncertainty of said datasets.

- Evaluate projects' consistency with the regulations outlined in the State-mandated Delta Plan, with the goal of protecting both water supply reliability and the environment.
- Support the implementation of integrated modeling projects.
- Lead structured decision-making teams in developing conceptual models and prioritizing actions.
- Provide relevant hydrological information for other science program staff's projects.

**UC Berkeley Dpt. of Civil & Environmental Engineering, Berkeley, CA**

**Visiting Researcher**

December 2017 – December 2018

4 hours/week

- Organize fieldwork.
- Provide hydrologic modelling training.
- Write scientific articles related to watershed hydrology.

**UC Berkeley College of Natural Resources, Berkeley, CA**

**Hydrologic Modeler and Postdoctoral Scholar**

January - August 2017

40 hours/week

- Managed teams of field and lab technicians, including designing fieldwork protocols and providing training in research methods and safety.
- Modeled the hydrologic response of Sierra Nevada watersheds to wildfire.
- Maintained weather stations in remote locations.
- Published original research.

**UC Berkeley Dpt. of Civil & Environmental Engineering, Berkeley, CA**

**Graduate Student Researcher**

May 2013 - December 2016

10 hours/week during school year, 40 hours/week summers (May-August)

- Developed and implemented methodology for a long-term hydrologic research project. Methods included remote sensing, isotope analysis, and field measurements of soil moisture, streamflow, and meteorological variables.
- Conducted fieldwork, data analysis, literature searches, and computer modeling related to the ecohydrology of a Sierra Nevada watershed experiencing frequent fires.
- Supervised and mentored undergraduate research assistants, including providing training in research methods and fieldwork safety.
- Published original research.

**UC Berkeley Dpt. Of Civil & Environmental Engineering, Berkeley, CA**

**Graduate Student Instructor, Surface Water Hydrology**

August-December 2013

10 hours/week

- Prepared homework solutions, held office hours, and led review sessions for graduate-level hydrology course.
- Instructed students in the use of HYDRUS 1D software.

**Contra Costa Water District, Concord, CA**

**Water Resources Group Student Intern**

May-August 2012

40 hours/week

- Provided technical assistance including hydrologic model calibration and automation of data acquisition.
- Analyzed data including CalSIM II model results and observed water quality for comparison with water district objectives and regulations.
- Conducted an energy assessment of a water treatment plant.
- Used MATLAB to model changing water conditions affecting district operations using G-model and other tools.
- Developed user-friendly tool for planning required reservoir releases based on rainfall.

**John Muir Institute of the Environment, UC Davis, CA**

**Junior Specialist**

February-June 2011

30 hours/week

- Analyzed data to determine relationships between fish populations and stream hydrology.

**National Agricultural Research Institute (INIA), Montevideo, Uruguay**

**Soils and Irrigation Intern**

August-December 2010

40 hours/week

- Compared weather generators' results in terms of ability to reproduce statistics important to agronomy and water availability.
- Created an automated process for preparing data sets needed for hydrological modeling using the SWAT model.

## **CERTIFICATIONS**

Engineering Intern

- FE - Environmental Engineering Exam passed May 1 2018
- Nevada State Board of Professional Engineers and Land Surveyors Certificate # 0T7951

Wilderness First Aid Certified

## **UNIVERSITY/COMMUNITY SERVICE:**

**Clark County Wetlands Park educational volunteer, Las Vegas, NV**

2019-2020

- Lead educational activities for children related to the biology and hydrology of the Clark County Wetlands.

**Bay Area Scientists in Schools (BASIS), Berkeley, CA**

2015-2017

- Taught fire ecology to elementary school students.

**Environmental Engineering Seminar Series, UC Berkeley**

January-May 2014

- Served on committee organizing weekly seminar on current topics in environmental engineering.

**Student Association for Fire Ecology, UC Berkeley**

2013-2017

- Planned and engaged in public outreach related to California's fire ecology.
- Served as chapter treasurer (2016-2017).

**Tech Girls**, Oakland, CA

2011-2017

- Mentored elementary school girls during weekly after-school science program (2011-2017).

**Engineers Without Borders**, UC Berkeley

2011-2013

- Provided technical assistance for groundwater arsenic contamination remediation in Peru.

**Rotary Club Biosand Filter Project**, UC Berkeley and Honduras

January-March 2012

- Prepared educational materials regarding water quality and biosand filters.
- Travelled to Honduras to teach a 5-day course to students age 8-18.

**Village Education Project**, Otavalo, Ecuador

June-August 2010

- Taught elementary-school level math in Spanish.
- Prepared course materials.
- Created and graded homework and exams.

### **SKILLS:**

**Computer:** Adobe Actionscript, Adobe Photoshop, ArcGIS, C++, eCognition, GRASS GIS, HYDRUS, LaTeX, Maple, Matlab, Microsoft Office, MODFLOW, R, RHESys, Visual Basic

**Foreign Languages:** Fluent in French (written and oral); proficient in Spanish (written and oral).

### **HONORS/AWARDS:**

UC Berkeley Philomathia Graduate Fellowship in Environmental Sciences (2015, 2016)

UC Berkeley Summer Mentoring and Research Teams (SMART) graduate student mentor (2014)

Sigma Xi Grant-in-Aid of Research Award (2014)

UC Berkeley Chancellor's Fellowship for Graduate Study (2011)

Honorable Mention, NSF Graduate Research Fellowship Program (2011)

Associate Member, Sigma Xi Scientific Research Society (2010)

Member, Phi Beta Kappa Honor Society (2009)

Mensa Diana Mossip Memorial Scholarship (2007)

Whitman College Walter A Brattain Scholarship (2006)

Robert C. Byrd Honors Scholarship (2006)

National Merit Scholar (2006)

### **PROFESSIONAL AFFILIATIONS**

Association of Environmental & Engineering Geologists – Southern Nevada Chapter Treasurer since 2019

Association for Fire Ecology – Member since 2013, Berkeley Student Chapter Treasurer 2015-2016

Groundwater Resources Association – Member since 2013

American Geophysical Union – Member since 2011

Sigma Xi Scientific Research Society – Member since 2010  
Phi Beta Kappa Honor Society – Member since 2009

### **PUBLICATIONS:**

Crompton, Octavia et al. Fire return intervals explain different vegetation cover responses to wildfire restoration in two Sierra Nevada basins. *Forest Ecology and Management*. In Review.

Boisrame, Gabrielle, Tim Brown, and Dominique Bachelet. Trends in Western US Fire Fuels Using Historical Data and Modeling. *Fire Ecology*. In Press.

Gordon, Beatrice et al. A data-driven review to understand streamflow risk to climate induced changes in seasonal snow dynamics. *Environmental Research Letters* 17(5). 2022. <https://doi.org/10.1088/1748-9326/ac64b4>

Stephens, Scott et al. Fire, water, and biodiversity in the Sierra Nevada: A possible triple win. *Environmental Research Communications* 3(8). 2021. <https://doi.org/10.1088/2515-7620/ac17e2>

Robinne F-N, Hallema DW, Bladon KD, et al. Scientists' warning on extreme wildfire risks to water supply. *Hydrological Processes* 35(5). 2021. <https://doi.org/10.1002/hyp.14086>

Rakhmatulina, Ekaterina, Gabrielle Boisramé, Scott Stephens, and Sally Thompson. Hydrological benefits of restoring wildfire regimes in the Sierra Nevada persist in a warming climate. *Journal of Hydrology* 593. 2020. <https://doi.org/10.1016/j.jhydrol.2020.125808>

Stevens, Jens, Gabrielle Boisramé, Ekaterina Rakhmatulina, Sally Thompson, Brandon Collins, and Scott Stephens. Forest vegetation change and its impacts on soil water following 47 years of managed wildfire. *Ecosystems* 23: 1547–1565. 2020. <https://doi.org/10.1007/s10021-020-00489-5>

Boisramé, Gabrielle, Sally Thompson, Christina (Naomi) Tague, and Scott Stephens. Restoring a Natural Fire Regime Alters the Water Balance of a Sierra Nevada Catchment. *Water Resources Research* 55(7): 5751-5769. 2019. <https://doi.org/10.1029/2018WR024098>

Ariyama, Jiro, Gabrielle Boisramé, and Marina Brand. A water budget for the Sacramento-San Joaquin Delta Watershed: Putting together the many disparate pieces. *San Francisco Estuary and Watershed Sciences* 17(2). 2019. <https://doi.org/10.15447/sfews.2019v17iss2art3>

Boisramé, Gabrielle, Sally Thompson, and Scott Stephens. Hydrologic responses to restored wildfire regimes revealed by soil moisture-vegetation relationships. *Advances in Water Resources* 112: 1242-146. 2018. <https://doi.org/10.1016/j.advwatres.2017.12.009>

Boisramé, Gabrielle, Sally Thompson, Maggi Kelly, Julia Cavalli, Kate Wilkin, and Scott Stephens. Vegetation Change During 40 Years of Repeated Managed Wildfires in the Sierra Nevada, California. *Forest Ecology and Management* 402:241-252. 2017. <https://doi.org/10.1016/j.foreco.2017.07.034>

Boisramé, Gabrielle, Sally Thompson, Brandon Collins, and Scott Stephens. Managed wildfire effects on forest resilience and water in the Sierra Nevada. *Ecosystems* 20:717-732. 2017. <https://doi.org/10.1007/s10021-016-0048-1>

Boisramé, Gabrielle. Wildfire Effects on the Ecohydrology of a Sierra Nevada Watershed. *Doctoral Dissertation*. 2016. Available from: <https://escholarship.org/uc/item/19b6f3q9>

Dralle, David, Gabrielle Boisramé and Sally Thompson. Spatially variable water table recharge and the hillslope hydrologic response: Analytical solutions to the linearized hillslope Boussinesq equation. *Water Resources Research* 50:8515-8530. 2014. <https://doi.org/10.1002/2013WR015144>

Boisramé, Gabrielle. The use of linear algebra in modeling the probabilities of predicted future occurrences. *Undergraduate Thesis*. 2010. Available from: <https://arminda.whitman.edu/theses/57/>

#### **SOFTWARE:**

Boisramé, Gabrielle, Frank Dunnivant and Albert Schueller. *The Dispersion Calculator*. Free educational software for estimating dispersion coefficients from laboratory data. 2010. Available from <http://people.whitman.edu/~dunnivfm/software.html>.

Boisramé, Gabrielle. *wgnMaker*. Excel Macro which prepares data for the Soil and Water Assessment Tool (SWAT) model. 2010. Available from <https://swat.tamu.edu/software/>.

#### **PRESENTATIONS:**

Boisramé, Gabrielle and Rosemary W. Carroll. "Using machine learning to reduce computation time in a dynamically coupled water allocation & groundwater model." Oral Presentation H34D-03. American Geophysical Union Fall Meeting. Online. December 13-17, 2021.

Boisramé, Gabrielle. "Lessons Learned from 50 Years of Restoring Wildfire to a Sierra Nevada Watershed." Invited e-Poster Presentation SY15C-0579. American Geophysical Union Fall Meeting. Online. December 13-17, 2021.

Boisramé, Gabrielle. "Restoring wildfire increases landscape heterogeneity in a Sierra Nevada watershed." Invited Oral Presentation. 9th International Fire Ecology and Management Congress. Online. November 30 - December 3, 2021.

Boisramé, Gabrielle. "Snowpack, soil moisture, and streamflow in Sierra Nevada watersheds with frequent wildfire." Invited Oral Presentation. 9th International Fire Ecology and Management Congress. Online. November 30 - December 3, 2021.

Boisramé, Gabrielle, T.J. Brown, D. Bachelet. "Trends in Western US Fire Fuels Using Historical Data and Modeling." Poster Presentation. 9th International Fire Ecology and Management Congress. Online. November 30 - December 3, 2021.

Boisramé, Gabrielle and Sally Thompson. "Repeated wildfires in a Sierra Nevada watershed cause limited post-fire erosion." Oral Presentation H080-05. American Geophysical Union Fall Meeting. Online. 2020.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, and Ekaterina Rakhmatulina. "Impacts of Fire on Microclimates, Soil, and Vegetation in the Illilouette Creek Basin." Yosemite Hydroclimate Meeting. Online. 2020.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, Naomi Tague, and Ekaterina Rakhmatulina. "Restoring a Natural Fire Regime Alters Streamflow, Snowpack, and Storage in a Sierra Nevada Catchment." Poster Presentation B33G-2547. American Geophysical Union Fall Meeting, San Francisco, CA, 2019.

Boisramé, Gabrielle. "Eco-Hydrology of IllilouetteCreek Basin: Interactions of Droughts, Storms, and Fire." Yosemite Hydroclimate Meeting. Yosemite Village, CA, 2019.

Boisramé, Gabrielle. "Resilience Through Disturbance: Wildfire's Role in Maintaining Yosemite's Meadows." Sierra Meadows Partnership Annual Gathering. Invited Oral Presentation. Graegle, CA, 2019.

Boisramé, Gabrielle. "Water and Wildfires: Restoring Natural Disturbance to Mountain Landscapes Impacts Water Supply and Forest Health." Desert Research Institute Hydrologic Sciences Colloquium. Invited Oral Presentation. Las Vegas, NV, 2018.

Boisramé, Gabrielle. "The State of Upper Watershed Hydrology in California." University of California ANR Conference. Invited Oral Presentation. Ontario, CA, 2018.

Boisramé, Gabrielle. "Water and Wildfires: How returning fire to the mountain landscape affects rivers, snowpack, and forest health." Yosemite Forum Seminar. Invited Oral Presentation. Yosemite National Park, CA, 2018.

Boisramé, Gabrielle. "Restoring wildfire to the Sierra Nevada: Impacts on water resources and drought response." California Fire Science Consortium Webinar. 2017. [www.cafiresci.org/events-webinars-source/category/managed-wildfire-impacts-on-water-resources-and-drought-response-in-the-sierra-nevada](http://www.cafiresci.org/events-webinars-source/category/managed-wildfire-impacts-on-water-resources-and-drought-response-in-the-sierra-nevada).

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, Brandon Collins, Maggi Kelly, and Naomi Tague. "Effects of a restored fire regime on forest resilience and water in Yosemite National Park." Reclaiming the Sierra Conference. Invited Oral Presentation. Sacramento, CA, 2017.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, Brandon Collins, and Naomi Tague. "Is Managed Wildfire Protecting Yosemite National Park from Drought?" American Geophysical Union Fall Meeting. Oral Presentation. San Francisco, CA, 2016.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, Brandon Collins, and Naomi Tague. "Managed Wildfire Effects on the Ecohydrology of the Illilouette Creek Basin, Yosemite National Park." 3<sup>rd</sup> Southwest Fire Ecology Conference. Oral Presentation. Tucson, AZ, 2016.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, and Brandon Collins. "Managed Wildfire Effects on the Drought Resilience of Yosemite's Illilouette Creek Basin." Natural Areas Conference. Oral Presentation. Davis, CA, 2016.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, and Brandon Collins. "Managed Wildfire Effects on the Drought Resilience of Yosemite's Illilouette Creek Basin." Yosemite Hydroclimate Meeting. Oral Presentation. Yosemite National Park, CA, 2016.

Boisramé, Gabrielle, Sally Thompson, Scott Stephens, Brandon Collins, and Naomi Tague. "Resilience through Disturbance: Effects of Wildfire on Vegetation and Water Balance in the Sierra Nevadas." Poster Presentation GC33E-1337. American Geophysical Union Fall Meeting, San Francisco, 2015.

Boisramé, Gabrielle, Scott Stephens, Sally Thompson, Brandon Collins, Miguel Naranjo, Julia Cavalli, and Melissa Ferriter. "Long-Term Effects of Wildfire on Vegetation and Water Balance in Yosemite's Illilouette Creek Basin." Oral Presentation. California-Nevada-Hawaii Forest Fire Council workshop, South Lake Tahoe, 2015.

Boisramé, Gabrielle, Scott Stephens, and Sally Thompson. "Seeing the Forest Without the Trees: Long-term influence of wildfire on the ecohydrology of a mountain watershed." Oral Presentation. Gordon Research Conference on Catchment Science, Andover, NH, 2015.

Boisramé, Gabrielle, Scott Stephens, Sally Thompson, Miguel Naranjo, and Andy Wong. "Seeing the Forest Without the Trees: Long-term influence of wildfire on the ecohydrology of a mountain watershed." Poster Presentation. Science for Parks, Parks for Science Summit, Berkeley, CA, 2015.

Boisramé, Gabrielle and Sally Thompson. "Using Seasonal Changes to Explore Vegetation's Influence on Streamflow Generation." Oral Presentation H13N-02. American Geophysical Union Fall Meeting, San Francisco, 2013.

Boisramé, Gabrielle and Sally Thompson. "What Can Seasonal Vegetation Changes Teach Us About Controls of Vegetation on Streamflow?" Poster. Gordon Research Conference on Catchment Science, Proctor Academy, New Hampshire, 2013.

Boisramé, Gabrielle and Sally Thompson. "Spring is arriving earlier every year - What are the implications for water balance and streamflow generation in North America?" Poster GC41A-0942. American Geophysical Union Fall Meeting, San Francisco, 2012.

Fremier, Alex, Gabrielle Boisramé and Evan Girvetz. "How Will the Hydrograph Change in Predicted Future Climates?" Poster GC21A-0734. American Geophysical Union Fall Meeting, San Francisco, 2009.

Boisramé, Gabrielle and Elizabeth Townsend. "Trincheras: Use of Rock Dams for Private Stream Restoration." Whitman Undergraduate Conference, Walla Walla, WA, 2009.