

LIVING ON THE EDGE



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Urban Wildland Interface

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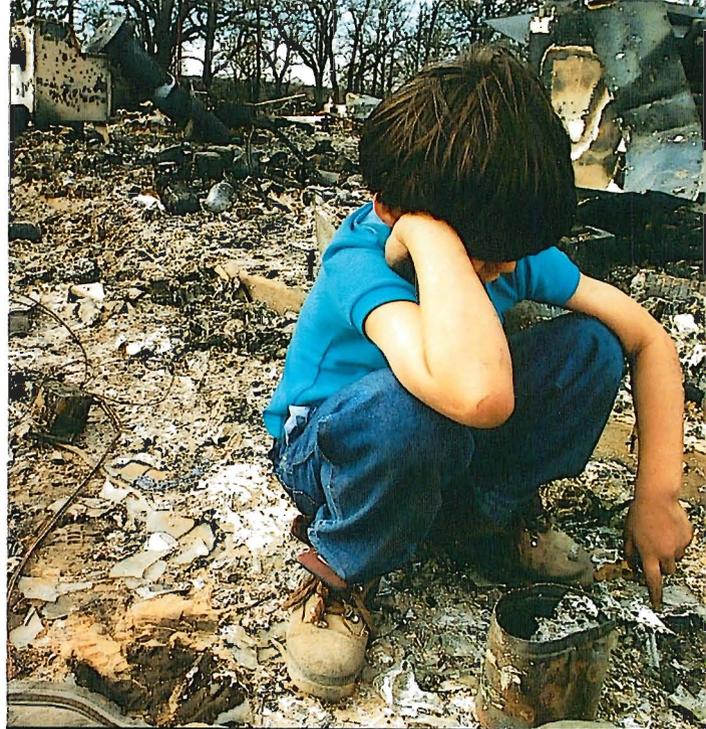
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Urban Wildland Interface

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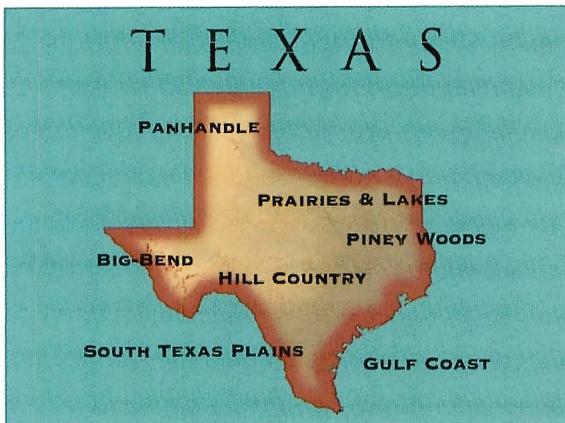


Poolville Fire 1996

- Parker, Jack, and Wise Counties
- 16,000 Acres
- 141 Structures Lost
- 97 Vehicles
- Property Value Lost \$6.4 million
- 52 People Injured
- Resulted from escaped trash burning.

FIRE ECOLOGY/ONSET OF UWI

Urban Wildland Interface (UWI) is a geographical area where combustible homes are mixed with combustible vegetation. During the mid-80s, people began migrating from the hustle and bustle of the city to the peaceful, undeveloped settings outside of towns in every region of Texas. Texas is made up of seven different regions: Big-Bend, Gulf Coast, Hill Country, Panhandle, Piney Woods, Prairies and Lakes, and South Texas Plains.



Within each region four Urban Wildland Interface conditions can occur.

- **Interface** – structures abut wildland fuels such as in developments on the edge or outskirts of cities and towns.
- **Intermix** – where structures are scattered throughout the wildland area with no clear demarcation between developed areas.
- **Occluded** – subdivisions or developments surrounding large parks, forests and wildlife preserves, or other natural areas.
- **Rural** – where small clusters of homes (ranches, resorts) are scattered in a wildland area.

COMMUNITY MEASURES

Cooperation among residents of subdivisions helps to ensure home-safety for everyone during a fire. Developing a fire protection or forestry committee can unify residents to organize and identify needed projects and activities. For example:

1. **Strategic installation of fuel breaks throughout the subdivision. Fuel breaks are easily accessible strips of land of varying width in which fuels are modified to discourage the spread of fire.**
2. **Thinning of dense stands of trees and/or brush in greenbelts and common ground (the area usable by all residents in a subdivision).**
3. **Constant maintenance of all road and street signs.**
4. **Installation of a fire danger and burn ban sign at the subdivision's entrance.**
5. **Clearance around fire hydrants. Maintain 3 feet of clearance above and around fire hydrants.**



It takes everyone to create a fire-safe neighborhood!

SURVIVING THE FIRE IN YOUR VEHICLE

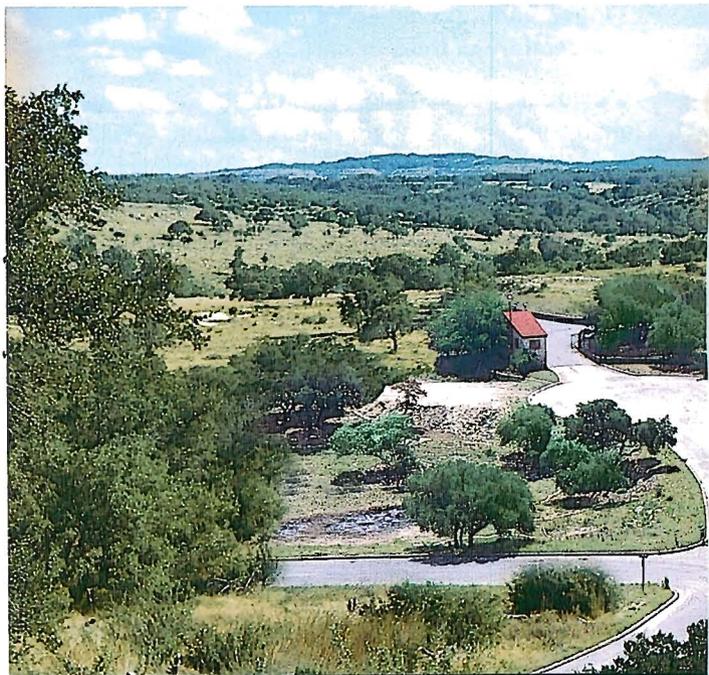
In an emergency, it is possible to survive the firestorm if you stay in your car; it's less dangerous than trying to run from a fire on foot. If you find yourself in this situation, roll up the windows and close the air vents. Drive slowly with headlights on, but do not drive through heavy smoke. If you have to stop, park away from the heaviest trees and brush. Turn headlights on and ignition off. Get on the floor, cover up with a blanket or coat, and stay in the vehicle until the main fire passes. Be aware that some smoke and sparks may enter the vehicle, and the temperature inside will increase. However, metal gas tanks and containers rarely explode.

ONCE THE FIRE HAS PASSED

After the fire passes your home, check the roof immediately. Extinguish any roof fires, sparks, or embers, and check the attic for possible burning embers. If you have a fire, ask your neighbors to help you fight it with the water in your pool or other containers. If the power is out, try connecting a hose to the outlet on your water heater.

For several hours after the fire, maintain a fire watch. Recheck for smoke and fire throughout the house.

Because of rising populations within these areas, the delicate ecosystems in these once-natural regions are becoming dangerously unbalanced, and the danger of wildfire is increasing. Homes built in these areas are extremely vulnerable to fire should a wildland fire occur near them. Radiant heat from a wildland fire can ignite exterior building materials and/or even ignite flammable interior furnishings close to windows. Convective heat often contributes to rapid fire spread when rising hot air heats tree crowns (and building materials) to their ignition temperatures. A large and/or intensely burning wildfire can generate strong convection updrafts capable of lifting burning materials (firebrands) high into the air. When burning firebrands fall onto structures or flammable vegetation, conductive heat may ignite new fires. Firebrands can be carried long distances (a mile or more) by fire drafts and winds.



Wildland fuels vary from one region of Texas to another, and in many cases, within the same area. Every region has experienced a substantial shift in wildland fuels due to changes in land use from agriculture to housing developments. These fuels can be put into four major categories:

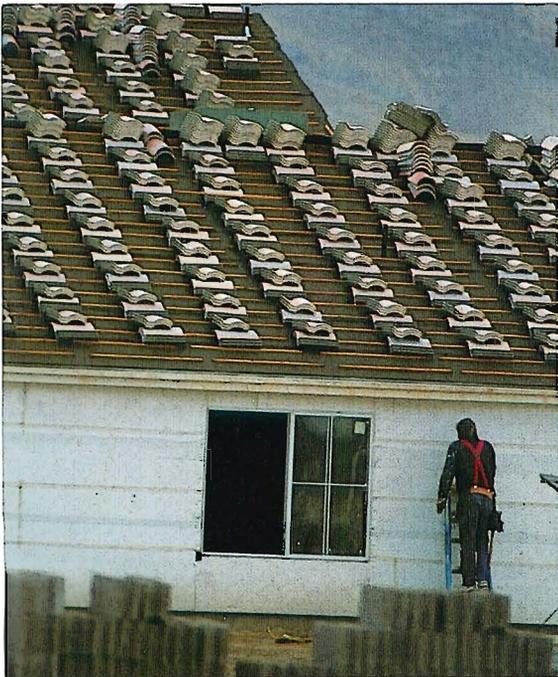
- **Grass** – found in most areas, but is more dominant as a fuel in Central, West, and Panhandle regions of Texas.
- **Shrub/Small Trees** – also found throughout most areas of Texas. Yaupon holly and Ashe juniper are two highly flammable shrub fuels.
- **Timber Litter** – includes needles, leaves, and twigs from conifer and hardwood tree and shrub species. This fuel source is most abundant from coniferous trees in East Texas and the mountain forests of West Texas.
- **Logging Slash** – debris left after logging, pruning, thinning, or shrub cutting. It includes logs, bark, branches, stumps, and broken understory of trees or shrubs.

While all pose a fire threat, steps can be taken, such as removing some of these wildland fuels, to reduce the potential of fire in existing and future housing developments. An essential step is establishing **defensible/survivable space**.

- **Close outside windows, doors, pet doors, attic eave vents, etc.**
- **Connect water hoses long enough to reach around the house. Fill pools, hot tubs, garbage cans, tubs, or other large containers with water.**
- **Make sure gas-powered pumps for water are fueled and ready.**
- **Place a ladder (long enough to easily reach the roof) against the house in clear view.**
- **Back your car into the driveway and roll up the windows. Leave the keys in the ignition so that fire fighters can move the car to safer ground if needed.**



- **Post house number and street name in 3-inch letters on a mailbox or sign at the nearest road entrance leading to the house.**
- **Provide adequate driveway and turnaround space for emergency vehicles.**
- **Protect windows and glass doors with fire-resistant drapes or shutters.**
- **Walls are most susceptible to ignition by radiation and convection. Walls should be constructed of fire-resistant materials compatible with the surrounding fuels. Choose materials that are heat and flame resistant. Though some materials will not burn (such as vinyl) they may fall away or melt when exposed to high temperatures, exposing internal material. See section entitled “Construction Materials” for recommended construction materials.**



Don't be caught defenseless by a fire.

- **Arm your landscape by developing an external water supply, such as a pool/hot tub, pond, cistern, or dry hydrant.**
- **Have garden hoses connected at all times and long enough to reach around the entire house.**
- **Store shovels, buckets, and rakes in an accessible area.**
- **Make sure your house number and street name are clearly posted in 3-inch letters to provide firefighters easy identification of your home.**

PLANT SPECIES

When planning for fire safety, where plants and trees are placed in your yard is just as important as the species planted. Work with plants native to your region and site, and use patterns found in nature. Consider hardiness zones and planting sites when choosing plant species. No plants are fireproof, but some plants are more fire-resistant than others! Following are suggestions in selecting plants and trees for your area:

- **Choose plants and trees with high moisture content in the leaves.**
- **Avoid evergreens such as pines and cedars; select plants with a low oil or resin content.**
- **Opt for plants and trees that have minimal litter and accumulating debris, limited foliage and few dead branches.**
- **Select those with a lower overall height and an open, loose branching habit.**

- Consider plants and trees that are easy to maintain and prune.
- Most importantly, choose plants that are heat and drought resistant.

Each region in Texas has plant species that are best acclimated to its area. Some plants that are less fire prone include:

- **Large Hardwoods:** oaks, white and green ash, bigtooth maple, and Texas persimmon.
- **Medium Hardwoods:** eastern redbud, flowering dogwood, desert willow, anaqua and retama.
- **Shrubs:** nandina, agarita, Turk's cap, coral beans and Indian hawthorne.
- **Ground Covers:** native ferns, verbenas, pigeon and partridgeberry, purple groundcherry and short native grasses.

Fire-prone plants such as junipers, cedars and tall ornamental grasses should not be planted within 30 feet of the house.



STRUCTURAL MODIFICATIONS

The choice of the construction design and building materials can significantly affect a residence's fire safety. The building materials, the home's design and location, and the fuels within the area all contribute to the capability of the structure to survive a wildland fire. The structure should be built at least 30 feet from property lines and located away from the top of slopes. Homes built on a slope are at greater risk than those on flat terrain (fire-spread rates increase with slope).



- Roofs are less vulnerable to radiation and convection because of their slope, but are more likely to be ignited by firebrands. Roofs should be covered with nonflammable materials and should be inspected for gaps, which could expose ignitable sub-roofing or roof supports. A major cause of home loss in wildland areas is flammable wood shake roofs. See section entitled "Construction Materials" for recommended construction materials.
- Install chimney screens or spark arresters.
- Enclose porches, foundations, and roof/attic openings to prevent debris (fuel) from accumulating beneath, and firebrands from entering during a fire.

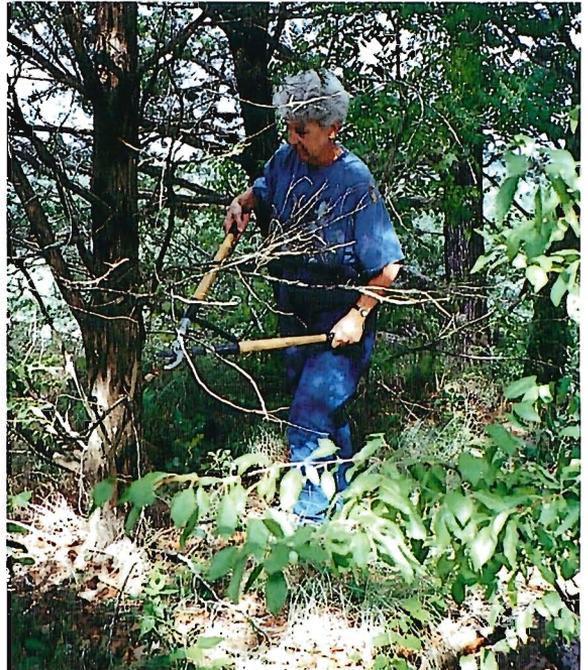
- **Roofs** – Fire-resistant shingles are best; some choices are metal, concrete or clay tiles, fiber-glass-asphalt, or fire-retardant, pressure-treated wood. Roofs should be covered with nonflammable materials and inspected for gaps that could expose ignitable sub-roofing or roof supports.
- **Walls** – Heat and flame-resistant wall materials include: fiber-cement sheeting and boards; metal and real stucco; concrete masonry such as brick, block, or stone; and fire retardant, treated-wood lumber and plywood such as FTX, Exterior Fire-X and Pyro-Guard.
- **Windows** – Tempered glass withstands much higher temperatures than plate glass and should be used for large windows and those overlooking slopes or vegetation. Low E glass, Glass Block, Fire Glass, Double Glaze and Thermo Pane with exterior covers (metal or frame shutters) are also recommended. Non-tempered, double-pane glass is slightly more resistant to heat than single-pane glass. Exposure to heat can cause windows to fracture and collapse, leaving an opening for flames or firebrands to enter and ignite the interior of the home. Using glass products that can withstand the potential convective and radiant heat will reduce this risk.
- **Shutters** – For best results, have shutters made of steel or wood.

Untreated wood is frequently used in urban interface construction, and the key to making it fire-resistant is the construction process. If weatherizing is combined with building construction that closes off entry and air pockets from embers, then untreated wood with the recommended defensible space will have a higher fire resistance.

- Avoid placing trees/shrubs near or under windows, and use only low-growing shrubs and trees near driveways and entrances.
- Isolate flowerbeds from one another, and surround them with non-combustible material such as crushed brick or rock.
- Before planting vegetation, consider the direction of prevailing winds in your region. Using less vegetation and more noncombustible materials in the path of prevailing winds will reduce the risk of firebrands being generated from an approaching fire.

LANDSCAPING WITHIN THE DEFENSIBLE SPACE

- Prune tree branches to a height of 6-10 feet above the ground.



- Remove branches that extend over the eaves of the roof and within 10-15 feet of the chimney.
- Remove shrubs and small trees with a 4-inch diameter or less from beneath trees; left in place, these can carry a ground fire into tree crowns.
- Keep the grass mowed to about 2 inches or less and well watered, especially during periods of high fire danger.
- Remove dead limbs, leaves, needles or other ground litter as well.

Wildflowers bring variety and beauty to a home's landscape, but they also create tall, dense areas of available fuel, especially when dormant. To reduce the fire hazard, plant wildflowers in widely separated beds within the defensible space. Avoid planting them directly adjacent to structures unless the beds are frequently irrigated and the vegetation is promptly removed after the first hard frost. Use gravel walkways, rock retaining walls, or irrigated grass areas mowed to a low height to isolate wildflower beds and other fuels.

Always stack firewood uphill and 15-30 feet away from your home or other structures. Strategically place gravel walkways and driveways — they make a good fuel break.



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- Eaves and overhangs such as room push-outs, bay windows, and extensions over slopes are very susceptible to convective exposures and have a design that is vulnerable to ignition. Eliminate any contact with fuels. Eaves and overhangs should be boxed or enclosed with nonflammable materials to reduce the surface area and eliminate the edges that could trap firebrands.
- Vents should be screened to prevent firebrands from entering the home. Make sure that vents and screens are constructed of materials that will not burn or melt when exposed to heat or firebrands.

CONSTRUCTION MATERIALS

The materials with which a home is made can play a key role in its preservation or destruction. Following are recommendations for fire-wise construction materials:

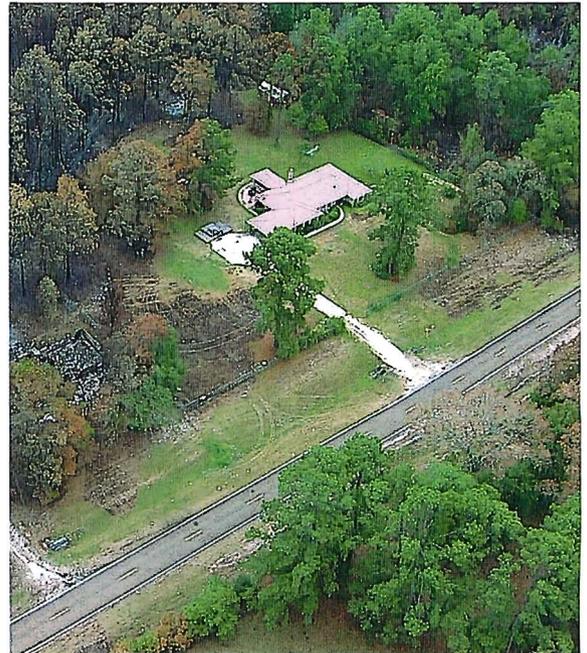


If you are aware that a fire is approaching your home and time allows, taking the following precautions could save your life and possibly your property. You and your family's safety are priority. So, *only if time allows*, prepare the following:

- **Evacuate all family members, who are not essential to preparing your home, and pets. Take a "disaster supply kit" containing drinking water, change of clothing and footwear, a blanket for each family member, first aid kit, cash/credit cards, and emergency tools such as a battery-powered radio, flash light, and extra batteries.**
- **Wear protective clothing such as a cotton/woolen long-sleeved shirt and long pants, gloves, a helmet, and a handkerchief to protect your face.**
- **Remove flammable drapes and curtains. Close all shutters, blinds, or heavy noncombustible window coverings to reduce radiant heat.**
- **Leave a light on in every room to make the house more visible in heavy smoke and close all doors to prevent drafts. Open the damper on your fireplace, but close the fireplace screen.**
- **Leave doors and windows unlocked – it may be necessary for firefighters to gain quick entry into your home to fight fire.**
- **In preparing to exit the house, turn on outside lights and gather important papers, keepsakes, and anything "you can't leave behind."**
- **Shut off any natural gas, propane, or fuel oil supplies at the source.**
- **Clear items that will burn from around the house, including woodpiles, lawn furniture, barbecue grills and tarp coverings. Move them outside the defensible space.**

DEFENSIBLE/SURVIVABLE SPACE MEASURES

By creating defensible/survivable space around your home, you can greatly reduce its risk of being destroyed by wildfire. This space is designed to allow firefighters room to fight the fire, give a structure the capability to survive a wildfire when firefighters cannot safely attempt to defend it, and stop a fire from spreading from the structure to the surrounding vegetation. **Defensible space should begin at the outermost extension of the home (foundation, deck, etc.) and extend outward to a point that is a minimum of one and one-half times the height of the structure.** Adjustments for slope and fuel type will increase the distance needed for defensible space.



Use the following formula to determine the length of defensible space to surround your home: **1.5 x height of structure plus adjustments for slope and fuel type**. This zone is critical and affords the most protection, as the structure tends to act as a trap for heat generated by the approaching wildfire.

Home landscaping can be accomplished with fire safety in mind while still maintaining a natural and aesthetically pleasing appearance. Implementing the following guidelines within the defensible space around your home will increase fire protection.

VEGETATIVE MODIFICATIONS

Survey the vegetation within and beyond the vicinity of your home; it could be hazardous. If the area immediately surrounding your house contains trees, shrubs, and other vegetation that burn easily, your house is at an increased risk of damage during wildland fires. Plant native and fire-resistant vegetation when possible. With minimal maintenance, this vegetation should stay greener and more succulent – with better plant survival.

Within the designated zone of defensible space:

- **Thin trees and brush cover so that adjacent tree canopies (or crowns) are 10-15 feet apart.**



Urban Wildland Interface ©

LIFE SAFETY MEASURES

Practiced prevention provides the best protection – for you and your property. While property is important, it can be replaced; family members and heirlooms cannot. Communicate with your family. Create and rehearse a prevention-evacuation plan before the fire ever occurs. It could make the difference between a deadly fire and a survivable fire.

For everyone's safety, begin by adding five-pound multipurpose fire extinguishers to your home. Have them easily accessible.



DEVELOPING A FIRE EVACUATION PLAN

Early evacuation is the safest way to avoid injury or death. Devise an escape route, as well as an alternate plan, to an area where family members can meet to wait out the fire. Routes to large areas with little or no vegetation or other fuels are best. Prearrange communication and alternative ways to stay in touch with family members. Have all family members “check-in” with a prearranged friend or relative in the area as soon as they are able.