

KERRY M. BYRNE, PHD

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Environmental Science and Management
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PROFESSIONAL APPOINTMENTS

Associate Professor, Env. Science and Management, *Cal Poly Humboldt* 2022 – Pres
Assistant Professor, Env. Science and Management, *Cal Poly Humboldt* 2017 – 2022
Adjunct Professor, Forestry and Wildland Resources, *Cal Poly Humboldt* 2021 – Pres
Courtesy Research Associate, Soil and Crop Sciences, *Colorado State University* 2013 – Pres
Assistant Professor, Natural Sciences, *Oregon Institute of Technology* 2013 – 2017

EDUCATION

Ph.D., Ecology, *Colorado State University*. Advisor: Dr. William Lauenroth 2007 – 2012
B.S., Environmental Biology and Management, *University of California, Davis* 2000 – 2004

TEACHING EXPERIENCE (2017 – Present)

ESM 303. Applied Natural History and Ecology (lecture and lab) 2017 – Pres
RRS 360. Wildland Plant Communities (lecture and lab) 2022
ESM 455. Applied Ecological Restoration Capstone Course (lecture and lab) 2018, 2022
ESM 499. Undergraduate Research 2020, 2022
ESM 685. Graduate Seminar 2019 - Pres

PUBLICATIONS

Undergraduate student^u; Graduate student^g

Published, accepted, or in press

- 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.

PUBLICATIONS, Cont.

- 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.

In Review

- Wilkins, K., M.D. Smith, and Drought-Net (including **K.M. Byrne**). Productivity losses in grasslands are magnified if extreme drought thresholds are exceeded. In Review. *Science*.

COMPETITIVE GRANTS (2017 – Present)

Active Awards

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| Student opportunities to support native seed collection and habitat restoration in Northern California. Bureau of Land Management, California State Office. \$213,266 (PI) | 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. \$13,000 2022 Year 1 Funding (PI) | 2022 – 2026 |
| Continued monitoring of native and transplanted Applegate's milkvetch individuals across four populations. U.S. Fish and Wildlife Service, Pacific Southwest Region. \$17,865 (PI) | 2022 |
| 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 (PI, co-PI Harold Zald, USDA Forest Service) | 2020 – 2022 |
| 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 PI Catalina Gempeler) | 2020 – 2022 |

COMPETITIVE GRANTS, Cont.

Past Awards

Continued Milkvetch Monitoring. U.S. Fish and Wildlife Service, Pacific Southwest Region. \$15,900 (PI)	2020 – 2021
Demographic monitoring of a rare southern Oregon endemic, <i>Astragalus applegatei</i> M. Peck. U.S. Fish and Wildlife Service, Pacific Southwest Region. \$49,595 (PI)	2018 – 2021
Drought and sagebrush: management implications. Bureau of Land Management, Lakeview Klamath Falls Office. \$75,000 (co-PI Kristen Kaczynski, CSU Chico)	2016 – 2021
Demographic monitoring of Applegate's milkvetch at Ewauna Flat Preserve, Klamath Falls, OR. Oregon Department of Agriculture. \$18,003 (PI)	2017 – 2020
Multi-year inventory of <i>L. floccosa</i> ssp. <i>bellingneriana</i> and its habitat. Bureau of Land Management, Lakeview Klamath Falls Office. \$10,238 (PI)	2017
Demographic monitoring of a rare southern Oregon endemic, <i>Astragalus applegatei</i> M. Peck. U.S. Fish and Wildlife Service, Pacific Southwest Region. \$58,749 (PI)	2015 – 2017

INTERNAL FUNDING (2017 – Present)

Active Awards

Herbivory, folivory, and granivory in rare Fabaceae: Potential for limitation of population growth. HSU Research, Scholarship, and Creative Activities Program (RSCA) AY 21-22. \$5,000.	2021 - 2022
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. \$46,118 (PI)	2021 – 2023

Past Awards

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 (PI)	2018 – 2021
Student Research Employment. HSU Graduation Initiative (GI) 2025 Program AY 20-21. \$1,680	2020 – 2021
HSU Sponsored Programs Foundation Research Incentives Program. \$5,047 (2.5 WTU)	2020
Student Employment for Seed bank Germination Study. HSU Graduation Initiative (GI) 2025 Program AY 19-20. \$1,950	2020
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

FUNDING AWARDED TO STUDENT RESEARCHERS (2017 – Present)

Undergraduate student ^u ; Graduate student ^g	
Non-destructive age estimation for <i>Artemisia cana</i> and <i>Artemisia arbuscula</i> . Society for Ecological Restoration, Great Basin Chpt. \$826.50 (Francisco Chavez ^g)	2022
Non-destructive age estimation for <i>Artemisia cana</i> and <i>Artemisia arbuscula</i> . Native Plant Society of Oregon Field Research Grants Program. \$1,000 (Francisco Chavez ^g)	2022

FUNDING AWARDED TO STUDENT RESEARCHERS, Cont.

Western sagebrush steppe plant community recovery after severe drought. California State University Agricultural Research Institute – Hispanic Serving Institution Research Fellowship. \$6,400 (Francisco Chavez [§])	2021 – 2022
Phenology of <i>Eschscholzia californica</i> in a Common Garden Study. California State University Agricultural Research Institute - Hispanic Serving Institution Research Fellowship. \$6,400 (Sarah Aguiar ^u)	2021 – 2022
Effects of drought on biocrusts, soil, and plants in southeastern Oregon sagebrush-steppe. Native Plant Society of Oregon Field Research Grants Program. \$750 (Allison Nunes [§])	2020 – 2021
Seed bank germination study at Lanphere Dunes, Arcata, CA. Northern California Botanists Research Scholarship. \$1,000 (Sean Stewart ^u)	2019 – 2020

TECHNICAL REPORTS (2017 – Present)

- Stewart, S.[§], and **K.M. Byrne**. 2021. Continued Monitoring of Native and Transplanted Applegate's milkvetch individuals across four populations. Final grant report submitted to the US Fish and Wildlife Service in fulfillment of Agreement F20AC11404-00.
- Stewart, S.[§], and **K.M. Byrne**. 2021. Demographic Monitoring of a Rare Southern Oregon Endemic, *Astragalus applegatei* M. Peck. Final grant report submitted to the US Fish and Wildlife Service in fulfillment of Agreement F18AP00388.
- Byrne, K.M.** and S. Stewart[§]. 2020. Demographic Monitoring of Transplanted Individuals of Applegate's milkvetch at Ewauna Flat Preserve, Klamath Falls, Oregon. Final grant report submitted to Oregon Department of Agriculture in fulfillment of Agreement ODA-4022-IG.

INVITED TALKS AND SEMINARS (2017 – Present)

Astounding <i>Astragalus</i> in Humboldt County and beyond. California Native Plant Society, North Coast Chapter.	2019
Restoring a population of Applegate's milkvetch (<i>Astragalus applegatei</i>): lessons learned for conservation. Northern California Botanists Symposium.	2019
Conservation of Applegate's milkvetch: one of Oregon's most imperiled plants. Oregon Native Plant Society, Siskiyou and Klamath Basin Chapters.	2017
Restoration Ecology in the Anthropocene: plants, communities, and ecosystems. Humboldt State University, Environmental Science and Management.	2017

SELECT PRESENTATIONS (2017 – Present)

Undergraduate student ^u ; Graduate student [§]	
Kelly, S. ^u , C. McKinney ^u , and K.M. Byrne . Innovation in Restoration: Estimating Seed Counts Using a Photography App (oral presentation). National Conference for Undergraduate Research.	2021
Nunes, A. [§] and K.M. Byrne . Drought alters soil seed bank composition within a sagebrush community: decreasing native forb seeds and increasing invasive grass seeds (oral presentation). Society for Range Management Annual Meeting.	2021
Stewart, S. ^u and K.M. Byrne . The Impact of invasion and removal of <i>Lupinus arboreus</i> on seedbanks in coastal sand dune environments (poster). Northern California Botanists Symposium.	2020
Kaczynski, K.M., and K.M. Byrne . Predicting changes in California's diverse environments: introducing the ORIDE climate change experiment (poster). Northern California Botanists Symposium.	2017

AWARDS AND FELLOWSHIPS (2017 – Present)

President Alistair McCrone Promising Faculty Scholar Award, Humboldt State 2019

SERVICE

Professional

Board Member, Northern California Botanists 2020 – Pres
Technical Working Group on Rangeland Carbon Monitoring, Point Blue Conservation Science 2021 – 2022
Session Chair, Traditional Ecological Knowledge, Northern California Botanists Symposium 2021 – 2022
Subject matter reviewer, National Council on Undergraduate Research 2021 – 2022
Ad hoc 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 and Management*, *Restoration Ecology*, *Science of the Total Environment*, *Western North American Naturalist* 2011 – Pres

University

Sponsored Programs Foundation Board Member 2022 - Pres
Co-Chair, Academic Technology Advisory Committee 2022 - Pres
Research Technology Infrastructure Fellow 2022 - Pres
Faculty Search Committee, Rangeland Resource Science and Applied Fire Science positions 2021 – 2022
Member, CNRS STEM communities for transfer students working group 2021 – 2022
Faculty Search Committee, Temporary Rangeland Resource Science position 2021
Co-Chair, Advisory Committee on Sustainability 2019 – 2021
Member, Advisory Committee on Sustainability 2017 – 2022
Faculty Advisor, Environmental Science Honor Society, Pi Epsilon 2018 – Pres
Ad hoc reviewer, IdeaFest journal 2019 – Pres
Member, Agricultural Research Institute (ARI) Grant Review Committee 2019 – Pres

RESEARCH ADVISING AND MENTORING

Current Graduate Students (Masters): Julia Bartley, Francisco Chavez, Sean Stewart 2019 – Pres
Current Graduate Committees (Masters): Molly Cribari and Jonas Sotingco (Biology), Sean Flemming, and Arron Wilder (Natural Resources) 2017 – Pres
Completed Graduate Students (Masters): Allison Nunes 2021
Completed Graduate Committees (Masters): Joseph Saler and Ethan Reibosome (Biology), Melissa Collin (Natural Resources), Laura Kentnesse (Oregon State University) 2017 – Pres
Undergraduate Mentoring: 9 undergraduate students 2017 – Pres

PROFESSIONAL DEVELOPMENT (2017 – Present)

Workshops and Courses

National Science Foundation Long Term Ecological Research All Scientist Meeting	2022
Humanizing Online STEM Academy (6 weeks), California Education Learning Lab	2021
Spring 2021 Professional Development Days: Prepare to Teach, HSU Center for Teaching and Learning	2021
Pivot to Online Learning and Teaching, HSU Center for Teaching and Learning	2020
Course Design Institute, HSU Center for Teaching and Learning	2019 – 2020
Drought-Net Research Network PI Meeting and Workshop, Colorado State University	2019
Teaching and Learning tools workshop, HSU New Faculty Learning Community	2018
Creating better syllabi workshop, HSU New Faculty Learning Community	2018
Affordable Textbooks workshop, HSU sustainable learning solutions & HSU Library	2017
Sustainability and Climate Change. InTeGrate and Quantitative Undergraduate Biology Education Synthesis (QUBES) Faculty Mentoring Network participant	2017

Webinars and Seminars

The Science of a Diverse Community (a talk about stereotype threat), Dr. Claude Steele, California Education Learning Lab	2021
Digitally Enhanced Teaching: Writing Smarter Test Questions, HSU Center for Teaching and Learning (CTL)	2020
Creating an Engaging Discussion, HSU CTL	2020
Getting down to basics: examining language and understanding that support the creation of equitable and inclusive workspaces, HSU CTL	2018
Creating Civil Dialogue in the Classroom: Hate Speech v. Free Speech on College and University campuses, HSU Expanded New Faculty Learning Community	2017
How Students Learn and Instruction Strategies, HSU New Faculty Learning Community	2017

PROFESSIONAL SOCIETIES

California Botanical Society, California Native Plant Society, Ecological Society of America,
Northern California Botanists, Society for Range Management