

Colorado State Forest Service Insect and Disease Quarterly Report November 2010 Volume 2, Issue 4



Inside this Issue:

Feature: Bark Beetles and Fire	1
Quarterly Celebrates First Anniversary	1
I & D Highlights from 2010	2
New Curative Treatments for Bark Beetles?	2
Colorado Community Forestry Conferences	3
Things to Watch For	4
Events and Announcements	4

Bark Beetles and Fire

In recent weeks, fire activity across Colorado including the Dome and Fourmile Canyon fires near Boulder and the Church Park Fire near Fraser has trumped the reigning king of Colorado's natural resource news—the mountain pine beetle. In addition to the press about the individual fires, conflicting information is readily available regarding the relationship between insect-killed trees and fire.

Most forest types in Colorado are fire-adapted forests. These forests have also co-evolved with the insects and diseases that impact them. Fire and insects are not new players in these ecological arenas. However, it is arguable that the recent behavior of these disturbance agents has been influenced by human activity. Humans have always impacted North American environments, from pre-European settlers to today's high-tech society. Our desires, needs and expectations from our natural environment are constantly evolving, so we are always learning about how to use our landscapes to meet our needs and how

to balance those needs with the needs of a healthy environment. This balance defines our roles of stewards of the environment.

The subjects of the recent arguments about bark beetle impacts on fire relate to fire frequency and

Dozens of matches zigzag between press pieces; statements by politicians, educators and researchers; blog posts and opinion columns; and stakeholder reports ranging from wilderness societies to natural resource professional groups. The result is a cacophony of information and misinformation

Let's look at the top two matches. Universities and NASA are both recognized institutions and should be a more reliable source of information than some Internet sources. The first work, by NASA and others, quickly states that 'it appears that large fires aren't more likely with trees killed by pine beetles.'

They go on to discuss complex satellite data collection, infrared technology, model design and their conclusions. They state that after trees die and lose their needles they become less prone to fire. They make an analogy to trying to start a fire with no kindling - just big logs.

The second work, by Colorado State University and others, is a much more comprehensive document opening with lengthy

(continued on page 3)



Post-fire image from the Fourmile Canyon Fire.

severity and fuel loading. Most people associate an increase of dead and dying trees on the landscape with an increase in fire risk. A quick Google search for 'mountain pine beetle and fire' will result in over 59,000 matches. Today's top match is the work by NASA and the University of Wisconsin. The second. A synthesis of research compiled by Colorado State University, University of Idaho and University of Colorado.

Quarterly Celebrates First Anniversary!

This issue marks the first anniversary of the Insect and Disease Quarterly. In marking our first anniversary, I would like to thank a number of people for their support of this endeavor—Lisa Mason for working on layout design; Katherine Timm and Ryan Lockwood for their ongoing efforts to improve my use of AP style; members of the Forest Management Division for input and support; and all of the

readers.

When this issue goes out, it will land in the email boxes of just under 1,700 readers! And all issues are currently available on the CSFS website at <http://csfs.colostate.edu/pages/common-insects.html>.

I will continue to strive to make the Insect and Disease Quarterly a place for readers to find useful information on forest insects and diseases, current trends in science

and technology, issues in pest control, current professional opportunities and all the hot topics in forest entomology and pathology.

As always, I encourage readers to suggest topics for future issues of the quarterly. Please send me your submissions of suggested topics, questions, and announcements: sky.stephens@colostate.edu

Thanks for reading!

CSFS I&D Quarterly





I & D Highlights from 2010

2010 was another busy year for forest management, forest health and insect and disease issues in Colorado. The following represent at few highlights from the year:

Cooperative Ag Pest Survey

Over 1,800 traps set in 2010. No occurrences of emerald ash borer were detected in the state. One gypsy moth was positively identi-

fied in Longmont.

Aerial Detection Survey

Over 29 million acres were flown in this year's aerial detection survey to map the primary insect and disease complexes of Colorado's forests.

Emerging Pest Issues in Colorado

Thousand cankers disease in the state prompted the formation of the

Emerging Pest Issues in Colorado group, which meets regularly to identify, raise awareness of and determine suitable response actions for new and emerging pest issues.

Colorado Firewood Task Force

The CFTF was formed in response to national recommendations on firewood movement and associated pest issues.

New Curative Treatments for Bark Beetles?

As the season turns colder, people may be seeing signs of mountain pine beetle (MPB) activity in their trees. Many are seeing these impacts in their local area for the first time; others have been living with MPB for years. Late fall represents a second peak in the number of calls and emails about MPB received by the Colorado State Forest Service with the first peak in the summer.

Most of the questions revolve around the what, why, when, where and how of MPB. The CSFS currently hosts a large volume of information on their Website about MPB and other forest insects and diseases at <http://csfs.colostate.edu/pages/common-insects.html>

Recently, many questions have been about possible curative treatments, stem injections and soil-based treatments for killing MPB after it has impacted a tree. A recent company advertisement in the North Forty News and reports from landowners across Colorado have suggested that numerous sources are promoting stem injections, soil applications or otherwise systemic treatments as the best way to treat and protect trees from MPB.

A systemic treatment is applied to a localized area, like the root collar or lower tree trunk, but has a whole-tree impact. Systemic treatments work by using a tree's internal water and nutrient transportation system to spread the product out to all parts of the tree. Systemic treatments have been used successfully for a number of insect and disease pests of trees, shrubs and other plants.

However, no systemic treatments for preventing or curing MPB attacks have been adequately tested to date and none have been labeled for use in Colorado by the Colorado Department of Agriculture.

Chemical Products:

Several chemical products that have proven successful in other arenas are being promoted for use against MPB including:

- Dinotefuran (Safari®) in granular formulation or bark sprays is currently being tested for use in pines impacted by MPB. This application method has not been approved by the CDA and is still undergoing testing.
- Emamectin benzoate (Proclaim®),

TreeAge®) as a stem injection has been investigated for preventing and curing MPB, but was not registered for use on conifers after inconclusive results.

- Imidacloprid (Marathon®) in granular, spray and stem injection form was investigated for preventing and curing MPB, but was also not registered for use on conifers after inconclusive results.

Organic and Natural Products:

Several reports and advertisements have promoted various natural or organic products for preventive or curative use against MPB. These products have included food-based, fungal, nematode and microbial formulations. Many of these products have not undergone rigorous testing and have not adequately demonstrated their effectiveness.

The CSFS is available to assist you in sorting out the confusing treatments for MPB and addressing any questions and concerns you may have. Contact your local district office or Forest Entomologist Sky Stephens for assistance.



Stem injection, used on ash for prevention of emerald ash borer, is not currently approved for use on conifers for treatments of bark beetles.



Colorado Community Forestry Conferences

The CSFS is involved with community forestry and outreach and education as part of the agency's core mission. Two very popular annual programs are the western and eastern Colorado Community Forestry Conferences.

These conferences strive to provide programs full of current forestry topics and assemble expert speakers and panel members to address forestry issues and concerns suited to western and eastern Colorado. The conferences are hosted annually and have a combined history of almost 30 years.

Recent programs include:

- 'Look to the Future... Remember the Past', New Castle, 2010
- 'Growing Healthy Trees', Springfield, 2010
- 'Growing Green Solutions for Communities', Carbondale, 2009
- 'Tree Boards Helping Tree Boards', Erie, 2009
- 'Trees are the Answer', Grand Junction, 2008
- 'Parks on the Prairie', Cheyenne Wells, 2008

Each conference has been attended by between 30 and 80 participants including interested citizens, professional arborists and landscapers, city officials, Tree

Board members, area extension agents and agency representatives.

The next Eastern Colorado Community Forestry Conference is being planned for March 12, 2011 in Windsor. A great program with current hot topics is being assembled. Speakers, panel experts and Tree Board representatives will be on hand to discuss under-used trees to try, the latest insect and disease information, success stories from eastern Colorado communities and community forestry-related services offered by a wide range of organizations. Stay tuned for an agenda and registration.



Participants in the 2008 Eastern Colorado Community Forestry Conference take learning outside.

Bark Beetles and Fire *(continued from page 1)*

discussions on forest, insect and fire ecology. They draw their conclusions out in stages of time since tree mortality. The three stages are 1) recently dead trees with needles remaining, 2) dead trees without needles and 3) fallen dead trees. They report 1) a higher risk of crown fire in areas with needle retention, 2) reduced risk of crown fire after needles drop and 3) significantly different fire risk, type and behavior after dead trees have fallen. These conclusions are drawn based on a number of considerations given to fire behavior models and the changes in fuel types that are represented during phases of tree mortality.

Both groups mention the Yellowstone National Park fires of 1988 in their conclusions on fire and mountain pine beetle. NASA and others state that fires since the 1988 fires have tended to slow or stop when they encounter standing dead trees

from the previous fires because 'there simply aren't enough small fuels to propel the fire.' Colorado State University and others cite works conducted prior to the 1988 wildfires that show an increase in fire behavior in stands where beetle-caused mortality was high and a slight decrease in fire behavior where bark beetle mortality was low.

From just these two examples you can get an idea of the variety of data analyzed, methods used and conclusions drawn on the subject. One of the key pieces to understanding the conclusions presented is to look carefully at the conditions under which those conclusions are drawn. Both works come to similar conclusions but look at the issue differently and at first might seem to contradict each other.

For most areas in Colorado, the relationship between bark beetles and fire behavior will be different

than in any of the studies I've seen to date. The biggest difference is the increased risk of potential human caused ignitions and the management of the wildland urban interface that many of us call home or consider our outdoor playground. To date, there have not been many large fires in areas where bark beetles have directly impacted forests and the few fires that have burned in impacted stands haven't shown any unusual fire behavior.

Boyd Lebeda, CSFS Fort Collins district forester, has a keen interest in the subject. He reminds us that we haven't seen very many fires in areas impacted by beetles to date. "We haven't seen unusual fire behavior in areas with mountain pine beetle activity in 2010" he said. As more fires start and burn in beetle-killed areas throughout the western United States, we'll have a better understanding of the impacts of beetle activity on fire behavior.



Bark beetles and fire: angels or demons? Will bark beetle-impacted stands have a greater risk of fire or not? The answer may depend on when the fires occur after infestation.

Fuel Knowledge Quiz

- 1) All fires behave the same. T F
- 2) Pine needles, branches and tree trunks are all the same kind of fuels. T F
- 3) Fuels are rated on landscapes to help estimate fire risk and model fire behavior. T F

(1) F, (2) F, (3) T



Things to Watch For:

- CSFS Quick Guides
 - ◇ Product use to prevent mountain pine beetle - **New Online!**
 - ◇ Thousand cankers disease of black walnut - **New Online!**
- Aerial detection survey results coming this springs
- Draft aerial detection survey maps available online now through USFS Region 2
- The Health of Colorado's Forests, 2010
- Agenda for 2011 Eastern Colorado Community Forestry Conference

Upcoming Events & Announcements

November 2010

3 - Emerging Pest Issues in Colorado, Fort Collins

10 - Colorado Agricultural Aviators Association Convention, Colorado Springs

11 - Front Range Urban Forestry Council, Littleton

18 - Pesticide Applicators Workshop

Submissions for I&D Quarterly Report:

Do you have a FAQ?

Is there something you want to know more about?

Submit your event or announcement, ask a question or suggest an insect, disease or product to feature:

sky.stephens@colostate.edu.

December 2010

7-8 - Western Forest Defoliators Working Group Meeting, Coeur d'Alene, Idaho

12-15 - Entomological Society of America Annual Meeting, San Diego, Calif.

Deadline for submissions is Feb. 15, 2011.

January 2011

Make sure your meeting, conference or other event gets posted!

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