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PEST REPORT

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Pinewood Nematode Host Exemption Surveys

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Forest Insect and Disease Survey

Summary

More than 800 cedar and hemlock logs from 10 storage yards were sampled for wood borers, including **Monochamus**, and more than 100 were sampled for pinewood nematode. None contained pinewood nematode. **Monochamus** wood borers or damage were not detected in cedar and were found in only one sample of western hemlock.

Between 25 January and 7 March 1990, FIDS Rangers R. Turnquist and N. Humphreys spent 26 man-days examining mainly western hemlock and cedar logs in 10 coastal dryland sorts for evidence of insects which could potentially vector pinewood nematode. Additionally, about 10 days were involved in the laboratory in dissections, nematode extractions, data summaries and reporting. This was in response to, and with considerable cooperation from, the Council of Forest Industries, to obtain information to further support the request for exemption under the pinewood nematode lumber ban of species such as cedar and hemlock.

Ten log-sorting yards, operated by five different companies drawing logs from Vancouver Island, midcoast areas, and the lower mainland were inspected (Table 1). Most of the logs had been cut 3 to 6 months previously, however all yards had at least a few older logs cut up to 2 years ago and these frequently had the most evidence of insect attack and were most closely inspected. More than 800 logs were carefully inspected with large patches of bark being stripped around and at intervals along each log. Of these, 386 were western redcedar, 370 western hemlock and 89 yellow cedar (Table 1). Log diameters ranged from 30-200 cm.

Insect damage or activity was detected in 177 (20%) of the logs and representative samples returned to the insectary for identification. Samples of the insect-affected portions of 87 logs and of 24 unaffected (unblemished) logs were also returned to the laboratory, cut into 2 x 20 cm chips and incubated for a week at room temperature; then, any nematodes were extracted by covering with water overnight, screening and concentrating using a Baermann funnel, followed by examination in a watchglass. Extractions and identifications were by F. Ring and Dr. J. Sutherland.

No **Monochamus** wood boring species were detected in the cedar logs and only 1 adult **M. scutellatus** and a larvae were detected in a single hemlock log. In the 20% of the logs which did have indications of insect activity, about three-quarters had only damage and old feeding evident, while larvae and occasionally adults were obtained from about one-quarter of the samples during detailed dissection and inspection in the laboratory. Insects which were identified but which are not known associates of the pinewood nematode were, in decreasing order of occurrence (Table 2) in western hemlock: a bark beetle, **Pseudohylesinus tsugae**; a wood borer, **Melanolophia drummondi**; ambrosia beetles, **Trypodendron lineatum**; and a cerambycid wood borer, probably **Xylotrechus longitarsis**. From cedar the insects detected were: a woodborer, **Semanotus ligneus**; bark beetles, **Phloeosinus punctatus**; false powder post beetles, **Anobiidae**; a cerambycid, probably **Ergates**; and a weevil, **Rhyncolus brunneus**. Although found only in small numbers, these insects were present in most of the log yards, generally in the older logs; however, they were predominately found in the bark or cambium level and would be removed during processing or easily detected during the mill certification program.

From the 111 logs sampled for nematodes, none contained pinewood nematode; however, the sampling method was effective, for about half the samples of each tree species contained other non-plant parasitic genera of nematodes, which are commonly associated with fungi or insects.

The above surveys and results did not detect pinewood nematode in either cedar or hemlock, and only one sample of its potential vector, **Monochamus** spp. in hemlock. This, along with previously reported negative results in seedling susceptibility trials and the historical records of insects found in these tree species, further supports the request for exemption of cedar and hemlock from the pinewood lumber ban.

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Table 1. Dryland sorting yards inspected for insect and nematode activity in hemlock and cedar logs.

Location/Company	Tree species[1]	Logs inspected (number)	Insect damaged logs		Logs sampled for nematodes		Source of logs
			No.	Percent	Insect infested	Unblemished	
Caycuse	wrC	60	30	50			Nitnat Lake and River
Fletcher Challenge	wH	60	31	52			drainage
Bear Lake	wrC	20	4	20	3	2	Salmon River-Sayward area
Interfor	wH	20	2	10	2	2	
	yC	20	4	20	4	1	
Beaver Cove	wrC	35	5	14	5		Nimpkish River
Canfor	wH	32	5	16	5		
	yC	1					
China Creek	wrC	35	9	26	5		Franklin River
Macmillan Bloedel	wH	35	4	11	4		
Sarita	wrC	30	9	30	5		Darling and Sarita River
MacMillan Bloedel	wH	30	6	20	5		
Eve River	wrC	40	6	15	6		Eve and Tsitika River
MacMillan Bloedell	wH	30	4	13	4		
	yC	10					
Hope	wrC	37	5	14	5	2	Upper Fraser River
Interfor	wH	35	8	23	5	2	
	yC	33	2	6	3		

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Location/Company	Tree species[1]	Logs inspected (number)	Insect damaged logs		Logs sampled for nematodes		Source of logs
			No.	Percent	Insect infested	unblemished	
Whonnock	wrC	40	1	3	1	2	North Shore Fraser River
Interfor	wH	38	3	8	3	2	
	yC	13	2	15	2	2	
Gibsons	wrC	38	9	24	5	2	River and Toba Inlets
Weldwood	wH	46	19	41	5	2	
	yC	12	1	8	1	1	
Squamish	wrC	51	5	10	5	2	Mamquam River
Weldwood	wH	44	3	7	3	2	
TOTALS	**wrC**	**386**	**83**	**22**	**41**	**10**	
	wH	**370**	**85**	**23**	**36**	**10**	
	yC	**89**	**9**	**10**	**10**	**4**	
TOTALS		**845**	**177**	**20**	**87**	**24**	

[1]wrC - western red cedar, Thuja plicata
wH - western hemlock, Tsuga heterophylla
yC - yellow cypress, Chamaecyparis nootkatensis

Table 2. Bark and wood boring insects detected in western hemlock and western red cedar logs in dryland sorting yards in coastal British Columbia, 1990.

Location	Log species	Insects Detected[1]								
		Mel.	P.t.	S.l.	Ph.p.	T.l.	R.b.	Cer.	Bup.	An.
Caycuse	wrC			X	X					
	wH	X	X					X		
Sarita	wrC			X	X			X		X
	wH	X	X			X		X		
China Creek	wrC				X					X
	wH	X	X			X		X		
Eve River	wrC			X	X					
	wH	X	X							
Beaver Cove	wrC						X	X		X
	wH	X				X		X		
Bear Lake	wrC			X	X					
	wH	X	X							
Hope	wrC			X	X			X	X	
	wH	X	X					X		
Whonnock	wrC			X					X	
	wH	X	X					X		
Avalon	wrC			X	X					X
	wH	X	X						X	
Squamish	wrC			X	X					
	wH	X	X					X		

[1]An. - Anobiidae - powder post beetles
Bup. - Buprestidae - metallic wood borers
Cer. - Cerambycidae - longhorned beetles
Mel. - Melanophila pr. drummondi - flatheaded fir borer
P.t. - Pseudohylesinus tsugae - A bark beetle
Ph.p. - Phloeosinus punctatus - cedar bark beetle
R.b. - Rhyncolus brunneus - a weevil
S.l. - Semanotus ligneus - cedar tree borer
T.l. - Trypodendron lineatum - striped ambrosia beetle