EUCALYPTUS REDGUM LERP PSYLLID

Integrated Pest Management for Home Gardeners and Landscape Professionals

The redgum lerp psyllid (*Glycaspis brimblecombei*) was found in Los Angeles in 1998 and has spread throughout much of California. This insect from Australia also occurs in Florida and Mexico and may eventually infest much of the southern United States where susceptible eucalyptus trees are grown.

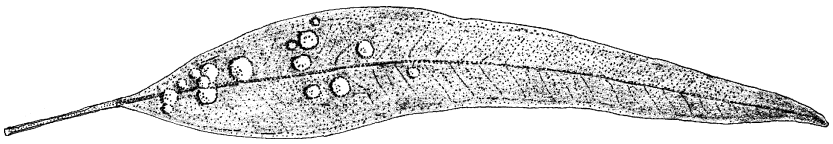

Figure 1. Lerps of redgum lerp psyllid on *Eucalyptus camaldulensis* leaf.

IDENTIFICATION AND LIFE CYCLE

Psyllids are plant-juice sucking homopterans in the insect family Psyllidae. Redgum lerp psyllid nymphs (immatures) form a cover called a "lerp," which is a small white, hemispherical cap composed of solidified honeydew and wax (Fig. 1). Lerps on leaves can be up to about ⅛ inch in diameter and 1/12 inch tall and resemble an armored scale. Under each lerp, a yellow or brownish nymph can be found; nymphs resemble a wingless aphid (Fig. 2). Nymphs enlarge their lerp as they grow, or they move and form a new covering. Adults are about ⅛ inch long, slender, and light green with orangish and yellow blotches. Unlike the nymphs, adults occur openly on foliage and do not live under lerp coverings. Adults differ from other psyllids in California in that redgum lerp psyllid adults have relatively long forward projections (called genal cones) on each side of their head below their eyes (Fig. 3). Females lay tiny, yellowish, ovoid eggs singly or in scattered groups.

Females prefer to lay eggs on succulent leaves and young shoots, so population increases often coincide with new plant growth. However, all psyllid life stages can occur on both new and mature foliage. Development time from egg to adult varies from several weeks during warm weather to several months during prolonged cool temperatures. This insect has several generations each year and all stages can be present throughout the year, although in lower numbers during the winter. However, because some nymphs form multiple lerps and leave their old whitish covers empty, the number of lerps on leaves is not a good indication of the actual number of insects present.

DAMAGE

Psyllid nymphs and adults feed by sucking plant phloem sap through their strawlike mouthparts. High redgum lerp psyllid populations secrete copious honeydew and cause premature leaf drop. Sticky honeydew, the resulting dark sooty mold growth, and falling leaves foul surfaces beneath infested trees. Extensive defoliation weakens trees, can increase tree susceptibility to damage from other insects and diseases affecting eucalyptus, and may contribute to premature death of some highly susceptible species. At some locations, abundant yellowjackets feeding on honeydew may annoy or threaten people.

Redgum lerp psyllid infests over two dozen *Eucalyptus* species, especially *Eucalyptus camaldulensis, E. rudis,* and *E. tereticornis*. Certain *Eucalyptus* species are either avoided altogether by this psyllid or are not heavily infested by them (Table 1).

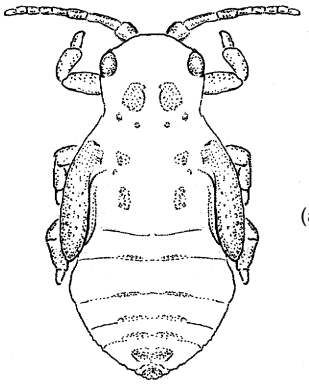

Figure 2. Redgum lerp psyllid nymph.

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Table 1. Approximate Relative Susceptibility of *Eucalyptus* Species to Several Introduced Pests in California.

Common name (gum)	*Eucalyptus* species	Longhorned borers[1]	Redgum lerp psyllid	Tortoise beetle
Australian beech	*polyanthemos*	—	L	L
blue	*globulus*	M	I–L[2]	M
desert	*rudis*	—	M	I
dollar leaf	*cinerea*	—	L	—
flooded	*grandis*	I	I	M
forest red	*tereticornis*	—	M	—
gray ironbark	*paniculata*	—	L	—
hybrid	*trabutii*	L	—	—
Karri	*diversicolor*	M	I	—
lemon	*citriodora*	L	I[3]	L
long flowered	*macandra*	—	I	—
manna	*viminalis*	M	I	M
mountain	*dalrympleana*	L	—	—
narrow leaved	*spathulata*	—	L	—
Nichol's willow leaved	*nicholii*	—	I	—
red flowering	*ficifolia*	—	L	L
red ironbark	*sideroxylon*	L	I–L	L
river red	*camaldulensis*	L	M	M
round leaved/red flowered	*platypus/nutans*	M	I–L	—
shining	*nitens*	M	M–I	—
silver	*crenulata*	—	—	L
silver dollar	*pulverulenta*	—	L[2]	—
spotted	*maculata*	—	—[3]	L
sugar	*cladocalyx*	L	I–L	—
swamp mahogany	*robusta*	L	L	—
Sydney blue	*saligna*	M	L	—
white ironbark	*leucoxylon*	—	I	—

— = information not available
M = more or most susceptible
I = intermediate susceptibility
L = less or least susceptible or reportedly not attacked

Redgum lerp psyllid = *Glycaspis brimblecombei*
Tortoise beetle = *Trachymela sloanei*

1 Longhorned borers = reported susceptibility to *Phoracantha semipunctata*, which is believed to be similar to the susceptibility to *P. recurva.*
2 Susceptible to bluegum psyllid (*Ctenarytaina eucalypti*), but this psyllid is generally under good biological control.
3 Susceptible to spotted gum psyllid (*Eucalyptolyma maideni*) and lemongum lerp psyllid (*Cryptoneossa triangula*).

Adapted partly from: Brennan et al. 2001, Hanks et al. 1995.

MANAGEMENT

The species of eucalyptus is the primary determinant of whether psyllids will be abundant. Cultural practices and overall tree health may also influence populations and the extent to which trees are damaged. Psyllid-specific parasites are being introduced in an effort to provide biological control as a long-term solution. Insecticides have sometimes provided control, but reported efficacy has been variable and sometimes disappointing.

Eucalyptus trees are attacked by several other insects, including the bluegum psyllid (*Ctenarytaina eucalypti*) and eucalyptus snout beetle or gumtree weevil (*Gonipterus scutellatus*), which are now under good biological control. Learn how management efforts may affect the other introduced eucalyptus pests before taking any control actions. In particular, consult the *Pest Notes* on Eucalyptus Longhorned Borers, Eucalyptus Tortoise Beetle, and Psyllids listed in Suggested Readings.

Biological Control

Redgum lerp psyllid is attacked by many predators including the multicolored Asian lady beetle (*Harmonia axyridis*) and other coccinellids, minute pirate bugs (*Anthocoris* spp.), larvae of lacewings and syrphid flies, spiders, and birds. These predators do not provide adequate biological control, but whenever possible, select management efforts that have the least adverse effect on these beneficial species.

At least one psyllid-specific parasitic wasp (*Psyllaephagus bliteus*) has been introduced from Australia. Adult *P. bliteus* are about 1/12-inch-long encyrtid wasps with metallic green bodies and yellowish legs. Female wasps oviposit on young psyllid nymphs. After feeding as larvae and killing their hosts, wasps pupate and emerge from larger lerps, leaving a roundish emergence hole in parasitized psyllid nymphs and their lerps. *Psyllaephagus bliteus* is established in many areas of California, and apparently is reducing psyllid populations at some locations, but it is too soon to know the overall effective-

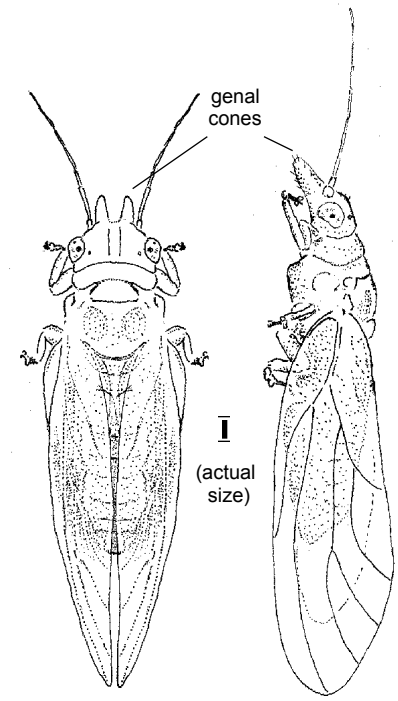

Figure 3. Adult redgum lerp psyllids.

ness of redgum lerp psyllid biological control. For current information on psyllid biological control, see the Web site: http://nature.berkeley.edu/biocon/dahlsten/dahlsten.htm

Cultural Control

Minimize stress by providing eucalyptus trees with proper cultural care and protecting them from injury. Consider providing trees with supplemental water during periods of prolonged drought, such as during summer and fall in much of California. Drought stress increases damage to trees from both lerp psyllids and eucalyptus longhorned borers. If irrigating trees, apply water beneath the outer canopy, not near trunks. Avoid frequent, shallow watering that is often used for lawns. A general recommendation is to irrigate eucalyptus trees infrequently (possibly once a month during drought periods) but with sufficient amounts so that the water penetrates deeply into soil (perhaps about 1 foot or more below the surface). This can be achieved by applying water slowly through drip emitters that run continuously for several days. In areas without an established irrigation system, a water tank truck can be used to temporarily flood soil. However, avoid prolonged waterlogging, especially around the root crown, because eucalyptus trees are susceptible to pathogens favored by wet soils, such as Armillaria and Phytophthora root rots. The specific amount and frequency of water needed varies greatly depending on the site and tree species.

Avoid fertilizing eucalyptus trees. Eucalyptus rarely requires nitrogen fertilization for good growth. Use slow-release nutrient formulations if other plants within the drip line of the tree require fertilization. Psyllid nymphs and egg-laying females prefer the abundant, succulent new shoot growth stimulated by fertilizer and excess nitrogen.

Consider pruning off limbs that overhang surfaces where dripping honeydew is especially intolerable. Be aware that pruning can stimulate new growth of succulent foliage, which is preferred by psyllids. Except for dead or hazardous branches, which should be removed whenever they appear, prune eucalyptus only during December or January (in southern California) or November through March (in northern California). Trees are usually less stressed at this time than at other times of the year, and adult eucalyptus longhorned borers, which are attracted to fresh tree wounds, are not active. Do not prune too much during one season. If extensive limb removal is planned, space the trimming over several years so that trees maintain adequate foliage to produce food and extensive portions of previously shaded bark are not suddenly exposed to direct sunlight, which can result in sunburn or sunscald cankers.

Pest-Resistant Eucalyptus. Choose eucalyptus species that are well-adapted to the location, including tolerance to the prevailing moisture conditions. Although certain eucalyptus trees are drought-tolerant, other species are adapted to more moist conditions. It may not be apparent that eucalyptus trees are stressed due to drought or other factors until trees become affected by additional damaging influences, such as abundant insects.

Planting resistant species can prevent redgum lerp psyllid from being a problem, as only a few species become highly infested. When selecting new or replacement species, also consider their susceptibility to other key pests. Consult Table 1 for a list of the approximate reported susceptibility to eucalyptus longhorned borers, redgum lerp psyllid, and tortoise beetle.

Chemical Control

Foliar sprays generally are not recommended. There are no selective insecticides that kill only psyllids. It is difficult to spray large urban trees without pesticide drifting off-target. The lerp helps protect psyllid nymphs from spray contact.

If honeydew is intolerable and trees are small enough to be thoroughly sprayed, consider using a mixture of insecticidal soap (potassium salts of fatty acids) and horticultural oil (an insecticide labeled narrow-range, superior, or supreme oil). These low-hazard insecticides can be combined together at one-half of the labeled rate or the full labeled rate (commonly 1 to 2% active ingredient each). Oil and soap will kill some of the psyllid adults, eggs, and nymphs that are outside of lerps, and help to wash off honeydew. Foliar spraying provides only temporary control.

Often the most effective materials for large trees are systemic insecticides such as imidacloprid (Imicide, Merit). Certain formulations of imidacloprid (Bayer Advanced Garden Tree & Shrub Insect Control and Pointer) are available to the home gardener. Only limited research has been conducted on pesticide efficacy, and it is not known why some users report good control with this insecticide while others find results to be disappointing.

Systemic insecticides are available for application into trunks or roots or by spraying foliage. Imidacloprid is also available to both home gardeners and professionals for application on or into soil beneath trees. When using systemics, whenever possible consider making a soil application instead of spraying foliage or injecting or implanting trees. Injecting or implanting trunks or roots injures trees, and it is difficult to repeatedly place insecticide at the proper depth. Especially avoid methods that cause large wounds, such as implants placed in holes drilled in trunks. Do not implant or inject roots or trunks more than once a year.

Imidacloprid may be effective when applied to soil during late winter to early spring or before rainfall or irrigation are expected to facilitate root absorption of the insecticide. Summer application to stressed, heavily infested trees is less likely to be effective and is not recommended. Consider treating only those trees where the pest has been intolerable or tree health appears threatened by insects. Insecticides will

adversely affect any beneficial parasites, so leave at least some nearby eucalyptus untreated to facilitate potential biological control.

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SUGGESTED READINGS

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