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## Guidelines for Spacing of Lodgepole Pine

### **Background:**

The current large outbreak of mountain pine beetle is unprecedented in the history of the province. This widescale infestation is killing vast areas of mature and overmature lodgepole pine in most areas of the central interior. Estimates indicate that the outbreak will not subside until most mature pine has been killed. This will likely result in significant wood supply shortfalls in the mid-term.

A possible method to alleviate at least some of this mid-term shortage is to implement a large scale spacing program in juvenile stands of lodgepole pine. This will effectively accelerate their growth and may replace critical wood supplies lost to the beetle. Planning for such a program is being contemplated through the Forests For Tomorrow initiative.

However, there are risks associated with such a broad program. Inappropriate or mis-timed spacing operations may well lead to accelerated mortality in the treated stands due to mountain pine beetle and other agents such as *Ips*. The guidelines outlined below are intended to provide an acceptable risk level to spacing operations.

### **General Concerns:**

- Recognize that spacing at certain times of the year may aggravate such agents as *Ips*
- Recognize that mountain pine beetle can and will attack small diameter stems when more preferred hosts are unavailable. While the pine beetle will likely not do well in these stands, they will kill the trees and continuing influxes from surrounding active infestations may lead to almost complete stand mortality.
- It is quite likely that spacing in areas of high beetle activity (pine beetle or *Ips*) may actually increase levels of mortality. Close spaced young stands with thin bark and phloem would have a higher resistance - spacing such stands may induce a shock to the stand for a year or so and may also increase susceptibility to beetles due to release.
- If a spacing program were to be put in place, it should be well at the rear of the infestation front (possibly locations such as Burns Lk or Vanderhoof), then move south and east over time.
- *Ips* populations are also increasing in many stands co-infested by mountain pine beetle, so *Ips* mortality to young stems may occur without there being large amounts of slash/debris that is usually necessary for *Ips* to build-up in

- Recognize that spacing programs in MPB areas are carried out under the principle of acceptable risk

**Guidelines:**

**Regardless of where spacing is contemplated, all spacing operations should be carried out in late summer or fall, not in the spring.** This timing will serve to minimize breeding sites for *lps*. Further, spacing programs should be planned after consultation with Forest Health specialists; this is particularly necessary when spacing is contemplated in areas experiencing high levels of mountain pine beetle activity.

Areas selected for spacing in any given year but not treated in that year, must be re-evaluated in the following year prior to continuation of the treatment.

There are two general cases for spacing pine stands: stands that are in active Suppression areas where pine has not yet been overrun; and, stands in Holding or Salvage areas where high beetle populations still exist but where the beetle has subsided in some areas. Guidelines for these two cases are given below:

I. Suppression areas

- Anywhere after consultation with Forest Health specialists
- Re-evaluate annually
- Requires stringent application of “suppression” designation to ensure that beetle populations are not excessive
- Note the “final cautions” below

II. Holding and Salvage areas

- As a general principle, spacing should occur at the back of the leading edge of the beetle outbreak in an area, well away from the beetle activity on the leading edge.
- Space with extreme caution; while such a program may be necessary, efforts must be taken to ensure resulting risk of loss is acceptable.
- Spacing plans to be formulated after consultation with Regional Forest Entomologists to ensure that estimates of beetle activity levels are appropriate.
- No spacing should be done within 1 km of an area where there is/was an active mountain pine beetle infestation within the previous 3 years

- Treatment of stands with a high intensity of rusts (as defined in the appropriate Guidebook) should be deferred for 2 more years
- Standards can be somewhat relaxed if species other than lodgepole pine comprise >60% of the stand.

***Final Cautions:***

1. There is some risk that thinning in suppression areas may predispose treated stands when outbreaks in the area intensify.
2. “Moving” stands into higher dbh classes may yield higher risk of subsequent beetle attack.
3. Depending on weather patterns, thinning may cause shock to the treated site for 1 or a few years which may predispose stems to attack by damaging agents.

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