

THE WILLOW SHARPSHOOTER *GRAPHOCEPHALA CONFLUENS* (UHLER)  
NEW PEST IN POPLAR TREE PLANTATIONS

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### Introduction

Poplar tree plantings are being explored as an alternative forest products commodity in the Treasure Valley of eastern Oregon and SW Idaho. Damaging infestations of a species of leafhopper, Homoptera: Cicadellidae, were observed in a poplar tree plantation (*hybrid of Populus deltoides x Populus nigra*) located at the O.S.U. Malheur Experiment Station (MES) during the 1999-2001 growing seasons. 1999 was the third growing season of the trees and first year of the observed infestation by this new pest. The damaging impacts of the insect were under estimated and the infestation was not treated until September 4. The high population densities and feeding by the insects injured leaf buds and caused noticeable stunting of tree branch terminals and whole trees during 1999-growth cycle. In 2000 the leafhoppers were detected and treated much earlier in the season. Residual stunting of trees was observed even through the 2001 season from the previous year's insect activity. During all three years leafhopper outbreaks were treated at least once per season with aerial applied insecticides. Commercial poplar growers in the western Treasure Valley also reported observing and treating for leafhopper infestations over the last three years. The purpose of this study was to identify the species of cicadellids and conduct preliminary observations on sampling methods and population dynamics of the insect during the 2001 season. The outbreak of this insect and its potential pest status in commercial poplar tree plantations have not been previously reported in the Pacific Northwest.

### Methods

In May 2000 insects were collected and sent first to the O.S.U. Department of Entomology and then forwarded to the USDA, ARS Systematic Entomology Laboratory in Washington D.C. S. McKamey of the ARS SEL made the species determination.

During the 2001 season, sampling methods were tested at the O.S.U. MES, near Ontario, OR in a 5-acre poplar tree plantation. Sampling methods included 1) aerial sweeps of the tree canopy using a large net with 15-foot extension handle. 2) visual inspections of foliage on the epicormic branches (trunk sprouts) from the lower trunk and 3) use of yellow sticky Apple Maggot (AM) traps suspended from the lower branches of the tree canopy. All sampling methods were replicated and conducted on a weekly basis from April 1 to July 31 during the 2001-growing season. The sticky traps were used to monitor adult population levels. Aerial net and leaf observations recorded both adult and nymphal populations levels of the leafhopper. Sampling and observed population trends assisted in timing of insecticide treatments to the plantation.

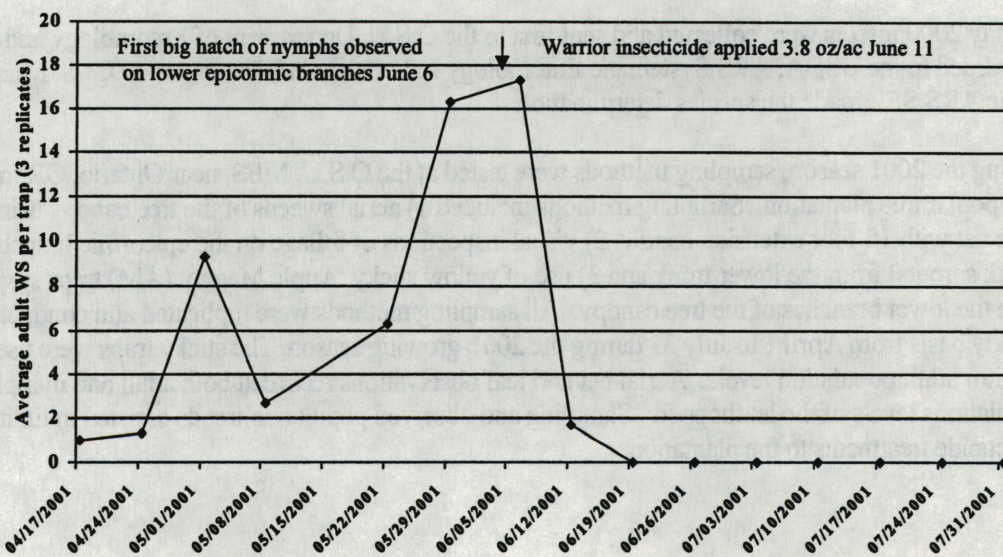


## Results

**Species Identification:** ARS SEL identified the leafhopper as *Graphocephala confluens* (Uhler). The unofficial common name designation is the Willow Sharpshooter (WS). A literature search resulted in a dearth of papers which mention this species and virtual no information about the species' pest status in poplar trees. Hardy (1942) observed this insect, using the synonym *Cicadella hieroglyphica* var. *confluens* (Uhler), "as a nuisance due to abundance" to the residence of White Swan, WA. He goes on to describe the probable host for the insect as willow trees in a nearby riparian habitat. More recently *G. confluens* (syn. *Neokolla confluens*) has been implicated as a vector of plant pathogens including Pierce's disease (Frazier and Freitag, 1946) (Wolfe, 1955) (Purcell, 1980). The possible existence of a leafhopper vectored plant pathogen infecting the poplar trees and contributing to the observed symptoms in the plantation is currently under study.

**Sampling Methods:** Of the three sampling methods the yellow AM sticky traps appeared most useful in detecting adult population trends of WS in the plantation. The numbers peaked on May 29 and June 6 with average adults per weekly trap collection at 16 and 17 WS respectively (Figure 1). The aerial net sweep samples only recovered trace levels through out the sample period. Observations of the leaves on epicormic branches (trunk sprouts) detected a hatch of small nymphs, which coincided, with the trap catch peak of June 6. Aerial treatment of the plantation with Warrior insecticide at 3.8-oz formulation per acre was applied on June 11. Control was excellent and only trace levels of WS were observed during the remaining sampling period through July 31. No additional infestations occurred during the 2001 season. Although the aerial net counts were low during the 2001 season, the authors speculate that because of the timely and effective insecticide treatment, populations of leafhoppers did not build up to levels observed in the '99 and '00 seasons. Aerial sampling would most likely have caught adult insects as they spread to the upper tree canopy during those seasons. Under the conditions of this study it appears that yellow sticky AM traps may be a useful sampling tool to predict population trends of adult Willow Sharpshooter, forecast early detection of the first nymphal hatch and help effectively time insecticide applications.

**Figure 1. Willow Sharpshooter (WS) Weekly Trap Catches, (Yellow AM Trap) in Poplar Plantation, OSU Malheur Experiment Station, Ontario, OR 2001**





### Literature Cited

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