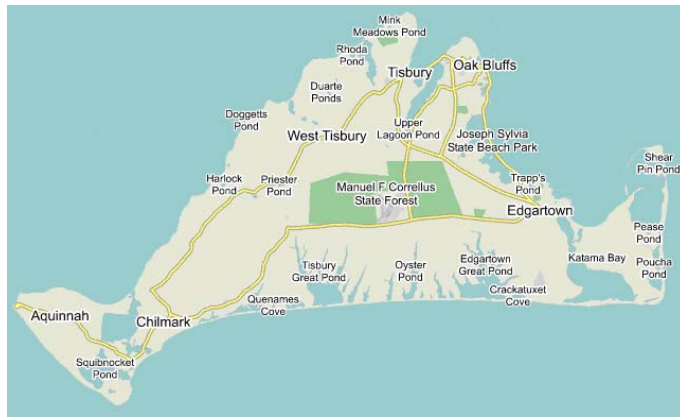


M.F. Correllus State Forest

Front Cover:

Untreated stands (top) have dense pine overstories and flammable shrub understories that historically have supported catastrophic wildfires. Treatments (bottom) including thinning of pine, mowing, and prescribed fire.



Location: M.F. Correllus State Forest, Massachusetts, USA
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Figure 1: Treating fuels with a mechanical bullhog (top), sheep (middle), and/or prescribed fire (bottom) reduces hazard of wildfire and improves habitat for rare plant and animal species.

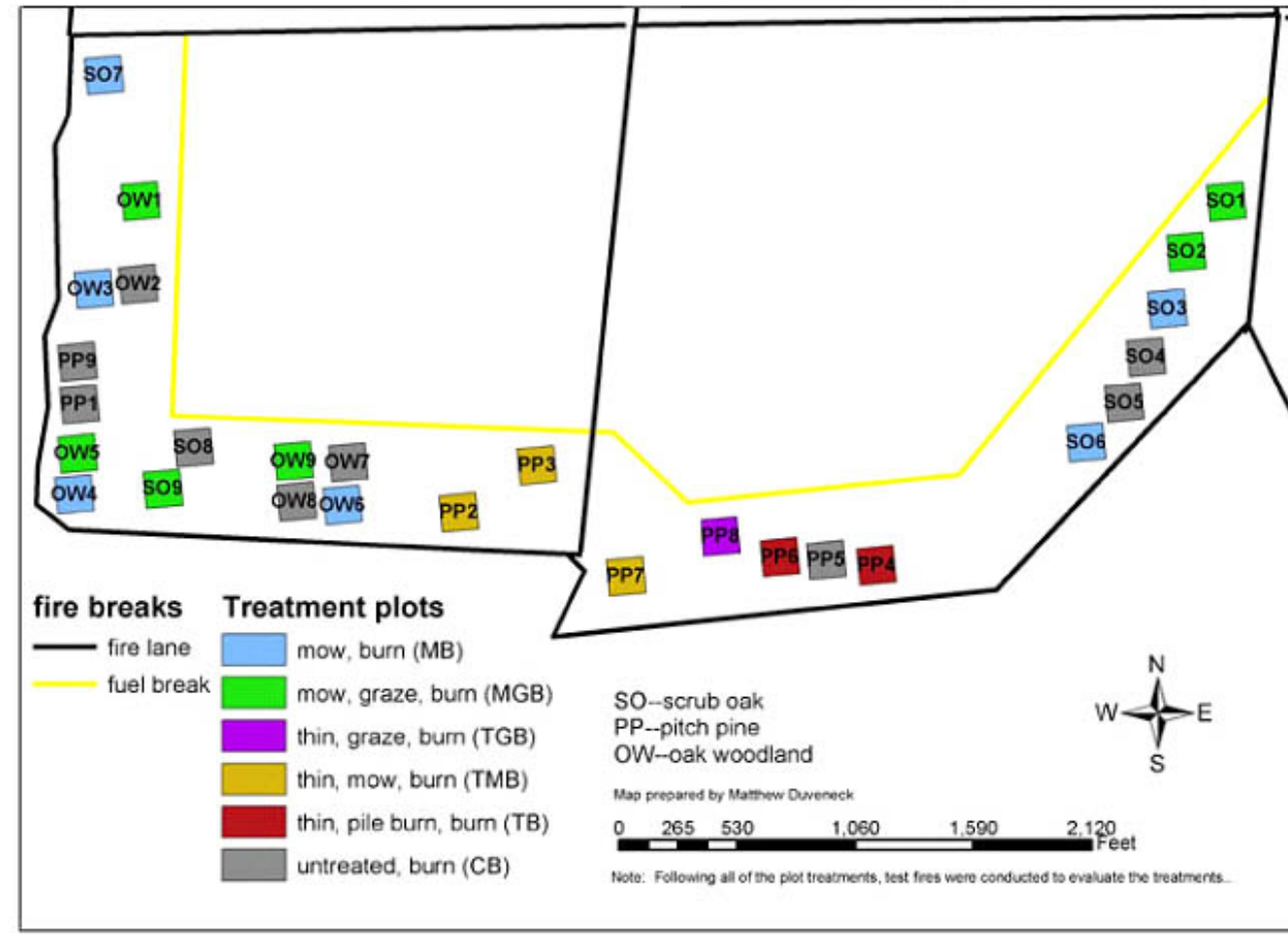


JFSP Plots at MFCFS on Martha's Vineyard

In 2003, the Massachusetts Department of Conservation and Recreation (DCR) in cooperation with the University of Massachusetts/Amherst initiated research to evaluate the effectiveness of various fuel treatments on the 5,200 acre Manuel F. Correllus State Forest. The State Forest is located in the middle of Martha's Vineyard, on a sand and gravel glacial outwash plain. These coarse soils retain little water and create droughty conditions that support flammable ericaceous plant species and facilitate the ignition and spread of fires. Topographic variation of the forest is low, although gullies (bottoms) containing highly flammable vegetation increase the potential for severe fire behavior. The lack of topographic variation across the landscape allows high winds to drive flames through broad expanses of the shrubby vegetation.

The vegetation on the State Forest is comprised of plants that are well adapted to sandy soils and periodic fire. The dominant canopy species are pitch pine (*Pinus rigida*), white oak (*Quercus alba*), black oak (*Quercus velutina*), and scrub oak (*Quercus ilicifolia*). Ground cover is dominated by upland ericaceous shrubs including huckleberry (*Gaylussacia baccata*), blueberries (*Vaccinium* spp.), and wintergreen (*Gaultheria procumbens*). Both the understory and overstory vegetation provide crucial habitat for numerous rare plant and insect species.

The purpose of the research was to evaluate the effectiveness of fuel-break construction techniques in reducing fire spread and to assess the impacts of the techniques on rare plant and insect species. Treatment techniques included thinning pitch pine overstories, grinding/mowing of shrub understories, and grazing by sheep. With funding from DCR, twenty-seven 0.5-acre plots were established in scrub oak, pitch pine, and oak woodland vegetation. These plots are contained within a larger 80-acre area that has been developed as a 500-foot-wide fuel break adjacent to roads and residences near the southwest corner of the forest. Pre- and post-treatment sampling documented rare species abundance and the effects of treatments on fuel loads. All twenty-seven plots were burned to evaluate effects of the treatments on fire behavior in April/May 2004. The results of this research project are being used to guide fuel management and rare species habitat projects on the State Forest.



The site in the southwest corner of the Forest contains twenty-seven, 0.5 acre plots.

Results indicate that the combination of thinning, grazing, or mowing/grinding with prescribed fire reduces the potential for catastrophic wildland fire. Grinding followed by sheep grazing virtually precludes the need or opportunity for the use of prescribed fire for up to two years. The thinning of pitch pine stands dramatically reduces the risk of crown fire by increasing the wind speed at which crowning might be expected to occur from 20 to 60 mph. The most cost effective way to reduce the risk of catastrophic wildland fire is a combination of thinning stands, mowing understory vegetation, and prescribed fire.