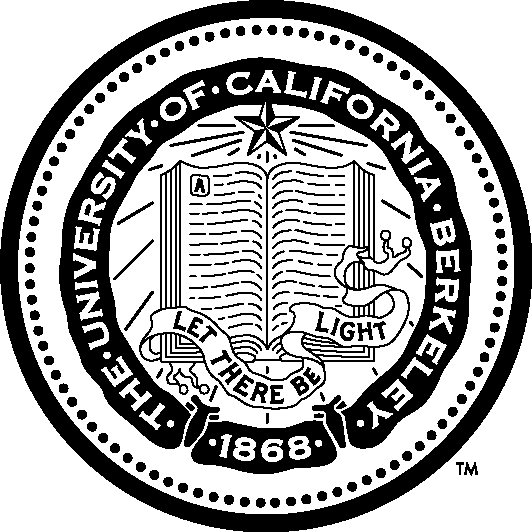
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Please find attached a paper entitled “**Site fidelity and behavioural plasticity regulate an ungulate’s response to cataclysmic disturbance,**” that we submit for consideration as an Article in *Ecosphere*, with our coauthors Alex McInturff, Kendall Calhoun, and Justin Brashares.

As the frequency and severity of extreme disturbance events increases worldwide, it is critical and urgent to understand how ecosystems and the species within them respond to these shocks. While many organisms are adapted to low-severity disturbance regimes, increased climate instability and associated extreme disturbance events are often outside of the range of historical variability. For animals, behavioral strategies in response to disturbance can mediate the consequences of such shocks for individual survival and populations. Fixed behavioral strategies like site fidelity may be maladaptive in the context of extreme disturbance, while behavioral plasticity may facilitate survival and population persistence. In this manuscript, we leveraged a unique natural experiment to study the behavioral responses of black-tailed deer to megafire in northern California.

In 2018, the Mendocino Complex Fire burned half of our study area, and was at the time the largest wildfire in California’s recorded history. Before the fire, we had deployed 18 GPS collars on deer and established a grid of 36 camera traps, in both burned and unburned areas. This natural experiment gave us unprecedented insights into the responses of animals to megafire. We found that site fidelity constrained responses of individual animals at the scale of the home range and was correlated with poorer body condition, while behavioral plasticity with regard to movement and habitat use within a home range likely facilitated animal survival in the wake of extreme disturbance. This study is a rare empirical contribution to a burgeoning literature on links between anthropogenic change, site fidelity-induced ecological traps, and outcomes for behavior and physiology.

We anticipate our paper will be of great interest to the readership of *Ecosphere*. No portion of this work has been submitted or published elsewhere. We have shared our code and data on Dryad privately for review, and will upload it publicly upon manuscript acceptance. Thank you for considering our contribution.

Sincerely yours,





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