

## Ash Whitefly, *Siphoninus phillyreae* (Haliday) (Insecta: Hemiptera: Aleyrodidae: Aleyrodinae)<sup>1</sup>

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### Introduction

Ash whitefly, *Siphoninus phillyreae*, was described as *Aleyrodes phillyreae* by Haliday (1835), on *Phillyrea latifolia* collected in Dublin, Ireland. It has several synonyms listed in Mound and Halsey (1978). In the United States, *S. phillyreae* was first collected in Los Angeles County, California in 1988, and has since spread to Kern, Orange, Riverside, Sacramento, San Bernardino, San Diego, Santa Barbara, Santa Clara, Stanislaus, Tulare and Ventura counties. Most ash whiteflies in California were found on pomegranate, ash tree, pear, apple, loquat and citrus. It causes severe damage to pear and apple in Europe. Heavy infestations caused leaf wilt, early leaf drop and smaller fruit (Bellows *et al.* 1990). If this whitefly is introduced into Florida we expect it to become a pest of ornamental plants and possibly other crops.

### Distribution

*Siphoninus phillyreae*, a Palaearctic species, is found in several countries, including: Austria, Cameroon, Corsica, Czech Republic, Cyprus, Egypt, England, Ethiopia, France, Germany, India, Iran,

Hungary, Ireland, Israel, Italy, Libya, Morocco, Pakistan, Poland, Romania, Saudi Arabia, Spain, Sudan, Syria, Switzerland, Yugoslavia, and United States (Arizona, California and Nevada) (Mound and Halsey 1978, Bellows *et al.* 1990, and Raymond Gill, personal communication, Chris Baptista, personal communication).

### Description

On first observation the pupal case will appear similar to the white male armor of a snow scale (Figure 1). Closer observation with a hand lens will reveal a whitefly pupal case with two longitudinal tufts of white wax. The vasiform orifice is surrounded by dark brown derm, with the anal area appearing as a dark brown spot. Lateral areas of the pupal case are light beige. Depending on the age, lesser or greater amounts of white wax will be present (Figure 2). The dorsal surface has 40 to 50 long glassy tubercles similar to the cornicles found on aphids. These tubercular structures produce a droplet of glassy wax and this gives the pupal case an unusual appearance. The longitudinal white tufts of wax obscure some glassy tubercles (R.J. Gill, personal communication).

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The pupal case size is 0.8 to 1.0 mm long by 0.55 to 0.7 mm wide (Mound 1966). The adult (Figure 3) appears much like a typical whitefly with a light dusting of white wax.



**Figure 1.** Pupal cases and nymphs of the ash whitefly, *Siphoninus phillyreae* (Haliday), on host plant. Credits: C.H. Webb, Division of Plant Industry

### Host Plants

*Siphoninus phillyreae* is a polyphagous species and is found on several plant families, (modified from Bellows et al. 1990) including:

- Bignoniaceae: *Catalpa X chilopsis*, catalpa hybrid
- Leguminosae: *Azalia* sp., pod mahogany; *Cercis occidentalis*, western redbud; *C. siliquastrum*, Judas tree
- Lythraceae: *Lagerstroemia indica*, crape myrtle



**Figure 2.** Pupal case of the ash whitefly, *Siphoninus phillyreae* (Haliday), showing glassy wax droplets. Credits: C.H. Webb, Division of Plant Industry

- Magnoliaceae: *Liriodendron tulipifera*, tulip tree; *Magnolia stellata*, star magnolia
- Oleaceae: *Fraxinus excelsior*, European ash; *F. latifolia*, Oregon ash; *F. ornus*, flowering ash; *F. syriaca*, Serian ash; *F. uhdei*, Shamel ash; *F. uhdei* 'Tomlinson', Tomlinson ash; *F. velutina* 'Modesto', Modesto ash; *F. velutina* var. *glabra*, Arizona ash; *F. velutina* var. *coriacea*, western ash; *Ligustrum* spp., privets; *Olea africana* (= *Olea chrysophylla*), wild olive; *O. europaea*, common olive; *Phillyrea latifolia* (= *Phillyrea media*), a phillyrea; *Syringa X hyacinthiflora*, a common lilac; *S. laciniata*, cut-leaf lilac; *S. vulgaris*, common lilac
- Punicaceae: *Punica granatum*, pomegranate
- Rhamnaceae: *Rhamnus alaternus*, buckthorn; *Ziziphus spina-christi*, crown of thorns



**Figure 3.** Adult ash whitefly, *Siphoninus phillyreae* (Haliday). Credits: C.H. Webb, Division of Plant Industry

- Rosaceae: *Amelanchier denticulata*, serviceberry; *Chaenomeles X speciosa*, flowering quince; *Crataegus mollis*, hawthorn; *C. monogyna*, English hawthorn; *C. laevigata* (= *C. oxyacantha*), hawthorn; *Cydonia oblonga*, quince; *Eriobotrya deflexa*, golden loquat; *Heteromeles arbutifolia*, California Christmas berry; *Malus domestica*, apple; *M. floribunda*, Japanese flowering crab; *M. fusca*, Oregon crabapple; *Malus 'Hopa'*, a crabapple; *Malus 'Red Jade'*, a crabapple; *Malus X scheideckeri*, Scheidecker crabapple; *Mespilus* sp., mespilus; *Prunus armeniaca*, apricot; *P. X blireiana*, blue plum hybrid; *P. persica*, peach; *P. salicina*, Santa Rosa plum; *P. virginiana* var. *melanocarpa*, choke cherry; *Pyracantha* sp., pyracantha; *Pyrus calleryana*, ornamental pear; *P. communis* (= *P. sativa*), pear; *P. kawakamii*, flowering pear; *P. pyrifolia*, Japanese sand pear

- Rubiaceae: *Cephalanthus occidentalis* var. *californicus*, buttonbush
- Rutaceae: *Citrus* sp., tangerine; *C. limon*, lemon; *C. sinensis*, navel orange; *C. sinensis*, Valencia orange; *Fortunella* sp., kumquat.

## Natural Enemies

Ash whitefly has the potential to become a serious pest in new environs. However, it has several natural enemies that can control its populations to under economic thresholds. These natural enemies include (Mound and Halsey 1978; Bellows et al. 1990; Viggiani and Mazzone 1980; Viggiani and Battaglia 1983):

Predators: *Clitostethus arcuatus* (Rossi), *Menochilus* sp., and *Scymnus pallidivestis* Mulsant.

Parasites: *Coccophagus eleaphilus* Silvestri, *Encarsia gautieri* (Mercet), *Encarsia inaron* (Walker), *Encarsia partenopea* Masi, *Encarsia siphonini* Silvestri, *Encarsia pseudopartenopea* Viggiani and Mazzone; *Eretmocerus siphonini* Viggiani and Battaglia, and *Eretmocerus corni* Haldeman.

The California Department of Food and Agriculture has imported *Encarsia* sp. from Israel and Italy, and the coccinellid beetle *Clitostethus arcuatus* for the control of ash whitefly in California (Bellows et al. 1990).

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