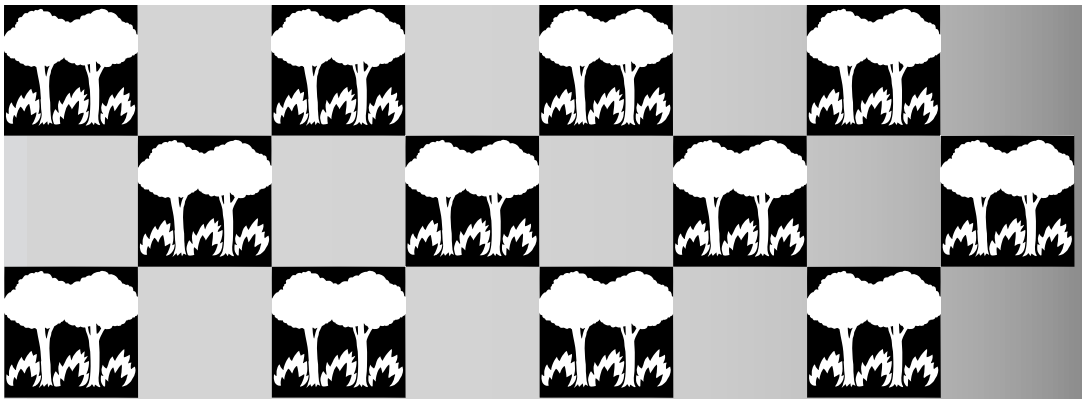

Wildfire

Produced by the National Disaster Education Coalition: American Red Cross, FEMA, IAEM, IBHS, NFPA, NWS, USDA/ CSREES, and USGS

Why talk about wildfire?

More and more people are making their homes in woodland settings in or near forests, rural areas, or remote mountain sites. There, homeowners enjoy the beauty of the environment but face the very real danger of wildfire. Wildfires often begin unnoticed. They spread quickly, igniting brush, trees, and homes.

What are wildfires, and what causes them?

There are three different classes of wildfires. A "surface fire" is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A "ground fire" is usually started by lightning and burns on or below the forest floor in the human layer down to the mineral soil. "Crown fires" spread rapidly by wind and move quickly by jumping along the tops of trees.

Wildfires often begin unnoticed. They spread quickly, igniting brush, trees, and homes.

Learn if you are at risk from wildfire by contacting your local fire department, forestry service, or other emergency response agencies.

Awareness Information

More than four out of every five forest fires are started by people. Negligent human behavior, such as smoking in forested areas or improperly extinguishing campfires, is the cause of many forest fires. Another cause of forest fires is lightning.

Plan for Wildfire

Develop a Family Disaster Plan. Please see the "Family Disaster Plan" section for general family planning information. Develop a wildfire-specific plan. Learn about your area's wildfire risk. Contact your local fire department, forestry service or other emergency response agencies for

information on fire laws and wildfire risk.

If you are at risk from wildfire:

- When building or planting, consult with your local planning and zoning department, fire department, or local building officials. There may be restrictions on the types of materials or plants used in residential areas. Following local codes or recommendations will help reduce injury and damage to you and your property.
- Make sure that fire vehicles can get to your home. If wildfires threaten, firefighters will try to reduce damage around your home.
- Clearly mark all driveway entrances and display your name and address.
- Post fire emergency telephone numbers. If wildfires threaten, contacting emergency officials as quickly as possible may reduce further damage. Having critical phone numbers posted will avoid wasted time looking them up.
- Plan two ways out of your neighborhood. Your primary route may be blocked; know another way out just in case.
- Plan your water needs. Sometimes you may be able to fight small fires, preventing them from becoming larger or delaying their effects until emergency responders with appropriate materials arrive on the scene.
- Identify and maintain an adequate outside water source such as a small pond, cistern, well, swimming pool, or hydrant.
- Keep a garden hose that is long enough to reach any area of the home and other structures on the property.
- Install freeze-proof exterior water outlets on at least two sides of the home and near other structures on the property. Install additional outlets at least 50 feet from the home.
- Consider obtaining a portable gasoline-powered water pump in case electrical power is cut off.
- Develop an evacuation plan. (See "Evacuation" in the "Family Disaster Plan" section.) Everyone in your family should know where to go if they have to leave. Trying to make plans at the last minute can be upsetting and create confusion.
- Discuss wildfire with your family. Everyone should know what to do in case all family members are not together. Discussing wildfire ahead of time will help reduce fear and anxiety, and lets everyone know how to respond.

What to Tell Children

- Practice stop, drop, and roll. Know how to stop, drop, and roll in case your clothes catch on fire. Stop what you are doing, drop to the ground, cover your face, and roll back and forth until the flames go out. Running will only make the fire burn faster. Practicing makes the appropriate response more of an automatic reaction, requiring less thinking time during an actual emergency situation.
- Matches and lighters are tools for "grown-ups". These tools help adults use fire properly. Instruct children to tell an adult right away if they see someone playing with fire, matches, or lighters. National Fire Protection Association research has shown that children associate tools with grown-ups, and "grown-up" is a term children use for someone in authority.
- Firefighters are our friends, and they will help in case of a fire. Visit a fire station to help ease children's fears. A fire suit and mask are often frightening and children may try to hide from a firefighter in full protective gear.

Assemble a Disaster Supplies Kit

Please see the "Disaster Supplies Kit" section for general supplies kit information. Wildfire–specific supplies should include the following:

- Sturdy work clothes, gloves, and boots.
- Disaster Supply Kit basics.
- Evacuation Supply Kit.

Please see the "Fire" section for more children's messages.

How to Protect Your Property

Houses and Buildings

- Design and landscape your home with wildfire safety in mind. Obtain local building codes and weed abatement ordinances for structures built near wooded areas. There may be restrictions on the types of materials or plants used in residential areas. Following local codes or recommendations will help reduce injury and damage to you and your property.
- Select materials and plants that can help resist fire rather than fuel it. Use fire resistant or noncombustible materials (tile, stucco, metal siding, brick, concrete block, or rock) on the roof and exterior structure of the dwelling. Treat wood or combustible materials used in roofs, siding, decking, or trim with fire-retardant chemicals that have been listed by the Underwriter's Laboratory (UL). Avoid using wooden shakes and shingles for a roof. Use only thick, tempered safety glass in large windows. Sliding glass doors are already required to be made of tempered safety glass.
- Install electrical lines underground, if possible. There is a greater chance of fire from overhead lines that fall or are damaged, such as in an earthquake or storm.

- Create a safety zone to separate your home from combustible plants and vegetation. (Consult your local fire department for recommendations about the safety zone for your property.) Maintain the greatest distance possible between your home and materials that may burn in wildfire. Within this area, you can take steps to reduce potential exposure to flames and radiant heat. Stone walls can act as heat shields and deflect flames. Swimming pools and patios can be a safety zone.
- If your home sits on a steep slope, standard protective measures may not suffice. Fire moves quickly up steep slopes. A larger safety zone may be necessary. Contact your local fire department or forestry office for additional information.
- Equip chimneys and stovepipes with a spark arrester that meets the requirements of National Fire Protection Association Code 211. (Contact your local fire department for exact specifications.) This will reduce the chance of burning cinders escaping through the chimney, starting outdoor fires.
- Have a fire extinguisher and get training from the fire department on how to use it. Different extinguishers operate in different ways. Unless you know how to use your extinguisher, you may not be able to use it effectively. There is no time to read directions during an emergency.
- Consider installing protective shutters or heavy fire-resistant drapes. The heat from a fire creates wind, which can blow hot cinders, sometimes large enough and with enough force to break windows. Reduce the potential for these cinders to cause your home to burn.
- Keep a ladder handy that will reach the roof. You may need to get on the roof to wet it down or remove flammable debris.
- Keep household items handy that can be used as fire tools: a rake, ax, hand-saw or chain-saw, bucket, and shovel. You may need to fight small fires before emergency responders arrive. Having this equipment will make your efforts more effective.

Plants and Vegetation

- Plant fire-resistant shrubs and trees in your safety zone and on the remainder of your property. Fire-resistant plants are less likely to catch and spread fire closer to your home. For example, hardwood trees are more fire-resistant than pine, evergreen, eucalyptus, or fir trees.
- Rake away leaves, dead limbs, and twigs. Remove leaves and rubbish from under structures and dispose of them properly. Clear all flammable vegetation. This will help reduce the fuel load.

- Have a professional tree service thin a 15-foot space between tree crowns, and remove limbs within 6 to 10 feet of the ground. This will help reduce the chance of fire spreading from tree to tree or from ground to tree.
- Remove dead branches from all trees. Dead branches are easily combustible.
- Keep all tree and shrub limbs trimmed so they don't come in contact with electrical wires. Electrical wires can be easily damaged or knocked loose by swaying branches.
- Keep trees adjacent to buildings free of dead or dying wood and moss. Taller plants are more likely to spread fire.
- Prune tree branches and shrubs within 15 feet of a stovepipe or chimney outlet.

Reducing Fire Hazards

- Ask the power company to clear branches from power lines. High-voltage power lines can be very dangerous. If a line should fall, it can cause injury or fire to others. Only authorized and trained professionals should work around them.
- Remove vines from the walls of the home. Even live vines can spread fire quickly.
- Mow and water grass regularly. This will help reduce the fire load.
- Place propane tanks at least 30 feet from the home or other structures. Propane tanks can explode under certain conditions. Make sure a pressure-relief valve is installed on the propane tank.
- Clear a 10-foot area around propane tanks and the barbecue. Place a metal screen over the grill — use nonflammable material with mesh no coarser than one-quarter inch. This will help reduce the chance and lessen the effects of fire.
- Regularly dispose of newspapers and rubbish at an approved site. Follow local burning regulations. Regular disposal of flammable items will reduce the fuel available for fire.
- Place stove, fireplace, and grill ashes in a metal bucket, soak in water for two days, then bury the cold ashes in mineral soil. Fires can start quickly from hidden cinders or burnt materials that are still hot. Once they are burned, chunks of flammable items can ignite at lower temperatures. Bury ashes to avoid potential fires.
- Stack firewood at least 30 feet away and uphill from your home. Clear combustible material within 20 feet of stack. Use only UL-listed wood burning devices. Fire tends to travel uphill, keeping

highly combustible firewood and other materials above your home will reduce the effects of fire on your home.

- Regularly clean roof and gutters. Remove all dead limbs, needles, and debris that spread fire.
- Place metal screens over openings to prevent collection of litter. Cover openings to floors, roof, and attic with screen. Use quarter-inch mesh screen beneath porches, decks, floor areas, and the home itself. (Eighth- or sixteenth-inch mesh screen is better.) Leaves, branches, twigs, and loose papers quickly increase the fuel available for a fire.
- Avoid open burning completely, especially during the fire season. Ash and cinders lighter than air float and may be blown into areas with heavy fuel load, starting wildfires.
- Report hazardous conditions that could cause a wildfire. Community responders may be able to eliminate or reduce conditions that could cause fire.

Media and Community Education Ideas

- Talk to your neighbors about wildfire safety. Plan how the neighborhood could work together before and after a wildfire. Make a list of your neighbors' skills, such as medical or technical. Consider how you could help neighbors who have special needs, such as elderly or disabled persons. Make plans to take care of children who may be on their own if parents can't get home.
- Publish a special section with emergency information about wildfires. Localize the information by printing the phone numbers of local emergency services offices, the American Red Cross chapter, and hospitals. Report the areas most at risk from wildfires and let people know of the advantages of creating a fire safety zone around structures and of using fire-resistant roofing materials when building or reroofing.
- Work with local emergency services and American Red Cross officials to prepare special reports for people with mobility problems on what to do if an evacuation is ordered.
- Print local building codes and weed abatement ordinances for structures built near wooded areas.
- Report on the advantages of regular chimney sweepings.
- Periodically inform your community of local public warning systems.

How to Prevent Wildfire

- Build fires away from nearby trees or bushes. Ash and cinders lighter than air float and may be blown into areas with heavy fuel load, starting wildfires.

- Always have a way to extinguish the fire quickly and completely. If the fire becomes threatening, you will need to extinguish it immediately.
- Never leave a fire — even a cigarette — burning unattended. Fire can quickly spread out of control.

What to Do When Wildfire Threatens

- Listen regularly to local radio or television stations for updated emergency information. Follow the instructions of local officials. Wildfire can change direction and speed suddenly. A minor threat can quickly escalate to a major threat. Local officials will be able to advise you of the safest escape route, which may be different than you expect.
- Back your car into the garage or park it in an open space facing the direction of escape. Shut doors and roll up windows. Leave the key in the ignition. Close garage windows and doors, but leave them unlocked. Disconnect automatic garage door openers because power may go out. These steps will make it easier to leave quickly should wildfire threaten.
- Confine pets to one room. Make plans to care for your pets in case you must evacuate. Pets may try to run if they feel threatened by fire. Keeping them inside and in one room will allow you to find them quickly if you need to leave.
- Arrange temporary housing at a friend or relative's home outside the threatened area. You will be more comfortable in someone's home than in a public shelter. Plus, many shelters do not allow pets.
- If you're sure you have time, take steps to reduce the chance of your home catching fire or lessen the amount of damage from a nearby fire.

Inside Your Home

- Shut off gas at the meter.
- Open fireplace damper. Close fireplace screens.
- Close windows, vents, doors, venetian blinds or noncombustible window coverings, and heavy drapes. Remove flammable drapes and curtains.
- Move flammable furniture into the center of the home away from windows and sliding-glass doors.
- Close all doors and windows inside your home to prevent draft.
- Place valuables that will not be damaged by water in a pool or pond.

Outside Your Home

- If hoses and adequate water are available, place sprinklers on roofs and on anything that might be damaged by fire.
- Seal attic and ground vents with precut plywood or commercial seals.
- Remove combustible items from around the house, lawn and poolside furniture, umbrellas, tarp coverings, and firewood.
- Connect the garden hose to outside taps.
- Set up the portable gasoline-powered pump.
- Place lawn sprinklers on the roof and near above-ground fuel tanks. Wet the roof.
- Wet shrubs within 15 feet of the home.
- Gather fire tools.
- Be ready to evacuate all family members and pets when the fire nears or when instructed to do so by local officials. You may need to leave quickly, without much warning. There may be only minutes before the fire is upon you.
- If you are trapped, crouch in a pond or river. You cannot outrun a fire. Cover your head and upper body with wet clothing. If water is not around, look for shelter in a cleared area or among a bed of rocks. Lie flat and cover your body with wet clothing or soil. Breathe the air close to the ground through a wet cloth to avoid scorching lungs or inhaling smoke. Wildfires move very fast and create their own wind, helping them to move even faster.

What to Do if Evacuation Is Necessary

- If advised to evacuate, *do so immediately.* You may have only minutes to act. Save yourself.
- Wear protective clothing — sturdy shoes, cotton or woolen clothing, long pants, a long-sleeved shirt, gloves, and a handkerchief to protect your face. Hot embers or cinders can burn your skin if you come into contact with them. Smoke can make it difficult to breathe, damaging breathing passages.
- Take your Disaster Supplies Kit. These items will make you more comfortable while you are away from home.
- Lock your home. There may be others who evacuate after you or return before you. Secure your house as you normally would.
- Tell someone outside of the wildfire area where you are going. Relatives and friends will be concerned about your safety. Letting some-

one know your travel plans will help relieve their fear and anxiety.

- Choose a route away from fire hazards. Watch for changes in the speed and direction of fire and smoke. Staying as far away as possible will provide you with the greatest safety.

What to Do After a Wildfire

- Use caution and exercise good judgment when re-entering a burned wildland area. Hazards may still exist, including hot spots, which can flare up without warning.
- Avoid damaged or fallen power poles or lines, and downed wires. Immediately report electrical damage to authorities. Electric wires may shock people or cause further fires. If possible, remain on the scene to warn others of the hazard until repair crews arrive.
- Be careful around burned trees and power poles. They may have lost stability due to fire damage.
- Watch for ash pits and mark them for safety. Ash pits are holes full of hot ashes, created by burned trees and stumps. You can be seriously burned by falling into ash pits or landing in them with your hands or feet. Warn your family and neighbors to keep clear of the pits.
- If a power line or pole should fall next to you, hop out of the area. You are less likely to be shocked if you are hopping.

Returning to Your Home

- If there is no power, check to make sure the main breaker is on. Fires may cause breakers to trip. If the breakers are on and power is still not present, contact the utility company.
- Inspect the roof immediately and extinguish any sparks or embers. Wildfires may have left burning embers that could reignite.
- For several hours afterward, recheck for smoke and sparks throughout the home, including the attic. The winds of wildfires can blow burning embers anywhere. Keep checking your home for embers that could cause fires.
- Take precautions while cleaning your property. You may be exposed to potential health risks from hazardous materials.
  - Debris should be wetted down to minimize health impacts from breathing dust particles.
  - Use a two-strap dust particulate mask with nose clip and coveralls for the best minimal protection.
  - Wear leather gloves to protect hands from sharp objects

while removing debris.

- Wear rubber gloves when working with outhouse remnants, plumbing fixtures, and sewer piping. They can contain high levels of bacteria.
- Hazardous materials such as kitchen and bathroom cleaning products, paint, batteries, contaminated fuel and damaged fuel containers need to be properly handled to avoid risk. Check with local authorities for hazardous disposal assistance.

- If you have a propane tank system, contact a propane supplier, turn off valves on the system, and leave valves closed until the supplier inspects your system. Tanks, brass and copper fittings and lines may have been damaged from the heat and be unsafe. If fire burned the tank, the pressure relief valve probably opened and released the contents.
- If you have a heating oil tank system, contact a heating oil supplier for an inspection of your system before using. The tank may have shifted or fallen from the stand and fuel lines may have kinked or weakened. Heat from the fire may have caused the tank to warp or bulge. Nonvented tanks are more likely to bulge or show signs of stress. The fire may have loosened or damaged fittings and filters.
- Visually check the stability of the trees. Any tree that has been weakened by fire may be a hazard. Winds are normally responsible for toppling weakened trees. The wind patterns in your area may have changed as a result of the loss of adjacent tree cover.
  - Look for burns on the tree trunk. If the bark on the trunk has been burned off or scorched by very high temperatures completely around the circumference, the tree will not survive. Where fire has burnt deep into the trunk, the tree should be considered unstable.
  - Look for burnt roots by probing the ground with a rod around the base of the tree and several feet away from the base. Roots are generally six to eight inches below the surface. If the roots have been burned, you should consider this tree very unstable, and it may be toppled by wind.
  - A scorched tree is one that has lost part or all of its leaves or needles. Healthy deciduous trees are resilient and may produce new branches and leaves as well as sprouts at the base of the tree. Evergreen trees may survive when partially scorched. An evergreen tree that has been damaged by fire is subject to bark beetle attack. Please seek professional assistance from the forestry service concerning measures for protecting evergreens from bark beetle attack.

Drinking Water

- Wells at undamaged homes should be safe, unless affected by a fuel spill. If you are in doubt of water safety, contact your local public health officials.
- If your house was damaged, disinfect and test water before consumption. The water system may have become contaminated with bacteria due to loss of water pressure in the plumbing.
- If you use water from a public well, have a water sample collected and tested before allowing the water to be consumed. Water may have been contaminated with bacteria due to a loss of water pressure in the plumbing.