



The National Cohesive Wildland Fire Management Strategy is a national collaborative effort to bring a broad cross-section of stakeholders together to address wildland fire management challenges. The Strategy directs wildland fire planning activities and has three primary goals: restore and maintain landscapes, develop Fire-Adapted Communities, and improve wildfire response.

Activity	Impact
# acres (average) burned annually through prescribed fire at Eglin	90,000



Aggressive Prescribed Fire Program Reduces Wildfire Severity: An Eglin Air Force Base Case Study

Over four long days in late March 2011, the most severe wildfire outbreak in a decade occurred at Eglin Air Force Base, located near Destin, Florida (Fig. 1). A persistent drought, 20 mph winds and low humidity, combined with 12-15 arson fires on the property, resulted in 6,000 acres burned in a matter of days.

In the northeastern portion of the property, 4,700 acres burned as fires were driven by strong winds towards Interstate 10, threatening private property north of the interstate. Seventy-one families were temporarily evacuated from their homes in this area due to concerns that the fire would cross the interstate. Fortunately, this area of the property received a prescribed burn in the past year and the vegetative fuels that could carry a devastating fire had been greatly reduced, so the fire remained on Eglin property.

Due to Eglin's aggressive prescribed fire program, the March 2011 wildfire severity and acres burned were significantly reduced. Without this

regular fuel reduction, anywhere from 10-12,000 acres could have burned just on the Eglin side, with untold acres burned and property damaged north of Interstate 10.

The wildfires burned not only significant acreage, but also strained Eglin wildland firefighter capacity, leading to internal and external assistance. A unified command post was established to efficiently fight the wildfires. Leadership and support staff were provided by the Eglin Fire and Emergency Service, Florida Forest Service, local volunteer fire departments, and Okaloosa and Walton Emergency Management personnel.



Figure 1: Wildfires as seen from Interstate 10 on the afternoon of March 25, 2011. Credit: Eglin Air Force Base staff

Success stories highlight regional wildland fire accomplishments that support implementation of the National Cohesive Wildland Fire Management Strategy in the Southeast. The stories demonstrate how the Southeast is improving its "fire resiliency" through technology, education and outreach, forest management, collaboration, and more. Success stories also serve as a model for other communities to follow.

Eglin Air Force Base Prescribed Fire Program Today

Eglin has developed a successful prescribed fire program over the past two decades that not only meets ecological objectives across the extensive Florida panhandle property, but also achieves measurable success in reducing wildfire severity, as evidenced in the 2011 wildfire season.

Of the 464,000 acre Eglin property, approximately 300,000 acres are managed in longleaf pine (Fig. 2). This area, referred to as the Core Conservation Area (CCA), contains several fire-dependent and threatened or endangered species characteristic of the longleaf pine forest ecosystem, including the red-cockaded woodpecker, flatwoods salamander, and gopher tortoise. Maintaining the health and viability of this ecological community requires frequent prescribed fire. Regular prescribed fire use is a safer way “live with fire” in a fire-prone landscape, versus allowing fuels to accumulate and contribute to potentially destructive wildfires.

The natural resources management team at Eglin, manages the CCA. The Wildland Support Module, a part of this team trained in wildland firefighting, is tasked with managing approximately 230 wildland fires a year- of which, on average, 130 are prescribed fires and 100 are wildfires. Eglin sets a goal of prescribe burning 90,000 acres a year across the CCA. Though this equates to an approximate 3 year fire return interval, there is no set burn rotation at Eglin. Eglin has experienced that trying to manage by rigid fire return intervals can lead to annual burn objectives not being met. The Eglin fire team prefers to burn every 18-24 months when fuel accumulations are lighter if conditions are right versus waiting for three years to consider burning an area, when the conditions may or may not be suitable.

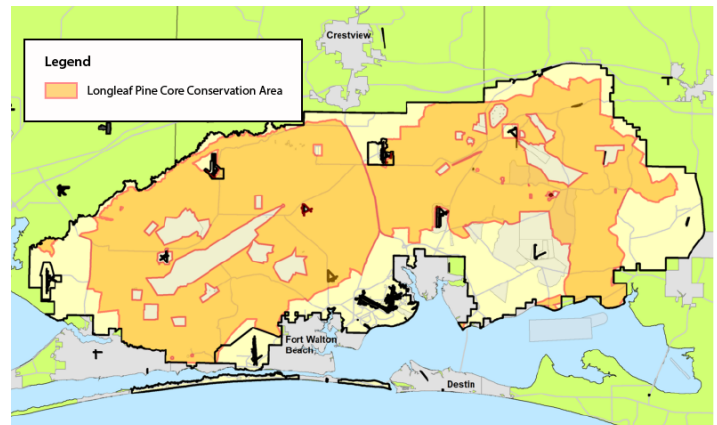


Figure 2: This map displays the Eglin Air Force Base Core Conservation Area (CCA). Credit: Steve Laine

Brett Williams, Eglin's Wildland Fire Program Manager, states, “We'll burn the highest priority and most complex, difficult and largest burn block that we can on any given day given the right conditions.”

If logistics or weather conditions are not appropriate for more challenging sites on, for example a dry windy day, then other areas with a short time since last burn, or light rough, can be burned safely. The clock can then be reset on light rough areas versus waiting for the perfect conditions every three years. Essentially, Eglin burns at every opportunity that is safely available.

Brett Williams explains, “We burn by opportunity, by ecological drivers, and by complexity.”

From Eglin's experience, this approach to prescribed burning meets ecological objectives and has led to overall reduced wildfire severity. This, however, wasn't always the case at Eglin.

Lessons Learned: The 1998 & 2011 Wildfire Seasons

Before 1998, Eglin, for a number of reasons had only been able to average approximately 38,000 acres/year, which became their target goal. At this time, there was tremendous variability in burn frequency across the CCA, with an average 11.4 year fire return interval (Fig. 3). Variable fire return intervals equated to varying degrees of accumulated fuel across the property. Typically, wildfires occurring in these conditions can lead to high intensity fires that are very difficult to control. The 1998 Florida drought, combined with accumulated fuel led to over 19,000 acres of wildfire on Eglin that year. Many of these fires were high intensity and high severity, with some lasting for weeks.

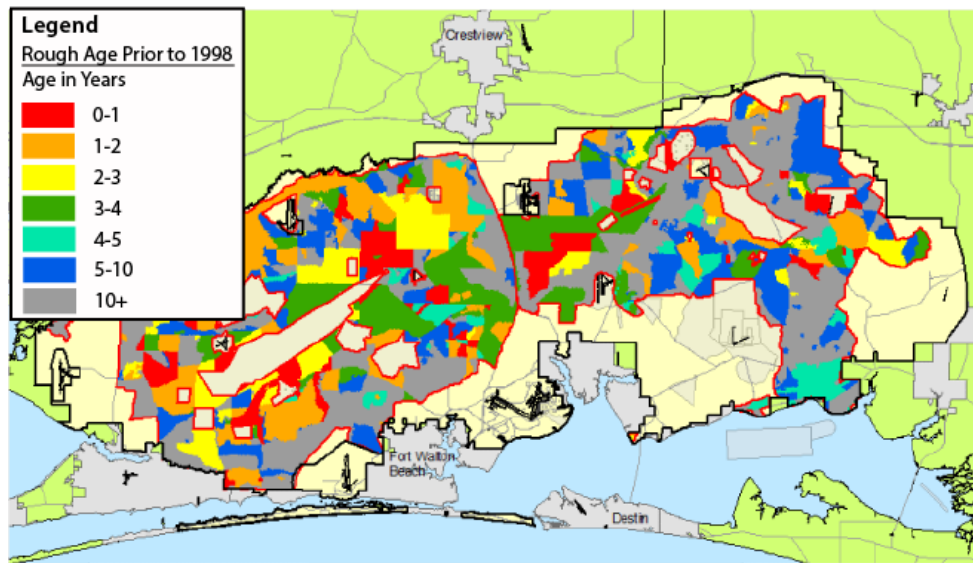


Figure 3: Eglin AFB CCA showing time since burn prior to the 1998 fire season. Credit: Steve Laine

Entering the 1998 Florida wildfire season, there was a very different fuel loading situation compared to the 2011 wildfire season. The 1998 wildfires burned in areas that hadn't burned, in some cases, for more than 5-10 years, whereas all 2011 wildfires occurred in areas that had burned in approximately the last 2-3 years (Fig. 4).

Because of the aggressive prescribed fire program at Eglin leading up to the 2011 wildfires, fuels were significantly reduced in 2011 compared to 1998, resulting in a reduction in the total amount of wildfire acres burned. Five years prior to the 2011 wildfires, Eglin prescribed burned on average 92,000 acres a year, meaning that approximately 2/3 of the CCA burned in the two years preceding the 2011 fires. Overall, wildfire acreage decreased in the years prior to 2011 as prescribed burning increased.

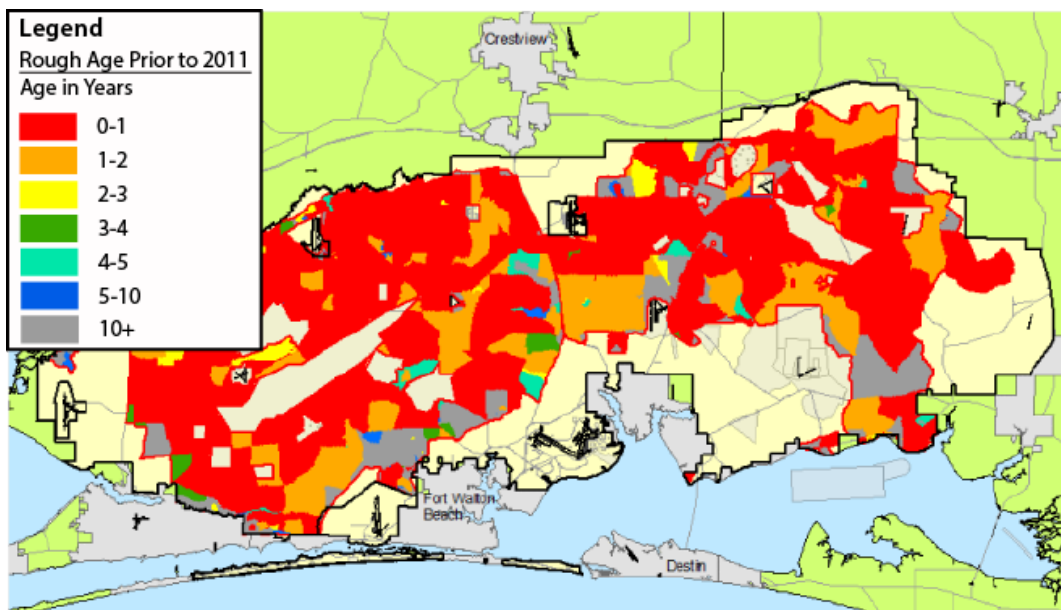


Figure 4: Eglin AFB CCA showing time since burn prior to the 2011 fire season. Credit: Steve Laine

Several prescribed burns were carried out in January, February, and August 2010 and early March 2011 (Fig. 5) prior to the March 2011 wildfire outbreak. These burns played a significant role in reducing wildfire severity and acres burned. The time since burn on these prescribed burn units varied from long unburned to a 20 month rough. In particular, 3,000 acres along Interstate 10- with no record of being burned previously was prescribe burned in 2010. This area had a heavy fuel load, and was a highly complex burn due to interstate proximity, size and access issues. It was a high priority area that Eglin rarely had the correct conditions to safely burn. During February 2010, the right conditions were present and the burn occurred, significantly reducing the fuel load that could have led to high wildfire severity in the March 2011 wildfires. The units prescribed burned during March 2011, just weeks before the wildfires, completely prevented the wildfire from spreading into these units because there was no fuel to burn. Even the units burned in 2010 enabled firefighters to “catch” the fire and make it more manageable.

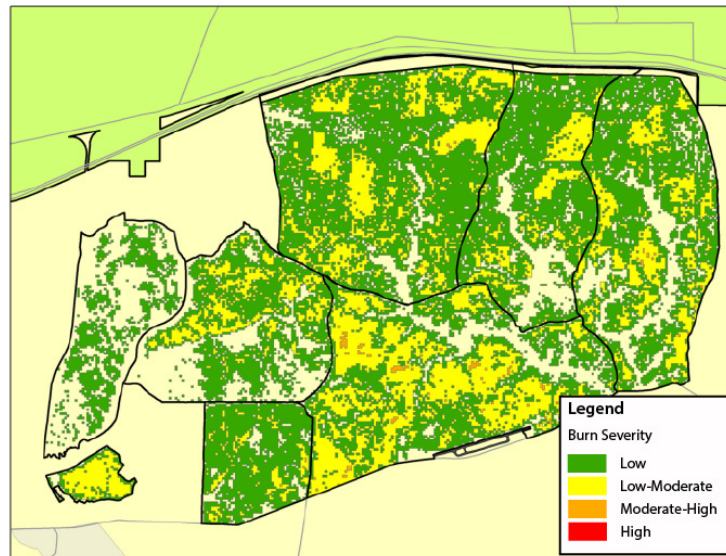


Figure 5: 2010 and 2011 prescribed fires. Time since last burn is included for 2010 burns. These prescribed fires significantly reduced wildfire size, intensity and severity. Credit: Steve Laine

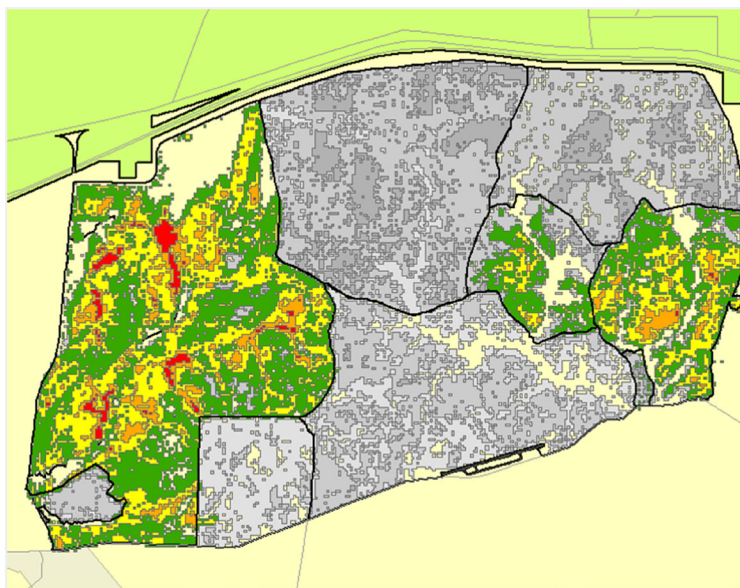


Figure 6: This map displays burn severity for 2011 wildfires. Credit: Steve Laine

The aggressive prescribed fire program had a strong impact on wildfire severity during the March 2011 wildfires (Fig. 6). A GIS spatial analysis was conducted to evaluate wildfire burn severity compared with prescribed fire burn severity of the same areas. Areas burned were categorized based on four burn severity levels (Fig 7).

The analysis results indicated that 92% of the high and 66% of the moderate-high severity wildfire acreage burned occurred in areas not burned during the previous year's prescribed burns (Fig. 8).

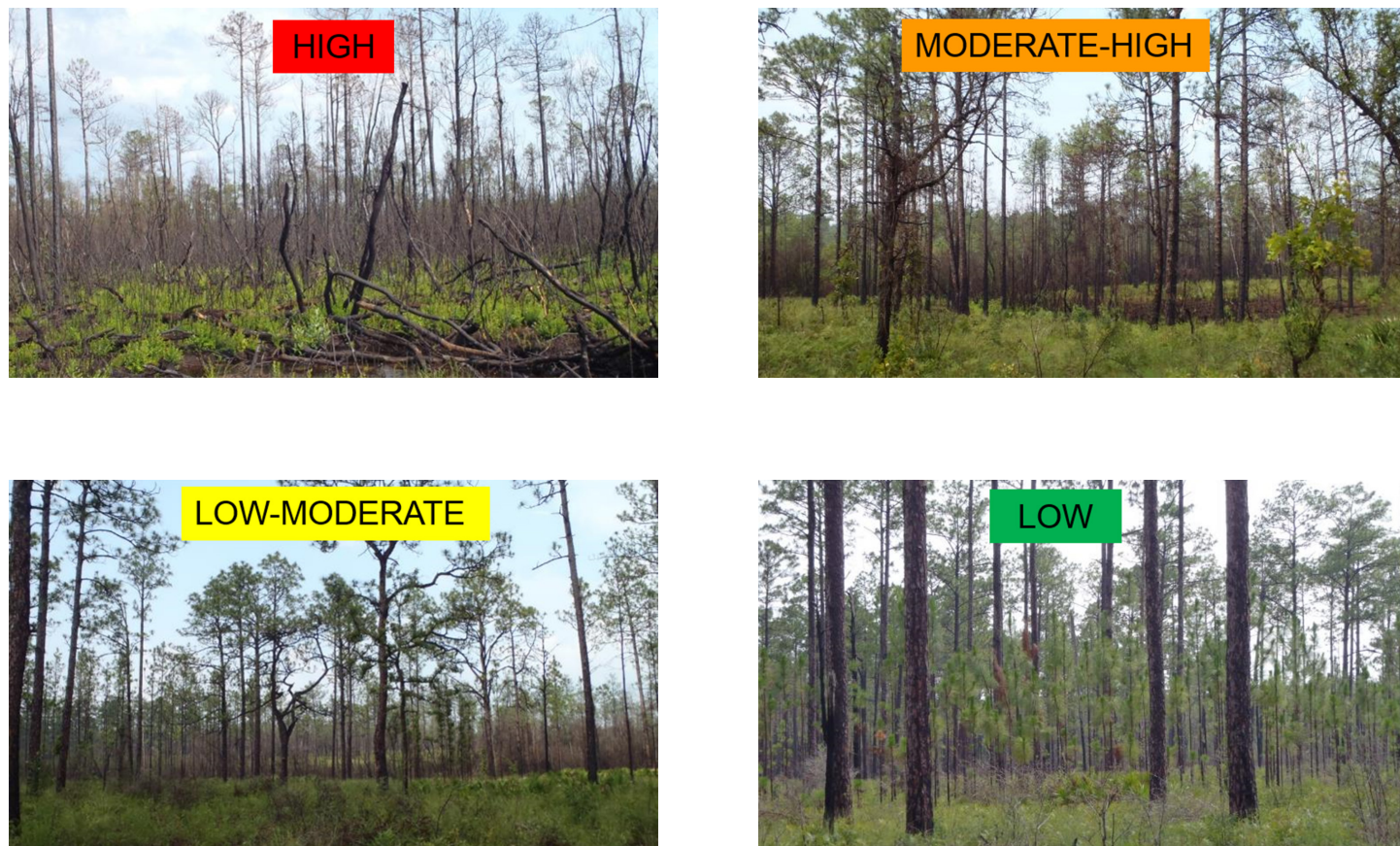


Figure 7: This figure provides a visual representation of the four levels of burn severity (High, Moderate-high, Low-moderate, and Low) depicted in Figures 3, 4, 5, and 6. Credit: Eglin Air Force Base Wildland Fire Staff

2010 Burn Severity	2011 Burn Severity				
	Unburned	Low	Low-Moderate	Moderate-High	High
Unburned	707.9	1033.9	680.3	262.2	79.0
Low	295.6	661.2	465.7	97.0	6.4
Low-Moderate	45.4	217.1	191.5	40.5	0.2
Moderate-High	0.0	0.4	2.7	0.7	0.0
High	0.0	0.0	0.0	0.0	0.0
Acres	1048.8	1912.6	1340.1	400.3	85.6
Percent	67.5%	54.1%	50.8%	65.5%	92.2%
Total Acres	4787.5				

Figure 8: This table provides data to support that previous prescribed fire activity reduced wildfire severity at Eglin. A total of 4787.5 acres burned in the 2011 wildfires, with most of the burn severity described as unburned (1048.8 acres), low (1912.6 acres) or low-moderate (1340.1 acres) severity. Compared to the 2010 prescribed fire burn severity (far left column), 92.2% of the high and 65.5% of the moderate-high wildfire burn severity occurred in unburned areas in the 2010 prescribed fires. Credit: Eglin Air Force Base Wildland Fire staff

Patchiness of burning during prescribed fires occurs for a number of reasons, including areas of minimally-flammable vegetation types and low wet areas that do not typically carry fire under typical prescribed weather and fuel moisture conditions. In examining the total wildfire acreage burned, the spatial analysis indicated that most acres burned with a low to low-moderate severity (68%) and only 10% of the total acreage had moderate-high or high severity. Considering these percentages occurred on blocks with significant fuel reduction from the previous years prescribe burns, what would the severity have been if the areas had not recently burned? It is likely that high severity, potentially stand-replacing fires would have occurred with a significant likelihood of the fire jumping the interstate.

Besides reducing wildfire acres burned and fire severity, Eglin's prescribed fire program has additional benefits. The firefighting crew becomes "seasoned" more quickly when exposed to fire 130 prescribed fires per year; this includes gaining a better knowledge of the Eglin reservation, local weather patterns' effects on fire, and equipment capabilities/limitations. This level of fire experience also builds team cohesion and safety consciousness. Military mission flexibility is enhanced through the prescribed fire program due to lowered wildfire risk and Eglin's compliance with the Endangered Species Act. The helicopter used for the prescribed fire program can also provide quick response for wildfire suppression. An additional benefit that the aggressive prescribed fire program is enhanced interagency partnerships. Eglin is recognized as an excellent venue for partner agencies to send personnel for gaining fire experience at a professionally run program. Brett Williams describes Eglin's fire team as a "well-oiled machine."

In explaining the prescribed fire program at Eglin, Brett Williams explains, "This study supports an aggressive, thoughtful prescribed fire program. It shows the benefit of strategically burning and taking advantage of very specific weather windows for particular blocks and the value of taking advantage of those. The study also shows the value of the Air Force's investment in the prescribed fire program at Eglin." (Fig. 9)



Figure 9: Air Force Wildland Fire Crew at Eglin Air Force Base. Credit: Eglin Air Force Base

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Partners: Eglin Air Force Base Wildland Fire Team and Fire and Emergency Service, USDA Forest Service, Florida Forest Service, local volunteer fire departments, and Okaloosa and Walton Emergency Management personnel



Southern Regional
Extension Forestry

