

Light Brown Apple Moth Report June 23, 2009



Background:

The light brown apple moth (LBAM), *Epiphyas postvittana* (Tortricidae), is a native pest of Australia. It is also found infesting New Zealand, the United Kingdom, Ireland, New Caledonia, and Hawaii. On February 6, 2007, the California Department of Food and Agriculture (CDFA) was informed that LBAM had been detected in a light trap in Berkeley maintained by a University of California Professor Emeritus. The sample was identified by Australian entomologist Dr. Marianne Horak. There were two unofficial detections in this trap, on July 19, 2006 and November 19, 2006. In response to these unofficial detections, delimitation traps were placed in February of 2007, in a 2.5 mile radius around the site. During the first inspection of these traps, LBAM were detected in both Alameda and Contra Costa Counties. In response detection and delimitation trapping continued throughout the Bay Area, with a total to date of thirteen Counties having detections of LBAM. Trapping was extended State-wide. Larval finds were subsequently found in several locations. Following the issuance of a State Interior Quarantine and a Federal Executive Order regulating the affected area, an emergency project was initiated under joint County/CDFA/USDA management operating under Incident Command now based in Moss Landing. Program components include detection trapping, diagnostics, and inspection of commodities, plants in nurseries and growing areas, regulatory, and treatment.

LBAM is of particular concern because it can damage a wide range of crops and other plants including California's prized cypress as well as redwoods, oaks and many other varieties commonly found in California's urban and suburban landscaping, public parks and natural environment. The list of agricultural crops that could be damaged by this pest includes grapes, citrus, stone fruit (peaches, plums, nectarines, cherries, apricots) and many others. The complete "host list" contains well over 2,000 plant species and more than 250 fruits and vegetables.

LBAM Program in Contra Costa County

The County Department of Agriculture is involved in two key aspects of activity with LBAM, *detection trapping* and *regulatory enforcement* of the quarantine. Both are performed under contract with CFDA with most of the funding provided by USDA.

Detection trapping consists of placement and bimonthly inspection of pheromone baited insect traps. These traps are placed at the rate of 5/square mile in all urban areas of the county. Rural traps and traps in cropland areas are also placed by both our department and CDFA. The same traps are also used in a delimitation pattern that consists of 550 traps placed in a ten square mile area when a single isolated moth is found outside of the quarantined area. Delimitation trapping is mostly done by CDFA.

Regulatory enforcement of the quarantine area is performed to stop the artificial movement of LBAM to areas remote from infested areas. Activities by the County Department of Agriculture assure that those industries involved in the growing and movement of host material can continue to operate if they meet the quarantine regulations. Growers are required to have a Certificate of Compliance Agreement issue by our department. For retail plant nurseries monthly inspections are performed by our department certifying that the nursery is free of LBAM. These inspections are performed twice each month for production plant nurseries. Growing grounds for farmers that sell at Certified Farmer's Markets are inspected monthly during the harvest season. Large and small fields, orchards and vineyards located inside of the quarantine area that produce non exempt host commodities must be inspected not greater than 30 days prior to harvest. Nurserymen and some growers are also required to have in place an integrated pest management plan designed to reduce or eliminate moths of the Tortricidae family.

History in Contra Costa County

Intense quarantine regulatory activities have contained LBAM mostly to a natural spread from initial detection areas. Eradication of extremely small satellite infestations in Santa Barbara and Los Angeles Counties has been achieved using pheromone infused twist ties that disrupted mating patterns of the moth. In Contra Costa County two such satellite infestations, one in Oakley and one in Danville were also eradicated in 2007 using the same technique. Unfortunately, the natural progression of the moth from the core infestation area has overtaken these same two areas as well as all of west, central county and portions of east county that includes Pittsburg, Antioch and most of Oakley. In early June 2009 an isolated moth was found in Brentwood.

As stated above the first detection traps were deployed in February 2007 with first finds in the Richmond area of our county on first servicing the traps in March 2007. By April 2007 the entire county was trapped at a rate of five traps per square mile in urban areas.

At the end of the first full year of trapping (end of March 2008) a total of 187 male LBAM were trapped, mostly in the core area of West County. Most of the traps in the

core area contained zero or one or two moths per servicing with six as the highest moth count in one trap.

Contra Costa Light Brown Apple Moth Statistics By City

3/31/08

		Number of Moths Found
Richmond		108
El Cerrito		33
Kensington		3
San Pablo		4
El Sobrante		4
EBRP (Tilden/Wildcat)		14
Martinez		1
Orinda		3
Concord		2
Lafayette		2
Pinole		1
Danville	(Eradicated)	6
Moraga		3
Oakley	(Eradicated)	3
Briones		3
Totals		187



(This trap shows two LBAM male moths that was more typical in the core area the first year. The rubber eraser looking item is the pheromone infused bait)

By the end of the second full year of trapping (end of March 2009) 3,202 LBAM were trapped. In the core areas of the county it was not uncommon to have per trap moth counts in the 20's, 30's and 40's. One trap serviced had 49 moths.

Contra Costa Light Brown Apple Moth Statistics By City

3/31/2009

	Number of Moths Found
Richmond	1715
El Cerrito	1123
San Pablo	57
Kensington	94
El Sobrante	47
Orinda	23
Martinez	23
EBRP (Tilden/Wildcat)	38
Pinole	10
Concord	13
Lafayette	10
Hercules	10
Moraga	4
Danville	9
Walnut Creek	7
Pleasant Hill	4
San Ramon	2
Crockett	1
Alamo	2
Oakley	3
Briones	3
Rodeo	2
Pittsburg	1
Antioch	1
Totals	3202



(This trap shows twenty plus LBAM male moths, typical in the core area the second year.)

And as of June 17th, 2009 a total of 5,143 LBAM have been trapped.

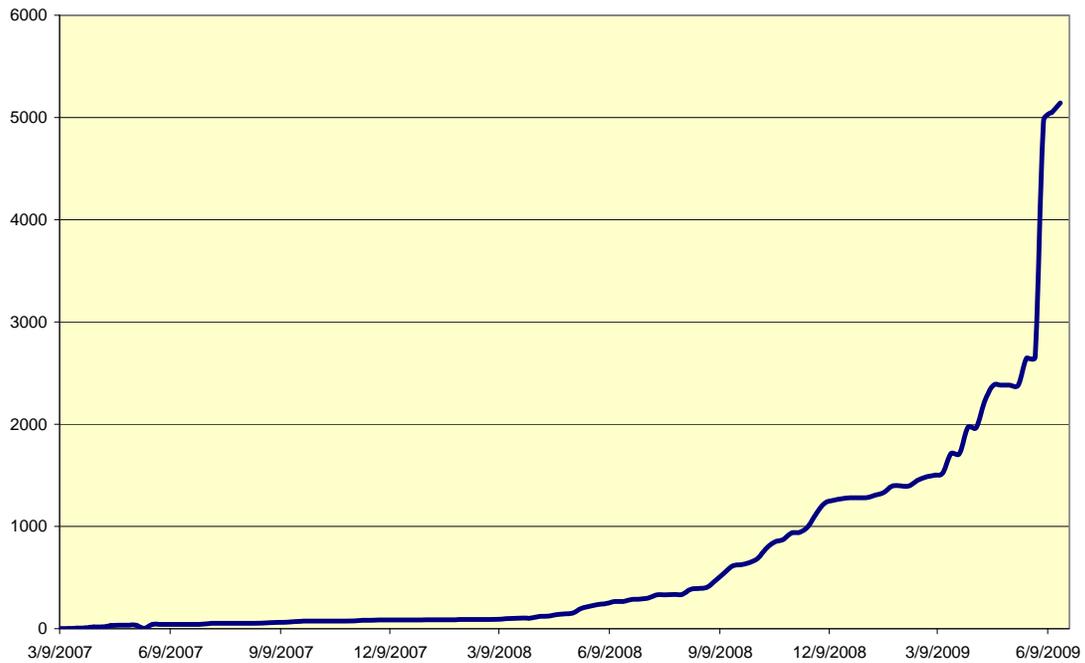
Contra Costa Light Brown Apple Moth Statistics By City

Updated 6/17/09

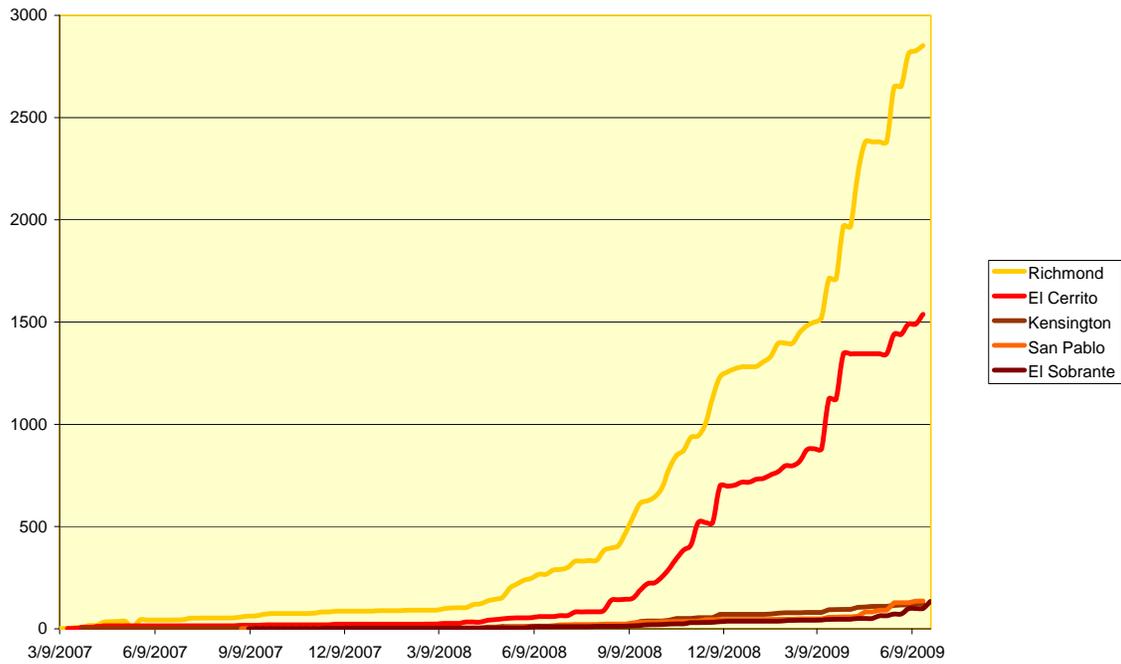
	Number of Moths Found
Richmond	2852
El Cerrito	1538
San Pablo	136
Kensington	122
El Sobrante	140
Orinda	74
Martinez	55
EBRP (Tilden/Wildcat)	38
Pinole	38
Concord	24
Lafayette	20
Hercules	16
Moraga	14

Danville	11
Walnut Creek	12
Pleasant Hill	7
San Ramon	8
Crockett	6
Alamo	5
Oakley	4
Briones	4
Rodeo	5
Pittsburg	4
Antioch	3
Port Costa	2
Canyon	2
Clayton	1
Brentwood	1
Pacheco	1
Totals	5143

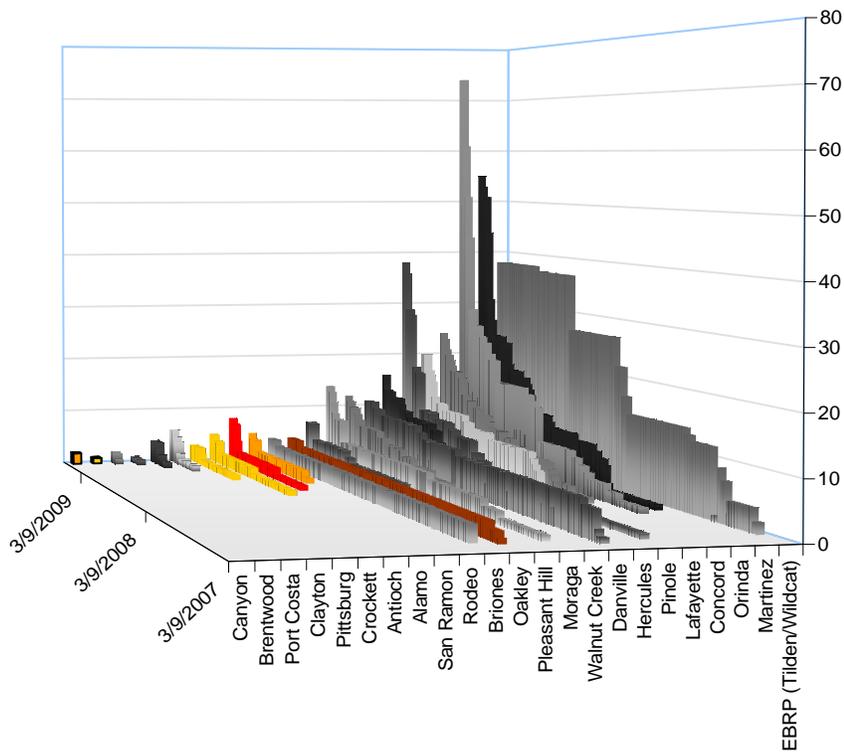
Total moths found in Contra Costa County through June 17, 2009



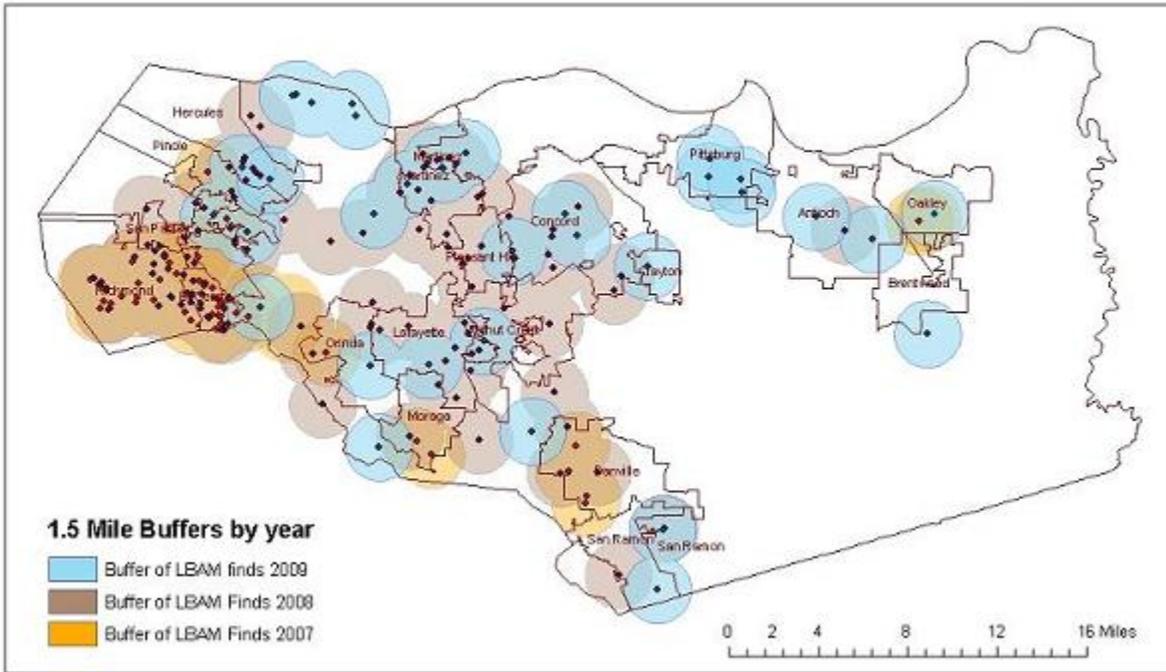
Cities in Contra Costa with greater than 100 moths (6/17/09)



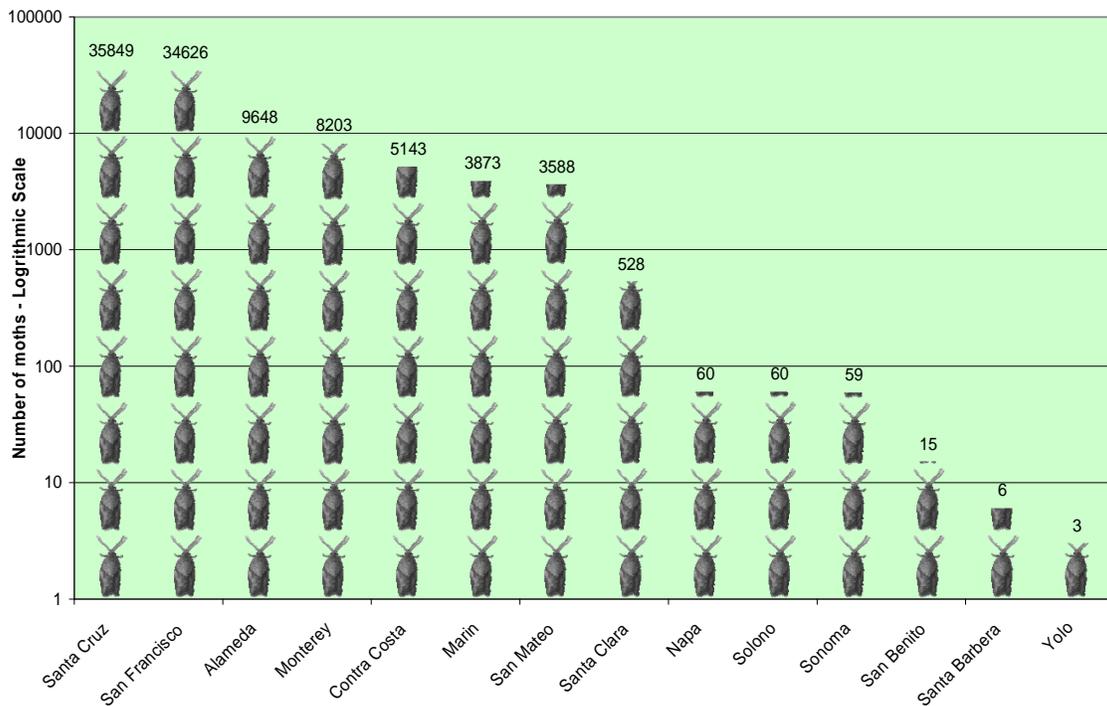
Cities/Areas in Contra Costa with fewer than 100 moths (6/17/09)



LBAM Finds of Contra Costa County 6/4/2009



Total Finds by county (June 11, 2009)



What does the future hold?

As demonstrated in the above charts, the LBAM population in West County has greatly increased in density as it has also slowly moved eastward into Central County during 2008 and now, into East County. Unfortunately, the natural progression of this pest has been virtually unabated since aerial sprays of LBAM pheromones were halted in November of 2007.

The California Department of Food and Agriculture and the U. S. Department of Agriculture are the lead agencies charged with LBAM eradication. LBAM will continue to spread until the eradication effort resumes. Before the eradication program can begin, an Environmental Impact Report (EIR) must be completed. A lot of work has been put into the EIR and it is due out by the end of June. It is then subject to a 60 day comment period.

The primary method which will be used by CDFA and USDA to try to eradicate LBAM will be Sterile Insect Technology (SIT). This method involves the mass rearing and release of large numbers of sterilized male moths which mate with wild female moths. Other techniques will also be considered (see Appendix I).

We will keep up to date information on LBAM on our website. CDFA also has LBAM information on it's website at http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam_main.html