Curriculum Vitae - Kerry M. Byrne

Environmental Science and Management
California State Polytechnic University, Humboldt, Arcata, CA 95521
707-826-4291 | Kerry.Byrne@humboldt.edu | http://kmbyrne.net

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]

18. Ohlert, T., M. D. Smith, and Drought-Net (including **K. M. Byrne**). Drought intensity and duration interact to magnify losses in primary productivity. *Science* 390: 284-289.
17. **K. M. Byrne***, J. C. Luong*, & K. M. Kaczynski. 2025 Divergent drought responses in two cold desert shrublands. *Ecosphere* 16(3): e70211.
    *co-first authors
16. Stewart S. M.[g] & **K. M. Byrne**. 2025. Is reinforcement a viable conservation strategy for the endangered perennial herb, *Astragalus applegatei*? *Restoration Ecology* 33: e14314.
15. Shi B., M. Delgado-Baquerizo, A. K. Knapp, M. D. Smith, S. C. Reed, B. Osborne, Y. Carrillo, F. T. Maestre, Y. Zhu, A. Chen, K. Wilkins, M. C. Holdrege, A. Kulmatiski, C. Picon-Cochard, C. Roscher, S. Power, **K. M. Byrne**, & others. 2024. Aridity drives the response of soil total and particulate organic carbon to drought in temperate grasslands and shrublands. *Science Advances* 10: eadq2654.
14. Smith M. D., K. Wilkins, & 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.
13. Nunes A. M.[g] & **K. M. Byrne**. 2022. Drought and shrub cover differentially affect seed bank composition within two sagebrush steppe communities. *Journal of Arid Environments* 202: 104752.

12. Kelly S.[u], C. McKinney[u], & **K. M. Byrne**. 2022. Innovation in Restoration: Estimating Seed Counts Using a Photography App. *Ecological Restoration* 40: 29-32.
11. **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.
10. Wilcox K. R., Z. Shi, L. A. Gherardi, N. P. Lemoine, S. E. Koerner, D. L. Hoover, E. Bork, **K. M. Byrne**, & others. 2017. Asymetric responses of primary productivity to climate extremes: a synthesis of grassland precipitation manipulation experiments. *Global Change Biology* 23: 4376 - 4385.
9. **Byrne K. M.**, P. B. Adler, & 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.
8. Adler P. B., **K. Byrne**, & J. Leiker. 2013. Can the past predict the future? Experimental tests of historically-based population models. *Global Change Biology* 19: 1793-1803.
7. Robinson T. M. P., K. J. La Pierre, M. A. Vadeboncoeur, **K. M. Byrne**, M. L. Thomey, & S. E. Colby. 2013. Seasonal, not annual precipitation drives community productivity across ecosystems. *Oikos*, 122: 727-738.
6. **Byrne K. M.**, W. K. Lauenroth, & P. B. Adler. 2013. Contrasting effects of precipitation manipulations on production at two sites within the central grassland region, USA. *Ecosystems*, 16: 1039-1051.
5. Evans S. E., **K. M. Byrne**, W. K. Lauenroth, & 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.
4. **Byrne K. M.**, W. K. Lauenroth, P. B. Adler, & 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.
3. Buhnerkempe M., N. Burch, S. Hamilton, **K. M. Byrne**, E. Childers, K. A. Holfelder, L. McManus, M. I. Pyne, G. Schroeder, & 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
2. 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.
1. **Byrne K. M.**, W. K. Lauenroth, & 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]

Invited Public Talks

2025 Beneath our feet: using the soil seed bank for restoration. California Native Plant Society, North Coast Chpt.
2023 Beneath our feet: harnessing the power of the soil seed bank for restoration. Idaho Native Plant Society, Pahove Chpt.
2023 Invasive species: what defines them and how can we manage them? Eel River Arundo Eradication Project Virtual Outreach Event.

2019 Astounding *Astragalus* in Humboldt County and beyond. California Native Plant Society, North Coast Chpt.
2017 Conservation of Applegate's milkvetch: one of Oregon's most imperiled plants. OR Native Plant Society, Siskiyou & Klamath Basin Chpts. Klamath Falls and Ashland, OR.

Invited Seminars
2024 Beneath our feet: using the soil seed bank for restoration. Chico State University, Chico, CA.
2024 Seeds underhoof: can the soil seed bank facilitate restoration of sheep-grazed, cheatgrass-invaded rangelands? Invited lightning talk at the Society for Range Management Annual Meeting, Sparks, NV.
2019 Ecology in the Anthropocene: Species, Communities, and Ecosystems. Humboldt State University, McCrone Promising Faculty Reception.
2019 Restoring a population of Applegate's milkvetch (*Astragalus applegatei*): lessons learned for conservation. Northern California Botanists Symposium. Chico, CA.

Oral Presentations
2025 **Byrne, K. M.**, K. Walter[g], and K. A. Hopping. Evaluating the potential of the soil seed bank as a nature-based restoration tool across a gradient of annual grass invasion. Society for Ecological Restoration. Denver, CO.
2023 Bartley, J.[g], **K. M. Byrne**, and H. S. Zald. 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.
2023 **K. M. Byrne**. Educational gains from game-based learning: utilizing the Kahoot! platform in the classroom. Cal Poly Humboldt 4th Annual Teaching Excellence Symposium.
2021 Kelly, S.[u], C. McKinney[u], and **K. M. Byrne**. Innovation in Restoration: Estimating Seed Counts Using a Photography App. National Conference for Undergraduate Research. Virtual.
2021 Nunes, A.[g] and **K. M. Byrne**. 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.

Poster presentations
2025 Chavez-Velasco, E.[g], **K. Byrne**, and others. How do traits and environment shape species-rich California Grasslands? Northern California Botanists Symposium. Chico, CA.
2025 Minicuci, L.[g], **K. Byrne**, and others. Quantifying Root trait Responses to Lethal Drought: Does Range Size Play a Role in Variability? Northern California Botanists Symposium. Chico, CA.
2024 Walter, K.[g], **K. Byrne**, and others. Evaluating the potential of the soil seed bank for natural regeneration of native species across a gradient of cheatgrass invasion. Ecological Society of America. Long Beach, CA.
2024 Sotingco, J.[g],C. Cuellar-Gempeler, and **K. Byrne**. Microbial association with *Astragalus applegatei* roots: arbuscular mycorrhizae fungi communities. Ecological Society of America. Long Beach, CA.
2024 Krause, A.[g], E. Chavez-Velasco[g], **K. Byrne**, and others. Characterizing and contextualizing drought survival strategies of CA coastal grassland species. Ecological Society of America. Long Beach, CA.

2024 **Byrne, K. M.**, K. Walter[g], J. Scott[u], M. Sorrentino[g], Kylie Stear[u], and K. A. Hopping. Hidden beneath our feet: can the soil seed bank be used for restoration across a gradient of cheatgrass invasion in sheep-grazed sagebrush steppe? Society for Range Management Annual Meeting. Sparks, NV.

2023 **Byrne, K. M.**, K. Walter[g], J. Scott[u], M. Sorrentino[g], Kylie Stear[u], and K. A. Hopping. Seeds underhoof: can the soil seed bank facilitate restoration of sheep-grazed, cheatgrass-invaded rangelands? West Central States Wool Growers Convention. Boise, ID.

2023 Chavez, F.[g], A. M. Nunes, and **K. M. Byrne**. Hierarchical responses to drought and drought recovery in two sagebrush steppe plant communities. Ecological Society of America. Portland, OR.

2020 Stewart, S.[u] and **K. M. Byrne**. The Impact of invasion and removal of *Lupinus arboreus* on seedbanks in coastal sand dune environments. Northern California Botanists Symposium. Chico, CA.

RECENT FUNDING[1,2]

Active

Assessing the impacts of extreme drought on forage quality and quantity in California rangelands. California State University Agricultural Research Institute (ARI) system grant. $430,200 (co-PI with R. Griffin-Nolan and 3 others) 2025 – 2028

Impacts of restoration on beneficial and pest insect communities in a California coastal prairie. California ARI campus grant. $51,779 (with M. Sheffer) 2025 – 2027

Ecosystem services for grazing and conservation across a restoration chronosequence in California coastal prairie. California ARI campus grant. $92,157 2024 – 2027

Refining management needs for Applegate's milkvetch (*Astragalus applegatei*) Years 1 - 2 of 3. Oregon Dept. of Agriculture. $69,070 (with C. Cuellar-Gempeler) 2024 – 2025

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

Student opportunities to support native seed collection and habitat restoration in Northern California. Bureau of Land Management, California State Office. $231,846 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. $33,000. 2022 – 2023 Year 1 - 3 Funding 2022 – 2026

Past

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

Applegate's milkvetch 2023 monitoring at Ewauna Flat Preserve. The Nature Conservancy, $1,995 2023

[1] I am PI unless otherwise noted.

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

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

Lasting impacts: predicting the quality and quantity of livestock forage production in northeastern California after severe drought ends. California ARI campus grant. $49,349 2021 – 2024

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, *Astragalus applegatei* 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 ARI campus grant. $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 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 *L. floccosa* ssp. *bellingeriana* and its habitat. Bureau of Land Management, Lakeview Klamath Falls Office. $10,238 2017

SYNERGISTIC ACTIVITIES

- Invited Member – California Native Seed Strategy for Ecological Restoration Northwest California Regional Working Group 2024 – pres
- California State University STEM-NET Faculty Fellow 2024 – 2026
- Technical Working Group to Develop Protocol for ranchers to monitor rangeland soil Carbon, Point Blue Conservation Science, Petaluma, CA 2021 – 2022
- Session Organizer for the Northern California Botanist Symposium (and Board Member, 2020 - present) 2022 and 2025
- 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 29 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 2017 – 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*, *Northwest Science*, *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