

## **Responding to the Artificial Introduction of HWA on Landscape Nursery Stock in Maine**

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### **Abstract**

Hemlock woolly adelgid (HWA) was found from 1999-2001 in Maine on hemlock nursery stock planted less than 5 years. All infested trees were linked to tree shipments from states infested with HWA. A response team was formed to deal with eradicating HWA for each infested site. News conferences were held to ask the public to assist in locating infested trees. A total of 100 infested hemlocks that were planted on 30 sites were destroyed. A total of 65 sites known to be planted with infested hemlock nursery stock are being monitored for a period of 5 years for signs of HWA.

### **Keywords :**

Maine, quarantine, nursery stock.

### **Introduction**

In 1999 hemlock woolly adelgid (HWA), *Adelges tsugae* Annand, was found in Maine for the first time on a planted landscape hemlock that was linked to a shipment of uncertified trees from Connecticut. In response to this find, the Maine Forest Service Forest Health and Monitoring Division and the Maine Department of Agriculture Plant Industry Division formed a team to locate and treat planted hemlocks from the infested shipment. For the next two years, newspaper and television news announcements were used to ask for the public's help in locating infested trees. In addition to locating the trees from the 1999 shipment, infested hemlock trees from other shipments were also found during 2000 and 2001.

### **Summary**

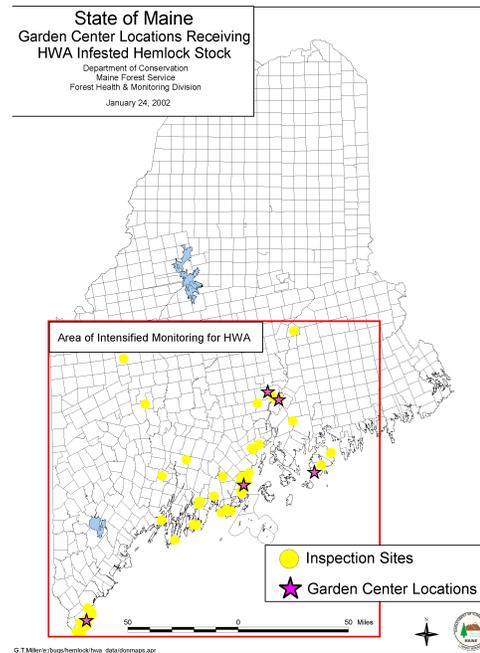
The State of Maine considers HWA a threat to its native eastern hemlock resource and established an external quarantine against this introduced pest in 1988 to prevent its entry into the state. Hemlock is abundant in Maine in scattered stands throughout the state. It is used for construction lumber and pulp, accounts for 9% of the softwood inventory and 10% of the annual forest product consumption in Maine. The species is also commonly used in landscape plantings. The majority of hemlock nursery stock sold in Maine comes from out of state, and prior to 2000 often came from areas infested with hemlock woolly adelgid. The quarantine regulations were revised in 2000 to prohibit the shipment of all hemlock nursery stock into Maine from regulated areas.

In August of 1999, HWA was found on a planted hemlock in Cape Neddick, Maine. The tree was linked to a shipment of 165 uncertified trees from Connecticut that were received and sold from two garden centers located in York and Rockport. The garden center in York had received 130 trees and sold 69 by the time the infested tree was found. The garden center in Rockport received 35 trees which were mixed with 60 hemlocks and sold. The Plant Industry Division of the Maine Department of Agriculture and the Forest Health and Monitoring Division of the Maine Forest Service worked together to locate the trees. A series of announcements in newspapers and television news releases asked the public to report to the garden centers if they had purchased hemlocks at one these two garden centers. By the end of November, 1999, all but 14 of the hemlocks were located and inspected, and by mid summer, 2001, only 3 trees remained unaccounted for. The only infested tree from the 1999 shipment was the one reported in Cape Neddick. Four infested hemlocks were also found in Bar Harbor. The trees had been shipped to a garden center in Tremont and planted in 1998. Results of the efforts to locate from the uncertified shipments of hemlocks in 1999 are summarized in Table 1.

**Table 1. Fate of Uncertified Hemlock Trees Sold in 1999.**

Garden Cntr.	County	Town	No. Sites	No. Trees	No. Trees Infested
Rockport	Cumberland	Brunswick	1	5	0
Rockport	Franklin	Industry	1	2	0
Rockport	Franklin	Carrabasset Val.	1	2	0
Rockport	Kennebec	Augusta	1	2	0
Rockport	Knox	Camden	17	49	0
Rockport	Knox	Cushing	1	2	0
Rockport	Knox	Glen Cove	1	1	0
Rockport	Knox	Rockland	4	5	0
Rockport	Knox	Rockport	2	5	0
Rockport	Knox	Tenants Harbor	2	5	0
Rockport	Knox	Union	1	1	0
Rockport	Lincoln	Damariscotta	1	1	0
Rockport	Lincoln	Jefferson	1	3	0
Rockport	Lincoln	Newcastle	1	4	0
Rockport	Lincoln	South Bristol	1	13	0
Rockport	Lincoln	Southport	1	2	0
Rockport	Lincoln	Waldoboro	2	10	0
Rockport	Waldo	Belfast	2	4	0
York	York	Cape Neddick	3	13	1
York	York	York	<u>12</u>	<u>44</u>	<u>0</u>
Totals:			56	173	1

All sites with infested hemlocks were treated with horticultural oil. Hemlocks within 100 feet of the planted hemlocks were also sprayed. A total of 51 sites in 21 towns with planted trees from the uncertified shipment are being monitored and inspected by the Maine Forest Service Forest Health and Monitoring Division each spring for 5 years (Figure 1).



**Figure 1.** Hemlock Planting Sites under Surveillance for HWA in Maine.

**Spring 2000 Monitoring Inspections and Surveys.** In the spring of 2000, the 51 sites with planted trees from the 1999 shipment were inspected. Hemlock woolly adelgid was found on a total of 7 trees at 4 sites in the towns of Camden, Cushing, and York. Hemlock woolly adelgid was also found on 32 planted trees at 9 sites in 9 towns on trees other than those received in 1999. These finds were in the towns of Bar Harbor, Boothbay, Brewer, Bristol, Ellsworth, Georgetown, Northeast Harbor, Kittery Point, and York. The new finds were a result of media releases in the spring that generated over 500 requests from the general public. All finds were on landscape hemlocks ranging in size from 3 feet to 18 feet and planted within 1 to 5 years. All sites with infested hemlock trees were either treated with horticultural oil plus Talstar or the infested trees were destroyed. All planted and native hemlocks up to 300 feet away from infested trees were included in the spray treatment. New sites were scheduled to be watched for signs of HWA infestations for a period of 5 years.

**Spring 2001 Monitoring Inspections and Surveys.** Hemlock woolly adelgid was found on 29 trees at 7 sites in the towns of York, Cape Neddick, and Searsport during inspection of the planted trees from the 1999 shipment. Hemlock woolly adelgid was also found on 27-planted trees at 8 sites in 5 towns on trees other than those received in 1999. The new finds were in the towns of

Bangor, Cape Neddick, Kittery, Kittery Point, and York. With the exception of a site in Kittery Point, all trees were purchased as landscape nursery stock. On two adjoining properties at the Kittery Point site, a trace of HWA was found on three native hemlocks, 4, 15, and 28 feet tall growing next to houses and all within 200 feet of an infested spreading hemlock that had been in the ground for up to 15 years. Hemlock woolly adelgid was not found to be established in other native hemlocks in the yard. All planted and native hemlocks up to 300 feet away from infested trees were included in the spray treatment. New sites were scheduled to be watched for signs of HWA infestations for a period of 5 years.

***Current Status of HWA in Maine.*** A total of 173 infested or unsold hemlocks were found and destroyed during the 1999 - 2001 period. Hemlock woolly adelgid occurred in 100-planted trees on a total of 30 sites (Table 2). Hemlock woolly adelgid was never found to be established in native hemlock stands. All of the planted trees were on residential landscape sites and all but 6 found in Kittery Pt. in 2001 (as discussed above), are known have originated from other states. Over 65 residential sites with hemlocks from infested shipments are currently being monitored and checked annually for signs of HWA (Figure 1).

**Table 2. HWA Finds on Landscape Hemlocks in Maine.**

Year	On Trees from 1999 Shipment		On Other Trees	
	No. Trees	No. Sites	No. Trees	No. Sites
1999	1	1	4	1
2000	7	4	32	9
2001	29	12	27	8
Total:	37	12	63	18

### **Acknowledgments**

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