

# **USE OF FIRE TO MANAGE WILDLIFE HABITAT: A CASE STUDY ON THE BABCOCK/WEBB WMA**

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The Babcock/Webb Wildlife Management Area (BWWMA) is a 65,775-acre wildlife management area located in Charlotte County, Florida. The area also encompasses a separate area located in southern Charlotte and northern Lee Counties designated as the Charlotte Harbor Flatwoods under the CARL program, but named the Yucca Pens Unit within the management area system. The Yucca Pens currently encompasses approximately 14,500 acres. Both areas are comprised primarily of south Florida pine flatwoods habitat. Cost estimates for the prescribed burning project are approximately \$1.30/acre.

## **WILDLIFE SPECIES**

The BWWMA is one of the few areas in which there is a managed species on the area. The managed species on the area is the bobwhite quail. Several other species are managed on the area including white-tailed deer, hogs, and red-cockaded woodpeckers. Although these species appear to be quite different in their requirements, our information indicates they all benefit from frequent fire and in some species, such as red-cockaded woodpeckers, it is required. The Yucca Pens is managed for all of the above species with no emphasis given to any particular one.

## **SURROUNDING AREAS**

The BWWMA and Yucca Pens are increasingly being surrounded by development and crowded transportation corridors. Within 15 miles, human populations have increased, with the Fort Myers area having 250,000 – 300,000 people and the Punta Gorda area having increased to approximately 130,000 to 160,000 people. To the northwest, the Venice-Sarasota area has approximately 250,000 people. Several major highways also surround the areas. The BWWMA has county road 74 to the north, state road 31 to the east, and I-75 to the west. The Yucca Pens is no different, with U.S. 41 and I-75 to the east and Burnt Store road to the west. An additional consideration for the Yucca Pens is the largest marina in southwest Florida, Burnt Store Marina. This marina houses a great number of sailboats valued at \$500,000.

## **HABITAT**

The BWWMA and Yucca Pens are primarily south Florida flatwoods. The area was clear-cut in the late 1920's-early 1930's. The resulting mature pine trees on the areas are decedents from cull trees remaining after the clear-cuts.

The pines from this area were shipped to Africa for use in the diamond mines because their high rosin content made them resistant to rot under wet conditions.

The pine density in these areas varies from thin to fairly high basal area/acre. The area is interspersed with seasonal to permanent ponds, which are interconnected. Between these two extremes, are wet and dry prairies with scattered palmetto.

The Yucca Pens has followed the same land use history. The primary habitat differences between the Yucca Pens and the BWWMA is that Yucca Pens is wetter due to cap rock being closer to the surface and cypress strand habitat being present.

## **FIRE METHODOLOGIES**

### **Babcock/Webb**

The BWWMA is burned on a high frequency, with fire returning to any area on a one to two year rotation. The area, in most instances, is burned every year, however, if an area does not burn or areas within the burn block do not burn, they are not attempted again that year. The Yucca Pens, for the most part, is currently being burned for the first time. The burn return rate in the Yucca Pens appears to be two to four years due to the increased water held on the area during the summer, and shallow soils. The firing techniques utilized on both areas include backfires, flank fires, and head fires. All fires are ignited using aerial ignition, trucks with a burn tank, traditional fire pots, and/or 4-wheelers with burn tanks.

The frequent fire regime not only benefits the species listed above, but also has the added benefits of cool fires and reduced smoke emissions. While burning the light fuel, the smoke generated from a 2,000-acre fire is barely visible 5 miles from the burn area. This dramatically reduces smoke impacts. Post fire, the palmetto fronds remain intact and green on the plant, exhibiting the fire's coolness. The increased burning frequency also easily creates a mosaic of burned and unburned areas. The mosaic variation in a single burn block can be as much as four-years difference.

The acreage burned on the BWWMA during the 2004-05 fire season was 48,377 acres, while the 2003-04 season resulted in 48,921 acres.

### **Yucca Pens Unit**

The Yucca Pens has required new strategies to accomplish our prescribed fire goals. Although the habitat is similar, the rock layer being close to the surface produces conditions of extreme wetness or dryness with little time between. The increased moisture during the summer reduces plant biomass

production due to stress. These conditions create a situation in which the prescribed fire rotation is approximately two to four years.

The adjacent highways and populations have created a difficult situation for smoke management. Flank fires are the preferred fire because the heat generated is enough to lift the smoke quickly, but not hot enough to kill the pine trees. For this method to be successful, it is necessary to have dispersion values in or above the 50 range. Surface winds in the 8-12 mph range are preferred to allow the smoke time to rise to the mixing height quickly before moving away from the burn area.

The acreage attempted to be burned on the Yucca Pens Unit during the 2004-05 fire season was 889 acres, while the 2003-04 season resulted in 1,910 acres.

Our fire management program on the Babcock/Webb WMA has dramatically improved the habitat for quail and other wildlife. To see these effects first hand, visit the WMA.

