

Fire History and Ecology in Volusia County

Even before human occupation approximately 10,000 years ago, Florida's ecosystems, flora and fauna had long experienced frequent fires. Later when humans started migrating into Florida, Native Americans purposely spread fires to improve hunting, gathering and security. In more modern times, cattlemen in Florida routinely used fire to improve grazing areas. Today, some of our highest quality preserves were once ranches that were maintained by fire.

The naturally occurring fires were and continue to be started by one of the most common weather phenomenon in Florida, thunderstorms. The frequent lightning strikes, as many as 20,000 per year, associated with the storms are the ignition source for these naturally occurring fires. While the number of fires that actually start from lightning strikes is relatively low, once ignited, the fires can grow significantly.

During the prehistoric period and well into the early 1900s, highways, towns, powerlines and advanced fire fighting equipment did not exist. The only factors that affected the spread of fires were changes in weather patterns, large waterbodies (i.e., St. Johns River and the Atlantic Ocean) and a lack of unburned forests. Smaller fires would coalesce and would eventually slowly extend across vast acreages and burn for weeks and possibly months until they burned themselves out. The historic fires tended to be slow moving and relatively cool, due to the lack of accumulated fuels.

While thunderstorms and associated fires can occur throughout any given month, evidence suggests that historic fires were most common in the late spring and early summer, which happens to correspond to our driest months when there is an abundance of dead plant material on the ground following the winter season and when frequent "dry" lightning storms begin.

Because of the frequent fires, the habitats and the plants and animals associated with the habitats had to adapt or they would cease to exist. As a result of these adaptations, many plants have become so dependant on fire that they have developed characteristics that contribute to sustaining fires.

Historically, the ecosystems of Florida only have a passing resemblance to the ecosystems of today. The frequent fires kept the forests in a much more open and park-like atmosphere. Trees were widely spaced, and grasses and flowering herbs dominated the understory. Shrubs, when present, were scattered or located in small clumps often in areas partially protected from the routine fires. Early pioneers wrote about being able to drive wagons and horses through the forests. Because of fire suppression, few places today are open enough to continue that practice. Dense uplands forests, such as hammocks were rare, small and isolated. Shrubs and young trees now dominate the understory. Where fire has been excluded for a long time, large hammock areas now dominate, which results in a decrease in animal species.

Almost all of the natural ecosystems in Florida benefit from frequent fires. The frequency of these fires depends on a host of factors, including the type of vegetation, the ecosystem's flammability, the time since the last fire, weather conditions, and it's juxtaposition to more flammable habitats. Fire frequency within different habitats varies. Pine flatwoods generally burn every 2-3 years with scrub every 15-80 years. Forested wetlands may experience large scale fires every 100 years or more, but the edges of these forests are subjected to frequent fires associated with the adjacent habitat.

With the suppression of fire, grasses diminish, shrubs and hardwoods increase and animal species decrease. The increase in large amounts of shrubs and accumulated fuels allows for much hotter fires, which may cause significant damage to ecosystems and economic resources. Scrub jays, gopher tortoise, indigo snake, red cockaded woodpecker, and Sherman's fox squirrel are a few species of animals that are endangered because of habitat loss, not only because of conversion to development, but also because of fire suppression.

Most of the previous owners of conservation areas purchased under the 1986 CARL program and the 2000 Volusia Forever program had not used fire as a management tool prior to the acquisition. Much of the land had been converted into pine plantation or left to succeed into an unnatural condition, with extremely dense understories of shrubs, canopies of pines and large build up of dangerous debris, which would be used as fuel in wildfire conditions. In order to restore and maintain the diversity of the ecosystems, prescribed fire is one of the many tools land managers use.

Using prescribed fire as a management tool has many benefits such as reduction of fuel loads, which lessen the threat of wildfires, increased seeding, fruiting and forage quality in plants, improved wildlife habitats, reduced pest problems, reduced exotic plants species and improved aesthetics, just to mention a few. Prescribed fire is usually the first choice to initiate restoration, but in many cases prescribed fire cannot be used exclusively. Often because the site has not been burned over decades or because of severe urban interface issues, mechanical or chemical treatment is used to prepare an area for a future prescribed fire program. None of the other techniques work as well as or is as cost effective as fire as a management tool, because of the complex chemical, biological and physical processes that fire stimulates.

On May 8, 2003, the County Council approved Resolution 2003-80, which established a goal and several objectives of how Volusia County Conservation Lands were to be managed. The resolution was far reaching and the objectives provided direction for multiple topics including prescribed fire.

Excerpts of the County Council approved goal and objectives states:

“Manage the County’s conservation lands using a program of professionally accepted principles of resource and ecosystem management for the benefit of, and enjoyment by, present and future generations.”

“To the extent reasonably practical, altered lands should be returned, over the years, to natural habitats compatible with the existing conditions of the area, except for historical or other significance cultural features.”

“Recognize the ecological role and importance of fire. Incorporate prescribed burning, where appropriate, as part of the management regimen for County conservation lands. To the extent possible, fire maintained native ecosystems shall be burned at the appropriate interval, intensity and season to maintain these ecosystems. The timing of prescribed burns may be adjusted for fuel reduction, site safety, or other issues. Mechanical or other methods may be employed, where appropriate, in lieu of the use of fire, when prescribed fire is impracticable.”