

**SURVEY REPORT OF PESTS  
IN THE PINE RIDGE FOREST NURSERY  
NEAR SMOKY LAKE, ALBERTA  
1995**

**File Report NOR-11-00595**

**by**

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## INTRODUCTION

In 1989 Dr. N. Dhir and C. McDonald requested Forest Insect and Disease Survey personnel of the Canadian Forest Service, Natural Resources Canada, conduct annual surveys of pests at Pine Ridge Forest Nursery and its associated genetic plantations and seed orchards. As a result of the request, surveys have been performed at the nursery over the past 6 years. The current report summarizes the results of this years survey conducted on June 12, 1995 by Ken Mallett and Colin Myrholm. Specific areas and plant materials examined were selected by Lonnie Shulko, Christine Hansen, and Sylvia Hoberg.

## SURVEY PROCEDURES

Surveys were conducted in three general areas: greenhouses, nursery beds and genetic tree plantations. Green houses examined included numbers 13, 14 and 19 in the nursery section and numbers 1 and 3 in the Genetics section. Nursery beds examined included A11, A12, B3, C3 and D3. Various locations within Sectors B1, E and F/G, and Region H were examined.

A walk-through-survey was performed in the areas examined and problems were noted. Most diagnoses were made on site. When required, samples were collected for verification or identification purposes. Where applicable, recommendations for control or pest reduction are given and an indication of pest abundance trend (based on last years survey) is suggested.

## RESULTS

### Greenhouses

In greenhouses 13, 14 and 19 (container-grown white spruce) there was a high population of fungus gnats. While gnat larvae occasionally cause damage to seedlings none was evident during the survey. Adult gnats have been shown to carry pathogenic fungi such as *Botrytis* and *Fusarium*. Sticky traps deployed throughout infested greenhouses would be helpful in controlling populations. Such traps were already present in greenhouses 13 and 14, and populations in these greenhouses seemed somewhat lower than in greenhouse 19. If high populations persist and evidence of seedling damage appears an insecticidal soil drench treatment is recommended, however a few seedlings should be tested on a trial basis first to determine any risks of phytotoxicity.

Small aspen propagules in Genetics greenhouse #3 had wilted black shoots, possibly caused by aspen twig and leaf blight (*Venturia macularius* (Fr.) E. Müller). Samples were taken for identification. Plants with symptoms should be isolated from other potential hosts in the greenhouse and, if the disease is found to be present, these plants should be removed and

discarded.

Genetics greenhouse #1 also had a high population of fungus gnats (see above).

### **Nursery Bare Root Seedling Beds**

Late spring frost damage was evident on current years growth in all the fields examined. The most severe damage seemed to occur on lodgepole pine transplanted this spring. It was suggested that these pine may not have been properly hardened off before transplanting.

Low populations of woolly aphids (*Mindarus obliquus* Cholodkovsky) were found in field A12 (white spruce). Populations of this insect seem to be down from last year, however this may be related to survey timing. Several adult lady beetles were observed on the seedlings, providing some natural predation of the aphids.

A plant bug, possibly the tarnished plant bug (*Lygus lineolaris* (Palisot de Beauvois)), was found on white spruce seedlings in fields A12 and D3. In field D3 a high population of these bugs were seen on a weed species (lambs quarters). The tarnished plant bug has been known to damage spruce seedlings, though no damage was evident at this time. Several specimens were collected for identification.

Heavy browsing by deer at the south end of field D3 was noted on lodge pole pine.

The problem of most concern observed in white spruce beds (A11, A12, C3 and D3) was fusarium root rot (*Fusarium* spp.). Mortality from this disease ranged from approx. 1-5 %, with the most damage observed in field D3. A more detailed incidence survey may be advisable. If incidence of mortality from this disease continues to increase a plan to rotate crops, leaving heavily infected fields fallow between crops, should be considered. Green manure applied to fallow fields may also help reduce future seedling crop losses by increasing the abundance of other beneficial soil microorganisms. Samples of infected seedlings were collected in order to verify the causal agent.

### **Genetic Plantations and seed Orchards**

#### **Sector B1:**

One recently dead Scots Pine (G230, tree 396-16) was found. Black staining and evidence of insect boring in the roots/root collar area was noted. There are root diseases which cause black staining and could present potential problems. Such diseases may be spread by insect vectors and through root grafts or root contact. Though no such diseases were specifically suspected in this instance, any future trees dying in this area should be examined for similar symptoms. Samples were taken to determine if any pathogenic fungi were present in the roots. Immediate removal of the tree and roots was recommended. Another Scots pine in the same block had stem injury

caused by a yellow-bellied sap sucker, which may be remedied by wrapping the damaged portion of the stem.

A few other minor problems were noted in this sector. A white spruce (region E) killed by *Armillaria* root rot (*Armillaria* sp.) had already been removed, as recommended in previous years. The tamarack had low numbers of aphids (*Cinara lariciflx* (Fitch) and *Adelges lariciatus* (Patch)) that were causing insignificant damage. A few smaller tamarack also had some animal damage (bark removed, possibly deer or porcupine).

#### Sector E:

Aspen leaf and twig blight (*V. macularius*) was evident on the leaves of G294 aspen. *Cytospora* canker (*Cytospora chrysosperma* (Pers.) Fr.) was also noted on a few trees. Both diseases are controlled by removing and discarding infected tissues.

No other locations were examined in this sector.

#### Sector F/G:

Pine species (lodgepole, Scots and jack) showed evidence of lodgepole pine terminal weevil (*Pissodes terminalis* Hopping) damage from last year. Current years damage from this insect on pine and the white pine weevil (*Pissodes strobi* (Peck)) on white spruce may become evident latter in the month. It seemed that damage by terminal weevils has been reduced. Pruning to control for these pests should be continued as recommended in previous years. Porcupine damage was also noted on some of the pine.

The white spruce provenance trial had significant late spring frost damage on the current growth of some provenances. Yellowheaded spruce sawfly (*Pikonema alaskensis* (Rohwer)) also occurred on these trees. The larvae were still very young and damage was barely evident at this time, however, defoliation may become quite significant latter in the summer. Control of the larvae by insecticidal application should be considered while the larvae are still small.

A low incidence of the spruce gall adelgid (*Adelges lariciatus* (Patch)) was present on white spruce in region D. Birch leaf miners (*Fenusa pusilla* (Lep.)) were found feeding on white birch. Incidence of both these pests seem to have greatly decreased throughout the plantations as compared to previous years. Neither pest is of serious concern.

#### Region H:

The only notable problems in this region were late spring frost damage and yellowheaded spruce sawfly (*P. alaskensis*). Insecticidal control of the sawfly should be considered.

## GENERAL COMMENTS

Insect and disease conditions in Pine Ridge Forest Nursery and its associated genetics plantations and seed orchards do not warrant concern. Much of what has been found this and in previous years are endemic pests that cause little damage. A few minor problems do exist however, and require attention by the staff. Monitoring for potential problems in the future should

continue.

An increasing incidence of fusarium root rot in the white spruce nursery beds may eventually become a cause for some concern. This problem should be investigated further and monitored closely. If the problem continues to increase, a control program should be planned and implemented.