



Prescribed Fire

Big Hole National Battlefield

A firefighter uses a "drip torch" to ignite the 13-acre block of land on the Battlefield's Howitzer Hill in September, 2014. This was the first of four planned stewardship burns that will enhance the cultural and natural integrity of the Battlefield.

Fire as a Stewardship Tool for Cultural and Natural Resources

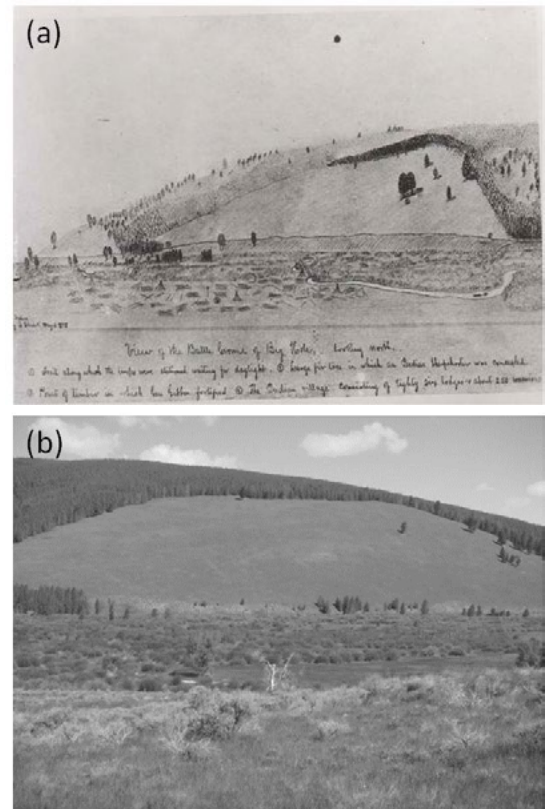
In 2014 the first of four planned small-acreage prescribed fires was completed on Big Hole National Battlefield's Howitzer Hill. The site's burn plan seeks to sequentially burn individual "blocks" of land on the Howitzer Hill and the adjacent Horse Pasture slope to maintain the open look and feel of the steppe vegetation similar to conditions at the time of the 1877 battle. The burns will also promote long-term persistence of the rare Lemhi penstemon population which thrives on the hillslopes but needs periodic burning to prevent encroachment and crowding out by the upslope lodgepole pine forest. Burning the resource area in small blocks demonstrates the precautionary principle and adaptive management, creating opportunities between each burn for adaptive feedback and real-time adjustments to timing, techniques, and other decisions. A wealth of information from ongoing monitoring, which began in 2009 and is conducted annually, describes how Lemhi penstemon, the threatening invasive spotted knapweed, and the site's overall steppe vegetation responds to these prescribed fires.

The Success of 2014's Prescribed Burn

After monitoring conditions of the Howitzer Hill's burned portion as compared to the unburned areas, it is clear that the objectives to 1) prevent encroachment by lodgepole pine, 2) to benefit the Lemhi penstemon population, and 3) slow spread of the invasive spotted knapweed population, have been achieved. Also, notably, the steppe vegetation has returned to pre-burn conditions. However, it is important to recognize that the success of this first attempt to use fire is conditional on several other factors including the 2015 drought conditions that occurred in southwestern Montana; these conditions could have dampened spotted knapweed response and added to some of the elevated post-burn Lemhi penstemon mortality recorded by UCBN staff. It must also be noted that park staff have redoubled efforts to control spotted knapweed with herbicides. It is premature to conclude that prescribed fire is a safe and effective stewardship tool at BIHO. A second carefully-monitored prescribed burn, in a different hillslope burn block, will add considerably to our understanding of if, how, and when prescribed fire will be used in the future as a resource stewardship tool.

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Today, the battlefield closely resembles the conditions as they were at the time of the battle. Panel A is a sketch of the Horse Pasture drawn by Granville Stewart in 1878, one year after the battle (courtesy Montana Historical Society Collection, X1968.43.17). Panel B is a contemporary photograph of the Horse Pasture. Prescribed fire is one important tool available to Battlefield managers to prevent encroachment by upslope lodgepole pine. A careful application of fire, done in an adaptive management framework with ample time for feedback, learning, and adjustment, is an exemplary demonstration of cultural landscape stewardship.

