GUIDE TO
FOREST HEALTH
2010

MOUNTAIN PINE BEETLE EPIDEMIC
THE NEXT PHASE
CREATING PRODUCTS AND MARKETS
FOR BLUE-STAIN PINE

Forest Health Task Force
A program of The Greenlands Reserve

Protecting your home
Emerging markets for blue-stained wood
Facts, resources and local action
Although the mountain pine beetle infestation appears to be winding down, the consequences of beetle-killed trees on large portions of our forested landscape will have long-lasting effects. Therefore, it’s wise to understand the realities of living in a lodgepole-dominant high elevation forest environment.

In this, our fifth edition of the Guide to Forest Health, the Forest Health Task Force seeks to furnish our readers not only with a big picture view of the changes that have been occurring on a landscape scale, but also with recommendations about 1) maintaining your home and property to reduce the risk of loss; 2) protecting existing trees from insects and disease; 3) joining the many volunteer efforts designed to reduce fuel loading and promote forest restoration; and 4) using local beetle kill wood for heat and energy as well as homebuilding, including dimensional lumber, flooring, paneling, siding, furniture and accessories.

Creating defensible space should be the number one priority. Be sure to review the article on how to protect your home, property and forest from wildfire on page 9. Due diligence helps keep your property safe, insurable and more accessible for emergency personnel and equipment should the occasion arise.

Professionals are your best choice for removing infested trees and protecting high value mature trees in the yard. Choose your tree service companies wisely, using guidelines such as those on page 14. Make sure they have a town or county business license. Commercial pesticide applicators must qualify for a permit from the state department of agriculture that attests to an expertise in spray application, cleanup and disposal.

Many of our advertisers have an excellent record of service to our community, having successfully operated in our mountain environment for years. Hauling dead and dying trees out of the forest is a demanding and expensive proposition. Removal is going to require commercial or government subsidy as well as the efforts of committed volunteers. The Friends of the Dillon Ranger District, profiled on page 4 is a leading sponsor of local volunteer projects.

While the articles on pages 3, 6, 7 and 10 will touch upon the reasons behind the current depressed market for beetle kill trees, we have it in our power to encourage private business to play a critical part of our wildfire risk reduction strategy by purchasing a variety of the “blue stain” wood products they make.

This guide provides a handy source of information about forest health resources important to residents of Summit County and neighboring mountain communities. Hold on to it! Sandy Briggs has served as lead organizer for the Forest Health Task Force since 2005.
The Beetle Kill Wood Challenge

Advice for using a plentiful local resource

By John Dickinson

The big question remains: “Can’t beetle kill pine wood be used for something?”

Yes, it can, and many entrepreneurs are working hard to demonstrate what the various possibilities are.

Beetle kill pine produces beams, house logs, boards, natural edge siding and fencing. It may also be milled to produce finer products such as flooring, interior trim, paneling, and specialty sidings. Our high elevation, slow-growth pine makes a very useable wood, displaying the eye catching colors of blue and grey streaking as well as the natural blond color prominent in beetle killed lodgepole pines.

Many Coloradans are benefitting by using the wood from their backyards; it’s a resource begging to be salvaged.

Local mills are producing house logs, rough sawn boards, half logs, beams, and fence material, which you can purchase directly from them. Pricing for all products vary between each mill according to quality and size. They will be happy to quote for your needs.

Questions often arise about prices for the wood. Quotes often run more than similar wood species, due to the cost of handling the salvaged product, including transporting it from forest to the log mill and removing defects caused by cracks and splits. Costs for rough sawn beetle kill wood run between 45 cents to 60 cents per board foot. A board foot is 1” thick by 12” wide and 12” long, or a 2” thick by 6” wide 12” long and any multiple of 144 cubic inches. The mill will convert these prices to lineal foot quotes if needed.

Moisture content of salvaged wood can be an issue. Dead trees on the stump are reasonably dry, but once cut and laid on the ground or stacked, logs start absorbing moisture. Once sawn, they will vary between 15 percent and 25 percent moisture content. Such extra moisture is a challenge in our dry climate. As boards or beams dry, they may crack further, shrink, twist or warp. A consumer may stack or place logs in a controlled environment, or kiln dried. Both add to the cost of the product but will give the wood more stability at installation. Exterior siding has some flexibility with moisture but should be around 10 to 12 percent moisture content, where interior product like flooring or fine trim moisture should be closer to 6 percent content. Air drying adds around 20 to 30 cents per board foot and kilns add around 40 cents per board foot to the final cost.

Rough sawn boards may also be milled into tongue and groove paneling or flooring, interior moldings, and beveled or lap siding styles. The dryness of the wood is critical to creating a higher end product, as it needs to maintain its shape and integrity at the higher prices charged for a more refined product. Additional milling can add 50 cents per board foot and up to $1 per board foot for a sanded product.

Distressing of the wood is very popular. Wire brushing, hand planning, hand scraping, chisels and small picks can make for a very distinctive look. Such methods are used in flooring, paneling, and exterior siding to give texture and a crafted look. Floors finished in a distressed pattern tend to help enhance the look and soften the effects of wear and tear from traffic on the wood face. It definitely makes for a gorgeous paneling to dress up an interior. Add a color stain to the blue pine trim, combined with a natural finish wainscot paneling for even more color or accent. Distressing will also add to the purchase price, somewhere between 50 cents per board foot for wire brush to $1 per board foot for a hand planned or hand scraped.

Many “big box” stores and large lumber yards sell blue pine milled out of state and often sourced from Canada, where hey can get it cheaper as large mills can produce more efficiently. Use Colorado beetle kill pine is catching on, though. Word is getting around about the importance of requesting Colorado-sourced beetle-kill wood products. One huge benefit is it produces local jobs which are badly needed.

Consider all the possibilities in using blue pine wood. It’s a versatile product that will give warmth and color to your home and to your heart. Plus there is a compelling story to tell about this wood.

John Dickinson is owner of Eco Wood Sales, a Fraser-based company specializing in Colorado salvaged and recycled beetle killed pine lumber products.

Frisco’s BeetleFest

Festival returns to Main Street for more fun and education

September 11, 2010

Sandy Briggs

Lead organizer
Forest Health Task Force

BeetleFest has gained a deserved reputation for combining inspired wackiness with education to create a fun event dedicated to warding off the evil pine beetle. The traditional High Country happening kicks off Frisco’s Autumn Spectacular on Saturday, September 11, 2010 from 10am to 6pm.

Beetlefest features stimulating events, displays and opportunities for the whole family, including the 4k Beetle Stomp, specialty foods, the popular Timberworks Lumberjack Show and even an opportunity to bash a bug (an old VW, that is). Booths featuring crafts and furniture for sale made from beetle-kill wood will provide examples of how small businesses are making good use of the damaged parts of our forests.

Experts say the pine beetle infestation will have claimed nearly 90 percent, or 1.53 million acres, of the state’s mature lodgepole pines by the time it ends. While current containment and prevention efforts affect but a small portion of the forest, the Town of Frisco wants to help celebrate the progress that Summit County, Colorado and the US Forest Service have made.

BeetleFest is Frisco’s contribution to creating broader awareness of the challenges we face in creating our future forest. Best of all, a portion of the funds raised at the event will go to Friends of the Dillon Ranger District to support local reforestation efforts.

For more information about the Town of Frisco and its events, visit www.townoffrisco.com.
Friends of the Dillon Ranger District (FDRD) is a nonprofit organization whose mission is to promote stewardship of the White River National Forest in Summit County through partnerships, volunteer service, education and support.

Each year, FDRD coordinates more than 50 volunteer projects that focus on major threats to National Forest lands. These projects include trail maintenance, tree plantings, fire mitigation, invasive weed species eradication, and more. Volunteers also patrol trails, provide visitor information, teach interpretive programs, and lead trail projects.

Since the organization’s inception in 2004, FDRD volunteers have:
- Maintained nearly 50 miles of trail
- Planted more than 1,000 trees
- Patrolled nearly 1,500 miles of trail
- Removed ground fuels on 50 acres of land to reduce wild-land fire danger

If you are interested in volunteering, becoming an FDRD member or making a donation, please visit www.fdrd.org, or call (970) 262-3449.

FDRD Summer 2010 Projects

All projects are welcome to public participation.

Register online at www.fdrd.org

June 2010
- June 5th: National Trails Day - Trail Project
- June 10th: Summit County Seniors Adopt-A-Trail Project on the Mesa Cortina Trail
- June 12th: The Greenlands Reserve Land Trust Adopt-A-Trail Project on the Buffalo Cabin Trail
- June 12th & 13th: Tree Planting Partner Project with Volunteers for Outdoor Colorado (Youth Specific)
- June 13th: Summit Trail Running Series Partner Project
- June 18th: Copper Mountain Adopt-A-Trail Project on the Wheeler Lakes Trail
- June 19th: Summit County Off-Road Riders Adopt-A-Trail Project (Trail TBD)
- June 26th & 27th: Breckenridge Grand Vacations Adopt-A-Trail Project on the Peaks Trail
- June 28th: Summit Mountain Bikers Adopt-A-Trail Project on the Soda Creek Trail

July 2010
- July 8th: Summit County Seniors Adopt-A-Trail Project on the Mesa Cortina Trail
- July 10th: Pulling for Colorado - Weed Pull
- July 12th, 13th, & 14th: Christy Sports Adopt-A-Trail Project on the Bakers Tank Trail
- July 15th: Town of Frisco Adopt-A-Trail Project on the Peaks Trail
- July 17th: Summit Mountain Bikers Adopt-A-Trail Project on the Soda Creek Trail
- July 17th: Summit County Off-Road Riders Adopt-A-Trail Project (Trail TBD)
- July 22nd: Town of Frisco Adopt-A-Trail Project on the Peaks Trail
- July 23rd: Copper Mountain Adopt-A-Trail Project on the Wheeler Lakes Trail
- Early July: A Basin Adopt-A-Trail Project on the Lenawee Trail
- July 31st: A Basin Adopt-A-Trail Project on the Lenawee Trail

August 2010
- August 1st: A Basin Adopt-A-Trail Project on the Lenawee Trail
- August 5th: Town of Frisco Adopt-A-Trail Project on the Peaks Trail
- August 7th: Fire Mitigation Project
- August 12th: Summit County Seniors Adopt-A-Trail Project on the Mesa Cortina Trail
- August 14th: Summit County Off-Road Riders Adopt-A-Trail Project (Trail TBD)
- August 21st: Summit Mountain Bikers Adopt-A-Trail Project on the Soda Creek Trail
- August 21st: The Greenlands Reserve Land Trust Straight Creek Watershed Project
- August 27th: Copper Mountain Adopt-A-Trail Project on the Wheeler Lakes Trail
- August 28th & 29th: Continental Divide Trail Alliance Partner Project at Glacier Peak

September 2010
- September 9th: Summit County Seniors Adopt-A-Trail Project on the Mesa Cortina Trail
- September 11th: Summit County Off-Road Riders Adopt-A-Trail Project (Trail TBD)
- September 18th: Corinthian Hills Adopt-A-Trail Project on the Oro Grande Trail
- September 18th: The Greenlands Reserve Land Trust Straight Creek Watershed Project
- September 25th: National Public Lands Day and Volunteer Celebration

October 2010
- October 2nd: Tree Planting Partner Project with Volunteers for Outdoor Colorado (Family Oriented)
- October 9th: Make a Difference Day with Summit Prevention Alliance
Spotlight on CSU Extension

By Dan Schroder  Colorado State University (CSU) Extension in Summit County is, among other things, your forest health information resource. Extension is an effective collaboration between the State of Colorado, Summit County Government, and the many non-profit and citizen organizations in Summit County. Extension offers citizens the opportunity to gain research based information on a wide array of topics. In Summit County, the Natural Resources Agent and 4-H Youth Development Director are here to provide you, your neighbors, your HOA’s and the youth of our community many educational research based opportunities.

We are driven by a philosophy of adding value to the many organizations currently in existence while providing on the ground expertise in many CSU signature areas. Three core focus areas drive the CSU Extension effort. Forestry, wildfire preparedness, and evacuation planning are offerings in the realm of natural resources. 4-H provides Summit County youth personal development and leadership opportunities through numerous clubs and extended outings. The third focus area supports Master Gardener efforts. Additionally, Extension intends to offer Master Gardener courses in the future. This opportunity will inevitably lend itself to other important community considerations such as Native Plant Master programming and weed control efforts as our forests change and emerge again.

Extension staff members are involved in the Summit County Community Wildfire Protection Plan (SCCWPP) revision process. Through many months of effort, the collaborative partners of the Summit County Wildfire Council have amended, approved, and signed the final copy of the 2010 plan. This plan is a legislative document outlining processes and procedures used to assess the current state of the forest in relation to the Mountain Pine Beetle (MPB) epidemic. Focus areas throughout Summit County have been identified and many outreach efforts are listed to assist Summit County residents and visitors to do their part to support healthy forest initiatives. This plan supports residents as they prepare for a catastrophic wildfire while outlining steps to protect the most important values of our community; life, property, and infrastructure.

CSU Extension provides a wealth of information to the public. Any questions that arise are not outside the realm of Extension. In 2010, the Extension office fielded questions about tics, wild strawberries, high altitude grasses, woodpeckers, bees, wood boring insects, alternative energy opportunities, gardening, tree varieties, and how best to prepare a turkey. In many instances, local Extension Agents will work with CSU counterparts in particular topic areas to ensure the best information is being disseminated.

Should you be interested in workshops or would like a guest speaker for your next group meeting, please contact us. For more information please contact Dan Schroder, CSU Extension Natural Resources Agent, Summit County, 37 Peak One Drive, CR 1005, Frisco, CO 80443 – 970-668-4140 – dan.schroder@colostate.edu

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To a Custom Home of Any Size...

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Dumont, CO 80436
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Cell: (303) 570-1243
www.JJohnsonLogHomes.com
www.BeGreenBuildBlue.com

• Currently constructing homes in Breckenridge, Silverthorne and our new LEED Certified sales center on I-70
• Our blue stain log home packages utilize an average of 40 tons of local, standing dead Lodgepole pine per home
• We offer log packages, dry-ins and turn-key builds with homes constructed throughout Colorado

View our photo and plan gallery at www.JJohnsonLogHomes.com

If Not Now... When?
Why Design and Build with Native Wood?

The mountain pine beetle epidemic raging across the Rocky Mountain west is leaving millions of lodgepole pine trees standing dead or dying on Colorado and Wyoming forests. The time is ripe for innovative thinking and decision making that will benefit affected communities and the environment. Although some degree of dead trees on the landscape can contribute to a healthy forest ecosystem, the scale of this event may be unprecedented. The amount of dead trees on the landscape is a challenge to public and private land managers as they seek to mitigate the impacts to the people living in these forests. These impacts include the risks related to enhanced fire danger as well as the very real danger from falling hazard trees.

Harvesting of dead and dying trees is often the only alternative in mitigating these risks and in promoting the next forest. Finding productive and creative ways to utilize wood and/or wood products derived from these beetle infested trees requires informed decision making across a wide range of producers and potential users and from community leaders. The purpose of this article is to provide easy access to factual information that can be useful for regulatory entities, building designers and architects, as well as builders and other users of wood products.

Why now?
Nationally and locally we’ve seen an increase in public awareness and demand for green building products, reflected in such measures as the recently adopted Routt County Green Building Program. Utilizing local wood, with its low carbon footprint and other environmental and social benefits, dovetails well into the new green economy. Utilizing our local beetle kill wood is a win-win for the environment, our communities, and the consumer. Here are some reasons why:

• Helps mitigate the dangers from fire and falling trees in our neighborhoods and in the forest.
• Helps our local economy and creates and maintains jobs for our friends and neighbors.
• Reduces the carbon footprint impacts created from transporting wood from distant locations.
• Utilizing our local wood (rather than not using it) offsets the impacts our local demand for wood has on other parts of the globe.
• Local beetle kill lodgepole pine is an attractive and structurally sound alternative to other commercially available woods.

Aren’t there problems?
There is a lot of misinformation and just plain myths about lodgepole pine. Wood from trees killed by the mountain pine beetle often contain a blue or grey color as a result of a fungus introduced by the beetle. This bluestained wood has its own set of myths. The following are some common questions regarding lodgepole pine and bluestain wood:

Can I use lodgepole for structural applications?
Lodgepole is the strongest of the western pines. It is well suited for engineered trusses and other specific structural applications.

Does the bluestain affect the strength of the wood?
There is no significant strength difference between wood with bluestain and wood without bluestain. The color can add character and is considered visually appealing by many consumers.

Is the bluestain fungus still active in the wood I use?
No. The color in the wood is left over from when the fungus was actively growing in the moist, usually live wood. There are no health hazards or risk of spread once the tree has been milled into wood products.

How are people using lodgepole and bluestain in building locally?
In addition to engineered wood products, such as trusses, lodgepole is being used in a wide variety of building applications. Its classic “pine aesthetic”...
and the fact its knots do not bleed through paint make it desirable for paneling, wainscoting, trim and molding, furniture, and even flooring. Bluestain can add distinctive and attractive character to any of these uses. Lodgepole pine is often the species of choice locally in building log homes and post and beam structures.

How is lodgepole pine and bluestain wood graded for structural use?  
Wood used structurally is graded under agreed upon standards established by trade associations such as the Western Wood Products Association. Species that share similar strength characteristics are grouped together, so you might find graded structural lodgepole in the Spruce-Pine-Fir (SPF-S) group, or in Engelmann spruce and lodgepole pine (ES-LP). In either case, bluestain does not affect structural grade.

Lodgepole pine uses in post and beam structures and other large timber construction are usually engineered for the particular application by a qualified architect or engineer.

How is lodgepole pine and bluestain wood graded for non-structural use?  
Wood used in paneling and other aesthetic applications is graded for appearance. Under existing grading standards, any color in white wood, such as bluestain, becomes a grading defect and lowers the value of the wood.

Why isn’t structurally graded lodgepole used more locally?  
Many architects and even building codes will call for the use of Douglas-fir in structural applications. Douglas-fir is a strong wood, but it is often used in applications where another species, such as lodgepole pine, would perform the task just as well. Wood that is graded for certain applications, such as a building stud, is designed to perform that function regardless of the species used. The preference for Douglas-fir in many applications is one based on custom as much as any technical reason.

Does this local lodgepole cost more than other lumber?  
The answer is generally, “it depends.” Locally produced wood is certainly competitively priced, and in many cases may be less expensive than similar products shipped to our area. Products like bluestain paneling are a particularly good deal because the standard grading procedures have pushed their price down, when many consumers find their character more attractive than “white wood.”

Is the product I want made locally?  
There are very few commercial wood products that cannot be produced locally. If you wanted to use a local wood product but assumed it wasn’t available, you’d probably be pleasantly surprised if you ask one of our local producers.

OK, where can I get local wood?  
The Colorado State Forest Service (http://csfs.colostate.edu) supports a statewide list of Colorado forest producers through the Colorado Forest Products program (www.coloradoforestproducts.org). Local commercial lumber yards, including Hester’s Log & Lumber in Kremmling, may also sell some locally produced wood products. It sure doesn’t hurt to ask them, and let them know you’re interested in using local wood products.

The Routt County Bark Beetle Information Task Force (BBITF) furnished this information in cooperation with the U.S. Forest Service and the Colorado State Forest Service.
A Labor of Logs

Blue River family goes hyperlocal on the homefront, building and heating a house almost entirely from pine beetle kill

By Julie Sutor
Photos by Mark Fox
Summit Daily News

As his friends grew tired of theirs, he would negotiate with them to acquire the unwanted logs, building ever-grander models of log homes on his parents’ living room floor in their Kansas home.

Many decades later, surprisingly little has changed. Foxx, now in the mountains of Colorado, can still be found negotiating with his friends and neighbors to acquire their unwanted logs. And he and his family have put them to good use in a stunning 4,600-square-foot, four-bedroom home made almost entirely of trees killed by the mountain pine beetle.

Foxx, an engineer by training, is in the concrete business. His wife, Dawna, is the executive director of the Breckenridge Film Festival and a talented artist. The Foxxes’ grown son and daughter-in-law have their expertise in electrical work. Together, the family combined its talents to create a unique, eco-friendly living space.

The Foxxes began construction in 2000, when they poured the house’s foundation. For the following three summers, they collected beetle kill from around the county, brought the dead trees up to Kremmling to be milled, and then set the logs atop the foundation in Blue River.

“What are you doing with these?” I’d leave a trailer at 8 a.m., go back and get it in the afternoon, and we’d use them the next day after that.”

Ron intercepted some trees at the landfill, but most of them came from neighborhoods in Blue River and Breckenridge, where property owners or developers were working to remove standing dead trees. In all, Ron estimates the project used about 200 lodgepole pine trees, costing about half the price he would have paid for beetle-free logs.

In 2004, the Foxxes installed a roof and recycled windows. Next came plumbing and electrical work. The couple approached the interior work with the same relentless dedication to reuse and source material locally. Floorboards, built-in bookshelves, trim, stairways, beams and kitchen cupboards are all 100 percent beetle-kill pine, all bearing the waves and streaks of the gray-blue stain that’s a signature of the wood.

Glass-globe lighting fixtures in the entryway came from the old Colorado Mountain College building. Doors, sinks, chandeliers, nails and doorknobs were salvaged from construction sites, demolitions and remodels for an artful blend of antique, retro, rustic and thoroughly modern.

The couple moved into their labor of logs in January, 2007.

“Whenever you talk about bugs in lumber, people are afraid. They think of termites, and they don’t expect the density of the logs to hold up.”

Ron asked.

Indeed, a close look at the interior walls reveals the squiggled paths of the beetles that tunneled between the bark and the trees’ interiors. However, log cross sections — visible on the open stairways — show nary a mark.

“There is a need for housing, and there is a need to get rid of these trees. Why don’t we mesh the two together?” Ron asked.

Names you trust, working together.
Disease Prevention
Tree Removal
Reforestation & Landscaping
Landscape Architecture
Yard Maintenance
How to Protect Your Home, Property and Forest From Wildfire

Homeowners, landowners, and communities bear the ultimate responsibility to help protect themselves, their property and their local values at risk from the threat of wildland fire.

Homeowners can take a number of steps to protect their property and help alleviate the spread of wildland fires. Preventative measures include clearing excess fuel, creating defensible space around their homes, and using FireWise practices. Those living adjacent to lodgepole forests need to consider the fire-prone nature of this ecosystem.

Due to Colorado's arid climate and fire-dependent forests, many homeowners and landowners may be particularly vulnerable to wildfires. It is important to keep this threat in mind when buying or building a home. Fire is unpredictable. If there are weaknesses in your home's fire protection scheme, fire can gain the upper hand because of some overlooked or seemingly inconsequential factor. By creating a wildfire defensible zone, homes are less vulnerable from this naturally occurring phenomenon, and the chance of spreading wildfires is greatly reduced.

If you are a homeowner and you are interested in protecting your home from wildfires, follow Colorado State Forest Service FireWise guidelines. While you may not be able to accomplish all of these measures, each will increase your home's safety and survival during a wildfire. Start with the easiest and least expensive actions. Begin your work closest to the house and move outward. Keep working on the more difficult items until you have completed your entire project.

Two factors have emerged as the primary determinants of a home’s ability to survive wildfires: choosing fire-resistant roofing material and creating a wildfire defensible zone. First, it is important to choose a fire-resistant roofing material that is rated class C or higher when building a house in or near forests or grasslands. Avoid flammable materials such as wood shake shingles.

Choose surrounding vegetation wisely: maintain a greenbelt (irrigated if possible) immediately around your home using grass, a flower garden and/or fire-resistant ornamental shrubbery. An alternative is rock or other non-combustible material, which may be preferable if your house is made of wood or other flammable materials. Avoid using bark or wood chip mulch in this area.

Creating defensible space

Your first defense against wildfire is to create and maintain a defensible space around your home. This does not mean your landscape must be barren. Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire toward the structure. It also reduces the chance of a structure fire moving from the building to the surrounding forest. Defensible space also provides room for firefighters to do their jobs. Your house is more likely to withstand a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity. The following are a few key steps to creating a defensible zone, but is not a comprehensive list.

Actively manage your roof. Clean roof and gutters of pine needles and leaves at least twice a year to eliminate an ignition source for potential fires.

Stack firewood away from your house. Locate firewood at least 15 feet uphill from your home. Do not stack firewood under the deck.

Remove unhealthy vegetation. Trees and shrubs that are stressed, diseased, dead or dying should be removed so that they do not become a fuel source for potential fires.

Create defensible space on flat ground a minimum of 70 – 75 feet around a home. Increase this distance if the structure is located on a slope.

Thin out continuous tree and brush (shrub) cover around structures. Remove flammable vegetation from within the initial 15 feet around structures.

Beyond the initial 15 feet, thin trees to achieve a 10- to 12-foot crown spacing. Occasionally, clumps of two or three trees are acceptable for a more natural appearance, if additional space surrounds them.

Mow grasses and weeds to a height of six inches or less for a distance of 30 feet from all structures.

Prune tree branches within the defensible space up to a height of 10 feet above ground.

Dispose of all slash and debris left from thinning by either chipping, hauling away or piling and burning. Contact your local fire department or local CSFS forester for burning restrictions and/or assistance.

Remove shrubs and small trees or other potential ladder fuels from beneath large trees. Left in place, these fuels can carry a ground fire into tree crowns.

Trim any branches extending over roofs, and remove branches within 15 feet of chimneys.

Clean pine needles, leaves and other debris from roofs and gutters. This eliminates an ignition source for firebrands, especially during hot, dry weather.

Stack firewood and woodpiles at least 30 feet from any structure. Make sure they are uphill or on the same level as structures, and clear away flammable vegetation from within 10 feet of these woodpiles.

Place liquefied petroleum gas (LPG) containers at least 30 feet from structures. Clear any flammable, including vegetation from within 10 feet of all tanks.

For additional information, please consult the Colorado State Forest Service website, from which this information was excerpted, at http://csfs.colostate.edu/
**A Colorado Timber Industry Perspective**

By Tom Troxel

Commercial timber harvest can help achieve several important objectives in responding to the mountain pine beetle epidemic, including reducing the potential for catastrophic fire and setting the stage for regeneration of suitable timberlands on the national forests. Commercial timber harvest also allows dead trees to be manufactured into lumber, providing needed fuel products, creating products that we all use and sustaining local logging and sawmill businesses and jobs. Several sawmills in Colorado and southern Wyoming are harvesting dead and dying lodgepole pine, milling trees, and manufacturing them into a variety of lumber products. Those sawmills are Intermountain Resources in Montrose, Hestor’s Log and Lumber in Kremmling, Pittington Sawmill in Walden, and Morgan Timber Products just outside Fort Collins.

Some of the important current issues associated with logging and lumber manufacturing include:

### Reducing Effects of Fires

A 2009 publication from the US Forest Service highlights the benefits of fuels treatments. The publication is Gen. Tech. Report RMRS-GTR-229 - Fuel treatments and wildland fires: a guide to reducing wildfire intensity, the burn severity to vegetation and soils in regions where the fuels were treated was generally less compared to neighboring areas where the fuels were not treated. The way the North Fork and Monumental Fires interacted with wildfire and its impacts: the Warm Lake experience during the Cascade Complex of wildfires in central Idaho, 2007.

Wildfires during the summer of 2007 burned over 500,000 acres in central Idaho. These fires burned towards and around over 8,000 acres of fuel treatments designed to offer protection from wildfire to over 70 summer homes and other buildings located near Warm Lake. The Cascade Complex of wildfires burned for weeks, resisted control, were driven by strong dry winds, burned tinder dry forests, and only burned two rustic structures. This outcome was largely due to the existence of the fuel treatments and the suppression opportunities presented by the fuels treatments that otherwise may not have been available. In addition to modifying wildfire intensity, the burn severity to vegetation and soils within the areas where the fuels were treated was generally less compared to neighboring areas where the fuels were not treated. The way the North Fork and Monumental Fires interacted with fuel treatments, roads, and associated suppression efforts reinforce that treatment location and juxtaposition and the treatment of surface fuels, ladder fuels, and crown fuels (in this order of importance) are major determinants of both wildfire intensity and burn severity.

### What’s the deal with blue stained lumber?

Mountain pine beetles kill lodgepole pine trees by 1) constructing galleries that disrupt the movement of food from the needles to the roots and 2) by inoculating trees with a “blue stain” fungus that plugs the trees’ water-conducting tissues, blocking water flow from the roots to the needles. The “blue stain” fungus causes a bluish discoloration in the wood, which is then visible in lumber manufactured from those trees. This blue coloration has virtually no effect on the structural properties of the lumber, but some retailers, consumers and contractors find the blue color unappealing, particularly for finish work like molding and shelves. Consequently, some retailers don’t like to sell blue-stained lumber. For many uses, especially when the lumber will be painted or covered with sheetrock, blue-stained lumber works just as well as lumber without blue stain. Finally, there is a small, but profitable, niche market for blue-stained siding, flooring, paneling, and cabinets.

In reality, using blue-stained lumber from beetle-killed trees is an environmentally friendly alternative. Using lumber from trees that have already been killed by mountain pine beetle is preferable to leaving the dead trees standing while using lumber cut from healthy forests.

### Lumber Markets are Lousy

Lumber markets, like cattle, corn and other agricultural markets, are cyclical commodity markets with alternating good markets and lousy markets. Lumber markets are affected by regional, national and international production, demand, international currency exchange rates, weather, and imports. Market cycles are a fact of life, and successful companies develop strategies that allow them to thrive in good markets as well as survive in tough markets.

Since the Great Depression, 2009 was the most challenging year for the forest products industry. The Western Wood Products Association (WWPA) recently predicted 2010 lumber demand of 32.9 billion board feet, an increase from 2009 levels, but far below the all-time high of 64.3 billion board feet in 2005. WWPA recently predicted 618,000 housing starts in 2010, an increase from 2009, but only about one-third of the 2005 level. Increasing housing starts is crucial, as home construction and remodeling account for nearly 70 percent of U.S. lumber consumption. The result of this prolonged downturn is that most sawmills are struggling to survive, and across the country, many sawmills have curtailed production or simply closed their doors for good.

So, what does this mean for Coloradans? The good news is that homebuilders, remodelers, and other folks should be able to get a good deal on lumber. The bad news is that the fall in lumber prices make it harder for sawmills to respond as aggressively as they, or the public, would like.

### The Future Forest

Looking ahead, more and more folks understand the importance of a sustainable forest products industry, as a cost-effective means of keeping our forests healthy. The best way to maintain sustainable forest products companies is to manage our forests for sustainable outputs. The next important step in the management of the regenerated stands is pre-commercial thinning.

Lodgepole pine typically regenerates so prolifically that there are too many new trees, sometimes in the thousands of trees per acre, for optimal growth. Pre-commercial thinning removes excess trees in these young forest stands, usually when they are 1” to 3” in diameter and between 20 and 30 years old. Thinning at this early age, as the young trees begin to grow larger and compete for light, water and nutrients, is an important management tool to promote large, healthy, and vigorous growth in the remaining trees.

In short, pre-commercial thinning allows foresters to shape the future composition and condition of a forest stand, be it for timber production, wildlife habitat, or forest health, or all of the above. Without pre-commercial thinning, the trees tend to remain small in diameter and most will never grow large enough for use in lumber manufacturing.
In response to the ongoing Mountain Pine Beetle (MPB) infestation on the White River National Forest (WRNF), the United States Forest Service (USFS) recently completed an Environmental Assessment for a Forestwide Hazardous Tree Removal and Fuels Reduction Project. The implementation area for the project includes portions of WRNF lands in Eagle, Garfield, Pitkin, and Summit counties.

The first of two general goals of the project is to remove hazardous trees from roadways, trails, high-use areas, culturally significant sites, and administrative areas to reduce the possibility of personal or property damage from falling debris resulting from the MPB epidemic. The second general goal is to remove infested, dying, or dead trees from the identified areas to reduce the severity, resistance to control, and possibly the intensity of potential future wildland fires.

The Forest Service proposes to remove or fell hazardous trees within a distance of 110 percent of the height of the tallest, locally hazardous tree from the edge of roads, trails, trailheads, administrative sites, recreation sites, and heritage resource sites on the WRNF. Implementation is expected to occur on a site by site basis within the project area over the next 10 years, beginning during the 2009 calendar year, in order to fully address the current and expected high incidence of hazardous trees on the forest.

Design criteria will be employed during project implementation to meet forest plan standards and guidelines and mitigate and avoid adverse impacts to various forest resources. The scope of the project, which is dispersed throughout the forest, contains approximately 1,400 miles of roads (including about 52 miles of state highways, 150 miles of county roads, and 17 miles of private roads); 916 miles of trails; heritage resource sites totaling approximately 300 acres and consist of 17 sites/features; developed recreation sites totaling 119 individual sites (excluding Hotel/Lodge/Resort sites) and approximately 7,500 acres. An additional 751 acres, representing 19 administrative sites, are included in the assessment.

Most of the treatment areas would consist of primarily lodgepole pine trees, but other species are expected to be removed if hazards are posed by individuals of those species that occur within the individual project areas. Treatments could consist of a variety of measures to include the removal of individual trees, removal of the overstory, or removal of all trees within a given area. Slash and debris that is not removed from treatment sites would be treated onsite and may include chipping, lopping and scattering, chopping, and/or burning. Where feasible, fuels would be treated on trails through one or more methods including: hand piling and burning, hand piling, and drop-hop-scatter.

It is possible that some individual commercial timber sales would result from the treatment of areas or that some areas would be treated in coordination with locally active timber sales. Otherwise non-commercial service contracts may result as well as free use permits and contracts, and/or Stewardship contracts to remove hazardous trees from treatment sites.
A big picture look at Summit County’s forest landscape

Summit County Total Area
413,000 acres

Managed by the Dillon Ranger District
312,000 acres

Existing Tree Cover Types (CoGAP Data)
222,447 acres

Eliminate Wilderness Areas (COMaP Data)
55,064 acres

Eliminate Roadless (CRA-2007 Rule; USFS Data)
28,412 acres

Eliminate Non-Federal Lands (COMaP Data)
42,509 acres

Eliminate Slopes > 40 percent
23,431 acres

Estimated Total Treatable Acres (All Cover Types)
73,031 acres

Lodgepole Pine: 31,455 acres
Spruce/Fir: 34,001 acres
Aspen: 7,716 acres

Eliminated areas refer to forested acres only
Source: Forest Health Advisory Council Lodgepole Pine Working Group

White River National Forest
Dillon Ranger District | Timber Sale Projects

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>COUNTY</th>
<th>ACRES</th>
<th>% COMPLETE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue River Campground Salvage Reoffer</td>
<td>11</td>
<td>100</td>
<td>Under Contract – Completed in 2009.</td>
<td></td>
</tr>
<tr>
<td>Upper Blue Phase I Stewardship Summit</td>
<td>314</td>
<td>0</td>
<td>Contract Terminated, spring 2010. Reissue new contract (1400 acres) in spring 2010, hopeful work can begin in fall.</td>
<td></td>
</tr>
<tr>
<td>Hazard Tree Removal Eagle along Forest Service Roads</td>
<td>1200</td>
<td>0%</td>
<td>25 miles in 2010, 50 miles in 2011</td>
<td></td>
</tr>
<tr>
<td>Hazard Tree Removal Eagle along Forest Service Trails</td>
<td>880</td>
<td>0%</td>
<td>5 miles in 2010, 50 miles in 2011</td>
<td></td>
</tr>
<tr>
<td>North Summit WUI HFRA EA Summit</td>
<td>1,095</td>
<td>N/A</td>
<td>Environmental Analysis complete and Decision Notice signed January 28, 2010. Contracts to be offered in 2010 for Mesa Cortina, Ruby Ranch, Eagles Nest, Pebble Creek and Sierra Bosque subdivisions.</td>
<td></td>
</tr>
<tr>
<td>Forestwide Hazard Pitkin, Eagle, 83,835 N/A</td>
<td>N/A</td>
<td>2009 – Environmental Analysis complete and Decision Notice signed September 28, 2009. Implementation to begin in 2010 on priority roads/trails.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree HFRA EA Garfield, Summit</td>
<td>4,012</td>
<td>N/A</td>
<td>Decision Notice signed on December 17, 2009. Implementation to begin in 2010.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Cary Green, USFS White River National Forest EZ TMA

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Denver Water is committed to maintaining healthy watersheds. Whether we’re planting new trees in areas ravaged by forest fires or restoring wetlands, we know that a healthy watershed is the lifetime for our customers, neighbors and the entire ecosystem. www.denverwater.org
White River National Forest
Holy Cross Ranger District
Timber Sale Projects

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>COUNTY</th>
<th>ACRES</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beecher Salvage</td>
<td>Eagle</td>
<td>78</td>
<td>Under Contract, complete in 2010</td>
</tr>
<tr>
<td>Yoder Salvage</td>
<td>Eagle</td>
<td>130</td>
<td>Under Contract, complete in 2010</td>
</tr>
<tr>
<td>Sawmill Salvage</td>
<td>Eagle</td>
<td>93</td>
<td>Under Contract, complete in 2010</td>
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<tr>
<td>West Grouse Creek Salvage</td>
<td>Eagle</td>
<td>187</td>
<td>Contract terminated due to litigation concerns</td>
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<tr>
<td>Piney Timber Sale</td>
<td>Eagle</td>
<td>1178</td>
<td>Under Contract, operations begin in 2010.</td>
</tr>
<tr>
<td>Tigiwon Salvage Reoffer</td>
<td>Eagle</td>
<td>500</td>
<td>Under Contract</td>
</tr>
<tr>
<td>Indian Creek Salvage</td>
<td>Eagle</td>
<td>533</td>
<td>Under Contract</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2774</strong></td>
<td></td>
</tr>
<tr>
<td>Upper Eagle River Beetle</td>
<td>Eagle</td>
<td>1763</td>
<td>Supplement 2008 EA with new information and analysis.</td>
</tr>
<tr>
<td>Salvage Supplemental EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardscrabble Analysis</td>
<td>Eagle</td>
<td>1,500</td>
<td>Vegetation Planning in 2010.</td>
</tr>
<tr>
<td>Hazard Tree Removal along</td>
<td>Eagle</td>
<td>1200</td>
<td>25 miles in 2010, 50 miles in 2011</td>
</tr>
<tr>
<td>Forest Service Roads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard Tree Removal along</td>
<td>Eagle</td>
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</tr>
<tr>
<td>Forest Service Trails</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vail Ski Area Vegetation</td>
<td>Eagle</td>
<td>1,000</td>
<td>2010 – Planning Ongoing.</td>
</tr>
<tr>
<td>Beaver Creek Ski Area</td>
<td>Eagle</td>
<td>1,000</td>
<td>2010 – Planning Ongoing.</td>
</tr>
</tbody>
</table>

Source: Cary Green, USFS White River National Forest EZ TMA
Best Practices for Selecting a Tree Service Contractor

The following suggestions are intended for anyone interested in hiring a tree service contractor

By Howard Hallman

President, The Greenlands Reserve, Forest Health Task Force

1  Draw up a plan to identify the scope of the work you want performed and what you are willing to pay. Seek advice from neighbors and friends about which contractors they've used, their level of satisfaction, and the amount you should pay for your project.

2  Educate yourself as a consumer. Go to a number of websites to learn more about beetle infestation, tree spraying, tree cutting, revegetation, and other forest management issues.

3  If unfamiliar with local tree service providers, seek at least two comparable bids from contractors recommended to you. Each prospective bidder should make a site visit prior to providing you an estimate. For larger jobs with written requests for proposals, have all prospective bidders show up at the site prior to the start of work.

4  Evaluate the capacity of each bidder to provide the scope of services you require in a timely fashion. Your contractor should have adequate equipment, a sufficient workforce of experienced personnel, and the financial footing to insure that the job is done on time for the agreed price.

5  Specify your property and project boundaries to the contractor. When appropriate, mark specific trees to cut, save, or spray. Sketches can provide additional delineation. Contractors should confirm scope of work and property boundaries. If possible, take pictures of your project area prior to the start of work.

6  If you're not familiar with prospective contractors, ask for specifics about jobs they've completed in the last two years, including contact names, phone numbers and email address for several references. Then contact each reference.

7  Each bidder should provide:
   a  Evidence of insurance, business liability, worker’s compensation and motor vehicle. These should be documents provided by the insurance company addressed to you, the property owner. For large jobs, a performance bond may be advisable. Verify the limits and scope of the contractor’s insurance coverage.
   b  A list of all subcontractors (including timber haulers). For your protection, subcontractors and contract employees must also be adequately insured. Obtain certificates of insurance from all subcontractors. When subcontractors are used, you should obtain statements verifying they have been paid in full, prior to your final payment.
   c  A project proposal should be in the form of a contract, which, at a minimum, specifies the scope of work, a base price, an affirmative statement that no additional charges will be charged unless you approve them in writing, and a schedule for project completion to acceptable industry standards. Both you (as property owner or manager), and the contractor should be clear as to when the work is to be completed. The contractor should be signed and dated by the contractor and the property owner or manager. Generally this can be done by email or in person.
   d  Language specifying remedies should there be damage to property or if work is not completed satisfactorily according to the terms of the contract. Ask about the potential for damage from the use of heavy equipment and your options for treatment that is lighter on the land. A clause requiring the property owner to notify the contractor of any deficiency within a reasonable period of time (15 days or less) is also appropriate.
   e  A warranty that the work will be performed to acceptable industry standards. The long-term effectiveness of tree spraying can be dependent on factors beyond the contractor’s control, (such as intensity of the mountain pine beetle infestation). This should be understood in advance by both the contractor and the property owner. Your best protection is to hire a tree sprayer with a long-standing reputation for good work.
   f  Proof that your tree sprayer is certified as pesticide applicator by the Colorado Department of Agriculture and that you have access to Material Safety Data Sheets (MSDS) and other information about chemicals used or pheromone treatment, explanations of policies that establish setbacks from water bodies and streams, and provisions for work stoppage due to bad weather conditions, as well as a commitment to comply with all applicable regulatory standards. For larger projects, ask for a written work plan along with a health and safety plan that includes provisions to mitigate risk of injury from equipment and chemical exposure to property owners, residents and neighbors. Provisions that address wildfire prevention are important. Hangtags and flags are good tools to identify what has been sprayed. Both the property owner and the contractor must warn any visitor to the project site about potential harmful effects of spray chemicals to humans, animals and vegetation.
   g  Clear language specifying that timber and slash will be left on-site, chipped and spread, or removed for utilization or disposal. You may be held responsible if timber from your property was improperly disposed. Clear language as to what revegetation, erosion control and noxious weed prevention measures will be taken.
   h  Award the project to the contractor whose bid best meets your needs based on reputation, capacity, cost, punctuality and other factors you deem appropriate.
   i  Verify that all required permits are obtained prior to the start of work.
   j  Monitor work progress, ask questions, take photos and point out any deficiencies as soon as possible to allow the contractor to remedy the problem in the most cost-effective and efficient manner.
   k  Pay in full once the project has been completed to your satisfaction, or for larger jobs, pay for the percentage of the work completed to your satisfaction, and clear up any problems before final payment.
   l  Hold back final payment until your contractor verifies that all sub-contactors and suppliers have been paid in full.
Initial Phase of the Straight Creek Project Near Completion

By Howard Hallman
President, The Greenlands Reserve

The Straight Creek Forest Restoration Project is a multi-year effort to reduce fuel loading, establish fire breaks, increase age and species diversity and manage sediment to help improve water quality in Straight Creek. The scope of our project includes the construction of erosion control structures to capture sediment, keeping it out of the creek. We also anticipate implementing a long-term monitoring program.

Straight Creek is the primary source of drinking water for the Town of Dillon. Wildfires within its drainage area could dramatically increase soil erosion, severely impact the capacity of water diversion infrastructure, and decrease water quality for the residents of Dillon and Dillon Valley. Wildfires occurring in the relatively narrow and steep drainage also pose a threat to the I-70 transportation corridor and to electrical transmission and natural gas lines in the area. Reducing intensity and winter with much of the work being accomplished in December and January. Cold weather and relatively light snowfall created ideal conditions to harvest timber using larger equipment with low impact on the frozen forest floor.

This year, we begin a new phase focusing on selective tree cutting, re-vegetation, and sediment control. Using a coordinated resource management model, timber projects are being proposed in areas that will protect source water and infrastructure using limited funding. Hazardous tree removal is also proposed.

The Friends of the Dillon Ranger District (FDRD) will partner with The Greenlands Reserve on several volunteer projects this summer, managing slash and building sediment control structures. In coming years we hope to expand the scope of project work with FDRD in Straight Creek.

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Falling Trees Are Always a Hazard When Traveling in the Forest

Following these guidelines will help you avoid risks

- Be aware of your surroundings. Avoid dense patches of dead trees.
- Stay out of the forest when there are strong winds that could blow down trees. If you are in the forest, head to a clearing out of reach of any potential falling trees.
- Place tents and park vehicles where they will not be hit if trees fall.
- When driving in remote areas of the forest, park close to a main road, rather than on a spur or one-way section. If trees fall across the road, you may be trapped.
- Bring an ax or saw to remove fallen trees in case you become trapped.
- Do not rely on cell phones for safety as there is no coverage in many areas of the forest.

Know Your Summit County Fire Departments

Copper Mountain Fire Department
Mark Thomson, Chief
P.O. Box 3002, Copper Mountain, CO 80443-3002
970-968-2300 fax 970-968-2055; copper2@cmcdi.com
www.coppermtmetro.org/fire.html

Copper Mountain Fire Department personnel provide fire and first-responder emergency medical service to the residents and guests of Copper Mountain Resort. They also serve an area covering 136 square miles of largely undeveloped forest, including the I-70 corridor west to the top of Vail Pass and east to Office’s Gulch, as well as Highway 91 south of the resort to the top of Fremont Pass.

Lake Dillon Fire-Rescue
David L. Parmley, Chief
P.O. Box 4428, Dillon, CO 80435-4428
970-262-5100 fax 970-262-5150; pio@ldfr.org —http://ldfr.org/

Lake Dillon Fire-Rescue is a career department with over 50 firefighters, three 24-hour stations and two reserve stations covering Frisco, Silverthorne, Dillon, Keystone and Montezuma.

Lower Blue Fire Protection District
7000 CR 30, Heeney, CO 80498
970-724-9581

Lower Blue Fire Protection District is an all-volunteer department covering northern parts of Summit County along the Highway 9 corridor from Ute Pass Road to the county line. The fire station and community center are located in Heeney.

Red, White & Blue Fire District
Gary Green, Chief
P.O. Box 710 Breckenridge, CO 80424-0710
970-453-2474; fax 970-453-1350; rwbf@rwbfire.org
www.rwbfire.org

The Red, White & Blue Fire District covers approximately 140 square miles of Summit County, Colorado, including the towns of Breckenridge and Blue River, the Breckenridge Ski Resort, and unincorporated sections of Summit County. Its district boundaries are Hoosier Pass to the North, the Continental Divide to the East, and the Ten Mile range to the West.

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• NO HARMFUL PESTICIDES

THE UNFORTUNATE TRUTH IS THAT WITHIN SUMMIT COUNTY IT IS NOT IF PINE BEETLES WILL ATTACK YOUR TREES BUT WHEN THEY WILL ATTACK. THE ONLY WAY TO SAVE YOUR TREES AND PROTECT YOUR PROPERTY IS TO TREAT YOUR TREES BEFORE THEY BECOME INFESTED.

BEETLE BLOCKERS IS A LOCALLY OWNED COMPANY DEDICATED TO ENVIRONMENTALLY FRIENDLY PROTECTION OF OUR TREES AND FORESTS.

WE PROUDLY ACCEPT

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WWW.BEETLEBLOCKERS.COM