Swaine Jack Pine Sawfly
Neodiprion swainei Middleton
Hymenoptera: Diprionidae

Objective: To develop a sequential sampling plan that determines the intensity of *N. swainei* infestations.

Abstract: The Swaine jack pine sawfly, *Neodiprion swainei* Middleton, is one of the most important defoliators of pine, *Pinus* spp., throughout Canada and the Lake States. The larvae are gregarious and feed primarily on older foliage. Numerous outbreaks occur on regular eight year cycles in jack pine, *P. banksiana* Lamb., stands in Ontario and Quebec. Heavy tree mortality often occurs in stressed, senescing stands. A sequential sampling method for egg clusters of *N. swainei* is described that classifies infestations as either light (≤3.3 egg clusters per tree), moderate (8.3-14 egg cluster per tree) or severe (≥26 egg clusters per tree). The maximum number of trees to be sampled is 10.

Sampling Procedures: Select a codominant or dominant jack pine randomly within the area of concern and fell the tree. Remove, count and record the number of shoots bearing egg clusters. Sampling follows the sequential table until the cumulative number of egg clusters exceeds a decision level (Table 2). The maximum number of trees to be sampled is 10. If after sampling 10 trees no decision is met, the following rule is applied:

> *Light-moderate band*: if d <51 classify as light or ≥51 classify as moderate
>
> *Moderate-severe band*: if d <188 classify as moderate or ≥188 classify as severe, where d represents the cumulative number of egg clusters.

Sampling should be conducted any time after oviposition is complete. To do this a dominant or co-dominant tree is chosen and diameter at 1.3 m height is measured. The nearest dominant or co-dominant trees are then chosen and their diameter recorded until 20 trees are tallied. The tree with the smallest diameter is then used as a base line for sampling successive trees.

Table:

Table 2. Sequential plan for sampling Swaine jack pine sawfly, *N. swainei*, populations based on the number of egg clusters per tree.

No. of trees		Cumulative number of egg clusters							
	Light	≤	Continue Sampling	≥	Moderate	≤	Continue Sampling	≥	Severe
1		—		—		—		83	
2		—		—		—		102	
3		2		—		—		120	
4		7		—		—		139	
5		12		—		—		158	
6		17		44		49		177	
7		22		49		68		196	
8		27		54		86		214	
9		33		59		105		233	
10		38		64		124		252	

Table 2 redrawn with permission from the Canadian Entomologist, January 15, 2001.