RECENT BLOWDOWN IN WESTERN OREGON

Forest Health & Monitoring Unit
Oregon Department of Forestry

The recent windstorms and unusual weather this winter have resulted in tremendous levels of blowdown in many areas of western Oregon. Bark beetle outbreaks often follow these events and can result in substantial damage to surrounding trees. The following information describes the nature of this relationship and addresses some of the questions that may arise when considering different treatment options.

Tree Susceptibility

Douglas-fir is generally the most susceptible tree in Western Oregon to bark beetle outbreaks after storm events. Aerial survey records indicate that there is often a direct increase in Douglas fir mortality following significant wind events, but a similar pattern has not been observed for True fir, except in periods of sustained drought. Douglas fir susceptibility to beetle damage is largely determined by tree size, stand condition and recent moisture levels. Generally, only trees that are greater than 12-in dbh are vulnerable. If trees occur in relatively young, vigorous stands, there is usually low risk of beetle-caused tree mortality, unless drought or root diseases are involved.

Douglas-fir Beetle

Douglas-fir beetle is often associated with tree mortality 1-2 years following large storm events. In Western Oregon, outbreaks are usually localized and can persist for 2-3 years. Down trees are colonized in early spring (late March-April) and brood develop over the next year. The following year, large numbers of beetles can emerge from these down materials and attack standing green trees such that host defenses are overcome. A general rule-of-thumb is that if you have more than 3 down trees/acre (greater than 14-in dbh) beetle populations will be sufficient to attack standing trees, and can cause losses of between 30-60% of the blowdown volume. The greater intensity of large down materials, the more likely bark beetle caused tree mortality will occur. Because the beetles usually take a full year to mature, treatments do not have to occur immediately, but should be completed before the following spring to prevent attacks on surrounding trees. If drought conditions occur during this time, trees will become more susceptible and increased mortality may result.

Treatment Options

Salvage

In many areas, salvaging materials is the most preferred course of action to capture wood value. If down trees are removed from the stand before April, it is unlikely that mortality of standing trees from Douglas fir beetle will occur, as populations are removed along with the materials. As warmer weather arrives in the spring, additional bark and wood-boring insects as well as fungal spores become more abundant and can cause significant wood damage and staining. In wet sites with easily compacted soils, it may be best to delay operations until summer to avoid site damage. Also, Douglas fir that are larger than 24-in dbh do not appear to deteriorate significantly during the

first year, and should remain merchantable if removed within one year. Overall, it is important to consider the trade-off between salvaging to recover value and the habitat/ecosystem benefits of down wood and broken-top trees. In many cases, selective salvage is a good approach, as leaving moderate amounts of down material adds wood to the forest floor and creates structure at several levels. An assessment of snag and down wood conditions would be a useful part of the overall salvage planning and decision process.

MCH Pheromone

There is also an anti-aggregation pheromone commercially available, which has been used successfully to reduce Douglas fir beetle caused tree mortality on sites of up to 300 acres. MCH protects stands by preventing beetles from initiating new attacks. By itself, it cannot reduce landscape level mortality during an outbreak, but does re-distribute mortality and can effectively protect stands that are of high value due to unique characteristics or special uses. It is formulated into bubble capsule packages that can be attached to down materials directly, to reduce the initial infestation, or to standing green trees, to protect them the following year. In either case, it should be applied by late March prior to the start of the beetle flight period. In Oregon, it has been used successfully to prevent additional mortality after blowdown in wildlife areas, campgrounds, riparian zones and timber production sites where salvage is not allowed or feasible. The cost is approximately $80-100 per acre. Although this product is a pheromone, it is subject to the Forest Practices Act and a notification of operation should be submitted to the Oregon Department of Forestry prior to use on forestlands. Please see the following link for additional information.

MCH Brochure
http://www.fs.fed.us/r1-r4/spf/fhp/publications/MCH_brochure/MCH_online.pdf

Comments

Overall, there are no simple answers for dealing with the potential for additional mortality from the blowdown that has occurred recently in Western Oregon. Each situation will likely require a unique approach that takes into consideration the particular objectives of the landowner. For some land managers, these events can be an opportunity to increase diversity and the presence of down materials, while others may want to salvage trees to capture value or protect older stands. On forestlands that possess a large component of mature Douglas fir, managing the accumulation of down materials is especially important when it occurs rapidly, as these events can accelerate the break up of stands and damage areas that have taken decades to develop into high-value sites or habitats for particular wildlife.

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