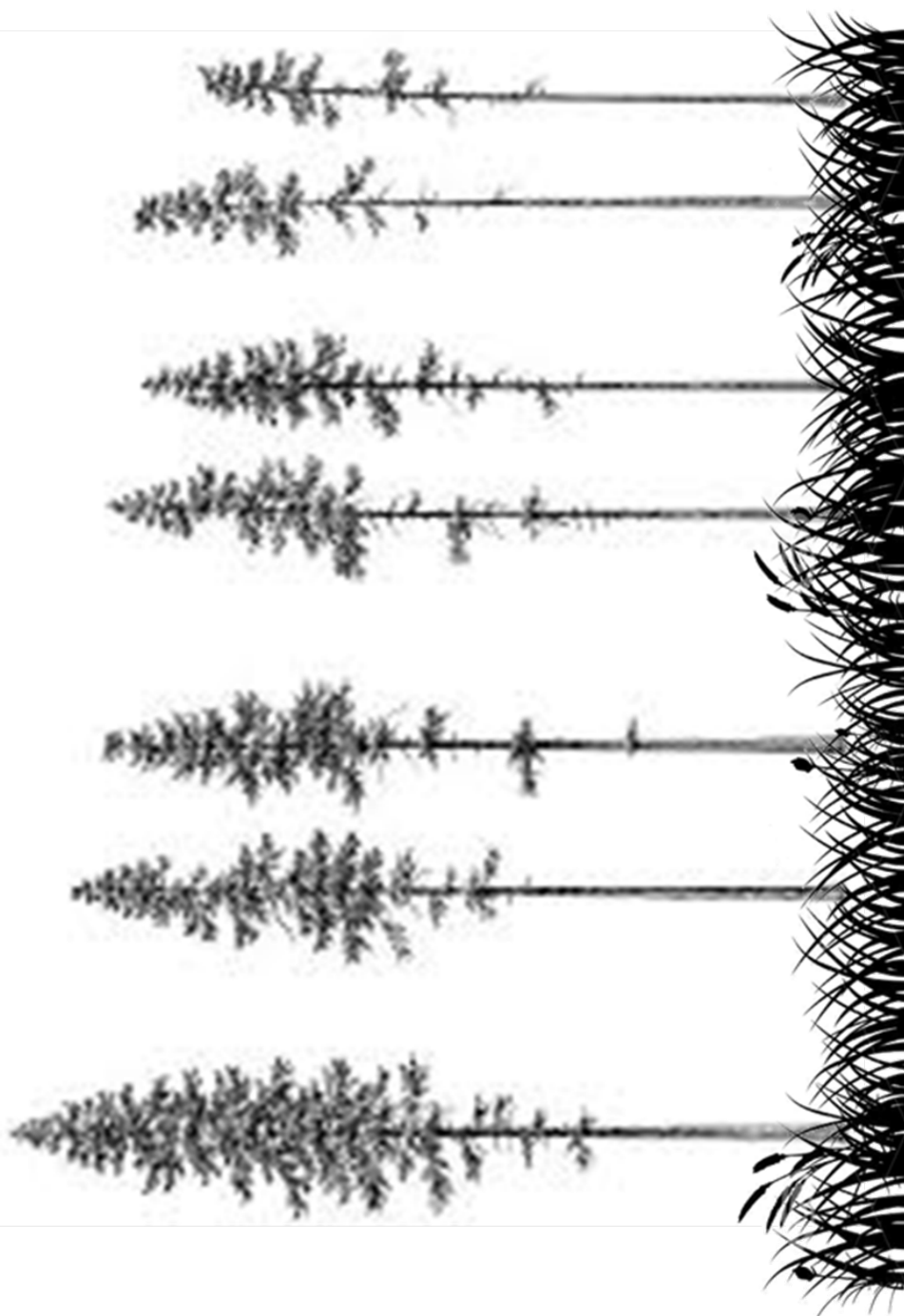


Forest Layers Diagram



Wildland Fires Background Reading

Wildland Fire

Wildland fire is a general term describing any non-structure fire that occurs in vegetation and natural fuels. Wildland fire includes both planned and unplanned fires. A **prescribed fire** is a planned fire intentionally ignited by park managers to meet management objectives. A **wildfire** is an unplanned fire caused by lightning or other natural causes, by accidental (or arson-caused) human ignitions, or by an escaped prescribed fire. **Fuel** is one of the ingredients needed for a wildland fire. Fire managers define fuels as all living and dead plant material that can be ignited by a fire. Fuel characteristics strongly influence fire behavior and the resulting fire effects on ecosystems.

Types of Fire Spread

- Ground fires—which burn organic matter in the soil beneath surface litter and are sustained by glowing combustion.
- Surface fires—which spread with a flaming front and burn leaf litter, fallen branches and other fuels located at ground level.
- **Crown fires**—which burn through the top layer of foliage on a tree, known as the canopy or crown. Crown fires are the most intense type of fire and often the most difficult to contain. They may involve strong winds, steep slopes and a heavy fuel load to continue burning.

Size and Intensity

Even though fire is a fairly common occurrence, very few fires become extremely large. In the United States, 2 to 3 percent of all fires account for more than 95 percent of the total area burned annually. The blackened plots left behind by these types of large fires contribute to the image of fire as a destroyer of the natural environment. In reality, the opposite is true. A carefully planned prescribed burning program can provide many benefits that enhance the health of an ecosystem.

Benefits of Fire are

- Insect pest control.
- Removal of exotic, or non-native species that compete with native species for nutrients and other plant needs.
- Addition of nutrients provided by ashes that remain after a fire feed trees and other vegetation.
- Removal of undergrowth, thereby allowing sunlight to reach the forest floor to encourage growth of native species.
- Encourage the growth of fire-dependent species.

After a Fire

Furthermore, a burned tree is not wasted. It can provide nesting sites for birds, homes for small mammals and a base from which new plants can grow. When the dead tree begins to decay, it releases nutrients into the soil, enhancing growth of surrounding flora. The benefits or harm derived from fire can vary greatly from one plant community to another. In the United States, all ecosystems have been affected to some degree by fire.

Wallow Fire Document Set: Article

Arizona fires: Wallow Fire becomes the largest blaze in Arizona history

by **Rebekah L. Sanders and Jim Walsh** - Jun. 14, 2011 07:56 PM

The Arizona Republic

ALPINE - Billowing smoke and crackling flames engulfed treetops just three miles from this eastern Arizona community Tuesday as unparalleled dry conditions and shifting winds caused the Wallow Fire to continue its spread, surpassing the Rodeo-Chediski Fire as the largest in state history.

But fire officials said they were moving extra crews to areas around Alpine, Nutrioso and Luna, N.M., and they expected fire-prevention lines to hold around those communities, as well as in Greer and near Sunrise ski resort.

"Things are looking really good in Greer. The hand lines are holding," said Jason Coil of the Southwest Area Incident Management Team. "The area of primary concern is above Luna and back into Alpine."

Late Tuesday, officials announced that property owners in Nutrioso would be allowed to return to their homes Wednesday.

As of Tuesday, the wildfire was 18% contained and had burned through 469,000 acres, destroying 32 homes. The cost to battle the wildfire now totals \$31.7 million.

Rodeo-Chediski burned roughly 468,000 acres in 2002.

Meanwhile, Chris Knoff of the U.S. Forest Service confirmed fire investigators have concluded the Wallow Fire was caused by a campfire in Bear Wallow.

Investigators have two persons of interest but so far have made no arrests, he said.

With humidity Tuesday near zero, nearly any falling ember could be expected to spark a fire, Coil said, noting, "That's just an unprecedented amount of dryness."

Shifting winds caused timber that had escaped the blaze over the past two weeks to ignite, he said, including stands along parts of U.S. 180 on the eastern flank.

"Those winds that we didn't like the past week, we would have liked today," Coil said.

The valley around Alpine appeared largely untouched along a closed stretch of U.S. 180, where all but five of the homes have survived. And aspen trees at the tops of some ridges stood unharmed. But the fire had stripped away swaths of pine forest from other nearby peaks, including Escudilla Mountain.

Hotshot crews from Taylor and the Sequoia and Tahoe National Forests were working deep inside the woods, chopping up smoldering tree stumps and dousing them in water to prevent flare-ups.

Blackened trees and grasses marked back burns that were set by firefighters while bulldozer paths were cut through the brush to prevent the spread of ground fire.

Shifting winds nonetheless sent flames roaring up at least one ridge of pristine pines, sending orange fireballs to the tops of the 60-foot trees. In a flash, the thickly needled treetops were reduced to spindly, smoking spires. Thick smoke turned the sky eerily dark, but for an amber circle of sun.

In a few minutes, embers from the crown blaze lit low-lying grasses a hundred yards away.

Such spot fires have hindered fire crews' efforts to fully contain the Wallow Fire, spokeswoman Suzanne Flory said.

"Everyone asks, 'Why isn't it contained?' The spot fires here have been one of the big factors," she said.

Meanwhile, Navopache Electric Cooperative workers restored electricity to a transmission line north of Springerville that at one time was threatened by the fire, and were fixing damaged lines that soon will return full power to Greer.

Fire officials said Alpine would remain evacuated for at least the next few days.

A few of the firefighters were getting more action than they had expected.

Chandler McCullough, 18, and Nate Hardy, 19, whose young faces were smudged with soot, arrived at the Wallow Fire two weeks ago fresh from the Taylor Fire Department academy.

"Heck yeah, it is pretty cool to say we were at the biggest fire (in Arizona history)," Hardy said.

But the young firefighters' training kicked in and they've relied closely on their engine boss, Bill Solomon.

"Stay close to cap(tain) and he'll keep you safe," Hardy said.

Wallow Fire Document Set: FAQ

Arizona's Wallow Fire, an FAQ

by **Nathan Gonzalez** - Jun. 5, 2011 04:18 PM

The Arizona Republic-12 News Breaking News Team

Wildfire Frequently Asked Questions

Question: When did the fire begin and how?

Answer: Fire officials believe an unattended campfire may have sparked the blaze about 1:30 p.m. May 29.

Q: Where does the name "Wallow Fire" come from?

A: Fires are usually named after a feature near the start point. In this case, Bear Wallow Wilderness is located in the Apache-Sitgreaves National Forests, near where the fire was first reported.

Q: How many structures have been lost?

A: Forest Service officials say four summer rental cabins have been lost to the fire.

Q: How much has it cost to battle the Wallow Fire?

A: An estimated \$5.3 million.

Q: How many acres has the Wallow Fire burned?

A: More than 184,000 acres as of Sunday.

Q: The Wallow Fire is now the third-largest active wildfire in the U.S. What are the others?

A: At 188,807 acres, the lightning-sparked Toklat Two Fire in Alaska is the largest active blaze in the country, followed by the Honey Prairie Complex Fire, which was also sparked by lightning and has charred 166,297 acres in Georgia.

In addition to the Wallow, southern Arizona's Horseshoe Two Fire is the nation's fourth-largest at 100,200 acres.

Q: Historically, what are Arizona's largest wildfires?

A: The largest fire in state history was the Rodeo-Chediski Fire, which charred more than 468,000 acres in eastern Arizona. The second-largest was the Cave Creek Complex Fire, which consumed more than 248,000 acres in 2005. The Wallow Fire is the third-largest in state history, followed by the 2004 Willow Fire at 119,000 acres and the still-burning Horseshoe Two Fire.

Q: What is a Type 1 Incident Management Team?

A: A Type 1 team consists of highly trained and experienced wildfire personnel, from federal and state levels, specifically outfitted for wildland fires.

Q: What type of equipment is being used?

A: As of Sunday, 2,140 fire personnel were on the ground, utilizing 12 bulldozers, 138 fire engines, 31 water tenders and 20 helicopters.

Q: What types of helicopters are being used?

A: There are three types of helicopters. The Type 1 is the heavy-lift helicopter sometimes called a sky crane. It has the ability to dump up to 2,000 gallons of water. Medium-sized helicopters can dump about 500 gallons. Light helicopters are used to move supplies and keep an eye on the fire

Q: What magnitude is the current evacuation?

A: Fire officials said the following communities have been evacuated: Alpine, Nutrioso, Hannagan Meadow Lodge, Sprucedale Guest Ranch, Brentwood Church Camp, Hannagan campground, KP campground, West Fork Black River campground, East Fork Black River campground, Escudilla Mountain Estates, Bonita, Dog Patch and the H-V Ranch.

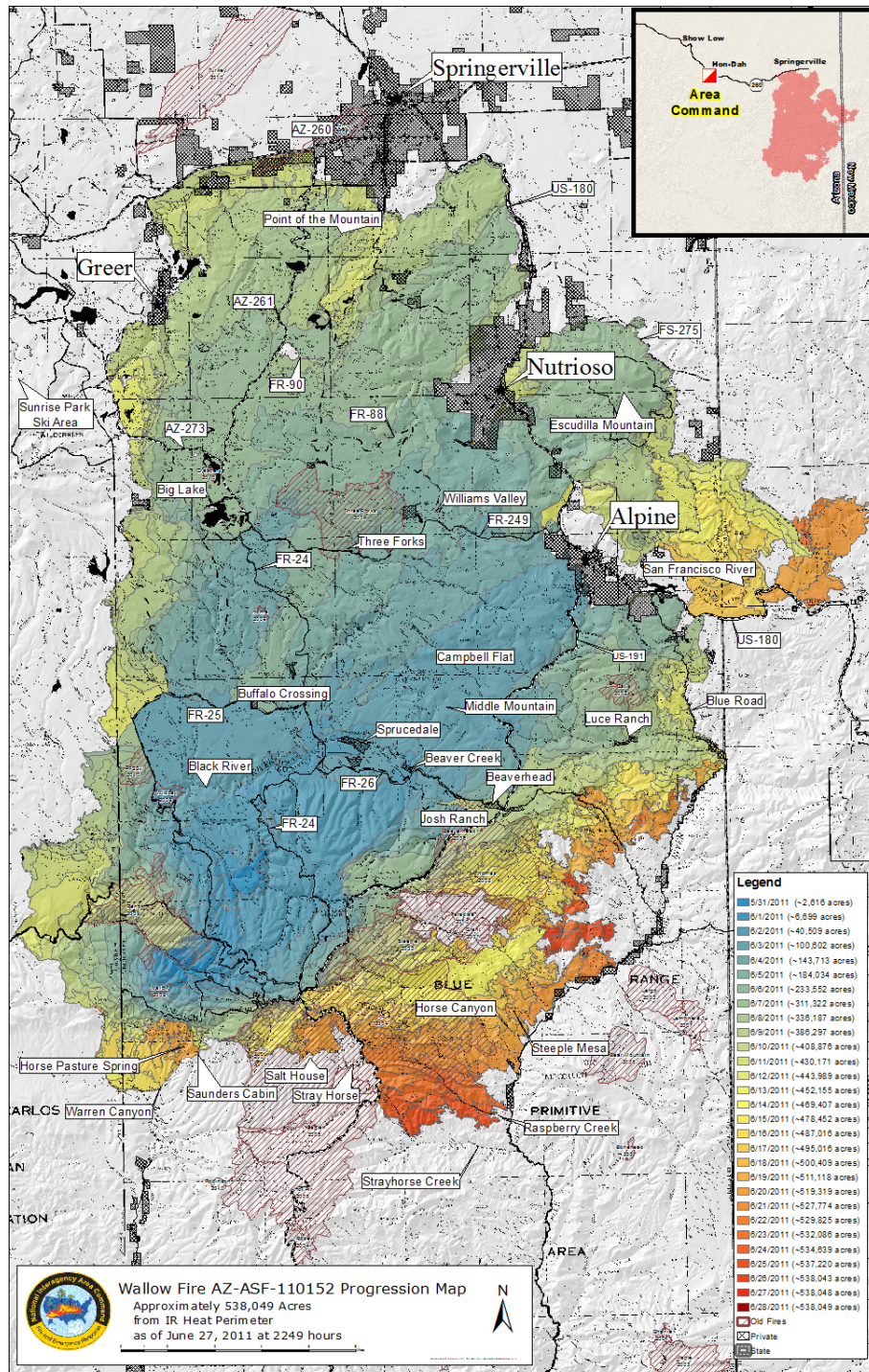
Q: Has anyone been injured?

A: No.

Q: How many people have been evacuated?

A: About 1,900, according to estimates as of 3 p.m. Sunday

Wallow Fire Document Set: Progression Map



Wallow Fire Document Set: Visuals



Wallow Fire; Campers escape before fire consumes area: Estancia, N.M., resident James Thompson takes a picture of the approaching Wallow Fire while camping in the Black River area June 1. Thompson and his girlfriend arrived at their campsite May 31 when the fire was still relatively small, having to escape the area when the fire exploded in size. Once on a forest road leading back to Highway 191, Thompson took the pictures of the blaze, which grew to be the largest wildfire in Arizona history.



Wallow fire; crew hiking: Members of the USFS fire crews hike from one spot to another Wednesday during the Wallow Fire. The twenty-member Hotshot crews are often called Type 1 Crews, but are really Type 1 Crews-PLUS since they exceed the experience, training and physical fitness required for a Type 1 Crew. They may be sent anywhere in the United States, and have been to Mexico and Canada, to fight wildland fires. Their arduous level of fitness and membership in the crew requires them to be able to hike three miles with a 45-pound pack in 45 minutes. They have put this into practice every day since their arrival.



Hot enough to burn metal: Photo taken along Highway 191 on July, 7 2011. The Wallow Fire was so hot it burned metal.



Wallow Fire reaches one month mark, nearly contained: Helicopters fuel up at Springerville Airport as they fight the Wallow Fire.

Name _____ Period _____

	6 Exemplary	5 Strong	4 Proficient	3 Developing	2 Emerging	1 Beginning
Ideas & Content	Exceptionally clear, focused, engaging with relevant, strong supporting detail	Clear, focused, interesting ideas with appropriate detail	Evident main idea with some support which may be general or limited	Main idea may be cloudy because supporting detail is too general or even off-topic	Purpose and main idea may be unclear and cluttered by irrelevant detail	Lacks central idea; development is minimal or non-existent
Sentence Fluency	High degree of craftsmanship Effective variation in sentence patterns	Easy flow and rhythm Good variety in length and structure	Generally in control Lack variety in length and structure	Some awkward constructions Many similar patterns and beginnings	Often choppy Monotonous sentence patterns Frequent run-on sentences	Difficult to follow or read aloud Disjointed, confusing, rambling

Name _____ Period _____

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Name _____ Period _____

Pick the words that will correctly fill in the paragraph below. **You can use the words more than once.**

Word Box

sunlight	kill	burn	populated	good
plants	animals	bad	never	trees

The Impact of Wildfires

When wildfires happen both _____ and _____ will be harmed in the beginning. The fire will _____ some of the animals but this loss of animals may keep the forest from being over-_____. The fire will _____ some of the plants. Some of the _____ will come back from seeds. Some of the _____ will get larger because the floor of the forest is getting more _____. The fire might also _____ some non-native plants. These plants might _____ come back so the forest is all native plants. So wildfires are _____ and _____ for forests.

Answer Key

When wildfires happen both plants and animals will be harmed in the beginning. The fire will kill some of the animals but this loss of animals may keep the forest from being over-populated. The fire will burn/kill some of the plants. Some of the plants will come back from seeds. Some of the plants/trees will get larger because the floor of the forest is getting more sunlight. The fire might also kill/burn some non-native plants. These plants might never come back so the forest is all native plants. So wildfires are good and bad for forests