

Fire Management Data Gathered

by Dean Simon

Canaveral National Seashore (NS) has long been troubled by lightning-caused wildfires. Though these fires are considered part of the natural fire regime, suppression activities (both intentional and non-intentional) have led to heavy accumulations of fuels.

Currently, the U.S. Fish and Wildlife Service (USFWS) and the National Park Service are cooperating to extinguish wildfires throughout government properties at Canaveral including Merritt Island National Wildlife Refuge and NASA's Kennedy Space Center, but as both agencies have recognized, suppression alone will only intensify present fire management problems.

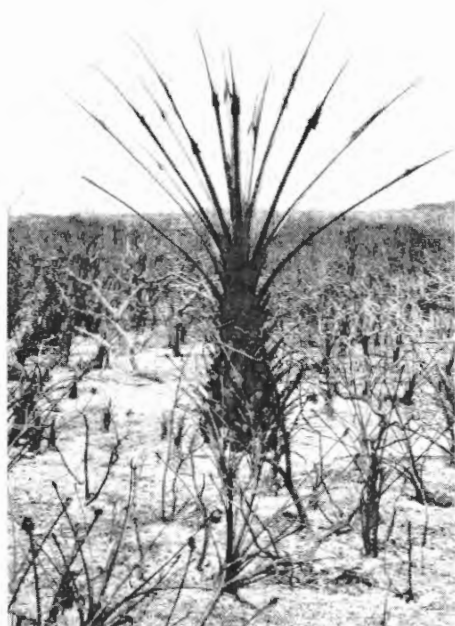
Since 1981, the USFWS has used prescribed burning to reduce heavy fuel accumulations in lands adjoining the seashore. Very little information has been gathered on fuel dynamics, however, and the impacts of present prescribed burning rotations are poorly documented. Hazardous fuel situations still exist within the park.

In Spring, 1983, the NPS Cooperative Wildlife Research Unit at the University of Georgia began working with the Canaveral staff to document fire effects on birds, plants, soils, and fuels in the important fire-adapted habitats of the National Seashore. Major objectives of the study are: 1) to determine how post-fire plant recovery correlates to resident bird species composition; 2) to determine how post-fire plant recovery correlates to soil nutrient levels; 3) to gather baseline data on fire behavior; 4) to develop a fuels model for use in a prescribed burning program at the Seashore, and 5) to provide a basis for long term monitoring. Since there is a lack of pre-burn data from areas where lightning-caused fires have occurred, it was desirable to plan three controlled research burns between May and October, the primary lightning-caused fire season.

Study sites were established in each of the three main fire-adapted community types at Canaveral NS: the coastal strand, the slash pine (*Pinus elliotii* variety *densa*) flatwoods, and the oak scrub. The size of the coastal strand and slash pine flatwoods study sites are about 60 ha and 80 ha respectively, and each was divided into a "burn" and "non-burn" half. The oak scrub study site was chosen primarily because of the presence of an immature Australian pine (*Casuarina equisetifolia*) stand. Australian pine is an undesirable exotic that is difficult to eradicate. The stand was cut down in 1979 and in its rejuvenating stage covers approximately 0.5 ha of the surrounding 4 ha oak scrub study site.

Pre-burn sampling of vegetation, soils, and fuels was conducted during the month of August. Twenty-two permanent 15m transects were established over the three study sites on which percent cover per plant species was measured and recorded. Close to each transect, a lysimeter was placed to measure for soil water nutrient content. Also, a pair of soil samples was collected near each transect. Fuels were measured by biomass collection and separation into various size classes for live and dead-standing and litter.

In preparing for the burns, an effort was made to utilize existing natural and man-made fire breaks, including roads, canals, and trails, some of which were widened to improve the margin of safety. The USFWS



The once thickly accumulated fuels of the coastal strand are quickly reduced after the passage of fire.

assisted by using a small bulldozer to roll over vegetation and push it aside along an old trail, widening the break while causing as little disturbance as possible to the soil surface.

National Seashore staff conducted two burns in September: one on the oak scrub study site and one on the coastal strand study site. Weather conditions were not conducive to safely burn the slash pine flatwoods, so the third fire was delayed until next season.

Though weather conditions were nearly identical on the two days of burning, fire behavior varied greatly, primarily because of the great variation in community structure between the two study sites. Due to the consistent nature of its saw palmetto cover, the coastal strand burned much more quickly and cleanly than the oak scrub. Immediate post-fire observation on the oak scrub revealed that the young Australian pine stand was not affected significantly by the burning.

Post-fire data collection for vegetation, fuels, and soils began immediately following the burns and will proceed at two month intervals for the next year. Timed bird species diversity counts will be made in mid-winter, early summer, and late summer, along with measurements of saw palmetto fruit production, an important wildlife food.

All data yielded from this study and from continued monitoring of the study sites will be incorporated into the development of a fuels model and prescribed burning program for Canaveral. Eventually, the study will reduce dependence upon extrapolations of data from outside studies. The ultimate goal of the project is to help Canaveral develop a fire management plan that allows fire adapted communities to burn, while reducing safety hazards and maintaining natural disturbance regimes in native ecosystems.

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