

Data sheets on quarantine pests¹
Fiches informatives sur les organismes de quarantaine

Gonipterus gibberus* and *Gonipterus scutellatus

Identity

Name: *Gonipterus gibberus* Boisduval

Synonyms: *Dacnirotatus bruchi* Marelli

Taxonomic position: *Insecta: Coleoptera: Curculionidae*

Common names: eucalyptus snout beetle, eucalyptus weevil, gum tree weevil (English)

Notes on taxonomy and nomenclature: this species was originally, when first listed by EPPO, treated as separate from *G. scutellatus*. In the 1980s, expert opinion combined the two, and *G. gibberus* accordingly disappeared from later versions of the data sheet (EPPO/CABI, 1997). Recently, on the basis of observations on populations in South America, *G. gibberus* is again considered a separate species (Rosado-Neto & Marques, 1996)

EPPO code: GONPGI

Phytosanitary categorization: EPPO A1 list no. 301

Name: *Gonipterus scutellatus* Gyllenhal

Taxonomic position: *Insecta: Coleoptera: Curculionidae*

Common names: eucalyptus snout beetle, eucalyptus weevil, gum tree weevil (English), Eukalyptusrüssler (German), charançon de l'eucalyptus (French), gorgojo del eucalipto (Spanish)

Notes on taxonomy and nomenclature: a third species, *Gonipterus platensis* Marelli, was described in Argentina and said to be different from both *G. gibberus* and *G. scutellatus* (Marelli, 1927). Rosado-Neto (1993) treats it as a synonym of *G. scutellatus*.

EPPO computer code: GONPSC

Phytosanitary categorization: EPPO A2 list No. 38, EU Annex designation: II/B

Hosts

The only hosts are *Eucalyptus* spp., of which the most susceptible are *Eucalyptus camaldulensis*, *Eucalyptus globulus*, *Eucalyptus maidenii*, *Eucalyptus punctata*, *Eucalyptus robusta*, *Eucalyptus smithii* and *Eucalyptus viminalis* (Griffith, 1959). Differences in susceptibility between *Eucalyptus* spp. exist

(Richardson & Meakins, 1986). Within the EPPO region, *Eucalyptus* spp. are widely grown in plantations, but ornamental trees are considered to be most at risk (Cadahia, 1986).

Geographical distribution

G. gibberus and *G. scutellatus* originated in Australia and spread with their hosts to other parts of the world. Rosado-Neto (1993) summarizes the distribution of the two species in South America.

G. gibberus

EPPO region: absent

South America: Argentina, Brazil (Paraná, Rio Grande do Sul, Santa Catarina), Uruguay

Oceania: Australia (New South Wales, Queensland, South Australia, Tasmania, Victoria)

EU: absent

Distribution map: CABI/EPPO (1975)

G. scutellatus

EPPO region: present locally in France and Italy (introduced into the Liguria region of Italy in 1975 and then into the adjoining Alpes-Maritimes Department of France in 1977); Portugal (since the 1990s); Spain (since the 1990s; Vazquez, 1992)

Asia: China (Zhejiang)

Africa: Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, South Africa, St. Helena, Swaziland, Uganda, Zimbabwe

North America: USA (California, since the 1990s, Paine & Millar, 2002)

South America: Argentina, Brazil (Paraná, Rio Grande do Sul, Santa Catarina, São Paulo), Chile (Lanfranco & Dungey, 2001; Estay *et al.*, 2002), Uruguay

Oceania: Australia (east and south-east Queensland, New South Wales, South Australia, Tasmania, Victoria; recently recorded in Western Australia (Loch & Floyd, 2001), New Zealand

EU: present

Distribution map: CABI/EPPO (1997)

Biology

In Mauritius, eggs of *G. scutellatus* are laid attached to leaves in greyish capsules containing about 8–10 eggs. Females mate

¹This is a revised version of the data sheet which appeared in CABI/EPPO (1997).

Table 1 Development periods of *G. scutellatus*

	February–March	April–June	July–August
Egg	6–7	7–9	9–10
1st instar	3–4	4–5	5–6
2nd instar	3–4	4–6	6–7
3rd instar	3–4	4–6	5–8
4th instar	5–6	6–8	7–10
Pupa	29–31	31–35	32–38
Total	49–56	56–69	64–79
Mean temp. (°C)	27	23.6	21.3
Max. temp. (°C)	31.6	28.9	25.5
Min. temp. (°C)	24.4	20.0	17.8

several times and continue to lay throughout a lifetime of about 91 days; a female lays up to 21–33 capsules. Larvae feed on leaves and twigs, and pupation occurs in cells about 5 cm deep in the soil. In the laboratory, adults mated 4–9 days after emergence, and began to lay eggs after a further 13–21 days.

There are about four generations annually in Mauritius, continuing throughout the year. In South Africa there are only 2–2.5 generations and overwintering occurs in the adult stage. In Italy only two generations are recorded.

Development periods (in days) at various times of the year in Mauritius are given in Table 1.

For further information on the biology of *G. scutellatus*, see Mally (1924), Moutia & Vinson (1945), Tooke (1955), Recalde (1956), Leyva (1969, 1970), Arzone & Meotto (1978). For *G. gibberus*, see Freitas (1991a,b).

Detection and identification

Symptoms

Feeding by *Gonipterus* spp. leads to characteristically scalloped leaf edges, with a resultant dieback of shoot tips and development of tufts of epicormic shoots. Successive defoliations produce stunting and a stag-headed appearance. Trees may split and die. Adults tend to feed on the leaves and soft bark of young shoots while larval damage is most serious on the leaves alone (Moutia & Vinson, 1945; Kevan, 1964; Leyva, 1969, 1970).

Morphology

Eggs

In greyish capsules containing 8–10 eggs, attached to the leaves on both surfaces.

Larva

Yellowish-green with black marks, 14 mm long. According to Rosado-Neto & Marques (1996), *G. scutellatus* is distinguished by the presence of three longitudinal dark green stripes on the abdomen, not seen in *G. gibberus* (Rosado-Neto & de Freitas, 1982). The larvae are more easily distinguished visually than the adults.

Adult

A 12–14 mm grey-brown weevil, with a light, transverse band on the elytra. The two species are not readily distinguished visually, but Rosado-Neto & Marques (1996) provide distinctive details of the genitalia.

Pathways for movement

Adult beetles can fly, and limited natural spread occurs by this means. Adults, larvae and eggs may be carried on plants for planting. Larvae and pupae could be present in accompanying soil.

Pest significance

Economic impact

Although the beetles are of no importance in their native country Australia, they have become an important defoliators of eucalyptus in other parts of the world. Trees become stunted and may split and die. After first being found in 1940, in Mauritius, *G. scutellatus* was reported in 1944 to be causing serious damage to *E. viminalis*. Within 2 years, however, biological control using the egg parasite *Anaphes nitens* had successfully reduced attacks so that they became sporadic and localized (Williams *et al.*, 1951).

Control

Successful control of *G. scutellatus* with *A. nitens* is claimed in France and Italy (Cadahia, 1986), and now in Spain (Rivera *et al.*, 1999; Santolamazza-Carbone *et al.*, 2004). The same parasite attacks both *Gonipterus* spp. in Brazil (Sanches, 2000), and is used in control of *G. scutellatus* in USA (California; Hanks *et al.*, 2000) and South Africa (Atkinson, 1999). Chemical treatment is not recommended because of the danger to the many honey bees attracted by the long flowering period of *Eucalyptus*.

Phytosanitary risk

G. gibberus and *G. scutellatus* continue to pose a threat to *Eucalyptus* plantations throughout the world. In the EPPO region, large areas in the southern part remain uninfested, and so are at risk. *G. scutellatus* in particular is continuing to spread, both within continents, and to previously uninfested continents (North America). *G. gibberus* has in practice spread less than *G. scutellatus* and has attracted less attention in the literature, but there is no clear evidence that it presents a lesser risk. In any case, the risk of both species to uninfested areas is to a certain degree reduced by the knowledge that, very probably, successful biological control can be achieved anywhere in the world with *A. nitens*.

Phytosanitary measures

G. scutellatus is an A2 quarantine pest for EPPO (EPPO/CABI, 1997), and is also of phytosanitary significance for COSAVE

and CAN. It is regulated by most EPPO countries and in particular by the EU. Measures taken by endangered countries are to require that *Eucalyptus* plants for planting (except seeds) and cut branches should come from a pest-free area, or else that plants should be free from soil and treated against *G. scutellatus*. *G. gibberus* was originally an A1 quarantine pest for EPPO, and was only recategorized for nomenclatural reasons. It is now reinstated as a separate species, but countries have not taken account of this nomenclatural change in their regulations. For practical purposes, exactly the same measures are appropriate for the two species, since it is not possible to differentiate risk between them (there is no reason to treat *G. gibberus* differently in the EPPO region because it is not yet present there).

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