Slash Management for Bark Beetle Prevention

Forest Health Fact Sheet

May 2017

Christine Buhl, ODF

Slash pile (left) next to grand fir trees that were subsequently attacked by slash-infesting fir engraver beetles (right).

Slash is the residual branches and debris created by logging operations, pruning, thinning, restoration projects, storms and other disturbances. These materials present risk as ground fuels for fire as well as breeding sites for some types of bark beetles. Douglas-fir, true fir and pine trees host bark beetle species that prefer to infest fresh slash or downed trees. Bark beetle outbreaks can be avoided by: 1) not creating slash during certain times of the year, 2) allowing slash time to fully dry before beetle flight periods, or 3) chipping, masticating, burning or burying slash before it can be infested or before beetles can emerge from already infested material.

Tree species / slash-infesting insects

- Douglas-fir / Douglas-fir beetle
- True fir / Fir engraver beetle
- Pines / *Ips* spp. beetles

Some bark beetle species prefer slash as host material to develop their broods. Chemical signals that indicate wounding or stress are emitted by slash material and downed trees. Individual bark beetles species can identify chemicals emitted by their preferred host and colonize the material. Bark beetles can sometimes build up large enough populations in slash and downed trees to attack surrounding standing trees and overcome their natural defenses. Beetles that infest slash and downed trees require relatively fresh material and will attack at a specific point in the season, depending on the species.

Douglas-fir slash

Manage by April

Douglas-fir beetle is a major bark beetle pest of Douglas-fir that attacks trees and logs >10" diameter. This pest has a preference for downed trees and often follows storm blowdown events. This type of material needs to be salvaged or destroyed before the first April following the event to prevent infestation. Treatment can also be delayed until the next April to remove beetles that have infested the wood the previous season. Repellants such as MCH may also be utilized to prevent Douglas-fir beetle infestation.

Two other bark beetles that may infest <10" Douglas-fir slash are the Douglas-fir engraver and pole beetles. These beetles are secondary pests that do not pose a large outbreak risk, thus management of <10" Douglas-fir slash before their May flights may not be necessary.

True fir slash

Manage by June

Fir engraver is a secondary bark beetle pest of true fir species. Although secondary, this pest is closely linked with drought and has contributed to an increase in fir mortality in recent years. This pest most commonly infests slash >4" diameter. There is no correlation between slash and outbreaks of this pest but destroying slash before flights starting in June *may* reduce the number of fir engravers on site.

Pine slash

Manage by April

Ips bark beetles are the primary slash-infesting pests of pine. They produce multiple generations per year and multiple broods per generation, and are thus highly conducive to population outbreaks. Pine slash (3-8" diameter) created from January - September should be destroyed as soon as possible. Pine slash should also be addressed when managing for mountain pine beetle and western pine beetle, as these beetles often overlap with *Ips* - even within the same tree.

Management

3-8" diameter pine slash is the primary target for management. Timing of slash creation and conditions dictate which management option will be most effective.

1) Create slash October through December to allow enough time for it to dry before beetle flights begin in the spring. Slash must be scattered in an area with sun exposure, to effectively dry out within this window of time. Slash over a year old is generally not suitable for bark beetles.
2) Slash created outside of the drying window must be chipped, masticated or burned before beetles fly in April or within a month after creation during April - September.
3) Pile and burn, green-chaining, solarization are alternative options, but may be difficult to manage.

Drying by lop and scatter

From October through December, uninfested material can be cut into smaller pieces and scattered in sun-exposed areas to promote drying and prevent colonization by bark beetles. Although this method increases ground fuel loads, it also increases the speed of decomposition.

Management highlights

Doug-fir

- Remove >10" Doug-fir blowdown, use MCH

Pine

- January - September: avoid creating or immediately manage 3-8" diameter slash
- October - December: let slash dry on the ground

Chip, masticate, bury or burn slash

Chipping

Chipping or masticating material to <3" diameter makes wood unsuitable for most bark beetle species. Chipped wood will briefly emit attractive chemicals, but scattering chip in sun-exposed areas will expedite drying and exhaust these chemicals. Attraction to volatiles can be prevented entirely by chipping outside of beetle activity periods (i.e., fall and winter). Trees may also be debarked to prevent bark beetle colonization.

Pile and burn

Larger piles (≥20' wide x 10' deep) made January - August can create a multigenerational sink. Essentially, beetles emerging from slash on the outside of the pile will move inward to attack the less exposed, moist slash within the pile. Several of these large slash piles must be placed in the thinning unit and be separated by no more than 1/4 mile. It is important to closely monitor and burn the pile before beetles run out of material and emerge. Be aware of risks associated with burning that might result in ignition of wildfires, heat damage to surrounding trees, soil sterilization and seedbank scorching. Always abide by burn bans.

Green-chaining

This method involves providing continuous access to fresh slash, which attracts beetles away from standing trees. Fresh slash must be continuously provided throughout the *Ips* flight period (April - October) then destroyed. This method is not advised in most cases.

Solarization

Covering small wood or slash piles (on 2x4's) with clear, 6 mil plastic in sun-exposed areas may be useful where no other options are available. Temperatures must reach 113º F (45º C) for this type of treatment to effectively kill beetles before they chew their way out.

Insecticides are not labeled for use on slash

More information:

Oregon Dept. of Forestry, Forest Health
http://tinyurl.com/odf-foresthealth
2600 State St. Bldg. D, Salem, OR 97310
503-945-7200

Other references:

USFS Forest Health Protection
www.fs.usda.gov/goto/r6/foresthealth

OSU Forestry Extension
http://extensionweb.forestry.oregonstate.edu/