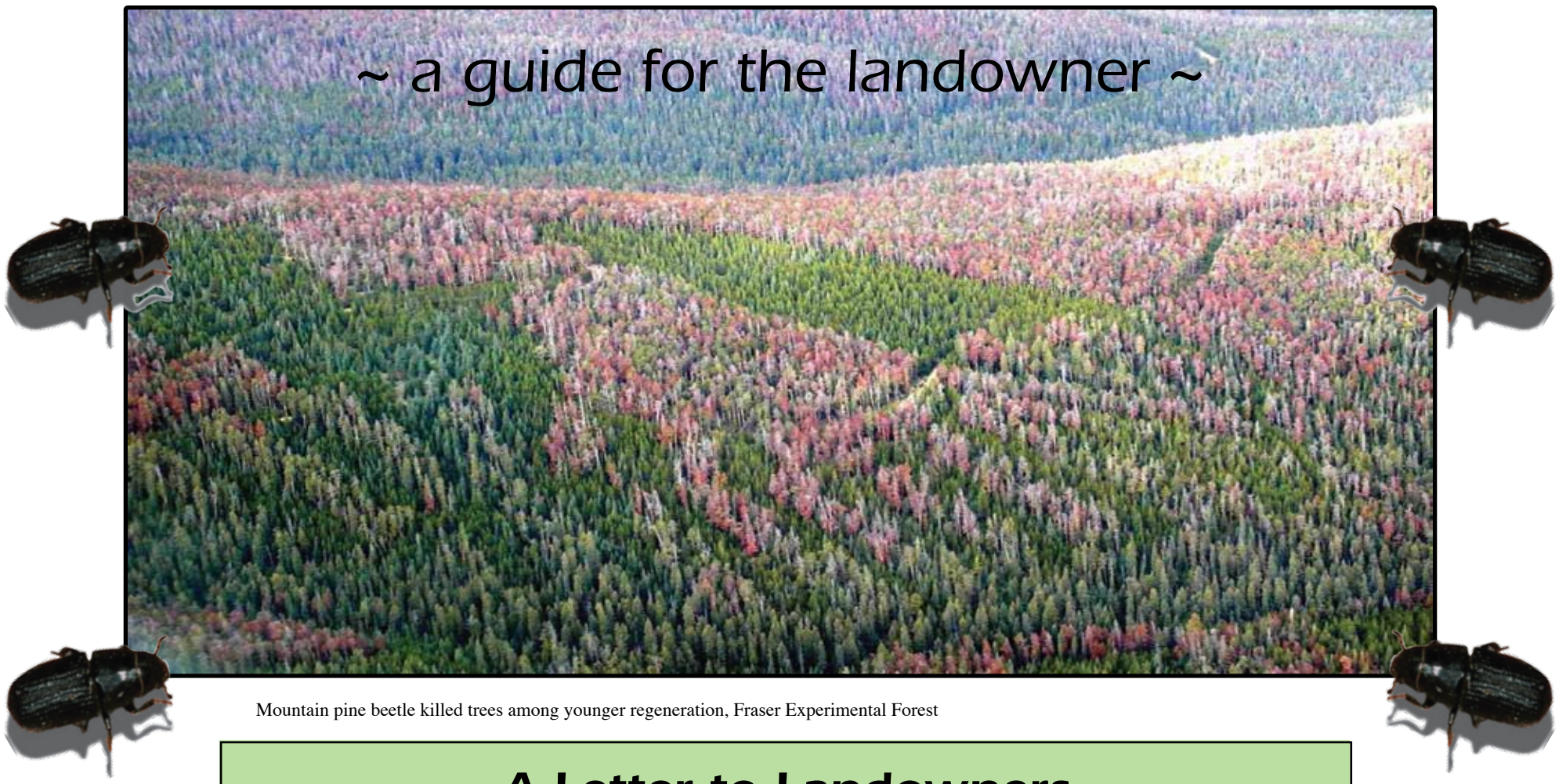
Our Future Forests



Mountain pine beetle killed trees among younger regeneration, Fraser Experimental Forest

A Letter to Landowners

Thank you for taking the time to read about our forests. This publication provides an update on mountain pine beetle and other forest health issues in northwest Colorado. We want to give landowners information to enable them to make informed decisions about influencing the future forest as well as mitigating the threat of wildfire.

Our forests are undergoing profound, obvious changes. The red hillsides of lodgepole pine killed by the mountain pine beetle are the most dramatic and visible evidence of this change. A complex combination of drought, older forests, and insects and disease may be underlying changes we see. In addition to the obvious mountain pine beetle epidemic, forest health issues are affecting other tree species. The spruce bark beetle, aspen decline and fir decline, are all common terms to foresters. To most people, the current state of our forests give the impression our forests are simply dying. There is no question that there is a sense of loss as many of the older trees in the forest die. But amidst this change there is renewal. Young trees are growing among the red trees, and the next forest has already started.

As professional foresters, we at the Society of American Foresters (SAF) see these times as both challenges and opportunities. We understand these disturbances are a part of the forest's life cycle. We think it is important to focus on the next forest for whatever values are placed on these forests. What is it that you want in YOUR forest? Do you want protection from a wildfire? Do you want to provide habitat for wildlife? Do you place a high value on scenic views? How you manage your forest today will influence what the forest looks like tomorrow. What is it that you want?

In the short term, we have a responsibility to protect our homes and properties by removing fuels and creating defensible spaces. In the long term, the responsible and sustainable management of Colorado's forests will ensure healthy and diverse forests for generations to come. We hope you find these articles useful and we encourage you to participate in forest management however you can. We encourage you to work with a professional forester to answer the question, "How do you want your forest to look?"

Kent Foster
Chair - NW Colorado Chapter SAF
USDA Forest Service

John Twitchell
Chair - Colorado/Wyoming SAF
Colorado State Forest Service

Why Are So Many Trees Dying?

Beetle epidemics across the western United States are becoming more obvious every season with entire landscapes turning red and brown as trees die.

In northwest Colorado the beetle epideics, triggered by extended drought in aging forests, are becoming more intense at an alarming rate, and there is little that can be done to stop them. Actions can be taken to protect high value areas such as ski areas, developed campgrounds and trees in people's yards.

Hastening Death

Pine beetles carry a fungus on their body and legs. Once they enter the tree, the fungus multiplies and spreads. This bluestain fungus blocks the transport of water up the tree's trunk and in combination with girdling by the larvae hastens tree death.

Red is Dead

Tree needles remain green for almost a year after the tree has been killed by beetles. Tree needles turn red or reddish brown eight to ten months after the tree has been attacked by bark beetles. Then the needles fall off leaving a gray skeleton of the tree. The tree eventually falls down.

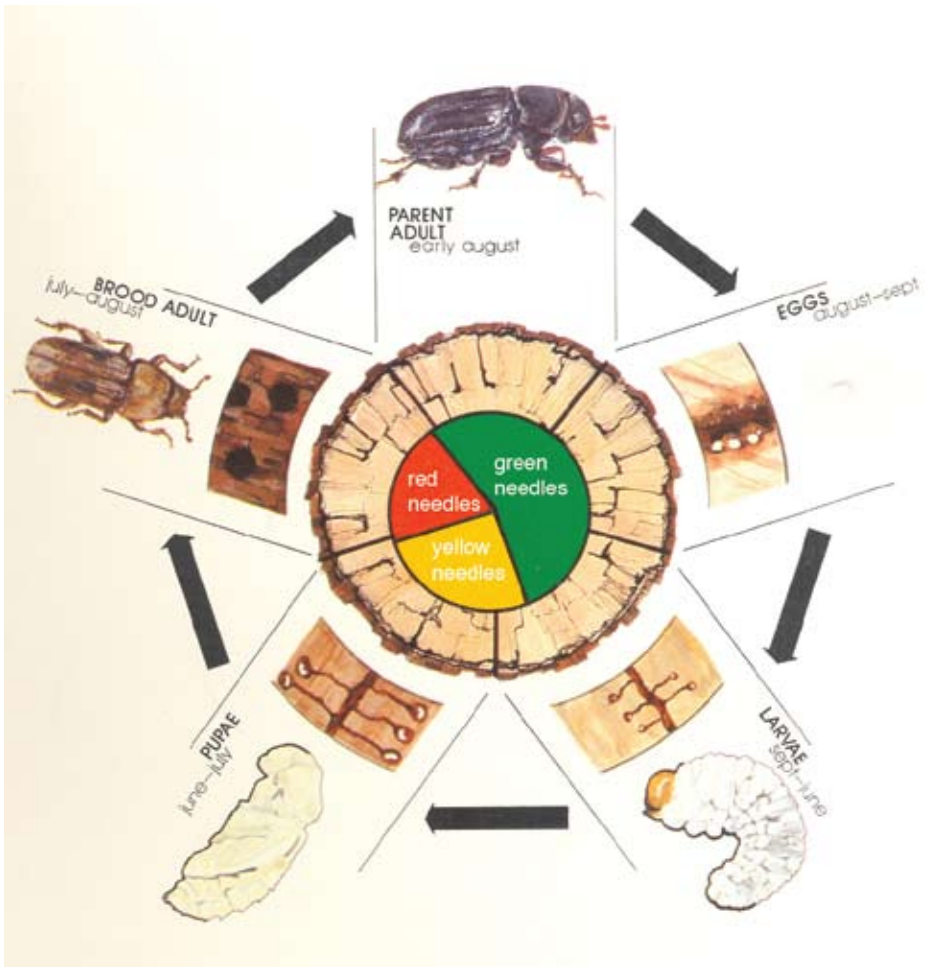
Infested Trees

In this decade, miles and miles of red, dead trees can be seen. In forests with green trees, beetle activity can be identified by popcorn size 'pitch tubes" dotting the bark of trees. There may be a few dead beetles in the pitch tubes, but during an epidemic, most of the beetles are successful in their attack on the tree. Fine sawdust, or frass, may also be seen at the base of the tree trunk.

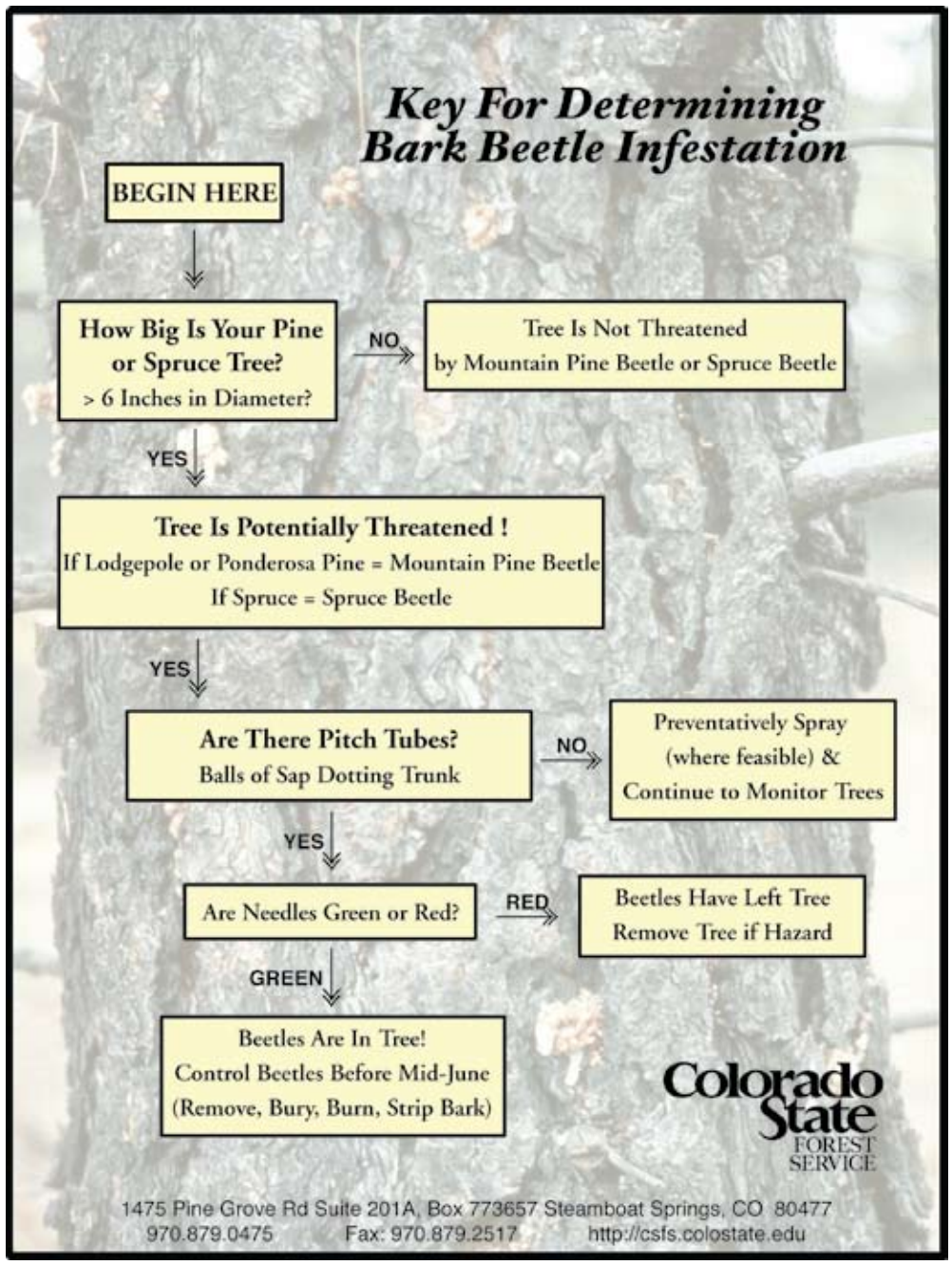
Fire Potential

The increase in dead and downed timber will increase the risk of wildfire and increase the safety concerns of suppressing those fires. Communities across the west are working to remove these hazardous fuels from populated areas. Efforts are underway in many states to use the dead trees for biomass generators, wood pellets and lumber.

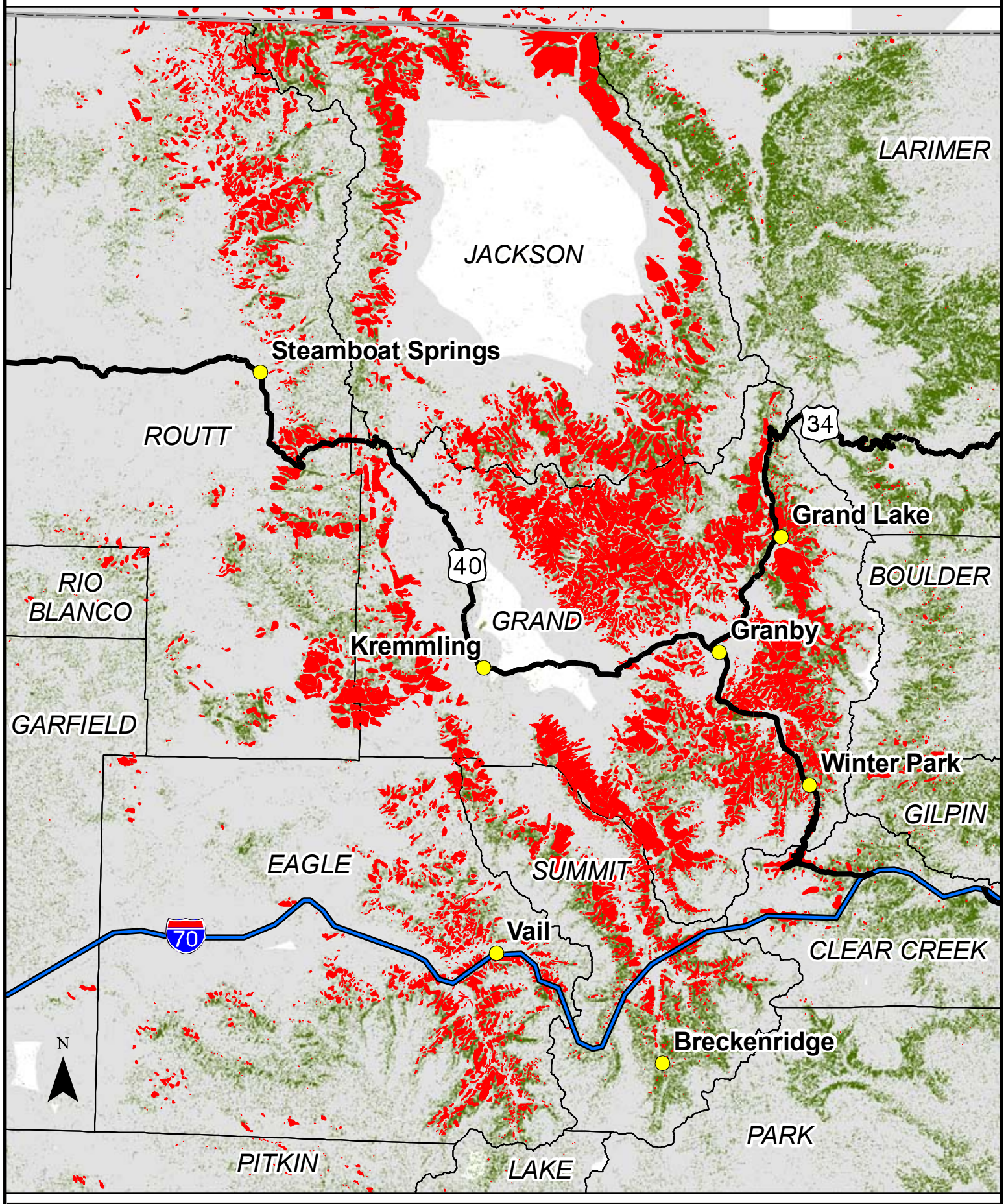
For more information, please contact Colorado State Forest Service: 970.879.0475 or 970.887.3121 or on the web at csfs.colostate.edu.



Life cycle of the mountain pine beetle in relation to the color of tree needles during the life cycle.



Mountain Pine Beetle - Northern Colorado Infestation in Lodgepole Pine 2006



Mountain Pine Beetle:

Frequently Asked Questions

What is the mountain pine beetle?
The mountain pine beetle (Dendroctonus ponderosae Hopkins) is a member of the bark beetle family, and is the most damaging insect pest of pine trees in western North America. The adult beetles are black and small, just 5-7 mm long, while the larvae look like small maggots under the bark.

What damage can they cause?
Mountain pine beetles mass attack and kill mature pine trees within a year. The adult beetles introduce blue-stain fungi into the tree when they attack. These fungi, along with insect feeding, kill the tree by cutting off paths for nutrients and water. Each female lays 60-80 eggs, enabling populations to grow very quickly. There are often enough insects emerging from one tree to attack and kill 15 additional trees.

If the forests are not managed while the beetle populations are low, severe damage to pine stands can result. Outbreaks can destroy thousands of acres of mature pine forest in a single year.

Where do they live?
The range of mountain pine beetle extends from Mexico to British Columbia. They breed in lodgepole, ponderosa, whitebark, limber, and white pines. The beetles prefer mature (over 80 years old), large trees. Beetles may attack younger trees, but they are usually less successful.

How far can they fly?
Most species of bark beetles are good flyers. Mountain pine beetles can potentially disperse over great distances if the winds are in their favor. The jury is out on the exact mileage these little creatures can fly. Some say up to 6 miles…some say farther.

What is their role in the environment?
In their normal habitats, beetles are stand-replacing factors. Beetle outbreaks remove the over-mature pine from the stand and allow other tree species to take over. However, with the current widespread epidemic, the mountain pine beetle has been very destructive in our forests. It may have detrimental impacts on the native fauna and flora, as well as the watersheds, soils, water quality and natural ecosystem succession.

Do they have any natural enemies?
Yes. Birds, especially woodpeckers, eat a large number of insects. In addition, while the birds feed, they remove bark and expose the remaining insects to the elements.
Insect parasites, predators and fungal diseases also attack bark beetle larvae. However, during outbreaks, these organisms probably have little effect on the pine beetle population.

Will cold temperatures kill the mountain pine beetles?
As the fall temperatures drop, the larvae, under the bark, expel the water content within their bodies becoming in essence a sack of anti freeze. For winter mortality to be a factor of significance, a severe early freeze is necessary while the insects are still getting rid of the water. An early spring with warming temps and the insects taking on water again, followed by a hard freeze will also result in higher levels of mortality. Research indicates that cold weather in the middle of winter is not going to increase the mortality level.

What is Blue Stain?
As the MPBs attack lodgepole pine trees, they introduce fungal spores into the wood that quickly germinate and infect the sapwood. As the fungus grows, the sap flow within the tree becomes hindered. This combination of beetle infestation and fungal growth can lead to massive tree fatalities.

The introduction of fungus into the tree and its continued spread from MPB attacks results in a bluish discoloration in the timber, principally in the sapwood. This staining poses a significant problem for the wood products industry. Discoloration leads to a loss in the economic value of the tree due to a loss of marketability as consumers mistakenly equate this bluish discoloration with some sort of defect.

What products can be produced from trees killed by MPB?
Bluestain fungi are not mold and do not cause decay or rot problems. They are considered harmless with respect to both wood products and people, and are usually dead by the time they have left the manufacturer. With this in mind, wood that contains the blue stain fungus can be used in all of the same markets as non-stained wood with some qualifiers. Beetle-killed lodgepole pine can also be used in the fuelwood and biomass markets.

Managing Pine Beetles

By Thomas Estes

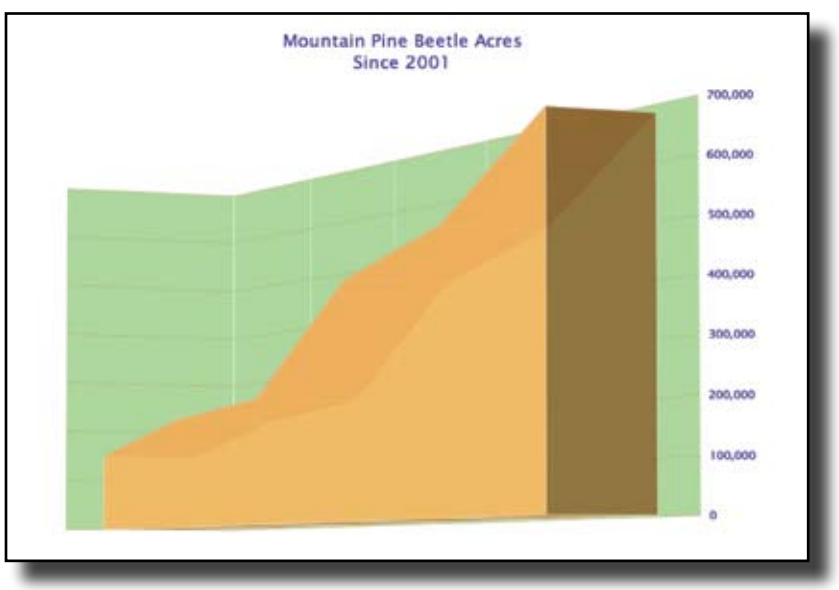
History has shown that devastating outbreaks of mountain pine beetle infestations occur periodically throughout lodgepole pine ecosystems.

Pine beetles know no property boundaries and attack trees whether they grow in wilderness areas, in national forests or in a back yard.

In many areas, between 50 to 90 percent of the trees have died. Such losses typically occur in stands where little or no management has taken place.

Property owners would be well served to remember the adage: "An ounce of prevention is worth a pound of cure."

This advice pertains to our forests. There is no substitute for good health. Pine beetles respond to stress placed on trees from a variety of sources. Old age, overcrowding, root disturbance, soil compaction, dwarf mistletoe, and injury from machinery or fire are only a few examples of stress. *Anything done* to alleviate this stress is beneficial. Through proper forest management practices, trees can become stronger and more vigorous, leading to an increased production of resin (pitch), a tree's natural defense mechanism.



The first step in any forest management program is to remove all diseased or beetle-infested trees. Once it's determined that a tree is likely to be killed because a large enough number of pine beetles have attacked it, the tree should be removed and treated. While such trees may appear healthy and green, the tree is already lost if inspection reveals the presence of enough beetles under the bark.

Simply cutting down an infested tree is not enough. A beetle-infested tree should be removed from the site. If it is left on the site it should be chipped, burned or peeled.

Another technique is to move felled trees to locations that are intensely solar - in other words open and sunny - where the trees can be cut into logs and rotated every three weeks. Do not stack the logs. If plastic is used to cover the logs, it should be clear plastic and the logs should be watered before they are covered or wrapped. The edges of the plastic should be covered with dirt and any rips repaired with duct tape. (Note: this technique is not very effective at elevations greater than 7,000 feet).

How Can People Manage for the Next Forest?

- Adding diversity to forests can provide a kind of insurance policy against future large-scale multi-landscape disturbance events.
- Thinning around homes and communities helps reduce fire risk in communities and watersheds.
- Creating naturally-shaped openings in lodgepole pine forests over time reintroduces age and spatial diversity.
- Removing conifers from aspen stands provides excellent wildlife habitat and helps prolong aspen on the site.
- Maintaining forests over time helps keep them resilient.

Short-term preventable solutions involve the use of chemical sprays applied to the bark of uninfected trees. Three chemicals are currently registered for this purpose. They are carbaryl, (Sevin), permethrin, (Astro), and bifenthrin (Onyx). See **Preventive Spraying**, page 5.

The long-term solution to insect attack is to create conditions for a stronger and healthier forest. A healthy forest contains well-spaced trees free from dwarf mistletoe.

Proper spacing encourages fuller crown growth while lessening competition for sun, nutrients and water and the hazard of fire. An occasional light application of fertilizer is also beneficial. Prune mistletoe whenever possible.

Before starting, it's wise to consult a professional forester to best understand the management options available.

Over 650,000 Acres Affected in Northwest Colorado

Preventive Spraying Measures for Protecting "High-Value" Trees From Mountain Pine and Spruce Beetle Attacks

Meg Halford (CSFS)

It's time to start thinking how we as homeowners, landowners, land and recreation managers can prepare ourselves and help protect our high-value trees from bark beetle infestations (i.e., mountain pine beetle and spruce beetle). High-value trees such as those located in residential and recreational sites are particularly susceptible to bark beetle attack as a result of increased amounts of stress associated with drought, soil compaction, or mechanical injury. While it is true that we cannot stop this recent beetle outbreak, there are measures that we can take to help reduce the loss of our high-value trees. One way is to apply a registered preventive spray to help prevent bark beetle attacks on individual high-value trees.

Preventive spraying provides a proven method of keeping uninfested but susceptible pines alive, despite attempted attack. Several formulations of sprays are registered for use to prevent attacks on individual trees. Of these, carbaryl is considered one of the most effective and has a track record of 30+ years as a mountain pine beetle and spruce beetle preventive measure. If applied correctly and all spraying procedures are followed, there should be a very high rate of success of the treatment.

Among them:
- Carbaryl (2% solution-Sevin XLR plus, Sevin SL)
- Permethrin (Astro, Dragnet)
- Bifenthrin (Onyx)

When these sprays are applied to healthy trees in late spring to early summer (preferably during May and not past July 1st), they will deter and can kill attacking beetles.

Preventive spraying is effective through one mountain pine beetle flight, which is one year. It is recommended that re-application of the insecticide be done on a yearly basis for 2-5 years depending on the beetle infestation in your area.

Do it yourself: Preventive Spraying

While most homeowners, landowners or business owners hire certified commercial applicators to spray their high-value trees, some may choose to spray your own trees.

Private landowners spraying their own trees are not required to have an applicators license, however, the safety and procedure training is highly recommended for do-it-yourself sprayers. Information can be found on the Colorado Department of Agriculture/DPI website: http://www.ag.state.co.us/DPI/PesticideApplicator/Home.

If you choose to spray your own trees there are a number of application methods include backpack and handheld sprayer units, attachments to a common garden hose, power washers and others. Most of these sprayers provide protection from the bottom to 12-15 feet high of the tree trunk, an area where beetles are usually found. However, as concentrations of beetle populations continue to increase, beetles have been found to attack higher in the tree, therefore it has become more and more important to also protect the upper trunks of the taller trees. In this case it is recommended that you use a professional grade sprayer to ensure that the highest point possible on the tree is protected. These sprayers can cost a good deal of money and you may want to consider brining in a commercial applicator at this time.

In cases where smaller and shorter trees are present, do it yourself applications can be effective and much less expensive per tree. If commercial sprayers are not available as a first option for large trees, do it-yourself protection is preferable to no protection at all.

PREVENTIVE SPRAYING

It is important to understand that whether you choose to spray your trees yourself or hire a commercial applicator that there will be some trees that were sprayed that might get attacked. If spraying failures do occur (2-5% is the norm) the following are possible factors that will contribute to "failure:

1.) Misidentification of healthy trees: dry conditions and less vigorous trees contribute to not seeing the "classic" signs of infestation (i.e. pitch tubes). Recent surveys show that many infested trees are not producing the obvious pitch-tube trademark that tells that a tree is infested. It is important when identifying a tree to be sprayed to check the entire circumference and up high on the bole of the tree for small entry holes and frass (fine sawdust) in the crevices of the bark and around the base of the tree.

2.) Timing: spray treatments applied after June may run the risk of tree being attacked by early emergence attacks. To ensure treating your high-value trees before the first flight it is recommended to start your treatments in early-mid May (as long as there is no snow impeding the spray at the base of the tree) and spraying no later than mid June and the absolute latest to the end of June. Your greatest protection will be achieved the early you do your treatments.

3.) Improper coverage: it's important to spray starting at the very bottom of the tree at the ground to as high as possible up towards the crown (at least to 5" diameter at the top) and to spray all the way around the circumference of the tree. Any strips or patches missed will create windows for bark beetles to attack.

4.) Environmental conditions: a.) significant moisture or rain within 2 hours of application may wash off the insecticide; b.) spraying during very high temperatures may break down the chemical; c.) windy conditions will cause the chemical to drift away from the tree being sprayed and affect the amount that is intended for application.

5.) Improper dosage: it's important as an applicator to make sure that the proper dosage (%) of the active ingredient for bark beetles is mixed. A greater percentage is needed for mountain pine beetle, spruce beetle etc., compared to other insects.

The most susceptible trees are usually too tall to be sprayed effectively by the homeowner without using high-powered and expensive equipment.

6.) Improper mixing: it is important to maintain continuous agitation during mixing and application to assure a uniform suspension.

7.) Improper volume: Lodgepole pine has "flakey" bark and may require more spray to cover the tree thoroughly.

8.) Formulation: as a homeowner, if you are planning to treat your trees without using a licensed applicator, make sure that the chemical has a legitimate label such as Carbaryl (Sevin) SL or XLR. Make sure the insecticide comes from a manufacturer that specializes in insecticides that are used for bark beetle prevention.

9.) Shelf life and storage: If stored correctly, carbaryl should have a shelf life of 2 years after the manufacture date. Unused insecticide should be stored in its original container only, in cool, dry areas. Do not store in areas where temperatures frequently exceed 100 degrees Fahrenheit.

Be sure to read and follow the directions and cautions on the label of each product carefully before spraying your trees.

Remember, that although some homeowners may want to try spraying their own trees, the most susceptible trees are usually too tall to be sprayed effectively by the homeowner without using high-powered and expensive equipment. It is recommended that a certified commercial applicator with training, personal protective equipment (PPE), and a high-pressure sprayer perform the treatments on your high-value trees.

Again, for successful spraying treatments on your high-value trees all of the factors listed above must be followed to ensure the highest percentage of success.

For more information about preventive spraying please contact your local state forester.

Red Creek HOA Experience with Mountain Pine Beetles

By Bill Speaker
Resident and Director

The Red Creek development is located just south of Steamboat Lake, in far North Routt County. They were approved for development in 1989 through 1991, and are governed by a single Homeowners' Association staffed with owner volunteers. The forest and its abundant wildlife, the privacy, and the peace and quiet have attracted buyers and led to a ten-fold improvement in land values since the properties were developed, initially with only roads and utilities to the lot-lines. Development is in its early stages, with 14 custom homes on 38 lots. Three owners live here year-'round.

The Forest has Seen Fire

The land is hilly, averaging 8,200 foot elevation. It totals about 800 acres, of which 400 acres are heavily forested with second-growth lodgepole pine, some Engelmann spruce and subalpine fir, and many large aspens. Many of the pines are more than 100 years old. The forest burned in several waves in 1870-1890, and lot owners preserve the blackened stumps and trunks in respect for that "virgin" forest. The black stumps are a reminder that our forest could again fall prey to catastrophic fire if we do not manage the mountain pine beetle attack intelligently.

Pine Beetles in 2003-2006

One lot owner noticed and removed 70 infested pines in 2003. Every other year, the same owner sprayed pines near his house, with good success - virtually no infestation occurred in sprayed trees.

In 2004 and 2005, we conducted more intensive surveys and found and removed 200 infested trees each year, from numerous lots. There were intense negotiations, particularly with some lot owners who were surprised by the beetle attacks, who didn't understand their significance, and who had not planned to fund maintenance of the lots they bought principally for investment. Nonetheless, in the end, all lot owners agreed to remove infested trees, based on the argument that we could slow the advance of the mountain pine beetle, and reduce the risk of crown fire in the infested trees.

So, imagine the intensity of the negotiations in 2006, when we identified 1,000 infested trees. All lot owners eventually agreed to remove the infested trees, with two unfortunate owners being hit with invoices totaling $14,000.

Volunteers conducted the forest inspections, and managed the logging contractor. Weather was wet and warm in much of October 2006, a difficult environment for the big logging machines. Come early summer 2007, volunteers will burn the numerous slash piles remaining from the 2006 program, and we will also increase the scope of our spraying program substantially. A portion of the 2006 removal project used a contractor who chipped the entire tree – we will monitor those chip-covered areas to see if the forest recovers well. Several owners with heavily forested lots have dug burn pits on their lots to contain the large slash fires, and some owners have invested in tractors and skid steers to move the slash, and clean up the logging debris.

The Future

So what does the future hold for our forest? We are very worried that 2007 will see a doubling of the infestation. We remain fearful of fire, whether it starts in our forest or in "red" forests upwind or bordering us. We are very active in the preparation of the Community Wildfire Protection Plan for North Routt, and we expect that the Plan, when completed later this year, will offer the possibility of government funding of the priority remediation projects in our region.

Forestry professionals tell us that all our large pines, 10 inch and larger, will be infested and die within five years. That's a lot of fuel, if it is not removed. Removal of infested trees remains our community maintenance standard, yet our lot owners are near the breaking point in funding what is, to us, an expensive logging operation, growing more expensive each year.

A New Approach

Currently under consideration is a strategy to remove all the large pines, both healthy and infested, that we cannot afford to spray, and then replant, with due attention to forest density, and to both age and species diversity in the new forest. We would hire a consultant to inventory our forest, and find a buyer for our large pines, with the expectation that sale of healthy trees would subsidize the cost of removal of the infested trees, which are currently in oversupply and selling at a distress price.

Put bluntly, all the large trees will die. Should we sell them for a good price, before they are infested, or for a low price, after they are infested?

We fully expect to encounter stiff resistance from some lot owners, who could equate this program to "clear-cutting". All of us will be looking carefully at the tradeoffs - economic, aesthetic, and environmental - that we are facing.

We do not expect that forest management decisions at Red Creek will be easy in the coming years.

HOA Case Study: *Ruby Ranch*

Ruby Ranch has more than 200 acres of forested slopes rising from Highway 9 in Silverthorne to the Eagles Nest Wilderness. Most of the forest is lodgepole, with some aspen near the meadows, and fir and spruce on the northfacing slopes.

For more than 10 years, residents have waged a battle against the mountain pine beetle using a combination of removal and spraying. Keeping on top of the isolated groups of two or three trees was easy the first few years. We found that we could identify and remove almost all the infested trees in a stand. Where a tree or two was missed, there would be a few more requiring removal the following year. But we could keep up.

Yet, every year the number of beetle-killed trees increased and extended further into the neighborhood. There were trees dying where before the trees appeared healthy.

By 2001 there weren't just two or three dead trees Instead there were clumps of 10 to 20. Still we kept cutting and treating. We slowed the onslaught.

This year there are numerous isolated islands of beetle-infested trees numbering to one hundred. These trees will turn brown in just a few weeks. The cost to deal with the thousands of beetle-infested trees on both private and common lands in our neighborhood has become onerous.

We won some battles but lost the war for most of our forested acreage.

Homeowners are continuing to have trees around their homes sprayed in hopes that some can be saved. We will continue to remove dead and dying trees around homes and in strategic locations in order to reduce the fire danger.

Fire mitigation is something we can all do. Each year our neighborhood works to reduce the amount of flammable material on our forest floor. We cut and haul out dead trees and offer the firewood to the local community. We fill dumpsters with woody debris and hire chippers to dispose of the green slash. We get together for fun work days and clean up our common tracts.

Removing biomass from the forest floor can significantly reduce the possibility of crown fire coming through the area. With all the dead lodgepole, it's a challenge, but it's a war we have no choice but to win.

Pat Tormey works for the Willowbrook Metro District (for Ruby Ranch).

The Next 10 Years

By Brad Piehl

Our landscape has looked basically the same during the last 100 years: a continuous canopy of green lodgepole pine with a few other tree species mixed in. The landscape will change due to mountain pine beetle infestation causing the death of tens of thousands, even millions, of lodgepole pines.

One need only visit Grand County to see what the future has in store for us.

Hillsides of mostly dead trees will dominate as their needles turn red before falling off. The potential or wildfires increases during the red needle phase due to the dryness of fuels accumulating across the landscape and forest floor.

Because of this increased wildfire risk, people will be protecting their properties by creating defensible spaces. Summit County and its incorporated towns are working together with state and federal agencies to target high risk areas for wildfire reduction.

A fire in a lodgepole pine forest will have a rapid rate of spread when it reaches the crowns of the trees, a situation only intensified by the typical dry and windy weather conditions of the fire season.

In areas where lodgepole pines die and are unaffected by wildfire, regeneration of spruce and fir will occur in places where they are currently established. Dead lodgepole pine provide the shade and shelter necessary for these trees to thrive

Beyond 10 years

We are experiencing a period of change in our forested landscape. As a community, we need to think about landscape changes during a longer time period. The goal should be to help create a sustainable forest landscape that, while inevitably changing, will also provide for our needs and ecosystem functions as it changes. The amount of lodgepole on National Forest lands is vastly greater than any other forest type. There will not be enough money to treat large landscapes. We will see large hillsides of red trees standing dead and eventually falling down.

Areas with a spruce fir understory will follow their successional pathway and become spruce fir stands if they do not burn, which will create more species diversity. Areas that experience fire will come back as either young lodgepole pine or aspen.

Areas that burn very intensely may suffer soil loss due to the organic matter being destroyed in the fire and increased erosion following fire. These areas may exist as forest openings for decades before the soil recovers sufficiently to support tree growth.

Species diversity will create more diverse wildlife habitats that will change the composition of wildlife that use our forests. These forests will support greater numbers of species dependent on younger forests, such as spruce fir and aspen, and open space.

What can we do to shape the future forest?

Private landowners, homeowner associations, nonprofit groups and businesses as well as county and town governments have a great deal invested in supporting healthy forests for our collective future. Water, wildlife, habitats and recreation areas are central to our mountain lifestyle. Because the Forest Service has limited funds, individuals must take responsibility for their own property and contribute time as volunteers to help on a larger scale. Only then will we get to the recovery stage gracefully.

Landscape planning is important at different scales. Individual homeowners need to attend to the area surrounding their homes. Creating defensible spaces and conducting regular fire mitigation maintenance around homes is essential. Landscape planning on your property includes envisioning what your property will look like in 20 years.

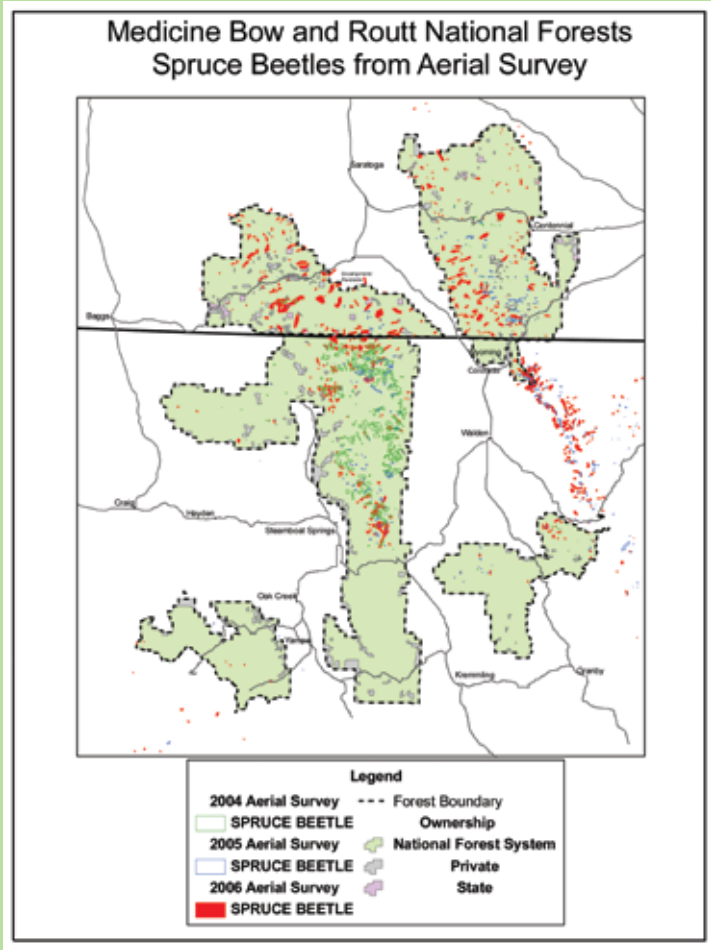
Saving lodgepole pine by spraying is a short term measure, as they are close to the end of their lifespan. Encouraging aspen growth by removing lodgepole pine could be expensive and will result in a loss of tree cover on your property in the short term. Over time, aspens provide a beautiful landscape element that is fire resistant and is not susceptible to mountain pine beetle attack.

Because a forest does not recognize ownership boundaries, we ought to work collaboratively to accomplish forest restoration over the larger landscape. We need to create a community vision of the forested landscape, including its look, function, wildlife habitat and watershed values. We should consider actions and results both in the short term and the long term.

In the short term, larger lodgepole pine can be sprayed to protect views. A long term plan for the larger landscape might include cutting or burning lodgepole stands in areas already populated with aspen. It should also include protecting dying lodgepole pine stands with spruce fir emerging after fire or other disturbances.

In some instances, controlled burns may be appropriate to regenerate those stands.

Working together to leverage limited public fund means organizing as a community to accomplish what fire mitigation and forest restoration work is necessary.



Spruce Forests Are Also at Risk!

Given the risk to communities, land managers have focused strongly on the pine beetle infestation in Colorado's forests. But the most recent "State of the Forest" report from state officials suggests the state's aging spruce forests are "poised to host the next big bark beetle epidemic, as spruce beetle populations continue to build in the state's high country."

Like mountain pine beetles, spruce beetles are a primary change agent in spruce forests, but some of the most recent research has researchers concerned about a trend in the spruce beetle's life cycle that has reduced its usual lifespan from two years to one. The adaptation enables the beetles to proliferate much more quickly.

Researchers have attributed the change to milder temperatures and possible climate change influences.

Spruce beetles can fly up to 30 or 40 miles aided by wind, and can spend up to a week outside host trees, as compared to just a few hours for pine beetles.

On a small scale, the Steamboat Ski Area has been gaining ground in its battle against the spruce beetle by persistent removal of infested trees. The treatments are costly, but beetle populations have abated for three straight years at the ski area while increasing in adjacent areas.

Blue-stained Wood Use

We use a lot of wood in Colorado. Over 1.2 billion board feet a year according to numbers provided by Colorado State University. A board foot is a common unit of measure for lumber and is equal to a board 12 inches by 12 inches one inch thick. The majority of this wood, 95%, comes from outside Colorado, and much of that wood comes from outside the United States. In fact, the United States is a net importer of wood. This is a little ironic considering here in Routt County and throughout northwest Colorado trees that would make perfectly good lumber are being chipped, mulched, burned and land-filled. We are in the midst of a historic beetle epidemic that has impacted over a million acres of forest land in Colorado and shows no signs of slowing down.

So why aren't we using this wood that's in our backyards as opposed to using wood that may come from as far away as China? The reasons are complex and have to do with the global economy and our own attitudes about harvesting wood. The global economy gives us wood at perhaps a lower dollar cost but not necessarily a lower net environmental cost.

The mountain pine beetle adds another wrinkle to this equation. When the beetle attacks a tree it also infects the tree with a fungus it carries. This microscopic fungus produces a very visible result; it stains the wood blue! Blue-stained wood makes beautiful interior paneling, furniture, trim, and other wood products. The blue-stain does not affect the strength of the wood, so structural uses are not limited. Many builders and homeowners have recognized the advantages of using blue-stain for its intrinsic character, beauty, and economy. However, because the color in the wood is considered a defect, blue-stain is usually worth less to local sawmills than comparable "white" wood. The problem is one of perception. Some large lumber retailers do not carry dimensional lumber with blue-stain in it because they fear consumers will think it is weaker wood. Some people even worry that the blue-stain could be a health hazard, like mold, but it isn't.

In short, there is no good reason not to use blue-stain wood, and plenty of good reasons to use it. Help reduce the danger of wildfire in your neighborhood, save the cost of fuel and other environmental impacts from wood harvested far away, and help your local economy. "Be green, build blue."

Examples of blue stain wood used in home construction

What's Happening to the Aspens?

For the second year in a row, unexplained aspen decline occurred in western Colorado. Despite many on-site inspections, experts have not determined what is killing the trees and their root systems. Common culprits such as animal grazing and conifer encroachment are not responsible for this ongoing die-back. About 138,000 acres of aspen decline and mortality were observed from 2006 aerial survey flights. The extent of dying roots is unknown.

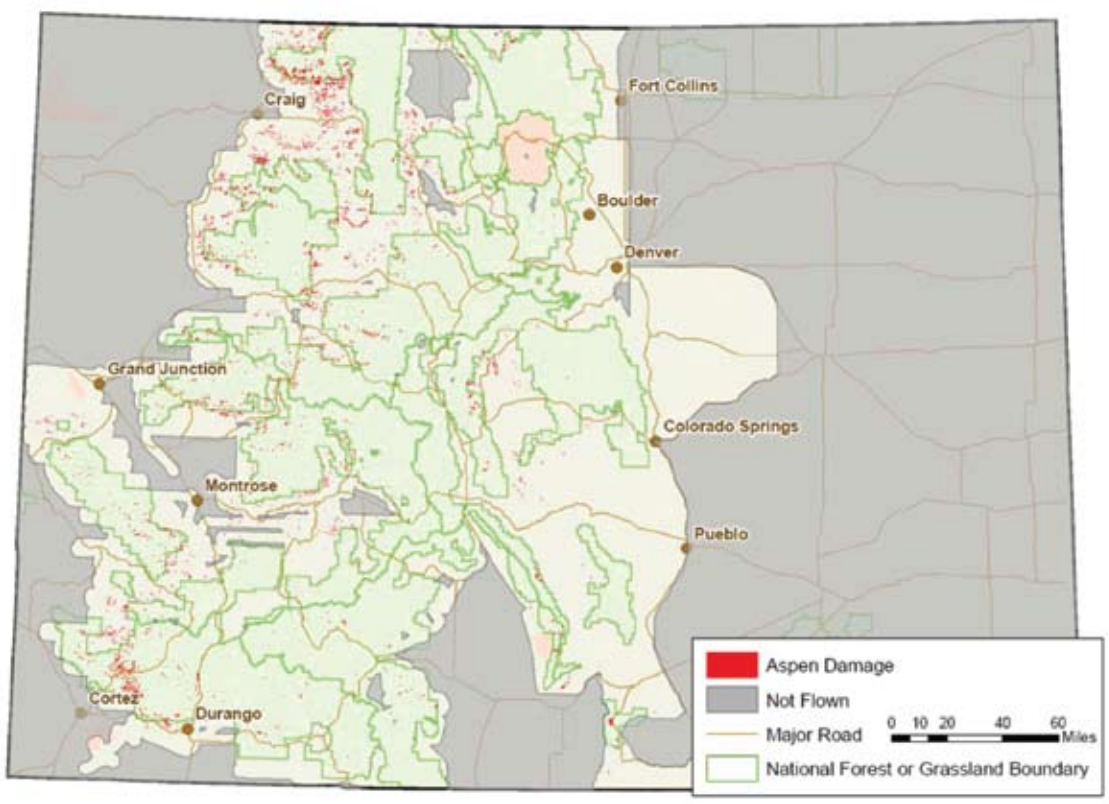
Researchers are currently designing an investigation that will attempt to determine specific symptoms and causes. If aspen root systems are unable to produce new aspen suckers, aspen clones that have existed for millennia will be lost. Preliminary assessments have shown many different causal agents, from decay fungi to aspen bark beetles, in different areas. In some cases, the decline is occurring on low-elevation, marginal aspen sites.

Marssonina Blight

The Marssonina *fungus causes this most common disease on aspen foliage. Although there is leaf discoloration, this condition usually is not damaging. Heavy infestations will cause early leaf drop.*

Black Canker

This slowly developing canker is caused by the fungus Ceratocystis fimbriata *and is easily recognized. The canker rarely kills the tree due to its slow development.*



Trunk Rot

Phellinus igniarius *decay fungus enters through old branch stubs or other wounds. Affected trees often are used by hole-nesting birds.*

Poplar Borer

The wood-boring beetle lays eggs on the bark of the aspen. The larvae then tunnel, weakening the wood. Entry and exit holes of the beetle invite fungi, which can result in limb breakage.

Is Your Address Visible?

In order for emergency personnel to respond efficiently to an emergency call, streets and addresses must be properly marked and visible from the road. Buildings that cannot be seen from the road should display their addresses on a 5 to 7 foot post no more than 25 feet from the road. Six inch reflective letters on a contrasting background is ideal.

Community Wildfire Protection Plans

What Do They Mean For You?

Community Wildfire Protection Plans, or CWPPs as they are commonly called, present one of the best opportunities to tackle the challenges facing communities situated in the Wildand Urban Interface (WUI). The process for developing these plans demands collaboration between community members, fire districts, and local, state and federal government representatives and, therefore, supports locally developed solutions. These plans are intended to be viable, usable documents that: identify and prioritize hazardous fuel reduction project areas; recommend measures to reduce ignitability of structures; determine values at risk; rank priorities for action items and; assess current levels of preparedness.

There are many benefits to communities who work through this process. The fact that these plans are developed on a landscape scale means they can include private, state and federally managed land. Communities are able to define their own WUI area and what's important to them. Federal agencies are directed to give priority to fuel reduction projects that are tied to CWPPs and their identified values. And since, you, the community members are a main contributor to the process; you become more familiar with and have ownership in the development of your CWPP. This process serves to build local relationships and capacity for being better prepared to protect your life, home and property.

CWPPs are meant to be reviewed and updated as the identified action items and fuels treatments are completed. In this way they continue to be current plans that will be indispensable should your community ever be involved in a wildland fire. They provide valuable information to firefighters who may be called to protect your area. An additional component that is a key element to the success of any CWPP is defensible space. Follow the standard Firewise guidelines to mitigate your property and home. Give firefighters a safe area to make a stand against wildland fires and give your home the best chance of survivability.

Grants and agreements are available to counties and communities to help fund these planning efforts. The Colorado State Forest Service (CSFS) as well as federal agencies, have programs that help support the development and implementation of CWPPs. One web site that offers a searchable grants database, as well as other wildland related information, is: www.rockmountainwildfire.info. This web site also offers a calendar of events and training opportunities, fire management resources, media tools, featured news, and links to other wildland fire related sites. To find out more about CWPPs, call CSFS at 970.879-0475 or 970.887.3121 or contact your local USFS or BLM office.

Currently in Routt County, three CWPP's are in stages of development. The North Routt Fire CWPP and Stagecoach CWPP are being spearheaded by the local fire protection districts. In the Steamboat Springs area, the Fish Creek-Sanctuary CWPP is being driven by the homeowner's group. Other counties in northwest Colorado that have completed CWPPs are: Moffat; Grand; Rio Blanco; and Jackson. Check with your local fire protection district, or homeowner's association to see if you have one for your area, or how you can be a part of developing one for your area.

Defensible space (or forest management) work completed prior to the fire helped prevent any buildings from being burned in the Y Fire in Grand County in June 2007. Crown fires, as pictured above, can burn in crowded forests with or without beetle-killed trees.

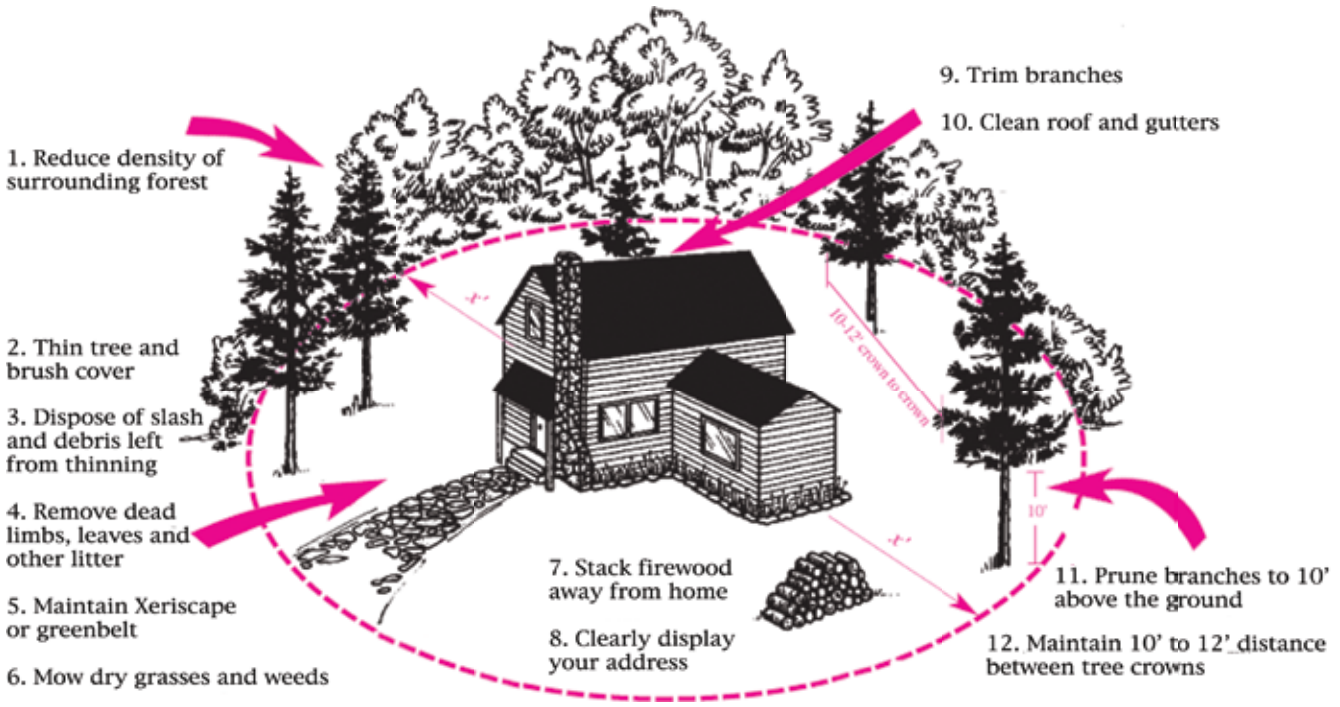
To Report a Wildfire... Call 911

When reporting a wildfire please have the following information ready:

- The phone number you are calling from and your name.
- What is the location of the fire? Use geographic names or street address numbers.
- Who owns the property?
- What is the fire burning in? Trees, brush, grass, or other.
- What color is the smoke? White, grey, brown, blue, black, or unknown.
- How big is the fire? The size of a campfire, a house, a baseball field, etc.
- What is the weather and wind at the fire location?
- Are there any lives or values threatened? For example homes, buildings, campgrounds, structures, etc.
- How fast is the fire spreading? Fast as you can walk, run, or unknown.
- Is anyone fighting the fire? Like the Forest Service crews, fire department, neighbors, passers-by etc.

Please remember, the more information you have and the better you can answer the above types of questions, the easier it is for fire crews to quickly respond to the fire. On average, 98% of the fires are contained within 24 hours of their start.

WILL YOUR HOME SURVIVE A WILDFIRE?



The above 12 actions will increase your home's chance of surviving a wildfire.

Contact Your Local Fire Department or Colorado State Forest Service For Additional Assistance

Steamboat Springs Fire Department
970.879.0700
www.steamboatfire.com

North Routt Fire Protection District
970.846.4311

West Routt Fire Protection District
970.276.3796

Oak Creek Fire Protection District
970.736.8104

Yampa Fire Protection District
970.638.4227

East Grand Fire Protection District
970.726.5824
www.eastgrandfire.com

Grand Lake Fire Protection District
970.627.8428

Kremmling Fire Department
970.724.3795

Grand Fire Protection District
970.887.3380

Hot Sulphur - Parshall F.P.D.
970.725.3414

North Park Fire Protection District
970.723.4747

Colorado State Forest Service
970.879.0475 or 970.887.3121
csfs.colostate.edu

USDA Forest Service
www.fs.fed.us/mrnf

Wildfire Prevention and Survival

Fire is unforgiving and can find the weak link in your home's fire protection scheme. Several factors have emerged as determinants of a home's ability to survive a wildfire, most notably the roofing material and quality of defensible space.

Defensible Space
Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the rate of spread of a wildlfire toward a structure. Defensible space also helps slow the progression of a fire away from a structure to nearby homes and the surrounding forest. Effective defensible space involves developing zones around a structure, each one modified less until the natural forest is left. The first zone receives the most treatment, ideally removing all flammable vegetation within 10 feet of a structure. As you proceed farther out into the next zone, fuel is reduced thus reducing the fire intensity. This includes thinning trees and shrubs and other items illustrated in the diagram "Increase Your Home's Survivability." Once a defensible space is established annual maintenance will be required.

Landscaping
While working on your defensible space, improper landscaping can greatly increase the risk of structural damage from wildfire. When possible, utilize native species as they are generally the best plant materials for defensible space. Maintenance of grasses is critical to prevent a creeping fire from reaching the structure. Other good alternatives for landscaping are the use of ground cover plants, wildflowers, mulch and decorative rock.

FireWise Construction
Homes built in the urban interface should be built with fire resistive materials. The roofing material is the most important. Class C or better roofing materials should be utilized to prevent flying embers from easily igniting the roof. Other firewise construction techniques involve siding, enclosing eaves and overhangs and minimizing areas where heat or embers can get trapped.

Evacuation Plans
Should a wildfire threaten your home you should be contacted by law enforcement when an evacuation is warranted. When evacuating, be sure to take with you important documents, mementos and medications. Choose a route away from the fire whenever possible. Create a critical list of items before a fire threatens.

Homeowners can do a great deal to protect and prepare their properties from the threat of wildfire. Many fact sheets and publications are available to assist you. Contact you local fire department or Colorado State Forest Service for additional information or assistance.

Service Directory

Preventative Spraying Contractors

Western Weed & Tree Management
Dan Jendral
PO Box 773415
Steamboat Springs, CO 80477
970.870.7987

Sol Solutions
Jeff Crochiere
Steamboat Springs, CO.
970.871.1338

Higo Weed Busters
Jody and Janie Brands
37771 Hwy 14
Walden, CO 80480
970.723.4588

Tom Estes
Preventative Tree Spraying
Silverthorne CO
970.468.1254
800.439.3904

American Tree
Troy King
970.627.9720

Giving Tree Care, Inc.
Tom Lloyd: 970.567.2623
Daniel Kunkel: 970.566.4532
givingtreecare@yahoo.com

Stinton Enterprises, Inc
Don Stinton
970.723.4636
PO Box 62
Walden, CO 80480

Blue River Enterprises
Larry Malouff
970.627.1971

Grand County Pest Control
Bryan Haught
970.725.3400

J1 Services
Rob Jacobs
970.726.5575

References

Firewise
www.firewise.org

Northern Colorado Bark Beetle Cooperative
www.fs.fed.us/r2/fhm/bbcoop

Colorado State University Cooperative Extension
www.ext.colostate.edu

The Bug Wood Network
www.bugwood.org

Rocky Mountain Wildfire Info
www.rockymountainwildlandfire.info

Bark Beetles of the World
www.barkbeetles.org

Routt National Forest (USDA)
www.fs.fed.us/r2/mbr

White River National Forest (USDA)
www.fs.fed.us/r2/whiteriver

Bureau of Land Management
www.blm.gov

Colorado State Forest Service
csfs.colostate.edu

Grand County Government
www.co.grand.co.us

Routt County Government
www.co.routt.co.us

Colorado State Legislature
www.leg.state.co.us

Lam Tree Service Inc.
Mike Goldblatt
303.674.8733

Swingle Tree & Lawn Care
303.369.1504

THC Enterprises
Howard Kliewer
970.627.3359

Timberline Spraying
Don Doty
866.687.6811

Vegetation Management Inc.
Duane Lindmier
303.674.1215

Greg Black
303.809.7910

Infested Tree Removal and Treatment

Foxfire Fuelwood Products
Don Read
PO Box 881005
Steamboat Springs, CO 80488
970.736.2745 or 970.846.3691
foxfirefuel@earthlink.net

Becker Tree Service
Jeff Becker
Steamboat Springs, CO
970.879.5748

Ski Town Tree Care
Eric Baker
PO Box 776386
Steamboat Springs, CO 80477
970.846.6645
poma@springsips.com

Brighton Tree Specialists
Brian Galret
Oak Creek, CO
970.736.2348

RAI Enterprises
Eric Curry, Forestry Division
970.846.9984
Bob Idoni, Owner
970.846.6550
PO Box 883304
Steamboat Springs, CO 80488

Western Weed & Tree Management
Dan Jendral
PO Box 773415
Steamboat Springs, CO 80477
970.870.7987

Wingtip Enterprises
Dan Schaffer
Box 1226
Clark, CO 80428
970.879.3318

Joe Pittington, Inc.
PO Box 250
Walden, CO 80480
970.723.8295

Custom Cut Logs and Lumber
Shawn Larson
Hahn's Peak, CO
307.380.6125

Mountain Fuels Mitigation
Erik Davidson
303.809.0210

Tex Swart
PO Box 826
Walden, CO 80480
970.723.4608

MK Services
Mark Phipps
Wellington, CO
970.568.9211 or 970.222.2991

Focused on the Forest, LLC
Don Ewy
54587 Hwy 14
Walden, CO 80480
970.723.4316
ewyforest@FRII.com

White River Tree Service
Meeker, CO
970.878.5878

All West Tree Services
Ruben Cashler
Dillon CO
970.468.9588

Forest Futures LLC
John Zigman
PO Box 92
Rand, CO 80473
970.723.4045

Defensible Space Contractors

Foxfire Fuelwood Products
Don Read
PO Box 881005
Steamboat Springs, CO 80488
970.736.2745 or 970.846.3691
foxfirefuel@earthlink.net

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970.879.8319
jimficke@hotmail.com

Wingtip Enterprises
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Box 1226
Clark, CO 80428
970.879.3318

Mack Construction
Billy Mack
Box 635
Hayden, CO. 81639
970.276.4444

Becker Tree Service
Jeff Becker
970.734.5190

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PO Box 826
Walden, CO 80480
970.723.4608

Focused on the Forest, LLC
Don Ewy
54587 Hwy 14
Walden, CO 80480
970.723.4316
ewyforest@FRII.com

MK Services
Mark Phipps
Wellington, CO
970.568.9211 or 970.222.2991

This list of contractors may not be complete and is not an endorsement of any contractor and is provided only as a service.