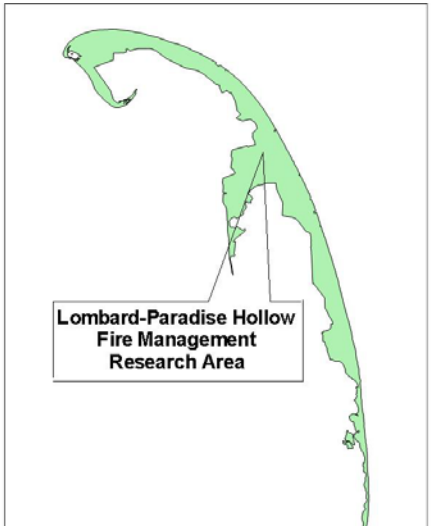
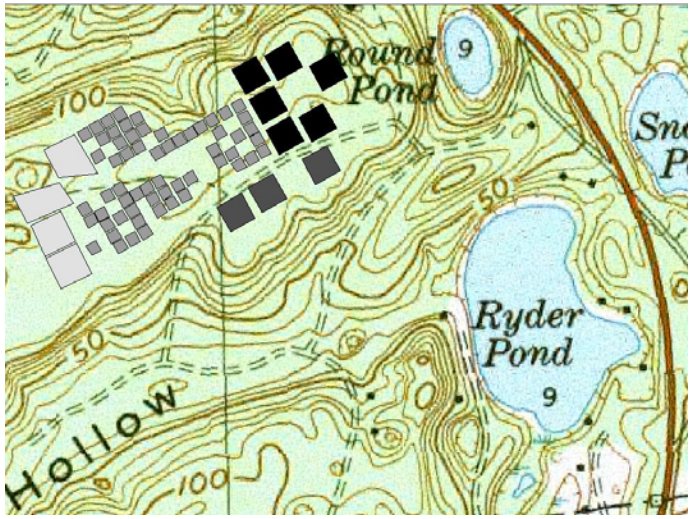


Location: Cape Cod National Seashore, Massachusetts, USA



Site: The Lombard-Paradise Hollow Fire Management Research Area is located in South Truro west of Round Pond and Rt. 6, between Paradise Hollow to the south and Lombard Hollow to the north.

Front Cover:

Brush cutting (top) followed by burning (below) reduces the vigor of shrub understory species ,reduces litter (fuel) , limits the spread of surface fire, and reduces the risk of crown fires in pine stands.

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Lombard-Paradise Hollow Fire Management Research Area

Cape Cod National Seashore

Lombard-Paradise Hollow Fire Management Research Area **is approximately 30 acres in size. Located west of Rt. 6 in South Truro on the Wellfleet glacial outwash plain, the research area is on top of a plateau (elevation 100-110 feet above sea level) between Paradise Hollow to the south and Lombard Hollow to the north.**

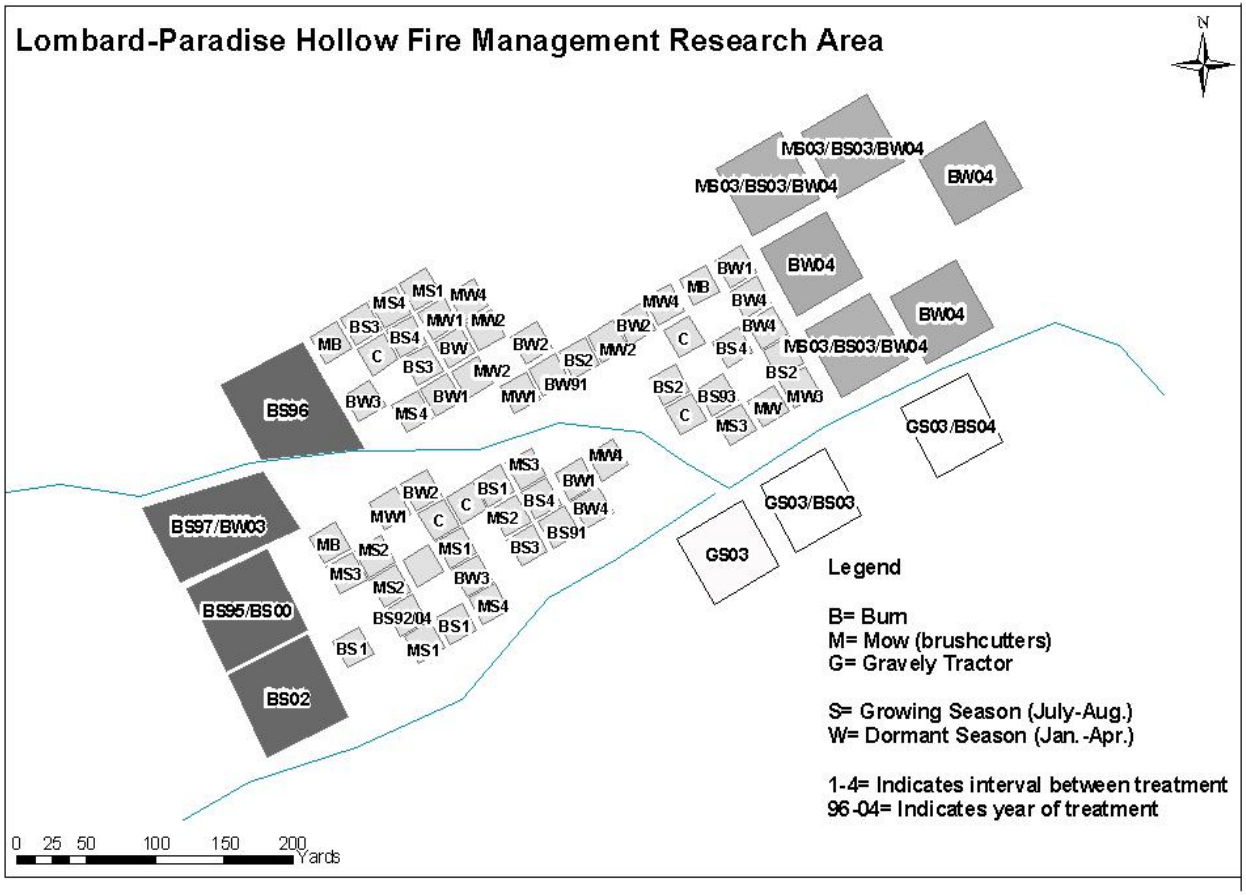
Pine-Oak woodlands of the Lombard-Paradise Hollow Fire Management Research Area consist of vegetation that is adapted to periodic fire. The dominant canopy species are pitch pine (Pinus rigida) and white oak (Quercus alba), with black oak (Quercus velutina) and scrub oak (Quercus ilicifolia) being present as well. Ground cover is dominated by upland ericaceous shrubs including huckleberry (Gaylusaccia baccata), blueberries (Vaccinium spp.), and wintergreen (Gaultheria procumbens).

Before the land was acquired by the National Park Service in 1960, it had been logged and grazed but not cultivated. Over the last 100 years the forest has experienced chronic gypsy moth defoliation and wildfire, with the last one burning in the 1930's.

In 1986, the National Park Service in cooperation with the University of Massachusetts/Amherst initiated applied research on the effectiveness of varying season and frequency of treatments on forest composition, fuel loading, and fire behavior on 60, 0.1 acre plots. We have treated ericaceous shrub understories either by brush cutting or prescribed fire in either the dormant or growing season. All treatments are replicated three times, with treatments applied at 1-, 2-, 3- or 4-year intervals. Sixty 0.1 acre plots are a part of this initial study.

In 1995 we began burning larger plots (approximately 1-acre). These plots have been burned primarily in the summer and we have hotter fires with effects that are more readily observed than on the smaller plots.

In 2003 we established nine additional 0.5-acre plots, six of which were first mowed with brush cutters or gravely tractors in early July and then burned in early August. Three control and three brush cut plots were reburned to evaluate effects of the treatments on fire behavior in May, 2004.



The site contains sixty, 0.1 acre; four, 1.0 acre; and nine, 0.5 acre plots.

Results indicate that burning during the spring and summer reduces fuel loads. Burning at 3-4 year intervals is the most cost efficient way to prevent catastrophic wildfires. Both mowing and burning in the dormant season increase huckleberry and blueberry abundance. Summer burns when it is very dry consume duff layers and kill most shrubs. Pine seedling establishment is then favored. Annual summer brush-cutting eliminates shrubs and reduces the amount and depth of the fuel. Combinations of first mowing and then burning, when applied in the summer, is an effective method of quickly reducing fuel loads and fire hazard.