

BLASTOPSYLLA OCCIDENTALIS TAYLOR (HEMIPTERA: PSYLLIDAE), A NEW INTRODUCED EUCALYPT PEST IN CHILE

DANIEL BURCKHARDT¹ AND MARIO ELGUETA²

ABSTRACT

Blastopsylla occidentalis Taylor is reported for first time from Chile, based upon collections on *Eucalyptus globulus* in localities of the 5th Region (Los Andes and San Felipe Provinces). Adult and larva are described and figured, and locality and date records are given.

Key words: Hemiptera, Psyllidae, pest, eucalypts, Chile, taxonomy, distribution.

RESUMEN

Se establece por primera vez la presencia de *Blastopsylla occidentalis* Taylor en Chile Central, Quinta Región (Provincias de Los Andes y San Felipe). Se entrega una descripción del adulto y larva, incluyendo figuras, aportando los registros de distribución y de presencia temporal sobre su hospedero: *Eucalyptus globulus*.

Palabras clave: Hemiptera, Psyllidae, plagas, eucaliptos, Chile, taxonomía, distribución.

INTRODUCTION

Eucalypts are planted for a variety of uses in many warmer regions throughout the world. Recently, the surface of eucalypt plantations has greatly increased in South America. In Chile e.g. eucalypts covered over 300'000 ha in 1996. In their native range in Australia eucalypts bear a diverse insect fauna. Some of these insects have become pests. The subfamily Spondyliaspidae, a group of jumping plant-lice or psyllids, is diverse on Myrtaceae and eucalypts in particular. A few species have become established outside Australia and are responsible for sometimes severe damage to plantations (Burckhardt, 1998). Up to a few years ago the eucalypt psyllids were unknown, and probably absent, from South America. Since 1995

three species have become established in Brazil and two in Uruguay (Burckhardt *et al.*, 1999). One of them, *Blastopsylla occidentalis* Taylor, was discovered in February 1999 in Chile.

The present paper records the distribution of *B. occidentalis* in Chile. The adult and larval morphology are described, diagnostic characters are illustrated and differences to other taxa are discussed with the aim to help entomologists recognising the species.

MATERIAL AND METHODS

The material recorded here is deposited in the Museo Nacional de Historia Natural, Santiago, and the Naturhistorisches Museum, Basel. Morphological terminology follows Ossiannilsson (1992). Drawings and measurements (in mm) were made from slide mounted specimens.

Adult description: Coloration. Head and thorax yellow with dark pattern as follows: a longitudinal stripe along outer side of genal processes; vertex with transverse band along anterior margin,

¹ Naturhistorisches Museum, Augustinergasse 2, CH-4054 Basel, Switzerland.

² Museo Nacional de Historia Natural, Casilla 787, Santiago-Chile.

(Recibido: 7 de octubre de 1999. Aceptado: 30 de noviembre de 1999)

longitudinal bands along lateral margins, and semicircular dot in the middle on either side of midline; four dots on the pronotum; two oval dots along foremargin of mesothoracic praescutum; five broad longitudinal stripes on mesothoracic scutum; entire abdominal tergites. Antennae greyish brown, segments 9 and 10 almost black. Forewings with light brown veins and greyish membrane, darker along outer and posterior margin. Genitalia of male yellow, of female dark brown with yellow base of subgenital plate. Males predominantly yellow, females with more extended dark coloration.

Structure. Head (fig. 2) as wide as thorax, strongly inclined from longitudinal body axis. Vertex trapezoidal, shortly setose, more or less evenly covered in microsculpture; genal processes shorter than vertex along mid-line, irregularly tapered, bearing a small blunt apical tubercle. Preocular sclerite forming small tubercle. Antenna (fig. 3) short, 0.96-0.98 times head width; with each a subapical rhinarium on segments 4, 6, 8 and 9; segment 10 bearing a short truncate and a long curved seta. Ultimate two rostral segments 0.31-0.32 times as long as head width. Forewing (fig. 1) elongate, 2.42-2.48 as long as wide, 2.64-2.90 times as long as head width, vein Rs weakly curved. Surface spinules present in all cells; apart from basal cells forming hexagonal pattern, leaving narrow spinule-free stripes along the veins. Metacoxa without meracanthus but with angular hump; metafemur with an inner apical lobe at tibial insertion, outer apical margin straight; metatibia 0.42-0.52 times as long as head width, strongly inflated towards apex, lacking a basal spine, bearing

2+3 small sclerotised apical spurs; metatarsus with 1 outer, claw-like sclerotised spur.

Male genitalia as in figs 4, 5, sparsely covered in relatively long setae. Proctiger 2-segmented, proximal segment with narrow lateral lobes which are longer than distal segment, 0.49 times as long (measured from base of distal to apex of proximal segment) as head width. Paramere lamellar, curved backwards, outer face covered in long setae, inner face with some long setae basally, with a row of 5-7 heavily sclerotised pegs along foremargin in apical two thirds, with a group of 15-18 moderately sclerotised pegs apically, 0-6 sclerotised pegs along hind margin and a row of moderately long setae in the middle along hind margin. Basal portion of aedeagus broadly rounded proximally, straight distally; distal portion straight, apical inflation relatively short, oval; sclerotised end tube of ductus ejaculatorius S-shaped.

Female genitalia (fig. 6) cuneate, sparsely covered in relatively long setae. Proctiger 0.76 times as long as head width, 4.22 times as long as subgenital plate, 1.81 times as long as circumanal ring, with strongly concave dorsal outline, apex separated from base by a membranous portion in apical three quarters, narrowly rounded apically. Subgenital plate weakly curved ventrally, acute apically. Valvula dorsalis with a row of dorso-apical teeth, valvula ventralis weakly sinuous, smooth (fig. 7).

Measurements. Head width 0.47-0.52; antenna length 0.45-0.51; forewing length 1.24-1.51; male proctiger length (measured from base of distal to apex of proximal segment) 0.23; paramere length

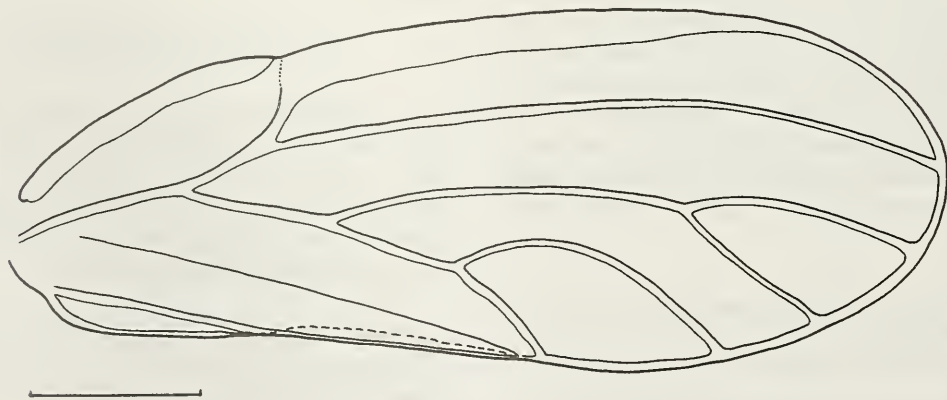
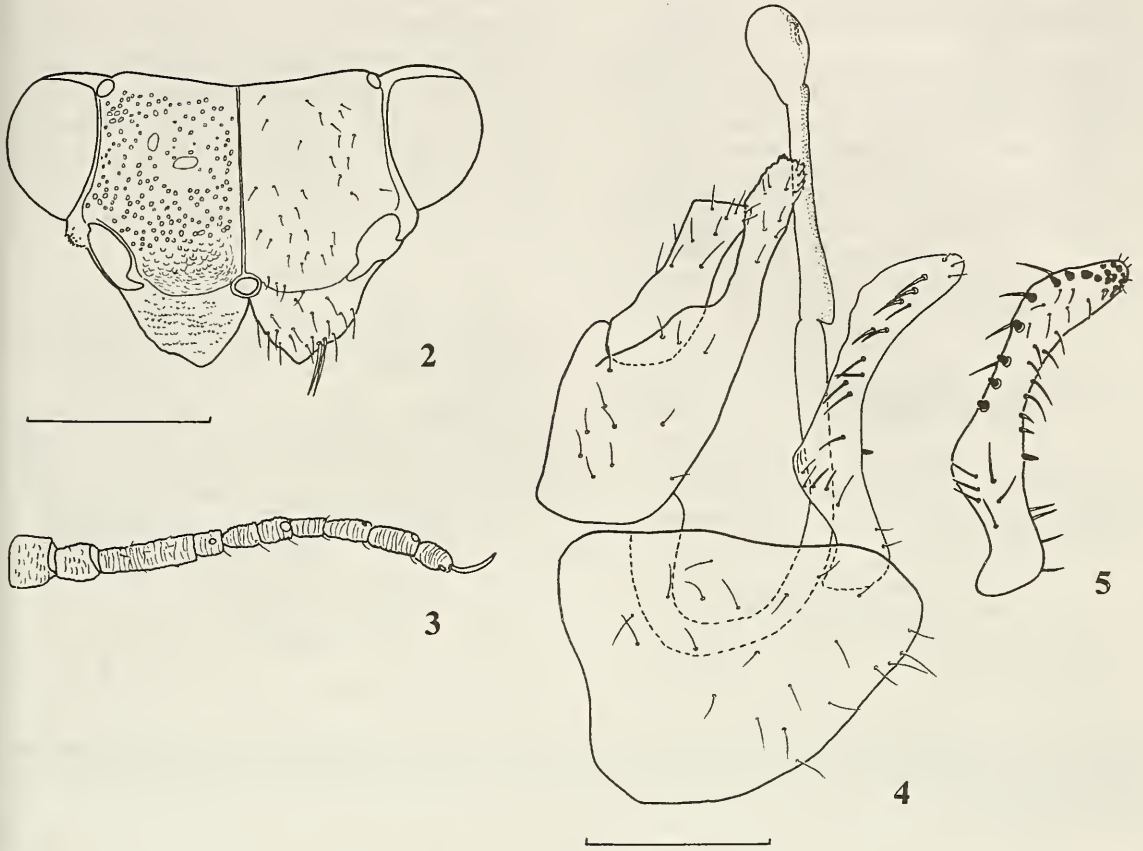


Figura 1. Forewing of female (scale 0,3 mm).



Figuras 2-5. 2. Head, dorsal aspect, of female (scale 0.2 mm). 3. Antenna of female (scale 0.2 mm). 4. Male genitalia, in profile (scale 0.1 mm). 5. Paramere, in profile, inner face (scale 0.1 mm).

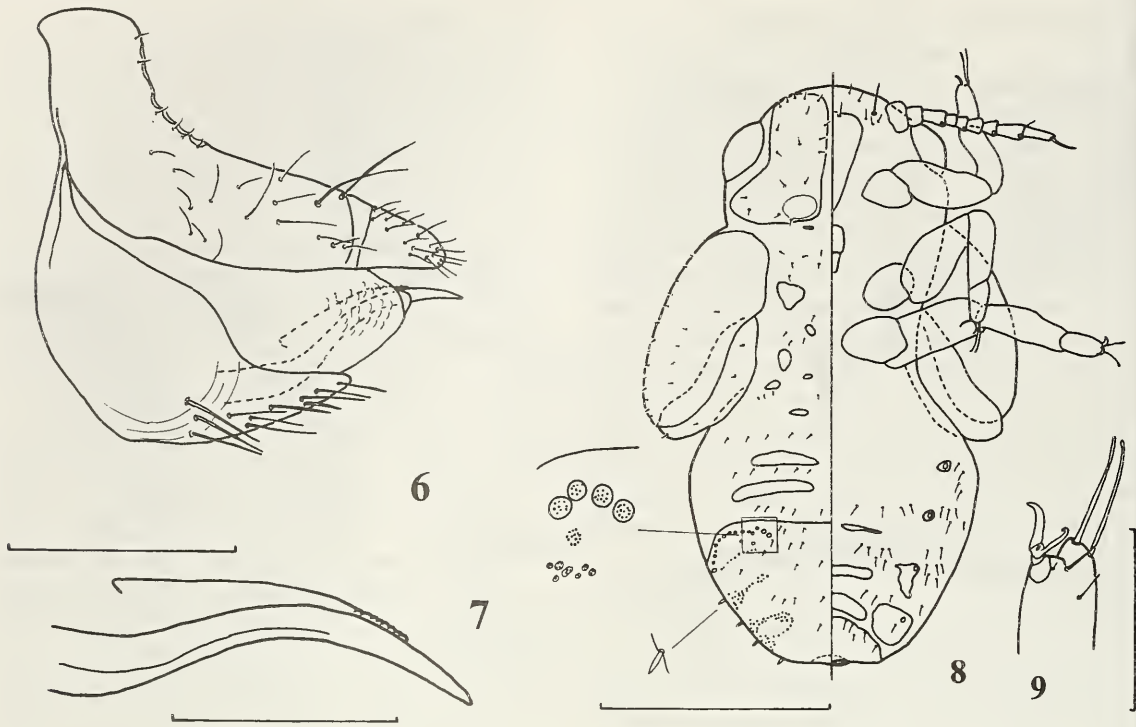
0.20; length of distal segment of aedeagus 0.17; female proctiger length 0.40.

Last instar larva description: Coloration. Yellowish with antennal tips brown to dark brown.

Structure. Body (fig. 8) elongate, shortly setose. Thoracic tergites small. Forewing buds without humeral lobes, lacking specialised setae. Antennae 9-segmented, bearing a single subapical rhinarium on each of segments 3, 5, 7 and 8, segment 9 with a short truncate and a long curved seta. Caudal plate irregularly rounded, truncate apically, bearing 8-10 marginal lanceolate setae on each side. Anus terminal, circumanal ring small, consisting of a single row of pores. Additional pore fields present consisting of 1+1 transverse, lateral rows of 11-15 circular, margined areas along foremargin, and 3+3 transverse, lateral rows or groups of pores lacking

the margined circular arrangement and, therefore, appearing fainter. Tarsi with outer apical tubercle bearing 2 long setae, claws in subapical position, small (fig. 9). Tarsal arolium very small and membranous, often not visible (not drawn in fig. 9).

Comments. Within the Chilean psyllid fauna, *Blastopsylla* can be recognised by the angular metacoxae, lacking meracanthi as well as the terminal antennal segment bearing one curved long and one truncate short seta, in the adult, and the very membranous, hardly visible tarsal arolium combined with 9-segmented antennae and additional pore fields on the caudal plate in the larva. For a key to Chilean genera see Burckhardt (1994). *Blastopsylla* differs from other Spondyliaspini by the very long posterior lobes



Figuras 6-9. 6. Female genitalia, in profile (scale 0.2 mm). 7. Inner and ventral valvulae, in profile (scale 0.1 mm). 8. Fifth instar larva; left dorsal view with details of pores and seta; right ventral view (scale 0.5 mm, details scale 0.1 mm). 9. Tarsal apex of fifth instar larva (scale 0.1 mm).

on the basal segment of the male proctiger and often in the presence of a single spur on the metabasitarsus. From *Ctenarytaina*, another spondyliaspidine genus whose introduction into Far Northern and Central Chile is also recent (Anonymous, 1999; González, 1999), *Blastopsylla* can be separated by the lack of an outer subapical comb of bristles on the mesotibia (Taylor, 1985).

Distribution and host plants: *Blastopsylla occidentalis* Taylor, 1985 was described from Western Australia, South Australia, New South Wales, Queensland, New Zealand and California. Subsequently it was reported from Mexico (Hodkinson, 1991) and Brazil (Burckhardt *et al.*, 1999).

According to Taylor (1985), *B. occidentalis* was collected on following *Eucalyptus* species (* species on which larvae were collected): *E. microtheca* F. Muell., *E. rudis* Endl., *E. gomphocephala* DC, *E. camaldulensis* Dehnh., **E. platypus* Hook., **E.*

oleosa F. Muell., **E. forrestiana* Diels., *E. microneura* Maiden & Blakely, **E. nicholii* Maiden & Blakely, *E. spathulata* Hook. In the New World, the psyllid was collected on *E. spathulata* in California, on *E. sp.* in Mexico, on *E. urophylla* and hybrids of *E. urophylla* and *E. grandis* in Brazil, and on *E. globulus* in Chile.

In Chile *B. occidentalis* was recently founded in localities of the 5th Region: Los Andes Province, Los Graneros (32° 46' 22" S, 70° 35' 25" W), Los Quillayes (32° 50' 44" S, 70° 31' 51" W), El Castillo (32° 53' 08" S, 70° 38' 37" W), and San Felipe Province, Fundo 7 Amigos (32° 43' 59" S, 70° 44' 52" W); all collections on *Eucalyptus globulus* in January, February, May, June, September, October, November and December - 1999 by J. Mondaca, M. Guerrero and M. Elgueta. This record is added to the previous detection of *Ctenarytaina eucalypti* (Maskell), established in some localities of the Provinces of Arica and Iquique in the Far North of Chile, and Provinces of San Felipe and Los Andes in Central Chile.

Despite intensive field work by both authors, including sampling in eucalypt plantations, no eucalypt psyllids were found prior to 1999 (personal observations). Considering the large distance from the countries where *B. occidentalis* was previously recorded, its presence in Argentina is expected, as is that of *C. eucalypti* in neighbouring areas of Peru and/or Bolivia.

LITERATURE CITED

- ANONYMOUS. 1999. SAG detecta nuevo insecto. CORMA, Revista Informativa de la Corporación Chilena de la Madera A.G., 271: 14.
- BURCKHARDT, D. 1994. Generic key to Chilean jumping plant-lice (Homoptera: Psylloidea) with inclusion of potential exotic pests. Revista Chilena de Entomología, 21: 57-67.
- BURCKHARDT, D. 1998. *Ctenarytaina eucalypti* (Maskell) (Hemiptera, Psylloidea) neu für Mitteleuropa mit Bemerkungen zur Blattflohfauna von *Eucalyptus*. Mitteilungen der Entomologischen Gesellschaft Basel, 48(2): 59-67.
- BURCKHARDT, D., SANTANA, D. L. Q., TERRA, A. L., DE ANDRADE, F. M., PENTEADO, S. R. C., IEDE, E. T. & MOREY, S. S. 1999. Psyllid pests (Hemiptera, Psylloidea) in South American eucalypt plantations. Mitteilungen der Schweizerischen Entomologischen Gesellschaft, 72: 1-10.
- GONZÁLEZ E., P. 1999. *Ctenarytaina eucalypti* Hem., Psyllidae. Informativo Fitosanitario, Servicio Agrícola y Ganadero (Chile), 10: 2 pp. (not paginated).
- HODKINSON, I. D. 1991. First record of the Australian psyllid *Blastopsylla occidentalis* Taylor (Homoptera; Psylloidea) on *Eucalyptus* (Myrtaceae) in Mexico. Pan-Pacific Entomologist, 67(1): 72.
- OSSIANNILSSON, F. 1992. The Psylloidea (Homoptera) of Fennoscandia and Denmark. Fauna Entomologica Scandinavica, 26, 346 pp.
- TAYLOR, K. L. 1985. Australian psyllids: A new genus of Ctenarytainini (Homoptera: Psylloidea) on *Eucalyptus*, with nine new species. Journal of the Australian entomological Society, 24: 17-30.