MEET A GRASSLAND RESEARCHER **Roisin Deák** rmurphyd@calpoly.edu

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What is your study system?

I work for the U.S. Forest Service (USFS) Range Meadow Monitoring Program that for the last 20 years has monitored the changes in vegetation, soils, and hydrology of over 800 montane meadows ranging from San Diego up to the Oregon border. In this capacity, I have observed several meadows that have burned and were transformed from meager strips of weedy meadows surrounded by encroaching forest into veritable wetlands complete with kingfisher and cattail. I focus on meadows that have burned in wildfires to help understand the effects of fire on meadow vegetation ecology.

What are your primary research goals?

I hope that by examining long-term data from burned meadows, I can discern under what circumstances fire promotes the growth of obligate wetland species. I am particularly interested in obligate wetland species because they are an important source of graminoid diversity in California, support the resilience of watersheds, and can play an important role in carbon sequestration.

Who is your audience?

It is my hope that the results of this research can be applied practically by land management agencies such as the USFS, Bureau of Land Management, and National Park Service to refine decisions surrounding wildfires and the maintenance of meadow systems while building on our understanding of the influence of fire in various plant communities in California.

Who has inspired you, including your mentors?

I would not be here today without the inspiration and encouragement of many amazing folks along the way. Much of my drive has come from the joy of spending time in the field with people whom I admired; the beautiful landscapes and fascinating plants were almost secondary. First and foremost, I would like to thank Dave Weixelman who started the USFS Range Meadow Monitoring project and hired me. Dave created the platform from which I have been able to travel all over the state and observe so many different and unique places, and my research project in its current scope and form would not be possible without his efforts to start and expand the Regional Range Monitoring Program. My work as a graduate student also would not be possible without the immeasurable support of my advisors Dr. Nishi Rajakaruna and Dr. Nicole Molinari.

How has or will your research align with the mission of CNGA "to promote, preserve, and restore the diversity of California's native grasses and grassland ecosystems through education, advocacy, research, and stewardship"?

At the USFS, we rate the health of meadows according to the proportion of species that fall into each wetland indicator category, as maintained by the Army Corps of Engineers. The healthiest meadows are host to a majority of obligate wetland species, mostly graminoids. I hope that my research reveals mechanisms or patterns that promote robust meadow systems and the maintenance and expansion of native grasslands. Meadows are habitat for a large fraction of the California graminoid flora, and by studying ways to promote their existence, I hope to protect the species that comprise California grasslands.

Why do you love grasslands?

Apart from their obvious beauty, I am inspired by new research showing the capacity of meadows to function as effective carbon sinks. Additionally, the restoration of wet meadow habitats has been one of the most successful efforts to support endangered wetland birds and meadows, supporting more wildlife than any other habitat in the Sierra Nevada. I know that I am not alone in dreaming about what California grasslands were like prior to European settlement, with the writings of early naturalists like John Muir fueling the imagination. While most of California grasslands are now dominated by European annual grasses, wet meadows appear to have mostly resisted similar invasions and maintain a majority of native and often endemic flora. Gazing into a wet meadow is for me a ticket to the past.

Photo courtesy Matt Berry.