Living With Fire
... in the Mount Charleston Area

(Make welcoming remarks)

(Next)
“Living With Fire… in the Mount Charleston Area” is sponsored by a variety of organizations. (Next)
Living With Fire
... in the Mount Charleston Area

Funding provided by...
Bureau of Land Management, Nevada State Office
via the National Fire Plan

Produced by...
University of Nevada Cooperative Extension

Funding for this program was provided by the Nevada State Office of the Bureau of Land Management through a grant from the National Fire Plan.

The program was produced by University of Nevada Cooperative Extension. (Next)
This program provides suggestions to homeowners living in the Mount Charleston area that will improve the survivability of their homes during wildfire.

Fortunately, a number of things can be done before a wildfire occurs that increase the likelihood of home survival. (Next)
First, we’ll discuss the wildfire threat in the Mount Charleston area. (Next)
For the purposes of this program, the Mount Charleston area includes Kyle Canyon and Lee Canyon of the Spring Mountains. (Next)
The Mount Charleston area has a high potential for wildfire disaster…

The Mount Charleston area communities are considered to be among Nevada’s most vulnerable in terms of wildfire disaster. There are four important factors that contribute to this wildfire threat. (Next)
First, the area’s steep slopes and narrow canyons; flammable vegetation; and dry, hot, and windy weather create a hazardous fire environment. These conditions can produce intense, uncontrollable wildfires. (Next)
Evidence of past wildfires is found throughout Mount Charleston’s neighborhoods. Fire scars on ponderosa pine trees and charred skeletons of mountain mahogany record the mountain’s fire history. (Next)
Videotape of Mount Charleston Area Fire Behavior

(Show videotape of Mountain Charleston fire behavior)

*This videotape shows wildfires burning in environments similar to the Mount Charleston area.* (Return to PowerPoint presentation when the videotape clip has concluded)

(Next)
Second, many of the Mount Charleston area houses have been built and are maintained in a manner that makes them easily ignitable during wildfire. (Next)
Third, because there is only one way in and out of Kyle and Lee Canyons, there is a potential for people to be trapped by wildfire. (Next)
Fourth factor…
High potential for human caused fires

- Vehicle fires
- Smoking
- Campfires
- Cooking fires
- Children

And fourth, because these canyons experience intense recreational use during the summer fire season, there is a high potential for human caused ignitions. Common human caused ignition sources for the Mount Charleston area include vehicle fires, smoking, campfires, cooking fires, and children.
These newspaper articles document the Mount Charleston area wildfires that have threatened people and their homes. (Next)
Although the Mount Charleston area wildfire threat is significant, there is much that can be done to reduce this hazard. (Next)
Program Purpose

The purpose of this program is to... (Next)
Provide wildfire fuel management suggestions that reduce the fire threat to people, homes, and property in the Mount Charleston area. (Next)
Wildfire fuel includes:

- wildland vegetation, such as greenleaf manzanita, pinyon pine, mountain mahogany, Gambel oak, and ponderosa pine trees;
- ornamental plants in the home landscape; and
- unfortunately, houses. (Next)
Why is fuel so important?

*Of the three factors that control wildfire behavior — weather, topography, and fuel — we can only change fuel.* (Next)
Consequently, if we want to increase house survivability during a wildfire, our greatest opportunity lies in changing the fuel available for burning. (Next)
Change fuels by...

- Reducing the amount
- Shortening the height
- Increasing the moisture content
- Decreasing the continuity
- Locating properly

The major fuel characteristics that we want to change include:

- **Amount**: Less fuel is better than more fuel.
- **Height**: Short fuel is less hazardous than tall fuel.
- **Moisture Content**: Plants with high moisture content are more fire-resistant than plants with low moisture content.
- **Continuity**: Fuels that are widely separated are more desirable than fuels that are close together. And finally,
- **Location**: Hazardous fuels should be kept away from the house. (Next)
By changing the fuels, wildfires will...

• Be less likely to start
• Burn more slowly
• Burn cooler
• Have shorter flames
• Burn for a shorter time

By changing the fuels, we can create changes in fire behavior such as:
• keeping it from starting,
• slowing it down,
• cooling it down,
• keeping its flames shorter, and
• making it burn for a shorter period of time.

All of these help a home survive wildfire. (Next)
Important! The fuel characteristics of the house and the adjacent vegetation often determine house survivability.

Investigations of houses destroyed by wildfire have consistently found that the fuel characteristics of the house and the adjacent vegetation are the most influential factors in determining house survivability.
These factors usually determine which houses survive a wildfire and which houses are destroyed. (Next)
Important! The homeowner is the most important person in preventing the house from being destroyed by wildfire.

This conclusion is significant because it implies that the most important person in preventing a house from burning is the homeowner. And, it is the actions that a homeowner takes before a wildfire occurs that are critical. (Next)
Before looking at wildfire threat reduction recommendations, we need to have an understanding of how wildfires threaten homes. (Next)
Wildfire threatens a home in three ways...

• Contact by flames
• Radiated heat
• Flying embers

Wildfire can threaten a home in three ways:
• through direct contact by flames,
• from radiated heat, and
• by flying embers. (Next)
First, there is contact by flames.

This type of threat occurs when fuels burning near the house produce flames that come in contact with the home and ignite it. (Next)
Direct contact by flames is probably what most homeowners visualize when they think of a house burning during wildfire. (Next)
The next way wildfire threatens the house is through radiated heat. Radiated heat is produced by invisible electromagnetic waves that travel out in all directions from a flame.

When a house receives enough radiated heat for sufficient time, it will ignite without flames contacting it. Sometimes radiated heat can burst windows and allow burning embers to enter the house.

Consequently, even vegetation and other fuels located away from the house are a concern.
Radiated heat melted the vinyl siding on this house. Flames never came in contact with the siding. (Next)
The most common wildfire threat to a house is flying embers. If conditions are right, pieces of burning material, such as small branches, pine cones, and wood-shakes from a burning roof, can be lofted high into the air and transported hundreds of feet to more than a mile from the actual fire. Burning embers can also be carried by wind and fire whirls.

If these burning embers land in areas with easily ignitable materials, such as wood-shake or shingle roofs, leaves in rain gutters, dry pine needles, trash, or woodpiles, a new fire can start.
This is an example of a burning ember starting a fire. Fortunately, there were firefighters on the scene to quickly respond to this new fire. (Next)
In this smoky picture, burning embers landed on the roof, rolled down, and were trapped in the rain gutter. The dried needles and leaves in the gutter ignited. Other embers started a fire in the flower beds. (Next)
Reducing the Wildfire Threat

The following recommendations are made to reduce these three threats from wildfire. They are suggested practices endorsed by the program’s sponsors and are not necessarily requirements. These recommendations do not take precedent over ordinances, codes, or laws. (Next)
Three categories of recommendations...

- Built Zone
- Defensible Space Zone
- Access Zone

The wildfire threat reduction recommendations are presented in three categories:
- the Built Zone,
- the Defensible Space Zone, and
- the Access Zone.

Research shows that these three zones are important for a homeowner to manage in order to reduce the wildfire threat to the home. (Next)
The Built Zone refers to how the house is constructed and maintained.

The Defensible Space Zone pertains to the vegetation growing near the house, including ornamental landscape plants and native vegetation, such as Gambel's oak, ponderosa pine, and mountain mahogany.

The Access Zone is the area that allows firefighters to locate and arrive at a home in a timely manner.
These three zones are shown in this photo. (Next)
The Built Zone includes the house… (Next)
the Defensible Space Zone includes the vegetation surrounding the house… (Next)
and the Access Zone includes driveways, roads, and signage.  (Next)
First, let’s look at the Built Zone recommendations.

(Next)
The goal for the Built Zone is to improve the ignition resistance of the house. If the house doesn't ignite, it can't burn.

Research has shown that houses highly resistant to ignition can survive high-intensity wildfires.

Conversely, homes that ignite easily can be destroyed during low-intensity wildfires.
This is a photograph of one of the more than 200 homes destroyed in the Cerro Grande Fire in Los Alamos, New Mexico.

In this case, the house ignited more easily than the surrounding vegetation. Note the unburned trees, shrubs, and wooden rail fence.

The charred trees near the house burned because the house ignited. (Next)
Here is another example of a house being more flammable than the adjacent vegetation. (Next)
While we are concerned about flame contact and radiated heat, we are particularly worried about flying embers igniting the house. (Next)
The most common way houses start to burn during wildfire is flying embers ignite the exterior of the house or enter the house through openings.

Common exterior ignition sites include:
• wood-shake roofs;
• rain gutters filled with dried leaves;
• flammable materials, such as paper, trash, and firewood, on, beside, or beneath decks and porches; and
• wood siding.

Embers enter the house through unscreened vents and open or broken windows. (Next)
A homeowner should assume that anything readily flammable on or near the home will be ignited by flying embers. (Next)
The following recommendations for the Built Zone are brief, generalized points. For more detailed information, contact your fire marshal.

First, let's look at the roof.

The roof is the most vulnerable part of a house to wildfire. It is also the best predictor of house survivability during wildfire. (Next)
Houses with wood-shake or shingle roofs are many times more likely to be destroyed during a wildfire than homes with fire-resistant roofs. (Next)
Placing sprinklers on wood shake or shingle roofs is of limited value. Often during fires, water pressure is low, there is no electricity to pump water, and high winds make it difficult to wet the roof. (Next)
The only effective solution to the wood roof hazard is to replace it with a fire-resistant type. (Next)
Fire-resistant roofing materials include composition, metal, and tile. The fire resistance of a roof is rated “A,” “B,” “C,” or “nonrated.” An “A” rating has the highest fire resistance. Contact your fire marshal for examples of fire-resistant roof types and their ratings. (Next)
Regardless of the type of roof, keep it free of fallen leaves, needles, and branches.
Rain gutters can trap flying embers.
Always keep the rain gutters clean during fire season.

(Next)
House vents are potential entry points for flying embers. They include attic, foundation, and eave vents. (Next)
All vent openings need to be covered with ¼-inch or smaller noncorrosive wire mesh. Do not use fiberglass or plastic mesh because they can melt or burn. (Next)
The siding covering the exterior walls of a house is particularly vulnerable to radiated heat and direct flame contact. (Next)
Wood products, such as boards, panels, and shingles, are the most common siding materials. They are combustible and are not good choices for fire-prone areas.

Log homes are a possible exception. They have a higher fire-resistance rating than other wood products.
Noncombustible siding materials, such as stucco, brick, and cement board, are better choices. (Next)
The eaves of the house are particularly prone to ignition. (Next)
As a wildfire approaches, hot air and gases are deflected off the side of the house and trapped under the eave. Eaves can also trap heat from flames directly underneath them. Heat builds up under the roof and may enter the attic. The chance for ignition is greatly increased. (Next)
By covering the underside of the eave with a soffit, or “boxing in” the eave, the heat is better able to escape.
Decks can also be potential heat traps. (Next)
Since decks are often positioned on the downhill side of the house, they effectively trap heat, flames, and embers from an oncoming wildfire. (Next)
The trapped heat dries out the wood decking and raises its temperature. The deck becomes more likely to ignite under these conditions. (Next)
The threat increases when leaves, pine needles, dried grass, trash, and other combustible materials are allowed to accumulate under the deck or firewood is stored there. (Next)
Houses with decks that are open underneath are more likely to be destroyed. (Next)
Preferably, the underside of the deck should be enclosed with fire-resistant material.
At the very least, the underside of the deck should be enclosed with 1/4-inch or smaller wire mesh to prevent ignition from flying embers.

*Keep this area free of all combustible materials.*
Windows are one of the weakest parts of a house and usually break before the building ignites.
If exposed to enough heat for a long enough period of time, glass can crack and the fractured pieces may fall away. This allows burning embers and heat to enter the house, which may lead to internal ignition. (Next)
Single-paned and large windows are particularly vulnerable. In high fire hazard areas, install windows that are at least double-glazed or tempered glass. “Low Emission” glass may provide added protection. This is glass that has been coated with a material that reduces the amount of radiant heat passing through a window.

Windows with aluminum frames and sashes are better choices than those with wood or vinyl frames and sashes.

Exterior window coverings, such as shutters, can provide added protection.
Chimney and stovepipe openings should be screened with ½-inch or smaller noncombustible mesh or have an approved spark arrestor cap. (Next)
The final Built Zone recommendation is to keep the porch, deck, and other areas of the house free of combustible materials.  (Next)
Decorative items on porches, such as baskets, dried flower arrangements, and pine cones, have been known to ignite houses when burning embers land on them. Also, keep these areas free of exposed newspapers, mail, and trash. (Next)
Firewood stacks should be located at least 30 feet from the house. If the stacks are stored uphill from the house, make sure that burning firewood cannot roll downhill and ignite the home. (Next)
Fortunately, this homeowner followed this advice.
(Next)
The next set of recommendations concerns the Defensible Space Zone. This zone includes the vegetation growing near the house.
The term “defensible space” refers to the area between a house and an oncoming wildfire where the vegetation has been managed to reduce the wildfire risk and allow firefighters to safely defend the house.
For safety reasons, firefighters are more likely to protect homes that have an effective defensible space.
Defensible space also improves the effectiveness of fire retardant and … (Next)
foam. (Next)
In the event that firefighters are not available, defensible space also improves the likelihood of a house surviving without assistance. (Next)
The Defensible Space Zone is comprised of three areas:

- the Noncombustible Area,
- the Lean, Clean, and Green Area, and
- the Wildland Fuel Reduction Area.
The Noncombustible Area lies adjacent to the house.

The Lean, Clean, and Green Area extends out from the Noncombustible Area for at least 30 feet. The irrigated home landscape is often located within this area.

The Wildland Fuel Reduction Area extends out from the Lean, Clean, and Green Area and is usually where natural vegetation, such as forests and brush fields, grow. (Next)
Unfortunately, when some homeowners hear the term “defensible space,” they envision a large expanse of bare ground surrounding their homes. While this is certainly effective at increasing home survivability during wildfire, it is unacceptable for aesthetic reasons and because it contributes to soil erosion. It is also unnecessary.
A homeowner can have an attractive landscape that provides an effective defensible space and doesn’t contribute to soil erosion. (Next)
The following six steps describe how to create an effective defensible space. (Next)
Step One: How big is an effective defensible space?

The first step is to determine the size of an effective defensible space. (Next)
The size of the Defensible Space Zone is usually expressed as a distance extending outward from the house in all directions. (Next)
The recommended distance is not the same for every house. It varies depending on the type of vegetation present and the steepness of slope surrounding the home. (Next)
For homes located on flat to moderately steep terrain in forests with sparse understory, the recommended defensible space distance is 100 feet from the house. (Next)
Forest, steep slope
(Greater than 40% slope)

For homes located on slopes greater than 40 percent in forests with sparse understory, the recommended distance is 200 feet. (Next)
For homes located on flat to gently sloping terrain in brush fields, including pinyon pine, juniper, and mountain mahogany woodlands, the recommended defensible space distance is 100 feet from the house. (Next)
For homes located on slopes greater than 20 percent in brush fields, the recommended distance is 200 feet.

(Next)
A 20% slope is equal to 9 degrees and represents a 2-foot rise over a 10-foot run.
A 40 percent slope is equal to 18 degrees and represents a 4-foot rise over a 10-foot run.
Once the recommended distance for defensible space is known, mark it by tying strips of cloth or flagging to shrubs or low tree branches. This becomes the “Defensible Space Zone.” The next five steps apply to the vegetation growing within this area.

If the Defensible Space Zone exceeds the property boundaries, do not work on someone else’s property without their permission.

It is important to note that the effectiveness of the Defensible Space Zone improves when entire neighborhoods implement defensible space practices.
Step Two:
Is there any dead vegetation?

Is there any dead vegetation within the defensible space zone? For the most part, dead vegetation should be removed from the defensible space zone.

Dead vegetation includes… (Next)
Standing dead and dying trees...
Recently fallen trees should be removed. Downed trees that are embedded into the soil can be left in place. Their exposed branches, however, should be removed. (Next)
Dead native shrubs...
Dead ornamental shrubs should be removed.
Dead branches from live shrubs and trees should be pruned and removed. (Next)
Dead flowers, both wildflowers and ornamental flowers in flower beds, should be removed. (Next)
Dried grass should be mown and removed from the site. (Next)
Dead pine needles are among the most flammable plant materials in Mount Charleston’s forests. They should not be allowed to accumulate on or near the house. (Next)
Remove dead pine needles attached to tree branches that are within 15 feet of the ground. Also remove dead pine needles draping shrubs and covering the ground for a distance of 30 feet from the house. (Next)
For the most part, if dead vegetation is present within the Defensible Space Zone… (Next)
Step 2: Dead Vegetation

remove it. (Next)
Step Three: Is there a separation between trees and shrubs?

Within the Defensible Space Zone, are native trees and shrubs, such as pine, sagebrush, mahogany, and Gambel’s oak, widely spaced or do they occur in dense stands? (Next)
Dense stands of trees pose a significant wildfire threat. If this situation is present within the Defensible Space Zone,… (Next)
Dense trees...

thin dense tree stands. (Next)
On flat to gently sloping terrain, the trees within the Defensible Space Zone should be thinned … (Next)
to provide an average separation between canopies of at least 10 feet.

For homes located on steeper slopes, the separation distance should be greater. (Next)
In addition to reducing the wildfire threat, thinning dense tree stands can also improve forest health and make trees more drought resistant. (Next)
Dense stands of shrubs also pose a significant wildfire threat. If present, shrubs should be thinned to provide a separation. (Next)
On flat to gently sloping terrain (less than 20 percent slope), individual shrubs or small clumps of shrubs within the Defensible Space Zone should also be separated from one another by at least twice the height of the average shrub. (Next)
For example, if the typical shrub height is 3 feet, then there should be a separation between shrub branches of at least 6 feet. Remove shrubs or prune to reduce their height and/or diameter. On steeper slopes, the separation distance should be greater. (Next)
If there is a dense stand of trees and/or shrubs present in the Defensible Space Zone... (Next)
Step 3: Separation

create a separation through removal or pruning. (Next)
Step Four:

Is there a separation between tree canopies and lower growing plants?

If trees are present within the defensible space area, there should be a separation between the low-growing vegetation and the lowest tree branches. (Next)
Vegetation often occurs at different heights or layers, like the rungs in a ladder. (Next)
For example, in this photograph dried grass, pine needles, and fallen branches are the lowest rung; shrubs are the next highest rung; and low tree branches are the upper rung. (Next)
Vegetation that can carry a fire burning in low-growing plants to taller plants is called “ladder fuel.”
In the left photo, a burning shrub has ignited the lower branches of a ponderosa pine tree.

Ponderosa pine and other Mount Charleston trees supply a large amount of potential fuel for a wildfire. Once ignited, they can burn very intensely, as shown in the photo on the right. (Next)
By removing some of the rungs of the ladder, the amount of wildfire fuel can be greatly reduced and fire kept on the ground. (Next)
The recommended separation for ladder fuels is three times the height of the lower vegetation layer. (Next)
Provide a separation…

(One slide automatically advances)

For example, if the lower vegetation layer is 3 feet tall, then there should be a separation of 9 feet. Prune the lower tree branches, shorten the height of shrubs, or remove lower plants. (Next)
When there is no understory vegetation present, remove lower tree branches to a height of at least 5 feet above ground. This will help prevent burning needles and twigs lying on the ground from igniting the tree.

(Next)
This photograph shows two properties. The property on the left has removed ladder fuels.
The removal of ladder fuels is an important step in creating an effective defensible space. (Next)
If ladder fuels are present in the Defensible Space Zone… (Next)
Step 4: Ladder Fuels

remove them. (Next)
Step Five:

Is there a Lean, Clean, and Green Area extending at least 30 feet?

Is there a Lean, Clean, and Green Area extending at least 30 feet from the house? (Next)
Lean…

Small amount of flammable vegetation

By “lean,” we mean that only a small amount of flammable vegetation, if any, is present within 30 feet of the house. (Next)
Clean…

No accumulation of dead vegetation or other flammable debris

By “clean,” we mean that there is no accumulation of dead vegetation or flammable debris within 30 feet of the house. (Next)
Green…

Plants are healthy and green during the fire season.

By “green,” we mean that plants located within 30 feet of the house are kept healthy and green during the fire season.
Lean, Clean, and Green

Area goals…

• Prevent ignitions from flying embers

• Reduce fire intensities so the house cannot ignite

Having a Lean, Clean, and Green Area serves two purposes:

First, it eliminates easily ignitable fuels, or “kindling,” near the house. In the event that flying embers begin landing in your yard, they would be unable to start a fire.

Second, it keeps fire intensity low if a fire does ignite near the house. Should a fire start within 30 feet of the house, the fuels present would be unable to generate enough heat for a long enough time to ignite the home.
For some Mount Charleston area homeowners, the Lean, Clean, and Green Area is maintained as a “formal” residential landscape using lawn, ornamental plants, and patios.

Other residents prefer a more natural looking Lean, Clean, and Green Area that emphasizes native vegetation.

Regardless of the type of landscape you prefer, consider the following fire-smart tips for the Lean, Clean, and Green Area. (Next)
Within the Lean, Clean, and Green Area, remove most or all flammable native plants. (Next)
Flammable native plants include shrubs, such as greenleaf manzanita, sagebrush, rabbitbrush, and cliff rose.

Small native trees, such as mountain mahogany, Gambel’s oak, pinyon pine, young ponderosa pine and white fir, and Utah juniper are also recommended for removal from within the Lean, Clean, and Green Area.

If you wish to retain a few of these as specimen plants, make sure they are free of dead wood and leaves, pruned to reduce the amount of fuel, and widely separated from native brush fields and forests.
Retaining native wildflowers, such as lupine, phlox, and penstemon, is acceptable. The top growth, however, should be removed once it dries out and turns brown. (Next)
Deciduous native trees, such as aspen, can be retained. (Next)
Native ground covers pose little fire threat and are effective in controlling soil erosion. They are good plants to keep in the Lean, Clean, and Green area.
If there is interest in planting fire-resistant vegetation in the Lean, Clean, and Green Area, there is some good news and some bad news.

First, the bad news. Unfortunately, there is no such thing as a fireproof plant. Any plant can burn if it is exposed to enough heat for a long enough period of time.

The good news is that there are some plants that do not ignite as easily nor burn as hot as other plants.

Here are some rules of thumb for selecting plants for the Lean, Clean, and Green Area. (Next)
All other things being equal, shorter plants are a better choice than taller plants. Taller plants can produce longer flames and contain more fuel than low-growing plants. Emphasize the use of plants that are less than 2 feet tall at maturity. (Next)
When green and healthy, herbaceous plants, such as flowers, succulents, and lawn, are better choices than woody plants, such as shrubs and trees. Healthy herbaceous plants have a much higher water content than woody plants. The higher the plant’s water content, the harder it is to ignite and the more slowly it burns.

When herbaceous plants dry out, however, they ignite easily, are a fire hazard, and should be removed. (Next)
Many evergreen shrubs and trees contain flammable oils and resins that burn very hot when ignited. Because of this, deciduous shrubs and trees are usually a better choice for landscape use in the defensible space area. (Next)
There are several particularly bad plant choices when landscaping in the Lean, Clean, and Green Area.

Ornamental juniper and arborvitae can burn very hot. Also, their dead leaves often accumulate in and under them and are extremely flammable. They are easily ignited by flying embers. (Next)
Ornamental pines, such as Scotch pine, Austrian black pine, and mugo pine, are poor choices for use in the Lean, Green, and Clean Area. (Next)
Scotch broom has been identified as a particularly flammable plant, as are most large ornamental grasses when they become dry. Both are considered poor choices. (Next)
Good choices for the Lean, Clean, and Green Area include deciduous shrubs, such as shrubby cinquefoil, barberry, and spirea. (Next)
Green lawn is low-growing and has a high water content and is therefore an excellent Lean, Clean, and Green Area plant choice. Lawn, however, does have its drawbacks, such as having relatively high water and maintenance requirements. (Next)
Conservation grasses, such as sheep fescue, and wildflower mixes may be suitable alternatives to lawn for some people. When green, they are fire-smart plant choices for the Lean, Clean, and Green Area. Once they turn brown and dry, they should be mowed and removed. (Next)
Flowers, including perennials, annuals, succulents, and bulbs, are good choices so long as they are actively growing. Once they start drying out and turn yellow, dead leaves and flowers should be removed.
Ground covers are excellent choices for the Lean, Clean, and Green Area. (Next)
Well-maintained deciduous trees are also good choices. Plant deciduous trees so that there is at least a 10-foot separation between branch tips at maturity.

(Next)
Tip #3
Emphasize hard surfaces and mulches…

Emphasize the use of hard surfaces and mulches within the Lean, Clean, and Green Area. (Next)
Hard surfaces include materials such as concrete, asphalt, and brick. (Next)
Mulches can be rock, wood, or bark. Rock mulches, such as gravel and cobble, are a great choice for the Lean, Clean, and Green Area. Wood and bark mulches may be flammable and should be kept at least 2 feet away from combustible house and deck materials. Wood and bark mulches should be kept moist during fire season. (Next)
Tip #4
Don’t forget the propane tank…

The propane tank is often located in the Lean, Clean, and Green Area. (Next)
Don’t forget the propane tank…

All flammable vegetation should be cleared from within 10 feet of the propane tank. Screening the propane and other fuel tanks with fire-resistant materials can provide additional protection. Please check with your local fire marshal regarding possible code requirements for propane tank screens. (Next)
Don’t forget the propane tank…

Do not store flammable materials, such as firewood or gasoline, next to the propane tank. (Next)
Tip #5
Problem tree limbs should be removed…
Remove problem tree limbs...

This includes tree limbs within 10 feet of the chimney, limbs touching the house or deck, limbs overhanging and within 6 feet of the roof, and limbs encroaching on power lines running from the street to the house. (Next)
Tip #6
Create a Noncombustible Area within 2 feet of the house…

The last Lean, Clean, and Green tip is to create a Noncombustible Area at least 2 feet wide around the base of the house. (Next)
During intense wildfires, flying embers tend to accumulate next to the house. (Next)
If wood mulches, pine needles, and dried plants are present, they may start burning and ignite the house. Houses with wood siding are particularly vulnerable. (Next)
In addition, low-intensity fires burning through a continuous layer of pine needles leading up to the house have destroyed homes. Many of these homes could have averted disaster by simply having a Noncombustible Area.
The Noncombustible Area needs to have a very low potential for ignition from flying embers and should serve as a firebreak for pine needle litter fires.

This area should extend at least 2 feet from the base of the house. (Next)
Within this area, emphasize the use of irrigated herbaceous plants, such as lawn, ground covers, and flowers, and use rock mulches and hard surfaces.

Do not allow easily ignitable materials, such as pine needles, dried plants, wood mulches, and trash, in this area. (Next)
Step five recommends that for a distance extending out for at least 30 feet from the house… (Next)
Step 5: Lean, Clean, and Green

create a Lean, Clean, and Green Area. (Next)
Step Six:

Is the area maintained on a regular basis?

The last step to creating a defensible space is maintenance. (Next)
Plants grow back…

Defensible space is an ongoing activity. Plants grow back and flammable vegetation needs to be routinely removed and disposed of properly. (Next)
Before each fire season, reevaluate your property using the previous five steps and… (Next)
Step 6: Maintenance

implement the necessary defensible space recommendations. (Next)
The final category of recommendations pertains to the Access Zone. (Next)
This deals with the ability of firefighters to locate and arrive at a threatened house in a timely manner. (Next)
A house is much more likely to survive a wildfire if firefighters are present. A proper Access Zone also helps you and your family to safely evacuate the area. (Next)
Some neighborhoods are a virtual maze under the best of circumstances. (Next)
Add the dark, smoky conditions of an intense wildfire, and it becomes even more difficult to find a particular house in need of assistance or to evacuate safely. It is also important to note that the firefighters may be from out of town and not familiar with the neighborhood.

The following recommendations will help make a house more accessible to firefighters.
Address…

The home address should be readily visible from the street. The characters on the address sign should be at least 4 inches high and the sign should be fire-resistant. (Next)
There should be street signs at each intersection leading to your house. (Next)
The signs should feature characters that are at least 4 inches high and be made of reflective, noncombustible material. (Next)
Driveways with large amounts of flammable vegetation growing next to them are a deterrent to firefighters.

(Next)
Flammable vegetation should be removed from at least 10 feet on both sides of the driveway. Obstructions, such as overhanging branches, should be removed to provide at least a 15-foot vertical clearance. (Next)
Houses located at the end of long driveways should have turnaround areas suitable for large fire equipment. Without a turnaround area, firefighters may be reluctant to place engines near the home. (Next)
Narrow streets and dead ends...

Homes located at the end of long, narrow streets and dead ends can also discourage firefighters and complicate evacuation. If possible, create an additional access route and turnouts. (Next)
This program described the wildfire threat in the Mount Charleston area and offered recommendations concerning how to reduce that threat. Your Key Points Handout summarizes the important points. (Next)
There were three categories of wildfire threat reduction recommendations:

- Built Zone,
- Defensible Space Zone, and
- Access Zone. (Next)
The Built Zone recommendations dealt with creating a more fire-resistant house. (Next)
The Defensible Space Zone recommendations concerned the management of vegetation to reduce the wildfire threat. (Next)
The Access Zone dealt with the ability of firefighters to locate and arrive at your home in a timely manner.

(Next)
Finally, will implementing these recommendations make a difference? Based on examinations of houses destroyed by wildfire, the answer is “Yes.”

This graphic shows the roof and vegetation characteristics of more than 2,000 homes destroyed by wildfire in California. The gray houses had wood-shake roofs and the brown houses had fire-resistant roofs. The red arrows indicate the distance of each house from flammable vegetation. The size of the flames and the yellow numbers indicate the percent of each house type destroyed by wildfire. (Next)
Note that 50 percent of the houses with wood-shake roofs and less than 30 feet of flammable vegetation clearance were destroyed by wildfire. But, less than 1 percent of the homes with fire-resistant roofs and at least 100 feet of flammable vegetation clearance were destroyed.

Implementing these recommendations will not guarantee that your home will survive a wildfire. It will, however, certainly improve your odds. (Next)
Questions?

Are there any questions? (End of program)