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Management of the Black Army Cutworm

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Introduction

The cutworm is a leaf-eating caterpillar that often occurs in large numbers on cutblocks that have been burnt one or two years previously. The mature cutworm is approximately 1 1/4 inches long, velvety black above, greyish below with two narrow white stripes on each side of its body. Evidence of cutworm feeding occurs shortly after snow melt and is completed within six weeks of emergence. The impact of defoliation on seedlings is dependent on: the amount of feeding, bud damage and other factors which affect root growth and establishment.

Management Strategy

Control of the black army cutworm with chemical pesticides is not recommended. At present, there is no known biological pesticide to use against the cutworm. Management strategy should consist of: (i) identifying susceptible sites, (ii) monitoring those sites with pheromone traps, (iii) conducting ground surveys in questionable areas, and (iv) adjusting planting schedules to avoid or minimize damage.

However, susceptible sites which are burned after mid-September are an exception to the four-step strategy, and should be planted the next spring. This will not only minimize possible cutworm damage, but will reduce problems with competing vegetation.

Identifying susceptible sites

Outbreaks can occur within the Engelmann Spruce-Subalpine Fir, Montane Spruce, Sub-Boreal Spruce, or Interior Cedar-Hemlock biogeoclimatic zones. Within those zones, sites experiencing poor growth and those prone to drought are the most susceptible to damage. Each year, at the end of June, susceptible sites which have been burned in the past twelve months should be identified for monitoring of moth invasions.

Monitoring sites with pheromone traps

Pheromone traps should be placed in position by 1 July just before moth flight on burned susceptible sites. Each trap should consist of the following:

- a green Multi-Pher Trap, model MP-1 (distributed by Bio-Controle Services, 2949, Chemin Ste-Foy, Quebec, G1X 1P3),

- a 1-inch square of "Vapona" insecticide strip placed in the bottom to immobilize the moths,

- a rubber stopper containing the pheromone.

See Figure 1 to determine the necessary action depending on number of moths caught per trap.

Conducting ground surveys

Moderately infested susceptible sites should be visited as soon as the snow has melted, and the leaves of preferred plants, such as fireweed and common horsetail, should be inspected for feeding damage. During daylight hours, caterpillars usually hide in the soil adjacent to damaged vegetation; specimens should be collected and identified to confirm that the damage is, in fact, caused by black army cutworm. If most of the plants show evidence of cutworm feeding, such as "shot-holes" in the leaves, then significant damage to the seedlings is likely, and measures should be taken to avoid damage.

If there is little or no damage, the plants should be flagged and inspected again seven days later. If damage to preferred plants is not obvious by the second observation, then significant damage to the seedlings is unlikely.

Established plantations

When an outbreak occurs in a year-old plantation, growth losses and mortality will be minimal as seedlings with an established root system will rapidly grow a new complement of needles. Areas of severe feeding should be delineated at the peak of feeding and surveyed after bud flush the following year. Replanting may be required in some areas.

New plantations

Where outbreaks occur on good growing sites that are not prone to subsequent summer drought, planting should proceed normally, but special care should be taken to place the roots properly.

On sites that will dry out if a summer drought occurs, seedlings are most vulnerable. If more than 60% of the foliage is lost or if terminal buds are killed, significant mortality and height growth loss will occur. It is best to delay planting in infested areas on dry sites. Damage will be minimal if planting can be delayed until the middle of June at low elevations, or later at higher elevations. On these sites, it is especially important to place roots properly in the soil. If planting cannot be delayed for a few weeks, then postponement for a year should be considered.

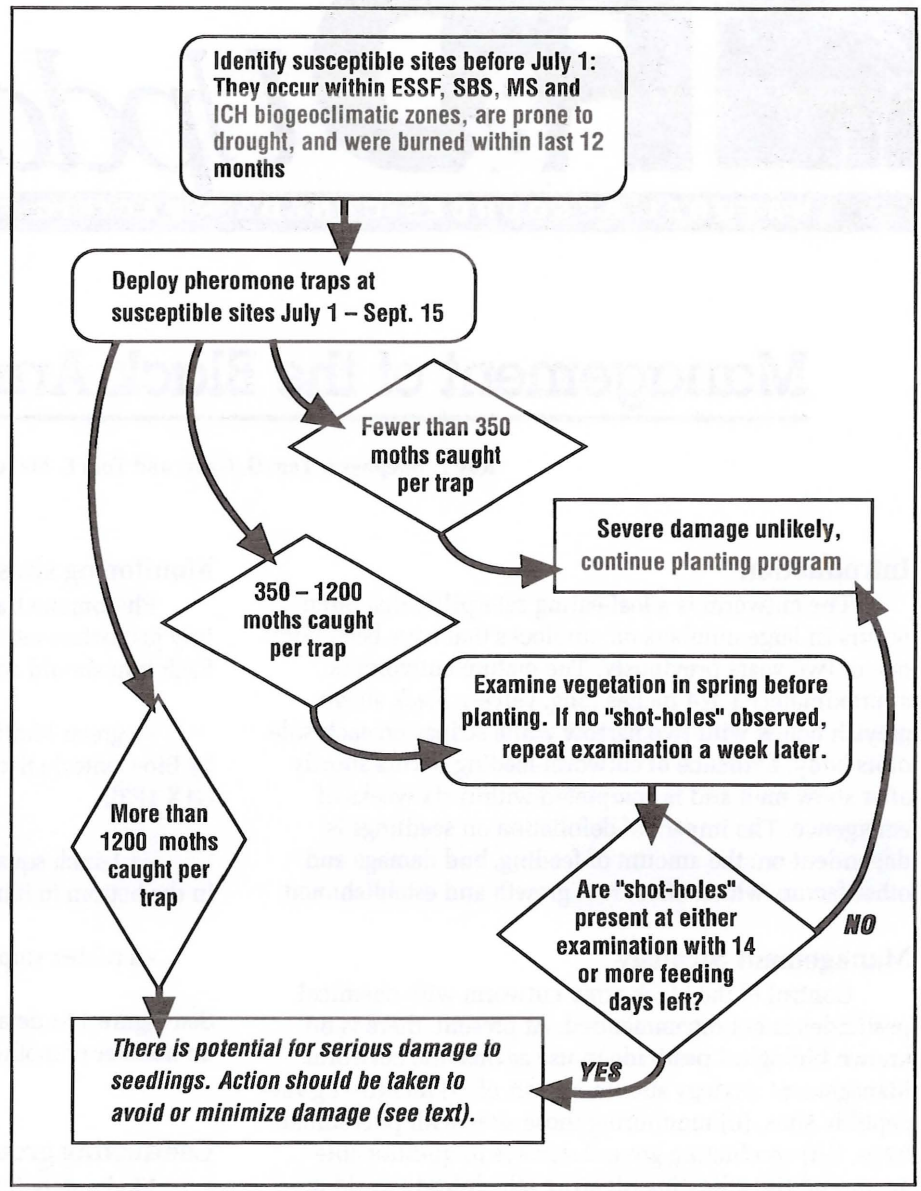

Figure 1. Management procedures to detect threatening populations of black army cutworm early enough to avoid significant damage (ESSF –Engelmann Spruce- Subalpine Fir; SBS –Sub-boreal Spruce; MS –Montane Spruce: ICH –Interior Cedar-Hemlock).

If feeding on newly planted seedlings does unexpectedly occur on a dry site, areas of severe feeding should be delineated and assessed after bud flush the following year. Dead trees, those defoliated more than 60%, and those with dead terminals should be replaced.

Summary

Newly planted seedlings are more likely to be severely damaged by the black army cutworm if they have been planted in certain biogeoclimatic zones on dry sites burned within the 12 months prior to moth flight. Defoliation inhibits root growth and reduces the establishment of new roots into the soil. This causes moisture stress in the seedlings; mortality or prolonged growth loss can result especially if the moisture stress is compounded by other factors such as summer drought, the planting of seedlings in ash or rotten wood, or deformation of the roots during planting. Significant damage can be avoided through proper management by careful monitoring and planning.

For more information, please consult the report **BC-X-335 Management of the Black Army Cutworm**. You can also contact François Blain, A/Technology Transfer Officer, Natural Resources Canada, Pacific Forestry Centre, 506 West Burnside Road, Victoria, BC V8Z 1M5 (604) 363-0600 FAX (604) 363-0775.

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