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Volume 13

Washington University  
Undergraduate Research Digest

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Spring 2018

### The Effects of Prescribed Fire on Habitat Use by White-Tailed Deer

Hanna Peterman

*Washington University in St. Louis*

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#### Recommended Citation

Peterman, Hanna, "The Effects of Prescribed Fire on Habitat Use by White-Tailed Deer" (2018). *Volume 13*. 163.

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# THE EFFECTS OF PRESCRIBED FIRE ON HABITAT USE BY WHITE-TAILED DEER

*Hanna Peterman*

*Mentor: Solny Adalsteinsson*

White-tailed deer (*Odocoileus virginianus*) play a key role in local disease transmission as hosts for ticks and reservoirs of tick-borne pathogens. Prescribed fire is potentially an effective management tool to mitigate disease risk by reducing tick populations in oak-hickory forests. However, habitat changes resulting from fire may impact how wildlife species such as white-tailed deer use forested habitats, with greater implications for disease risk. We predicted that due to the increased vegetative growth (i.e., food availability) stimulated by fire, deer would show a preference for recently burned forest. Out of 16 paired 2-ha forested plots at the Tyson Research Center, eight plots were burned in March and April 2017. To investigate white-tailed deer's response to prescribed fire, we conducted fecal pellet counts to quantify relative deer use of burned and unburned forest plots. We marked and counted pellet groups along three 2-m by 120-m transects in each of the 16 plots (11,520 m<sup>2</sup> total), and repeated the sampling twice during Summer 2017. Contrary to our prediction, we observed a trend indicating greater usage of unburned plots relative to burned plots; however, the trend was not statistically significant ( $F_{2,29}=1.29, P=0.12$ ). Deer behavior and habitat use varies seasonally, so further data collection will continue in fall and winter months to fully characterize changes in habitat use following prescribed fire. Understanding how prescribed fire affects deer habitat use will inform management strategies aimed at reducing tick-borne disease risk.