

# HIGHLIGHTS

## A cultural icon surrounded by a natural treasure: Old-growth forest at Mount Rushmore

The Black Hills of western South Dakota and southeastern Wyoming are an island in the prairie, a metaphor fitting not only for their geological and topographical differences from the surrounding plains, but also for their differences in flora and fauna. Most notably, the Black Hills, or Paha Sapa (“hills that are black”) as the Lakota called them, are named for the dark appearance they have when viewed from a distance—a darkness caused by the ponderosa pine (*Pinus ponderosa*) forest that blankets the hills (fig. 1). Although ponderosa pine, as a species and as a forest type, occurs across a large part of western North America, the combination of species and natural processes in ponderosa pine forests of the Black Hills makes it a unique ecosystem.

Mount Rushmore National Memorial is a small portion—1,278 acres (517 ha)—of the 3.8 million acres (1.5 million ha) that comprise the Black Hills. However, because it has been protected from logging since the late 1930s, a popular “legend” perpetuated by park staff is that the memorial houses one of the largest areas of old-growth forest remaining in the Black Hills. By contrast, the majority of the Black Hills forest has been heavily logged. To determine the validity of this legend and to understand the role of the memorial’s forest in the Black Hills ecosystem as a whole, we determined the extent and location of unlogged and old-growth forest stands in the memorial using historical documents and field investigations.

Our results suggest that approximately 29% of the memorial has had no tree harvesting activity, and 18% has had only selective cutting of larger trees. When defined according to the only published description of old-growth Black Hills ponderosa pine forest, 901 acres



Figure 1. Old-growth ponderosa pine forest is a natural treasure at Mount Rushmore. NPS

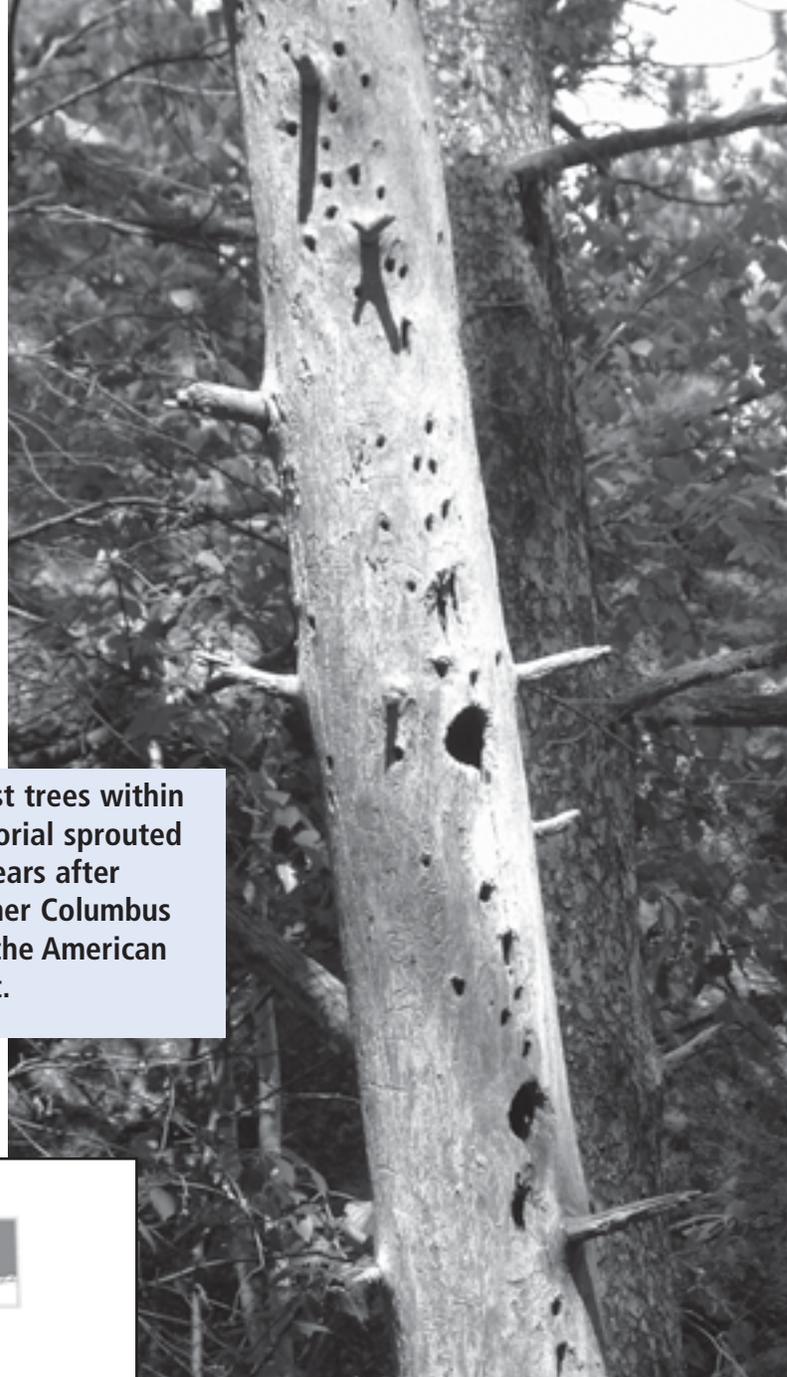


(365 ha) of old-growth ponderosa pine forest occur in the memorial; this is 71% of the memorial's area (fig. 2). Based on current estimates of similar forest in the rest of the Black Hills, Mount Rushmore National Memorial contains the second-largest area of old-growth Black Hills ponderosa pine forest. This work not only substantiates a park legend, but also highlights the significant contribution of the memorial's forest to the Black Hills ecosystem: it provides important habitat for cavity-nesting birds (fig. 3) and other species that depend upon mature forest—a rare occurrence elsewhere in the Black Hills.

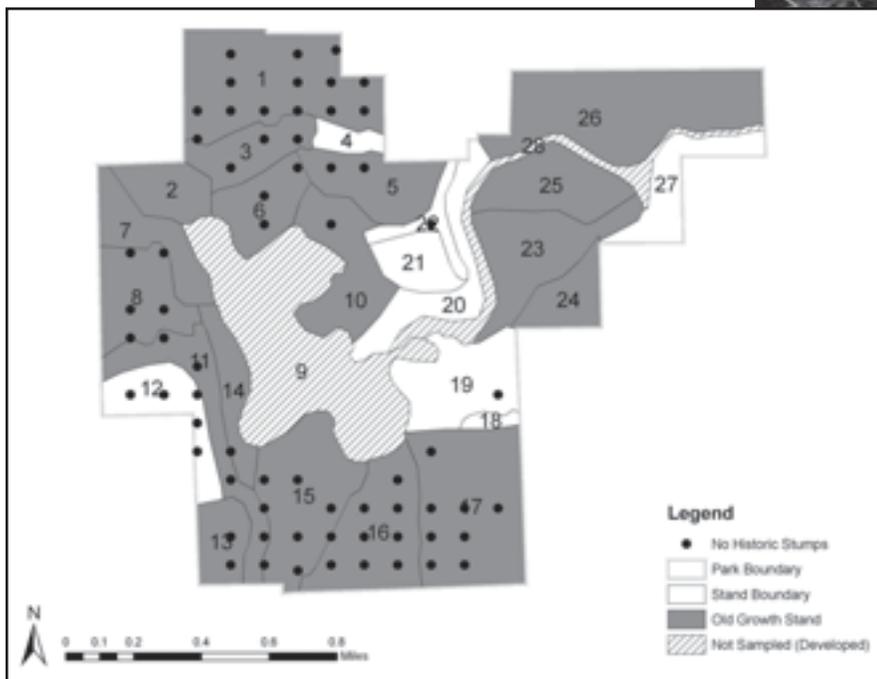
Even in areas that have not had logging, the memorial's forest is not pristine, however. More than a century of fire suppression has increased the density of live and dead trees beyond that of presettlement times. These increased densities put the forest in danger of fires that are likely to be more intense than those that drove ecosystem evolution. Ongoing research will provide a clearer picture of management and restoration targets to reduce this danger.

The results of this study add a new dimension to a "Shrine of Democracy"—a cultural treasure that commemorates the growth of the United States. To put things into perspective, the oldest trees within the memorial sprouted just 27 years after Christopher Columbus reached the American continent. These trees have seen immense change in the peoples and uses of the forest. The forest itself is a memorial to a unique ecosystem and these changes.

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**Figure 3. Large holes in this snag provide habitat for cavity-nesting birds like the red-breasted nuthatch. The small holes are evidence of birds searching for insects in the wood.** NPS/MICHAEL BYNUM



**Figure 2. Shaded areas in the map of Mount Rushmore National Memorial are stands of trees that meet the description of old-growth forest. Black circles identify points with no old stumps, that is, areas presumably without logging.** NPS/JOEL BRUMM

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