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Battling the pine beetle epidemic

Scientists lay out the facts regarding the fight in our forests

By Merrill R. Kaufmann

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The current mountain pine beetle epidemic affecting lodgepole pine forests is unprecedented in modern times, and people are justifiably concerned. Lodgepole pine trees are being killed over vast areas from Canada to Colorado and California, and we rightfully question why, what to do, and what the future holds.

On Feb. 12, Gov. Bill Ritter signed an executive order creating the Colorado Forest Health Advisory Council. The mountain pine beetle epidemic is one of many important issues needing attention. Actions should be grounded in science, and the scientific community is happy to support the council's efforts.

The Nature Conservancy invited scientists familiar with lodgepole pine ecology, mountain pine beetles, and fire behavior to meet in Colorado in January to clarify the status of our knowledge.

These scientists agreed that the epidemic resulted from a convergence of several important factors: trees at the right age, size and density to host large numbers of mountain pine beetles; and climate warm enough over the last decade to favor beetle reproduction and survival. Scientists also agreed that the lodgepole pine is a hardy species that regenerates readily, and they expect the species to be an important part of our forests in Colorado and southern Wyoming for a long time.

Their findings:

- Lodgepole pine forests are being heavily impacted by the ongoing mountain pine beetle epidemic. The death of a high percentage of large and even smaller lodgepole pine trees is dramatically changing forest structure and composition, and modifying fuels that will affect fire behavior for decades.
- Not all lodgepole pine forests are the same. Some forests are pure lodgepole pine established after large fires decades or centuries ago. Others are mixtures with subalpine species such as spruce, fir and aspen at higher elevations, or with mixed conifer species such as ponderosa pine, Douglas fir and aspen at lower elevations. Each type of forest has unique features of ecology and fire behavior.

And lodgepole pine trees in all three types are vulnerable to attack by mountain pine beetles.

- Forests are living systems subject to constant change. It is normal and expected that many natural agents change our forests over time, including mountain pine beetles, fire and wind. While forests losing many trees to insect attack will never look the same in our lifetime, healthy and vigorous forests will undoubtedly return in most locations.

- Lodgepole pine will not disappear from the southern Rocky Mountains. The make-up of our forests will

change where mountain pine beetles cause high mortality. But we will continue to have forests dominated by or including lodgepole pine, and these forests will provide valuable ecological services and aesthetic and recreational benefits.

- Active vegetation management is unlikely to stop the spread of the current mountain pine beetle outbreak, because the beetles are so numerous and spreading so rapidly that they may simply overwhelm any of our efforts. However, judicious vegetation management between outbreak cycles may help mitigate future bark beetle-caused tree mortality in local areas.
- Though they are infrequent, large intense fires with extreme fire behavior are characteristic of lodgepole pine forests, especially during very dry and windy conditions. Such fires are a natural way for lodgepole pine to be renewed and are largely responsible for extensive pure lodgepole pine forests.
- In forests killed by mountain pine beetles, future fires could be more likely than fires before the outbreak. Large, intense fires with extreme fire behavior are again possible. There is considerable uncertainty about fire behavior following a mountain pine beetle epidemic. In pure lodgepole pine forests, crown fires are possible both before an epidemic and after while needles are still on trees, and intense surface fires are possible after most dead trees have fallen to the ground. The probabilities of such fires are uncertain, and more research is needed.
- Mountain pine beetle outbreaks are not likely to cause increased erosion, because they do not disturb the soils or reduce protective ground cover. High tree mortality may increase streamflow, because of reduced canopy interception of precipitation and reduced water uptake by the trees.
- Climate changes will most likely contribute to substantial forest changes in the decades ahead. Given the climate changes in the last 20 years and projected changes for the next several decades, large fires and other natural disturbances are anticipated in many forests of Colorado and southern Wyoming. These large disturbances and other changes in growing conditions will likely contribute to restructuring many forest landscapes.

Through sharing of scientific knowledge, all stakeholders alike can make the best informed decisions for on-the-ground action as all of us deal with the mountain pine beetle epidemic and its impacts on our forests and communities.

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The headline oversells the article. In three columns of stating the obvious the author seems to espose a laissez-faire attitude to the problem. After stating that 'active vegetation management' is unlikely to be effective, he follows with 'judicious vegetatiion management' may mitigate future bark beetle kill. What is 'judicious' in a battle?

I submit that it is not just about the trees. It is about the value of the scenery, the value of the lumber itself, the future of tourism in Colorado. It is further about the prevention/mitigation of future damage to the lives and property of citizens. Resident should be encouraged to gather and cut in infected areas, Mature trees should be harvested so their value won't be lost to beetle and fire. Any and all forms of mitigation should be utilized. After all, if we are being exhorted to change our lives because of a hypothetical global warming scare in the future; should we not be more concerned with the reality in our back yard now?

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