

Curriculum Vitae - Kerry M. Byrne

Environmental Science and Management

California State Polytechnic University, Humboldt, Arcata, CA 95521

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EDUCATION

Ph.D., Ecology - *Colorado State University* 2007 – 2012
B.S., Environmental Biology and Management - *University of California, Davis* 2000 – 2004

PROFESSIONAL APPOINTMENTS

Associate Professor - Env. Science and Management, *Cal Poly Humboldt* 2022 – Pres
Assistant Professor - Env. Science and Management, *Cal Poly Humboldt* 2017 – 2022
Assistant Professor - Natural Sciences, *Oregon Institute of Technology* 2013 – 2017
Postdoctoral Research Fellow - Plant Sciences, *University of California, Davis* 2012 – 2013

LEAVE

Sabbatical leave: Aug 2023 – May 2024, Boise State University, funded by Western SARE sabbatical research grant

Maternity leave: Jan – May 2018, Jan – May 2020 (40 % reduction in university responsibilities for each leave)

HONORS AND AWARDS

President Alistair McCrone Promising Faculty Scholar Award, *Cal Poly Humboldt* 2019
Editor's Choice Award for publication in *Journal of Ecology*, Issue 6 2011

PUBLICATIONS

Undergraduate student^u; Graduate student^g

M. D. Smith, K. Wilkins, and Drought-Net (including **K.M. Byrne**). 2024. Extreme drought impacts have been underestimated in grasslands and shrublands globally. *Proceedings of the National Academy of Science* **121**: e2309881120.

Nunes, A. M.^g and **K. M. Byrne**. 2022. Drought and shrub cover differentially affect seed bank composition within two sagebrush steppe communities. *Journal of Arid Environments* **202**: 104752.

Kelly, S.^u, C. McKinney^u, and **K. M. Byrne**. 2022. Innovation in Restoration: Estimating Seed Counts Using a Photography App. *Ecological Restoration* **40**: 29-32.

Byrne, K. M. 2021. Technical Note: A Rapid Method to Estimate Root Production in Grasslands, Shrublands, and Forests. *Rangeland Ecology and Management* **76**: 74-77.

Wilcox, K. R., Z. Shi, L. A. Gherardi, N. P. Lemoine, S. E. Koerner, D. L. Hoover, E. Bork, **K. M. Byrne**, and others. 2017. Asymmetric responses of primary productivity to climate extremes: a synthesis of grassland precipitation manipulation experiments. *Global Change Biology* **23**: 4376 - 4385.

Byrne, K. M., P. B. Adler, and W. K. Lauenroth. 2017. Contrasting effects of precipitation manipulations on plant communities within the Great Plains, U.S.A. *Journal of Vegetation Science* **28**: 238-249.

- Adler, P. B., **K. Byrne**, and J. Leiker. 2013. Can the past predict the future? Experimental tests of historically-based population models. *Global Change Biology* **19**: 1793-1803.
- Robinson T. M. P., K. J. La Pierre, M. A. Vadeboncoeur, **K. M. Byrne**, M. L. Thomey, and S. E. Colby. 2013. Seasonal, not annual precipitation drives community productivity across ecosystems. *Oikos*, **122**: 727-738.
- Byrne, K. M.**, W. K. Lauenroth, and P. B. Adler. 2013. Contrasting effects of precipitation manipulations on production at two sites within the central grassland region, USA. *Ecosystems*, **16**, 1039-1051.
- Evans S. E., **K. M. Byrne**, W. K. Lauenroth, and I. C. Burke. 2011. Defining the limit to resistance in a drought-tolerant grassland: long-term severe drought significantly reduces the dominant species and increases ruderals. *Journal of Ecology*, **9**: 1500-1507.
- Byrne, K. M.**, W. K. Lauenroth, P. B. Adler, and C. M. Byrne^u. 2011. Estimating Aboveground Net Primary Production in Grasslands: a Comparison of Non-Destructive Methods. *Rangeland Ecology and Management* **64**: 9-12.
- Buhnerkempe, M., N. Burch, S. Hamilton, **K. M. Byrne**, E. Childers, K. A. Holfelder, L. McManus, M. I. Pyne, G. Schroeder, and P. F. Doherty, Jr. 2011. The utility of transient sensitivity for wildlife management and conservation: Bison as a case study. *Biological Conservation* **144**: 1808-1815
- Pyne, M. I., **K. M. Byrne**, P. F. Doherty, Jr., K. A. Holfelder, L. McManus, M. Buhnerkempe, N. Burch, E. Childers, S. Hamilton, G. Schroeder. 2010. Survival and Breeding Transitions for a Reintroduced Bison Population: a Multi-state Approach. *Journal of Wildlife Management* **74**: 1464-1471.
- Byrne, K. M.**, W. K. Lauenroth, and L. McManus. 2010. Non-native Plant Species Impacts on Production and Diversity in the Front Range of Colorado. *Western North American Naturalist* **70**: 288-295.

RECENT PRESENTATIONS

Undergraduate student^u; Graduate student^g

- Byrne, K.M.**, K. Walter^g, J. Scott^u, M. Sorrentino^g, Kylie Stear^u, and K. A. Hopping. 2024. Hidden beneath our feet: can the soil seed bank be used for restoration across a gradient of cheatgrass invasion in sheep-grazed sagebrush steppe (poster)? Society for Range Management Annual Meeting. Sparks, NV.
- Byrne, K.M.**, K. Walter^g, J. Scott^u, M. Sorrentino^g, Kylie Stear^u, and K. A. Hopping. 2023. Seeds underhoof: can the soil seed bank facilitate restoration of sheep-grazed, cheatgrass-invaded rangelands (poster)? West Central States Wool Growers Convention. Boise, ID.
- Bartley, J.^g, **K. M. Byrne**, and H. S. Zald. 2023. Physical characteristics and fine root density within duff mounds of old-growth sugar and Jeffrey pines in a fire-excluded Sierran mixed-conifer forest. Ecological Society of America. Portland, OR.
- Chavez, F.^g, A. M. Nunes, and **K. M. Byrne**. 2023. Hierarchical responses to drought and drought recovery in two sagebrush steppe plant communities (poster). Ecological Society of America. Portland, OR.
- K. M. Byrne**. 2023. Educational gains from game-based learning: utilizing the Kahoot! platform in the classroom (interactive presentation). Cal Poly Humboldt 4th Annual Teaching Excellence Symposium.
- Kelly, S.^u, C. McKinney^u, and **K. M. Byrne**. 2021. Innovation in Restoration: Estimating Seed Counts Using a Photography App. National Conference for Undergraduate Research. Virtual.

- Nunes, A. [§] and **K. M. Byrne**. 2021. Drought alters soil seed bank composition within a sagebrush community: decreasing native forb seeds and increasing invasive grass seeds. Society for Range Management Annual Meeting. Virtual.
- Stewart, S. ^u and **K. M. Byrne**. 2020. The Impact of invasion and removal of *Lupinus arboreus* on seedbanks in coastal sand dune environments (poster). Northern California Botanists Symposium. Chico, CA.
- Byrne, K. M.** 2019. Restoring a population of Applegate's milkvetch (*Astragalus applegatei*): lessons learned for conservation. Northern California Botanists Symposium. Chico, CA.

INVITED PUBLIC TALKS

- Beneath our feet: harnessing the power of the soil seed bank for restoration. Idaho Native Plant Society, Pahove Chapter. 2023
- Invasive species: what defines them and how can we manage them? Eel River Arundo Eradication Project Virtual Outreach Event. 2023
- Astounding *Astragalus* in Humboldt County and beyond. California Native Plant Society, North Coast Chapter. 2019

RECENT FUNDING¹²

Active

- Establishing drought resilient grassland restoration networks in California. UC Climate Action Seed Grant Proposal. \$1,501,716 (co-PI with J. Luong and four others) 2023 – 2025
- Predicting tree failure in Northwestern California. Pacific Gas & Electric, \$497,070 (co-PI with L. Kerhoulas and R. Sherriff) 2023 – 2026
- Seeds underhoof: can the soil seed bank facilitate restoration of sheep-grazed, cheatgrass-invaded rangelands? USDA Western SARE Sabbatical Grant. \$71,104 (co-PI with K. Hopping) 2023 – 2024
- Student opportunities to support native seed collection and habitat restoration in Northern California. Bureau of Land Management, California State Office. \$333,836 2022 – 2027
- Quantifying the effects of herbicide and targeted grazing on medusahead thatch and the soil seed bank over time. Bureau of Land Management, Lakeview Klamath Falls Office. \$23,000. 2022 – 2023 Year 1 & 2 Funding 2022 – 2026
- Applegate's milkvetch 2023 monitoring at Ewauna Flat Preserve. The Nature Conservancy, \$1,995 2023
- Lasting impacts: predicting the quality and quantity of livestock forage production in northeastern California after severe drought ends. California Agricultural Research Institute (ARI) Grants Program. \$49,349 2021 – 2023

Past

- Quantification and mitigation of large pine mortality after prescribed burning in a drought altered Sierra Nevada mixed-conifer forest, California USA. USDA McIntire-Stennis. \$75,000 (with H. Zald) 2020 – 2023

¹ I am PI unless otherwise noted.

² ~ indicates approximate total funding awarded for this ongoing project over multiple contracts.

Fungal community associated with Applegate's milkvetch: a microbial approach to plant restoration. U.S. Fish and Wildlife Service, Pacific Southwest Region. \$16,685 (co-PI with C. Gempeler)	2020 – 2022
Demographic monitoring of a rare southern Oregon endemic, <i>Astragalus applegatei</i> M. Peck. U.S. Fish and Wildlife Service, Pacific Southwest Region. ~\$142,100	2016 – 2022
Assessing the impacts of drought on the quality and quantity of livestock forage production in northeastern California. California Agricultural Research Institute (ARI) Grants Program. \$43,462	2018 – 2021
Experimental Restoration Method for Novel Nitrogen-Enriched Plant Communities at Lanphere Dunes, Arcata, CA. HSU Research, Scholarship, and Creative Activities Program (RSCA) AY 18-19. \$4,848	2018 – 2019
Drought and sagebrush: management implications. Bureau of Land Management, Lakeview Klamath Falls Office. \$75,000 (with K. Kaczynski)	2016 – 2021
Demographic monitoring of Applegate's milkvetch at Ewauna Flat Preserve, Klamath Falls, OR. Oregon Department of Agriculture. \$18,003	2017 – 2020
Multi-year inventory of <i>L. floccosa</i> ssp. <i>bellingermaniana</i> and its habitat. Bureau of Land Management, Lakeview Klamath Falls Office. \$10,238	2017

SYNERGISTIC ACTIVITIES

- Invited Member - Technical Working Group to Develop Protocol for ranchers to monitor rangeland soil Carbon, Point Blue Conservation Science, Petaluma, CA. 2021 - 2022
- Keynote Speaker and Session Organizer (Traditional Ecological Knowledge and Ethnobotany) for the 2022 Northern California Botanists Symposium (and Board Member, 2020 - present). 2022
- Completed 6 wk summer academy, "Humanizing online STEM courses," offered by the California Community Colleges Virtual Campus, to learn techniques to create a more equitable learning environment online. 2021
- Actively involve 28 undergraduate students in research resulting in presentations at professional meetings (3 undergraduates, including one non-traditional first-generation college student and two female students), two student first-author publications, and one student co-author. 2011 – pres
- Site participant, International Drought Experiment. 2016 – pres
- **Reviewer** - *Ecology, Ecosphere, Ecosystems, Ecological Restoration, Functional Ecology, Global Change Biology, Journal of Arid Environments, Journal of Ecology, Oecologia, Pedosphere, Perspectives in Plant Ecology, Evolution, and Systematics, PLOS One, Rangeland Ecology & Management, Restoration Ecology, Science of the Total Environment, Western North American Naturalist.* 2011 – Pres