

Healthy Forests & Vibrant Communities

*HB-1199 Accomplishment Report
2009-2016*



Director's Message

September 2016



Michael B. Lester, State Forester and Director. Photo: Society of American Foresters

I am pleased to report on the accomplishments achieved by the Colorado State Forest Service (CSFS) using funds provided by the Colorado State Legislature through HB09-1199, the Healthy Forests and Vibrant Communities Act. With this legislation, the CSFS has been able to increase services to individuals, communities and organizations across Colorado since 2009.

Acknowledgments

Thank you to the following CSFS personnel for contributing to the content of this report: Mary Atella, Rick Curtis, Joe Duda, Dave Farmer, Rich Homann, Ryan Lockwood, Lisa Mason, Susan Matthews, Kim Mueller, Kristy Muskopf, Tim Reader and Scott Woods.

Front cover: (clockwise from top right) Summer at the Colorado State University Mountain Campus. Photo Lisa Mason, CSFS. A logging project on the CSFS Granby District. Photo: Bill Cotton, Colorado State University. Assistant District Forester Kathryn Hardgrave providing technical assistance to a landowner in Salida. Photo: Grace Mirzeler, Council of Western State Foresters. Assistant District Forester Aaron Rector measures the diameter of a ponderosa pine. Photo: Kathryn Hardgrave, CSFS.

Critical accomplishments include an improved technical capacity to: assist communities and others to develop Community Wildfire Protection Plans (CWPPs); implement forest management/fuels reduction projects that improve forest health; reduce wildfire risk to individuals, property and watersheds; and ultimately improve community resilience to wildfire and forest-related threats. This state funding also has supported the CSFS's online programs, such as the Colorado Wildfire Risk Assessment Portal, which graphically displays wildfire risk and provides technical reports that inform activities needed to reduce this risk.

Colorado is known nationally and internationally for its varied mountain, high desert and plains landscapes, in which forests are a vital component. But as many are aware, over the last 15 years Colorado also has experienced forest insect and disease outbreaks and

wildfire activity at levels not seen in the state's recorded history.

I want to thank the State Legislature for its wisdom in recognizing the need for action to address these concerns, made possible through this legislation. Because of this key funding over the last seven years the Colorado State Forest Service has been able to increase the services we provide to positively impact forest and watershed health, provide technical information and outreach, reduce wildfire risk and incite action in others. As a result, all of Colorado has benefited.

We look forward to continuing to provide these services for Colorado in the future.



Michael B. Lester
State Forester and Director
Colorado State Forest Service



The South Fork of the Cache la Poudre River flows through the Colorado State University Mountain Campus in headwaters above Fort Collins and Greeley. Photo: Lisa Mason, CSFS

Background on HB-1199

More than a decade ago, the State Legislature recognized the need for more proactive efforts to conserve our forests given the threats from insects, diseases and wildfire. The accomplishments summarized in this report stem from two separate but closely related legislative bills passed in 2009 and 2012: House Bill 09-1199 and House Bill 12-1032. The latter bill extended and reauthorized the former through 2017, and therefore is included here. The purpose of these bills was to enhance the capacity of the CSFS to address the need across Colorado to be proactive to ensure the long-term health and vitality of Colorado's forests. For this report, these bills and their collective outcomes will be addressed simply as HB-1199.

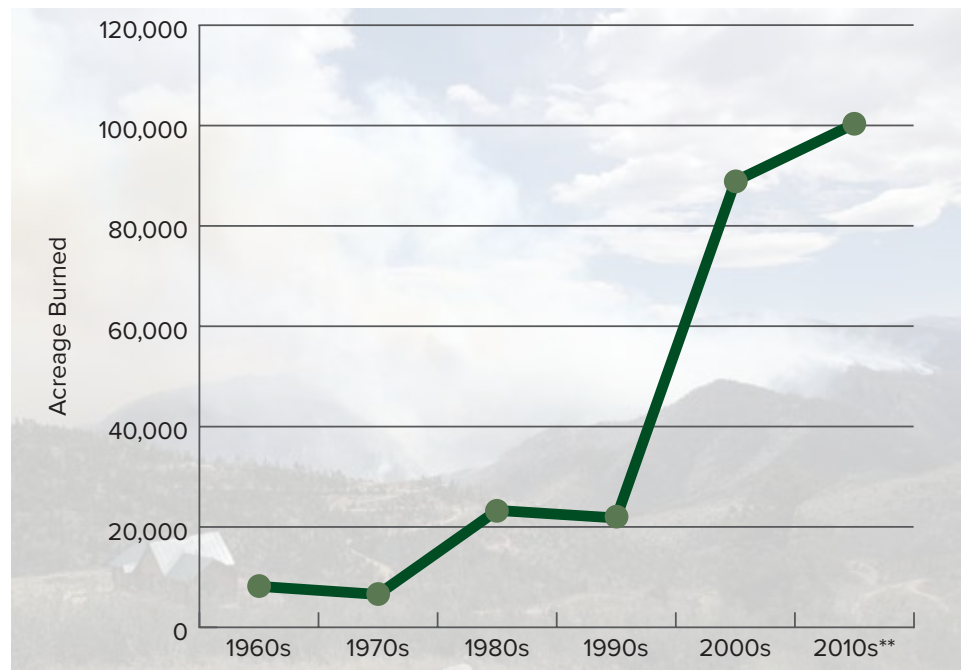
Why Is Ongoing Funding Necessary?

Colorado's 24.4 million acres of forestland provide immeasurable social, economic and ecological benefits to its citizens and visitors. Our forests offer a sustainable wood products industry, diverse wildlife species and abundant recreation/tourism opportunities, with Colorado's forested headwaters also serving as the upstream origin for fresh water utilized by 19 states.

But our forests face numerous threats, and can present risks to citizens and visitors. Wildland fire is a prime example. A long history of fire suppression has altered historic fire cycles and led to the dangerous build-up of fuels in some areas. Population growth into the wildland-urban interface (WUI) – the area where structures and other human developments meet or intermingle with wildland fuels – presents further challenges. More than 2 million people already live in Colorado's WUI, and this number is expected to increase significantly. According to data from Headwaters Economics, only 20 percent of the state's WUI is currently developed. In addition to the complications of a growing WUI, wildfires are now larger, burning longer, costing more to suppress, causing more damage, and threatening more lives than ever before. As more people live, work and play in this interface, their exposure to wildfire will increase.

Beyond the problems of overgrown forests and an increasing WUI population, the state's ongoing forest health concerns

Colorado Wildfires: Average Annual Acreage Burned by Decade, 1960-2015*



*State and private lands only
**Average for decade through 2015

are due to a combination of factors, including poor stand conditions, long-term droughts and warming annual temperatures. The resulting forests are unhealthy and overly dense, and set the stage for future insect and disease epidemics.

The 10 largest wildfires in Colorado's recorded history have all occurred since 2002.

Forest management, including thinning trees to improve forest resiliency and reduce fuel loads available for wildfire, effectively addresses these problems. At the same time, forest management actions generate wood products, provide jobs, diversify forests and result in healthier trees, creating stands less prone to insects and disease. And outreach/education that describes the need for forest management actions and that ensures heightened awareness of wildfire risk is becoming increasingly important, not only for healthy forests, but to ensure public safety. All of these pre-emptive actions also cost far less than merely reacting to wildfires,

post-fire flooding and insect epidemics after they occur.

Ongoing management will remain essential to ensuring that our forests continue to provide fundamental benefits, while minimizing risks within them. Active management of Colorado's diverse forests will provide clean air and water, enhance wildlife habitat, improve resiliency and reduce wildfire risk, while also supplying forest products. Forest management also decreases the percentage of forest products Colorado imports from other states and countries – a figure that currently exceeds 90 percent.

More than 90 percent of forest products used in Colorado are imported from out of state.

It is the role of the Colorado State Forest Service to provide private landowners the tools they need to address forest and watershed health, and to address wildfire risk to communities and the forests that surround them. These tools and resources are enhanced because of funding sources such as HB-1199.

Healthy Forests and Vibrant Communities Funding: Summary of Outcomes

The following is a summary of key accomplishments from 2009-2016 directly due to HB-1199 funding, listed by four broad categories: forest and watershed health, wildfire mitigation, wood products/utilization, and outreach and education. Achievements were only possible because of this funding and only major accomplishments appear here.



District Forester Kent Grant and Forester Ryan Cox survey an aspen stand in southwestern Colorado. Photo: Dan West



Forest and Watershed Health

Tree Insects & Disease

- More than 68 million cumulative acres aerially surveyed for insect and disease activity, through annual surveys in which HB-1199 served as the primary state funding source
- More than 2,200 on-site insect and disease applications (e.g., insect repellents and traps) on 3,416 acres
- On-the-ground insect and disease assessments on over 800 acres to monitor Douglas-fir tussock moth, pine needle scale and large aspen tortrix

Forest and Fuels Management/Treatments

- Forest treatments on more than 3,600 acres: forest thinning and mastication, fuelbreaks, timber stand improvement, post-harvest slash pile burns
- 4,000 trees planted

Technical Assistance

- 595 landowner assists addressing forest health issues
- Supplemented 30 miles of Colorado Department of Transportation roadside rights-of-way hazard tree assessments, on more than 7,100 acres
- Funding support for 29 forest management plans and/or surveys on 7,661 acres, including for state lands, open space and Denver Water Board lands
- More than 4,400 acres inventoried on state lands, Denver Mountain Parks, Denver Water Board land and private property



Wildfire Mitigation: Planning, Protection and Preparation

- Community Wildfire Protection Plans (CWPPs): 24 created, 36 mapped and more than 60 meetings/events offered, including with county commissioners
- Firewise Communities USA®: 50 designated and advised
- 21 fuels mitigation projects awarded \$340,000, and 614 priority acres treated
- 1,800 home/structure surveys to determine wildfire risk, and 77 defensible spaces assessed
- Colorado Wildfire Risk Assessment Portal (CO-WRAP): Since 2013, 973 risk reports generated by Fire Protection Districts, city planners and others, with more than 22,000 unique visitors to the site (as of June 2016)

Note: Forest Restoration Grant Program monies and related accomplishments are covered in past Annual Reports on the Health of Colorado's Forests, and are not addressed in this report.



Harvesting wood from forest management projects can offset treatment costs. Photo: Dan Bihn



Assistant District Forester Kathryn Hardgrave, CSFS Salida District, educates a family about an insect affecting the aesthetics of a recently planted tree in Buena Vista. Photo: Grace Mirzeler, Council of Western State Foresters



Wood Products/ Utilization

Forest Business Loans and Equipment to Enhance Economic Efficiencies

- More than \$750,000 in loans to six forest products businesses; an additional \$1.3 million in funding was leveraged from public and private lending partners with the Upper Arkansas Area Development Corporation, Colorado's Office of Economic Development and International Trade, the Northwest Colorado Council of Governments, two private sector commercial lending institutions and The Conservation Fund's Shade Fund
- \$80,000 repaid back into the loan fund by current loan recipients, which can be lent again to new businesses
- Funding for one self-loading log truck, one Bobcat utility vehicle with grapple, and one portable sawmill for Black Forest post-fire restoration efforts, tree plantings and forest rehabilitation

Business Support

- 29 forest products businesses supported through business plans, cash flow and/or marketing
- Up to 50 full-time employee equivalents (FTEs) retained and 12 new jobs added in private wood products arena
- One new patented product to market (WoodStraw; see p. 4)
- 300 site visits offering comprehensive, on-the-ground biomass assessments for wood utilization

Other Key Impacts

- Fuels reduction and forest health treatments completed or in progress on public and private lands by recipients of the CSFS-administered business loan fund
- Five countywide biomass assessment surveys
- Six biomass collection sites to collect, concentrate and process slash from fuels mitigation treatments
- Five projects to enhance marketing and utilization of wood products



Outreach and Education

Workshops/Presentations

- 131 workshops/presentations with more than 2,600 attendees, for topics including environmental education, wildfire preparedness, Arbor Day celebrations and wood utilization
- Six Biomass Policy and Education Outreach Trainings in partnership with the Governor's Energy Office, Sen. Wayne Allard, U.S. Department of Interior and U.S. Forest Service, with more than 400 participants

Educational Resources

- Complete redesign of the CSFS website, garnering 1.61 million visitors, and addition of the Natural Resources Grants and Assistance Database and informational videos to the site
- Development of the Colorado Forest Products website, with 150 participating businesses
- Over 35 publications produced on forestry, wood utilization and marketing

Public Service Announcements and Information

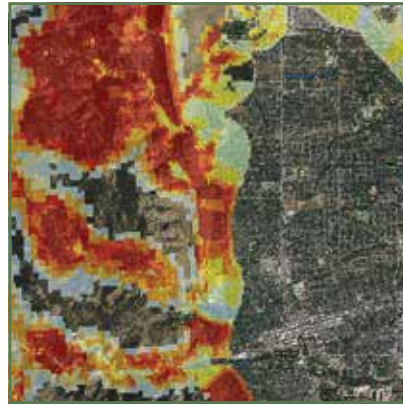
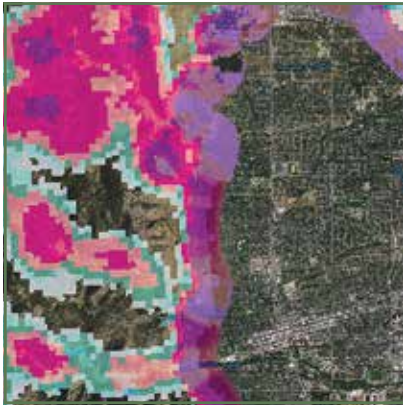
- An estimated 6 million television viewers reached through the creation and airing of a 30-second PSA on the importance of utilizing Colorado wood products
- Creation of an eight-page educational insert on forest management, fire mitigation and related topics; 370,000 copies distributed in 24 Colorado newspapers

Other

- 3,000 public perception surveys on forest management and related topics distributed
- 2,400 volunteer hours, with 295 volunteers and 30 events

HB-1199 in Action

Wildfire Risk Assessment Tool Raises Awareness, Targets Mitigation Efforts



CO-WRAP maps comparing housing density (left) with the wildland-urban interface (right) outside of Boulder. The darker colors on both maps indicate higher population densities and higher wildfire risk. Source: CO-WRAP

Beginning in 2011 and continuing today, the Colorado State Forest Service has utilized HB-1199 funding to offer decision makers, wildfire planning professionals and all interested citizens an online mapping tool that provides access to statewide wildfire risk assessment information. The Colorado Wildfire Risk Assessment Portal, or CO-WRAP (www.ColoradoWildfireRisk.com), allows

users to assess wildfire risk and determine where forest management actions may achieve the greatest impact to reduce that risk.

CO-WRAP provides the benefits of a GIS (geographic information system) program in a web-based interface that virtually anyone can use, without training or specific software. CO-WRAP has been significantly

funded by HB-1199 funding since its inception, and this funding has allowed for additional matching funding from federal grants.

CO-WRAP takes historic and current datasets, applies scientific methods and modeling, and makes the resulting data and maps available in an efficient format useful to state and local decision makers and private landowners. Using this tool, users can explore wildfire risk; generate detailed risk summary reports for communities or other customized land areas (more than 900 reports have been generated by users around Colorado); and compare proposed project areas and prioritize them to ensure the best use of state funding.

This online resource also is an invaluable tool in creating public awareness about wildfire risk and directing users to mitigation resources and technical assistance. CO-WRAP is a dynamic platform that reflects changing information over time, and can only remain viable through continued updates and maintenance.

The Black Forest Fire: Helping a Community Prepare and Recover



Assistant District Forester Dave Root, CSFS Woodland Park District, talks with a landowner affected by the 2013 Black Forest Fire. Photo: Bill Cotton, Colorado State University

Northeast of Colorado Springs, the Black Forest community has long addressed its local wildfire risks. Besides neighborhood mitigation efforts, a community-wide Black Forest Community Wildfire Protection Plan (CWPP) was implemented in 2007.

The primary objectives of the ongoing plan include thinning of the overly dense ponderosa pine forest; establishing/enhancing fuelbreak buffer zones; and increasing community awareness of fire-related risks.

State Trust Land Section 16, located within the Black Forest, also has been the focus of wildfire mitigation efforts since the late 1970s. A collaborative effort by School District 20, El Paso County, the Black Forest Slash and Mulch Committee and the Colorado State Forest Service has focused on fuels reduction and forest thinning efforts to open up 150 acres of the ponderosa pine forest.

The Most Destructive Wildfire in Colorado History

In June 2013, the Black Forest Fire burned through more than 14,000 acres of forestland, claiming two lives and destroying nearly 500 homes. Prior mitigation efforts and a dedicated emergency response lessened

further loss of life and property. However, the fire became the most destructive wildfire in state history in terms of property losses, causing more than \$500 million in damages.

In the face of a fire fed by drought and high winds, some areas survived relatively intact. Prior fuels mitigation projects guided by the CSFS helped to successfully create a fuelbreak – an area thinned to transition a catastrophic crown fire to a less-intense surface fire. Section 16 experienced only low to moderate burn severity, dropping from the crown to the ground and resulting in less damage to the section and likely to neighborhoods beyond it.

Communities that mitigated on a neighborhood-wide scale also came through the fire much better. Cathedral Pines, a subdivision where CSFS-guided forest thinning and mitigation were accomplished prior to the subdivision being built, lost only one home on the perimeter of the subdivision.

Funding a Beetle-Kill Wood Product that Helps Protect Watersheds



WoodStraw® is an erosion-control material made up of interlocking wood strands. Photo: Trent Jones

Thanks in large part to initial HB-1199-based financial support from the Colorado State Forest Service, a Steamboat Springs-based forest products business sustainably converts beetle-killed lodgepole pines into an environmentally friendly, cost-effective erosion mitigation product. Beginning with a start-up loan in 2012, Rogue Resources, Inc. has since been manufacturing WoodStraw® Erosion Control Mulch to reduce erosion and runoff in situations ranging from abandoned mine reclamation to remediation efforts by the oil and gas-drilling industry.

Post-Fire Recovery

Recognizing soon after the fire that the utilization of burned timber could help to offset treatment costs for the Black Forest community, Colorado Wood Utilization and Marketing Program (CoWood) staff from the CSFS began making plans for the standing dead timber, to ensure rapid and profitable use. Based on an analysis of the burned timber, a portable sawmill was purchased and located there to convert blackened trees to marketable material.

The CSFS continues to provide technical assistance and outreach to Black Forest residents, and CoWood continues to assist in developing markets for the wood products produced by this sawmill. Much of this has only been possible because of HB-1199 funding.

WoodStraw® is a long-lasting erosion-control material composed of interlocking wood strands that offer highly effective wind and water erosion-control capabilities – making it useful not only for mine and drill-site reclamation, but also various disturbed-soil projects that may include burned-area emergency response after wildfires and rehabilitation after road maintenance or construction. The feedstock for the wood strands – often beetle-killed lodgepole pines – is fed into specialized machinery that produces the patented material. Like other forms of ground cover applied by land managers to rehabilitate burned areas, WoodStraw® helps protect watersheds by minimizing erosion and runoff, and provides an economical use for beetle-killed wood and incentives to remove dead fuel from the land. WoodStraw® has been used on projects in Colorado that include mine reclamation, rehabilitation after the Fourmile Canyon Fire near Boulder and roadside mitigation efforts by the Colorado Department of Transportation.

The CSFS-administered Forest Business Loan Fund, created and financed by HB-1199, was designed to provide lending capital to small and emerging forest products businesses like Rogue Resources. This funding also makes business ventures more likely to receive additional matching funds; in the case of Rogue Resources, the company received more than \$300,000 in additional funding from the U.S. Department of Agriculture and The Conservation Fund's ShadeFund after the initial CSFS investment.

The HB-1199 forest business loan to Rogue Resources, administered by the CSFS via the Upper Arkansas Area Development Corporation, allowed the business to purchase and install manufacturing equipment, expand its product line and add employees to its Steamboat Springs facility. The venture has provided jobs in Routt County, and helps reduce wildfire risk through the removal of standing dead fuel.

"Thanks to the Colorado State Forest Service and their lending partners, our company was able to obtain the necessary funding to establish Colorado's first manufacturing facility to produce our product," said Trent Jones, controller for Rogue Resources.

Statewide Aerial Surveys: Critical to Tracking Forest Insect and Disease Trends



Spruce beetle-killed trees on Wolf Creek Pass in 2015. Photo: Dan West, CSFS

Each year, observers with the Colorado State Forest Service and U.S. Forest Service conduct aerial surveys to map insect and disease activity in forested areas of Colorado. Trained CSFS personnel then verify the aerial data through on-the-ground field inspections. Aerial survey results provide estimates of the number of acres affected by recent insect and disease activity in Colorado, and are the best means of tracking trends and providing a basis for informed forest management decisions.

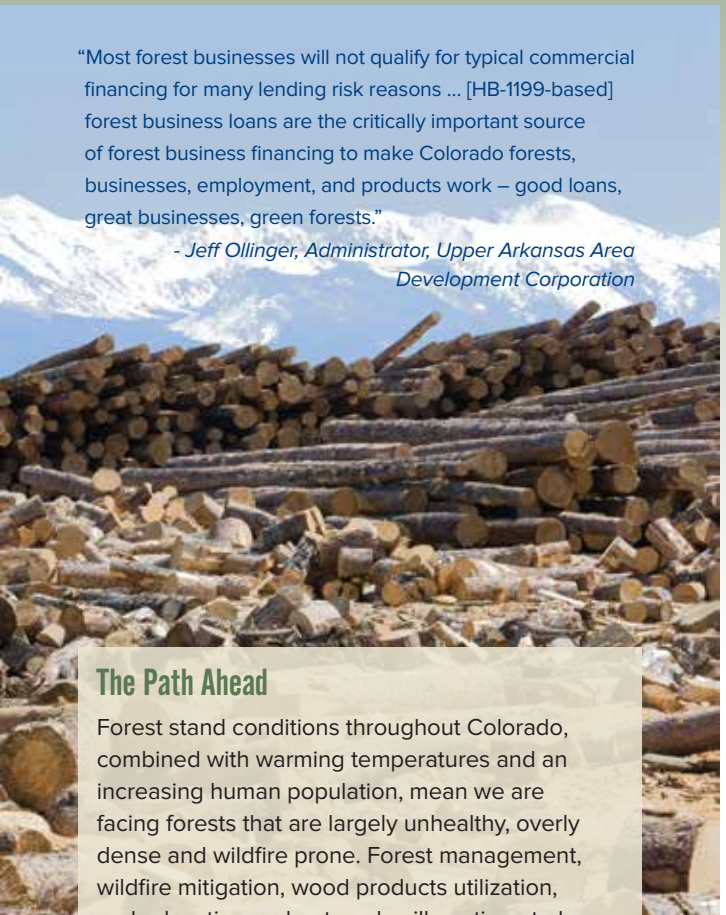
Annual survey data help land managers identify and best address forest health concerns, by offering a snapshot of landscape-level conditions that may be compared to previous years and monitored more closely by on-the-ground assessments. Utilizing funding from HB-1199, from 2010 to 2015 the CSFS was able to contract Forest Health Management International as a dedicated aerial survey program lead to work alongside CSFS and USFS partners, train CSFS personnel involved in the program and generate reports and publication content based on survey results.

With millions of acres of Colorado forestland impacted by bark beetles and other forest insects and diseases in the past few decades alone, this program remains critical to the ongoing monitoring of the health of Colorado's forests.



“Most forest businesses will not qualify for typical commercial financing for many lending risk reasons ... [HB-1199-based] forest business loans are the critically important source of forest business financing to make Colorado forests, businesses, employment, and products work – good loans, great businesses, green forests.”

- Jeff Ollinger, Administrator, Upper Arkansas Area Development Corporation



The Path Ahead

Forest stand conditions throughout Colorado, combined with warming temperatures and an increasing human population, mean we are facing forests that are largely unhealthy, overly dense and wildfire prone. Forest management, wildfire mitigation, wood products utilization, and education and outreach will continue to be necessary to protect Colorado communities and water supplies, and conserve and enhance the resiliency of these landscapes.

The Colorado State Forest Service looks forward to continuing to provide these resources, and the necessary expertise to serve Colorado’s citizens, stakeholders and forest ecosystems.

“As forest health issues continue to expand across the state ... CSFS staff time has been a critical component to helping elected officials understand and deal with our complex forest health issues. HB-1199 has also made multiagency partnering opportunities between federal, state and local governments and private sector partners more feasible.”

– Ben Tisdell, Ouray County Commissioner



Colorado State University
5060 Campus Delivery
Fort Collins, CO 80523-5060
(970) 491-6303
www.csfs.colostate.edu

(Clockwise from top right) Wood utilization in Walden. Photo: Dan Bihn. Aspen trees changing colors in Colorado. Photo: Bill Cotton, Colorado State University. A bedded mule deer. Photo: Bill Cotton, Colorado State University.