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Data Article

Predicting forest floor and woody fuel consumption from prescribed burns in southern and western pine ecosystems of the United States



S.J. Prichard^{a,*}, M.C. Kennedy^b, C.S. Wright^c, J.B. Cronan^c,
R.D. Ottmar^c

^a School of Environmental and Forest Sciences, University of Washington, Seattle, WA, USA

^b Sciences and Mathematics Department, University of Washington, Tacoma, WA, USA

^c US Forest Service Pacific Northwest Research Station, Seattle, WA, USA

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ABSTRACT

We present pre-burn biomass and consumption data from 60 prescribed burns in the southeastern and western United States. The datasets include pre-burn biomass in Mg/ha by fuel category: herbaceous fuels, shrubs, 1-hr, 10-hr, 100-hr, 1000-hr, 10,000-hr, and > 10,000-hr downed wood, litter and duff. Pre-burn depth (cm) and reduction (cm) are provided for litter and duff layers. Day-of-burn fuel moistures and weather are also listed by site.

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Specifications table

Subject area	<i>Forest Ecology</i>
More specific subject area	<i>Fire and fuels management</i>
Type of data	<i>Tables (csv format)</i>

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* Corresponding author.

E-mail address: sprich@uw.edu (S.J. Prichard).

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How data was acquired	<i>Field and laboratory measurements</i>
Data format	<i>Summarized by site</i>
Experimental factors	<i>n/a</i>
Experimental features	In both regions, surface fires were burned within prescription windows detailed in site-specific burn plans. Fuel consumption was measured as the difference between sampled pre- and post-burn biomass
Data source location	<i>Southern sites: Florida (Eglin Air Force Base, Apalachicola National Forest, Saint Marks National Wildlife Refuge, and Pumpkin Hill Creek Preserve State Park) and South Carolina (Greenwood Preserve). Western sites: Arizona (San Carlos Apache Indian Reservation, Coconino and Tonto National Forests), Idaho (Wallowa-Whitman National Forest), Montana (Lubrecht Experimental Forest), Oregon (Crater Lake National Park, Deschutes, Malheur and Ochoco National Forests) and Washington (North Cascades National Park, Okanogan-Wenatchee and Umatilla National Forests).</i>
Data accessibility	<i>Data are available within this article and will also be made available on the Forest Service Research Data Archive.</i>
Related research article	<i>Prichard, S.J., Kennedy, M.C., Wright, C.S., Cronan, J.B. and Ottmar, R.D., In press. Predicting forest floor and woody fuel consumption from prescribed burns in southern and western pine ecosystems of the United States. Forest Ecology and Management.</i>

Value of the data

- Reliable estimates of biomass and fuel consumption by fuel category (e.g., shrub, herb, downed wood by time lag class, litter and duff) are important to identify sources of smoke production. These data may be used in developing effective smoke reduction techniques and prescribed burn windows for wildland fire management.
 - Site-specific pre-burn biomass and consumption data can be used in the development and testing of future fuel consumption models to be used for wildland fire planning.
 - Data can also be used to validate biomass and carbon maps for the region.
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1. Data

Predictive models are presented in a companion, full-length research article [1]. This article presents the source data from 60 prescribed burns in southeastern pine forests and 60 prescribed burns in western ponderosa pine-Douglas fir forests. Table 1 lists variables collected in this study and their definitions. Tables 2 and 3 present preburn and consumption values summarized by individual burn unit (hereafter referred to as sites). Table 4 lists comparison data compiled from published fuel consumption studies in the southern [2–6] and western [7–15] regions. Many of the western site comparison data were from broadcast burning of logging slash but fell within the distributions of unmanaged forests.

2. Experimental design, materials and methods

Fuel consumption during prescribed fires in southern pine forests were sampled during several field campaigns (Table 2) including 18 sites at Eglin Air Force Base in northwest Florida, 32 sites across northern Florida and in southern Georgia [16], and 10 additional sites in northern Florida [17]. Dominant overstory trees included longleaf pine (*Pinus palustris* Mill.), slash pine (*P. elliottii* Engelm.),

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