

RENÉE F. BROWN

MSC03 2020, Department of Biology, University of New Mexico (UNM), Albuquerque, NM 87131 USA
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EDUCATION

- In progress* Ph.D. Candidate in Biology, University of New Mexico, Albuquerque.
Dissertation: *The temporal dynamics of increased monsoon rainfall variability on plants, microbes, and biogeochemical cycles in semi-arid grasslands*. Advisor: Scott L. Collins.
- 2017 M.S. in Biology, University of New Mexico, Albuquerque.
- 2015 B.S. *Summa Cum Laude* in Biology, University of New Mexico, Albuquerque.
Minor: *Computer Science*. Honors Thesis: *Soil nitrogen availability following rainfall pulses in a desert grassland during the summer monsoon*. Advisor: Scott L. Collins.

PROFESSIONAL EXPERIENCE

- 2017 – now *Information Manager*, McMurdo Dry Valleys Long Term Ecological Research (LTER).
- 2016 – 2017 *Graduate Teaching Assistant*, UNM Department of Biology.
- 2005 – 2012 *Co-owner*, Rio Grande Unwired LLC.
- 2002 – now *Director of Technology*, UNM Sevilleta Field Station.
- 2002 – 2017 *System Administrator and Lead Field Technician*, Sevilleta LTER.
- 2000 – 2002 *Student System Administrator*, UNM Department of Electrical & Computer Engineering.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

5. Strachan S, Kelsey EP, **Brown RF**, Dascalu S, Harris F, Kent G, Lyles B, McCurdy G, Slater D, and Smith K. 2016. Filling the data gaps in mountain climate observatories through advanced technology, refined instrument siting, and a focus on gradients. *Mountain Research and Development* 36: 518-527. DOI: 10.1659/MRD-JOURNAL-D-16-00028.1
4. Thomey ML, Collins SL, Friggens MT, **Brown RF**, and Pockman WT. 2014. Effects of monsoon precipitation variability on the physiological response of two dominant C4 grasses across a semiarid ecotone. *Oecologia* 176: 751-762. DOI: 10.1007/s00442-014-3052-1
3. Vargas R, Collins SL, Thomey ML, Johnson JE, **Brown RF**, Natvig DO, and Friggens MT. 2012. Precipitation variability and fire influence the temporal dynamics of soil CO₂ efflux in an arid grassland. *Global Change Biology* 18: 1401-1411. DOI: 10.1111/j.1365-2486.2011.02628.x
Featured cover article; cover photo by RF Brown.
2. Thomey ML, Collins SL, Vargas R, Johnson JE, **Brown RF**, Natvig DO, and Friggens MT. 2011. Effect of precipitation variability on net primary production and soil respiration in a Chihuahuan Desert grassland. *Global Change Biology* 17: 1505-1515. DOI: 10.1111/j.1365-2486.2010.02363.x
1. Collins SL, Bettencourt LMA, Hagberg A, **Brown RF**, Moore DI, Bonito G, Delin KA, Jackson SP, Johnson DW, Burleigh SC, Woodrow RR, and McAuley JM. 2006. New opportunities in ecological sensing using wireless sensor networks. *Frontiers in Ecology and the Environment* 4: 402-407. DOI: 10.1890/1540-9295(2006)4[402:NOIESU]2.0.CO;2

WEB-BASED PUBLICATIONS

- Collins SL and **Brown RF**. 2018. F1000Prime Recommendation of [Kuebbing SE et al., Ecol Monogr 2018]. In *F1000Prime*. [F1000Prime.com/732599845] DOI: 10.3410/£.732599845.793542332
- Brown RF** [Lead Contributing Editor]. 2012 – now. Sensor Data Acquisition. In: *ESIP Federation's Environmental Sensing Cluster*. [http://wiki.esipfed.org/index.php/EnviroSensing_Cluster]

- Gries C, Henshaw D, **Brown RF**, Cary R, Downing J, Jones C, Kennedy A, Laney C, Martin M, Morse J, Porter J, Read J, Rettig A, Sheldon W, Strachan S, and Zdravkovic B. 2014. Sensor and sensor data management best practices released. In: *LTER Databits*. [<http://databits.lternet.edu/2014-spring/sensor-and-sensor-data-management-best-practices-released>]
- Kloppel B, **Brown RF**, Consolatti N, Costa J, Halm I, Luke C, Michener W, Natvig DO, O'Connell K, Shapiro S, Weider L, White M, and Wyatt R. 2005. LTER and OBFS Hail Benefits of Partnership. In: *LTER Network News*. [<http://news.lternet.edu/article46.html>]

OTHER PUBLICATIONS

- Collins SL and **Brown RF**. 2018. Getting started with sensor networks in experimental ecology: pitfalls and pratfalls. *The Bulletin of the Ecological Society of America*. DOI:10.1002/bes2.1400
- Hetherington AL, **Brown RF**, George A, and Villamizar SR. 2011. Freshwater advanced aquatic sensor workshop: sensors, platforms, and data management. *Limnology & Oceanography Bulletin* 20: 82.

GRANTS AND FELLOWSHIPS

FUNDED

- 2017 **Brown RF**. Assessing fungal community responses to monsoon rainfall pulses in a semi-arid grassland. Sevilleta Long Term Ecological Research Graduate Summer Fellowship. \$4,000.
- 2016 **Brown RF**. Temporal dynamics of rhizosphere microbial community diversity, abundance, and function across a summer monsoon season in a semi-arid grassland. Sevilleta Long Term Ecological Research Graduate Summer Fellowship. \$4,000.
- 2015 **Brown RF**. Travel Grant. UNM Biology Graduate Research Allocations Committee. \$150.
- 2013 **Brown RF** and Natvig DO. Remote Data Acquisition Sensor Training Workshop. Long Term Ecological Research Network Office. \$5,090.
- 2012 **Brown RF** and Natvig DO. Acquisition and Management of Data from Remote Locations Training Workshop. Long Term Ecological Research Network Office. \$37,030.

PENDING

- 2018 **Brown RF**, Collins SL, and Natvig DO. The Sevilleta Meteorological Network: Enhancing and expanding technological infrastructure to assess climate variability in dryland ecosystems. National Science Foundation. \$204,025.

AWARDS AND HONORS

- 2017 The Honor Society of Phi Kappa Phi.
- 2016 Golden Key International Honour Society.
- 2015 Outstanding Graduating Senior Award. Department of Biology, University of New Mexico.
- 2015 Best Undergraduate Student Poster Presentation. UNM Biology 24th Annual Research Days.
- 2006 Best Undergraduate Poster. UNM Computer Science 3rd Annual Student Conference.

INVITED TALKS

- 2016 **Brown RF**, Collins SL, Gehres N, and Pockman WT. Sevilleta EDGE: Effects of chronic drought and change in seasonality on desert grassland structure and function. Major International Joint Project Meeting: The response of grassland ecosystems to climate extremes at local to regional scales: comparing grassland networks between China and USA. China Academy of Sciences Institute of Applied Ecology Erguna Forest-Steppe Ecotone Research Station, Heishantou, Erguna, China. 27-30 June 2016.
- 2014 **Brown RF**. Linking diverse terrestrial ecosystems using sensor networks. In organized session:

- Environmental Networks to Study Environmental Change*. Organization for Biological Field Stations and National Association of Marine Laboratories Joint Meeting. Marine Biological Laboratory, Woods Hole, Massachusetts, USA. 20-24 September 2014.
- 2014 **Brown RF** and Natvig DO. Real-time data acquisition from remote mountain observatories. In organized session: *Every Mountain an Observatory: study designs and practices for baseline monitoring at the small project scale*. Global Fair and Workshop on Long-Term Observatories of Mountain Social-Ecological Systems. University of Nevada at Reno, Reno, Nevada, USA. 16-19 July 2014.
- 2008 **Brown RF**. Cyberinfrastructure for the advancement of ecological research in remote locations of New Mexico. New Mexico Cyberinfrastructure Days. New Mexico Highlands University, Las Vegas, New Mexico, USA. 10-11 March 2008.
- 2006 **Brown RF**. Using Distributed Sensor Networks for Ecological Research in Aridland Ecosystems. Challenges and Opportunities in Distributed Sensor Networks. Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, New Mexico, USA. 9-10 March 2006.
- 2005 **Brown RF**. Wireless Data Acquisition at the Sevilleta: A project of the UNM Sevilleta Field Station. Organization of Biological Field Stations Annual Meeting. Coweeta Hydrologic Laboratory, Otto, North Carolina, USA. 21-25 September 2005.
- 2005 **Brown RF**. Technological Advances in Ecology at the Sevilleta LTER. NASA JPL Sensor Webs Project Team. NASA Jet Propulsion Laboratory, Pasadena, California, USA. 15 June 2005.

CONFERENCE ACTIVITY

SELECTED PRESENTATIONS

- 2017 **Brown RF** and Collins SL. Dryland ecosystem responses to precipitation extremes and wildfire using a long-term rainfall manipulation experiment. American Geophysical Union Fall Meeting. New Orleans, Louisiana. 11-15 December 2017. [*Poster*]
- 2017 **Brown RF** and Collins SL. Long-term consequences of increased monsoon rainfall variability and nitrogen deposition on net primary production in a semi-arid grassland. Ecological Society of America Annual Meeting. Portland, Oregon. 6-11 August 2017. [*Oral*]
- 2016 **Brown RF**, Van Horn DJ, Reale JK, Parmenter RR, and Dahm CN. High-frequency water quality monitoring across spatiotemporal scales using collaboratively managed *in situ* aquatic sensor networks. Association for the Sciences of Limnology and Oceanography Summer Meeting. Santa Fe, New Mexico. 5-10 June 2016. [*Oral*]
- 2015 **Brown RF**, Collins SL, White CS, and Sinsabaugh RL. The effects of rainfall pulses on soil nitrogen availability in a Chihuahuan Desert grassland during the summer monsoon. American Geophysical Union Fall Meeting. San Francisco, California. 14-18 December 2015. [*Poster*]
- 2015 **Brown RF**, Collins SL, White CS, and Sinsabaugh RL. Soil nitrogen availability following rainfall pulses in a desert grassland during the summer monsoon. Department of Biology 24th Annual Research Days. University of New Mexico, Albuquerque. 27 March 2015. [*Poster*]
- 2013 **Brown RF** and Natvig DO. A large-scale remote wireless data acquisition network for environmental sensors. American Geophysical Union Fall Meeting. San Francisco, California. 9-13 December 2013. [*Poster*]
- 2012 **Brown RF** and Natvig DO. The Sevilleta LTER Wireless Data Acquisition Network. Long Term Ecological Research (LTER) All Scientists Meeting. Estes Park, Colorado. 10-13 September 2012. [*Poster*]
- 2006 **Brown RF**, England AE, Horey JL, Nelson EJ, Maccabe AB, and Natvig DO. BosqueNet: A study of a collaborative sensor network application deployment. Department of Biology 15th Annual Research Days. University of New Mexico, Albuquerque. 7 April 2006. [*Poster*]
- 2006 **Brown RF**, England AE, Horey JL, Nelson EJ, Maccabe AB, and Natvig DO. BosqueNet: A study of a collaborative sensor network application deployment. Department of Computer

Science 3rd Annual Student Conference. University of New Mexico, Albuquerque. 3 March 2006. [Poster]

PANELS ORGANIZED

- 2014 Strachan S and **Brown RF**. Energy generation and management for remote mountain observation systems. Global Fair and Workshop on Long-Term Observatories of Mountain Social-Ecological Systems. University of Nevada Reno, Reno, Nevada. 16-19 July 2014.
- 2012 Henshaw D, Gries C, **Brown RF**, and Downing J. SensorNIS: Building a sensor network resource guide through community participation. Long Term Ecological Research All Scientists Meeting. Estes Park, Colorado. 10-13 September 2012.

DEPARTMENTAL SEMINARS

- 2017 **Brown RF** and Natvig DO. Sevilleta Wireless Telemetry Networks. UNM Sevilleta Field Station, Socorro. 5 June 2017.
- 2017 **Brown RF** and Collins SL. Effects of increased rainfall variability on grassland production. Sevilleta LTER Science Symposium. UNM Sevilleta Field Station, Socorro. 5 June 2017.
- 2015 **Brown RF**, Collins SL, White CS, and Sinsabaugh RL. Soil nitrogen availability following rainfall pulses in a desert grassland during the summer monsoon. Sevilleta LTER Ignite. University of New Mexico, Albuquerque. 9 June 2015.
- 2012 **Brown RF**. Remote Data Acquisition at Sevilleta LTER: Sensors, Dataloggers, and Wireless Telemetry Systems. Sevilleta LTER Research Experience for Undergraduates Program. UNM Sevilleta Field Station, Socorro. 28 June 2012.
- 2006 **Brown RF**. Unwiring Ecology: Sevilleta Wireless and Distributed Sensor Networks. Sevilleta LTER Research Experience for Undergraduates Program. UNM Sevilleta Field Station, Socorro. 19 June 2006.
- 2006 **Brown RF** and Natvig DO. Unwiring Ecological Research at the Sevilleta: Past, Present, and Future. Sevilleta LTER Research Symposium. Sevilleta National Wildlife Refuge, Socorro, New Mexico. 1 March 2006.

TEACHING EXPERIENCE

- 2016 – 2017 Graduate Teaching Assistant: *Genetics*, UNM Department of Biology. [Fall 2016, Spring 2017]
- 2016 Guest Lecturer: *Ecology and Evolution*, UNM Department of Biology. [Spring 2016]
- 2012 – now Co-instructor: *Methods in Environmental Data Acquisition*, UNM Sevilleta Field Station. [Summers 2012, 2013, 2015, 2018]

MENTORSHIP EXPERIENCE

- 2017 Thomas Thompson, Sevilleta Research Experience for Undergraduates (REU) Program. Project Title: *Changes of Chihuahuan Desert grassland community plant composition in response to variability of rainfall events.*

PROFESSIONAL SERVICE

- 2018 – now Associate Faculty Member: F1000Prime.
- 2018 – now Faculty Affiliate: Global Drylands Center at Arizona State University.
- 2017 – now Co-chair: Environmental Sensing Cluster at Federation of Earth Science Information Partners (ESIP).
- 2017 Poster Judge: UNM Department of Biology 26th Annual Research Days.
- 2016 Panelist in organized session: *Communicating effectively with legislators and other*

- political leaders*. Organization of Biological Field Stations Annual Meeting. Sitka Sound Science Center. Sitka, Alaska. 23 September 2016.
- 2016 Organized a tour of the UNM Sevilleta Field Station and the Sevilleta National Wildlife Refuge for NM Senator Tom Udall's senior legislative assistant. 2 May 2016.
- 2016 Congressional Visits Day. Washington, D.C. 27-28 April 2016.
- 2016 – now Associate Editor: *The Bulletin of the Ecological Society of America*.
- 2016 Grant Reviewer: UNM Graduate and Professional Student Association. [Spring 2016]
- 2015 – 2017 Grant Reviewer: UNM Department of Biology Graduate Student Association. [Fall 2015, 2016, 2017 & Spring 2016, 2017]
- 2012 Co-founder: Environmental Sensing Cluster at ESIP Federation.

PROFESSIONAL TRAINING

- 2017 Creating EML with R and using Pasta+ Web Services. Environmental Data Initiative, University of New Mexico, Albuquerque. 14-16 November 2017.
- 2017 Graduate Workshop on Environmental Data Analytics. National Center for Atmospheric Research (NCAR), Boulder, Colorado. 12-16 June 2017.
- 2015 Software Carpentry Workshop. University of New Mexico, Albuquerque. 11-12 May 2015.
- 2013 Software Tools and Strategies for Managing Sensor Networks Training Workshop. Long Term Ecological Research Network Office, University of New Mexico, Albuquerque. 23-26 April 2013.
- 2010 American Radio Relay League (ARRL) Teachers Institute on Wireless Technology TI-2: Basic Electronics. ARRL Headquarters, Newington, Connecticut. 2-5 August 2010.
- 2010 CR1000/LoggerNet 4.x Training Course. Campbell Scientific Inc., Logan, Utah. 1-4 Feb 2010.
- 2009 Cisco Networking Academy. Central New Mexico Community College, Albuquerque. August 2009 – May 2010.
- 2009 American Radio Relay League Teachers Institute on Wireless Technology TI-1. Parallax Inc., Rocklin, California. 15-18 June 2009.

PROFESSIONAL SKILLS

Unix, System Administration (*E-Mail, Web, Database, File, Backup, & DNS Servers, Security, Storage*), Operating Systems (*Solaris™, FreeBSD, Linux, MacOS, Windows*), TCP/IP Networking, Wireless Networks, Terrestrial & Aquatic Environmental Sensor Networks, Telemetry (*Wi-Fi, Cellular, Iridium Satellite*), Programming (*C, C++, CRBasic, HTML, SQL, PHP, R, Shell Scripting*), Campbell Scientific Dataloggers, Photovoltaic Systems, Electronics, Data Management, Data Analysis.

PROFESSIONAL MEMBERSHIPS

- 2016 – now American Association for the Advancement of Science (AAAS)
- 2014 – now Ecological Society of America (ESA)
- 2013 – now American Geophysical Union (AGU)

REFERENCES

- SCOTT L. COLLINS**, Distinguished Professor of Biology, University of New Mexico
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- DONALD O. NATVIG**, Professor of Biology, University of New Mexico
e-mail: dnatvig@unm.edu *phone:* +1-505-277-5977
- CRISTINA D. TAKACS-VESBACH**, Professor of Biology, University of New Mexico
e-mail: vesbach@unm.edu *phone:* +1-505-277-3418