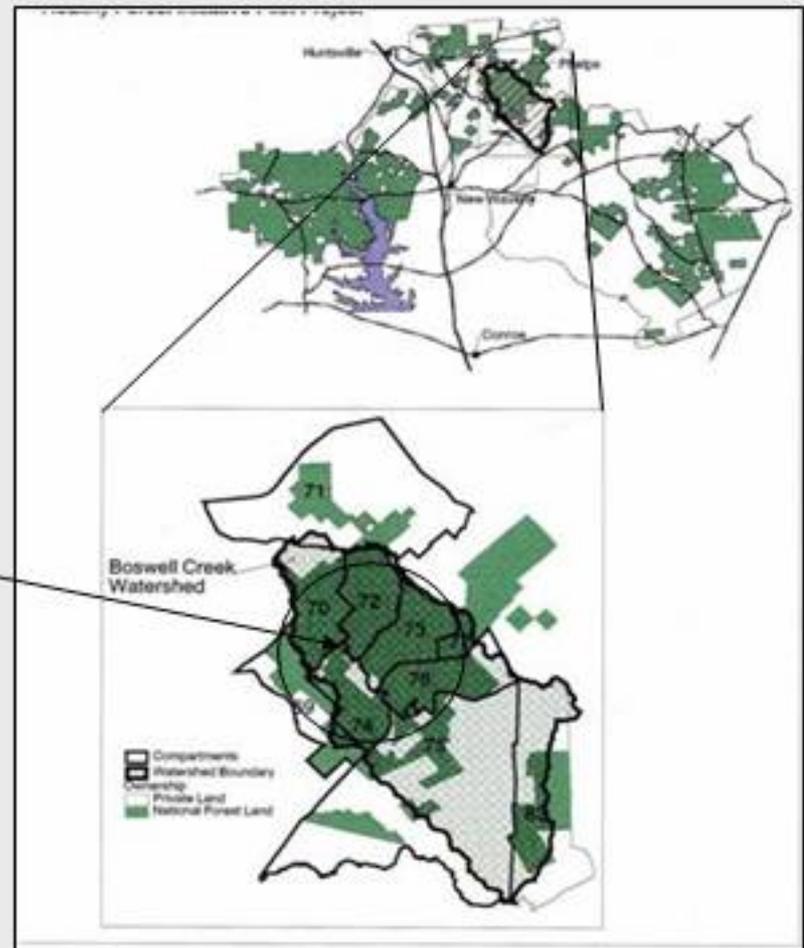


**Four Notch-Boswell Creek Watershed  
Healthy Forests Initiative Pilot Project**



# The Four Notch-Boswell Creek area ...where is it?

- The Four Notch-Boswell Creek Watershed Project lies in the north-central portion of the Sam Houston National Forest, about 8 miles southeast of Huntsville, Texas
- The area known locally as Four Notch contains the majority of the National Forest land in the project and lies in the northwest part of the watershed.
- National Forest land makes up about 65% of the 13,000-acre Boswell Creek watershed.



# Background on the Four Notch Area

## The 1930s to the 1950s

- **The Sam Houston National Forest was established by President Franklin D. Roosevelt on October 13, 1936.**
- **Within the Sam Houston NF, the Forest Service established the San Jacinto Experimental Forest near Huntsville, Texas.**
- **Very little research took place on the forest and even by the beginning of the 1950s only about 100 acres of the forest were included in any research.**



# Background on the Four Notch Area

## Through the 1970s

- **Over the years the area that included the experimental forest became known as Four Notch, named for the road on its western edge, which was said to have been established by General Sam Houston.**
- **By the 1970s aging, overstocked pine forests susceptible to attack by the southern pine beetle dominated most of Four Notch.**
- **The Forest Service planned a timber sale in Four Notch to thin and regenerate some of the older stands. The sale was never completed due to a court challenge. At about this time, the second evaluation of roadless areas, known as RARE II, identified Four Notch as an area for additional study for wilderness designation. Only wildfire control and insect control could be done, and only with Regional Forester approval.**



# Background on the Four Notch Area

## The Early 1980s



Ronald F. Billings, Texas Forest Service, [www.forestbyimages.org](http://www.forestbyimages.org)

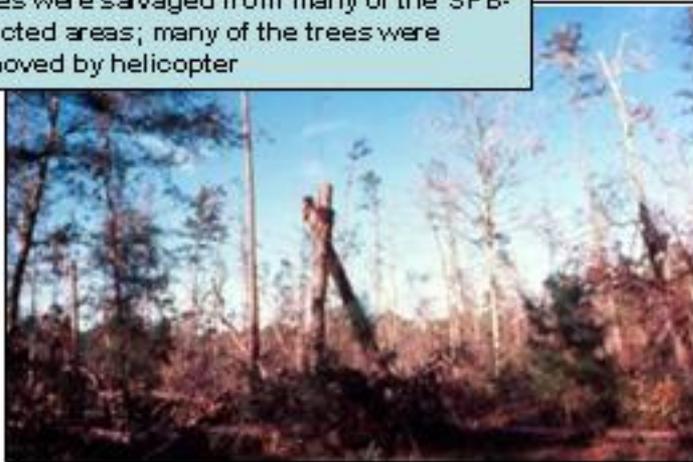
- **In 1982, several small southern pine beetle spots became established in Four Notch. No control actions were taken due to legal challenges. In September 1982, a Forest Service evaluation of the SPB activity in Four Notch recommended immediate direct control of SPB infestations. The evaluation concluded that more than 85 percent of the area had high hazard for SPB.**
- **By March 1983 more than 20 infestations from 1 to 10 acres existed in the area. By July, major infestations were expanding in Four Notch and other areas on the Sam Houston NF.**
- **By September 1983, the largest SPB infestation was from 1,500 to 2,000 acres, expanding 50 feet each day on a 3-mile front. The Forest Service attempted to stop the advance of the infestation by cutting a 250-foot buffer around the SPB spot.**

# Background on the Four Notch Area

## Recovery from the SPB Epidemic through the late 1980s

Pines were salvaged from many of the SPB-affected areas; many of the trees were removed by helicopter

1



Actions were taken to reforest the thousands of acres, including mechanical methods...

2



3

...and prescribed fire

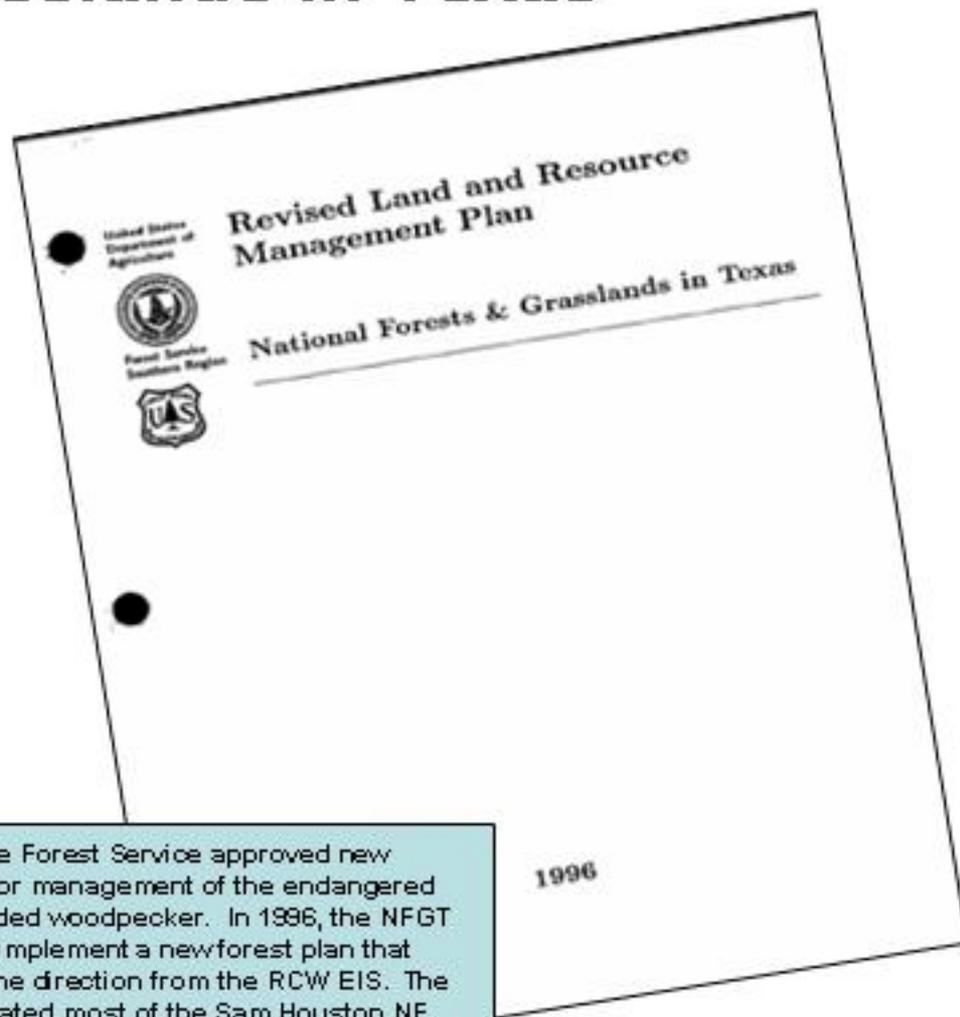
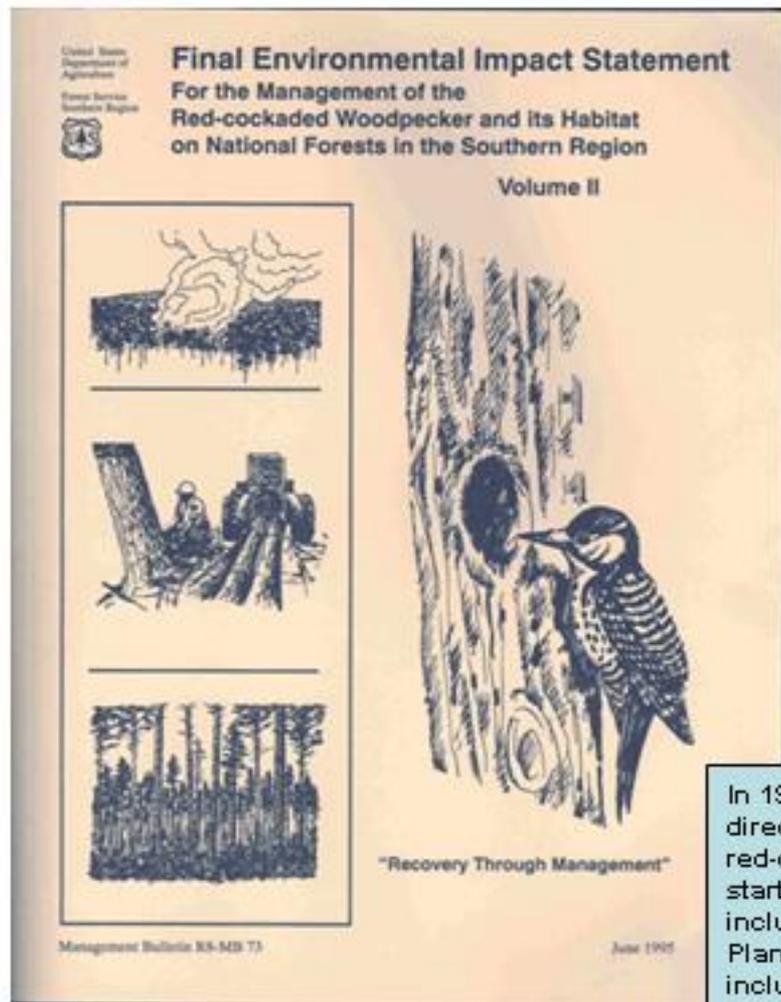


4

Resulting in a patchwork of young pine stands with intermingled hardwood areas and areas of older pines



# The 1990s – New Direction for the National Forests and Grasslands in Texas

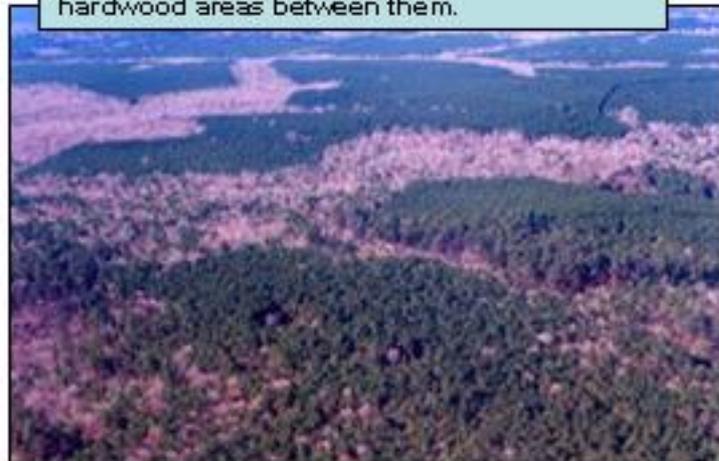


In 1995, the Forest Service approved new direction for management of the endangered red-cockaded woodpecker. In 1996, the NFGT started to implement a new forest plan that included the direction from the RCW EIS. The Plan dedicated most of the Sam Houston NF, including the Boswell Creek area, to the production of habitat for the recovery of the RCW.

# Four Notch today...



Aerial views of Four Notch taken December 2002, showing areas of young pines with hardwood areas between them.



Viewed at ground level, the young pines have grown tall and dense in the 15 to 16 years since they were planted



# So, what's the problem? Why do we need to do anything?

Fuel loads inside the young pine stands are generally high, with high potential for wildfire to reach the tree crowns, particularly during dry, droughty periods common in east Texas. A fire under these conditions would kill most of the overstory.



Young pine stands are not the only concern, however. Older stands such as the one above also have excessive amounts of fuel that could result in damage or death of the mature overstory.

# What can we do?



We can use prescribed fire to reduce the amount of fuel that would be available, should a wildfire start

In young stands...

And in older stands



Management-ignited fire under the right conditions can be done with little adverse effect on the trees we want to keep for future habitat.

This photo was taken about 5 minutes after one above it

## How can prescribed burning be a valuable tool in the management of the Four Notch area? A practical example.

The Blackhawk Fire on the Sam Houston NF in July, 2000, provides an example of how prescribed fire can reduce the potential for excessive fire damage. This fire, caused by lightning, started in a mature pine stand. The fire progressed slowly in its early stages until weather conditions and a change in fuel type created conditions conducive to rapid fire spread.

The fire moved into a dense, 12-year old pine stand with a closed canopy, moderate to high fuel ladder conditions, which had not previously been burned. When the fire reached this stand it rose into the crowns and advanced rapidly with the prevailing wind. The fire was spotting up to 100 feet ahead of the flame front.

Fortunately, the adjacent area had been prescribe burned just a few months previously, and the wind pushed the wildfire toward this area. When the fire reached the road separating the wildfire area from the adjacent prescribed burn area, flaming embers ignited numerous spot fires across the road.

Due to the fuels reduction, the fires that did start generally had flame lengths less than 3-4 feet and many of the embers failed to ignite spot fires. At one point the fire burned in a young pine stand of the same age and density as the one that had exhibited such extreme fire behavior. Because this stand had been prescribe burned earlier in the year, however, the wildfire remained at the surface and resulted in little damage. The photos to the right show the difference in the fire results in the two adjacent young pine stands.



Young pine trees killed by the Blackhawk Fire



Adjacent young pine trees relatively unaffected by the Blackhawk Fire.

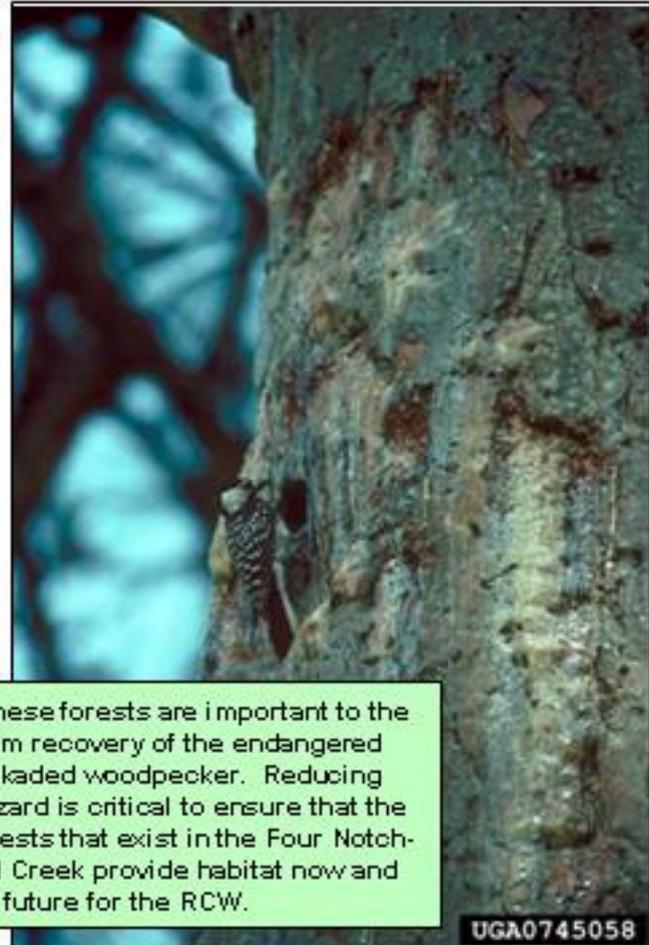
# Managing fuels addresses part of the problem, but there is another forest health concern in the Four Notch-Boswell Creek project



The young pine forests, as well the older pine stands in the watershed are very susceptible to attack by the Southern pine beetle...



Erick G. Vallery, USDA Forest Service, [www.forestimages.org](http://www.forestimages.org)



...and these forests are important to the long-term recovery of the endangered red-cockaded woodpecker. Reducing SPB hazard is critical to ensure that the pine forests that exist in the Four Notch-Boswell Creek provide habitat now and into the future for the RCW.

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Erick G. Vallery, USDA Forest Service, [www.forestimages.org](http://www.forestimages.org)

# So what can be done to reduce the risk of excessive losses to the southern pine beetle?



Where there are too many pine trees, as in this young stand, some can be removed. This increases the distance between the pines, reducing the risk that the southern pine beetle could infest neighboring trees.

Remove trees to create  
Conditions more like this



Here is an example of an area, a few years older than the one shown to the left, dominated by young pines, where trees were removed and SPB hazard was reduced

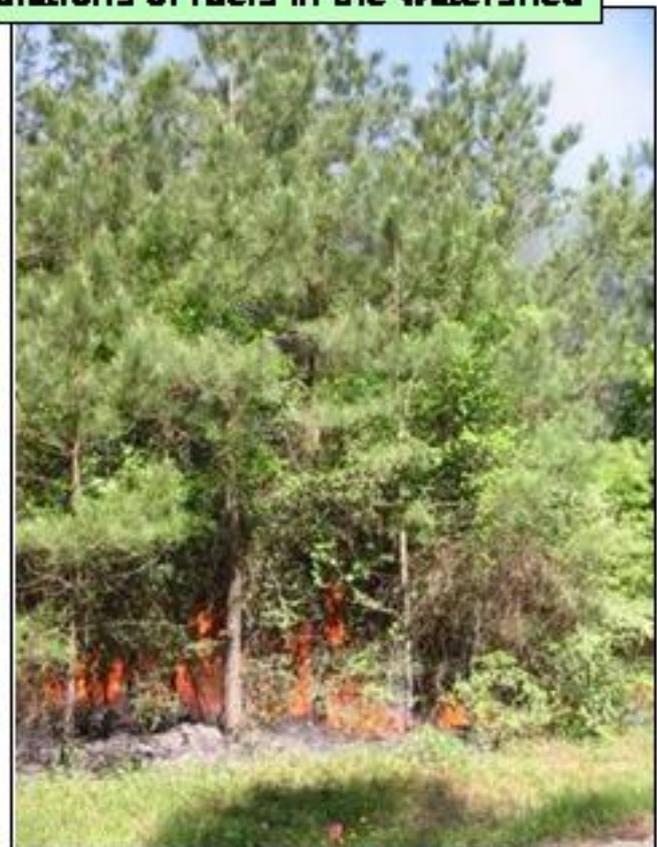
## **What about the areas dominated by older pines? How does the SPB affect them?**

- **There are areas where mature pines exist in the Four Notch-Boswell Creek watershed.**
- **Some of these areas have too many pine trees and have a high SPB hazard rating.**
- **We need to maintain enough older pines to provide habitat for the red-cockaded woodpecker.**
- **Removing some of these older trees and creating or maintaining habitat for the RCW are important to providing for a healthy forest.**



# What will the Four Notch-Boswell Creek Watershed Healthy Forest Initiative do to address these concerns?

We will propose actions to reduce the accumulations of fuels in the watershed



We propose to use prescribed burning to reduce these fuel accumulations. Prescribed fire is planned for mature stands, as shown above, as well as young pine stands as seen to the right.

# And, where there are too many pine trees, we propose thinning to reduce the southern pine beetle hazard

This includes areas dominated by young pine trees. There are about 3,360 acres in the Boswell Creek watershed that look like this.



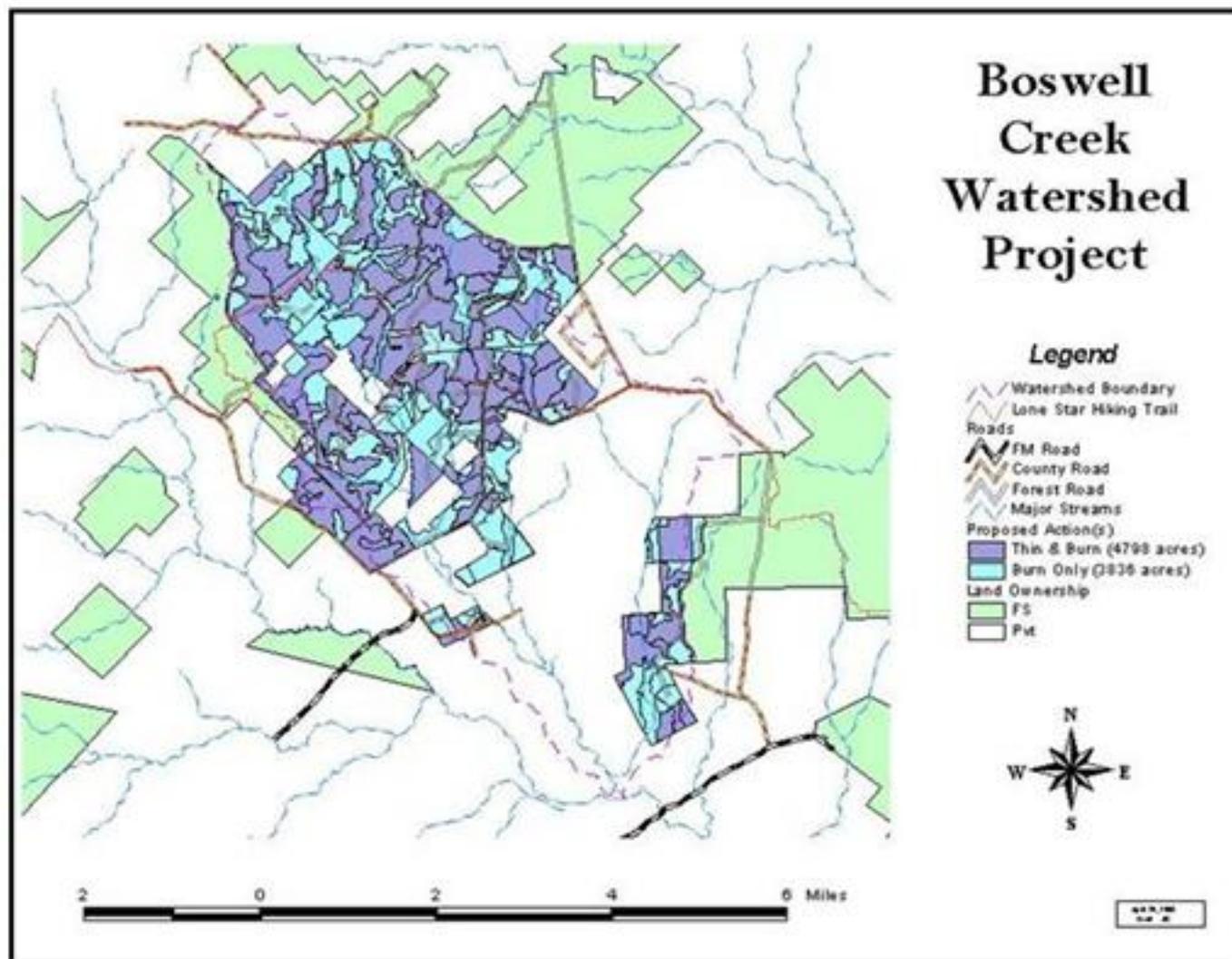
And it also includes areas dominated by older pines such as this. About 1,440 acres similar to this need to be thinned to reduce SPB hazard.

# Our neighbors also benefit from these actions



**Thinning and burning to reduce the amount of fuel and reduce southern pine beetle hazard also helps to alleviate the risk of wildfires or SPB infestations on the forest adversely affecting nearby private land. Many people live or have businesses in or near the Four Notch-Boswell Creek area. If we do not reduce the existing fuel accumulations, our neighbors face an increasing threat from wildfires on the forest. Similarly, SPB infestations on the forest could move onto adjacent private timberlands**

# Where do we propose to do work in this project?



If you have questions about the project or need more information about the Healthy Forests Initiative and the process, here are some contacts:

**For questions or comments about the project:**

Tim Bigler, Sam Houston NF District Ranger	(936) 344-6205 ext 226
Glenn Elms, District Project Coordinator	(936) 344-6205 ext 246
Keith Baker, Project Analysis Team Coordinator	(936) 344-6205 ext 231

**For information about the Healthy Forests Initiative or the process:**

Keith Baker, Project Analysis Team Coordinator	(936) 344-6205 ext 231
Glenn Donnahoe, Planning Staff Officer	(936) 639-8504

Information about the HFI and pilot projects are also available on the Forest Service Healthy Forest Initiative website at [www.fs.fed.us/projects/HFI.shtml](http://www.fs.fed.us/projects/HFI.shtml)