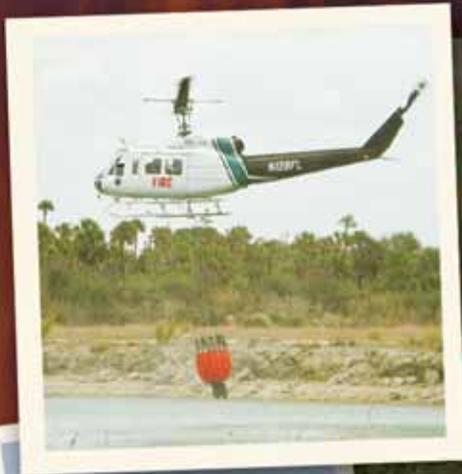


Florida Division of Forestry
presents

Wildfire Safety



SCRIPPS Treasure Coast Newspapers
Newspapers in Education

Fire in Florida

Over 16 million acres of Florida is covered with forests. Although the state's abundant rain and sunshine are vital to the survival of Florida's forests, another element is necessary to maintaining them...fire. Over thousands of years, Florida's forests have developed because of the presence of fire. In fact, many of Florida's ecosystems require fire in order to exist.

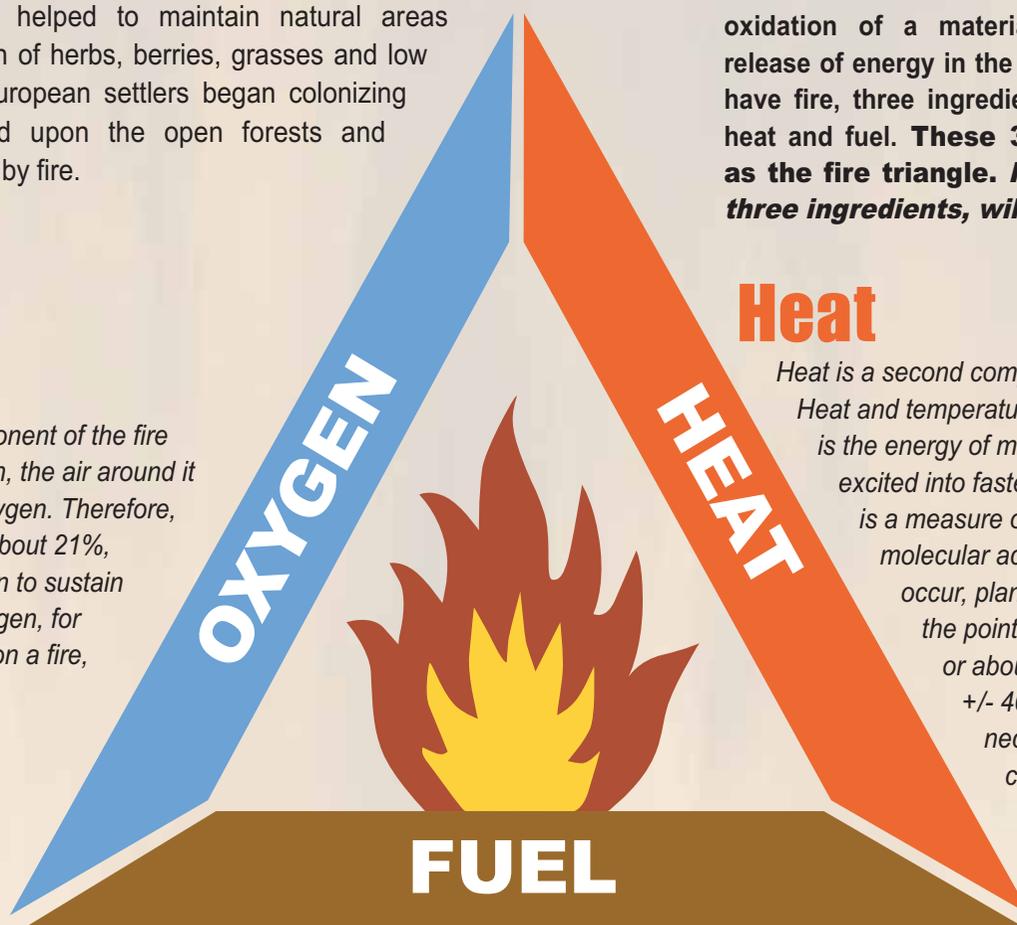
Fire has been present since the peninsula known as Florida emerged from the sea. Prior to the arrival of humans, weather conditions and fuels determined the occurrence of fires. When the first humans arrived in Florida over 10,000 years ago, their activities provided new ignition sources for fire. Along with periodic natural fires, Native Americans used fire as a tool to shape the environment and to improve hunting. Lightning fires and fires set by early humans helped to maintain natural areas conducive to the growth of herbs, berries, grasses and low shrubs. Later, when European settlers began colonizing Florida, they remarked upon the open forests and grasslands swept clean by fire.



Fire is a self-propagating chemical reaction known as combustion. It can be defined as rapid oxidation of a material accompanied by the release of energy in the form of heat and light. To have fire, three ingredients are needed: oxygen, heat and fuel. **These 3 elements are known as the fire triangle. Removing any of these three ingredients, will extinguish a fire.**

Oxygen

Oxygen is the first component of the fire triangle. For a fire to burn, the air around it must be at least 16% oxygen. Therefore, Earth's atmosphere, at about 21%, provides plenty of oxygen to sustain a fire. Removing the oxygen, for example, by putting dirt on a fire, smothers it.



Heat

Heat is a second component of the fire triangle. Heat and temperature are closely related. Heat is the energy of molecules that have been excited into faster motion, while temperature is a measure of the magnitude of this molecular activity. In order for ignition to occur, plant material must be heated to the point where volatile compounds, or about 655 +/- 72 degrees F (346 +/- 40 degrees C). The heat necessary to ignite a fire can come from many different sources, including human carelessness and lightning.

Fuel

Fuel is the third side of the fire triangle. Fuel is any material capable of burning. In Florida, typically wildland fuels include litter (e.g., pine straw, dead leaves, twigs), grasses (e.g., wiregrass, cogon grass), shrubs (e.g., saw palmetto, gallberry), and trees (e.g., pine trees). Thus, the fuels in a Florida forest would include dried and dead materials, such as branches, grasses, leaves, and pine needles, as well as living grasses and shrubs, such as palmetto and gallberry and young pines. Many fire adaptive plants in Florida contain volatile resins that encourage fire spreads through the ecosystem. Human structures can also become fuel for fire. It is important to understand that fire does not discriminate between different types of fuels: fire will burn any available combustible material in its path.

Smokey gets Puzzled

Word Scramble

Find the following words:

BURNS
COSTLY
DAMAGE
EVACUATION
HOUSE
INJURES
TREES
WILDLIFE

D Q P S C Q J O J N C S Q M E
O K W A S Y P E O O I D E V S
K D O A F T E I S B O M P E U
F R W C S W T T K H B M D C O
S Y G Q O A L I W L I X A V H
Y E W H U Y Z V N L F R M N A
S P E C V O C S B J J O A D P
P L A R R M L M Z M U A G K R
E V U T T Z N H Y L K R E B P
E Y U P E W I L D L I F E Y U
S N R U B X T B C B C U W S E
A O J L X X N Q Q C C Q O V P
J X G B A I I I G R C N C F V
T O T R Z Y M B J G N J O S E
K N T H Q M D Q J B H Y I S A

Crossword

Across

- A woods fire that is out of control
- Aircraft used to drop water on a wildfire
- Ideas that can reduce wildfire risk

Down

- These are destroyed when a wildfire gets too close
- Type of space that keeps a wildfire away from your home
- A fire that is used to keep vegetation under control
- The wildfire fighting bear
- Intentionally starting a wildfire to cause damage
- Number of feet of defensible space homes should have

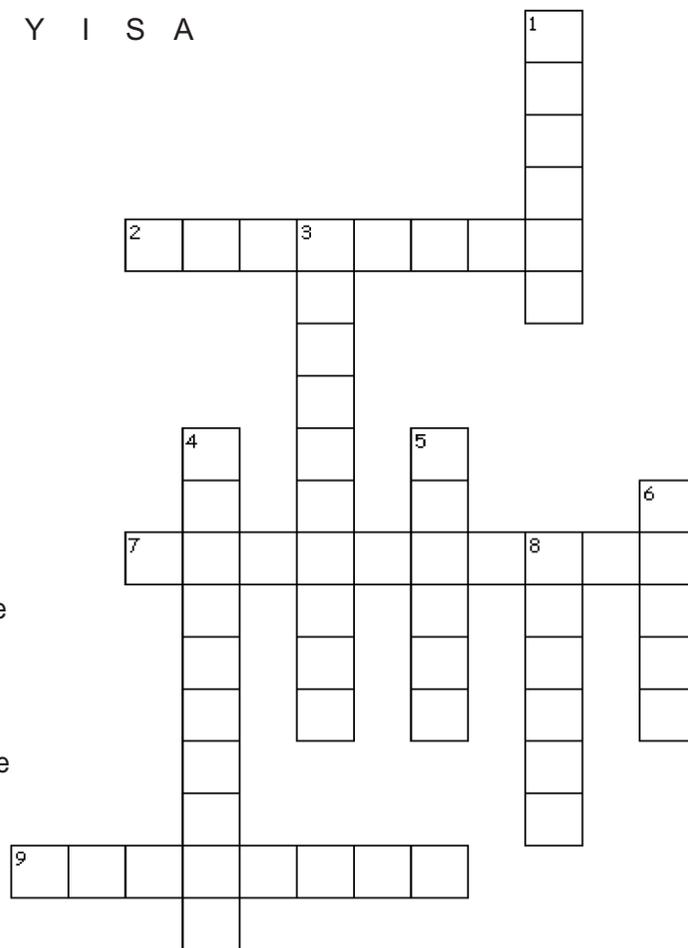


ARSON ALERT!

Hey kids, if you see
anyone setting fires
on purpose, tell your
parents to call the

Arson Alert Hotline!
1-800-342-5869

Mom & Dad can get up
to a \$5,000 reward
for information leading
to an arrest.



Fire in Florida's Ecosystem

Fire and water are among the primary forces shaping Florida's landscape. As Florida's climate changed over the eons, plant and animal species became adaptive. Some of Florida's species provide clear examples of adaptations to fire. For example, southern pine trees have thick bark that insulates the inner, living tissue from fire's heat. Longleaf pine is so fire resistant that mature trees usually escape the injurious effects of low-level fire and become seed trees for the reforestation of new openings in the burned area. The Ocala sand pine exhibits another adaptation for coping with fire: the "serotinous" cones remain closed until a fire's intense heat opens the cones and allows the seeds to fall on fresh soil exposed by the passing fire. Seeds of many plants grow best under the conditions created by fire—exposed mineral soil, increased nutrients provided by ash, and open areas with plenty of sunlight.

Animal life also depends on fire. The gopher tortoise, whose burrows provide habitat or shelter for hundreds of other species, is dependant on periodic fire to provide fresh browsing vegetation. Without fire, the scrub habitat changes; in overgrown scrub, plants create so much shade and leaf litter that the open, sandy patches disappear and so do the species that prefer them. Canopy closure reduces or eliminates habitat for Florida mice, pygmy mole crickets, scrub lizards, and sand skinks. Overgrown oaks produce fewer acorns for animals such as Florida scrub-jays, Florida mice, black bear and acorn weevils. The threatened Florida scrub-jay requires areas with open pine cover (less than 15%), where pine densities is kept low by frequent understory fires. The best vegetation for the jays consists of mosaic of different age classes of scrub,

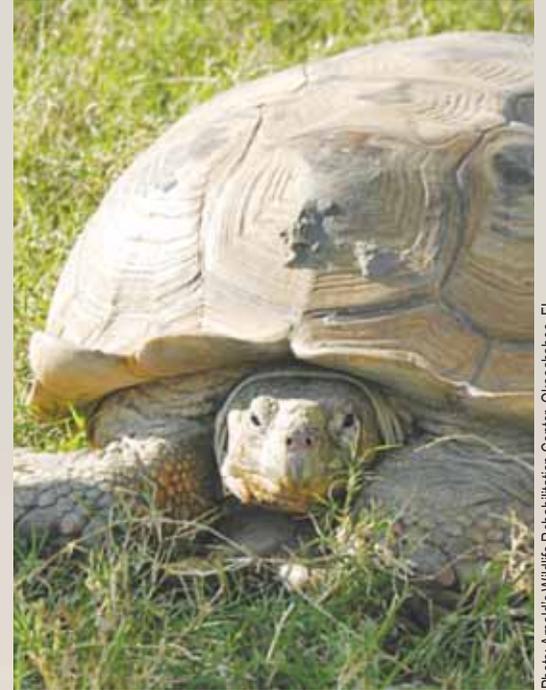


Photo: Arnold's Wildlife Rehabilitation Center, Okeechobee, FL

A native burrowing gopher tortoise

most of which have burned within the last 20 years. Without fire, the oaks become too tall and the habitat too dense for the Florida scrub-jay because predators are not easily seen.



A native Florida scrub-jay





The endangered red-cockaded woodpecker (*Picoides borealis*) inhabits longleaf as well as loblolly and shortleaf pine forests. Understory fires are essential to prevent the development of hardwood mid-story growth; without such fires, these birds will abandon their territory. Red-cockaded woodpeckers today are found predominantly in areas with a history of aggressive, prescribed burning. In addition, understory burning increases populations of arthropods—many of which breed and feed in charred trees—likely aiding insectivorous loggerhead shrikes (*Lanius ludovicianus*) and American kestrels (*Falco sparverius*).



New life out of the ash, just a few days after a fire.

During a fire, many species of small animals, such as ants, Florida mice, gopher frogs, mole crickets, and ox beetles, have ways to flee, or find refuge in an existing (gopher tortoise) burrow beyond the reach of the heat. Birds can easily fly away from the flames. Larger mammals, can often sense and easily out maneuver a fire.

Infrequent, devastating, high-intensity fires may destroy the tree canopy but they allow sunlight to bathe the forest floor and aid in the regrowth of new plants. These hot fires leave behind a nutrient-rich ash that feeds the new plants as they re-sprout. Since most surface vegetation is burned away, little or no competition for nutrients exists so young pine seedlings are able to establish easily and grow quickly. Scrub habitat regenerates rapidly after most fires. Larger mammals, such as deer love to eat the fresh regeneration of grass that occurs after a fire. The new grass buds that grow immediately after a fire are known as “ice cream species” of grass; they are the favorite grass for deer to eat. As the majority of a Florida panther’s diet consists of deer, any management activity that improves the deer population also improves the panther population.



A wild Florida egret feasts on insects as the bugs flee the nearby fire.

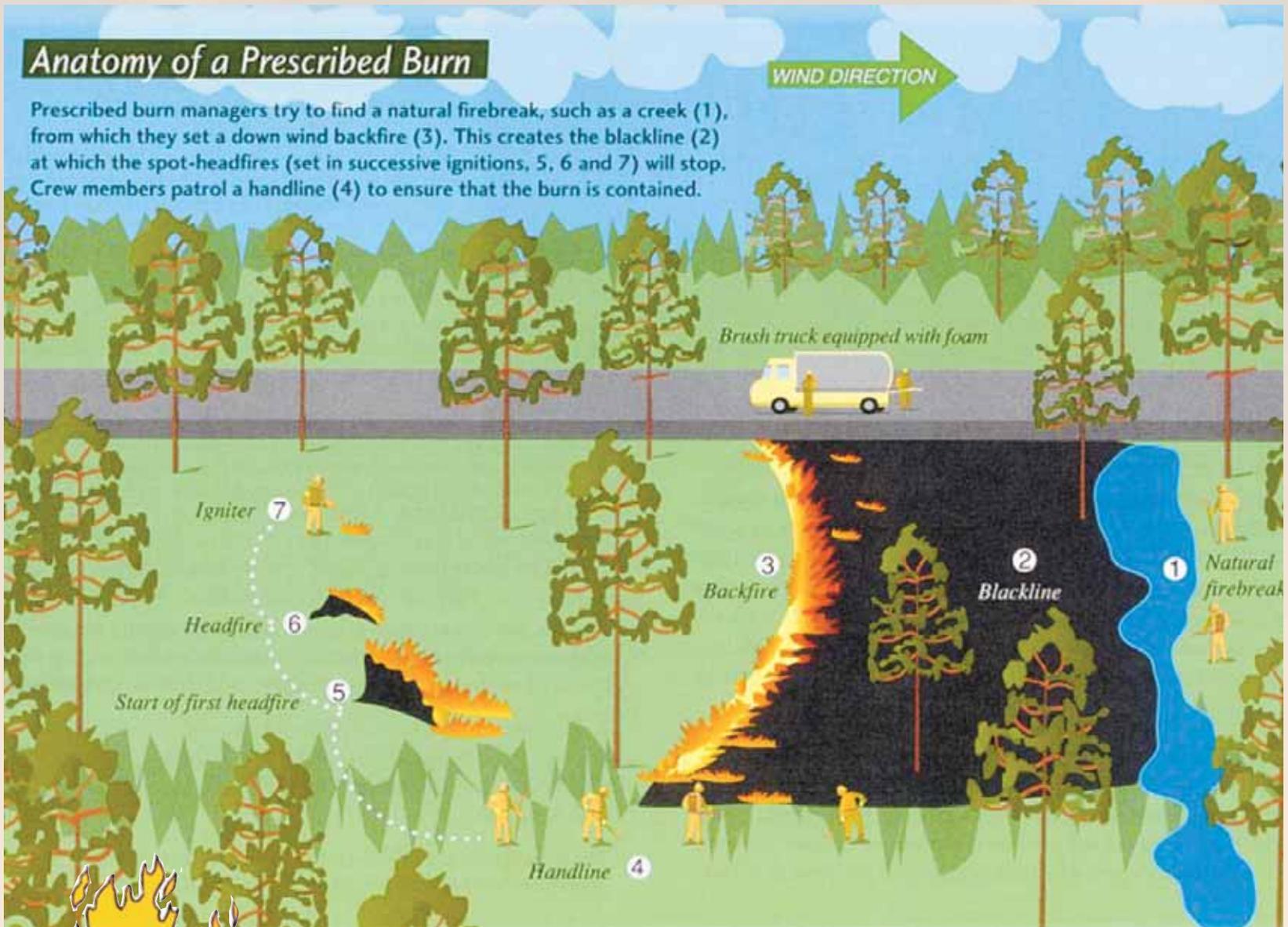


A native Florida Key Deer

Prescribed Burning

Now that we realize that many of Florida's native species will disappear unless fire is introduced back into the habitats, people in charge of preserving and maintaining natural areas are including prescribed burns as part of their management. Prescribed burns are intended to do three things: **1) mimic natural conditions, 2) maintain a variety of plant communities, and 3) decrease the amount of accumulated plant material**, and thereby reduce the chance of devastating wildfires. A prescribed burn is not a one-time event, but a process that must be continually applied to the landscape.

Fire provides a coming-out party, complete with charcoal. The corollary principle is that, in the absence of fire, these plant species—and their animal dependents—may eventually become absent themselves.



Only in the last century has fire in the forest been viewed as a monster. We are now beginning to realize that fire is a natural agent essential for maintaining the natural ecosystems of Florida. Fire is neither all good nor all bad. It is natural. It is powerful. In the proper places, in the right hands, at the right times, fire can be an asset and an ally. To employ fire as a useful friend is much more logical than confronting it as an enemy.



Florida Division of Forestry

The Florida Division of Forestry (FDOF) was founded in 1927 in response to uncontrolled wildfires that burned during the 1920s. The FDOF has the responsibility to prevent, detect, suppress and extinguish wildfires wherever they occur within Florida. The FDOF performs wildfire prevention through education and wildfire hazard mitigation programs. The agency also performs wildfire suppression (firefighting), management of 35 state forests totaling about 1,000,000 acres, urban and community forestry assistance, and

forestry assistance to private landowners.

The FDOF relies heavily on federal, state, and local partners to fulfill its statutory responsibility for wildfire prevention and suppression. Mutual aid agreements throughout the state mean the county and/or municipal fire trucks frequently respond along with a FDOF firefighting unit. Although some fire lookout towers are still staffed on a seasonal basis, most wildfires in Florida are now reported by FDOF patrol aircraft or citizens who call 911.

FDOF Fire Spotting

Florida Division of Forestry airplane fleet consists of 20 single-engine (Piper and Cessna) and 2 light twin-engine (Piper Navajo) airplanes. These airplanes are used to scout out wildfires and serve as “eyes in the sky” for firefighters on the ground. Smoke impedes ground crews and the airplanes circle the fire communicating to them hazards and fire weather.



A fire lookout tower, fire tower or lookout tower, provides housing and protection for a person known as a “fire lookout” whose duty it is to search for fire in the wilderness. The fire lookout tower or view shed, is a small building usually located on a high vantage point in order to maximize the viewing distance and range. From this vantage point, the fire lookout can see any trace of smoke that may develop, determine the location by using a device known as an Alidade, and call fire suppression personnel to the fire.



Specialized Equipment for Florida's Wildfires

The Division of Forestry accomplishes its Mission to safeguard the lives and property of Florida's citizens by combining a unique array of equipment that enables it to attack wildfire and respond to other emergent needs—no matter what the terrain or location. This equipment also permits the Division to carry out our other land management responsibilities on public and private lands. The Division of Forestry has a long and distinguished record of affording the citizens and leaders of this state the peace of mind that they and their loved ones and properties are safe from the effects of wildfires and other calamities.



The Medium Crawler Tractor is the Division's primary on-the-ground firefighting piece of equipment. The tractors can plow down to mineral soil creating a 8'-10' wide fire break in most vegetation types in Florida. The tractor removes the fuel element of the fire triangle thus stopping an oncoming wildfire before it can reach homes, property and resources. The Medium Crawler Tractor enables the wildland firefighters to reach deep into the woods to suppress fires that are inaccessible by other means. It is also used as a preventative management tool to assist landowners by scraping fire breaks on their land before a fire occurs and in preparation for prescribed burning. This size tractor has been used very effectively for clearing roads and yards following Hurricanes Andrew and Wilma, and other weather events.

The helicopter fleet consists of seven medium (Bell UH1-H and 209) and two light (Bell OH-58) former military helicopters. Three B-209 "FireSnake" helicopters (demilitarized AH-1P "Cobra" attack helicopters) are used by DOF for fire suppression. These high-speed aircraft can carry a 320 gallon bucket or a foam-injection equipped 360 gallon fixed tank to drop water or foam on fires. Four UH-1H "Huey" or "SuperHuey" helicopters in the DOF fleet drop up to 300 gallons of foam or water, transport up to 10 firefighters, or aurally ignite prescribed burns. OH-58A+ "Kiowa" light helicopters. They are used largely for aerial ignition prescribed burning, tactical counterfire, and observation, but also can carry a 75 gallon water bucket for fire suppression.



The Brush Patrol (Wildland Fire Engine) is used for deep woods penetration in the direct suppression of wildfires and to protect structures in the wildland/urban interface. The Brush Patrol is also used as a standby unit during prescribed burning for landowners who utilize DOF assistance programs, and for prescribed burning on state land. These special pumper units are fabricated at our Central Shop to meet our special firefighting requirements.

PPE: Personal Protective Equipment

Division of Forestry firefighters are equipped with special gear to keep them safe while fighting fires. This gear is called PPE.

1 Wildland Helmet – A lightweight, plastic helmet is designed to protect the head from blows and also offer some protection from the heat and flames.

2 Eye protection – Wildland Firefighters can wear a visor or safety goggles; these help to protect the wildland firefighter's eyes from smoke, dust, and small flying objects.

3 Protective Clothing – All personnel are required to wear "Nomex" protective clothing on all fire operations. Aramid fabric type two is fire-resistant, not fireproof. This is a durable fabric that provides good thermal protection. It will burn when exposed to flames, but stops burning when flames are removed. Instead of melting or burning to ash, it forms a char that helps protect skin. The yellow color is more visible in dark and smoky environments.

4 Gloves – Leather or Nomex gloves are designed to protect hands against blisters, cuts, scratches, and minor burns during fire operations.

5 Fire Shelter – It is the most important component of a wildland firefighter's personal protection equipment. A fire shelter is a safety device of last resort used by wildland firefighters when trapped by wildfires. It is designed to reflect radiant heat, protect against convective heat, and trap breathable air in an attempt to save the firefighter's life. The fire shelter fits inside a box and is worn on the wildfire fighter's belt.

6 Leather Boots – All boots for wildfire suppression and field work are required to be leather lace-up boots with an eight-inch minimum height.

7 Radio – A radio is an essential component to ensure effective communication.



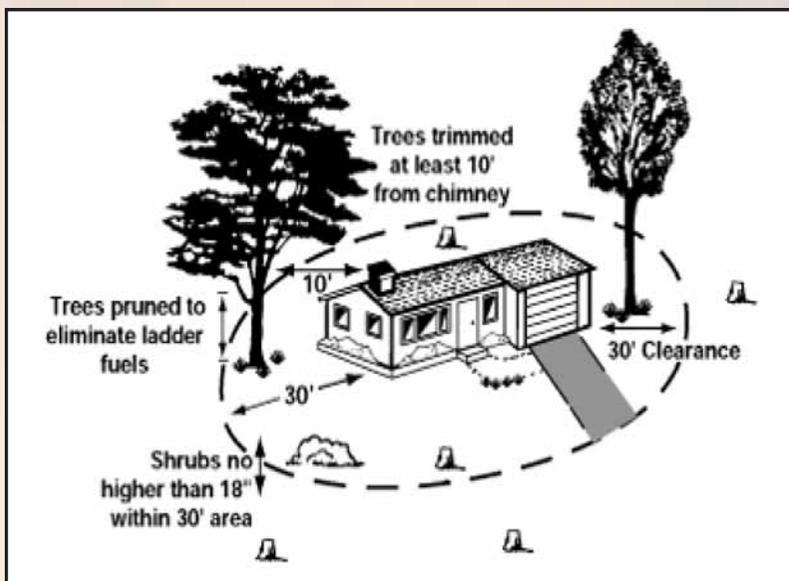
Wildland Urban Interface

Over the past fifty years, more and more Floridians have moved out of the cities to build homes and businesses in the outlying fringe areas known as the wildland urban interface. In fact, almost one-third of our population lives in these interface areas where structures intermingle with forests and wildlands. Residents here, however, usually don't realize they may live too "close to nature," they may, in fact, be living on the edge of a wildland fire disaster. When dry years come, Florida experiences severe wildfires—wildfires that destroy homes, disrupt people's lives and impact our economy.



Why homes burn Wildland Urban Interface homes are usually lost because of the “little things” associated with the two most vulnerable parts of a home: the roof and the area immediately surrounding the structure.

The most vulnerable part of the house is the roof and soffits. Wood shingles can easily catch fire from flying fire brands. Roofs with fire resistant shingles can also catch fire from embers if there is an accumulation of leaves and pine needles on the roof and in the gutters. Exposed eaves can allow fire brands into the attic and catch the roof on fire. Vinyl soffits are not recommended in fire prone areas unless they have backing of 1/8" noncombustible (wire) mesh. They melt easily and can allow fire brands into the attic area.



When Wildfire Threatens

Should your house be threatened by wildfire, you may be advised to evacuate by a fire or law enforcement official. Do not try to fight the fire yourself if you have been asked to evacuate the area.

Protect Your Family

- Evacuate all family members as well as pets.
- Include special items needed for infant, elderly or disabled family members and pets.
- Contact a friend or relative and relay your plans of where you are going.
- Tune into a local television or radio station and listen for updates and instructions.
- Place valuable papers and mementos in the car.
- Wear protective clothing- sturdy shoes, cotton, or woolen clothing, long pants, a long sleeved shirt, gloves and a handkerchief to protect your face.
- Choose a route away from fire hazards. Watch for changes in the speed and direction of fire and smoke.



If you have time before you evacuate take these steps to protect your home:

Protect the Exterior of your home

- Close all exterior doors and windows.
- Place combustible patio furniture in the house or garage.
- Shut off propane at the tank or natural gas at the meter.
- Make sure all garden hoses are connected to faucets and attach a nozzle set on “spray.”
- Fill trash cans and other containers with water. Soak rags, towels or small rugs with water to use in beating out embers or small fires.
- Consider placing lawn sprinkler on the roof if water pressure is adequate. Do not turn on water until burning embers begin to land on the roof in order to conserve the water supply.
- Wet or remove shrubs within fifteen feet of the home.

Protect the interior of your home

- Close all interior doors.
- Leave a light on in each room to increase the visibility of your home in heavy smoke.
- Remove lightweight and/or non-fire resistant curtains and other combustible materials from around windows.
- If available, close fire resistant drapes, shutters or Venetian blinds.
- Turn off all pilot lights.
- Move flammable furniture into the center of the home, away from windows and sliding glass doors.



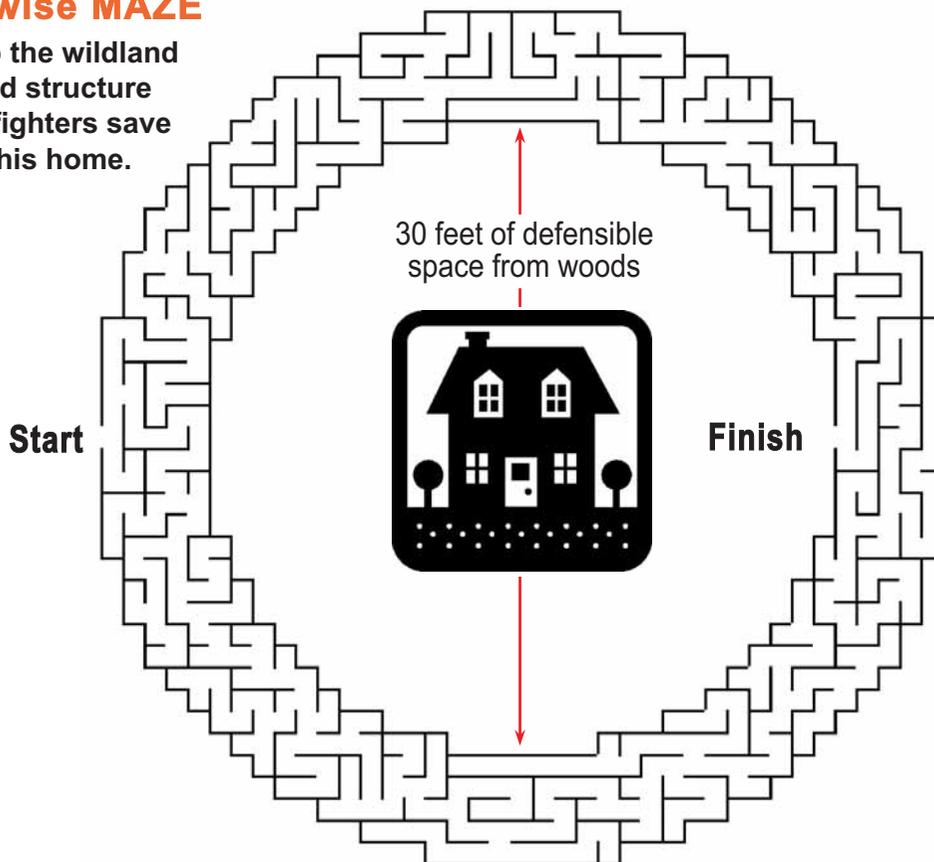
Homeowner Wildfire Safety Check List

1. Roof Cleaned of Debris
2. Gutters Cleaned
3. Two Escape Routes
4. Family Wildfire Plan
5. Cleared Access to Home
6. Address Clearly Marked
7. Prune Tree Limbs
8. Firewood Stored Away from Home
9. Combustible Materials Away from Home
10. Defensible Space (At Least 30 feet)
11. Have an Outside Water Source
12. Less Flammable Landscaping

✓ Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

Smokey Bear's Firewise MAZE

Help the wildland and structure firefighters save this home.



Working Together for a Common Goal

Response to wildfires in the State of Florida is primarily a partnership effort between the Division of Forestry and local fire agencies. Frequently, when a fire emergency occurs, the notification is processed through the local 911 emergency phone system or Division of Forestry detection. The local fire department responds and the Division of Forestry is notified. As the first responder, the local department may arrive on scene first and determine the need for forestry resources to continue. In a true wildfire situation, the Division of Forestry, or the appropriate federal agency on federal property, may be dispatched and arrive first and determine the need for additional resources.

The Division of Forestry has statutory responsibility for all wildfires within the State of Florida. Local fire agencies have responsibility for fire protection within their jurisdictional boundaries. Using the National Incident Management System (NIMS) model, the first arriving agency assumes command of the incident. Command is then transferred as necessary as additional units or agencies arrive on the scene. In a working incident, the primary agency having responsibility for the fire will assume command of the operation after their arrival. When fires involve the interface between the wildland areas and the urban and suburban communities, there is joint responsibility to combat the spread of these fires by both the local agencies and the Division of Forestry. In these cases, all agencies must work together and support each other in a unified command operation to provide the most efficient use of resources.

On a wildfire, there could be over a hundred people working on one fire. Not all personnel are firefighters. There are dispatchers, media experts, mechanics, accountants, meteorologists, police, local experts (on land, fuel, terrain, waterways, so on), electrical and infrastructure experts and many more specialized individuals depending on the fire.



Florida's State Forests

A state forest is an area of land that has trees growing in wild settings and is managed by the Florida Division of Forestry. The Division of Forestry tends over 35 state forests totaling over 1,000,000 acres across Florida, from Naples to Jacksonville to Pensacola and everywhere else in between. Many different people work on our state forests, including foresters, biologists, park rangers, and forest rangers to make sure that the forests continue to be well tended and healthy. State forests provide recreation for visitors with camping and horseback riding, homes and food for wildlife, clean drinking water, and trees to make paper and other products.

Facts about Florida's Forests

- For every tree that is cut down, five new seedlings are planted in the state of Florida.
- More than 82 million trees are planted each year in Florida. This ranks Florida as 4th in the country in number of trees planted each year.
- Since 1980, over 1.3 million acres of forest have been converted to houses, factories, or other uses. That's 1200 acres each week, or about two square miles. Still, 50% of Florida's land area is covered in forests.
- Over 5,000 products that we use start from a tree. The list includes: bandages, crayons, football helmets, gum, ink, money, nuts, paint, and paper. Imagine your life without these products!
- Trees, just like people, live for different amounts of time. A live oak in Florida can live for over 300 years whereas a pine tree will usually live about 80 years.
- Within 3 years of harvest, a new forest is started. In some cases, trees are left to provide seeds for new seedlings, or seedlings can be planted. Cypress trees can grow from the stumps of the trees that were cut down.
- In an average year, 189,000 acres of trees are harvested. Different methods are used to harvest the trees, including: thinning (removing some trees to leave remaining trees with more room to grow); clear-cut (starting over with a new forest); and seed tree (scattered trees are left to provide seed to start the next forest). In the end, new trees are started or planted.
- In cities, the average age that a tree lives is only 7 years because of the packed soil and limited rooting space. A tree's roots usually extend beyond the drip-line of the tree's branches. Trees need space to grow and in order to live longer!



Foresters examine trees to look for good growth, insects, diseases, and needs for fertilizer.



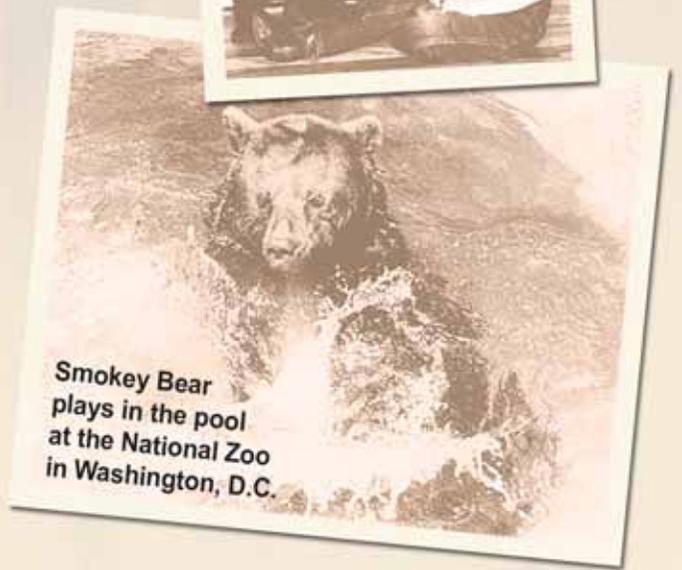
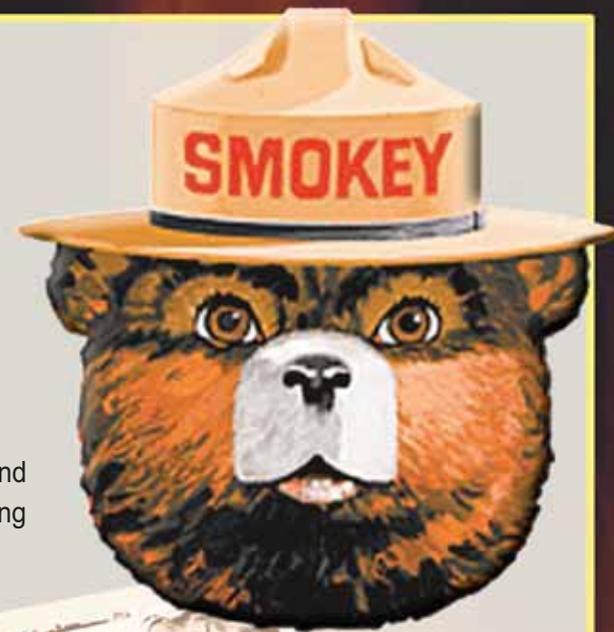
In Florida, big equipment is used to harvest trees from the forest to transport them to the mills where paper and lumber are made.

The History of the real Smokey Bear

Smokey rescued

Did you know that the real Smokey Bear was an actual baby black bear that was found alone, charred, and scared after a devastating wildfire burned through New Mexico? One spring day in 1950 in the Capitan Mountains of New Mexico, an operator in one of the fire towers to the north of the Capitan spotted smoke and called the location into the nearest ranger station. The first crew discovered a major fire being swept along the ground between the trees, driven by a strong wind. Word spread rapidly and more crews reported to help. Forest Rangers, Army soldiers, men from the New Mexico State Game Department, and civilian volunteers worked together to gain control of the raging fire. As soon as they contained the fire to one spot, the wind would push it across the lines. During one of the lulls in firefighting, a report of a lonely bear cub who had been seen wandering near the fireline was reported. The men left him alone because they thought the mother bear might come for him. Several soldiers were caught directly in the path of the fire storm, barely escaping by laying face down on a rockslide for over an hour until the fire had burned past them. In spite of the experience, the firefighters were safe except for a few scorches and some burned holes in their clothes.

Nearby, the little cub had been caught in the path of the same fire and had not fared as well. He had taken refuge in a tree that was now nothing but a charred smoking snag. His climb had saved his life but left him badly burned on the paws and hind legs. The soldiers removed the little bear cub from the burned tree, but they did not know what to do with him. A rancher, who had been helping the firefighters, agreed to take the cub home. A New Mexico Department of Game and Fish Ranger heard about the cub when he returned to the fire camp and drove to the rancher's home to get the bear. The cub needed veterinary aid and was flown in a small plane to Santa Fe where the burns were treated and bandaged. The news about the little bear spread swiftly throughout New Mexico. Soon the United Press and Associated Press picked up the story and broadcast it nationwide. Many people wrote or called to inquire about the little bear's progress. The State Game Warden wrote an official letter to the Chief of the Forest Service, presenting the cub to the agency with the understanding that the small bear would be dedicated to a publicity program of fire prevention and conservation. The go-ahead was given to send the bear to Washington, D.C., where he found a home at the National Zoo, becoming the living symbol of Smokey Bear.



**Smokey Bear
plays in the pool
at the National Zoo
in Washington, D.C.**



Enter to Win!

Florida Division of Forestry

Wildfire Safety Drawing

Enter today!

With help from your parent or teacher, take our Wildfire Safety Quiz at www.fl-dof.com/wildfire_safety.pdf. Print out the quiz, and answer the five questions. Give your finished quiz to your teacher. A Florida Division of Forestry representative will collect the quizzes from your school and grade them. Everyone scoring 100% on the quiz will be entered into a countywide drawing!

Odds for winning are good, so enter today!

1st Prize!

Grand Prize Winner! Win a visit from a Florida Division of Forestry Ranger, who will bring his equipment and visit your class to talk about fires and fire safety. The student winner will be named "Ranger for the Day" and will receive a certificate, ranger hat and Smokey Bear **watch!**

2nd Prize!

Win a visit/presentation by Florida Division of Forestry Ranger, be named "Ranger for the Day," receive certificate, ranger hat and Smokey Bear **backpack!**

3rd Prize!

Win a visit/presentation by Florida Division of Forestry Ranger, be named "Ranger for the Day," receive certificate, ranger hat and Smokey Bear Fire Patrol **t-shirt!**

Florida Division of Forestry www.fl-dof.com

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Monroe, Dade, Broward
& Palm Beach Counties

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Martin, St. Lucie, Indian River,
Okeechobee, Highlands
& Glades Counties

Caloosahatchee District
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Lee, Collier
& Hendry Counties

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Teachers! The Florida Division of Forestry offers many educational items FREE to you! Go to www.fl-dof.com for more information.

