Section III
Biological & Cultural Control

CEREAL LEAF BEETLE BIOLOGICAL CONTROL PROGRAM IN OREGON, 2007

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Introduction

Cereal leaf beetle (CLB), *Oulema melanopus*, was previously detected in 19 counties: Baker, Benton, Clackamas, Columbia, Crook, Deschutes, Jefferson, Lane, Linn, Malheur, Marion, Multnomah, Polk, Tillamook, Umatilla, Union, Wallowa, Washington, and Yamhill. Surveys in 2007 did not detect CLB in any new counties.

In 2007, ODA, USDA, and OSU continued cooperation on the CLB biocontrol program to monitor, release, and redistribute the two parasitoid wasp species, *Anaphes flavipes* and *Tetrastichus julis*, within the CLB infested counties in Oregon.

Egg parasitoid – *Anaphes flavipes*

Releases of the egg parasitoid, *Anaphes flavipes,* have been made in Oregon since 2000. Two field insectaries in Washington Co., at Banks and Scholls, one in Union Co., and various growers' fields in Washington and Linn counties, have been utilized as release sites since 2000. After releases in 2002 and 2003, recovery efforts in Banks in 2004 and 2005 showed approximately a 30% parasitism rate (PR) which decreased to zero in 2006 and 2007. The Banks insectary was not funded in 2007, but some samples were still taken from there and surrounding fields within half a mile. Releases were made at the Scholls insectary during 2004 and 2005. Monitoring during 2006 yielded the first overwintering recovery there, but only from one collection in mid-June with a PR of approximately 5%. Recovery rates dropped to zero in 2007. Releases were also made at the OSU Agricultural Research Center insectary site in Union County in 2005. However, due to very low CLB levels in Union County, the insectary was discontinued, and there was no release or recovery activity there in 2006 and 2007. Recovery efforts will be a priority in Union County in 2008. All releases of *A. flavipes* in 2006 were made, with a grower's permission, at two fields in Scio, Linn County. Those fields were monitored and found negative for *A. flavipes* in 2007. To date no wasps have become permanently established at detectable levels at any of the sites. It may take many years for populations to increase and stabilize.

The source for *A. flavipes* release material has been the Colorado Department of Agriculture's biocontrol facility in Palisade, Colorado. Unfortunately the lab suffered a colony collapse during the winter of 2006-07. Oregon sent 15,827 adult CLB to Colorado to help re-establish the lab colony. Due to the time involved to rebuild the colony, only one release of approximately 4,285 *A. flavipes* was made in Oregon at the Scholls insectary in Washington County in 2007. Releases were made there so as not to interfere with recovery efforts at the Scio release sites. CLB adults were also sent to the WSU's quarantine lab for use in rearing *Anaphes nipponicus* shipped from China. (See report by Barry Bai regarding foreign exploration in China for *A. nipponicus*.)

Larval parasitoid – *Tetrastichus julis*

The goals for the *T. julis* program in 2007 were to determine the distribution and parasitism in central Oregon and Umatilla and Wallowa counties, and to collect and redistribute *T. julis* within the state. To determine *T. julis* distribution and parasitism rate, CLB-positive field sites were located for sampling. Collected larvae were routinely dissected for parasitism assessment. Widespread recovery of *T. julis* was found in 2006 with exceptionally high PRs, including locations where it had not been previously released. In 2007, the peak PRs of *T. julis* found in each county tested were as follows: Baker (85%), Crook (24%), Jefferson (5%), Linn (100%), Marion (100%), Multnomah (100%), Umatilla (80%), Washington (68%). A few sites were also tested in Deschutes and Wallowa counties but were found negative for *T. julis*.

For the second year, in 2007 *T. julis* releases were made entirely from materials collected within Oregon. The OSU insectary fields in Benton and Union counties were discontinued in 2007 as those areas have high *T. julis* and low CLB populations in recent years. In fact, it has become difficult to find CLB in collectable numbers in Union County. The OSU insectary field at the Central Oregon Agricultural Research Center in Madras, Jefferson County, was the only one that received *T. julis*, and additional adult CLB were released to increase CLB numbers there. Larvae parasitized with *T. julis* were also released in growers' fields in central, eastern and northwest Oregon. The numbers of CLB larvae (and estimated number of *T. julis*) released in each county in 2007 are: Crook, 745 (2,581); Deschutes, 200 (600); Jefferson, 7,300 (10,461); Marion, 250 (525); Wallowa, 700 (2,040). The parasitism rates among CLB release material from all areas ranged from 18 to 100%. This year was the first release of *T. julis* in Wallowa County. *T. julis* continues to establish well in release areas. Samples from a 2006 Umatilla County release site showed an 80% PR in 2007. Crook County had a 24% PR in one field after only a small release in 2002. Jefferson County yielded a 5% PR after initial releases in 2006.

A 2007 pesticide usage survey by USDA is pending. The same survey in 2006 suggested that possibly due to our biological control effort and perhaps other factors, the acres treated with pesticides continued to decrease in 2006 to 20,554 acres.

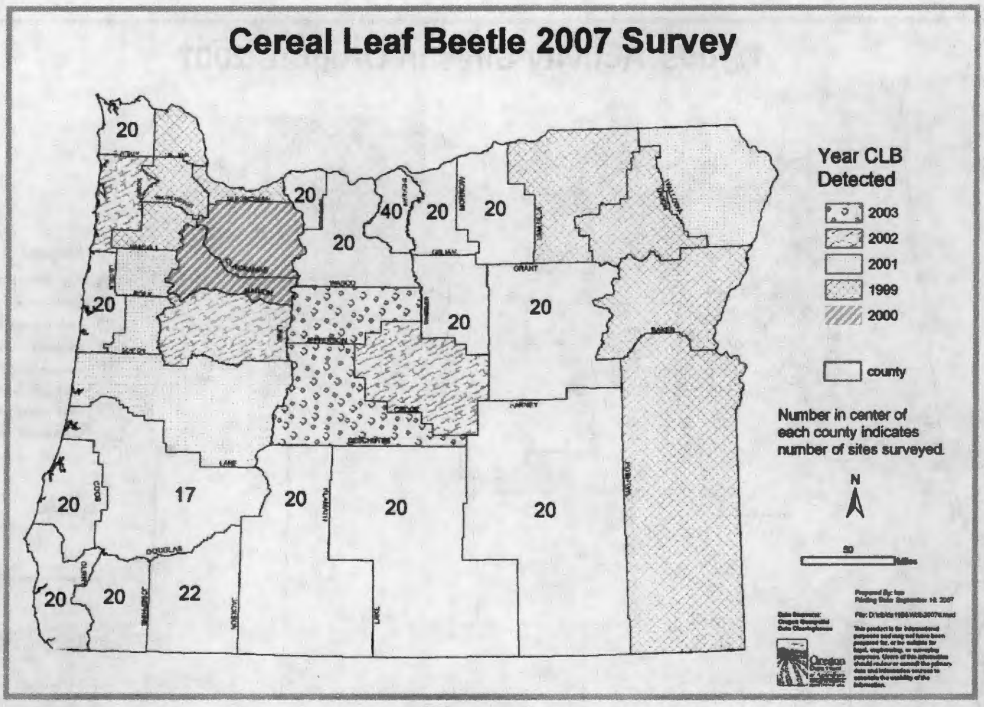

Figure 1

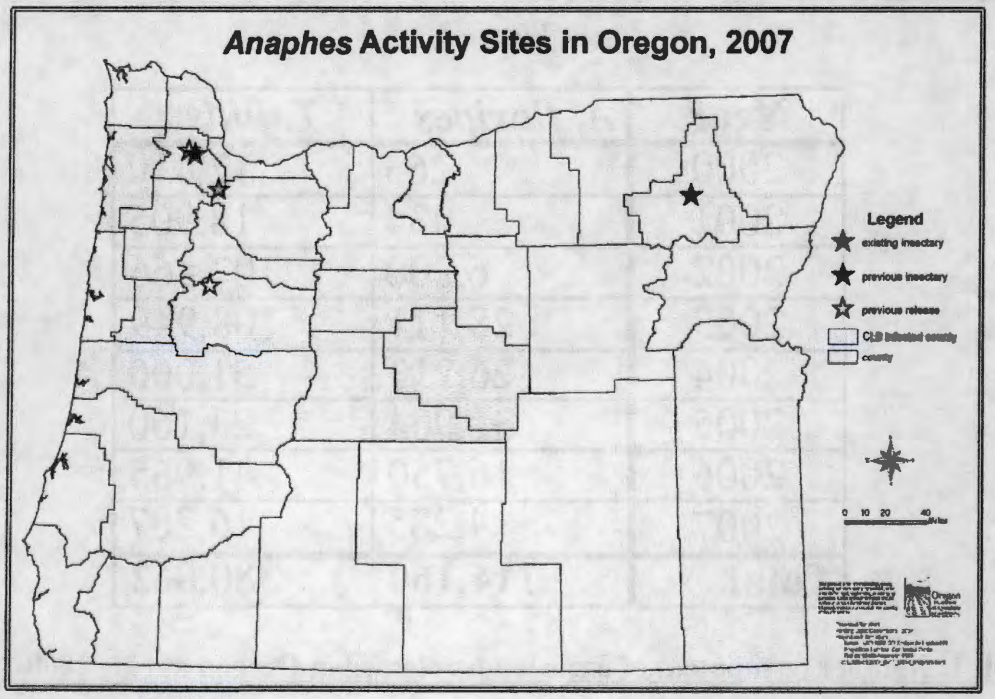

Figure 2

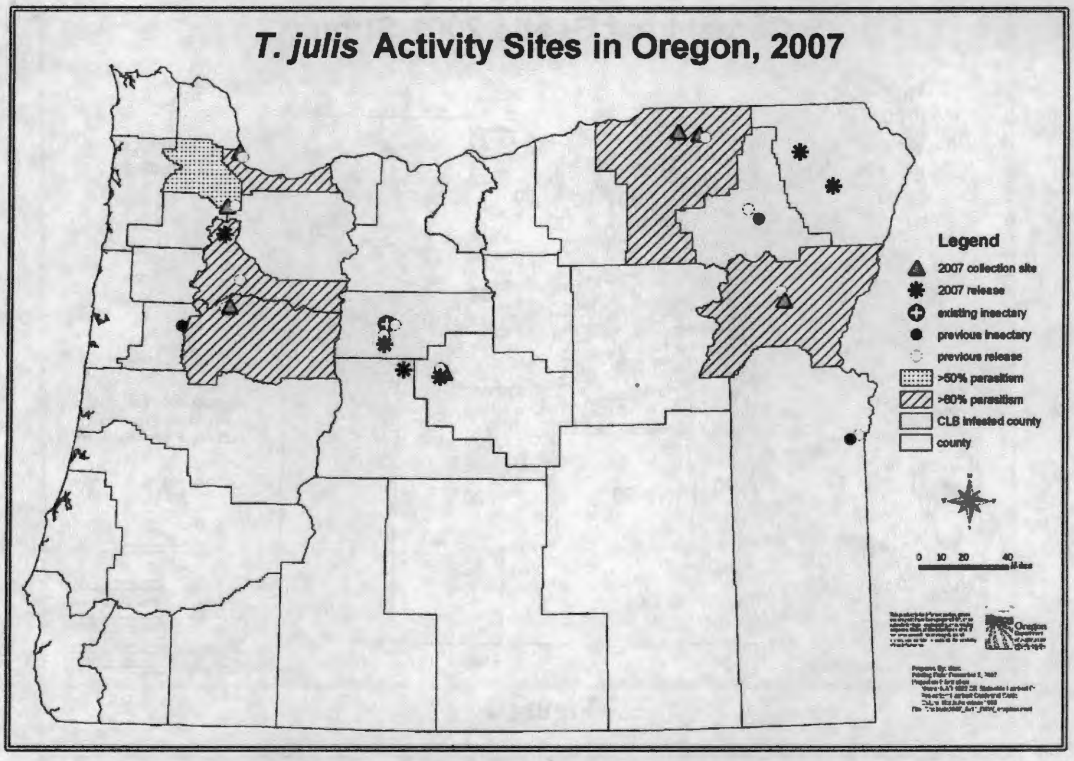

Figure 3

Year	*A. flavipes*	*T. julis*
2000	263	12,310
2001	434	18,905
2002	6,200	107,566
2003	28,111	108,949
2004	26,213	51,000
2005	31,904	23,160
2006	16,750	41,965
2007	4,285	16,207
Total	**114,160**	**380,062**

Table 1. Number (estimated) of parasitoids released in Oregon during 2000-2007.