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First record in the Mediterranean basin of the alien leafhopper *Balclutha brevis* living on invasive *Pennisetum setaceum*

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Abstract

During a recent survey on the insect pests of ornamental plants in some Sicilian cities the authors found *Balclutha brevis* Lindberg (Rhynchota Cicadellidae).

This species, probably native to Macaronesia, is recorded here for the first time to the Italian fauna in the Mediterranean basin. In Sicily, adults and immature stages of *B. brevis* have been found associated with the spike of *Pennisetum setaceum* (Forsskal) Chiovenda (Poaceae) practically all the year round.

Key words: Cicadellidae, *Balclutha brevis*, Europe, new record, *Pennisetum*, alien species.

Introduction

The crimson fountain grass, *Pennisetum setaceum* (Forsskal) Chiovenda (figure 1), often reported wrongly in the literature as *Pennisetum ruppellii* Steudel, is a perennial Poaceae with a thermo-cosmopolitan distribution. The originals distribution of this species is North and East Africa, Near East and Arabian Peninsula; from these areas the species has spreads throughout South Africa, Indonesia, North America, Caribbean regions, Oceania, and recently to Mediterranean countries: Southern France, Southern Spain, Canary Islands, Baleric Islands and Italy (Sicily, Sardinia and Calabria) (Pasta *et al*., 2010). According to these authors, *P. setaceum* was reported in Sicily for the first time by Bruno (1939) (sub *P. ruppellii*) in the Botanical garden of Palermo, where the seeds imported from Abyssinia (actually Eritrea and Ethiopia) were planted in 1938. *P. setaceum* was recorded in the natural environment around 1959 in Palermo (Pellegrino Mount) (Pignatti-Wikus, 1963) and Catania (Borruso and Furnari, 1960) (sub *P. villosum* R. Brown). Currently, this species is in rapid expansion along the coastal areas and main roads of Sicily (D'Amico and Gianguzzi, 2006; Giardina *et al*., 2007; Pasta *et al*., 2010) where there are suitable ecological conditions.

Outside its native areas, *P. setaceum* is an invasive species that is able to modify and alter ecosystems and colonise new environments (Pasta *et al*., 2010).

A recent survey on the insect pests of ornamental plants, in various Sicilian cities, led us to discover associated with *P. setaceum* the leafhopper *Balclutha brevis* Lindberg (Rhynchota Cicadellidae) (figure 2). This is the first record of this species among the Italian fauna in the Mediterranean basin. Further studies on the bioecology and morphology of this species are in progress and will be the topic of another paper.

Figure 1. *P. setaceum* (Catania city).
(In colour at www.bulletinofinsectology.org)

Balclutha brevis Lindberg 1954

The genus *Balclutha* Kirkaldy has a cosmopolitan distribution. About seventy species have been described (McKamey, 2010) and 1/3 of these are also present in the Mediterranean area. In Italy five species have been recorded: *B. frontalis* (Ferrari 1882) [perhaps a synonym

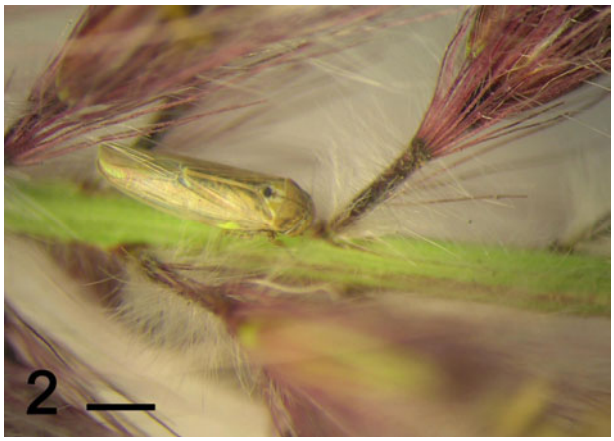

Figure 2. Adult of *B. brevis*. Scale bar = 1 mm. (In colour at www.bulletinofinsectology.org)

Figure 3. Mature nymphs of *B. brevis*. Scale bar = 1 mm. (In colour at www.bulletinofinsectology.org)

of *B. rosea* (Scott 1876)], *B. nicolasi* (Lethierry 1876), *B. punctata* (F. 1775) and *B. saltuella* (Kirschbaum 1868), while there is some doubt about the report of *B. tricolor* (Gmelin 1790) (D'Urso, 1995; Guglielmino *et al*., 2000; 2005).

Distribution

B. brevis was described originally from the Canary Islands (Lindberg, 1954) and is also present in the Cape Verde Islands (Lindberg, 1958; Aguin Pombo *et al*., 2005). According to the most recent paper, it is probably a native taxon of the Cape Verde Archipelago. The presence in Sicily of this alien species could be due to its introduction via North Africa where *B. brevis* has not yet been reported probably due to the lack of fieldwork.

Examined material

SICILY – Catania city: first record 11.XII.2007 (5 ♂♂, 7 ♀♀); since December 2007 and during all months of next years, with a high presence of specimens (tens of adult and immature stages) in the rainy season; Palermo: Botanical Garden, 12.X.2007, 3 ♂♂, 2 ♀♀. All the specimens have been collected by S. Bella and V. D'Urso. Samples are stored at the Dipartimento of Gestione dei Sistemi Agroalimentari e Ambientali, and at the Dipartimento of Scienze Biologiche, Geologiche ed Ambientali, Sezione di Biologia Animale "Marcello La Greca", University of Catania).

Description

The adults length ranges 3.20-3.80 mm (males 3.20-3.53 mm; females 3.33-3.80 mm). Colour greenish-yellow. Scutellum with a longitudinal crimson strip and blackish spot near the posterior extremity. Wings hyaline (figure 2). Mature nymphs brownish with a dorsal medial longitudinal whitish streak along the body especially evident on the abdomen (figure 3). To identify the species, it is essential that the male and female genitalia are observed (figure 4): shaft of the aedeagus strongly and regularly curved, with sharp apex (figure 4A); connective slender and bifurcated on the basal third (figure 4C); styles with pointed apex strongly curved laterally (figure 4B); female 7th sternite with a median, large and slight incision on the posterior margin (figure 4D).

Host plant and biology

The conspicuous populations of adults and immature stages of *B. brevis* develop exclusively in the ear of *P. setaceum*. Indeed, additional surveys on other plants confirm this data. The eggs lie inside the glumes. Infested plants in urban environments show no symptoms of disease. When insects are very numerous, the ear contain many microdrops of honeydew which are seriously damaging to the plants. In addition, the honeydew attracts other feeders (e.g. Formicidae). Due to the mild Sicilian climate, there are adults and immature stages of *B. brevis* for most months of the year.

Conclusion

The species belonging to the genus *Balclutha* live on various grass species and some are vectors of plant diseases. According to Stores (1925), specimens of *B. mbila* Naude in South Africa are able to transmit streak disease to maize. To date, there is no evidence for a vector role of *B. brevis* and, moreover, the species is not found on any other grass species except for *P. setaceum*. As already emphasised by Pasta *et al.* (2010), *P. setaceum* is a strongly invasive species in rapid expansion in Sicily and it will be interesting to follow the capability of this new alien to spread into new habitats. In addition, this perennial grass is more and more widespread as an ornamental plant. This is due to its attractive appearance, low nutritional requirements and resistance to aridity of soil. According to Pasta *et al*. (2010) the continued dispersal of this alien plant is to be expected and as such it should be kept under control.

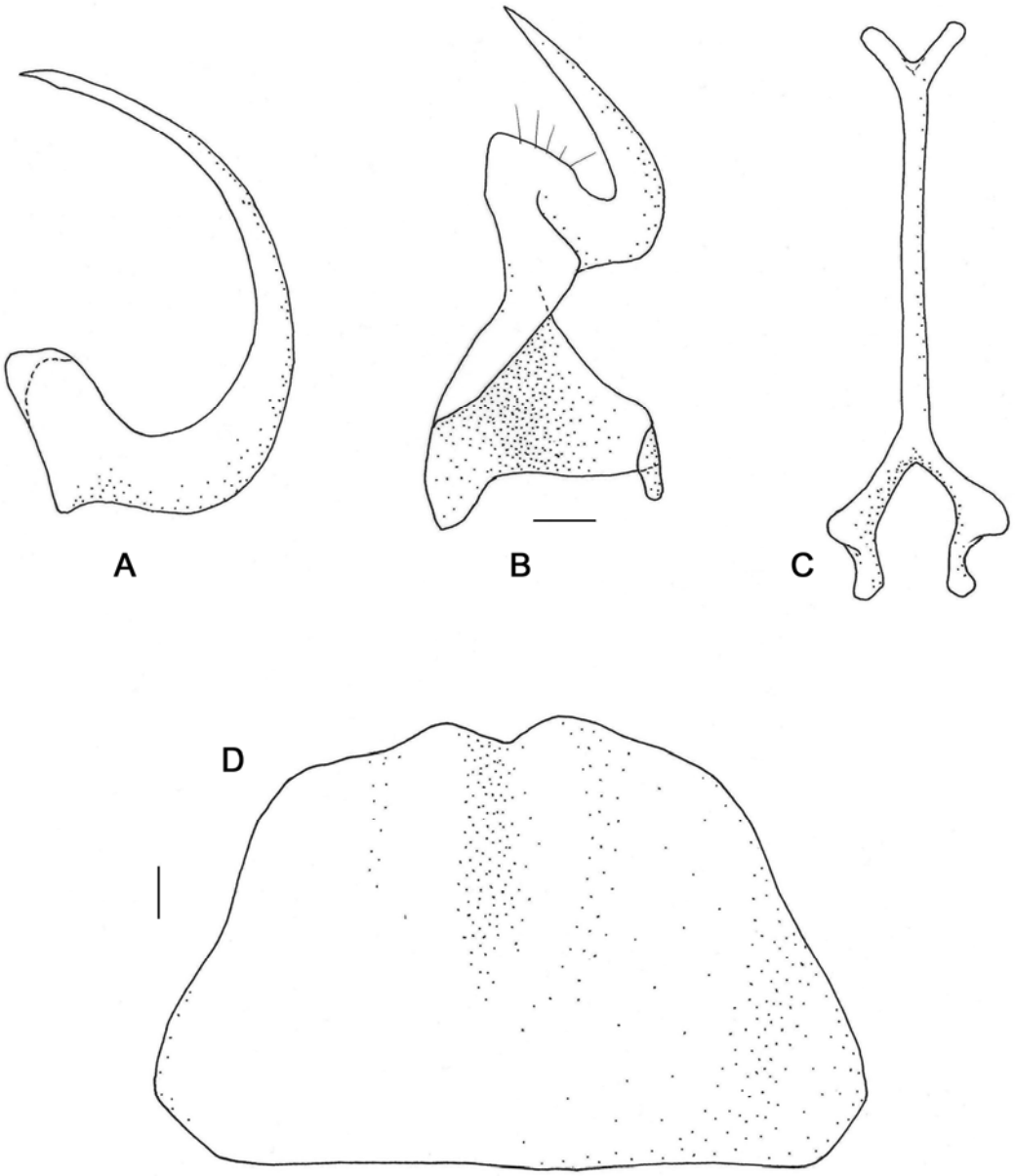

Figure 4. Genital structures of *B. brevis*. Male: A) aedeagus; B) style; C) connective. Female: D) 7th abdominal sternite. Scale bar = 0.05mm.

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