Vegetation responses to stand-replacing fires in 2000 vs. 1988 in lodgepole pine forests of the Greater Yellowstone Ecosystem.

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Stand-replacing fires burned in lodgepole pine forests (*Pinus contorta* var. *latifolia*) near Yellowstone National Park, in August 2000. Although not as extensive as the 1988 fires, the 2000 fires created a spatial mosaic of variable fire severity, similar to 1988. We compared post-fire vegetation responses in the 2000 burns with patterns previously documented after the 1988 fires, by annually sampling ten 0.25-ha stands distributed between two contrasting sites and representing both crown and severe surface fire behavior. Relative patterns after 2000 were mostly similar to those after 1988. Pine seedlings established primarily in the first 2 years post-fire; densities were > 3X greater in stands of severe surface fire than in stands of crown fire, and up to 10X greater in the site with higher cone serotiny (30% vs 5% serotinous trees). Total biotic cover was uniformly low in year 1 (< 5%) but increased to 23-44% by year three, and was consistently higher (but slightly so) in stands of severe surface burn than in stands of crown fire. Species richness also was slightly greater in stands of severe surface burn, and richness increased only slightly after year 1. The greatest difference after 2000 vs. 1988 was in absolute densities of pine seedlings, which were an order of magnitude lower after the 2000 fires than after the 1988 fires. The reason may be drier conditions after 2000. Moisture in the first winter after 2000 was only half that after 1988, and mean winter moisture in the first three years after 2000 was only 85% of that after 1988.